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how to use eem

The 27th edition of EEM has been further arranged, beyond the well-known EEM Product Sections, into four volumes, each composed of related Product Sections. And, for user convenience, each volume contains its own Product Index and Directory (green pages) and its own Manufacturers and Sales Offices Directory (yellow pages). Every Product Heading and every Manufacturer of electronic products is listed in each volume. Where, however, the Product Section is assigned to a volume other than that in use, a cross reference is made to the appropriate volume for further information.

To locate a specific product. Start by choosing the volume whose title describes the class of electronic product you are seeking. If you are not sure which volume is appropriate, pick up the first one at hand and find the product heading in the green pages. There you will find either a list of that product's manufacturers or you will be referred to the proper volume. All products are identified by their generic terms. Please read the detailed instructions on the first page of this section. Manufacturers with catalog data in this edition of EEM appear in bold face type and page numbers are shown. Manufacturers appearing in light face type have submitted verifying evidence that they supply the products shown. When you have located a product of interest, turn to the page(s) shown for further information. You will find these pages in each volume in the appropriate sections.

product selection guides

There are 33 Product Selection Guides included in this edition of EEM! They are located on the first pages of the Product Section to which they apply. Use these guides for basic selection parameters and then go to the EEM pages shown in the guide for more detailed information.

product selection index

Product Selection Index		**Vol. 1A**	**Vol. 1B**	**Vol. 2**	**Vol. 3**
1100	Amplifier Assemblies, Instrumentation				**3**•1002
1300	Audio Equipment & Accessories				**3**•1026
1400*	Cabinets, Enclosures, Racks & Chassis			**2**•1002	
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1700*	Circuit Boards (Printed), Materials & Accessories			**2**•1088	
1800*	Coils, Chokes, & Inductors	**1A**•1218			
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2000	Computer Peripheral Equipment				**3**•1068
2025	Computers (Mini/Micro)				**3**•1105
2050	Computer Software				**3**•1119
2100*	Connectors, Terminals, & Sockets			**2**•1096	
2200	Control Systems & Components				**3**•1120
2300*	Crystals, Oscillators, Crystal & Piezoelectric Filters	**1A**•1308			
2325	Data Acquisition/Handling Systems & Accessories				**3**•1140
2350*	Delay Lines	**1A**•1444			
2400*	Panel Hardware (Bezels, Dials, Knobs, etc.)			**2**•1756	
2440*	Military Components		**1B**•1002		
2450*	Displays, Readouts, Lamps, & Lights		**1B**•1020		
2475	Fiber Optic Equipment & Accessories		**1B**•1109		
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2550	Environmental Test Equipment				**3**•1173
2600*	Fans, Blowers, Cooling Equipment, & Heat Exchangers			**2**•1800	
2700*	Filters	**1A**•1576			
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2825	Hardware (Mechanical)			**2**•1866	
2900*	Instruments, Test & Measuring				**3**•1182
2950*	Panel Meters (Analog & Digital)				**3**•1320
2975*	Instruments, Oscilloscopes				**3**•1360
3000*	Instruments, Graphic Recording				**3**•1380
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advertisers' index

To find a specific manufacturer's data pages, an alphabetical index of EEM participants appears in EEM starting on page 1A•4 of Volume 1A and on pages 1B•4, 2•4 and 3•4 of the other volumes.

trademark and logofinder directories

A comprehensive trademark directory is included at the end of the EEM green pages in Volume 1B. NEW in this edition, the EEM logofinder shows the symbols and graphics used by manufacturers as identifiers on their products. Use these pages to locate manufacturers of specific trademarks and logos.

manufacturers' index

In the EEM yellow pages you will find pertinent details on all manufacturers listed in EEM including local sales offices and/or distributors. Please refer to the detailed instructions on the first page of the EEM yellow pages for additional information.

to order a product found in eem

When you have located the product that suits your needs, call the manufacturer or the local sales rep or distributor as shown in the EEM yellow pages. Give the EEM data page number and specs from that page. You and the supplier will be talking on the same wave length which should simplify your ordering and buying.

to file manufacturers' catalogs and data

The EEM File System has been revised and updated. The new EEM File System contains a complete Product Index. This Index tells you where to file which catalog. It also contains a cross-reference so you'll know where catalogs are filed.

In order to use the new EEM File System all you need is a supply of standard letter size, third-cut, manila file folders which are available locally. You then use the pressure sensitive labels which are supplied with the File System to go into as much detail as you want (or need).

Each label fits the third-cut file folder exactly. There are 308 of these labels in one System: 1 for the Index, 1 each for the 61 EEM Product Sections, 24 for the alphabetical file of multiproduct catalogs, plus 222 additional labels for System expansion.

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TRW Inductive Products Div.	1A•1298-1305, 1642, 2338-2363
TRW Motor Division, Industrial/Commerical Products	1B•1120
TRW Motor Div. (Military)	1B•1186-1204, 2•1852, 1853
TRW Optoelectronics Div.	1B•1234-1251
TRW Resistive Products Div., TRW Electronic Components Grp.	1A•1944-1991
T S Products	3•1119
TTE. Inc.	1A•1632-1641
Tusonix, Inc.	1A•1201-1207
U	
Ultronix, Inc.	1A•1992-1999
Unibox, Div. of Amerex	2•1005
Unicorp	2•1868
Unimax Switch Corp.	1B•1756
Union Carbide Corporation, Battery Prods. Div.	3•1434, 1435
Union Carbide Corp., Elctrns. Div., Component Dept.	1A•1096-1118
United Chemi-Con Inc.	1A•1208, 1209
UNITRACK Div., Calabro Inds., Inc.	2•1068
Unitrode Corp.	1A•1681-1683
Unitron Inc.	3•1831, 1832
Universal Voltronics	3•1803
U.S. Digital	1B•1881
U S Microtek Components Corporation	1A•1211
U.S. Toyo Fan Corp.	2•1854, 1855
V	
Valpey-Fisher	1A•1434-1436
Vanguard Elctrns. Co.	1A•1276
Vann Instruments	3•1316
Varo Semiconductor, Inc.	1A•2112
Varta Batteries, Inc.	3•1436
Vector Electronic Co., Inc.	2•1069, 1088, 1094, 1095, 3•1117
Vectron Labs.	1A•1438-1442
Veetronix, Inc., Sub. Reach Electronics	1B•1757
Velonex, Display Prods.	3•1359
Velonex, Instr. Div.	3•1359
Vent-Rak Div.	2•1034, 1035
Venus Scientific, Inc.	3•1804
Vernitech	1A•2066, 2067, 1B•1019, 1206, 1207, 1882, 1883, 3•1934
Vernitron Corp., Control Comps. Div.	1B•1208, 1209
Vernitron Piezoelectric Div.	1A•1437
Vibro-Meter Corp.	1B•1885
Victoreen, Inc., Component Div.	1A•2000-2003
Viking Connectors	2•1737
Villarreal Electronics	2•1064
Virginia Plastics Co.	2•1738-1740, 2151
Vishay Resistive Sys. Grp.	1A•2004-2015, 2070
Vishay-Mann, Vishay Resistive Systems Group	1A•2014, 2015
Vishay Angstrohm	1A•2011-2013
Vistar Corp.	3•1317
Visual Communications Co.	1B•1106-1108
Voltage Multipliers, Inc.	1A•2113
Voltex	3•1805
VRN International, Div. Vernitron	1A•2068, 2069, 3•1067
W	
Wabash Relay & Elctrns.	1B•1478, 1479
Wall-Able Manufacturing Corp.	2•1742, 1743
Wavetek Indiana, Inc.	1A•1784, 1785, 3•1318
Wayne Transformer Co., Inc.	1A•2365
Weco Elctrl. Connectors Inc.	2•1745-1747
Weidmuller Terminations	2•1748
Weinschel Engrg.	1A•1787, 3•1319
Wells Elctrns.	2•1750-1755
Wesco Electrical Co.	1A•1212-1217
Wes-Garde Components Group, Inc.	1B•1742
Weston Controls/Pots Div., Div. Fairchild Weston Sys., Inc.	1A•2071-2084
Wilco Corp.	1A•1306, 1307
Wilcoxon Resch.	1B•1886
Wilmore Elctrns. Co.	3•1807-1809, 1920, 1921
Wintek Corp.	3•1118
X	
Xentek, Inc.	3•1810, 1811
Xico, Inc.	3•1104
Xsis Electronics, Inc.	1A•1443
Xylog Corp.	3•1813, 1922
Y	
Yuasa Battery (America), Inc.	3•1437
Z	
Zero Corp.	2•1070-1079
Zeus Indl. Prods. Inc.	2•1871

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85 Product Index and Directory

All products are listed alphabetically by their generic names and then by subclassification. For example, look for "Fiber Optic Connectors" under "Connectors, Fiber Optic" or for "Digital Panel Meters" under "Meters, Panel (Digital)."

Following each product heading is a four-digit number directing you to the Product Section where these products are usually cataloged. If that Product Section is not in the EEM volume you are using, a "See Vol. 1A, 1B, 2, or 3" will direct you to the proper volume for your product classification. No numbers appear with cross-reference headings.

Under each product heading whose Product Section appears in the volume you are using, the names of the manufacturers who supply the product are shown in alphabetical order with EEM catalogers shown first in boldface type with appropriate page numbers. Other manufacturers are shown in light face type. The symbol (§) indicates that these products are available from local distributors. The symbol (†) indicates that the product is available to MIL specifications.

Abrasive Belts, Compounds, Cords, Powders, etc.-5400

† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
§ Norton, One New Bond St., Worcester, MA 01606 617-853-1000
Press-On Prods., 39 Factory Rd., Addison, IL 60101 312-628-2255
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Absorbers, Microwave-3400 — *See Vol. 3*

Accelerometers-5500 — *See Vol. 1B*

Acoustic CM Equipment (MIL), Airborne-3475 — *See Vol. 3*

Acoustic Systems (MIL)-3475 — *See Vol. 3*

AC Power Protection Equipment — See Line Conditioners (Vol. 3)

Actuators, Servo, Linear-4900 — *See Vol. 3*

Actuators, Servo, Rotary-4900 — *See Vol. 3*

Adapters — See Connector Adapters (Vol. 2), Plug Adapters (Vol. 2), Socket Adapters (Vol. 2), etc.

Adapters, Fiber Optic-2475 — *See Vol. 1B*

Adapters, Wall Plug-in — See Power Supplies, Plug-in (Vol. 3)

Adapters, Waveguide-3450 — *See Vol. 1A*

Adapters, RF (MIL)-2440 — *See Vol. 1B*

Adhesives, Conducting-1600

† **Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ....2•1922**
† Ablestik Laboratories, 833 W. 182nd St., Gardena, CA 90248 213-532-9341
Acme Chem. & Insulation, 166 Chapel St., New Haven, CT 06513 ...203-562-2171
§† Advanced Coatings & Chem., 4343 Temple City Blvd., Temple City, CA 91780 818-579-6270
† Allaco Prods. Div., 192 Pleasant St., Watertown, MA 02172-2399 ..617-926-2550
§ Ambroid Co., P.O. Box 1089, Taunton, MA 02780 617-823-1726
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 617-861-9600
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
† Armstrong World Inds., W. Liberty St., Lancaster, PA 17604 717-397-0611
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
† Castall, Inc., Weymouth Indl. Park, E. Weymouth, MA 02188 617-337-6075
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
† Cotronics, 3379 Shore Pkwy., Brooklyn, NY 11235 212-646-7996
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§ EG&G Wakefield Engrg., 60 Audubon Rd., Wakefield, MA 01880 617-245-5900
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 914-698-8434
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Epoxy Technology, Inc., 14 Fortune Dr., P.O. Box 567, Billerica, MA 01821 617-667-3805
§ Fenwal, Inc., 400 Main St., Ashland, MA 01721 ....
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
† Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865 401-723-2100
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 219-747-7411
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
§† Pioneer Comps., 2352 E. 66th St., Brooklyn, NY 11234 212-444-3880
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
† Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 201-985-8800
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 716-621-8400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Adhesives, General Purpose-1600

† Ablestik Laboratories, 833 W. 182nd St., Gardena, CA 90248 213-532-9341
Acme Chem. & Insulation, 166 Chapel St., New Haven, CT 06513 ...203-562-2171
† Adhesive Prods., 1660 Boone Ave., Bronx, NY 10460 212-542-4600
† Allaco Prods. Div., 192 Pleasant St., Watertown, MA 02172-2399 ...617-926-2550
§† Allen Mfg., 22 E. Dudley Town Rd., Bloomfield, CT 06002 203-242-8511

Adhesives, General Purpose-1600 (Cont'd)

† Ashland Chemical, Ashland Oil, Inc., Box 2219, Columbus, OH 43216 ...614-889-3333
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 ...617-926-2550
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 ...516-599-5010
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 ...313-646-5100
Castall, Inc., Weymouth Indl. Park, E. Weymouth, MA 02188 ...617-337-6075
Diamond Shamrock Corp, 1100 Superior Ave, Cleveland, OH 44114 ...216-694-5000
§† Dow Corning Corp., Box 1767, Midland, MI 48640-0994 ...517-496-4000
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ...617-828-3300
† Epoxylite Corp., 1265 N. Kraemer Blvd., Anaheim, CA 92806 ...714-630-7910
Epoxy Technology, Inc., 14 Fortune Dr., P.O. Box 567, Billerica, MA 01821 ...617-667-3805
§ Fenwal, Inc., 400 Main St., Ashland, MA 01721 ...
§† GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ...815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 ...201-751-3000
Hightemp Resins, Inc., 225 Greenwich Ave., Stamford, CT 06902 ...203-357-7401
Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865 ...401-723-2100
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 ...219-747-7411
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ...201-343-8983
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 ...401-828-4550
Metron Optics Inc., P.O. Box 690, Solana Beach, CA 92075-0690 ...619-755-4477
Omega Engrg., Box 4047, Stamford, CT 06907 ...203-359-1660
† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 ...516-349-1100
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ...415-361-3860
Rexnord Chemical Prods. Inc., 6120 E. 58th Ave., Commerce City, CO 80022 ...303-289-5651
† Screenprint/Dow Industries, 271 Ballardvale St., Wilmington, MA 01887 ...617-935-6395
SGL Homalite, Div. of SGL Inds., 11 Brookside Dr., Wilmington, DE 19804 ...302-652-3686
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 ...313-846-4410
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ...215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 ...806-372-8523
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 ...617-391-5550
Transene, Rte. 1, Rowley, MA 01969 ...617-948-2501

Adhesives, Insulating-1600

† Ablestik Laboratories, 833 W. 182nd St., Gardena, CA 90248 ...213-532-9341
Acme Chem. & Insulation, 166 Chapel St., New Haven, CT 06513 ...203-562-2171
† Allaco Prods. Div., 192 Pleasant St., Watertown, MA 02172-2399 ...617-926-2550
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 ...617-926-2550
† Castall, Inc., Weymouth Indl. Park, E. Weymouth, MA 02188 ...617-337-6075
† Cotronics, 3379 Shore Pkwy., Brooklyn, NY 11235 ...212-646-7996
§† Dow Corning Corp., Box 1767, Midland, MI 48640-0994 ...517-496-4000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 ...302-773-3218
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ...617-828-3300
† Epoxylite Corp., 1265 N. Kraemer Blvd., Anaheim, CA 92806 ...714-630-7910
Epoxy Technology, Inc., 14 Fortune Dr., P.O. Box 567, Billerica, MA 01821 ...617-667-3805
§ Fenwal, Inc., 400 Main St., Ashland, MA 01721 ...
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ...815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 ...201-751-3000
Hightemp Resins, Inc., 225 Greenwich Ave., Stamford, CT 06902 ...203-357-7401
Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865 ...401-723-2100
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 ...219-747-7411
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ...201-343-8983
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 ...401-828-4550
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 ...616-469-2727
Omega Engrg., Box 4047, Stamford, CT 06907 ...203-359-1660
† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 ...516-349-1100
§† Pioneer Comps., 2352 E. 66th St., Brooklyn, NY 11234 ...212-444-3880
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ...415-361-3860
Rexnord Chemical Prods. Inc., 6120 E. 58th Ave., Commerce City, CO 80022 ...303-289-5651
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 ...313-846-4410
§ Techcon Systems Inc., 1059 E. Bedmar St., Carson, CA 90746 ...213-603-8888
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 ...806-372-8523
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 ...617-391-5550
Transene, Rte. 1, Rowley, MA 01969 ...617-948-2501

Adhesives, Liquid Spray-1600

§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ...815-968-9661
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ...201-343-8983
Optical Fiber Technologies, Inc., P.O. Box 148, Nutting Lake, MA 01865 ...617-663-6629
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 ...313-846-4410

Adhesives, Optical-1600

† Allaco Prods. Div., 192 Pleasant St., Watertown, MA 02172-2399 ...617-926-2550
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 ...617-926-2550
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ...617-828-3300
Epoxy Technology, Inc., 14 Fortune Dr., P.O. Box 567, Billerica, MA 01821 ...617-667-3805
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ...815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 ...201-751-3000
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ...201-343-8983
§† Pioneer Comps., 2352 E. 66th St., Brooklyn, NY 11234 ...212-444-3880
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 ...313-846-4410
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ...215-825-4990
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 ...617-391-5550
Transene, Rte. 1, Rowley, MA 01969 ...617-948-2501

Adhesives, UV Curing-1600

† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ...201-343-8983
Xenon Corp., 66 Industrial Way, Wilmington, MA 01887 ...617-658-8940

Adhesives, Wire Tacking-1600

§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ...617-828-3300
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 ...219-747-7411
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 ...201-343-8983
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 ...313-846-4410
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 ...806-372-8523
Xenon Corp., 66 Industrial Way, Wilmington, MA 01887 ...617-658-8940

Air Cleaners & Filters (Shielded & Unshielded)-2600

Electro Impulse, Box 870, Red Bank, NJ 07701-0870, 201-741-0404 ... 2•1817
ETRI, 608 Broome St., P.O. Box 568, Monroe, NC 28110, 704-289-5423 ... 2•1820
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ... 2•1923
§ Airmatic-Allied, 185 Park Dr., Wilmington, OH 45177 ...513-382-1691
Air-Maze Div., 25000 Miles Rd., Cleveland, OH 44128 ...216-292-6800
† Aluminum Filter, P.O. Box 1311, Santa Barbara, CA 93102 ...805-684-7651
† Atmosphere Controls Prods., 295 Polaris, Mountain View, CA 94043 ...415-969-2640
Baker Co., Inc., Drawer E - Sanford Airport, Sanford, ME 04073 ...207-324-8773
† Balston, 703 Massachusetts Ave., Lexington, MA 02173 ...617-861-7240
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 ...201-753-7988
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 ...216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 ...216-946-3200
§ Cambridge Filter Corp., P.O. Box 4906, Syracuse, NY 13221 ...315-457-1000
Carey Elctrn. Engrg. Co., 1880 Clifton Ave., Springfield, OH 45505 ...513-323-6300
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ...617-935-4850
§ Clean Room Prods., 56 W. Penataquit Ave., Bay Shore, NY 11706 ...516-968-8282
§ Fan-S Corp., 7158 Industrial Pk. Blvd., Mentor, OH 44060 ...216-951-3300
§ Heath Co., Benton Harbor, MI 49022 ...616-982-3886
Heat Systems-Ultrasonics, Inc., 1938 New Highway, Farmingdale, NY 11735 ...516-694-9555
§ Hobson Bros., 4940 W. Lawrence Ave., Chicago, IL 60630-3884 ...312-283-3600
§ Hollis Engrg., Inc., Charron Ave., Box 1189, Nashua, NH 03061 ...603-889-1121
McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550 ...609-799-0100
Pall Trinity Micro, Rte. 281, Cortland, NY 13045 ...607-753-6041
§ Pall Ultrafine Filtration Corp., 30 Sea Cliff Ave., Glen Cove, NY 11542 ...516-759-1900
† Research Prods., 1015 E Washington Ave., Madison, WI 53701 ...608-257-8801
Tegal Scientific, Inc., Box 5905, Concord, CA 94524 ...415-827-1054
§ TWP, Inc., 2133 4th St., Berkeley, CA 94710 ...415-548-4434
† Zero Corp., 777 Front St., Burbank, CA 91503 ...213-846-4191

Air Conditioners (For Equipment)-2600

Cincinnati Sub-Zero Prods., 2612 Gilbert Ave., Cincinnati, OH 45206, 513-751-8810 ... 3•1175
† Electro Impulse, Box 870, Red Bank, NJ 07701-0870, 201-741-0404 ... 2•1817
† McLean Midwest, 4000 83rd Ave. N., Brooklyn Pk., MN 55443, 612-561-9400 ... 2•1826
TECA, ThermoElectric Cooling America Corp., 448 N. Halsted St., Chicago, IL 60622, 312-666-1600 ... 2•1805
Capitol Temptrol, 5 Coulton Rd., Old Lyme, CT 06371 ...203-739-4421
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 ...612-421-2240
† Kooltronic, Hamilton Ave., Hopewell, NJ 08525 ...609-466-3400
Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 ...213-452-6000
† Merrill, POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437 ...215-643-2116
† Sinclair Radio Labs., 122 Rayette Rd., Concord, ON Canada ...416-669-1244
§ Square D Co., Executive Plaza, Palatine, IL 60067 ...312-397-2600
Standard Environmental Systems, Inc., 383 Minnisink Rd., Totowa, NJ 07512 ...201-256-2200

Alarms & Alarm Systems-2200 — *See Vol. 3*

Alarms, Controls, Photoelectric-3700 — *See Vol. 1B*

Alloys, Brazing-5400

§† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 ...201-434-6778
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 ...201-321-5900
GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 ...415-592-9440
† Semiconductor Packaging Matls. Co. Inc., 700 Waverly Avenue, Mamaroneck, NY 10543 ...914-698-5353
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 ...614-276-5522; 800-245-5253
† Wilkinson, P.O. Box 4558, Westlake Village, CA 91359 ...818-889-0050; 800-822-4653

Alloys, Metal/Ceramic-1600

† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 ...201-434-6778
Carpenter Techn., Box 662, Reading, PA 19603 ...215-371-2000

† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
Plessey Ceramic Div., 8th & Harrison Sts., Frenchtown, NJ 08825 ..201-996-2121
Sylvania Chemicals/Metals, Hawes St., Towanda, PA 18848 717-265-2121

Alphanumeric Readouts — See Tubes, Readout (Vol. 1A)

Alternators-4050 — *See Vol. 3*

Aluminizers, Vacuum — See Deposition Equip. (Vol. 3), Evaporation Equipment, Electronic Beam (Vol. 3),

Amplifiers, AF-1300 — *See Vol. 3*

Amplifiers, Antenna-1900 — *See Vol. 3*

Amplifiers, Compressor-1100 — *See Vol. 3*

Amplifiers, Current, AC-1100 — *See Vol. 3*

Amplifiers, DC-1100 — *See Vol. 3*

Amplifiers, Data — See Amplifiers, Instrumentation (Vol. 3)

Amplifiers, Decade-1100 — *See Vol. 3*

Amplifiers, Deflection-1100 (Also See Yokes, Deflection, Oscilloscopes, etc.) — *See Vol. 3*

Amplifiers, Differential-1100 — *See Vol. 3*

Amplifiers, Distribution-1100 — *See Vol. 3*

Amplifiers, Equalization-1300 — *See Vol. 3*

Amplifiers, Fiber Optic-1100 — *See Vol. 3*

Amplifiers, IF-1100 — *See Vol. 3*

Amplifiers, Instrumentation-1100 — *See Vol. 3*

Amplifiers, Integrating-1100 (Also See Amplifiers, perational; Integrators, Electronic) — *See Vol. 3*

Amplifiers, Isolation-1100 — *See Vol. 3*

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Amplifiers, Limiting-1100 — *See Vol. 3*

Amplifiers, Line-1100 — *See Vol. 3*

Amplifiers, Lock-in-1100 — *See Vol. 3*

Amplifiers, Logarithmic-1100 — *See Vol. 3*

Amplifiers, Magnetic-1100 — *See Vol. 3*

Amplifiers, Master Antenna — See Amplifiers, Distribution (Vol. 3)

Amplifiers, Microphone — See Amplifiers, AF (Vol. 3)

Amplifiers, Microwave-3400 — *See Vol. 3*

Amplifiers, Mixing-1300 — *See Vol. 3*

Amplifiers, Multichannel-1100 — *See Vol. 3*

Amplifiers, Narrow Band-1100 — *See Vol. 3*

Amplifiers, Null-1100 — *See Vol. 3*

Amplifiers, Operational-1100 — *See Vol. 3*

Amplifiers, Parametric-3400 — *See Vol. 3*

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Awls-5400

Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Backpanel Interconnect Systems-3200

§ **Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202 ..... 2•1876**
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... 2•1884
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753 .... 2•1274
† **Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305 .... 2•1890**
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043, 415-965-4500 .... 2•1896
† **TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1662**
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, 215-692-0800 .... 2•1068
§ **Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... 2•1069,3•1117**
Advanced Circuitry, Litton Inds., 4811 W. Kearney, Springfield, MO 65803 417-862-0751
Advanced Techn. Sys., 17-01 Pollitt Drive, Fair Lawn, NJ 07410 201-794-0200
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
Assembly Specialists, 914 Main St., Box 965, Acton, MA 01720 617-263-9100
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Central Data Corp., 1602 Newton Dr., Champaign, IL 61820 217-359-8010
† CTS Fabri-Tek, Inc., 6900 Shady Oak Rd., Eden Prairie, MN 55344 612-941-9100
† Cuplex, Inc., 1500 E. Hwy. 66, Garland, TX 75040 214-276-0333
DataCon, Inc., 60 Blanchard Rd., Burlington, MA 01803 617-273-5800
Data-Design Labs., P.O. Box 711, 7925 Center Ave., Cucamonga, CA 91730 714-987-2511
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
Elco Corp., Interconnect Systems Div., 2250 Park Pl., El Segundo, CA 90245 213-675-3311
Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123 619-292-0242
† Electronics Stamping Corp., Sub. of Buckbee-Mears Co., 19920 S. Alameda St., Rancho Dominguez, CA 90220 213-639-2120
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
Hollis Engrg./Wire-Wrap, 15 Charron Ave., Nashua, NH 03061 603-889-1121
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 617-486-3174
§ Inmac, 2465 Augustine Dr., Santa Clara, CA 95051 408-727-1970
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
† Kalmus & Assocs., Inc., 2424 S. 25th Ave., Box 525, Broadview, IL 60153 312-343-7004
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
§† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
North American Printed Circuit Div., Tyco Labs., Inc., Box 145, Stafford, CT 06075 203-684-2703
Ostby & Barton, 487 Jefferson Blvd., Warwick, RI 02886 401-739-7310
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England 0442-40471/6
Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707 714-979-4770
† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600

Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ....814-723-2000; 800-221-3333
§ Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077 216-354-0925
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 603-889-5156
† United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
Urban Elctrns., P. O. Box 456, Dover, MA 02030 617-329-4068
West-Tronics, Inc., 215 Park St., Bensenville, IL 60106 312-860-3560

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Bars, Shorting-3200

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1172
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ....2•1359,1363,1367-1369,1447
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
† Basic Elctrns., 11762 Western Ave. "Q", Stanton, CA 90680 714-530-2400
§ CTS Electronics Corp., Paso Robles Div., Electromechanical Gp., 500 Linne Rd., Paso Robles, CA 93446 805-238-0350
Eldre Comps., 1500 Jefferson Rd., Rochester, NY 14623 716-244-2570
Electronics Stamping Corp., Sub. of Buckbee-Mears Co., 19920 S. Alameda St., Rancho Dominguez, CA 90220 213-639-2120
† Hytek Microsystems, 980 University Ave., Los Gatos, CA 95030 408-395-2300
† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Rogers Corp., One Technology Dr., Rogers, CT 06263 203-774-9605
§† Ross Engrg. Corp., 559 Westchester Dr., Campbell, CA 95008 408-377-4621
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

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Bearings-2500

Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1766
Bearing Inspection, 10041 Shoemaker Ave., Santa Fe Springs, CA 90670 213-944-6251
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Bird, Richard H., & Co., Inc., 1 Spruce St., Waltham, MA 02154 617-894-0160
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
Carbone USA Corp., Carbone Lorraine Inds. Corp., 402 Myrtle Ave., Boonton, NJ 07005 201-334-0700
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
General Elec. Co., Carboloy Systems Dept., Box 237, Detroit, MI 48232 313-536-9100
† Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702 914-968-8400
Keystone Carbon, Thermistor Div., St. Marys, PA 15857 814-781-1591
† Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 213-452-6000
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
MPB Corp., Precision Park, Keene, NH 03431 603-352-0310
§† New Hampshire Ball Bearings, Inc., Rte. 202, Peterborough, NH 03458 603-924-3311
† NL Bearings/NL Industries Inc., PO Box 934, Toledo, OH 43694 419-381-3100
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
§† Raway Bearing, 8 Melnick Rd., Monsey, NY 10952 914-352-4944
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Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
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Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Prods., Div. of Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-0200
† Torrington Co., 59 Field St., Torrington, CT 06790 203-482-9511

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Belts, Drive-2500

Belting Inds. Co. Inc., 20 Boright Ave., Kenilworth, NJ 07033 201-272-8591
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ Dayco Corp., 333 W. First St., Dayton, OH 45402 513-226-5927

Benches, Consoles, Tables (Work Stations, Lab & Shop)-1400 (Also See Enclosures, Equipment and Panel Mounting)

† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670 .... 2•1006, 1007
Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062, 312-498-6090 .... 2•1020
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901, 507-289-3371 .... 2•1030
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 .... 2•1031
† General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1034, 1035
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 .. 2•1036
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084, 404-939-6340 .... 2•1047,1051,1052
Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... 2•1044
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605, 818-875-0800 .... 2•1055
† Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1034,1035
§ Zero Corp., 777 Front St., Burbank, CA 91503, 213-846-4191 ....2•1076-1079
Advance Engrg., 18225 So. Hoover St., Gardena, CA 90248 213-321-3100
† Alden Sys., 262 N. Main St., P.O. Box 860, Brockton, MA 02403 617-583-0160
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
† Ashman Industries (1966) Ltd., 66 Brock Rd., Greensville Dundas, ON Canada 416-628-6371
† Atmosphere Controls Prods., 295 Polaris, Mountain View, CA 94043 415-969-2640
Baker Co., Inc., Drawer E - Sanford Airport, Sanford, ME 04073 207-324-8773
§† Bay Prods., 8701 Torresdale Ave., Phila., PA 19136 ....215-DE8-7300
Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 818-991-2600
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Chassis-Trak, P.O. Box 39100, Indianapolis, IN 46239 317-897-7000
Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
† Clean Room Prods., 56 W. Penataquit Ave., Bay Shore, NY 11706 516-968-8282

Corning Glass Works, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830 607-974-9000
† Craig Sys., 360 Merrimack St., Lawrence, MA 01842 617-688-6961
Cramer Inc., 625 Adams St., Kansas City, KS 66105 913-621-6700
§ Digiac Corp., 175 Engineers Rd., Hauppauge, NY 11788 516-273-8600
† Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245 213-643-8181
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
† Enclosure Corp., 4529 Adams Circle, Cornwells Hts., PA 19020 215-638-9550
E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§† Equipto, 225 S. Highland Ave., Aurora, IL 60507 312-859-1000
Forma Scientific, Div. of Mallinckrodt Inc., Box 649, Marietta, OH 45750 614-373-4763
§ Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
† House of Metal Enclosures, Box 225, Hermann, MO 65041 314-486-3111
Kole Ind., 3553 N.W. 50th St., Miami, FL 33102-0152 .... 305-633-2556; 800-327-6085
§ Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 213-452-6000
§ Lyon Metal Prods., 47 Railroad Ave., Aurora, IL 60507 312-892-8941
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
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Stackbin Corp., Albion Road, Lincoln, RI 02865 401-333-1600
Stanley-Vidmar, Stanley Works, 11 Grammes Rd., Allentown, PA 18103 215-797-6600
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 717-346-3871
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

Bends & Twists, Microwave-3450 — *See Vol. 1A*

Bezels, Shielded & Unshielded-2400

§ Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1771
† JMJ Technical Prods., P.O. Box 26, Kendall Park, NJ 08824, 201-589-4257 .... 2•1780
RMF Prods., Inc., 1275 Paramount Pkwy., P.O. Box 520, Batavia, IL 60510, 312-879-0020 .... 2•1785
§ Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
† Astronautics Corp. of America, P.O. Box 523, Milwaukee, WI 53201 414-447-8200
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
§† Eaton Corp./Cutler-Hammer Prods., Aerospace/Commercial Controls Div., 4201 N. 27th St., Milwaukee, WI 53216 414-449-7487
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
† Industrial Elctrn. Engrs., Inc., 7740 Lemona Ave., Van Nuys, CA 91405 818-787-0311
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
LaFrance Corp., Entprs & Exec Aves, Philadelphia, PA 19153 215-365-8000
Leecraft Mfg., 21-02 44th Rd., Long Island City, NY 11101 212-392-8800
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148 617-321-4410
§ NOBEX Div., Griffith Plastics Corp., 1027 California Dr., Box 4365, Burlingame, CA 94010 415-342-8170
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153 215-365-8400
Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 213-603-0400
§† Shelly Associates, Inc., 2942 Dow Ave., Tustin, CA 92680 714-544-9970
Spectra Lux Corp., 12840 N.E. 21 St. Pl., Bellevue, WA 98005 206-747-0560
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016 201-272-5500
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Bimetals, Thermostatic-5300 — *See Vol. 1B*

Bins, Part Storage-3800

3M Co., Static Control Sys. Div., 3M Center, Bldg. 225-4S-04, St. Paul, MN 55144, 612-733-9420 .... 3•1924
§ Akro-Mils, 1293 S. Main St., Akron, OH 44301 216-253-5593
† Alden Sys., 262 N. Main St., P.O. Box 860, Brockton, MA 02403 617-583-0160
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
† Equipto, 225 S. Highland Ave., Aurora, IL 60507 312-859-1000
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Kole Ind., 3553 N.W. 50th St., Miami, FL 33102-0152 .... 305-633-2556; 800-327-6085
Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 213-452-6000
§ Lyon Metal Prods., 47 Railroad Ave., Aurora, IL 60507 312-892-8941
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
§ Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 215-822-2171
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717
Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Blackbody Radiation Sources-2900 — *See Vol. 3*

Blowers, Centrifugal-2600

† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670 .... 2•1007, 1803
Buehler Prods., P.O. Box A, Hwy. 70 E., Kinston, NC 28501, 919-522-3101 .... 1B•1137
Eastern Air Devices Motor Div., 1 Progress Dr., Dover, NH 03820, 603-742-3330 .... 1B•1141
§† EG & G Rotron, Commercial Div., Shokan, NY 12481, 914-657-6661 .... 2•1811, 1813
† EG & G Rotron, Custom Div., Hasbrouck La., Woodstock, NY 12498, 914-679-5201 .... 2•1814,1815
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 .... 2•1031
† Hi-Tech, Inc., 3600 16th St., Zion, IL 60099, 312-746-2447 .... 2•1822
† IMC Magnetics Corp., Eastern Div., 570 Main St., Westbury, NY 11590, 516-334-7070 .... 2•1823
† McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550, 609-799-0100 .... 2•1824,1825
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084, 404-939-6340 .... 2•1047
§ Pamotor, 770 Airport Blvd., Burlingame, CA 94010, 415-347-1203 .... 2•1846,1850
† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... 2•1045
Shinano Kenshi Corp. (SKC), 7525 Ethel Ave., Ste. 1, N. Hollywood, CA 91605, 818-764-4266 .... 1B•1181
§† TRW Motor Div. (Military), 2275 Stanley Ave., Dayton, OH 45404, 513-228-3171 .... 2•1852,1853
† Aeroflex Labs., Magnetic Prods. Div., , So. Service Rd., Plainview, NY 11803 516-694-6700
§ Alpha Comps., 115 Eucalyptus Dr., El Segundo, CA 90245 213-322-7780
† Ashland Elec. Prods., 32-02 Queens Blvd., Long Island City, NY 11101 212-392-4010
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 617-935-4944
Bertsch U.S., Sycamore Resch. Ctr., 2142F Industrial Ct., Vista, CA 92083 619-727-7420
Brailsford & Co., 670 Milton Rd., Rye, NY 10580 914-967-1820
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062 312-498-6090
§ Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776 213-287-0451
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
§ ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
§† Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245 213-643-8181
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
§† ETRI, 608 Broome St., P.O. Box 568, Monroe, NC 28110 704-289-5423
Fasco Industries, Inc., Div. of Hawker Siddeley Group, 601 North Federal Highway, Boca Raton, FL 33432 305-368-0600
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 716-894-5710
§ Howard Inds., Box 287, Milford, IL 60953 815-889-4105
† Humphrey, Inc., 9212 Balboa Ave., San Diego, CA 92123 619-565-6631
† Kooltronic, Hamilton Ave., Hopewell, NJ 08525 609-466-3400
Laser Precision Corp., 1231 Hart St., Utica, NY 13502 315-797-4449
§ Lutron Elctrns., Box 205, Suter Rd., Coopersburg, PA 18036 215-282-3800
† Merrill, POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437 215-643-2116
Micronel U.S., 2142F Industrial Ct., Sycamore Research Center, Vista, CA 92083 619-727-7400
Papst Mechatronic Corp., Aquidneck Indl. Pk., Newport, RI 02840 401-849-5930
§ Ripley, 46 Nooks Hill Rd., Cromwell, CT 06416 203-635-2200
Sanders Assocs., Flexprint Prods. Div., Grenier Fld., Manchester, NH 03103 603-669-4615
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England 0442-40471/6
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605 818-875-0800
† Telectro Sys., 96-18 43rd Ave., Corona, NY 11368 212-651-8900
§ Torin Corp., 100 Franklin Drive, Torrington, CT 06790 203-482-4422
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380 215-692-0800
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
§† Zero-East Div., 288 Main St., Monson, MA 01057 ....

Board Computers & Subassemblies, Multibus Compatible-2025 — *See Vol. 3*

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Board Computers & Subassemblies, S100 Bus Compatible-2025 — *See Vol. 3*

Board Computers & Subassemblies, STD Bus Compatible-2025 — *See Vol. 3*

Boards, Circuit, Clad-1700

§ Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005
Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... 2•1091

† **Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305 .... 2•1890**

§ **Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005**

Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... 2•1094

Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913

Arstan Products Intl. Ltd., 99 Jericho Tpke., Jericho, NY 11753 516-333-8100

† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900

Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042 503-829-9108

§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030

Engelmann Microwave Co., KDI Pyrofilm, 60 S. Jefferson Rd., Whippany, NJ 07981 201-887-5700

Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683

† Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 .... 717-386-4156; 215-377-5990

† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900

† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600

Boards, Circuit, Unclad-1700

§ **Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005**

§ **Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005**

Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... 2•1069,1094

† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900

Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042 503-829-9108

§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030

Engelmann Microwave Co., KDI Pyrofilm, 60 S. Jefferson Rd., Whippany, NJ 07981 201-887-5700

† Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 .... 717-386-4156; 215-377-5990

† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900

Boards, Display, Graphic-2450 — *See Vol. 1B*

Boards, Integrated Circuit — See Boards, Plug-in (Vol. 2)

Boards, Plug-in-3200

§ **Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202 .... 2•1876-1879**

Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... 2•1880-1883

Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242 .... 3•1107

§ **Gordos Corp., 250 Glenwood Ave., Bloomfield, NJ 07003, 201-743-6800 .... 2•1888, 1889**

† **Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305 .... 2•1890**

§ **Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... 2•1892**

§† **Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... 2•1069,1094,1095,3•1117**

† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211

§ Advanced Micro Devices, P.O. Box 3453, 901 Thompson Pl., Sunnyvale, CA 94088 408-732-2400

Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913

Amtek Digital Systems, Inc., 12740 28th N.E., Seattle, WA 98125 206-363-0217

† Analog Devices, P.O. Box 280, Norwood, MA 02062 617-329-4700

Analogic Corp., 8 Centennial Dr., Peabody, MA 01961 .... 617-777-4500; 17-246-0300;800-451-1816

§† Analog Technology Corp., 15859 E. Edna Pl., Irwindale, CA 91706 213-960-4004

Applied Circuits, Inc., 36-06 43rd. Ave., Long Island City, NY 11101 212-786-7200

Applied Micro Technlg., A Burr Brown Co., 2430 N. Hauchuca, Ste. A, Tucson, AZ 85745 602-622-8605

† Ashman Industries (1966) Ltd., 66 Brock Rd., Greensville Dundas, ON Canada 416-628-6371

Assembly Specialists, 914 Main St., Box 965, Acton, MA 01720 617-263-9100

† Avionics, Box 200, Niagara-On-Lake, ON Canada 416-468-3632

§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400

§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200

Burr-Brown, P.O. Box 11400, Tucson, AZ 85734 602-746-1111

Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 617-491-2700

Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506

Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933

§ Consolink Corp., Lestronics, Inc., 1840 Industrial Cir., Longmont, CO 80501 303-651-2014

† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900

§ Cromemco, 280 Bernardo Ave., Mountain View, CA 94043 415-964-7400

Crosspoint, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022 201-941-4455

Data Capture Technology, 5436-F South Mingo Rd., Tulsa, OK 74146 918-627-7521

† DataCon, Inc., 60 Blanchard Rd., Burlington, MA 01803 617-273-5800

Datatex Corp., 10935 S. Wilcrest Dr., Houston, TX 77099 713-495-3100

Digital Equip., One Iron Way, Marlborough, MA 01752 ....

Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770

Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755

E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774

† Eastern Electronics Mfg. Corp., 180 Roberts St., East Hartford, CT 06108 203-528-9821

§ Electrol Co., 321 Dewey St., P.O. Box 29, York, PA 17405 717-848-1722

§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600

§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300

GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661

GEN/COMP Inc., 6 Algonquin Rd., Canton, MA 02021 617-828-2008

General Digital, 700 Burnside Ave., E. Hartford, CT 06108 203-528-9041

§ Gordos Arkansas, Inc., 1000 N. Second St., Rogers, AR 72756 501-636-5000

§ Gunther, W., GmbH, Virnsberger Strasse 51, D 8500 Nurnberg 82, West Germany 0911/65521

Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515

Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800

† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 617-486-3174

Information Control Corp., Abacus Div. Dept. EM7, 9610 Bellanca Ave., Los Angeles, CA 90045 213-641-8520

§ Intra-computer, 101 W. 31st St., New York, NY 10001 212-947-5533

Kalmus & Assocs., Inc., 2424 S. 25th Ave., Box 525, Broadview, IL 60153 312-343-7004

† Kantz Elctrn. Ind., 1804 Wall Church Rd., Wall Township, NJ 07719 201-974-0090

§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174

§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600

† Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 .... 717-386-4156; 215-377-5990

Logic Technology, Inc., 2452 Charleston Rd., Mtn. View, CA 94043 . 415-967-1007

Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250

† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900

† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111

Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373

Matrox Elctrn. Sys., 5800 Andover Ave., Montreal, QU H4T 1H4 Canada 514-735-1182

Mega Logic, 9659 Natl. Rd., Brookville, OH 45309 513-833-5222

§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600

Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400

† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200

§ Motorola Semiconductor Prods. Sector, Adv. 72, Box 20912, Phoenix, AZ 85036 602-244-6900

§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110

Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660

Omnibyte Corp., 245 W. Roosevelt Rd., Bldg. 1-5, W. Chicago, IL 60185 312-231-6880

PCK Technlg. Div./Kollmorgen Corp., 322 South Service Rd., Melville, NY 11747 516-454-4400

§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 617-699-7646

RCA Solid State Div., Route 202, Somerville, NJ 08876 201-685-6000

§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211

† Rolm Corp., 1 River Oaks Pl., San Jose, CA 95134 408-988-2900

§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300

Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770

§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England 0442-40471/6

Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600

Seattle Computer Products, Inc., 1114 Ind. Dr., Seattle, WA 98188 .... 206-575-1830;800-426-8936

Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707 714-979-4770

† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600

SYMBICON, 89 Route 101A, Amherst, NH 03031 603-673-8898

§ TransKinetic Sys., 110 Shawmut Rd., Canton, MA 02021 617-828-3000

TRW/Cinch-Graphik, 200 S. Turnbull Canyon Rd., City of Industry, CA 91744 213-333-1201

† United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978

† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376

Xycom, 750 N. Maple Rd., Saline, MI 48176 313-429-4971

Ziatech, 3433 Roberto Ct., San Luis Obispo, CA 93401 805-541-0488

Boards, Plug-in, Extender-3200

Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... 2•1880-1883

Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242 .... 3•1107,1108

† **Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305 .... 2•1890**

Prototek, Inc., 25 Standen Dr., Hamilton, OH 45015, 513-874-5094 .... 2•1893

Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... 2•1069,1094,1095,3•1117

Applied Micro Technlg., A Burr Brown Co., 2430 N. Hauchuca, Ste. A, Tucson, AZ 85745 602-622-8605

Burr-Brown, P.O. Box 11400, Tucson, AZ 85734 602-746-1111

Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 ... 617-491-2700
Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042 ... 503-829-9108
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 ... 617-486-3174
Kinetic Sys., 11 Maryknoll Dr., Lockport, IL 60441 ... 815-838-0005
† Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 ... 717-386-4156; 215-377-5990
Matrox Elctrn. Sys., 5800 Andover Ave., Montreal, QU H4T 1H4 Canada ... 514-735-1182
Mupac, 10 Mupac Dr., Brockton, MA 02401 ... 617-588-6110
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 ... 401-732-3770
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 408-980-1600
SYMBICON, 89 Route 101A, Amherst, NH 03031 ... 603-673-8898

Boards, Plug-in, Interface-3200

ADAC Corp., 70 Tower Office Pk., Woburn, MA 01801, 617-935-6668 ... 3•1143
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202 ... 2•1876, 1878,1879
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 ... 2•1880-1883
Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242 ... 3•1107-1109
† **ILC Data Device Corp., 105 Wilbur Pl., Bohemia, NY 11716, 516-567-5600 ... 3•1160**
† **Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305 ... 2•1890**
Matrix Corp., 2260 Distributors Dr., Indianapolis, IN 46241, 317-248-2036 ... 3•1086
Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047, 215-757-1202 ... 2•1892
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 ... 2•1069,1094,1095,3•1117
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 ... 203-322-1913
Amtek Digital Systems, Inc., 12740 28th N.E., Seattle, WA 98125 ... 206-363-0217
Applied Micro Technlg., A Burr Brown Co., 2430 N. Hauchuca, Ste. A, Tucson, AZ 85745 ... 602-622-8605
Burr-Brown, P.O. Box 11400, Tucson, AZ 85734 ... 602-746-1111
Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 ... 617-491-2700
General Digital, 700 Burnside Ave., E. Hartford, CT 06108 ... 203-528-9041
§ Gordos Corp., 250 Glenwood Ave., Bloomfield, NJ 07003 ... 201-743-6800
§ Gordos Arkansas, Inc., 1000 N. Second St., Rogers, AR 72756 ... 501-636-5000
§ Gunther, W., GmbH, Virnsberger Strasse 51, D 8500 Nurnberg 82, West Germany ... 0911/65521
ICS Electronics Corp., 2185 Old Oakland Rd., San Jose, CA 95131 ... 408-263-4844
Kinetic Sys., 11 Maryknoll Dr., Lockport, IL 60441 ... 815-838-0005
Matrox Elctrn. Sys., 5800 Andover Ave., Montreal, QU H4T 1H4 Canada ... 514-735-1182
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
Quartic Systems, Inc., 3575 South West Temple , Salt Lake City, UT 84115 ... 801-268-9264
Seattle Computer Products, Inc., 1114 Ind. Dr., Seattle, WA 98188 ... 206-575-1830;800-426-8936
Serial Lab Prods., Inc., 50 Brigham St., P.O. Box 766, Marlboro, MA 01752 ... 617-481-1684
§ Standard Grigsby, Inc., 920 Rathbone Ave., Aurora, IL 60507 ... 312-844-4300
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 408-980-1600
SYMBICON, 89 Route 101A, Amherst, NH 03031 ... 603-673-8898

Boards, Plug-in, Memory-3200

Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242 ... 3•1108
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 ... 2•1095,3•1117
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 ... 203-322-1913
Applied Micro Technlg., A Burr Brown Co., 2430 N. Hauchuca, Ste. A, Tucson, AZ 85745 ... 602-622-8605
Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 ... 617-491-2700
§ CompuPro, 3506 Breakwater Ct., Hayward, CA 94545 ... 415-786-0909
§ Computer System Assocs., 7562 Trade St., San Diego, CA 92121 ... 619-566-3911
Dataram Corp., Princeton-Highstown Rd., Cranbury, NJ 08512 ... 609-799-0071
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 ... 401-769-3800
General Digital, 700 Burnside Ave., E. Hartford, CT 06108 ... 203-528-9041
§ General Robotics Corp., 57 N. Main St., Hartford, WI 53027 ... 414-673-6800
Heurikon Corp., 3001 Latham Dr., Madison, WI 53713 ... 608-271-8700
Kinetic Sys., 11 Maryknoll Dr., Lockport, IL 60441 ... 815-838-0005
Matrox Elctrn. Sys., 5800 Andover Ave., Montreal, QU H4T 1H4 Canada ... 514-735-1182
Pacific Microcomputers, Inc., 119 Aberdeen, Cardiff, CA 92007 ... 619-436-8649
§† Plessey Microsystems, Plessey Trading Corp., 1641 Kaiser Ave., Irvine, CA 92714 ... 714-540-9931/9932
PPM, Inc., 23945 Mercantile Rd., Cleveland, OH 44122 ... 216-292-6006
Seattle Computer Products, Inc., 1114 Ind. Dr., Seattle, WA 98188 ... 206-575-1830;800-426-8936
SYMBICON, 89 Route 101A, Amherst, NH 03031 ... 603-673-8898

Boards, Plug-in Processor-1900

Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 ... 2•1880-1883,1885
Applied Micro Technlg., A Burr Brown Co., 2430 N. Hauchuca, Ste. A, Tucson, AZ 85745 ... 602-622-8605
Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 ... 617-491-2700
§ CompuPro, 3506 Breakwater Ct., Hayward, CA 94545 ... 415-786-0909
§ General Robotics Corp., 57 N. Main St., Hartford, WI 53027 ... 414-673-6800
Kinetic Sys., 11 Maryknoll Dr., Lockport, IL 60441 ... 815-838-0005
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
Quartic Systems, Inc., 3575 South West Temple , Salt Lake City, UT 84115 ... 801-268-9264
Seattle Computer Products, Inc., 1114 Ind. Dr., Seattle, WA 98188 ... 206-575-1830;800-426-8936
Serial Lab Prods., Inc., 50 Brigham St., P.O. Box 766, Marlboro, MA 01752 ... 617-481-1684
SYMBICON, 89 Route 101A, Amherst, NH 03031 ... 603-673-8898

Boards, Plug-in, Prototype-4200

Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 ... 2•1880-1883
Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242 ... 3•1107-1109
† **Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305 ... 2•1890**
Prototek, Inc., 25 Standen Dr., Hamilton, OH 45015, 513-874-5094 ... 2•1893
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 ... 2•1069,1094,1095,3•1117
§ Computer System Assocs., 7562 Trade St., San Diego, CA 92121 ... 619-566-3911
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 ... 516-868-1900
Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042 ... 503-829-9108
General Digital, 700 Burnside Ave., E. Hartford, CT 06108 ... 203-528-9041
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 ... 617-486-3174
Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 ... 717-386-4156; 215-377-5990
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 ... 516-868-1900
Matrox Elctrn. Sys., 5800 Andover Ave., Montreal, QU H4T 1H4 Canada ... 514-735-1182
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ... 312-867-9600
Mupac, 10 Mupac Dr., Brockton, MA 02401 ... 617-588-6110
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 ... 812-945-0211
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 ... 401-732-3770
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 408-980-1600
SYMBICON, 89 Route 101A, Amherst, NH 03031 ... 603-673-8898
Wire Graphics, 215 B. Central Ave., Farmingdale, NY 11735 ... 516-293-1525

Boards, Prewired, High Density-3200

Amtek Digital Systems, Inc., 12740 28th N.E., Seattle, WA 98125 ... 206-363-0217
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 ... 401-769-3800
Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044 ... 312-295-2610

Boards, Printed Circuit — See Circuits, Printed, Rigid (Vol. 2)

Boards, Programming-3200

Allied Systems Corp., Box 18077, Greensboro, NC 27419, 919-299-2294 ... 2•1874
Crosspoint, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022, 201-941-4455 ... 1B•1574
CYTEC Corp., 107 N. Washington St., E. Rochester, NY 14445, 716-381-4740 ... 3•1213
Information Transfer Indl., Box 357, Holcomb, NY 14469, 716-657-7074 ... 3•1162
† **Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262, 919-884-8111 ... 2•1891**
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 ... 2•1095,3•1117
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ... 216-365-1211
AMP Incorporated, Box 3608, Harrisburg, PA 17105 ... 717-564-0100
Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 ... 414-764-7200
Applied Circuits, Inc., 36-06 43rd. Ave., Long Island City, NY 11101 ... 212-786-7200
Applied Micro Technlg., A Burr Brown Co., 2430 N. Hauchuca, Ste. A, Tucson, AZ 85745 ... 602-622-8605
Assembly Specialists, 914 Main St., Box 965, Acton, MA 01720 ... 617-263-9100
† Astronautics Corp. of America, P.O. Box 523, Milwaukee, WI 53201 ... 414-447-8200
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 ... 617-222-2202
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 ... 516-868-1900
Data Capture Technology, 5436-F South Mingo Rd., Tulsa, OK 74146 ... 918-627-7521
† DataCon, Inc., 60 Blanchard Rd., Burlington, MA 01803 ... 617-273-5800
§ Data General, 4400 Computer Dr., Westboro, MA 01581 ... 617-366-8911
Dataprofits Corp., 2260 Distributors Dr., Indianapolis, IN 46241 ...
Datatex Corp., 10935 S. Wilcrest Dr., Houston, TX 77099 ... 713-495-3100
Digital Equip., One Iron Way, Marlborough, MA 01752 ...
§† Electrol Co., 321 Dewey St., P.O. Box 29, York, PA 17405 ... 717-848-1722
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 ... 401-769-3800
Enerco, Inc., 9615 W. Marginal Way S., Seattle, WA 98108 ... 206-762-1422
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 ... 201-249-6600
§† Fairchild Microprocessor Div., Fairchild Camera & Instr. Corp., 450 National Ave., Mountain View, CA 94042 ... 415-962-3838
GEN/COMP Inc., 6 Algonquin Rd., Canton, MA 02021 ... 617-828-2008
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 ... 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 ... 714-752-3800

Interdyne Co., 157 Topaz St., Milpitas, CA 95035 408-943-9133
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
§ Kepco, 131-38 Sanford Ave., Flushing, NY 11352 212-461-7000
† Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 ....717-386-4156; 215-377-5990
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
Masterite Corporation, 2841 Lomita Blvd., Torrance, CA 90505 213-775-3471
Matrox Elctrn. Sys., 5800 Andover Ave., Montreal, QU H4T 1H4 Canada 514-735-1182
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Methods Research, 54D Asbury Ave., Farmingdale, NJ 07727 201-938-6000
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Pulse Instrs. Co., 1536 W. 25th St., San Pedro, CA 90732 213-548-1327
† Racal-Dana Instrs., 18912 Von Karman Ave., Irvine, CA 92715 714-833-1234
RCA Solid State Div., Route 202, Somerville, NJ 08876 201-685-6000
† Reactel, Inc., 687-D Lofstrand La., Rockville, MD 20850 301-279-5535
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
SYMBICON, 89 Route 101A, Amherst, NH 03031 603-673-8898
† United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
Xycom, 750 N. Maple Rd., Saline, MI 48176 313-429-4971

Bobbins, Winding, Coil & Transformer-2500 (Also See Coil Assemblies & Forms)

§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078, 605-665-9301 ....1A•1235
§ Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07509, 201-345-8900 ....2•1793
Renco Elctrns., 60 Jefryn Blvd., E., Deer Park, NY 11729, 516-586-5566 ....1A•1280
† American Plasticraft Co., 814 N. Sacramento Blvd., Chicago, IL 60622 312-722-7727
§ Amperex Electronic Corp., Ferroxcube Div., 5083 Kings Hwy., Saugerties, NY 12477 914-246-2811
† A.P.W. Co., 72 W. Main, Rockaway, NJ 07866 201-627-0643
Cortec, Inc., 15811 Chemical La., Huntington Bch., CA 92649 714-897-2529
Cosmo Plastics Co., 3239 W. 14th St., Cleveland, OH 44109 216-861-5594
Coto Corporation, 55 DuPont Drive, Providence, RI 02907 401-943-2686
† D & L Sales Co. Inc., 296 Preakness Ave., Paterson, NJ 07502 ....201-684-8223/8224
Dia-Netics Inc., 18823 Napa St., Northridge, CA 91324 213-886-2616
Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
Electrical Plastics Corp., 500 Long Branch Ave., Long Branch, NJ 07740 201-870-9500
Engineering Design & Sls., Rt. 2, Box 305, Danville, VA 24540 804-685-7073
† Genisco Technlg. Corp., Filters Div., 18435 Susana Rd., Rancho Dominguez, CA 90221 213-537-4750
Grand Transformers, Box 188, Grand Haven, MI 49417 616-842-5430
§ Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
Harbison Indl. Prods., Sub. of Polymer Corp., 7205 Hibbs La., Levittown, PA 19057 215-943-9000
ITT Thermotech, Div. IT & T, 1203 S. 5th St., Hopkins, MN 55343 612-933-9400
† Magnetico Inc., 182 Morris Ave., Holtsville, NY 11742 516-654-1166
† Micro-Products Engrg. Co., 230 Ridgewood Ave., Newark, NJ 07108 201-824-8467
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
† Moldtronics, Inc., 707 Roger St., Downers Grove, IL 60515 312-968-7000
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
† Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan ....Tokyo 03-402-6161
† Wayne Transformer Co., Inc., 99 Hazel St., Paterson, NJ 07503 201-278-7674
Xylog Corp., 150 Tillman St., Westwood, NJ 07675 201-664-7997

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Avibank Mfg., 210 S. Victory Blvd., Burbank, CA 91503 818-843-4330

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Boxes, Junction, Outlets & Wall Plates-1400

Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 ....2•1118,1119
Fil-Coil Economy Intl., Inc., 800 Axinn Ave., Garden City, NY 11530, 516-294-5445 ....1A•1595
Marway Prods. Inc., 311 N. Clara St., Santa Ana, CA 92703, 714-973-1800 ....3•1893
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 ....1A•1606-1610,2•1536-1539
§ Perma Power Elctrns., 5615 W. Howard Ave., Chicago, IL 60648, 312-647-9414 ....2•1862,1863
Power Dynamics, 177 Valley, S. Orange, NJ 07079, 201-762-6886 ....2•1544
SGL Waber, 300 Harvard Ave., Westville, NJ 08093, 609-456-5400;800-257-8384 ....2•1864
TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ....2•1707-1715
§† Abalon Precision Mfg., 540 Casanova St., Bronx, NY 10474 212-589-5682
§ Adalet-PLM Div, Div. Scott & Fetzer Co., 4801 W. 150th St., Cleveland, OH 44135 216-267-9000
§ Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491 309-695-2511
§ Brooks Mfg. Co., 2016/24 Amber St., Philadelphia, PA 19125 ....215-425-3395; 800-523-0130
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§ Displex, Inc., Alexander Place, Glen Cove, NY 11542 516-671-4400
Ericson Mfg. Co., 4215 Hamann Pkwy., Willoughby, OH 44094 216-951-8000
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 716-894-5710
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 612-421-2240
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§ Modu-tel Corp., 1429 N. Halstead, Hutchinson, KS 67501 316-662-3302
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153 215-365-8400
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
§† Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852 301-984-1783
Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
Todd Systems, 50 Ash St., Yonkers, NY 10701 914-963-3400
§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§ Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
§ Wadsworth Elec., 20 W. 11th St., Covington, KY 41011 606-431-0900
§ Wiremold Company, W. Hartford, CT 06110 203-233-6251
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
Zero-East Div., 288 Main St., Monson, MA 01057 ....

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Braid, Cable-6000 (Also See Wire Shielding)

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ....2•1989
Cooner Wire Co., 9186 Independence Ave., Chatsworth,, CA 91311, 818-882-8311 ....2•2077,2078
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ....2•2085
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 ....2•1913
† Aircraft & Electrn. Spec., Box 248, Plainfield, IN 46168 317-272-2551
† Air/Flex Inds. Inc., 2422 Merced Ave., S. El Monte, CA 91733 818-579-7060
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022
§ Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 312-728-7480
§† Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
† Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491 309-695-2511
§ Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 401-724-9605
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850

Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Glenair, 1211 Air Way, Glendale, CA 91201 213-247-6000
Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069 619-744-7720
† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 203-348-7761
Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016 201-272-5500
† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
† Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 212-939-8300
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 ....401-821-1700; SALES 401-821-7800
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Brakes, Magnetic-3500 — *See Vol. 1B*

Brakes, Mechanical-3500 — *See Vol. 1B*

Breadboard Assemblies-4200

§ **A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060, 216-354-2101 .... 2•1901**
§ **Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... 2•1094,1095,3•1117**
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
† Eastern Electronics Mfg. Corp., 180 Roberts St., East Hartford, CT 06108 203-528-9821
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 617-486-3174
† Kantz Elctrn. Ind., 1804 Wall Church Rd., Wall Township, NJ 07719 201-974-0090
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
Multi-Tronix, 3210 Terry Dr, Toledo, OH 43613 419-472-0723
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
§ RCA Solid State Div., Micro Processors, Route 202, Somerville, NJ 08876 201-685-6000
§ TransKinetic Sys., 110 Shawmut Rd., Canton, MA 02021 617-828-3000
† United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
Xycom, 750 N. Maple Rd., Saline, MI 48176 313-429-4971

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Bridges, Capacitance-2900 — *See Vol. 3*

Bridges, Deviation-2900 — *See Vol. 3*

Bridges, Impedance-2900 — *See Vol. 3*

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Bridges, Temperature-2900 — *See Vol. 3*

Bridges, Wheatstone-2900 — *See Vol. 3*

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Bumpers-2825

Bumper Products Corp., 14 King St., P.O. Box 45, Mt. Holly, NJ 08060, 09-261-8100;800-541-2500 .... 2•1866
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1227
§† **Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1766**
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
§ Budwig Mfg., P.O. Box 829, Ramona, CA 92065 619-789-0900
Gasket Intl. Inc., 49 Ackerman St., Bloomfield, NJ 07003 201-338-6814
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 .213-777-8108
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ...213-357-3287
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

Burnishers, Contact-5400

Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§ Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Bus Bars & Systems-3200

Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 .... 2•1859,1875
† **Janco Corp., Box 3038-Glenoaks Sta., Burbank, CA 91504, 818-846-1800 .... 1B•1668**
§† **Lear Siegler, Inc., Elctrn. Instr. Div., 714 N. Brookhurst St., Anaheim, CA 92803, 714-774-1010 .... 2•1502**
† **Rogers Corp., One Technology Dr., Rogers, CT 06263, 203-774-9605 .... 2•1894**
† Advanced Circuit Technlg., 118 N. Eastern Blvd., Nashua, NH 03062 603-880-6000
American Etching & Mfg., 13730 Desmond St., Pacoima,, CA 91331 213-896-1187
Apahouser-Elcom, Inc., 101 Walnut St., Watertown, MA 02172 617-924-1500
Astrosystems, 6 Nevada Dr., Lake Success, NY 11042 516-328-1600
† Basic Elctrns., 11762 Western Ave. "Q", Stanton, CA 90680 714-530-2400
Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Brown Boveri Elec., Norristown Rd., Spring House, PA 19477 215-628-7400
Bussco Engrg., 119 Standard St., El Segundo, CA 90245 213-322-6580
Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
§ Eaton Corp./Cutler-Hammer Prods., Aerospace/Commercial Controls Div., 4201 N. 27th St., Milwaukee, WI 53216 414-449-7487
† Eldre Comps., 1500 Jefferson Rd., Rochester, NY 14623 716-244-2570
† Electronics Stamping Corp., Sub. of Buckbee-Mears Co., 19920 S. Alameda St., Rancho Dominguez, CA 90220 213-639-2120
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164 312-681-7071
† Interconics, BMC Industries, Inc., 610 Bremer Tower, St. Paul, MN 55101 612-228-6512
§ Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 213-452-6000
† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England 0442-40471/6
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 818-245-9121

Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707 714-979-4770
§† Tech-Etch Inc., 45 Aldrin Rd., Plymouth, MA 02360 617-747-0300
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Bus Compatible Instruments — See Instruments, Test and Measuring, GPIB Compatible (Vol. 3)

Bushings, Glass, Plastic, Metal, Rubber, etc.-2500

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ... 2•1787
§ Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ....2•1214,1215,1223,1227-1231,1233,1235
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2091
Delbert Blinn Co., Box 2007, Pomona, CA 91766, 714-629-3900 ....1A•2093
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033; 800-526-4182 ....2•1861
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 ....2•1765,1766,1769
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 ....2•1488,1489,1491
Semiconductor Circuits, 49 Range Rd., Windham, NH 03087, 603-893-2330 ....2•1865
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ....2•1565
Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 ....2•1868
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 ..914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
§ Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 ...201-943-7650
§ Adalet-PLM Div, Div. Scott & Fetzer Co., 4801 W. 150th St., Cleveland, OH 44135 216-267-9000
§† Aimsco Inc., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056 206-284-5563
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
† Atlantic Optical Moulding, Ellis St., P.O. Box 309, Dudley, MA 01570 617-943-1746
Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ Bivar, Inc., 4 Thomas, Irvine, CA 92714 714-951-8808
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Budwig Mfg., P.O. Box 829, Ramona, CA 92065 619-789-0900
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
Carbone Lorraine Inds., 400 Myrtle Ave., Boonton, NJ 07005 ....201-DE4-0700
Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
† Cleveland Mica Co., 1360 Hird Ave., Lakewood, OH 44107 216-226-1360
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
Corning Glass Works, Main Plant, MS 2136, Corning, NY 14831 607-974-4102
§ Dayco Corp., 333 W. First St., Dayton, OH 45402 513-226-5927
Degussa, Rte. 46 & Hollister, Teterboro, NJ 07608 201-288-6500
§† Deutsch Fastener, 1315 East Grand Ave., El Segundo, CA 90245 ...213-322-8840
Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
General Elec. Co., Carboloy Systems Dept., Box 237, Detroit, MI 48232 313-536-9100
Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702 914-968-8400
§ Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
§ Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605 818-875-0213
† Instru-Lec, 520 Homestead Ave., Mt. Vernon, NY 10550 914-668-3754
Jaco Mfg. Co., 468 Geiger St., Berea, OH 44017 216-234-4000
Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica CA 90406 213-452-6000
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 ....213-849-6211; 800-423-2734
3M Co., Tech Ceramic Resources, 3M Center 225-4W, St. Paul, MN. 55101 617-736-0601
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
† Moldtronics, Inc., 707 Roger St., Downers Grove, IL 60515 312-968-7000
MPB Corp., Precision Park, Keene, NH 03431 603-352-0310
† NL Bearings/NL Industries Inc., PO Box 934, Toledo, OH 43694 419-381-3100
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
Nyltite, 3451 S. Clinton Ave., S. Plainfield, NJ 07080 201-561-1300
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800
§† Penn Fibre & Spec., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124 215-288-7366
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 .213-777-8108
Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
† Quantum, Barnes Indl. Pk., Wallingford, CT 06492 203-265-2811
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013 717-243-5929
Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 818-245-9121
Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ...213-357-3287
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ...615-867-4100
† Stock Drive Prods., Div. of Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-0200
§† Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 ..716-232-1291
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
Vernay Laboratories, Inc., S. College St., Yellow Springs, OH 45387 513-767-7261
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
§ Weckesser Co. Inc., 4444 W. Irving Park Rd., Chicago, IL 60641 312-282-8626

Busses, Multibus, Q Bus, S100 Bus, STD Bus — See Board Computers & Subassemblies (Vol. 3)

Buzzers, Electronic — See Bells, Buzzers, Gongs, Sirens & Aural Warning Devices (Vol. 3)

Cabinets, Plastic — See Enclosures, Nonmetallic (Vol. 2)

Cabinets & Accessories, Metal — See Enclosures, Equipment & Panel Mounting (Vol. 2)

Cable, Audio-6000

American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 ....2•1942
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 ....2•1949-1953,1956-1961,1965,1966
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ....2•1992,1993
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ....2•1997-2005,2007,2009
§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ....2•2023-2028,2041,2050,2051,2070
† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 ....2•2096,2097,2101
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ....2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ....2•2104
§ Saxton Prods., 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ....2•2144-2146
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 ....2•1562,1563
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530, 914-681-0700 ....3•1055
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 ...415-592-4550
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
† Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491 309-695-2511
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
§ Duotone, 6875 S.W. 81st St., S. Miami, FL 33143 305-665-1121
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
† Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164 312-681-7071
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 312-681-7100
§ Harris Corp., Dracon Div., 809 Calle Plano, Camarillo, CA 93010 805-987-9511
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .....212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ...312-276-4454
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106 312-766-7800
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§ Martin Sound Prods., 28 Alpha Park, Cleveland, OH 44143-2297 216-442-2286
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
§ Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440

National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
§ Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
§ Recoton Corp., 46-23 Crane St., Long Island City, NY 11101 212-392-6442
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
† Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 914-429-3103
§ Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
§ Shure Bros., 222 Hartrey Ave., Evanston, IL 60204 312-866-2200
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§ Vidaire Elctrns., 150 Buffalo Ave., Freeport, NY 11520 516-623-6696
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577 703-985-3811
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Cable, Battery Booster-6000

§ **Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 .... 2•1529**
§ Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 401-724-9605
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006

Cable, Coaxial-6000

§ **Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 .... 2•1940,1941**
§ **Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 ....2•1946-1948,1967,1968,1971**
Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491, 309-695-2511 .... 2•1986,1987
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... 2•2012,2013
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1234
§† **Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ....2•2037,2040,2041,2043-2049,2057**
§ **JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470, 201-694-6200 .... 2•2103**
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... 2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... 2•2104
§ **L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... 2•2108**
† **Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... 2•2143**
§† **Saxton Prods., 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ....2•2147-2149**
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... 2•1562,1563
† Adams-Russell, Antenna & Microwave Div., Haverhill Rd., Amesbury, MA 01913 617-388-5210
§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Andrew Corp., 10500 W. 153rd St., Orland Pk., IL 60462 312-349-3300
§† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022
§† Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
BLACK BOX Corp., Micom Sys., P.O. Box 12800, Pittsburgh, PA 15241 412-746-5500
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Brooks Mfg. Co., 2016/24 Amber St., Philadelphia, PA 19125 ....215-425-3395; 800-523-0130
† Cablewave Sys., 60 Dodge Ave., North Haven, CT 06473 203-239-3311
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
† Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
† Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dataspan Systems Inc., 120 W. Palisades Blvd., Palisades Park, NJ 07650 201-461-3337
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
† Eaton Corp., Microwave Comps. Div., 783 Palomar Ave., Sunnyvale, CA 94086 408-245-6810
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
Flexco Microwave, Inc., P.O. Box 174, Karrville Rd., Port Murray, NJ 07865 201-689-3020
Gabriel Elctrns., Box 70, Scarborough Indl. Pk., Scarborough, ME 04074 207-883-5161
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 201-768-8082
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
§ Heath Co., Benton Harbor, MI 49022 616-982-3886
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
§ Inmac, 2465 Augustine Dr., Santa Clara, CA 95051 408-727-1970
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
§ Lance Inds., P.O. Box 4156, Sylmar, CA 91342-0156 818-367-1811
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
† Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 619-449-3844
Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§† Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Pathcom, Inc., Pace Two-Way Radio Prods., 24105 S. Frampton Ave., Harbor City, CA 90710 213-325-1290
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
† Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
§† Precision Tube, Church Rd. & Wissahickon, N. Wales, PA 19454 215-699-5801
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
† Reactel, Inc., 687-D Lofstrand La., Rockville, MD 20850 301-279-5535
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
Scientific-Atlanta, Inc., P.O. Box 105600, Atlanta, GA 30348 404-441-4000
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§ Terminal Data Corp., 11878 Coakley Circle, Rockville, MD 20852 301-881-7655

§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§† Uniform Tubes, Collegeville, PA 19426 215-539-0700
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 ..... 401-821-1700; SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577 703-985-3811
Weinschel Engrg., One Weinschel La., Gaithersburg, MD 20877 ..... 301-948-3434; 800-638-2048
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Whittaker Corp., 10880 Wilshire Blvd., Los Angeles, CA 90024 213-475-9411
† Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 818-843-5770
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, Dial — See Cords & Cable, Dial Drive (Vol. 2)

Cable, FEP Insulated-6000

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... 2•1989
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... 2•2011-2013
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2037,2040,2044-2046,2057
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dataspan Systems Inc., 120 W. Palisades Blvd., Palisades Park, NJ 07650 201-461-3337
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
§ Saxton Prods., 215 N. Rte. 303, Congers, NY 10920 914-268-6848;800-431-2774
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600

Cable, Fiber Optic-2475 — *See Vol. 1B*

Cable, Flame Retardant-6000

§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 .... 2•1967,1968
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... 2•1997-2005,2008-2010
§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2022,2056,2065
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... 2•2100
§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... 2•2104
§† Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... 2•2104
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... 2•2123,2124
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... 2•2143
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
§† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 .. 215-785-0511
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ... 219-784-3011
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
Fibronics Intl. Inc., 325 Stevens St., Hyannis, MA 02601 617-778-0700
Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ..... 212-657-4422; 800-221-0144
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
† Parlex Corp., 145 Milk St., Methuen, MA 01844 617-685-4341
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
§ Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
† Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
§ Saxton Prods., 215 N. Rte. 303, Congers, NY 10920 914-268-6848;800-431-2774
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
† Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 212-939-8300
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 ..... 401-821-1700; SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577 703-985-3811
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, Flat-6000

§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 .... 2•1940,1941
§ AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... 2•1944
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 .... 2•2076,2077,2079
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2085
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... 2•2100
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 .... 2•2102
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... 2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... 2•2104
§† 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144, 612-733-7408 .... 2•1514
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223, 503-620-9400 .... 2•2114,2115
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... 2•2129,2130
Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... 2•1586,1895
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1606
† Advanced Circuit Technlg., 118 N Eastern Blvd., Nashua, NH 03062 603-880-6000
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 .. 415-592-4550
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
§† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
† Basic Elctrns., 11762 Western Ave. "Q", Stanton, CA 90680 714-530-2400
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200

Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 ...215-376-8071
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ...617-265-2102
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 ...203-423-6321
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ...203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ...201-796-2886
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 ...203-838-4444
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ...802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 ...914-469-2141
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 ...714-540-5490
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ...516-293-1610
§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 ...312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 ...516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
§† Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 ...215-969-4200
† Electro Weave, 38 Harlow St., Worcester, MA 01605 ...617-752-8932
Gavitt Wire & Cable, Brookfield, MA 01506 ...617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ...815-968-9661
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ...602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ...302-738-4880
§ H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810 ...203-794-1798
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 ...714-660-5701
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542 ...516-671-6010
§ Inmac, 2465 Augustine Dr., Santa Clara, CA 95051 ...408-727-1970
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 ...201-891-5800
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 ...201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ...212-657-4422; 800-221-0144
§ Lance Inds., P.O. Box 4156, Sylmar, CA 91342-0156 ...818-367-1811
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 ...215-677-6700
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ...914-967-8000
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ...312-867-9600
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 ...312-969-4550
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 ...617-588-6110
† National Telephone & Elctrns. Inc., 7561 N.W. 77th Terr., Miami, FL 33166 ...305-885-9423
Okonite, Box 340, Ramsey, NJ 07446 ...201-825-0300
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800
† Parlex Corp., 145 Milk St., Methuen, MA 01844 ...617-685-4341
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 ...617-845-5000
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 ...802-372-4561
Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 ...201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ...415-361-3860
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 ...812-945-0211
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ...914-698-0080
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 ...812-944-6733
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 ...914-681-0700
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ...408-980-1600
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ...312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 ...415-234-9090
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 ...201-685-1600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 ...312-971-3460
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ...914-737-5600
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ...312-981-6000
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ...617-757-3872
† Woven Elctrns., Box 189, Mauldin, SC 29662 ...803-963-5131

Cable, Heater-6000

§ **Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ... 2•2070**
Acme Elec. Heating Corp., 4685 E. 11th, Hialeah, FL 33013 ...305-685-8326
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ...201-925-8000
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ...818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ...317-983-5200
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ...201-796-2886
Chester Cable, Oakland Ave., Chester, NY 10918 ...914-469-2141
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ...516-293-1610
§ Custom Cable, 242 Butler, Westbury, NY 11590 ...516-334-3600
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ...201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ...312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ...219-784-3011
Galite, 2 Tower Dr., Wallingford, CT 06492 ...203-265-7126
§ General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport. CT 06602 ...203-382-2000
Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ...302-738-4880
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ...212-657-4422; 800-221-0144
Markel Corp., P.O. Box 752, Norristown, PA 19404 ...215-272-8960
Muirhead, 1101 Briston Rd., Mountainside, NJ 07092 ...201-233-6010
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 ...213-225-5611
Omega Engrg., Box 4047, Stamford, CT 06907 ...203-359-1660
† Parlex Corp., 145 Milk St., Methuen, MA 01844 ...617-685-4341
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ...203-265-5533;800-243-3959
Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 ...201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ...415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 ...914-651-4451
§ Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 ...419-729-9761
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ...213-536-0006
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ...914-737-5600
§ Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 ...212-939-8300
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 ...401-821-1700; SALES 401-821-7800

Cable, High Temperature (Over 125)-6000

Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491, 309-695-2511 ... 2•1986
§† **Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... 2•1988,1989**
§† **Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ... 2•2037,2041,2057**
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2087**
§† **Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 ... 2•2100**
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... 2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... 2•2104
§ **Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 ... 2•1522**
† **Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ... 2•2143**
† Adams-Russell, Antenna & Microwave Div., Haverhill Rd., Amesbury, MA 01913 ...617-388-5210
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 ...415-592-4550
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ...617-583-0160
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ...201-925-8000
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 ...401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ...818-982-2832
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 ...201-862-0022
§† Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ...317-983-5200
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 ...215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ...617-265-2102
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ...203-423-7771
Ceramaseal, Box 25, New Lebanon Center, NY 12126 ...518-794-7800
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ...802-655-2121
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 ...818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 ...516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ...312-473-4990
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ...219-784-3011
† Electro Weave, 38 Harlow St., Worcester, MA 01605 ...617-752-8932
† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 ...203-382-2000
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ...602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ...302-738-4880
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 ...301-252-1768
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 ...213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 ...714-752-3800
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ...212-657-4422; 800-221-0144
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 ...201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ...914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 ...215-272-8960
Masterite Corporation, 2841 Lomita Blvd., Torrance, CA 90505 ...213-775-3471
Metier Management Sys., Inc., 10175 Harwin Dr., Ste. 100, Houston, TX 77449 ...713-988-9100
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 ...503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 ...213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 ...201-825-0300
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 ...617-845-5000
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 ...802-372-4561

† Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
§ Saxton Prods., 215 N. Rte. 303, Congers, NY 10920 914-268-6848;800-431-2774
Simmonds Precision, P.O. Box 310, Norwich, NY 13815 607-335-5000
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 212-939-8300
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
Uniform Tubes, Collegeville, PA 19426 215-539-0700
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577 703-985-3811
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 818-843-5770
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, High Voltage (1,000 Volts & Over)-6000

§ **Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 .... 2•1940,1941**
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 .... 2•1942
§† **Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... 2•1988,1991**
§† **Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2043-2045,2071**
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... 2•2087**
§† **Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... 2•2098,2100**
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... 2•2104,2105
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... 2•2104,2105
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... 2•2121,2122
† **Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... 2•2143**
† Adams-Russell, Antenna & Microwave Div., Haverhill Rd., Amesbury, MA 01913 617-388-5210
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
Bertan Assocs., 121 New South Rd., Hicksville, NY 11801 516-433-3110
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Buggie H. H./Caton Connector Corp., 20 Wapping Rd., Kingston, MA 02364 617-585-4315
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 617-585-4315
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 617-448-5485
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 317-664-6211
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
§ General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
† Parlex Corp., 145 Milk St., Methuen, MA 01844 617-685-4341
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
§ Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
Simmonds Precision, P.O. Box 310, Norwich, NY 13815 607-335-5000
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 213-587-7103

† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
Uniform Tubes, Collegeville, PA 19426 215-539-0700
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, Instrumentation & Control-6000

§ **Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 .... 2•1940,1941**
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 .... 2•1942
Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 .... 2•1949-1984
Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491, 309-695-2511 .... 2•1986,1987
§† **Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... 2•1990-1993**
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... 2•1997-2005,2007-2010
§† **Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2021-2023,2025-2027,2029,2031,2032,2035, 037-2039,2041,2042,2050-2055,2057,2064-2066,2072**
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 .... 2•2080,2081
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... 2•2088, 2089**
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... 2•2096,2097
§ **Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... 2•2104**
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... 2•2104
§ **L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... 2•2106-2108**
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... 2•2119-2128,2131,2132
§ **Saxton Prods., 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 .... 2•2144-2146,2149**
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
B & G Precision Elctrns., 538 Maple Ave., Doylestown, PA 18901 215-348-4413
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§ Dataspan Systems Inc., 120 W. Palisades Blvd., Palisades Park, NJ 07650 201-461-3337
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
† Eaton Corp., Microwave Comps. Div., 783 Palomar Ave., Sunnyvale, CA 94086 408-245-6810
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
Gandalf Data, Inc., 1019 S. Noel Ave., Wheeling, IL 60090 312-541-6060
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
† National Telephone & Elctrns. Inc., 7561 N.W. 77th Terr., Miami, FL 33166 305-885-9423
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203 265-5533;800-243-3959
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 914-429-3103
SpecTran Corp., Hall Rd., P.O. Box 650, Sturbridge, MA 01566 617-347-2261
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
Systems Resch. Labs., Inc., 2800 Indian Ripple Rd., Dayton, OH 45440 513-426-6000
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§ Terminal Data Corp., 11878 Coakley Circle, Rockville, MD 20852 301-881-7655
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577 703-985-3811

§—Product sold through distributors †—Product meets MIL specs

§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg: B, N. Hollywood, CA 91605 818-764-6296
† Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 818-843-5770

Cable, Intercommunication & Sound System — See Cable, Audio (Vol. 2)

Cable, Irradiated-6000

§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ....2•2104
§† Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ....2•2104
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, Low Capacitance-6000

Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ....2•2006,2009
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ....2•2030,2038,2040,2043,2046,2051,2069
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ....2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ....2•2104
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Cablewave Sys., 60 Dodge Ave., North Haven, CT 06473 203-239-3311
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 201-768-8082
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
Inmac, 2465 Augustine Dr., Santa Clara, CA 95051 408-727-1970
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
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§ Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
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§ Saxton Prods., 215 N. Rte. 303, Congers, NY 10920 914-268-6848;800-431-2774
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Spectron Corp., 344 New Albany Rd., Moorestown, NJ 08057 609-234-5700
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§ Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 212-939-8300
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
§† Uniform Tubes, Collegeville, PA 19426 215-539-0700
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
V.I.P. Inds. Inc., 246 Knickerbocker Ave., Paterson, NJ 07503 201-345-5800
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577 703-985-3811
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, Microphone-6000

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ....2•1992
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ....2•2001,2005-2007
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ....2•2028
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ....2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ....2•2104
§ Saxton Prods., 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ....2•2147,2148
§ AKG Acoustics, Inc., 77 Selleck St., Stamford, CT 06902 203-348-2121
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
† Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Shure Bros., 222 Hartrey Ave., Evanston, IL 60204 312-866-2200

Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
§ Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700; SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§ Vidaire Elctrns., 150 Buffalo Ave., Freeport, NY 11520 516-623-6696
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577 703-985-3811
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Cable, Multiconductor-6000

§ **Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 .... 2•1940,1941**
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 .... 2•1942
§ **Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 .... 2•1949-1966,1969-1984**
Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491, 309-695-2511 .... 2•1986
§† **Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... 2•1989,1991-1993**
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... 2•1997-2010,2016-2018
§† **Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2021-2030,2032-2039,2041,2042,2050-2052,2055-2057, 2062,2064,2065,2074**
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 .... 2•2080,2081
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .. 2•2085, 2080,2089**
§† **Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... 2•2096-2098,2101**
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 .... 2•1338
§ **JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470, 201-694-6200 .... 2•2103**
§† **Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... 2•2104,2105**
§† **Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... 2•2104,2105**
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... 2•2106-2108
§ **Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... 2•1522**
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... 2•2119-2132
§† **Saxton Prods., 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 .... 2•2144-2146,2149**
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 .... 2•1579
§ **Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... 2•1586,1587,1895**
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1606
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... 2•1738,1739,2151
† Advanced Circuit Technlg., 118 N. Eastern Blvd., Nashua, NH 03062 603-880-6000
Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 312-728-7480
Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 317-664-6211
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
† Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164 312-681-7071
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 312-681-7100
§ H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810 203-794-1798
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§ Lance Inds., P.O. Box 4156, Sylmar, CA 91342-0156 818-367-1811
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
§† 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 818-991-8553
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
National Telephone & Elctrns. Inc., 7561 N.W. 77th Terr., Miami, FL 33166 305-885-9423
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406 707-523-0600
† Parlex Corp., 145 Milk St., Methuen, MA 01844 617-685-4341
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 .... 212-775-1395;800-221-3333
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 201-762-6886
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
§† Revere Corp. of Amer., 845 N. Colony Rd., Wallingford, CT 06492 203-269-7701
† Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 914-429-3103
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 716-621-8400
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
† Teledyne Aerospace Sys., 1007 E. 10th St., Fairmont, MN 56031 .... 507-235-3355; 07-235-9712;507-238-9494
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 213-587-7103
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 212-939-8300
† Thermo Elec., 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700; SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, Plenum-6000

§ **Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 .... 2•1949-1961,1963-1970**
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... 2•2010
§ **Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2037,2056,2057**
§ **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... 2•2088**
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121

§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
§ Dataspan Systems Inc., 120 W. Palisades Blvd., Palisades Park, NJ 07650 ... 201-461-3337
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
Fibronics Intl. Inc., 325 Stevens St., Hyannis, MA 02601 ... 617-778-0700
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 ... 201-768-8082
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
Inmac, 2465 Augustine Dr., Santa Clara, CA 95051 ... 408-727-1970
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 ... 215-699-5373
Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 ... 503-620-9400
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ... 312-532-1800
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 ... 617-845-5000
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ... 203-265-5533;800-243-3959
§ Saxton Prods., 215 N. Rte. 303, Congers, NY 10920 914-268-6848;800-431-2774
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 ... 415-234-9090
Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 ... 312-971-3460
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
§ Terminal Data Corp., 11878 Coakley Circle, Rockville, MD 20852 ... 301-881-7655

Cable, Power-6000

Arstan Products Intl. Ltd., 99 Jericho Tpke., Jericho, NY 11753, 516-333-8100 ... 1A•2133
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... 2•1990
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ... 2•2015-2019
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ... 2•2022,2053-2055,2065-2068,2072
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .. 2•2085, 2086
ETRI, 608 Broome St., P.O. Box 568, Monroe, NC 28110, 704-289-5423 ... 2•1820
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 ... 2•2140,2141
§† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ... 2•2143
† Advanced Circuit Technlg., 118 N. Eastern Blvd., Nashua, NH 03062 ... 603-880-6000
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 ... 401-726-0700
† Anchor Specialty Mfg. Inc., 300 Hollister Rd., Teterboro, NJ 07608 ... 201-288-1939
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 ... 203-249-8471
§ Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 . 312-728-7480
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491 ... 309-695-2511
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 ... 203-647-1468
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 ... 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 .. 215-785-0511
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ... 219-784-3011
† Electro Weave, 38 Harlow St., Worcester, MA 01605 ... 617-752-8932
Ericson Mfg. Co., 4215 Hamann Pkwy., Willoughby, OH 44094 ... 216-951-8000
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 ... 317-664-6211
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
§ General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 ... 203-382-2000
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
§† Linemaster Switch, Box 52, Woodstock, CT 06281 ... 203-974-1000
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 ... 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 ... 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 ... 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 ... 201-825-0300
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 ... 213-532-6600
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 ... 203-625-3200
§ Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 ... 201-687-8444
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 ... 201-762-6886
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 ... 914-651-4451
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 ... 516-466-0911
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 408-980-1600
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 ... 312-792-2700
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 ... 213-587-7103
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 ... 401-821-1700; SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 ... 813-371-4242
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Cable, Retractile — See Cords, Retractile (Vol. 2)

Cable, Ribbon — See Cable, Flat (Vol. 2)

Cable, Rotator Antenna — See Cable, Multiconductor (Vol. 2)

Cable, Security-6000

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 ... 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 ... 201-753-7988
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
§ Saxton Prods., 215 N. Rte. 303, Congers, NY 10920 914-268-6848;800-431-2774
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121

Cable, Shielded-6000

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 ... 2•1940,1941
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 ... 2•1942
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 ... 2•1946-1948,1956-1968,1971-1984
† Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491, 309-695-2511 ... 2•1986,1987
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... 2•1989-1993
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ... 2•1997,1998,2000,2001,2005-2010
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ... 2•2025-2042,2044-2057,2067-2070
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 ... 2•2078
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .. 2•2088, 2089
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 ... 2•2096,2098,2101
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 ... 2•2102
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470, 201-694-6200 ... 2•2103
§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... 2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... 2•2104
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 ... 2•2106,2107
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 ... 2•1913
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 ... 2•2119-2126
§† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ... 2•2143
§† Saxton Prods., 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ... 2•2144-2149
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 ... 2•1096
Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 ... 2•1587
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 ... 2•1738,1739,2151

† Advanced Circuit Technlg., 118 N. Eastern Blvd., Nashua, NH 03062 603-880-6000
† Aircraft & Electrn. Spec., Box 248, Plainfield, IN 46168 317-272-2551
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
† Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
§† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
† Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
† Glenair, 1211 Air Way, Glendale, CA 91201 213-247-6000
Gordon, Claud S., Co., 5710 Kenosha St., Richmond, IL 60071 815-678-2211
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
§ Harris Corp., Dracon Div., 809 Calle Plano, Camarillo, CA 93010 805-987-9511
Inmac, 2465 Augustine Dr., Santa Clara, CA 95051 408-727-1970
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ...312-276-4454
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§† Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§† Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406 707-523-0600
† Parlex Corp., 145 Milk St., Methuen, MA 01844 617-685-4341
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ....203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
§† Precision Tube, Church Rd. & Wissahickon, N. Wales, PA 19454 215-699-5801
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
§† Revere Corp. of Amer., 845 N. Colony Rd., Wallingford, CT 06492 .203-269-7701
† Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
† Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 914-429-3103
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
† Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Shure Bros., 222 Hartrey Ave., Evanston, IL 60204 312-866-2200
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
† Teledyne Aerospace Sys., 1007 E. 10th St., Fairmont, MN 56031 ..507-235-3355; 07-235-9712;507-238-9494
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 213-587-7103
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§ Terminal Data Corp., 11878 Coakley Circle, Rockville, MD 20852 301-881-7655
† Thermo Elec., 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§† Uniform Tubes, Collegeville, PA 19426 215-539-0700
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 ....401-821-1700; SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131
† Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Cable, Telephone-6000

Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ....2•2002,2003,2008
§† **Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ....2•2036**
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2088**
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 ....2•1338
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ....2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ....2•2104
Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590, 516-935-3640 ....2•2109
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 ....2•2127,2128
Saxton Prods., 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ....2•2144,2145
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 ....2•1738,1739,2151
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ...212-691-9050
§ Dataspan Systems Inc., 120 W. Palisades Blvd., Palisades Park, NJ 07650 201-461-3337
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 201-768-8082
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164 312-681-7071
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 312-681-7100
H-A-Z Laboratories, Brass Castle Rd., P.O. Box 67-M, Washington, NJ 07882 201-689-0110
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ...312-276-4454
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
† National Telephone & Elctrns. Inc., 7561 N.W. 77th Terr., Miami, FL 33166 305-885-9423
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
† Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171

Cable, Telephone-6000 (Cont'd)

Spectron Corp., 344 New Albany Rd., Moorestown, NJ 08057 ... 609-234-5700
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 ... 415-234-9090
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 ... 914-359-9300
Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 ... 312-971-3460
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 ... 401-821-1700; SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 ... 813-371-4242
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Cable, TFE Insulated-6000

§† **Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... 2•1988,1989**
§† **Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ... 2•2044,2045**
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2087, 2089**
§† **Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 ... 2•2098**
† **GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 ... 2•2102**
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 ... 201-862-0022
§† Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ... 203-423-7771
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 ... 401-724-9605
Chabin Corp., 890 Fortress St., Chico, CA 95926 ... 916-891-6410
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 ... 203-647-1468
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
† Electro Weave, 38 Harlow St., Worcester, MA 01605 ... 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 ... 215-699-5373
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 ... 215-272-8960
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 ... 215-459-3566
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 ... 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 ... 213-225-5611
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 ... 201-696-4700
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 ... 617-845-5000
§† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 ... 609-235-6700
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 ... 802-372-4561
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 ... 201-687-8444
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 ... 714-751-7733
Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
§† Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 ... 212-939-8300
† Thermo Elec., 109 Fifth St., Saddle Brook, NJ 07662 ... 201-843-5800
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 ... 203-265-8500
§† Uniform Tubes, Collegeville, PA 19426 ... 215-539-0700
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577 ... 703-985-3811
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Cable, Thermocouple-6000

American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 ... 2•1942
§ **Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 ... 2•1961**
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... 2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... 2•2104
Omega Engrg., Box 4047, Stamford, CT 06907, 203-359-1660 ... 2•2135
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
Amperex Electronic Corp., Hicksville Div., Box 418 - 230 Duffy Ave., Hicksville, NY 11802 ... 516-931-6200
§ Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ... 203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
Communication Cable, 5 Glen Rd., Manchester, CT 06040 ... 203-647-1468
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
Degussa, Rte. 46 & Hollister, Teterboro, NJ 07608 ... 201-288-6500
† Electro Weave, 38 Harlow St., Worcester, MA 01605 ... 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
§ Love Controls, 1475 S. Wheeling Rd., Wheeling, IL 60090 ... 312-541-3232
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 ... 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
Markel Corp., P.O. Box 752, Norristown, PA 19404 ... 215-272-8960
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 ... 503-620-9400
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 ... 617-845-5000
† Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ... 203-265-5533;800-243-3959
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
Richards, Arklay S., Co., Inc., 72 Winchester St., Newton Highlands, MA 02161 ... 617-527-1512
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 ... 714-751-7733
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 ... 818-843-5770

Cable, Transmission Line-6000

§ **Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 ... 2•1940,1941**
§ **Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 ... 2•1946-1948,1967-1973**
§† **Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... 2•1993**
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ... 2•1997,2001,2008,2009,2011-2013
§† **Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ... 2•2043-2045**
Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2088
§ **Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 ... 2•1522**
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 ... 2•2127,2128
§ **Saxton Prods., 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ... 2•2144-2146**
† Adams-Russell, Antenna & Microwave Div., Haverhill Rd., Amesbury, MA 01913 ... 617-388-5210
Andrew Corp., 10500 W. 153rd St., Orland Pk., IL 60462 ... 312-349-3300
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 ... 201-862-0022
† Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 ... 703-642-4000
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ... 203-423-7771
§† Cablewave Sys., 60 Dodge Ave., North Haven, CT 06473 ... 203-239-3311
Chabin Corp., 890 Fortress St., Chico, CA 95926 ... 916-891-6410
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
Eaton Corp., Microwave Comps. Div., 783 Palomar Ave., Sunnyvale, CA 94086 ... 408-245-6810
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 ... 317-664-6211
Flexco Microwave, Inc., P.O. Box 174, Karrville Rd., Port Murray, NJ 07865 ... 201-689-3020
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 ... 201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 ... 215-272-8960
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 ... 503-620-9400
Okonite, Box 340, Ramsey, NJ 07446 ... 201-825-0300
Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 ... 203-625-3200
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 ... 212-775-1395;800-221-3333
§ Precision Tube, Church Rd. & Wissahickon, N. Wales, PA 19454 ... 215-699-5801
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361

Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§† T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§† Uniform Tubes, Collegeville, PA 19426 215-539-0700
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
† Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 818-843-5770
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, Triaxial-6000

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 .... 2•1940,1941
§† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... 2•2143
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 401-724-9605
Chabin Corp., 890 Fortress St., Chico, CA 95926 916-891-6410
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 201-768-8082
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ....203-265-5533;800-243-3959
§ Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Precision Tube, Church Rd. & Wissahickon, N. Wales, PA 19454 215-699-5801
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Saxton Prods., 215 N. Rte. 303, Congers, NY 10920 914-268-6848;800-431-2774
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
† Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 212-939-8300
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
Uniform Tubes, Collegeville, PA 19426 215-539-0700
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 818-843-5770
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, TV (Incl. Camera)-6000

Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... 2•2007
§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2048,2049,2069
§ Saxton Prods., 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 .... 2•2147-2149
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§ BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 617-585-4315
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ...312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§† Uniform Tubes, Collegeville, PA 19426 215-539-0700
Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 ....401-821-1700; SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
Vitek Elctrns.; 4 Gladys Ct., Edison, NJ 08817 201-287-3200
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296

Cable, Twisted Pair-6000

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 .... 2•1940,1941
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, 317-983-5200 .... 2•1949,1954,1955,1962-1964,1969-1973,1978
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... 2•1991-1993
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... 2•1999,2003
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2023,2024,2030-2032,2034-2039,2041,2051,2052,2054, 2055,2057
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2089
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... 2•2098
§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... 2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... 2•2104
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... 2•2120,2122,2125,2126
§ Saxton Prods., 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 .... 2•2144,2148
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§† Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 .312-728-7480
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
BLACK BOX Corp., Micom Sys., P.O. Box 12800, Pittsburgh, PA 15241 412-746-5500
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491 309-695-2511
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§ Dataspan Systems Inc., 120 W. Palisades Blvd., Palisades Park, NJ 07650 201-461-3337
Degussa, Rte. 46 & Hollister, Teterboro, NJ 07608 201-288-6500
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511

Cable, Twisted Pair-6000 (Cont'd)

Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
§ Hartley Prods., 620 Island Rd., Ramsey, NJ 07446 201-327-4443
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
§ Martin Sound Prods., 28 Alpha Park, Cleveland, OH 44143-2297 216-442-2286
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 .... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
† Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 914-429-3103
§† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 914-359-9300
Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 212-939-8300
† Thermo Elec., 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700; SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable, Woven Conductor-6000

Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2073
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... 2•2100
† **GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 .... 2•2102**
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 .... 2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 .... 2•2104
† **Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 .... 2•1913**
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... 2•2130
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Cable & Assemblies (MIL)-2440 — *See Vol. 1B*

Cable Assemblies & Harnesses-6000

† **Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 .... 2•1119**
Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 .... 2•1940,1941
§ **Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1149,1152**
† **Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491, 309-695-2511 .... 2•1986,1987**
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1234
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 .... 2•2096,2098
† **GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 .... 2•2102**
§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1392,1426,1454,1456-1467**
§ **L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... 2•2107,2108**
§ **Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... 2•1522**
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223, 503-620-9400 .... 2•2114,2115
§ **National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... 2•1530**
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... 2•2132
† **Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945, 617-631-7100 .... 2•2133**
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... 2•1556-1558
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... 2•1562,1563
§ **Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 .... 2•1096,1579**
§ **Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... 2•1586,1587,1895**
§ **Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1607**
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... 2•1743
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
† Adams-Russell, Parisi Div., 280 Bear Hill Rd., Waltham, MA 02154 617-890-0055
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
† Aircraft & Electrn. Spec., Box 248, Plainfield, IN 46168 317-272-2551
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Almor Co., Inc., PO Box 1790, 155 Crescent St., Brockton, MA 02403 617-586-5406
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
Altek Co., P.O. Box 1128, Torrington, CT 06790 203-482-7626
Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
† Antex Div., 7 Hawkes St., Marblehead, MA 01945 617-631-7100
Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525 203-387-5282
Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Arenberg Sage Inc., P.O. Box 250, 57 Cornwall St., Jamaica Plain, MA 02130 617-522-8640
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
† Ashman Industries (1966) Ltd., 66 Brock Rd., Greensville Dundas, ON Canada 416-628-6371
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
† Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Augat/ESP, Inc., 12832 Chadron Ave., Hawthorne, CA 90250 213-973-0262
Aura Mfg., 50 McDermott Rd., New Haven, CT 06473 203-777-2541
Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
B & G Precision Elctrns., 538 Maple Ave., Doylestown, PA 18901 215-348-4413
† Basic Elctrns., 11762 Western Ave. "Q", Stanton, CA 90680 714-530-2400
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Buggie H. H./Caton Connector Corp., 20 Wapping Rd., Kingston, MA 02364 617-585-4315

§—Product sold through distributors †—Product meets MIL specs

§† Cable Sys & Assembly, 210 Broadway, Everett, MA 02149 617-389-7080
† Cardinal Control Co., 110 Kensington Rd., Kensington, CT 06037 ...203-828-6379
§ Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 401-724-9605
Chabin Corp., 890 Fortress St., Chico, CA 95926 916-891-6410
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379 617-580-0111
§ Computer System Assocs., 7562 Trade St., San Diego, CA 92121 ..619-566-3911
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
Cross Elctrns., 100 Commonwealth Dr., Warrendale, PA 15086 412-776-1591
† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ...212-691-9050
† Danmar Inds., 9705 Lurline Ave., Chatsworth, CA 91311 .... 818-882-7979/5280
§ Dataprobe, 110 Palisades Blvd., Palisades Park, NJ 07650 201-947-9500
§ Dataspan Systems Inc., 120 W. Palisades Blvd., Palisades Park, NJ 07650 201-461-3337
Davidson Elctrn. Dev. Co., 113 E. 13th St., Erie, PA 16512 814-453-7547
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
Deutsch Co., Deutsch Fiber Optics Div., 7001 W. Imperial Hwy., Los Angeles, CA 90045 213-649-1400
Digital Equip., One Iron Way, Marlborough, MA 01752 ....
Dynamic Measurements, 8 Lowell Ave., Winchester, MA 01890 617-729-7870
† Eastern Electronics Mfg. Corp., 180 Roberts St., East Hartford, CT 06108 203-528-9821
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ...219-784-3011
† Electro-Prep, 30 Cayuga Ave., E. Falmouth, MA 02536 617-477-1791
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
Ericson Mfg. Co., 4215 Hamann Pkwy., Willoughby, OH 44094 216-951-8000
Everett/Charles Test Equip. Inc., 2887 N. Towne Ave., Pomona, CA 91767 714-621-9511
Evershed & Vignoles Ltd., Acton Lane, Chiswick, London, W4 5HJ England 01-994-3670
§† Excel Specialty Corp., 6335 N. Broadway, Chicago, IL 60660 312-262-4781
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
Flexco Microwave, Inc., P.O. Box 174, Karrville Rd., Port Murray, NJ 07865 201-689-3020
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
General Devices, Box 39100, Indianapolis, IN 46239-9632 317-897-7000
† Glenair, 1211 Air Way, Glendale, CA 91201 213-247-6000
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164 312-681-7071
† Gulton Inds., Inc., Servonic Div., 1644 Whittier Ave., Costa Mesa, CA 92627 ....714-642-2400;800-854-4066
§ H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810 203-794-1798
H-A-Z Laboratories, Brass Castle Rd., P.O. Box 67-M, Washington, NJ 07882 201-689-0110
Hollex, Inc., 81 W. Wyoming Ave., Melrose, MA 02176 617-665-2413
† Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
† IEC Elctrns., 105 Norton St., Newark, NY 14513 315-331-7742
§ Inmac, 2465 Augustine Dr., Santa Clara, CA 95051 408-727-1970
§ International Data Sciences, 7 Wellington Rd., Lincoln, RI 02865 401-333-6200
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 201-887-0571
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 201-694-6200
K & M Elctrns., 123 Interstate Dr., W. Springfield, MA 01089 413-781-1350
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 914-793-5000
Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235 ....717-386-4156; 215-377-5990
§† Linemaster Switch, Box 52, Woodstock, CT 06281 203-974-1000
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
Manage, Inc., Fibre Optics Elctrns. Sys. Grp., P.O. Box 175, 40 Nichols Rd., Chicopee, MA 01014 ....413-598-8204;592-3834
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 203-348-7761
§ Masterite Corporation, 2841 Lomita Blvd., Torrance, CA 90505 213-775-3471
Maury Microwave, 8610 Helms Ave., Cucamonga, CA 91730 714-987-4715
§† 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Metric Sys., 645 Anchors St., Ft. Walton Beach, FL 32548 904-244-9600
§ Midland Standard, Inc., 603 E. Chicago St., Box 38, Elgin, IL 60120 312-741-6600
† Milton Ross Co., 511 Second St, Pike, Southampton, PA 18966 215-355-0200
MoldCon Corp., 221 Interstate Dr., W. Springfield, MA 01089 413-736-0371
Multi Prods. Intl., 218 Little Falls Rd., P.O. Box 238, Cedar Grove, NJ 07009 201-239-8183
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
† National Telephone & Elctrns. Inc., 7561 N.W. 77th Terr., Miami, FL 33166 305-885-9423
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
† Parlex Corp., 145 Milk St., Methuen, MA 01844 617-685-4341
† Poly-Scientific, 1213 N. Main St., Blacksburg, VA 24060 703-552-3014
† Precision Tube, Church Rd. & Wissahickon, N. Wales, PA 19454 215-699-5801
Ragen Corp., Systems Div., 9 Porete Ave., N. Arlington, NJ 07032 .201-997-1000
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
† Reactel, Inc., 687-D Lofstrand La., Rockville, MD 20850 301-279-5535
§† Revere Corp. of Amer., 845 N. Colony Rd., Wallingford, CT 06492 .203-269-7701
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
† Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Ronor Systems, 145 N. Plains Ind. Pk. Rd., Wallingford, CT 06492 .203-265-2110
§† Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852 301-984-1783
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Simmonds Precision, P.O. Box 310, Norwich, NY 13815 607-335-5000
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707 714-979-4770
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§† Systron-Donner Microwave Div., 14844 Oxnard St., Van Nuys, CA 91409 818-786-1760
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
Tegam, 7230 N. Ridge Rd., Madison, OH 44057 216-428-7505
Telecommunications Devices, 2320 Wisconsin Ave., Downers Grove, IL 60515 312-971-3460
† Teledyne Aerospace Sys., 1007 E. 10th St., Fairmont, MN 56031 ..507-235-3355; 07-235-9712;507-238-9494
† Terminal Data Corp., 11878 Coakley Circle, Rockville, MD 20852 ...301-881-7655
† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632 317-897-7000
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .....401-821-1700; SALES 401-821-7800
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
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† V-Tron Elctrns. Corp., 84 Fountain St., Pawtucket, RI 02860 401-728-6140
† Western Reserve Elctrns., 2150 Highland Rd., Twinsburg, OH 44087 216-425-4951
† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
"World" Enterprises, Inc., 550 N. Bayard Ave., Waynesboro, VA 22980 703-942-4159
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131
Xylog Corp., 150 Tillman St., Westwood, NJ 07675 201-664-7997
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Cable Assemblies, Microwave-6000

§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525 203-387-5282
Cardinal Control Co., 110 Kensington Rd., Kensington, CT 06037 ...203-828-6379.
† Eaton Corp., Microwave Comps. Div., 783 Palomar Ave., Sunnyvale, CA 94086 408-245-6810
† Fema Elctrns. Corp., 12-6 Edgeboro Rd., E. Brunswick, NJ 08816 ..201-238-1223
Flexco Microwave, Inc., P.O. Box 174, Karrville Rd., Port Murray, NJ 07865 201-689-3020
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
† Microwave/Sys., 1 Adler Dr., E. Syracuse, NY 13057 315-437-9951
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
† Precision Tube, Church Rd. & Wissahickon, N. Wales, PA 19454 215-699-5801

Cable Fault Locators-2900 — *See Vol. 3*

Cable (MIL), Flat-2440 — *See Vol. 1B*

Cable (MIL), RF-2440 — *See Vol. 1B*

Cable Retractors-1400

General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1034
Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... 2•1045
Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1034

Cages, Card — See Enclosures, Circuit Board, Module, & Relay Mounting (Vol. 2)

Calculators, Electronic, Desk Top-4200

† Exergetic Sys., Inc., 1499 Franklin St., Oakland, CA 94612 415-763-3460
Facit, Inc., 66 Field Point Rd., Greenwich, CT 06830 203-622-9150
Hewlett-Packard Co., 1820 Embarcadero Rd., Palo Alto, CA 94303 .... Call Local Sls. Off.
§ Inmac, 2465 Augustine Dr., Santa Clara, CA 95051 408-727-1970
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 214-995-6611

Calculators, Electronic, Hand Held-4200

§ EDL Inc., 385 Oser Ave., Hauppauge, NY 11787 .....516-435-2808;800-DIAL EDL; 800 342-5335
Facit, Inc., 66 Field Point Rd., Greenwich, CT 06830 203-622-9150
Hewlett-Packard Co., 1820 Embarcadero Rd., Palo Alto, CA 94303 .... Call Local Sls. Off.
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 214-995-6611

Calibration & Instrument Repair Services — See Services, Calibration & Instrument Repair (Vol. 3)

Calibrators, Accelerometer-2900 — ***See Vol. 3***

Calibrators, Attenuation-2900 — ***See Vol. 3***

Calibrators, Crystal-2900 — ***See Vol. 3***

Calibrators, Current-2900 — ***See Vol. 3***

Calibrators, Frequency-2900 — ***See Vol. 3***

Calibrators, LVDT-2900 — ***See Vol. 3***

Calibrators, Magnetic Field-2900 — ***See Vol. 3***

Calibrators, Meter — See Testers, Meter (Vol. 3)

Calibrators, Sound Level-2900 — ***See Vol. 3***

Calibrators, Sweep — See Generators, Sweep (Vol. 3)

Calibrators, Synchro-2900 — ***See Vol. 3***

Calibrators, Time Base-2900 — ***See Vol. 3***

Calibrators, Transducer-2900 — ***See Vol. 3***

Calibrators, Voltage-2900 — ***See Vol. 3***

Calibrators, VSWR-2900 — ***See Vol. 3***

Calorimeters, Microwave-2900 — ***See Vol. 3***

Cameras, Data Recording-2325 — ***See Vol. 3***

Cameras, Image Converter-1900 — ***See Vol. 3***

Cameras, Infrared-2325 — ***See Vol. 3***

Cameras, Oscilloscope-2975 — ***See Vol. 3***

Cameras, Television-1900 — ***See Vol. 3***

Cans & Flat Packs, Integrated Circuit — See Packages, Integrated Circuit (Vol: 1A)

Cans, Capacitor, Relay, Semiconductor, Transformer, etc-2500

† American Aluminum, 230 Sheffield St., Dept. EEM, Mountainside, NJ 07092 201-233-3500
§ General Electric Co., Power Elctrns. Semiconductor Dept., W. Genesee St., Auburn, NY 13021 315-253-7321
Hallmark Metals Inc., 610 W. Foothill Blvd., Glendora, CA 91740 213-335-1263
† Hudson Tool & Die Co., Inc., 18 Malvern St., Newark, NJ 07105 201-589-1800
Inter-Technical Grp., Box 23, Irvington, NY 10533 914-591-8822
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Plastic Capacitors, Inc., 2623 N. Pulaski Rd., Chicago, IL 60639 312-489-2229
South Shore Metal Prods., 88 E Allen Blvd., Farmingdale, NY 11735 516-249-3322
Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 214-995-6611
§ Wadsworth Elec., 20 W. 11th St., Covington, KY 41011 606-431-0900
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Capacitance Comparators — See Bridges, Capacitance (Vol. 3)

Capacitor Hardware-2800

§ Bivar, Inc., 4 Thomas, Irvine, CA 92714, 714-951-8808 .... 2•1018
§ Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
§† Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731 818-575-8144
CSI Capacitors, CSI Technlgs., 810 Rancheros Dr., San Marcos, CA 92069 619-747-4000
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Mallory Capacitor Co., Mallory Comps. Grp., 3029 E. Washington St., Indianapolis, IN 46201 317-636-5353
Sprague Elec. Co., 481 Marshall St., No. Adams, MA 01247 413-664-4411
§ Sprague Products Co., 481 Marshall St., No. Adams, MA 01247 413-664-4481
§ Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 ..716-232-1291
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

Capacitor Leakage Indicators — See Testers, Capacitor (Vol. 3)

Capacitors, Energy Storage-1500 — ***See Vol. 1A***

Capacitors, Chip (For Microcircuits)-1500 — ***See Vol. 1A***

Capacitors, Fixed, AC (Incl. Motor Start)-1500 — ***See Vol. 1A***

Capacitors, Fixed, Air-1500 — ***See Vol. 1A***

Capacitors, Fixed, Aluminum Electrolytic-1500 — ***See Vol. 1A***

Capacitors, Fixed, Ceramic, Disc & Tubular-1500 — ***See Vol. 1A***

Capacitors, Fixed, Ceramic, Monolithic-1500 — ***See Vol. 1A***

Capacitors, Fixed, Feedthru-1500 — ***See Vol. 1A***

Capacitors, Fixed, Film, Metallized & Nonmetallized-1500 — ***See Vol. 1A***

Capacitors, Fixed, Glass-1500 — ***See Vol. 1A***

Capacitors, Fixed, Laboratory Standard-1500 — ***See Vol. 1A***

Capacitors, Fixed, Mica-1500 — ***See Vol. 1A***

Capacitors, Fixed, Monolithic-1500 — ***See Vol. 1A***

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Capacitors, Fixed, Oil Filled-1500 — ***See Vol. 1A***

Capacitors, Fixed, Paper, Metallized & Nonmetallized-1500 — ***See Vol. 1A***

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Capacitors, Fixed, Polycarbonate — See Capacitors, Fixed, Film (Vol. 1A)

Capacitors, Fixed, Polyester — See Capacitors, Fixed, Film (Vol. 1A)

Capacitors, Fixed, Polypropylene — See Capacitors, Fixed, Film (Vol. 1A)

Capacitors, Fixed, Polysulfone — See Capacitors, Fixed, Film (Vol. 1A)

Capacitors, Fixed, Polystyrene — See Capacitors, Fixed, Film (Vol. 1A)

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Capacitors, Fixed, Vacuum-1500 — ***See Vol. 1A***

Capacitors, Variable, Air-1500 — ***See Vol. 1A***

Capacitors, Variable, Ceramic-1500 — ***See Vol. 1A***

Capacitors, Variable, Film-1500 — ***See Vol. 1A***

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Capacitors, Variable, HV (Lab Type)-1500 (Also See Decade Boxes, Capacitance) — ***See Vol. 1A***

Capacitors, Variable, Mica-1500 — ***See Vol. 1A***

Capacitors, Variable, Padders & Trimmers-1500 — ***See Vol. 1A***

Capacitors, Variable, Vacuum-1500 — ***See Vol. 1A***

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Caps, Connector-2100

§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463** .... **2•1381,1382,1387**
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... **2•1480**
§ **Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000** .... **2•1605**
§ **TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000** .... **2•1640**
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... **2•1725**
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Foundation Instruments Inc., 24 Colonnade Rd., Nepean, ON K2E 7J6 Canada 613-226-4000
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Glenair, 1211 Air Way, Glendale, CA 91201 213-247-6000
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 201-887-0571
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
§ Millen Components, Electronic Instr. & Specialty Corp., 42 Pleasant St., Stoneham, MA 02180 617-438-6951
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§† Pass & Seymour, Inc., P.O. Box 4822. Syracuse, NY 13221 315-468-6211
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
§ Teledyne Mecca, Box 36393, Houston, TX 77036 713-772-2811
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Caps, Forms & Tapes, Heat Shrinkable-3100 (Also See Tubing, Heat Shrinkable)

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
† Antex Div., 7 Hawkes St., Marblehead, MA 01945 617-631-7100
Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
§† Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945 617-631-7100
Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860

Caps, Lenses, Indicator Light-2450 — *See Vol. 1B*

Caps, Wire Splicing — See Splicers, Wire (Vol. 2)

Caps (MIL)-2440 — *See Vol. 1B*

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Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062, 312-498-6090 .... **2•1020**
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§ Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731 818-575-8144
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§ Dyma Engrg., Box 1535, Los Lunas, NM 87031 505-865-6700
† Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245 213-643-8181
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 503-476-8871
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§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 716-894-5710
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§ Kole Ind., 3553 N.W. 50th St., Miami, FL 33102-0152 .... 305-633-2556; 800-327-6085
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§† Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
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Stackbin Corp., Albion Road, Lincoln, RI 02865 401-333-1600
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† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
† Vertox Co., 9252 Garden Grove Blvd. 2, Garden Grove, CA 92644 714-530-4541
York Metal Products, Inc., 34-20 12th St., Long Island, NY 11367 212-932-3660
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

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Casters-1400

† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108

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Chassis, Circuit Board Mounting-1400

§† **Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... 2•1019**
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Schroff Inc., 170 Commerce Dr., Warwick, RI 02886, 401-732-3770 .... 2•1053
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§ Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
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§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
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Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649 714-891-5305
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† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
† Plessey Electro-Products, 3860 Centinela Ave., Los Angeles, CA 90066 213-390-3585
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§ RCA Solid State Div., Micro Processors, Route 202, Somerville, NJ 08876 201-685-6000
RCI/Data, 1992 Lakewood Rd., Toms River, NJ 08753 201-341-8361
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Zendex Corp., 6700 Sierra La., Dublin, CA 94566 415-828-3000
Zero-East Div., 288 Main St., Monson, MA 01057 ....

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Chemicals, Electroplating-1600

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† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 201-434-6778
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† Automated Prod. Equip. Corp., 142 Peconic Ave., Medford, NY 11763 516-654-1197
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§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
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PCK Technlg. Div./Kollmorgen Corp., 322 South Service Rd., Melville, NY 11747 516-454-4400
† Pennwalt Corp., Three Pkwy., Philadelphia, PA 19102 215-587-7000
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§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
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† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
† Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865 401-723-2100
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
§ Pennwalt Corp., Three Pkwy., Philadelphia, PA 19102 215-587-7000
§ Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410

Chemicals, Etching-1700

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§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
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† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
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† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
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Chemicals, Tin Plating-1700

† Ashland Chemical, Ashland Oil, Inc., Box 2219, Columbus, OH 43216 614-889-3333
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Technic, Inc., Box 965, Providence, RI 02901 401-781-6100

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Auric Corp., 470 Frelinghuysen Ave., Newark, NJ 07114 201-242-4100
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
§ Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
Fidelity Chem. Prods. Corp., 472 Frelinqhuysen Ave., Newark, NJ 07114 201-242-4110
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§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
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Circuits, Printed Flexible-1700

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AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
AT&T, 475 South St., Morristown, NJ 07960 201-631-6790
† Basic Elctrns., 11762 Western Ave. "Q", Stanton, CA 90680 714-530-2400
† Boeing Microelectronics, PCB OPNS., M/S: 88-34, Box 24666, Seattle, WA 98124 206-773-1083
Bowmar Instrument Corp., Commercial Products Div., 4640 126th Ave. N., Clearwater, FL 33520 813-576-2525
Buckbee-Mears Co., Nashua Div., 100 Northeastern Blvd., P.O. Box 888, Nashua, NH 03062 603-883-5541
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Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
† Eldre Comps., 1500 Jefferson Rd., Rochester, NY 14623 716-244-2570
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† Interconics, BMC Industries, Inc., 610 Bremer Tower, St. Paul, MN 55101 612-228-6512
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Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 313-628-9711
† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Meyercord, 365 E. North Ave., Carol Stream, IL 60187 312-682-6200
† Minco Prods., 7300 Commerce La., Minneapolis, MN 55432 612-571-3121
Noble U.S.A., Inc., 151 Stanley St., Elk Grove Vllg., IL 60007 312-364-6038
† Parlex Corp., 145 Milk St., Methuen, MA 01844 617-685-4341
† Photronic Labs., Secor Rd., Brookfield Ctr., CT 06805 203-775-0465
Proto Systems of Atlanta, 11510 N. Fulton Industrial Blvd., Alpharetta, GA 30201 404-475-1330
† Rogers Corp., Box 700, Chandler, AZ 85224 602-963-4584
Rogers Corp., One Technology Dr., Rogers, CT 06263 203-774-9605
† Sanders Assocs., Flexprint Prods. Div., Grenier Fld., Manchester, NH 03103 603-669-4615
§† SGL Printed Circuits, 827 Black Oak Ridge Rd., Wayne, NJ 07470 201-835-2765
† Sierracin/Thermal Sys., 13920 S. Broadway, Los Angeles, CA 90061 213-321-4350
† Tech-Etch Inc., 45 Aldrin Rd., Plymouth, MA 02360 617-747-0300
§† Zenrad Circuits Co., 529 E. Gutierrez St., Santa Barbara, CA 93103 805-963-3527

Circuits, Printed, Multilayer-1700

Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753 .... 2•1274
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043, 415-965-4500 .... 2•1896
Additive Products Div., Kollmorgen Corp., P.O. Box 700, West La., Aquebogue, NY 11931 516-722-4100
† Advanced Circuitry, Litton Inds., 4811 W. Kearney, Springfield, MO 65803 417-862-0751
American Electronic Labs., Box 552. Lansdale, PA 19446 215-822-2929
Astec USA, Ltd., A BSR Intl. Co., 2880 San Tomas Expwy., 00, Santa Clara, CA 95051 408-748-1200
† Astro Circuit, 100 Hale St., Lowell, MA. 01851 617-458-3240
BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400

† Boeing Microelectronics, PCB OPNS., M/S: 88-34, Box 24666, Seattle, WA 98124	206-773-1083
† Bureau of Engraving, Inc., Ind'l. Div., 3311 Broadway N.E., Minneapolis, MN 55413	612-623-0900
Circuits, Inc., 59 Deming Rd., Berlin, CT 06037	203-828-3526
† Collins Avionics Divisions, Rockwell Intl., 400 Collins Rd. NE, Cedar Rapids, IA 52498	319-395-1000
† Compunetics, Inc., 2000 Eldo Rd., Monroeville, PA 15146	412-373-8110
CTS Corp., 905 North West Blvd., Elkart, IN 46514	219-293-7511
† CTS Fabri-Tek, Inc., 6900 Shady Oak Rd., Eden Prairie, MN 55344	612-941-9100
† Cuplex, Inc., 1500 E. Hwy. 66, Garland, TX 75040	214-276-0333
Data-Design Labs., P.O. Box 711, 7925 Center Ave., Cucamonga, CA 91730	714-987-2511
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702	714-558-8755
Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042	503-829-9108
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895	401-769-3800
Flexprint Div, Sanders Assocs., Inc., Grenier Field, Manchester, NH 03103	603-669-4615
† Granite State Circuits, Power Elctrns. Corp., P.O. Box 2208, 96 Milton Rd., Rochester, NH 03867	603-332-3334
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164	312-681-7071
† Hadco Printed Circuits, Manchester Rd. Rte. 28, Derry, NH 03038	603-432-9541
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009	213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715	714-752-3800
† Interconics, BMC Industries, Inc., 610 Bremer Tower, St. Paul, MN 55101	612-228-6512
Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649	714-891-5305
† Kalmus & Assocs., Inc., 2424 S. 25th Ave., Box 525, Broadview, IL 60153	312-343-7004
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936	215-699-5373
Memorex Corp., San Thomas at Central Expwy., Santa Clara, CA 95052	408-987-1000
† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656	312-867-9600
Micropac Inds., 905 E. Walnut St., Garland, TX 75040	214-272-3571
Micropac Inds., Inc., General Sensors Div., 905 E. Walnut St., Garland, TX 75040	214-272-3571
† Multiwire Div., Kollmorgen Corp., Andrews Rd., Hicksville, NY 11801	516-938-2000
† Natel Engrg. Co., Inc., 4550 Runway St., Simi Valley, CA 93063	805-581-3950
National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420	201-839-1600
Noble U.S.A., Inc., 151 Stanley St., Elk Grove Vllg., IL 60007	312-364-6038
North American Printed Circuit Div., Tyco Labs., Inc., Box 145, Stafford, CT 06075	203-684-2703
† Parlex Corp., 145 Milk St., Methuen, MA 01844	617-685-4341
PCK Technlg. Div./Kollmorgen Corp., 322 South Service Rd., Melville, NY 11747	516-454-4400
† Pho-Tronics, 8701 W. Bradley Rd., Milwaukee, WI 53224	414-355-6704
§ Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047	215-757-1202
† Proto Systems of Atlanta, 11510 N. Fulton Industrial Blvd., Alpharetta, GA 30201	404-475-1330
Ragen Corp., Systems Div., 9 Porete Ave., N. Arlington, NJ 07032	201-997-1000
Rogers Corp., One Technology Dr., Rogers, CT 06263	203-774-9605
† Sanders Assocs., Flexprint Prods. Div., Grenier Fld., Manchester, NH 03103	603-669-4615
§† SGL Printed Circuits, 827 Black Oak Ridge Rd., Wayne, NJ 07470	201-835-2765
† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050	408-980-1600
Sylvania Electronic, Box 360, Muncy, PA 17756	717-546-3191
Sylvania Electronic Components, Philips ECG Inc., A North American Philips Co., 100 First Ave., Waltham, MA 02254	617-890-6107
T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869	201-685-1600
† Townsend Industries, 51 Carl Rd., Orange, CT 06477	203-795-0241
Truline Corp., P.O. Box 1469, Visalia, CA 93279	209-625-3237
TRW/Cinch-Graphik, 200 S. Turnbull Canyon Rd., City of Industry, CA 91744	213-333-1201
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220	214-350-4978
Victoreen, Inc., Component Div., 10101 Woodland Ave., Cleveland, OH 44104	216-795-8200
§† Zenrad Circuits Co., 529 E. Gutierrez St., Santa Barbara, CA 93103	805-963-3527

Circuits, Printed, Rigid, One & Two Sided-1700

Cherry Electrical Prods. Corp., 3623 Sunset Ave., Waukegan, IL 60087, 312-578-3500	**1B•1758**
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753	**2•1274**
Gordos Corp., 250 Glenwood Ave., Bloomfield, NJ 07003, 201-743-6800	**2•1888, 1889**
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010	**2•1091**
† Kalmus & Assocs., Inc., 2424 S. 25th Ave., Box 525, Broadview, IL 60153, 312-343-7004	**2•1093**
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036	216-365-1211
Additive Products Div., Kollmorgen Corp., P.O. Box 700, West La., Aquebogue, NY 11931	516-722-4100
† Advanced Circuitry, Litton Inds., 4811 W. Kearney, Springfield, MO 65803	417-862-0751
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903	203-322-1913
API Instrs., 1601 Trapelo Rd., Waltham, MA 02254	617-890-2000
Applied Circuits, Inc., 36-06 43rd. Ave., Long Island City, NY 11101	212-786-7200
† Ashman Industries (1966) Ltd., 66 Brock Rd., Greensville Dundas, ON Canada	416-628-6371
Astec USA, Ltd., A BSR Intl. Co., 2880 San Tomas Expwy., 00, Santa Clara, CA 95051	408-748-1200
A-Systems Inc., Box 13, Ivy, VA 22945	804-295-7200
† Avionics, Box 200, Niagara-On-Lake, ON Canada	416-468-3632
Aydin Corp., 700 Dresher Rd., Horsham, PA 19044	215-657-7510
Basler Elec. Circuits, Inc., 204 Highland Dr., P.O. Box 1165, Taylor, TX 76574	512-352-7683
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788	516-234-0400
Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359	818-991-2600
† Boeing Microelectronics, PCB OPNS., M/S: 88-34, Box 24666, Seattle, WA 98124	206-773-1083
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094	216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094	216-946-3200
† Bureau of Engraving, Inc., Ind'l. Div., 3311 Broadway N.E., Minneapolis, MN 55413	612-623-0900
C-E Elgin Elctrns., 5533 New Perry Hwy., Erie, PA 16509-3570	814-864-4921
§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651	714-497-1506
§† Circuits, Inc., 59 Deming Rd., Berlin, CT 06037	203-828-3526
† Collins Avionics Divisions, Rockwell Intl., 400 Collins Rd. NE, Cedar Rapids, IA 52498	319-395-1000
Compac, 279 Skidmore Rd., Deer Park, NY 11729	516-667-3933
† Compunetics, Inc., 2000 Eldo Rd., Monroeville, PA 15146	412-373-8110
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108	805-969-5805
CTS Corp., 905 North West Blvd., Elkart, IN 46514	219-293-7511
CTS Fabri-Tek, Inc., 6900 Shady Oak Rd., Eden Prairie, MN 55344	612-941-9100
† Cuplex, Inc., 1500 E. Hwy. 66, Garland, TX 75040	214-276-0333
Data Capture Technology, 5436-F South Mingo Rd., Tulsa, OK 74146	918-627-7521
Data I/O Corp., 10525 Willows Rd. N.E., C-46, Redmond, WA 98052	206-881-6444
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577	415-483-8770
† Dynacircuits Inc., 11230 W. Addison, Franklin Park, IL 60131	312-451-1700
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702	714-558-8755
† Eastern Electronics Mfg. Corp., 180 Roberts St., East Hartford, CT 06108	203-528-9821
ECI Company, Box 1565, Terra Haute, IN 47808	812-232-4442
§ Electrol Co., 321 Dewey St., P.O. Box 29, York, PA 17405	717-848-1722
† Electro Mechanical Design Services, Inc., 16698 Oakmont Ave., Gaithersburg, MD 20877	301-840-5710
Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042	503-829-9108
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895	401-769-3800
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903	201-249-6600
Fema Elctrns. Corp., 12-6 Edgeboro Rd., E. Brunswick, NJ 08816	201-238-1223
Flexprint Div, Sanders Assocs., Inc., Grenier Field, Manchester, NH 03103	603-669-4615
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047	215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101	815-968-9661
† GCI, Inc., 14520 Lima Rd., Fort Wayne, IN 46808	219-637-5520
GECO, 145 Penn St., Millheim, PA 16854	814-349-5555
† Granite State Circuits, Power Elctrns. Corp., P.O. Box 2208, 96 Milton Rd., Rochester, NH 03867	603-332-3334
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164	312-681-7071
GTI/Circuits Div., Box 217, Leesburg, IN 46538	219-453-3261
† Hadco Printed Circuits, Manchester Rd. Rte. 28, Derry, NH 03038	603-432-9541
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009	213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715	714-752-3800
† Interconics, BMC Industries, Inc., 610 Bremer Tower, St. Paul, MN 55101	612-228-6512
† Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649	714-891-5305
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766	714-623-3463
† Kantz Elctrn. Ind., 1804 Wall Church Rd., Wall Township, NJ 07719	201-974-0090
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026	314-392-7174
Kemtron Circuits & Elctrns. Corp., 48 Merrick Rd., Rockville Centre, NY 11570	516-766-2772
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026	314-343-1630
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012	212-475-4600
§ Knol Enterprises, 3468 Sacramento Dr., San Luis Obispo, CA 93401	805-544-4881
Kontron Elctrns., 630 Price Ave., Redwood City, CA 94062	415-361-1012
† Lehighton Elctrns., Inc., Box 328, Dept M, Lehighton, PA 18235	717-386-4156; 215-377-5990
LFE, Process Control Div., 55 Green St., Clinton, MA 01510	617-835-1000
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051	313-628-9711
Masterite Corporation, 2841 Lomita Blvd., Torrance, CA 90505	213-775-3471
Memorex Corp., San Thomas at Central Expwy., Santa Clara, CA 95052	408-987-1000
† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656	312-867-9600

§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Modular Systems, 905 Albemarle St., Charlottesville, VA 22901 804-295-7882
† National Telephone & Elctrns. Inc., 7561 N.W. 77th Terr., Miami, FL 33166 305-885-9423
Noble U.S.A., Inc., 151 Stanley St., Elk Grove Vllg., IL 60007 312-364-6038
North American Printed Circuit Div., Tyco Labs., Inc., Box 145, Stafford, CT 06075 203-684-2703
† Parlex Corp., 145 Milk St., Methuen, MA 01844 617-685-4341
PCK Technlg. Div./Kollmorgen Corp., 322 South Service Rd., Melville, NY 11747 516-454-4400
† Photocircuits Glen Cove, Div., Kollmorgen Corp., 31 Sea Cliff Ave., Glen Cove, NY 11542 516-448-1000
† Photronic Labs., Secor Rd., Brookfield Ctr., CT 06805 203-775-0465
† Pho-Tronics, 8701 W. Bradley Rd., Milwaukee, WI 53224 414-355-6704
§† Pioneer Comps., 2352 E. 66th St., Brooklyn, NY 11234 212-444-3880
Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047 215-757-1202
† Proto Systems of Atlanta, 11510 N. Fulton Industrial Blvd., Alpharetta, GA 30201 404-475-1330
Ragen Corp., Systems Div., 9 Porete Ave., N. Arlington, NJ 07032 .201-997-1000
RCI/Data, 1992 Lakewood Rd., Toms River, NJ 08753 201-341-8361
§ RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
Rockwell Intl., Commercial Elctrns. Opers., 1200 N. Alma Rd., Richardson, TX 75081 214-996-5000
Rogers Corp., One Technology Dr., Rogers, CT 06263 203-774-9605
† Sanders Assocs., Flexprint Prods. Div., Grenier Fld., Manchester, NH 03103 603-669-4615
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
§† SGL Printed Circuits, 827 Black Oak Ridge Rd., Wayne, NJ 07470 .201-835-2765
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
† Signatron, 12 Hartwell Ave., Lexington, MA 02173 617-861-1500
† Solid State Circuits, 616 Boonville, Springfield, MO 65806 417-869-4678
† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
Sylvania Electronic, Box 360, Muncy, PA 17756 717-546-3191
Sylvania Electronic Components, Philips ECG Inc., A North American Philips Co., 100 First Ave., Waltham, MA 02254 617-890-6107
† T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§† Techniques, Inc., 235 Jackson St., Englewood, NJ 07631 201-569-5900
Truline Corp., P.O. Box 1469, Visalia, CA 93279 209-625-3237
TRW/Cinch-Graphik, 200 S. Turnbull Canyon Rd., City of Industry, CA 91744 213-333-1201
† United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
§† Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
Victoreen, Inc., Component Div., 10101 Woodland Ave., Cleveland, OH 44104 216-795-8200
† West-Tronics, Inc., 215 Park St., Bensenville, IL 60106 312-860-3560
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
§† Zenrad Circuits Co., 529 E. Gutierrez St., Santa Barbara, CA 93103 805-963-3527
Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Circuits, Printed (With Components) — See Cards, Linear Function (Vol. 3)

Circuits, Thick Film, Thin Film — See Circuits, Hybrid (Vol. 1A)

Circulators, Ferrite-3450 — *See Vol. 1A*

Clamps & Clips, Cable-2800 (Also See Wire & Cable Ties)

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... 2•1860
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1222,1224,1227
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2090**
§† **Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033; 800-526-4182 .... 2•1861**
§† **Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... 2•2136,2137**
§ **Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1565**
§ **Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1601**
§ **TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1684**
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 ...201-943-7650
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ....213-873-6400; 818-988-4400
Alinabal, 28 Woodmont Rd., Milford, CT 06460 203-877-3241
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
§† All-States, Inc., 1801 W. Foster Ave., Chicago, IL 60640 312-728-0525
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§† Amrad, Div. Transcon Mfg. Co., Box 876, Paris, TX 75460 214-785-4544
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731 818-575-8144
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Cole Hersee, 20 Old Colony Ave., Boston, MA 02127-2467 617-268-2100
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
§† dek, inc., 3480 Swenson Ave., St. Charles, IL 60174 312-377-2575
† Dennison Mfg. Co., 300 Howard St., Framingham, MA 01701 617-879-0511
Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Globe Plastics, 1342 S. Signal Dr., Pomona, CA 91766 714-623-2747
§ Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 815-895-6501
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114 .216-771-5225
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
§† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§† Vemaline Prods. Div., 487 Jefferson Blvd., Warwick, RI 02886 401-739-7600
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
§† Weckesser Co. Inc., 4444 W. Irving Park Rd., Chicago, IL 60641 312-282-8626

Clamps & Clips, Component-2825

§ **Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 .... 1B•1259**
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... 2•1860
§† **Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731, 818-575-8144 .... 2•1015**
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1227
§† **Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033; 800-526-4182 .... 2•1861**
Industrial Devices, Inc., Edgewater, NJ 07020, 201-224-4700 .... 1B•1070,1071
§† **Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 .... 2•1485,1492**
§ AAVID Engrg., 30 Cook Ct., Laconia, NH 03246 603-524-4443
§† Abalon Precision Mfg., 540 Casanova St., Bronx, NY 10474 212-589-5682
† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§† Amrad, Div. Transcon Mfg. Co., Box 876, Paris, TX 75460 214-785-4544
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dayco Corp., 333 W. First St., Dayton, OH 45402 513-226-5927
§† dek, inc., 3480 Swenson Ave., St. Charles, IL 60174 312-377-2575
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§† FIC Corp., 12216 Parklawn Dr., Rockville, MD 20852 ....301-881-8124; 800-638-6594
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525 312-354-1040
Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ IERC, 135 W. Magnolia Blvd., Burbank, CA 91502 818-849-2481
§ Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 ... 213-849-2481
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
Micro Instr., 2250 Micro Pl., Escondido, CA 92025 619-746-2010
† Micro-Mounting Devices, 4092 Keith Dr., Campbell, CA 95008 408-866-4626
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114 .216-771-5225
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800
† Quantum, Barnes Indl. Pk., Wallingford, CT 06492 203-265-2811
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 818-245-9121
† Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Sprague Products Co., 481 Marshall St., No. Adams, MA 01247 413-664-4481
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 414-355-1130
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
§ Winslow Intl., 2471 E. Bayshore 20, Palo Alto, CA 94303 415-856-0552
§† Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Clamps & Clips, Ground-2825 — *See Vol. 3*

Clamps, Synchro & Servo-2800

† Timber-Top, Hopkins Rd., Box 517E, Watertown, CT 06795 203-274-6706

Clamps (MIL), Cable-2440 — *See Vol. 1B*

Cleaners, Magnetic Medium-1600

§ Dennison Kube, Div. Dennison Computer Supplies Inc., 132 Calvary St., Waltham, MA 02254-0472 617-899-0012
Verbatim Corp., 323 Soquel Way, Sunnyvale, CA 94086 408-245-4400

Cleaners, Ultrasonic-4100 — *See Vol. 3*

Cleaners & Degreasers, Machine — See Machines, Cleaning & Degreasing (Vol. 3)

Cleaners & Solvents-1600

§† Gardiner Solder Co., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632, 312-847-0100 .... 2•1927
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .. 2•1091
† Odell, M. P., Co., 1620 Chesapeake Dr., Hoffman Estates, IL 60195, 312-991-2828 800-633-5526 .... 3•1927
§ Allen Co., Inc., Robert G., 7267 Coldwater Canyon, N. Hollywood, CA 91605 818-765-8300
§† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 201-434-6778
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 617-861-9600
† Ashland Chemical, Ashland Oil, Inc., Box 2219, Columbus, OH 43216 614-889-3333
Auric Corp., 470 Frelinghuysen Ave., Newark, NJ 07114 201-242-4100
† Automated Prod. Equip. Corp., 142 Peconic Ave., Medford, NY 11763 516-654-1197
Baker, J. T., Chemical Co., 222 Red School La., Phillipsburg, NJ 08865 201-859-2151
Baron-Blakeslee, Inc., Sub. Purex Inds., Inc., 2001 N. Janice Ave., Melrose Pk., IL 60160 312-450-3900
§† Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
§ Clean Room Prods., 56 W. Penataquit Ave., Bay Shore, NY 11706 .516-968-8282
§† Cobehn, Inc., 226 Passaic Ave., Fairfield, NJ 07006 201-227-6675
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
Diamond Shamrock Corp, 1100 Superior Ave, Cleveland, OH 44114 216-694-5000
§ Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§† Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 201-887-9270
§ Electronic Controls Design, 13626 S. Freeman Rd., Mulino, OR 97042 503-829-9108
§ Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
Fidelity Chem. Prods. Corp., 472 Frelinqhuysen Ave., Newark, NJ 07114 201-242-4110
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Heat Systems-Ultrasonics, Inc., 1938 New Highway, Farmingdale, NY 11735 516-694-9555
† Hightemp Resins, Inc., 225 Greenwich Ave., Stamford, CT 06902 ...203-357-7401
§ Hollis Engrg., Inc., Charron Ave., Box 1189, Nashua, NH 03061 603-889-1121
§† Holt Lloyd Corp., LPS Chem. Prods., 4647 Hugh Howell Rd., Tucker, GA 30084 404-934-7800
† Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln. RI 02865 401-723-2100
§ Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
§† Kester Solder Div., 4201 Wrightwood Ave., Chicago, IL 60639 312-235-1600
§ L & R Mfg., 577 Elm St., Kearny, NJ 07032 201-991-5330
† M & T Chemicals Inc., Woodbridge Rd. & Randolph Ave., Rahway, NJ 07065 201-499-0200
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
§ Pennwalt Corp., Three Pkwy., Philadelphia, PA 19102 215-587-7000
PTS Electronics Inc., Box 272, Bloomington, IN 47401 812-824-9331
§ Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
§ R-Columbia Prods. Co., Inc., 2008 St. Johns Ave., Highland Park, IL 60035 312-432-7915
Sel-Rex Div., OMI Intl. Corp., 75 River Rd., Nutley, NJ 07110 201-667-5200
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
Sonicor Instrument Corp., 1365 Marconi Blvd., Copiague, NY 11726 516-842-3344
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
Union Etchants Intl., Inc., 8-10 Green St., Bldg. G, Woburn, MA 01801 617-935-8878
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Clean Room Equipment & Supplies-2550 — *See Vol. 3*

Clips, Alligator-2100

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1225
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1379
§† Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 .... 2•1528,1529
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... 2•1530
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... 2•1563
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525 312-354-1040
§ Industrial Devices, Inc., Edgewater, NJ 07020 201-224-4700
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
Multi-Amp Corp., Indian Head Corp., 4271 Bronze Way, Dallas, TX 75237 214-333-3201
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Clips & Holders, Fuse-4300 (Also See Panels, Fuse) — *See Vol. 1B*

Clips, Battery-2100

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1225
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 .... 2•1485,1486
§† Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 .... 2•1528,1529
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... 2•1530
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... 2•1564
§† Atlee Inc., One Gill St., Woburn, MA 01801 617-933-3510
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Clips, Board, Harness-1700

§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 3•1303
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1596
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
§† Bussmann Div., P.O. Box 14460, St. Louis, MO 63178 314-394-2877
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Clips, Breadboard-4200

§ Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
§ Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525 312-354-1040
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

Clips, Fahnestock-2100

Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 ...201-943-7650
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661

§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 . 312-585-1212
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Clips, Logic Test-2900 — *See Vol. 3*

Clips, Test-2100

§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060, 216-354-2101 .... 2•1900
§ Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525, 312-354-1040 .... 2•1294
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1371,1416-1418,1426-1430
§† Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 .... 2•1528,1529,3•1264,1265
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 3•1303
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 .. 914-628-6952
† Anchor Specialty Mfg. Inc., 300 Hollister Rd., Teterboro, NJ 07608 201-288-1939
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§ Contact, Inc., 5 Elm Ave., Hudson, NH 03051 603-883-7708
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
Electro Scientific Inds., 13900 N.W. Science Pk. Dr., Portland, OR 97229 503-641-4141
Everett/Charles Test Equip. Inc., 2887 N. Towne Ave., Pomona, CA 91767 714-621-9511
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
§ Industrial Devices, Inc., Edgewater, NJ 07020 201-224-4700
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 201-887-0571
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
Micro Instr., 2250 Micro Pl., Escondido, CA 92025 619-746-2010
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Multi-Amp Corp., Indian Head Corp., 4271 Bronze Way, Dallas, TX 75237 214-333-3201
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 617-699-7646
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
† Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 .. 215-825-4990
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Clips, Transistor & Diode — See Retainers, Transistor & Diode (Vol. 2)

Clips (MIL), Electrical-2440 — *See Vol. 1B*

Clocks, Time Keeping — Also See Oscillators, Clock-2200 — *See Vol. 3*

Clutches, Friction-3500 — *See Vol. 1B*

Clutches, Magnetic-3500 — *See Vol. 1B*

Clutches, Positive-3500 — *See Vol. 1B*

Coating Services — See Services, Coating (Vol. 3)

Coatings, Antistatic-1600

HumiSeal Div., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377, 212-932-0800 .... 2•1083
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .. 2•1091
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... 2•1922
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
§ Advanced Coatings & Chem., 4343 Temple City Blvd., Temple City, CA 91780 818-579-6270
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
§ Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 .. 617-448-5485
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W Lafayette, IN 47906 317-463-2511
† Evaporated Coatings, 798 Welsh Rd., Huntingdon Valley, PA 19006 215-947-1465
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
Libby Owens-Ford, 811 Madison Ave., Toledo, OH 43695 419-247-4797
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 313-628-9711
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
† 3M Co., Static Control Sys. Div., 3M Center, Bldg. 225-4S-04, St. Paul, MN 55144 612-733-9420
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
† Metavac, Inc., 45-68 162nd St., Flushing, NY 11358 .... 212-HI5-0400
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
† Optical & Conductive Coatings, Meridian Inds., Inc., 428 N. Buchanan Cir., , Pacheco, CA 94553 415-798-6066
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 ... 312-233-6530
† Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 201-985-8800
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
§ Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 215-822-2171
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 .. 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 .... 614-276-5522; 800-245-5253
§† Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717
† Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Coatings, Compounds, Lubricants, etc., Heat Conductive-1600

§† Dow Corning Corp., Box 1767, Midland, MI 48640-0994, 517-496-4000 ...... 2•1080, 1081
HumiSeal Div., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377, 212-932-0800 .... 2•1083
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... 2•1922
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 617-861-9600
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
Astrodyne, 35 Executive Dr., Hudson, NH 03051 603-880-8600
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
† Cool-Amp Conducto-Lube Co., 8621 S.W. 17th Ave., Portland, OR 97219 503-244-2230
Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§ Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 201-887-9270
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 914-698-8434
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 317-463-2511
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
§† Holt Lloyd Corp., LPS Chem. Prods., 4647 Hugh Howell Rd., Tucker, GA 30084 404-934-7800
† IERC, 135 W. Magnolia Blvd., Burbank, CA 91502 818-849-2481
Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
† Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865 401-723-2100
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
† Pennwalt Corp., Three Pkwy., Philadelphia, PA 19102 215-587-7000
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
† Stock Drive Prods., Div. of Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-0200
§† TAFA Inc., Dow Rd., Bow, NH 03301 603-224-9585
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 .. 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
Varian Assocs., Indl. Equip. Grp., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000

Coatings, Conductive, Electric-1600

HumiSeal Div., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377, 212-932-0800 .... 2•1083
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... 2•1922
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
Acme Chem. & Insulation, 166 Chapel St., New Haven, CT 06513 ... 203-562-2171
† Advanced Coatings & Chem., 4343 Temple City Blvd., Temple City, CA 91780 818-579-6270
† Allaco Prods. Div., 192 Pleasant St., Watertown, MA 02172-2399 ... 617-926-2550

Coatings, Conductive, Electric-1600 (Cont'd)

§† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 201-434-6778
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 617-861-9600
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
† Balzers Optical Grp., 170 Locke Dr., Marlboro, MA 01752 617-481-9860
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
† Cool-Amp Conducto-Lube Co., 8621 S.W. 17th Ave., Portland, OR 97219 503-244-2230
† DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§† Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 201-887-9270
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 617-448-5485
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 914-698-8434
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 317-463-2511
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
† Evaporated Coatings, 798 Welsh Rd., Huntingdon Valley, PA 19006 215-947-1465
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
† Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865 401-723-2100
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
Libby Owens-Ford, 811 Madison Ave., Toledo, OH 43695 419-247-4797
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
† 3M Co., Static Control Sys. Div., 3M Center, Bldg. 225-4S-04, St. Paul, MN 55144 612-733-9420
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
† Metavac, Inc., 45-68 162nd St., Flushing, NY 11358 ....212-HI5-0400
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
† Optical & Conductive Coatings, Meridian Inds., Inc., 428 N. Buchanan Cir., , Pacheco, CA 94553 415-798-6066
Panelgraphic Corp., 10 Henderson Dr., W. Caldwell, NJ 07006 201-227-1500
† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
§ Pervel Inds., Inc., Bemis, P.O. Box 61, Community Ave., Plainfield, CT 06374 203-564-2741
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 312-233-6530
Sel-Rex Div., OMI Intl. Corp., 75 River Rd., Nutley, NJ 07110 201-667-5200
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
† Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 201-985-8800
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
§† TAFA Inc., Dow Rd., Bow, NH 03301 603-224-9585
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 ....614-276-5522; 800-245-5253
Varian Assocs., Indl. Equip. Grp., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000
§† Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717

Coatings, Corrosion Resistant-1600

§ Dow Corning Corp., Box 1767, Midland, MI 48640-0994, 517-496-4000 .... 2•1080, 1051
HumiSeal Div., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377, 212-932-0800 .... 2•1083
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .. 2•1091
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
Acme Chem. & Insulation, 166 Chapel St., New Haven, CT 06513 203-562-2171
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
† Cool-Amp Conducto-Lube Co., 8621 S.W. 17th Ave., Portland, OR 97219 503-244-2230
† Cotronics, 3379 Shore Pkwy., Brooklyn, NY 11235 212-646-7996
Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
† Electrofilm, 27727 Avenue Scott, Valencia, CA 91355 805-257-2240
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 317-463-2511
† Epoxylite Corp., 1265 N. Kraemer Blvd., Anaheim, CA 92806 714-630-7910
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
§† Holt Lloyd Corp., LPS Chem. Prods., 4647 Hugh Howell Rd., Tucker, GA 30084 404-934-7800
† IERC, 135 W. Magnolia Blvd., Burbank, CA 91502 818-849-2481
§ Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
Pennwalt Corp., Three Pkwy., Philadelphia, PA 19102 215-587-7000
† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 818-849-4543
Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
§† TAFA Inc., Dow Rd., Bow, NH 03301 603-224-9585
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Tempil Div., Big Three Inds., Hamilton Blvd., S. Plainfield, NJ 07080 201-757-8300
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
Varian Assocs., Indl. Equip. Grp., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000

Coatings, Electromagnetic Wave Absorbing-1600

HumiSeal Div., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377, 212-932-0800 .... 2•1083
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... 2•1922,1923
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
Acme Chem. & Insulation, 166 Chapel St., New Haven, CT 06513 203-562-2171
§ Advanced Coatings & Chem., 4343 Temple City Blvd., Temple City, CA 91780 818-579-6270
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 317-463-2511
† Evaporated Coatings, 798 Welsh Rd., Huntingdon Valley, PA 19006 215-947-1465
FCM Plastics, Plastics Technologies Inc., 2555 Oak Industrial Dr. NE, Grand Rapids, MI 49505 616-451-4502
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
† Metavac, Inc., 45-68 162nd St., Flushing, NY 11358 .... 212-HI5-0400
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
§ Optics International, Box 101, Tenafly, NJ 07670 201-567-4799
§ Pervel Inds., Inc., Bemis, P.O. Box 61, Community Ave., Plainfield, CT 06374 203-564-2741
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
§† TAFA Inc., Dow Rd., Bow, NH 03301 603-224-9585
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 ....614-276-5522; 800-245-5253

Coatings, Fungicidal-1600

HumiSeal Div., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377, 212-932-0800 .... 2•1083
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
§ Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
FMC Corp., Ind'l. Chemical Grp., 2000 Market St., Philadelphia, PA 19103 215-299-6000
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542 516-671-6010
§† Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
Multi-Tech Inds., 64 South Main St., P.O. Box A, Marlboro, NJ 07746 201-431-0550
† Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 818-849-4543
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
§† TAFA Inc., Dow Rd., Bow, NH 03301 603-224-9585
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523

Coatings, High Temperature, Ceramic, Plasma Spray — See Services, Coating (Vol. 3)

Coatings, Insulating-3100

§† Dow Corning Corp., Box 1767, Midland, MI 48640-0994, 517-496-4000 .... 2•1080, 1081
§† HumiSeal Div., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377, 212-932-0800 .... 2•1083
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .. 2•1091
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
§ Acme Chem. & Insulation, 166 Chapel St., New Haven, CT 06513 203-562-2171
† Allaco Prods. Div., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
§ Ambroid Co., P.O. Box 1089, Taunton, MA 02780 617-823-1726
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 617-861-9600
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
§† Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
† Cotronics, 3379 Shore Pkwy., Brooklyn, NY 11235 212-646-7996
† Dennis Chemical, 2701 Papin St., St. Louis, MO 63103 314-771-1800

§ Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 914-698-8434
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Epoxylite Corp., 1265 N. Kraemer Blvd., Anaheim, CA 92806 714-630-7910
Evaporated Coatings, 798 Welsh Rd., Huntingdon Valley, PA 19006 215-947-1465
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
Gasket Intl. Inc., 49 Ackerman St., Bloomfield, NJ 07003 201-338-6814
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
† Hightemp Resins, Inc., 225 Greenwich Ave., Stamford, CT 06902 ...203-357-7401
† IERC, 135 W. Magnolia Blvd., Burbank, CA 91502 818-849-2481
Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
† Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865 401-723-2100
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
§† Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
† Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07509 201-345-8900
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
Multi-Tech Inds., 64 South Main St., P.O. Box A, Marlboro, NJ 07746 201-431-0550
§ Murata Mfg. Co. Ltd., 26-10 2-chome-Temjin, Nagaoka-Kyo-Shi, Kyoto, Japan 075-921-9111
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
† Nova Tran, 100 Deposition Dr., Clear Lake, WI 54005 715-263-2333
§ Pennwalt Corp., Three Pkwy., Philadelphia, PA 19102 215-587-7000
† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
† Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 818-849-4543
Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
§ Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
Varian Assocs., Indl. Equip. Grp., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000
† Whittaker Corp., Providence Chemicals Div., King Philip Rd., E. Providence, RI 02914 401-434-1770
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Coatings, Moisture Repellant & Waterproofing-1600

§ Dow Corning Corp., Box 1767, Midland, MI 48640-0994, 517-496-4000 ...... 2•1080, 1081
HumiSeal Div., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377, 212-932-0800 .... 2•1083
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .. 2•1091
† Advanced Coatings & Chem., 4343 Temple City Blvd., Temple City, CA 91780 818-579-6270
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
§† Holt Lloyd Corp., LPS Chem. Prods., 4647 Hugh Howell Rd., Tucker, GA 30084 404-934-7800
§† Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
Multi-Tech Inds., 64 South Main St., P.O. Box A, Marlboro, NJ 07746 201-431-0550
† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
† Union Carbide Corporation, Elctrns. Div., Crystal Prods. Dept., 9320 Chesapeake Dr., Ste. 104, San Diego, CA 92123 619-279-4500
† Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Coatings, Protective-1600

Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 .... 2•1759
§† Dow Corning Corp., Box 1767, Midland, MI 48640-0994, 517-496-4000 ...... 2•1080, 1091
§† HumiSeal Div., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377, 212-932-0800 .... 2•1083
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .. 2•1091
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
§† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 201-434-6778
§ Ambroid Co., P.O. Box 1089, Taunton, MA 02780 617-823-1726
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 617-861-9600
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
Auric Corp., 470 Frelinghuysen Ave., Newark, NJ 07114 201-242-4100
§† Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
† DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 317-463-2511
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Fidelity Chem. Prods. Corp., 472 Frelinqhuysen Ave., Newark, NJ 07114 201-242-4110
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
Gasket Intl. Inc., 49 Ackerman St., Bloomfield, NJ 07003 201-338-6814
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
§† Holt Lloyd Corp., LPS Chem. Prods., 4647 Hugh Howell Rd., Tucker, GA 30084 404-934-7800
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
† Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865 401-723-2100
§† Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
Multi-Tech Inds., 64 South Main St., P.O. Box A, Marlboro, NJ 07746 201-431-0550
† Nova Tran, 100 Deposition Dr., Clear Lake, WI 54005 715-263-2333
§ Optics International, Box 101, Tenafly, NJ 07670 201-567-4799
Panelgraphic Corp., 10 Henderson Dr., W. Caldwell, NJ 07006 201-227-1500
§ Pennwalt Corp., Three Pkwy., Philadelphia, PA 19102 215-587-7000
† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 818-849-4543
† Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 .213-603-0400
Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
§ Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
Sel-Rex Div., OMI Intl. Corp., 75 River Rd., Nutley, NJ 07110 201-667-5200
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
SGL Homalite, Div. of SGL Inds., 11 Brookside Dr., Wilmington, DE 19804 302-652-3686
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
§† TAFA Inc., Dow Rd., Bow, NH 03301 603-224-9585
† Technic, Inc., Box 965, Providence, RI 02901 401-781-6100
Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Tempil Div., Big Three Inds., Hamilton Blvd., S. Plainfield, NJ 07080 201-757-8300
† Union Carbide Corporation, Elctrns. Div., Crystal Prods. Dept., 9320 Chesapeake Dr., Ste. 104, San Diego, CA 92123 619-279-4500
Whittaker Corp., 10880 Wilshire Blvd., Los Angeles, CA 90024 213-475-9411
† Whittaker Corp., Providence Chemicals Div., King Philip Rd., E. Providence, RI 02914 401-434-1770

Coatings, Radioactive-1600

† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410

Code Actuated Switches — See Switches, Data (Vol. 3)

Code & Tab Markers — See Wire Markers (All Types) (Vol. 2)

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Coils, Molded-1800 — *See Vol. 1A*

Coils, RF-1800 — *See Vol. 1A*

Coils, Relay-1800 — *See Vol. 1A*

Coils, Saturable Reactor-1800 — *See Vol. 1A*

Coils, Shielded-1800 — *See Vol. 1A*

Coils, Solenoid-1800 — *See Vol. 1A*

Coils, Telephone-1800 — *See Vol. 1A*

Coils, Telephone Pickup (For Recording) — See Pickups, Telephone (Vol. 3)

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Compounds, Encapsulating, Molding, Potting-1600
(Also See Plastic Raw Materials)

§† Dow Corning Corp., Box 1767, Midland, MI 48640-0994, 517-496-4000 ...... 2•1080, 1081

§ Acme Chem. & Insulation, 166 Chapel St., New Haven, CT 06513 ...203-562-2171
† Allaco Prods. Div., 192 Pleasant St., Watertown, MA 02172-2399 ...617-926-2550
Amicon Corp., 25 Hartwell Ave., Lexington, MA 02173 617-861-9600
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
Armstrong World Inds., W. Liberty St., Lancaster, PA 17604 717-397-0611
Astrodyne, 35 Executive Dr., Hudson, NH 03051 603-880-8600
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
Castall, Inc., Weymouth Indl. Park, E. Weymouth, MA 02188 617-337-6075
§† Celanese Plastics, 26 Main St., Chatham, NJ 07928 201-635-2600
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
† Cotronics, 3379 Shore Pkwy., Brooklyn, NY 11235 212-646-7996
† Danmar Inds., 9705 Lurline Ave., Chatsworth, CA 91311 ...... 818-882-7979/5280
† Dennis Chemical, 2701 Papin St., St. Louis, MO 63103 314-771-1800
§ Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§ EG&G Wakefield Engrg., 60 Audubon Rd., Wakefield, MA 01880 617-245-5900
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 ..617-448-5485
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
Epoxylite Corp., 1265 N. Kraemer Blvd., Anaheim, CA 92806 714-630-7910
Epoxy Technology, Inc., 14 Fortune Dr., P.O. Box 567, Billerica, MA 01821 617-667-3805
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
† Freed Transformer, 1718 Weirfield St., Ridgewood, NY 11385 212-386-1300
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
† Hightemp Resins, Inc., 225 Greenwich Ave., Stamford, CT 06902 ...203-357-7401
† Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865 401-723-2100
Isolation Products, Inc., 1245 Birchwood Dr., Sunnyvale, CA 94086 408-734-4068
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 219-747-7411
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
† Nitto Denko America, Inc., 27 Seaview Blvd., Port Washington, NY 11050 516-484-9700
† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
§† Pioneer Comps., 2352 E. 66th St., Brooklyn, NY 11234 212-444-3880
Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
§ Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
Rexnord Chemical Prods. Inc., 6120 E. 58th Ave., Commerce City, CO 80022 303-289-5651
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
§ Techcon Systems Inc., 1059 E. Bedmar St., Carson, CA 90746 213-603-8888
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 ......614-276-5522; 800-245-5253
Whittaker Corp., Providence Chemicals Div., King Philip Rd., E. Providence, RI 02914 401-434-1770
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Compounds, Insulating-3100

§† Dow Corning Corp., Box 1767, Midland, MI 48640-0994, 517-496-4000 ...... 2•1080, 1081

† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581

Acme Chem. & Insulation, 166 Chapel St., New Haven, CT 06513 ...203-562-2171
† Allaco Prods. Div., 192 Pleasant St., Watertown, MA 02172-2399 ...617-926-2550
Astrodyne, 35 Executive Dr., Hudson, NH 03051 ...603-880-8600
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 ...617-926-2550
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 ...203-423-6321
Castall, Inc., Weymouth Indl. Park, E. Weymouth, MA 02188 ...617-337-6075
§ Celanese Plastics, 26 Main St., Chatham, NJ 07928 ...201-635-2600
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ...617-935-4850
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 ...213-478-5061
† Dennis Chemical, 2701 Papin St., St. Louis, MO 63103 ...314-771-1800
Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 ...201-329-2333
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 ...302-773-3218
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ...617-828-3300
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 ...201-321-5900
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ...815-968-9661
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 ...201-751-3000
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 ...219-747-7411
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 ...401-828-4550
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 ...616-469-2727
National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 ...201-839-1600
Omega Engrg., Box 4047, Stamford, CT 06907 ...203-359-1660
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 ...312-233-6530
SermeTel, 155 Limerick Rd., Limerick, PA 19468 ...215-948-5100
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 ...313-846-4410
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ...615-867-4100
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 ...806-372-8523
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 ...214-243-4321
§ Tra-Con, Inc., 55 North St., Medford, MA 02155 ...617-391-5550
Transene, Rte. 1, Rowley, MA 01969 ...617-948-2501

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Conditioners, Power Line — See Regulators & Stabilizers, Voltage (Vol. 3), Line Conditioners (Vol. 3),

Conductive Elastomers-4525

† AME Corp., 101 E. Main St., Little Falls, NJ 07424, 201-256-3939 ...1B•1515
Dow Corning Corp., Box 1767, Midland, MI 48640-0994, 517-496-4000 ...2•1080, 1081
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ...2•1588-1591,1921,1922
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 ...201-831-3148
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 ...201-753-7988
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ...617-935-4850
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 ...805-969-5805
Cotronics, 3379 Shore Pkwy., Brooklyn, NY 11235 ...212-646-7996
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 ...617-448-5485
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ...617-828-3300
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 ...201-321-5900
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 ...714-540-6630
† 3M Co., Static Control Sys. Div., 3M Center, Bldg. 225-4S-04, St. Paul, MN 55144 ...612-733-9420
Monsanto Co., 800 N. Lindbergh Blvd., St. Louis, MO 63167 ...314-694-1000
† Permagile-Salmon Ltd., Insulcast Div., 101 Commercial St., Plainview, NY 11803 ...516-349-1100
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 ...313-846-4410
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 ...800-628-8862
SP America Inc., Shin-Etsu Polymer, 1754 Technology Dr., Ste. 128, San Jose, CA 95110 ...408-947-0311
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ...213-357-3287
Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 ...415-969-7717

Conductive Fabrics, Films & Tapes — See Fabrics, Conductive (Vol. 2)

Conductive Plastic Materials & Parts-4525

Rogers Corp., One Technology Dr., Rogers, CT 06263, 203-774-9605 ...2•1894
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ...2•1588-1591,1922,1923
Acme Chem. & Insulation, 166 Chapel St., New Haven, CT 06513 ...203-562-2171
† Allaco Prods. Div., 192 Pleasant St., Watertown, MA 02172-2399 ...617-926-2550
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 ...201-831-3148
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 ...617-926-2550
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 ...313-646-5100
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ...617-935-4850
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 ...401-253-2000
§ Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 ...201-887-9270
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 ...617-448-5485
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 ...914-698-8434
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ...617-828-3300
† Formulated Resins Inc., Box 508, Greenville, RI 02828 ...401-949-2060
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 ...213-991-9614
Litton Potentiometer Div., 750 So. Fulton Ave., Mt. Vernon, NY 10551 ...914-664-7733
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 ...215-355-7200
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 ...714-540-6630
† 3M Co., Static Control Sys. Div., 3M Center, Bldg. 225-4S-04, St. Paul, MN 55144 ...612-733-9420
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 ...401-828-4550
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 ...312-221-8242
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ...215-355-0200
Monsanto Co., 800 N. Lindbergh Blvd., St. Louis, MO 63167 ...314-694-1000
§† NRD, Mark IV Inds., 2937 Alt Blvd. N., Grand Island, NY 14072 ...716-773-7634
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 ...312-233-6530
Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 ...312-539-4060
† Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 ...201-985-8800
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 ...313-846-4410
§† Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 ...215-822-2171
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 ...800-628-8862
SP America Inc., Shin-Etsu Polymer, 1754 Technology Dr., Ste. 128, San Jose, CA 95110 ...408-947-0311
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ...215-825-4990
Tra-Con, Inc., 55 North St., Medford, MA 02155 ...617-391-5550
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 ...614-276-5522; 800-245-5253
§† Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 ...415-969-7717
† Zippertubing Co., P.O. Box 61129, Los Angeles. CA 90061 ...213-321-3901

Conduit, Electrical-6000

† Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491, 309-695-2511 ...2•1987
† Air/Flex Inds. Inc., 2422 Merced Ave., S. El Monte, CA 91733 ...818-579-7060
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ...617-935-4850
† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 ...805-238-2840
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 ...607-772-1161
§ Wiremold Company, W. Hartford, CT 06110 ...203-233-6251
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 ...213-321-3901

Connector Adapters-2100

† Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491, 309-695-2511 ...2•1986,1987
Compac, 279 Skidmore Rd., Deer Park, NY 11729, 516-667-3933 ...1A•1587
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ...2•1241
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ...2•1381-1383,1387,1389-1391,1400-1411,1413,1451-1453

Connector Adapters-2100 (Cont'd)

L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-8936 .... 2•2106,2108
Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 .... 2•1526
National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... 2•1531
§† **Sealectro, 225 Hoyt St., Mamaroneck, NY 10543, 914-698-5600 .... 2•1561**
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... 2•1562,1563,2150
§ **TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1618,1619**
Vann Instruments, 1200 Schofield La., Farmington, NM 87401, 505-326-7557 .... 3•1316
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .... 213-873-6400; 818-988-4400
† Air/Flex Inds. Inc., 2422 Merced Ave., S. El Monte, CA 91733 818-579-7060
† Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
† Alford Mfg. Co., P.O. Box 2116, 32 Sixth Rd., Woburn, MA 01888 .617-935-8610
§† Alltech Assocs. Inc., Applied Science Labs., 2051 Waukegan Rd., Deerfield, IL 60015 312-948-8600
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
§ Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
§ Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
§ Beau Products Div., Box 10, Laconia, NH 03247 603-524-5101
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
† Bird Elctrn., 30303 Aurora Rd., Cleveland, OH 44139 216-248-1200
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§ Bryant Circuit Devices Div., Westinghouse Elec. Corp., 500 Sylvan Ave., Bridgeport, CT 06606 203-334-5561
§ Cablewave Sys., 60 Dodge Ave., North Haven, CT 06473 203-239-3311
Cole Hersee, 20 Old Colony Ave., Boston, MA 02127-2467 617-268-2100
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ...212-691-9050
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Elcom Systems, Inc., 4032 Clint Moore Rd., Boca Raton, FL 33431 305-994-1774
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 818-362-9393
§† Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Glenair, 1211 Air Way, Glendale, CA 91201 213-247-6000
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 .... 617-568-0451; 800-225-9228
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 201-887-0571
Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
§ Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406 707-578-8811
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
Maury Microwave, 8610 Helms Ave., Cucamonga, CA 91730 714-987-4715
† Microlab/FXR, 10 Microlab Rd., Livingston, NJ 07039 201-992-7700
† Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 ...619-449-3844
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 201-762-6886
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
§ Recoton Corp., 46-23 Crane St., Long Island City, NY 11101 212-392-6442
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
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§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

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§ Power Dynamics, 177 Valley, S. Orange, NJ 07079, 201-762-6886 .... 2•1544
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† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

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Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... 2•1244,1245
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§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
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† Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 .... 2•1119
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§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 ... 313-848-2555

§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 ... 215-699-5373

Maury Microwave, 8610 Helms Ave., Cucamonga, CA 91730 ... 714-987-4715

§† 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 ... 612-733-7408

† Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 ... 619-449-3844

§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 ... 215-459-3566

Middleburg Corp., Middco Connectors, 220 Albany Turnpike, Canton, CT 06019 ... 203-693-8361

§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 ... 312-451-1360

§ Molex, 2222 Wellington Ct., Lisle, IL 60532 ... 312-969-4550

Mupac, 10 Mupac Dr., Brockton, MA 02401 ... 617-588-6110

Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 ... 516-935-3640

† Narda Microwave Corp., 435 Moreland Rd., Hauppauge, NY 11788 ... 516-231-1700

National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 ... 503-620-9400

§ Neutrik Products, 77 Selleck St., Stamford, CT 06902 ... 203-348-2121

Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 ... 215-323-7120

§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996

§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 ... 603-424-4111

§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 ... 213-532-6600

Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 ... 717-232-0500

§† Positronic Inds., 423 North Campbell, Springfield, MO 65806 ... 417-866-2322

§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 ... 201-762-6886

Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860

† Ronor Systems, 145 N. Plains Ind. Pk. Rd., Wallingford, CT 06492 ... 203-265-2110

§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ... 914-698-0080

Sabritec, 16631 Noyes Ave., Irvine, CA 92714 ... 714-549-7350

§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 ... 812-944-6733

§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ... 914-698-5600

Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 ... 305-823-5440

Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700

§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400

§† Solitron/Microwave, Box 278, Port Salerno, FL 33492 ... 305-287-5000

§ Square D Co., Executive Plaza, Palatine, IL 60067 ... 312-397-2600

§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 408-980-1600

† Star-Tron Corp., 58 Curtis St., Providence, RI 02909 ... 401-274-5090

§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 ... 415-234-9090

§ Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077 ... 216-354-0925

§† Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 ... 617-699-3800

Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 ... 213-887-0750

† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 ... 818-882-1020

Uniform Tubes, Collegeville, PA 19426 ... 215-539-0700

§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 ... 818-341-4330

§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ... 312-585-1212

Connectors, Circular, MS/AN-2100

American Zettler, 16881 Hale Ave., Irvine, CA 92714, 714-660-1670 ... 2•1644,1645

† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ... 2•1133-1135

Buggie H. H./Caton Connector Corp., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 ... 2•1167

† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 ... 2•1167

Ceramaseal, Box 25, New Lebanon Center, NY 12126, 518-794-7800 ... 2•1168

Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342, 818-362-9393 ... 2•1275

Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 ... 2•1313

Interlok, 770 Airport Blvd., Burlingame, CA 94010, 415-348-5625 ... 2•1336

§† ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708, 714-964-7400 ... 2•1340,1344-1350

§ Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406, 707-578-8811 ... 2•1503-1512

Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 ... 2•1521,1522

† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ... 2•1556

§† Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355, 805-257-4830 ... 2•1566

Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 ... 2•1579-1581

§† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 ... 2•1716-1733

§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ... 213-873-6400; 818-988-4400

Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160

§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 ... 818-889-9304

† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 ... 201-862-0022

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ... 203-929-1401

§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 ... 607-563-5324

Burndy Corporation, Richards Ave., Norwalk,, CT 06852 ... 203-838-4444

Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379 ... 617-580-0111

§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ... 212-691-9050

§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 ... 605-665-9301

† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 ... 212-447-4911

§† Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 ... 213-631-1133

† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 ... 818-283-0411

† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Sabritec, 16631 Noyes Ave., Irvine, CA 92714 714-549-7350
Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Connectors, DIN-2100

§ **Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 ..... 2•1157-1159**
Edac Inc., 20 Railside Rd., Toronto, ON M3A 1A4 Canada, 416-445-2292 ..... 2•1260
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753 ..... 2•1273
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 ..... 2•1482,1483
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 ..... 2•1521
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 ..... 2•1096,1579-1581
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ..... 213-873-6400; 818-988-4400
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ..... 800-237-BERG
Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379 617-580-0111
CTS Fabri-Tek, Inc., 6900 Shady Oak Rd., Eden Prairie, MN 55344 612-941-9100
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 818-362-9393
§ Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406 707-578-8811
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§† Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355 805-257-4830
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
Stenning Instrments, Inc., 671 Enchanted Way, Pacific Palisades, CA 90272 213-459-2930
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000

Connectors, D Subminiature-2100

§ **Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 ..... 2•1940,1941**
American Zettler, 16881 Hale Ave., Irvine, CA 92714, 714-660-1670 ..... 2•1644,1645
§ **Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 ..... 2•1153-1156**
§† **AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ..... 2•1128-1132**
§† **Contact Electronics Inc., 30 Plymouth St., Fairfield, NJ 07006, 201-575-7660; 800-221-1451 ..... 2•1169**
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 ..... 2•1255
§ **Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 ..... 2•1256, 1257**
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753 ..... 2•1272,1274
Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 ..... 2•1277,1291
§ **H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810, 203-794-1798 ..... 2•1328**
§ **Holmberg Elctrns., Asheville Hwy., Inman, SC 29349, 803-472-4141 ..... 2•1302-1310**
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708, 714-964-7400 ..... 2•1340,1342,1349-1351
§ **L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 ..... 2•2107**
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 ..... 2•1520,1521
§ **3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144, 612-733-7408 ..... 2•1514**
Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 ..... 2•1524-1527
Murata Erie North America, Inc., 1148 Franklin Rd., S.E., Marietta, GA 30067, 404-952-9777 ..... 1A•1604
Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150, 812-945-0211 ..... 2•1555
§† **Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355, 805-257-4830 ..... 2•1566**
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505, 814-455-0966 ..... 1A•1625, 2•1569-1573
§ **Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 ..... 2•1586,1895**
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043, 415-965-4500 ..... 2•1896
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 ..... 2•1602,1603
§† **TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ..... 2•1613-1639,1643,1646-1648,1677**
Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311, 818-341-4330 ..... 2•1737
§† **Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 ..... 2•1754**
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 516-546-1751
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ..... 213-873-6400; 818-988-4400
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
§† AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
§ Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 216-354-9239
Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ..... 800-237-BERG
Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379 617-580-0111
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
† CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
CTS Fabri-Tek, Inc., 6900 Shady Oak Rd., Eden Prairie, MN 55344 612-941-9100
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
§ Ercona, 2492 Merrick Rd., Bellmore, NY 11710 516-781-2770
§ Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 312-577-8620
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542 516-671-6010
Lawrence-Crow Elctrns. Inc., 2100 Stemmons, Dallas, TX 75207 214-749-5440
§ Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406 707-578-8811
Middleburg Corp., Middco Connectors, 220 Albany Turnpike, Canton, CT 06019 203-693-8361
Min-E-Con, 17815 F Sky Park Blvd., Irvine, CA 92714 714-250-0474
Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
§ Neutrik Products, 77 Selleck St., Stamford, CT 06902 203-348-2121
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Sabritec, 16631 Noyes Ave., Irvine, CA 92714 714-549-7350
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England 0442-40471/6
Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§ Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Terminal Data Corp., 11878 Coakley Circle, Rockville, MD 20852 301-881-7655
§ U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

Connectors, Edgeboard — See Connectors, Printed Circuit, Card Edge (Vol. 2)

Connectors, Elastomeric-2100

Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016 201-272-5500

Connectors, Fiber Optic-2475 — *See Vol. 1B*

Connectors, Filtered-2100

† **ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708, 714-964-7400 ..... 2•1340,1348**
Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 ..... 2•1524-1527
Murata Erie North America, Inc., 1148 Franklin Rd., S.E., Marietta, GA 30067, 404-952-9777 ..... 1A•1604
Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355, 805-257-4830 ..... 2•1567
† **Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505, 814-455-0966 ..... 1A•1625, 2•1569-1573**
† AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ..... 800-237-BERG
Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 617-585-4315
§ Corcom, Inc., 1600 Winchester Rd., Libertyville, IL 60048 312-680-7400
† CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
§ Ercona, 2492 Merrick Rd., Bellmore, NY 11710 516-781-2770

† Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553 516-794-4500
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Sabritec, 16631 Noyes Ave., Irvine, CA 92714 714-549-7350
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010

Connectors, Flat Cable (Incl. Flexible)-2100

§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 .... 2•1940,1941
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 .. 2•1153-1159
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... 2•1124,1125, 1130-1132,1136-1140,1944
§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060, 216-354-2101 .... 2•1900
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1149
§ Contact Electronics Inc., 30 Plymouth St., Fairfield, NJ 07006, 201-575-7660; 800-221-1451 .... 2•1169
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... 2•1255
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 .... 2•1257
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753 .... 2•1274
§ Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... 2•1276-1279,1282,1283,1285,1287-1291
§† H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810, 203-794-1798 .... 2•1325-1328
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708, 714-964-7400 .... 2•1340,1351
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... 2•1473-1476, 1481
§† 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144, 612-733-7408 .... 2•1514
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... 2•1532,1534
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150, 812-945-0211 .... 2•1554,1555
§ Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355, 805-257-4830 .... 2•1566,1567
§ Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... 2•1586,1895
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... 2•1589-1591
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1594,1595,1600,1601,1604
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1649,1666-1676
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
† Advanced Circuit Technlg., 118 N. Eastern Blvd., Nashua, NH 03062 603-880-6000
† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001 214-931-3200
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
§ Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 216-354-9239
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
§† Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379 617-580-0111
Components Corp., 6 Kinsey Pl., Denville, NJ 07834 201-627-0290
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
§ Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 312-577-8620
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GÇ Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 313-848-2555
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Middleburg Corp., Middco Connectors, 220 Albany Turnpike, Canton, CT 06019 203-693-8361
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§† Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§ Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
† Star-Tron Corp., 58 Curtis St., Providence, RI 02909 401-274-5090
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Sylvania Connector Prods. Oper., GTE Prods. Corp., Box 29, Titusville, PA 16354 814-589-7071
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ....814-723-2000; 800-221-3333
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 603-889-5156
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
Uniform Tubes, Collegeville, PA 19426 215-539-0700

Connectors, Fused-2100

§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523, 914-592-7322 . 2•1266, 1267
Power Dynamics, 177 Valley, S. Orange, NJ 07079 201-762-6886

Connectors, Heavy Duty, Power-2100

Beau Products Div., Box 10, Laconia, NH 03247, 603-524-5101 .... 2•1165,1166
Contact Electronics Inc., 30 Plymouth St., Fairfield, NJ 07006, 201-575-7660; 800-221-1451 .... 2•1169
§ ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708, 714-964-7400 .... 2•1340,1353
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 .... 2•1536-1539
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079, 201-762-6886 .... 2•1544,1545
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1707-1715
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ....213-873-6400; 818-988-4400
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Chatsworth Data Corp, Impact-o-Graph Div., 20710 Lassen St., Chatsworth, CA 91311 213-341-3000
§ Cogenel/Entrelec Div., 2 Ram Ridge Rd., Spring Valley, NY 10977 ..914-425-7460
Cole Hersee, 20 Old Colony Ave., Boston, MA 02127-2467 617-268-2100
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Ericson Mfg. Co., 4215 Hamann Pkwy., Willoughby, OH 44094 216-951-8000
§ Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 312-577-8620
Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 818-362-9393
Hugin Inds. Inc., 745 Distel Dr., Los Altos, CA 94022 415-961-2950
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ....617-568-0451; 800-225-9228
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§ Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406 707-578-8811
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 ..215-323-7120
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800
§† Pass & Seymour, Inc., P.O. Box 4822, Syracuse, NY 13221 315-468-6211
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Sabritec, 16631 Noyes Ave., Irvine, CA 92714 714-549-7350
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
§ Teledyne Ansonia, Riverside Dr., Ansonia, CT 06401 203-735-9311

Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
§ Underwriters Safety Device, An Allied Co., 7300 W. Wilson Ave., Chicago, IL 60656 312-867-4600
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330

Connectors, Hermetically Sealed, Pressurized, or Waterproof-2100

Buggie H. H./Caton Connector Corp., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 ....2•1167
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 ....2•1167
Ceramaseal, Box 25, New Lebanon Center, NY 12126, 518-794-7800 ....2•1168
Contact Electronics Inc., 30 Plymouth St., Fairfield, NJ 07006, 201-575-7660; 800-221-1451 ....2•1169
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011, 212-691-9050 ....2•1254
Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342, 818-362-9393 ....2•1275
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 ....2•1312
§ ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708, 714-964-7400 ....2•1340,1346,1347,1349,1353
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ....2•1384,1386
Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355, 805-257-4830 ....2•1566
§† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 ....2•1726-1735
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ....213-873-6400; 818-988-4400
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§† Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525 203-387-5282
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Degussa, Rte. 46 & Hollister, Teterboro, NJ 07608 201-288-6500
Eaton Corp., Microwave Comps. Div., 783 Palomar Ave., Sunnyvale, CA 94086 408-245-6810
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
Ericson Mfg. Co., 4215 Hamann Pkwy., Willoughby, OH 44094 216-951-8000
§ Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
† Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553 516-794-4500
† Glenair, 1211 Air Way, Glendale, CA 91201 213-247-6000
† Gulton Inds., Inc., Servonic Div., 1644 Whittier Ave., Costa Mesa, CA 92627 ....714-642-2400;800-854-4066
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033 ....201-245-0033; 800-526-4182
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 201-887-0571
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 914-793-5000
§ Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406 707-578-8811
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 1906† 215-459-3566
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Sabritec, 16631 Noyes Ave., Irvine, CA 92714 714-549-7350
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§† Solitron/Microwave, Box 278, Port Salerno, FL 33492 305-287-5000
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§ Teledyne Mecca, Box 36393, Houston, TX 77036 713-772-2811
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
Uniform Tubes, Collegeville, PA 19426 215-539-0700
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502 818-843-5770

Connectors, High Voltage (1,000 Volts & Over)-2100

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ....2•1787
† Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 ....2•1113-1117
Buggie H. H./Caton Connector Corp., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 ....2•1167
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 ....2•1167
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 ....2•1471
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ....2•1556,1557
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ....2•1632,1635-1637
† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001 214-931-3200
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ....213-873-6400; 818-988-4400
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
† AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Anderson Power Prods., Div. of High Voltage Engrg., 145 Newton St., Boston, MA 02135 617-787-5880
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
Beau Products Div., Box 10, Laconia, NH 03247 603-524-5101
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
Bertan Assocs., 121 New South Rd., Hicksville, NY 11801 516-433-3110
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
Chatsworth Data Corp, Impact-o-Graph Div., 20710 Lassen St., Chatsworth, CA 91311 213-341-3000
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
CSI Capacitors, CSI Technlgs., 810 Rancheros Dr., San Marcos, CA 92069 619-747-4000
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 212-691-9050
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 605-665-9301
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Degussa, Rte. 46 & Hollister, Teterboro, NJ 07608 201-288-6500
Del Elctrns. Corp., 250 E. Sandford Blvd., Mt. Vernon, NY 10550 914-699-2000
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 617-448-5485
Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 818-362-9393
Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
§ Hobson Bros., 4940 W. Lawrence Ave., Chicago, IL 60630-3884 312-283-3600
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ....617-568-0451; 800-225-9228
Isolation Products, Inc., 1245 Birchwood Dr., Sunnyvale, CA 94086 408-734-4068
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 914-793-5000
§ Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406 707-578-8811
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§ Millen Components, Electronic Instr. & Specialty Corp., 42 Pleasant St., Stoneham, MA 02180 617-438-6951
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
§† Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
† PTK Corporation, 1173 Los Olivos Ave., Los Osos, CA 93402 805-528-5858
Simmonds Precision, P.O. Box 310, Norwich, NY 13815 607-335-5000
§† Solitron/Microwave, Box 278, Port Salerno, FL 33492 305-287-5000
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
ZI-TECH Instr. Corp., 2151 Park Blvd., Box 60490, Palo Alto, CA 94306 415-326-2151

Connectors, Integrated Circuit — See Sockets, Integrated Circuit (Vol. 2)

Connectors, LCD-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ....2•1149
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079, 201-762-6886 ....2•1546
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ....2•1588-1591
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 605-665-9301
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440

Connectors, Magnetron-2100

† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 ....2•1471

Connectors, Miniature, Subminiature & Microminiature-2100

† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 ....2•1105-1112
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 ....2•1119
Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 ....2•1940,1941
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 ....2•1153-1159
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ....2•1122-1132, 1136,1137,1143-1147,1944

Connectors, Miniature-2100 (Cont'd)

§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060, 216-354-2101 .... 2•1900
§ Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060, 216-354-9239 .... 2•1160,1161
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1152
Beau Products Div., Box 10, Laconia, NH 03247, 603-524-5101 .... 2•1165,1166
§† Contact Electronics Inc., 30 Plymouth St., Fairfield, NJ 07006, 201-575-7660; 800-221-1451 .... 2•1169
† CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428, 612-533-3533 .... 2•1246-1248
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011, 212-691-9050 .... 2•1254
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078, 605-665-9301 .... 2•1253
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... 2•1255
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 .... 2•1256, 1257
Edac Inc., 20 Railside Rd., Toronto, ON M3A 1A4 Canada, 416-445-2292 .... 2•1258-1261
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753 .... 2•1271-1274
Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342, 818-362-9393 .... 2•1275
§ Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... 2•1277-1291
§ H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810, 203-794-1798 .... 2•1320-1328
Holmberg Elctrns., Asheville Hwy., Inman, SC 29349, 803-472-4141 .... 2•1295-1310
† Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 .... 2•1311-1313
§† Industrial Elctrn. Hardware Corp., 109 Prince St., New York, NY 10012, 212-677-1881 .... 2•1329
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010, 415-348-5625 .... 2•1336
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 .... 2•1338
§ ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708, 714-964-7400 .... 2•1340,1342-1352
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1381-1396
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... 2•1472-1483
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... 2•2107
§ Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406, 707-578-8811 .... 2•1503-1512
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... 2•1520-1522
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144, 612-733-7408 .... 2•1514
Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 .... 2•1524-1527
Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... 2•1532,1534
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150, 812-945-0211 .... 2•1555
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... 2•1556,1557
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543, 914-698-5600 .... 2•1561
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... 2•1562,1563
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1565
Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355, 805-257-4830 .... 2•1566
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505, 814-455-0966 .... 1A•1625, 2•1569-1573
Sullins Elctrns. Corp., P.O. Box 189, 801 Mission Rd., San Marcos, CA 92069, 619-744-0125 .... 2•1574,1575
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 .... 2•1580,1581
Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... 2•1586,1895
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1594,1595,1597-1604,1608
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1613-1639,1643,1646,1648-1661, 1663-1672,1674,1676-1683,1685,1687-1692
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... 2•1716-1735
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311, 818-341-4330 .... 2•1737
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... 2•1738,1740
Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada, 514-457-3648 .... 2•1745-1747
Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 .... 2•1752-1754

Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .....213-873-6400; 818-988-4400
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
§† Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
§† Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525 203-387-5282
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
† Avibank Mfg., 210 S. Victory Blvd., Burbank, CA 91503 818-843-4330
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
Component Mfg. Svc., Inc., 1 Component Park, W. Bridgewater, MA 02379 617-580-0111
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
§† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
§ Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
Enerco, Inc., 9615 W. Marginal Way S., Seattle, WA 98108 206-762-1422
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
† Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553 516-794-4500
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Heraeus-Volkert Inc., 222-34 96th Ave., Queens Village, NY 11429 .212-464-8400
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
† Isotronics, Industrial Park, New Bedford, MA 02745 617-998-2000
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 914-793-5000
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 ...619-449-3844
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 215-459-3566
Middleburg Corp., Middco Connectors, 220 Albany Turnpike, Canton, CT 06019 203-693-8361
§ Midland-Ross Corp., Cambion Div., One Alewife Place, Cambridge, MA 02140 617-491-5400
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Min-E-Con, 17815 F Sky Park Blvd., Irvine, CA 92714 714-250-0474
Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
§ Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
Oxley Inc., 6290 Sunset Blvd., Ste. 1126, Los Angeles, CA 90028 ...213-463-5120
† Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 201-762-6886
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§† Solitron/Microwave, Box 278, Port Salerno, FL 33492 305-287-5000
§ Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
† Star-Tron Corp., 58 Curtis St., Providence, RI 02909 401-274-5090
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010 203-582-9561
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016 201-272-5500
† Ted Corp., 11415 Johnson Dr., Shawnee Mission, KS 66203 913-631-6211
§† Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
Tex-Techs Intl., 10021 Cayuga, Dallas, TX 75228 214-328-6200
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
Uniform Tubes, Collegeville, PA 19426 215-539-0700
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

Connectors, Missile (Umbilicals, Interstage, Post Boost)-3475 — *See Vol. 3*

Connectors, Piggy Back — See Connectors, Wirewrap (Z-3 Level) (Vol. 2)

Connectors, Plug-in, Program Board-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1152
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
§ Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 216-354-9239
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
§† Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ... 800-237-BERG
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Cable Sys & Assembly, 210 Broadway, Everett, MA 02149 617-389-7080
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Control Prods. Div., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083 201-964-4400
Crosspoint, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022 201-941-4455
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 605-665-9301
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 215-969-4200
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 .... 617-568-0451; 800-225-9228
§† Industrial Elctrn. Hardware Corp., 109 Prince St., New York, NY 10012 212-677-1881
§ Interswitch, 770 Airport Blvd., Burlingame, CA 94010 415-347-8217
§ ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 201-762-6886
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010 203-582-9561
Sylvania Connector Prods. Oper., GTE Prods. Corp., Box 29, Titusville, PA 16354 814-589-7071
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 818-341-4330
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .. 312-585-1212
§ Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada 514-457-3648

Connectors, Printed Circuit, Card Edge-2100

AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 .... 2•1111
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 .. 2•1153-1156
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... 2•1136,1138-1140,1143,1144,1146,1147
Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1149
Buggie H. H./Caton Connector Corp., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... 2•1167
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... 2•1167
§† Contact Electronics Inc., 30 Plymouth St., Fairfield, NJ 07006, 201-575-7660; 800-221-1451 .... 2•1169
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078, 605-665-9301 .... 2•1250-1252
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 .... 2•1256
§ Edac Inc., 20 Railside Rd., Toronto, ON M3A 1A4 Canada, 416-445-2292 . 2•1258, 1259
Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523, 914-592-7322 . 2•1266, 1267
§ Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753 .... 2•1271,1272,1274
§ Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... 2•1277,1290
§ H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810, 203-794-1798 .... 2•1327
§ Holmberg Elctrns., Asheville Hwy., Inman, SC 29349, 803-472-4141 .... 2•1295-1301,1303-1310
† Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 .... 2•1312
§† Industrial Elctrn. Hardware Corp., 109 Prince St., New York, NY 10012, 212-677-1881 .... 2•1329
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... 2•1472,1473, 1475,1477,1478,1480
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... 2•1521,1522
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150, 812-945-0211 .... 2•1555
§ Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355, 805-257-4830 .... 2•1566,1567
§ Sullins Elctrns. Corp., P.O. Box 189, 801 Mission Rd., San Marcos, CA 92069, 619-744-0125 .... 2•1574,1575
§ Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... 2•1586,1895
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... 2•1589-1591
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1599
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1650-1652,1655-1661,1674
Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311, 818-341-4330 .... 2•1737
§† Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 ...... 2•1752, 1753

Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 . 516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-267-2000
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ... 800-237-BERG
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933
Components Corp., 6 Kinsey Pl., Denville, NJ 07834 201-627-0290
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
§ Control Prods. Div., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083 201-964-4400
CTS Corp., 905 North West Blvd., Elkart, IN 46514 219-293-7511
† CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
† CTS Fabri-Tek, Inc., 6900 Shady Oak Rd., Eden Prairie, MN 55344 612-941-9100
§ Curtis Inds., 8000 West Tower Ave., Milwaukee, WI 53223 414-354-1500
† DataCon, Inc., 60 Blanchard Rd., Burlington, MA 01803 617-273-5800
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Deutsch Co., Deutsch Fiber Optics Div., 7001 W. Imperial Hwy., Los Angeles, CA 90045 213-649-1400
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
§ Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
§† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
Elco Corp., Interconnect Systems Div., 2250 Park Pl., El Segundo, CA 90245 213-675-3311
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600

† Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553 ... 516-794-4500
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 ... 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 ... 714-660-5701
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 ... 617-486-3174
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542 ... 516-671-6010
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 ... 714-964-7400
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§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 ... 714-554-6840
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 ... 212-475-4600
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 ... 914-793-5000
Lawrence-Crow Elctrns. Inc., 2100 Stemmons, Dallas, TX 75207 ... 214-749-5440
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 ... 313-848-2555
§ Masterite Corporation, 2841 Lomita Blvd., Torrance, CA 90505 ... 213-775-3471
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 ... 612-733-7408
§† Methode Elctrns. Inc., 7444 W Wilson Ave., Chicago, IL 60656 ... 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd. Rolling Meadows, IL 60008 ... 312-392-3500
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061 ... 215-459-3566
Middleburg Corp., Middco Connectors, 220 Albany Turnpike, Canton, CT 06019 ... 203-693-8361
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 ... 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 ... 312-969-4550
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 ... 617-588-6110
Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 ... 516-935-3640
Nepenthe/Yamaichi, 2471 E. Bayshore, 20, Palo Alto, CA 94303 ... 415-856-9332
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 ... 603-424-4111
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 ... 717-232-0500
§ Positronic Inds., 423 North Campbell, Springfield, MO 65806 ... 417-866-2322
§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 ... 617-699-7646
§ RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188 ... 312-682-4100
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 ... 401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England ... 0442-40471/6
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ... 914-698-5600
Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 ... 305-823-5440
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 ... 714-996-0960
§ Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Staffall Inc., 7 Woodland St., Providence, RI 02908 ... 401-351-8282
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 408-980-1600
† Star-Tron Corp., 58 Curtis St., Providence, RI 02909 ... 401-274-5090
Sylvania Connector Prods. Oper., GTE Prods. Corp., Box 29, Titusville, PA 16354 ... 814-589-7071
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ... 814-723-2000; 800-221-3333
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 ... 415-965-4500
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 ... 201-685-1600
§† Teka Prods., 45 Salem, Providence, RI 02907 ... 401-785-4110
Teledyne Kinetics, 410 S. Cedros Ave., Solana Beach, CA 92075 ... 619-755-1181
Teradyne, Inc., 183 Essex St., Boston, MA 02111 ... 617-482-2700
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 ... 603-889-5156
§† Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 ... 214-995-6611
§† Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 ... 617-699-3800
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 ... 213-887-0750
§ Underwriters Safety Device, An Allied Co., 7300 W. Wilson Ave., Chicago, IL 60656 ... 312-867-4600
United Technologies, Terminal Prods., 1230 Sabine St., Huntington, IN 46750 ... 219-356-2700
Urban Elctrns., P. O. Box 456, Dover, MA 02030 ... 617-329-4068
§† Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 ... 818-365-9661
§ Wago Corp., 6657 N. Sidney Pl., Milwaukee, WI 53209-3217 ... 414-352-1035
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 . 312-585-1212
§ Winslow Intl., 2471 E. Bayshore 20, Palo Alto, CA 94303 ... 415-856-0552
"World" Enterprises, Inc., 550 N. Bayard Ave., Waynesboro, VA 22980 ... 703-942-4159

Connectors, Printed Circuit (Other than Card Edge)-2100

† **AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 ... 2•1105-1107, 1109-1112**
§† **Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 ... 2•1940,1941**
§ **Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 .. 2•1153-1159**
§† **AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ... 2•1126-1132, 1136-1140,1145,1147,1944**
§ **A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060, 216-354-2101 ... 2•1900**
§ **Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060, 216-354-9239 ... 2•1160,1161**
Beau Products Div., Box 10, Laconia, NH 03247, 603-524-5101 ... 2•1165,1166
§† **Contact Electronics Inc., 30 Plymouth St., Fairfield, NJ 07006, 201-575-7660; 800-221-1451 ... 2•1169**
† **CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428, 612-533-3533 ... 2•1246-1248**
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 ... 2•1255
§† **Edac Inc., 20 Railside Rd., Toronto, ON M3A 1A4 Canada, 416-445-2292 . 2•1260, 1261**
Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523, 914-592-7322 . 2•1266, 1267
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753 ... 2•1273,1274
§ **Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 ... 2•1277-1284,1286-1289,1291**
§† **H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810, 203-794-1798 ... 2•1320-1326**
Holmberg Elctrns., Asheville Hwy., Inman, SC 29349, 803-472-4141 ... 2•1302-1310
† **Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 ... 2•1312**
Interlok, 770 Airport Blvd., Burlingame, CA 94010, 415-348-5625 ... 2•1336
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708, 714-964-7400 ... 2•1340,1350-1352
§ **Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 ... 2•1474-1476, 1479,1482,1483**
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 ... 2•2107
§ **Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406, 707-578-8811 ... 2•1503,1504,1506-1511**
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 ... 2•1520,1521
§† **3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144, 612-733-7408 ... 2•1514**
Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 ... 2•1525,1526
§† **Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 ... 2•1532,1534**
Power Dynamics, 177 Valley, S. Orange, NJ 07079, 201-762-6886 ... 2•1546
§ **Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150, 812-945-0211 ... 2•1554,1555**
Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355, 805-257-4830 ... 2•1566,1567
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505, 814-455-0966 ... 2•1569-1573
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 ... 2•1580,1581
§ **Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 ... 2•1586,1895**
† **Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ... 2•1589-1591**
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 ... 2•1594,1595,1597-1599,1604
§† **TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ... 2•1620,1621,1626,1628,1631,1633, 1634,1647,1648,1653,1654,1663-1673,1675-1678,1681,1685,1688,1691,1692**
§ **Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311, 818-341-4330 ... 2•1737**
§ **Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 ... 2•1738,1740**
§ **Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada, 514-457-3648 ... 2•1745-1747**
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 ... 818-889-9304
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 ... 215-647-1000
§† Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525 ... 203-387-5282
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 ... 203-674-1515
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 ... 617-222-2202
Autosplice, Inc., 59-12, 37th Ave. Woodside, NY 11377 ... 212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ... 203-929-1401
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 ... 203-334-4124
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Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 ... 717-938-1451
Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 ... 607-563-5324
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§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 ... 516-234-0400
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 ... 216-946-3200
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 ... 617-585-4315
§ Cogenel/Entrelec Div., 2 Ram Ridge Rd., Spring Valley, NY 10977 .. 914-425-7460
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 ... 212-777-6571
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§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 ... 605-665-9301
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 ... 212-447-4911
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 ... 714-558-8755
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Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 818-362-9393
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Hugin Inds. Inc., 745 Distel Dr., Los Altos, CA 94022 415-961-2950
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
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Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
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Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
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§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England 0442-40471/6
§ Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
Star-Tron Corp., 58 Curtis St., Providence, RI 02909 401-274-5090
Teledyne Kinetics, 410 S. Cedros Ave., Solana Beach, CA 92075 619-755-1181
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 603-889-5156
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§ Wago Corp., 6657 N. Sidney Pl., Milwaukee, WI 53209-3217 414-352-1035

Connectors, Rack & Panel-2100

† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 .... 2•1107,1108, 1112
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 .... 2•1114
American Zettler, 16881 Hale Ave., Irvine, CA 92714, 714-660-1670 .... 2•1644,1645
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903, 203-322-1913 .... 2•1153-1156
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... 2•1124-1136
Beau Products Div., Box 10, Laconia, NH 03247, 603-524-5101 .... 2•1165,1166
Buggie H. H./Caton Connector Corp., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... 2•1167
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... 2•1167
Ceramaseal, Box 25, New Lebanon Center, NY 12126, 518-794-7800 .... 2•1168
§† Contact Electronics Inc., 30 Plymouth St., Fairfield, NJ 07006, 201-575-7660; 800-221-1451 .... 2•1169
§† Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078, 605-665-9301 .... 2•1253
§ Edac Inc., 20 Railside Rd., Toronto, ON M3A 1A4 Canada, 416-445-2292 .... 2•1262
Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342, 818-362-9393 .... 2•1275
† Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 .... 2•1311-1313
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§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1383,1384,1386-1388,1391
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... 2•2107,2108
§ Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406, 707-578-8811 .... 2•1503-1512
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... 2•1520-1522
Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 .... 2•1524,1527
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... 2•1556,1557
Souriau, Inc., 25158 Avenue Stanford, Valencia, CA 91355, 805-257-4830 .... 2•1566
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505, 814-455-0966 .... 1A•1625, 2•1569-1573
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 .... 2•1579-1581
Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077, 216-354-0925 .... 2•1587
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1597,1598,1602,1603
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1613-1630,1633,1634,1678,1680-1682,1685,1687-1690
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... 2•1716-1733
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311, 818-341-4330 .... 2•1737
§ Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada, 514-457-3648 .... 2•1747
Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 .... 2•1754
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ....213-873-6400; 818-988-4400

§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
† Bailey Controls Co., 29801 Euclid Ave., Wickliffe, OH 44092 216-585-5800
Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
CTS Corp., 905 North West Blvd., Elkart, IN 46514 219-293-7511
† CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Deutsch Co., Deutsch Fiber Optics Div., 7001 W. Imperial Hwy., Los Angeles, CA 90045 213-649-1400
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
§† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
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§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
† Middleburg Corp., Middco Connectors, 220 Albany Turnpike, Canton, CT 06019 203-693-8361
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
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§ Neutrik Products, 77 Selleck St., Stamford, CT 06902 203-348-2121
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Sabritec, 16631 Noyes Ave., Irvine, CA 92714 714-549-7350
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England 0442-40471/6
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† Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Teka Prods., 45 Salem, Providence, RI 02907 401-785-4110
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750

Connectors, RF, Coaxial & Triaxial-2100

AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 .... 2•1109
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... 2•1122,1123
Buggie H. H./Caton Connector Corp., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... 2•1167
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... 2•1167
§ Compac, 279 Skidmore Rd., Deer Park, NY 11729, 516-667-3933 .... 1A•1690
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1234
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011, 212-691-9050 .... 2•1254
Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342, 818-362-9393 .... 2•1275
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1381,1382,1384-1393,1412
L-Com Inc., 1755 Osgood St., Unit 11EM, N. Andover, MA 01845, 617-682-6936 .... 2•2108
§ Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406, 707-578-8811 .... 2•1503,1504,1506-1508,1511,1512
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... 2•1522
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... 2•1530,1531
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Sealectro, 225 Hoyt St., Mamaroneck, NY 10543, 914-698-5600 .... 2•1561
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1565
TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1632,1635-1637
§† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... 2•1734,1735
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... 2•1742
† Weinschel Engrg., One Weinschel La., Gaithersburg, MD 20877, 301-948-3434; 800-638-2048 .... 1A•1787
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§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ....213-873-6400; 818-988-4400

Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403	617-583-0160
† Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362	818-889-9304
American Electronic Labs., Box 552, Lansdale, PA 19446	215-822-2929
§† AMP Products Corp., P.O. Box 1776, Paoli, PA 19301	215-647-1000
Andrew Corp., 10500 W. 153rd St., Orland Pk., IL 60462	312-349-3300
§† Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525	203-387-5282
§† Arco Elctrns., 400 Moreland Rd., Commack, NY 11725	516-864-7000
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§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043	201-783-7800
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036	201-862-0022
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725	516-543-5000
§† Bendix Corp., Electrical Comps. Div., Sidney, NY 13838	607-563-5324
† Bird Elctrn., 30303 Aurora Rd., Cleveland, OH 44139	216-248-1200
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852	203-838-4444
§ Cablewave Sys., 60 Dodge Ave., North Haven, CT 06473	203-239-3311
§ Cambridge Prods., Hi-G, Inc., 244 Woodland Ave., Bloomfield, CT 06002	203-243-1761
Ceramaseal, Box 25, New Lebanon Center, NY 12126	518-794-7800
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735	516-293-1610
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646	312-539-3108
† Connector Inds. of Amer., 639 N. Wayne, Cincinnati, OH 45215	513-733-3680
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301	212-447-4911
§† EMC Technology Inc, 1971 Old Cuthbert Rd., Cherry Hill, NJ 08034	609-429-7800
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006	818-446-6175
† Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553	516-794-4500
Gabriel Elctrns., Box 70, Scarborough Indl. Pk., Scarborough, ME 04074	207-883-5161
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101	815-968-9661
§ Goldwell Comps., 1815 W. 205th St. Ste. 201, Torrance, CA 90501	213-533-1228
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803	305-894-3351
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749	617-568-0451; 800-225-9228
§ ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708	714-964-7400
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093	507-835-6222
Kevlin Microwave Corp., 26 Conn St., Woburn, MA 01801	617-935-4800
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707	914-793-5000
§ Macom Inds., 8230 Haskell Ave., Van Nuys, CA 91406	
M/A-Com Cable/Home Communication Prodelin Satellite Antenna Systems, M/A-Com, Inc., P.O. Box 468, Newton, NC 28658	800-222-1195;704-464-4141
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054	603-424-4111
Maury Microwave, 8610 Helms Ave., Cucamonga, CA 91730	714-987-4715
† Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020	619-449-3844
§† Microtech, 1420 Conchester Hwy., Boothwyn, PA 19061	215-459-3566
Middleburg Corp., Middco Connectors, 220 Albany Turnpike, Canton, CT 06019	203-693-8361
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140	617-491-5400
Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590	516-935-3640
§ Murata Mfg. Co. Ltd., 26-10 2-chome-Temjin, Nagaoka-Kyo-Shi, Kyoto, Japan	075-921-9111
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006	201-227-7996
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054	603-424-4111
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025	415-361-3860
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462	212-892-6700
Sabritec, 16631 Noyes Ave., Irvine, CA 92714	714-549-7350
Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014	305-823-5440
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021	516-466-0911
§ Sitco Antennas, 10330 N.E. Marx St., Portland, OR 97220	503-253-2000
§† Solitron/Microwave, Box 278, Port Salerno, FL 33492	305-287-5000
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521	312-323-9121
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804	415-234-9090
§† Ted Corp., 11415 Johnson Dr., Shawnee Mission, KS 66203	913-631-6211
§† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869	201-469-4000
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303	213-887-0750
Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492	203-265-8500
§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048	312-362-3700
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311	818-882-1020
Uniform Tubes, Collegeville, PA 19426	215-539-0700
Whittaker Corp., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502	818-843-5770
§ Wiltron, 805 E. Middlefield Rd., P.O. Box 7290, Mountain View, CA 94042-7290	415-969-6500

Connectors, Solderless-2100

§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100	**2•1124,1125, 1136,1138-1140**
Contact Electronics Inc., 30 Plymouth St., Fairfield, NJ 07006, 201-575-7660; 800-221-1451	**2•1169**
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753	**2•1274**
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228	**2•1313**
Lear Siegler, Inc., Elctrn. Instr. Div., 714 N. Brookhurst St., Anaheim, CA 92803, 714-774-1010	**2•1502**
§† 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144, 612-733-7408	**2•1514**
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010, 203-582-9561	**2•1577**
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500	**2•1589-1591**
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000	**2•1678-1683,1685,1687**
ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435	612-835-6800
† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001	214-931-3200
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406	213-873-6400; 818-988-4400
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403	617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362	818-889-9304
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207	201-925-8000
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301	215-647-1000
Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172	414-764-7200
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703	617-222-2202
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725	516-543-5000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377	212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484	203-929-1401
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605	203-334-4124
Beau Products Div., Box 10, Laconia, NH 03247	603-524-5101
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070	717-938-1451
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838	607-563-5324
§† Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011	800-237-BERG
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788	516-234-0400
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644	201-796-2886
Bussco Engrg., 119 Standard St., El Segundo, CA 90245	213-322-6580
Cambridge Prods., Hi-G, Inc., 244 Woodland Ave., Bloomfield, CT 06002	203-243-1761
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714	714-540-5490
Cole Hersee, 20 Old Colony Ave., Boston, MA 02127-2467	617-268-2100
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735	516-293-1610
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012	212-777-6571
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646	312-539-3108
§ Control Prods. Div., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083	201-964-4400
† CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428	612-533-3533
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648	201-768-5400
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078	605-665-9301
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702	714-558-8755
§† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652	814-643-0700
Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342	818-362-9393
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101	815-968-9661
§† H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810	203-794-1798
§† Hollingsworth Solderless Terminal Co., 700 N.W. 57th Pl., Ft. Lauderdale, FL 33309	305-772-7660
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178	815-895-6501
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460	617-486-3174
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178	815-895-5181
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010	415-348-5625
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708	714-964-7400
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766	714-623-3463
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093	507-835-6222
§ Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406	707-578-8811
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656	312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008	312-392-3500
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966	215-355-0200
Multi-Tronix, 3210 Terry Dr, Toledo, OH 43613	419-472-0723
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335	814-724-6440
§† Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464	215-323-7120
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981	312-532-1800
Patton-MacGuyer Inc., 17 Virginia Ave., Providence, RI 02905	401-941-6000
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104	717-232-0500
§† Pioneer Comps., 2352 E. 66th St., Brooklyn, NY 11234	212-444-3880
§† Positronic Inds., 423 North Campbell, Springfield, MO 65806	417-866-2322
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079	201-762-6886
Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014	305-823-5440
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736	201-223-9400
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670	714-996-0960
§ Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415	714-892-3361

§ Sprague Products Co., 481 Marshall St., No. Adams, MA 01247 413-664-4481
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
† Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077 216-354-0925
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 .415-965-4500
§† Teka Prods., 45 Salem, Providence, RI 02907 401-785-4110
§ Teledyne Ansonia, Riverside Dr., Ansonia, CT 06401 203-735-9311
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 603-889-5156
† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 414-355-1130
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada 514-457-3648
Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 804-794-2877

Connectors, Stripline-2100

§ **Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ...... 2•1149,1151**
§ **ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708, 714-964-7400 ...... 2•1340,1350,1351**
§ **TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ...... 2•1647**
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Applied Engrg. Prods., P.O. Box A-D, Amity Sta., New Haven, CT 06525 203-387-5282
§ Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060 216-354-9239
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
† EMC Technology Inc, 1971 Old Cuthbert Rd., Cherry Hill, NJ 08034 609-429-7800
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ......617-568-0451; 800-225-9228
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
† Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 ...619-449-3844
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§† Solitron/Microwave, Box 278, Port Salerno, FL 33492 305-287-5000
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 213-887-0750
Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500

Connectors, Test-2100

A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060, 216-354-2101 ...... 2•1900
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 ...... 2•1312
Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 ...... 3•1264,1265
§ Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
§ Air-O-Tronics Prods., Box K, Morrisville, NY 13408 315-684-3705
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
BLACK BOX Corp., Micom Sys.; P.O. Box 12800, Pittsburgh, PA 15241 412-746-5500
Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491 309-695-2511
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Contact Electronics Inc., 30 Plymouth St., Fairfield, NJ 07006 ......201-575-7660; 800-221-1451
† CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 605-665-9301
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 818-362-9393
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Glenair, 1211 Air Way, Glendale, CA 91201 213-247-6000
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
§ Interconnect Devices, Inc., 5101 Richland Ave., Kansas City, KS 66106 913-342-5544
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 201-887-0571
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
† Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406 707-578-8811
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
† Narda Microwave Corp., 435 Moreland Rd., Hauppauge, NY 11788 516-231-1700
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
Oxley Inc., 6290 Sunset Blvd., Ste. 1126, Los Angeles, CA 90028 ...213-463-5120
§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 214-243-0611
Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 617-699-7646
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
"World" Enterprises, Inc., 550 N. Bayard Ave., Waynesboro, VA 22980 703-942-4159

Connectors, Thermocouple-2100

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ... 2•1787
§ **Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406, 707-578-8811 ...... 2•1503,1504,1509**
Omega Engrg., Box 4047, Stamford, CT 06907, 203-359-1660 ...... 1B•1735
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 .....213-873-6400; 818-988-4400
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
† Connector Inds. of Amer., 639 N. Wayne, Cincinnati, OH 45215 513-733-3680
§ Control Prods. Div., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083 201-964-4400
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 818-362-9393
§ GIC Thermodynamics, 2611 Parmenter, Royal Oak, MI 48073 313-280-1648
Gordon, Claud S., Co., 5710 Kenosha St., Richmond, IL 60071 815-678-2211
† Gulton Inds., Inc., Servonic Div., 1644 Whittier Ave., Costa Mesa, CA 92627 ......714-642-2400;800-854-4066
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
Honeywell, Process Control Div., 1100 Virginia Dr., Ft. Washington, PA 19034 ......800-321-5111, Ext. 596
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 914-793-5000
§ Love Controls, 1475 S. Wheeling Rd., Wheeling, IL 60090 312-541-3232
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
† NANMAC Corp., 9 Mayhew St., Framingham, MA 01701 617-872-4811
Pyrocom Co., 924 N. 143rd St., Seattle, WA 98133 206-365-3535
Richards, Arklay S., Co., Inc., 72 Winchester St., Newton Highlands, MA 02161 617-527-1512
† Thermo Elec., 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800

Connectors, Wirewrap (Z-3 Level)-2100

Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060, 216-354-9239 ...... 2•1160,1161
Contact Electronics Inc., 30 Plymouth St., Fairfield, NJ 07006, 201-575-7660; 800-221-1451 ...... 2•1169
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753 ...... 2•1274
† **Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 ...... 2•1311**

§† Industrial Elctrn. Hardware Corp., 109 Prince St., New York, NY 10012, 212-677-1881 ... 2•1329
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 ... 2•1522
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144, 612-733-7408 ... 2•1514
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ... 2•1631,1661,1680,1685,1688
Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236, 804-794-2877 ... 2•1748
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001 ... 214-931-3200
§ Air Electro Supply, Inc., 7700 Gloria Ave., Van Nuys, CA 91406 ... 213-873-6400; 818-988-4400
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 ... 818-889-9304
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 ... 203-322-1913
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105 ... 717-564-0100
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 ... 201-996-6841
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 ... 201-869-4201
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 ... 201-267-2000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ... 203-929-1401
Beau Products Div., Box 10, Laconia, NH 03247 ... 603-524-5101
§ Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 ... 607-563-5324
§† Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ... 800-237-BERG
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 ... 516-234-0400
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 ... 216-946-3200
Burndy Corporation, Richards Ave., Norwalk, CT 06852 ... 203-838-4444
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 ... 714-540-5490
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 ... 212-777-6571
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 ... 312-539-3108
CTS Corp., 905 North West Blvd., Elkart, IN 46514 ... 219-293-7511
† CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428 ... 612-533-3533
§ Dale Electronics, Inc., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078 ... 605-665-9301
† DataCon, Inc., 60 Blanchard Rd., Burlington, MA 01803 ... 617-273-5800
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 ... 212-447-4911
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 ... 415-483-8770
§ Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 ... 714-558-8755
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 ... 215-969-4200
§† Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 ... 814-643-0700
† Elco Corp., Interconnect Systems Div., 2250 Park Pl., El Segundo, CA 90245 ... 213-675-3311
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 ... 401-769-3800
§ Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 ... 312-577-8620
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 ... 201-249-6600
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 ... 818-446-6175
§ Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044 ... 312-295-2610
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 ... 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
§† H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810 ... 203-794-1798
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 ... 714-660-5701
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 ... 617-486-3174
§ ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 ... 714-964-7400
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 ... 314-392-7174
§ Masterite Corporation, 2841 Lomita Blvd., Torrance, CA 90505 ... 213-775-3471
§† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ... 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 ... 312-392-3500
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 ... 312-969-4550
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 ... 212-994-6600
Oxley Inc., 6290 Sunset Blvd., Ste. 1126, Los Angeles, CA 90028 ... 213-463-5120
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ... 312-532-1800
§ Positronic Inds., 423 North Campbell, Springfield, MO 65806 ... 417-866-2322
§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 ... 617-699-7646
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 ... 812-945-0211
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 ... 401-732-3770
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England ... 0442-40471/6
§ Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 408-980-1600
† Star-Tron Corp., 58 Curtis St., Providence, RI 02909 ... 401-274-5090
Sylvania Connector Prods. Oper., GTE Prods. Corp., Box 29, Titusville, PA 16354 ... 814-589-7071
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ... 814-723-2000; 800-221-3333
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 .415-965-4500
§† Teka Prods., 45 Salem, Providence, RI 02907 ... 401-785-4110
Teradyne, Inc., 183 Essex St., Boston, MA 02111 ... 617-482-2700
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 ... 603-889-5156
§† Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 ... 617-699-3800
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 ... 213-887-0750
Urban Elctrns., P. O. Box 456, Dover, MA 02030 ... 617-329-4068
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 ... 818-365-9661
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 ... 818-341-4330
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

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† AirBorn, Inc., 4321 AirBorn Dr., Addison, TX 75001, 214-931-3200 ... 2•1105-1107, 1110-1112
AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ... 2•1146,1147
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753 ... 2•1274
† Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 ... 2•1311-1313
Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 ... 2•1481
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543, 914-698-5600 ... 2•1561
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 ... 2•1608
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 ... 818-889-9304
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 ... 215-647-1000
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 ... 201-996-6841
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 ... 617-222-2202
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ... 203-929-1401
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 ... 717-938-1451
Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 ... 607-563-5324
BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 ... 516-234-0400
Burndy Corporation, Richards Ave., Norwalk, CT 06852 ... 203-838-4444
Components Corp., 6 Kinsey Pl., Denville, NJ 07834 ... 201-627-0290
† CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428 ... 612-533-3533
† CTS Fabri-Tek, Inc., 6900 Shady Oak Rd., Eden Prairie, MN 55344 ... 612-941-9100
Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 ... 818-362-9393
† Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 ... 714-660-5701
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 ... 714-964-7400
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 ... 201-887-0571
§ Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406 ... 707-578-8811
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 ... 612-733-7408
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ... 312-867-9600
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
Molex, 2222 Wellington Ct., Lisle, IL 60532 ... 312-969-4550
Nepenthe/Yamaichi, 2471 E. Bayshore, 20, Palo Alto, CA 94303 ... 415-856-9332
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 ... 201-762-6886
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 ... 812-945-0211
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 ... 419-729-9761
§ Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 ... 213-579-2300
Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 ... 305-823-5440
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 ... 603-889-5156
Thomson-CSF Comps. Corp., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303 ... 213-887-0750
TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ... 312-981-6000

Connectors & Terminals, Push-on, Quick Disconnect-2100

§ AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ... 2•1121,1126, 1127,1133,1134,1137,1141,1142
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ... 2•1241
Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011, 212-691-9050 ... 2•1254
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 ... 2•1313
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 ... 2•1338
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ... 2•1394-1396
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 ... 2•1492
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ... 2•1497,1499
§ Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406, 707-578-8811 ... 2•1503-1506
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§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543, 914-698-5600 ... 2•1561
§† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 ... 2•1594,1595,1598-1601
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ... 2•1706
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751

Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ...216-365-1211
ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 ...612-835-6800
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ...617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 ...919-299-2294
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 ...818-889-9304
§† AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 ...215-647-1000
§† Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 ...414-764-7200
§ Ark-Les, 51 Water St., Watertown, MA 02172 ...617-924-2330
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 ...201-869-4201
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 ...201-783-7800
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 ...201-862-0022
§† Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 ...516-543-5000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ...212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ...203-929-1401
† Avibank Mfg., 210 S. Victory Blvd., Burbank, CA 91503 ...818-843-4330
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 ...203-334-4124
§ Beau Products Div., Box 10, Laconia, NH 03247 ...603-524-5101
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§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ...201-796-2886
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 ...203-838-4444
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 ...617-585-4315
Ceramaseal, Box 25, New Lebanon Center, NY 12126 ...518-794-7800
Cole Hersee, 20 Old Colony Ave., Boston, MA 02127-2467 ...617-268-2100
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 ...312-539-3108
Contact Electronics Inc., 30 Plymouth St., Fairfield, NJ 07006 ...201-575-7660; 800-221-1451
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ...201-768-5400
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 ...212-447-4911
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 ...513-681-5424
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 ...401-769-3800
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 ...201-249-6600
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 ...818-446-6175
Fischer-America Inc., 13756 Glenoaks Blvd., Sylmar, CA 91342 ...818-362-9393
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ...815-968-9661
§† H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810 ...203-794-1798
§† Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 ...516-293-5244
§† Hollingsworth Solderless Terminal Co., 700 N.W. 57th Pl., Ft. Lauderdale, FL 33309 ...305-772-7660
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 ...815-895-6501
Hugin Inds. Inc., 745 Distel Dr., Los Altos, CA 94022 ...415-961-2950
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 ...415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 ...815-895-5181
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 ...714-964-7400
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 ...914-793-5000
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 ...603-424-4111
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 ...313-848-2555
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 ...215-699-5373
§ Marathon Special Prods., 13300 Van Camp Rd., Bowling Green, OH 43402 ...419-352-8441
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 ...203-756-8847
§ Martin Sound Prods., 28 Alpha Park, Cleveland, OH 44143-2297 ...216-442-2286
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ...312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 ...312-392-3500
Middleburg Corp., Middco Connectors, 220 Albany Turnpike, Canton, CT 06019 ...203-693-8361
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 ...617-491-5400
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 ...312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ...215-355-0200
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 ...312-969-4550
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§† Pioneer Comps., 2352 E. 66th St., Brooklyn, NY 11234 ...212-444-3880
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§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ...914-698-0080
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England ...0442-40471/6
† Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 ...516-466-0911
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§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ...201-223-9400
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 ...714-996-0960
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 ...714-892-3361
§ Sprague Products Co., 481 Marshall St., No. Adams, MA 01247 ...413-664-4481
Staffall Inc., 7 Woodland St., Providence, RI 02908 ...401-351-8282
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 ...312-792-2700
† Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077 ...216-354-0925
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016 ...201-272-5500
§ Teledyne Ansonia, Riverside Dr., Ansonia, CT 06401 ...203-735-9311
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 ...818-882-1020
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 ...414-355-1130
§ Underwriters Safety Device, An Allied Co., 7300 W. Wilson Ave., Chicago, IL 60656 ...312-867-4600
Uniform Tubes, Collegeville, PA 19426 ...215-539-0700
United Technologies, Terminal Prods., 1230 Sabine St., Huntington, IN 46750 ...219-356-2700
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 ...213-786-9388
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 ...818-365-9661
§ Visual Communications Co., P.O. Box 986, El Segundo, CA 90245 ...213-822-4727
§ Wago Corp., 6657 N. Sidney Pl., Milwaukee, WI 53209-3217 ...414-352-1035
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ...312-585-1212
§ Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada ...514-457-3648
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ...804-794-2877
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 ...813-371-4242

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Contact Strips, Finger-4525

Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ...216-365-1211
Airflyte Elctrns. Co., 56 New Hook Rd., Bayonne, NJ 07002 ...201-436-2230
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 ...203-322-1913
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 ...203-674-1515
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ...212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ...203-929-1401
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 ...717-938-1451
Bussco Engrg., 119 Standard St., El Segundo, CA 90245 ...213-322-6580
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ...617-935-4850
§ Edac Inc., 20 Railside Rd., Toronto, ON M3A 1A4 Canada ...416-445-2292
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 ...201-321-5900
Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 ...201-249-6600
Hugin Inds. Inc., 745 Distel Dr., Los Altos, CA 94022 ...415-961-2950
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327 ...717-424-8510
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Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 ...313-628-9711
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ...312-867-9600
† Micro-Products Engrg. Co., 230 Ridgewood Ave., Newark, NJ 07108 ...201-824-8467
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 ...814-724-6440
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 ...914-681-0700
§ Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 ...215-822-2171
§ Tapeswitch Corp. of America, 100 Schmitt Blvd., Farmingdale, NY 11735 ...516-694-6312
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 ...617-699-3800
Varian Associates, Inc., Microwave Tube Div., 611 Hansen Way, Palo Alto, CA 94303 ...415-493-4000

Contactors (MIL)-2440 — *See Vol. 1B*

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Contacts, Electrical-2800

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Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 ... 2•1860
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 ... 2•1244
Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702, 914-968-8400 ... 1B•1156
§ **Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 818-875-0213 ... 2•1314,1315**
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749, 617-568-0451;800-225-9228 ... 2•1313
† **Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771, 516-922-6000 ... 2•1523**
† **Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ... 2•1589-1591,1922**
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 ... 2•1611

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§† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... 2•1725
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... 2•1743
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§ Airflyte Elctrns. Co., 56 New Hook Rd., Bayonne, NJ 07002 201-436-2230
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
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§† Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 216-354-2101
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-267-2000
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ... 800-237-BERG
Brady, W. H., Co., Xymox Div., 8225 W. Parkland Ct., P.O. Box 571, Milwaukee, WI 53201 414-355-8300
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Carbone Lorraine Inds., 400 Myrtle Ave., Boonton, NJ 07005 .... 201-DE4-0700
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
§ Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
† CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
† Danmar Inds., 9705 Lurline Ave., Chatsworth, CA 91311 .... 818-882-7979/5280
† Dataware Sys. Lease, Inc., 30 Bay St., Staten Island, NY 10301 212-447-4911
§ Eaton Corp./Cutler-Hammer Prods., Aerospace/Commercial Controls Div., 4201 N. 27th St., Milwaukee, WI 53216 414-449-7487
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555 .... 214-233-3033; 800-527-0753
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Everett/Charles Contact Prods. Inc., 700 E. Harrison Ave., Pomona, CA 91767 714-625-5551
Everett/Charles Test Equip. Inc., 2887 N. Towne Ave., Pomona, CA 91767 714-621-9511
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
Heraeus-Volkert Inc., 222-34 96th Ave., Queens Village, NY 11429 212-464-8400
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
§† Industrial Elctrn. Hardware Corp., 109 Prince St., New York, NY 10012 212-677-1881
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327 717-424-8510
§ Interconnect Devices, Inc., 5101 Richland Ave., Kansas City, KS 66106 913-342-5544
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
Middleburg Corp., Middco Connectors, 220 Albany Turnpike, Canton, CT 06019 203-693-8361
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
Nepenthe/Yamaichi, 2471 E. Bayshore, 20, Palo Alto, CA 94303 415-856-9332
† Poly-Scientific, 1213 N. Main St., Blacksburg, VA 24060 703-552-3014
§ Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 617-699-7646
RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
† Servometer Corp., 501 Little Falls Rd., Cedar Grove, NJ 07009 201-785-4630
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
Stackpole, Carbon Div., St. Marys, PA 15857 814-781-1234
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§† Superior Carbon Prods. Inc., 9115 George Ave., Cleveland, OH 44105 216-883-4880
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 .... 814-723-2000; 800-221-3333
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
† Tech-Etch Inc., 45 Aldrin Rd., Plymouth, MA 02360 617-747-0300
Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 214-995-6611
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Winslow Intl., 2471 E. Bayshore 20, Palo Alto, CA 94303 415-856-0552

Contacts (MIL), Assemblies & Holders-2440 — *See Vol. 1B*

Containers, Shielded (All Types) — See Enclosures, Shielded (Vol. 2)

Containers, Shipping, Metal & Fiberglass — See Enclosures, Shipping, Metallic & Nonmetallic (Vol. 2)

Containers, Storage-3800

3M Co., Static Control Sys. Div., 3M Center, Bldg. 225-4S-04, St. Paul, MN 55144, 612-733-9420 .... 3•1925
† TA Instr. Case Co., 4625 Alger St., Los Angeles, CA 90039, 213-242-8855 .... 2•1059
§ Akro-Mils, 1293 S. Main St., Akron, OH 44301 216-253-5593
† American Aluminum, 230 Sheffield St., Dept. EEM, Mountainside, NJ 07092 201-233-3500
§† Bay Prods., 8701 Torresdale Ave., Phila., PA 19136 .... 215-DE8-7300
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 503-476-8871
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
† Instrument Enclosures, 9767 Glenoaks Blvd., Sun Valley, CA 91352 213-768-4622
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
§ Lyon Metal Prods., 47 Railroad Ave., Aurora, IL 60507 312-892-8941
§† Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
† Mercury Plastics, A Unit of Zero Corp., 672 Fuller Rd., Chicopee, MA 01020 .... 413-592-5118;413-267-5561
Metric Sys., 645 Anchors St., Ft. Walton Beach, FL 32548 904-244-9600
§ Panel Controls, 1000 Mt. Elliott Ave., Detroit, MI 48207 313-568-2400
† Parabam, Inc., 3017 E. Las Hermanas St., Rancho Dominguez, CA 90221 213-537-1771
§† Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771 914-856-6655
Stackbin Corp., Albion Road, Lincoln, RI 02865 401-333-1600
Techcon Systems Inc., 1059 E. Bedmar St., Carson, CA 90746 213-603-8888
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 213-603-1976
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
† Zero-East Div., 288 Main St., Monson, MA 01057 ....

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Controllers, Card Reader/Punch, Standalone-2000 — *See Vol. 3*

Controllers, Energy Conservation-2200 — *See Vol. 3*

Controllers, Error-1900 — *See Vol. 3*

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Controllers, Hard Disk Drive, Add-in-2000 — *See Vol. 3*

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Controllers, IEEE 488 (GPIB) Bus-2900 — *See Vol. 3*

Controllers, Magnetic Tape Drive, Add-in-2000 — *See Vol. 3*

Controllers, Magnetic Tape Drive, Standalone-2000 — *See Vol. 3*

Controllers, Memory Device, Add-in-2000 — *See Vol. 3*

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Controllers, Paper Tape Reader/Punch, Add-in-2000 — *See Vol. 3*

Controllers, Paper Tape Reader/Punch, Standalone-2000 — *See Vol. 3*

Controllers, Plotter, Add-in-2000 — *See Vol. 3*

Controllers, Plotter, Standalone-2000 — *See Vol. 3*

Controllers, Printer, Add-in-2000 — *See Vol. 3*

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Controllers, Terminal, Add-in-2000 — *See Vol. 3*

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Controls, Gas-2200 — *See Vol. 3*

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Controls, Ignitron Firing-2200 — *See Vol. 3*

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Controls, Stepping Motor-2200 — *See Vol. 3*

Controls, Temperature-2200 — *See Vol. 3*

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Converters, BCD to ASCII-2325 — *See Vol. 3*

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Converters, Digital to Analog-2325 — *See Vol. 3*

Converters, Digital to Paper Tape-2000 — *See Vol. 3*

Converters, Digital to Resolver-2325 — *See Vol. 3*

Converters, Digital to Synchro-2325 — *See Vol. 3*

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Cords & Tapes, Lacing-6000

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1226
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2090
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... 2•2139
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† Amrad, Div. Transcon Mfg. Co., Box 876, Paris, TX 75460 214-785-4544
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 .. 215-825-4990

Cords, Communication, Control, Microphone, etc. — See Cable, Specific Type (Vol. 2)

Cords, Line & Set, Extension-6000

Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... 2•2018,2019
§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2068
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .. 2•2085, 2086
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470, 201-694-6200 .... 2•2103
SGL Waber, 300 Harvard Ave., Westville, NJ 08093, 609-456-5400;800-257-8384 .... 2•1864
Todd Systems, 50 Ash St., Yonkers, NY 10701, 914-963-3400 .... 1A•2311
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Almor Co., Inc., PO Box 1790, 155 Crescent St., Brockton, MA 02403 617-586-5406
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Cable Sys & Assembly, 210 Broadway, Everett, MA 02149 617-389-7080
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Diamond Magnetics, P.O. Box 4736, San Luis Obispo, CA 93403 805-544-4019
§ Displex, Inc., Alexander Place, Glen Cove, NY 11542 516-671-4400
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 .. 219-784-3011
§† Excel Specialty Corp., 6335 N. Broadway, Chicago, IL 60660 312-262-4781
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
McGill Mfg. Co., Inc., Electrical Div., 1002 N. Campbell St., Valparaiso, IN 46383 219-465-2200
Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 201-762-6886
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 .. 215-825-4990
§† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 .... 401-821-1700; SALES 401-821-7800
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577 703-985-3811
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 . 312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Cords, Line (Lamp) — See Cable, Multiconductor (Vol. 2)

Cords, Line, Resistance-6000

Almor Co., Inc., PO Box 1790, 155 Crescent St., Brockton, MA 02403 617-586-5406
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 201-762-6886
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577 703-985-3811

Cords, Patch-2100

Allied Systems Corp., Box 18077, Greensboro, NC 27419, 919-299-2294 ... 2•1874
Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1149
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... 2•1244
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1419-1425,1431-1434,1436-1450,1456-1467
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... 2•1562,1563
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1565
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 .... 2•1584
§† ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 ... 415-592-4550
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060 216-354-2101
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Brooks Mfg. Co., 2016/24 Amber St., Philadelphia, PA 19125 .... 215-425-3395; 800-523-0130
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
§ Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Excel Specialty Corp., 6335 N. Broadway, Chicago, IL 60660 312-262-4781
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Macom Inds., 8230 Haskell Ave., Van Nuys, CA 91406 ....
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 203-348-7761
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ... 312-532-1800
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Spectron Corp., 344 New Albany Rd., Moorestown, NJ 08057 609-234-5700
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 .. 215-825-4990
§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Cords, Power — See Cable, Power (Vol. 2)

Cords, Retractile-6000

Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 .... 2•1118
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... 2•1990
§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2072
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .. 2•2085, 2086
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1448,1461

Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590, 516-935-3640 .... 2•2109
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223, 503-620-9400 .... 2•2114,2115
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... 2•2131
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... 2•1563
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577, 703-985-3811 .... 2•1738,1739,2151
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 312-681-7100
Interelectronics Corp., Interelectronics Park, 550 U.S. Rte. 303, Congers, NY 10920 .... 914-EL8-8000
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
MoldCon Corp., 221 Interstate Dr., W. Springfield, MA 01089 413-736-0371
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
§† Saxton Prods., 215 N. Rte. 303, Congers, NY 10920 914-268-6848;800-431-2774
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 ..... 401-821-1700; SALES 401-821-7800

Cords, Speaker Extension — See Cable, Audio (Vol. 2)

Cords, Telephone, Modular — See Cable, Telephone (Vol. 2)

Cords, Twin Lead — See Cable, Multiconductor (Vol. 2)

Cords & Cable, Dial Drive-2400

§† Amrad, Div. Transcon Mfg. Co., Box 876, Paris, TX 75460 214-785-4544
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 401-724-9605
§ Carolina Steel & Wire, I-20 & S.C. 6, Lexington, SC 29072 803-359-5501
Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700

Cords & Cord Sets, International-6000

§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2067,2068
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 .... 2•1536-1539,2140,2141
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... 2•1562,1563
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Fan-S Corp., 7158 Industrial Pk. Blvd., Mentor, OH 44060 216-951-3300
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 213-532-6600
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 201-762-6886
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700

Cores, Ceramic-2500

† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Ceramic Magnetics, Inc., 87 Fairfield Rd., Fairfield, NJ 07006 201-227-4222
Honeywell Inc., Aerospace & Defense Grp., Honeywell Plaza, Minneapolis, MN 55408 612-870-5186
Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07509 201-345-8900
3M Co., Tech Ceramic Resources, 3M Center 225-4W, St. Paul, MN. 55101 617-736-0601
Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
† Norton, One New Bond St., Worcester, MA 01606 617-853-1000
Permag, 400 Karin La., Hicksville, NY 11801 516-822-3311
§ Plessey Ceramic Div., 8th & Harrison Sts., Frenchtown, NJ 08825 .. 201-996-2121
Quartzite Processing, Inc., 6 Holyoke St., Malden, MA 02148 617-322-1380

Radio Materials Corp., 4242 W. Bryn Mawr, Chicago, IL 60646 312-478-3600
Stackpole, Electronic Components Div., 201 Stackpole St., St. Marys, PA 15857 814-781-1234
Star Porcelain, 71 Muirhead Ave., Trenton, NJ 08638 609-392-3154
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ... 615-867-4100
TDK Corporation of America, 4711 Golf Rd., Skokie, IL 60076 312-679-8200

Cores, Magnetic, Ferrite, L, E, etc.-2500

Allen-Bradley Co., 1201 S. Second St., Milwaukee, WI 53204, 414-671-2000 .... 2•1790,1791
Fair-Rite Prods., PO Box J, Wallkill, NY 12589, 914-895-2055 .... 2•1907
§ Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07509, 201-345-8900 .... 2•1793
TDK Corporation of America, 4711 Golf Rd., Skokie, IL 60076, 312-679-8200 .... 2•1799
§ Amperex Electronic Corp., Ferroxcube Div., 5083 Kings Hwy., Saugerties, NY 12477 914-246-2811
† Ampex Corp., 401 Broadway, Redwood City, CA 94063 415-367-2011
Ceramic Magnetics, Inc., 87 Fairfield Rd., Fairfield, NJ 07006 201-227-4222
Electrical Plastics Corp., 500 Long Branch Ave., Long Branch, NJ 07740 201-870-9500
Ferronics, 66 N. Main St., Fairport, NY 14450 716-223-1010
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
§ Murata Mfg. Co. Ltd., 26-10 2-chome-Temjin, Nagaoka-Kyo-Shi, Kyoto, Japan 075-921-9111
Permag, 400 Karin La., Hicksville, NY 11801 516-822-3311
Radio Materials Corp., 4242 W. Bryn Mawr, Chicago, IL 60646 312-478-3600
§ Siemens Corp., 186 Wood Ave., S., Iselin, NJ 08830 201-494-1000
Stackpole, Electronic Components Div., 201 Stackpole St., St. Marys, PA 15857 814-781-1234
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ... 615-867-4100
Thomson-CSF Comps. Corp., Passive Comp. Div., 6660 Variel Ave., Canoga Park, CA 91303 818-887-1010
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan .... Tokyo 03-402-6161

Cores, Magnetic, Ferrite, Pot/Cup-2500

Allen-Bradley Co., 1201 S. Second St., Milwaukee, WI 53204, 414-671-2000 .... 2•1790,1791
Delevan Div., American Precision Inds. Inc., 270 Quaker Rd., E. Aurora, NY 14052, 716-652-3600 .... 1A•1243
Fair-Rite Prods., PO Box J, Wallkill, NY 12589, 914-895-2055 .... 2•1907
Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07509, 201-345-8900 .... 2•1793
Lenco Elctrns., Inc., 1330 Belden St., McHenry, IL 60050, 815-344-2900 .. 1A•2183
Renco Elctrns., 60 Jefryn Blvd., E., Deer Park, NY 11729, 516-586-5566 ... 1A•1280
TDK Corporation of America, 4711 Golf Rd., Skokie, IL 60076, 312-679-8200 .... 2•1799
§ Amperex Electronic Corp., Ferroxcube Div., 5083 Kings Hwy., Saugerties, NY 12477 914-246-2811
Caddell-Burns Mfg., 40 E. 2nd St., Mineola, NY 11501 516-746-2310
Ceramic Magnetics, Inc., 87 Fairfield Rd., Fairfield, NJ 07006 201-227-4222
Magnetic Metals Co., Hayes Ave. at 21st St., Camden, NJ 08105 .. 609-964-7842
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
Permag, 400 Karin La., Hicksville, NY 11801 516-822-3311
Radio Materials Corp., 4242 W. Bryn Mawr, Chicago, IL 60646 312-478-3600
§ Siemens Corp., 186 Wood Ave., S., Iselin, NJ 08830 201-494-1000
Stackpole, Electronic Components Div., 201 Stackpole St., St. Marys, PA 15857 814-781-1234
Thomson-CSF Comps. Corp., Passive Comp. Div., 6660 Variel Ave., Canoga Park, CA 91303 818-887-1010
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan .... Tokyo 03-402-6161

Cores, Magnetic, Ferrite, Slug-2500

Allen-Bradley Co., 1201 S. Second St., Milwaukee, WI 53204, 414-671-2000 .... 2•1790,1791
Fair-Rite Prods., PO Box J, Wallkill, NY 12589, 914-895-2055 .... 2•1907
§ Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07509, 201-345-8900 .... 2•1793
TDK Corporation of America, 4711 Golf Rd., Skokie, IL 60076, 312-679-8200 .... 2•1799
§ Amperex Electronic Corp., Ferroxcube Div., 5083 Kings Hwy., Saugerties, NY 12477 914-246-2811
Caddell-Burns Mfg., 40 E. 2nd St., Mineola, NY 11501 516-746-2310
Ceramic Magnetics, Inc., 87 Fairfield Rd., Fairfield, NJ 07006 201-227-4222
Ferronics, 66 N. Main St., Fairport, NY 14450 716-223-1010
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
Permag, 400 Karin La., Hicksville, NY 11801 516-822-3311
Radio Materials Corp., 4242 W. Bryn Mawr, Chicago, IL 60646 312-478-3600
Stackpole, Electronic Components Div., 201 Stackpole St., St. Marys, PA 15857 814-781-1234
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ... 615-867-4100
Thomson-CSF Comps. Corp., Passive Comp. Div., 6660 Variel Ave., Canoga Park, CA 91303 818-887-1010
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan .... Tokyo 03-402-6161

Cores, Magnetic, Ferrite, Toroid-2500

Allen-Bradley Co., 1201 S. Second St., Milwaukee, WI 53204, 414-671-2000 .... 2•1790,1791
Fair-Rite Prods., PO Box J, Wallkill, NY 12589, 914-895-2055 .... 2•1907
† Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07509, 201-345-8900 .... 2•1793
TDK Corporation of America, 4711 Golf Rd., Skokie, IL 60076, 312-679-8200 .... 2•1799
§ Amperex Electronic Corp., Ferroxcube Div., 5083 Kings Hwy., Saugerties, NY 12477 914-246-2811

† Ampex Corp., 401 Broadway, Redwood City, CA 94063 415-367-2011
Ceramic Magnetics, Inc., 87 Fairfield Rd., Fairfield, NJ 07006 201-227-4222
† CTS Fabri-Tek, Inc., 6900 Shady Oak Rd., Eden Prairie, MN 55344 612-941-9100
† EMM/SESCO, 20630 Plummer St., Chatsworth, CA 91311 213-998-9090
Ferronics, 66 N. Main St., Fairport, NY 14450 716-223-1010
Magnetic Metals Co., Hayes Ave. at 21st St., Camden, NJ 08105 ...609-964-7842
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
Permag, 400 Karin La., Hicksville, NY 11801 516-822-3311
Seacor, Inc., 123 Woodland Ave, Westwood, NJ 07675 201-666-5600
§ Siemens Corp., 186 Wood Ave., S., Iselin, NJ 08830 201-494-1000
Stackpole, Electronic Components Div., 201 Stackpole St., St. Marys, PA 15857 814-781-1234
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ...615-867-4100
Thomson-CSF Comps. Corp., Passive Comp. Div., 6660 Variel Ave., Canoga Park, CA 91303 818-887-1010
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan ......Tokyo 03-402-6161

Cores, Magnetic, Ferrite, Yoke Section-2500

Allen-Bradley Co., 1201 S. Second St., Milwaukee, WI 53204, 414-671-2000 ......2•1790,1791
§ Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07509, 201-345-8900 ......2•1793
TDK Corporation of America, 4711 Golf Rd., Skokie, IL 60076, 312-679-8200 ......2•1799
Ceramic Magnetics, Inc., 87 Fairfield Rd., Fairfield, NJ 07006 201-227-4222
Fair-Rite Prods., PO Box J, Wallkill, NY 12589 914-895-2055
Ferronics, 66 N. Main St., Fairport, NY 14450 716-223-1010
Stackpole, Electronic Components Div., 201 Stackpole St., St. Marys, PA 15857 814-781-1234
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ...615-867-4100
Thomson-CSF Comps. Corp., Passive Comp. Div., 6660 Variel Ave., Canoga Park, CA 91303 818-887-1010
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan ......Tokyo 03-402-6161

Cores, Magnetic, Metal Alloy (Other Than Silicon & Nickel-Iron)-2500

Arnold Engrg., Box "G", Marengo, IL 60152 815-568-2000
Inter-Technical Grp., Box 23, Irvington, NY 10533 914-591-8822
Magnetic Metals Co., Hayes Ave. at 21st St., Camden, NJ 08105 ...609-964-7842
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
Permag, 400 Karin La., Hicksville, NY 11801 516-822-3311
† Pyroferric Intl., Inc., 200 Madison St., Toledo, IL 62468 217-849-3300
SGL Electronics, 300 Harvard Ave., Westville, NJ 08093 609-456-7300
Stackpole, Electronic Components Div., 201 Stackpole St., St. Marys, PA 15857 814-781-1234

Cores, Magnetic, Nickel-Iron, L, EE, F, & Ring Laminations-2500

Arnold Engrg., Box "G", Marengo, IL 60152 815-568-2000
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
Inter-Technical Grp., Box 23, Irvington, NY 10533 914-591-8822
Magnetic Metals Co., Hayes Ave. at 21st St., Camden, NJ 08105 ...609-964-7842
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
Permag, 400 Karin La., Hicksville, NY 11801 516-822-3311
SGL Electronics, 300 Harvard Ave., Westville, NJ 08093 609-456-7300
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan ......Tokyo 03-402-6161

Cores, Magnetic, Nickel-Iron, Toroid-2500

† Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07509, 201-345-8900 ......2•1793
Arnold Engrg., Box "G", Marengo, IL 60152 815-568-2000
Inter-Technical Grp., Box 23, Irvington, NY 10533 914-591-8822
Magnetic Metals Co., Hayes Ave. at 21st St., Camden, NJ 08105 ...609-964-7842
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
Permag, 400 Karin La., Hicksville, NY 11801 516-822-3311
SGL Electronics, 300 Harvard Ave., Westville, NJ 08093 609-456-7300
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ...615-867-4100
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan ......Tokyo 03-402-6161

Cores, Magnetic, Powdered Iron, Pot/Cup-2500

Delevan Div., American Precision Inds. Inc., 270 Quaker Rd., E. Aurora, NY 14052, 716-652-3600 ......1A•1243
Renco Elctrns., 60 Jefryn Blvd., E., Deer Park, NY 11729, 516-586-5566 ...1A•1280
Arnold Engrg., Box "G", Marengo, IL 60152 815-568-2000
Cortec, Inc., 15811 Chemical La., Huntington Bch., CA 92649 714-897-2529
Micrometals, 1190 N. Hawk, Anaheim, CA 92807 714-630-7420
† Pyroferric Intl., Inc., 200 Madison St., Toledo, IL 62468 217-849-3300
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan ......Tokyo 03-402-6161

Cores, Magnetic, Powdered Iron, Slug-2500

Arnold Engrg., Box "G", Marengo, IL 60152 815-568-2000
Caddell-Burns Mfg., 40 E. 2nd St., Mineola, NY 11501 516-746-2310
Cortec, Inc., 15811 Chemical La., Huntington Bch., CA 92649 714-897-2529
Micrometals, 1190 N. Hawk, Anaheim, CA 92807 714-630-7420
† Pyroferric Intl., Inc., 200 Madison St., Toledo, IL 62468 217-849-3300
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan ......Tokyo 03-402-6161
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Cores, Magnetic, Powdered Iron, Toroid-2500

Arnold Engrg., Box "G", Marengo, IL 60152 815-568-2000
Cortec, Inc., 15811 Chemical La., Huntington Bch., CA 92649 714-897-2529
Micrometals, 1190 N. Hawk, Anaheim, CA 92807 714-630-7420
† Pyroferric Intl., Inc., 200 Madison St., Toledo, IL 62468 217-849-3300
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan ......Tokyo 03-402-6161

Cores, Magnetic, Powdered Permalloy, Toroid-2500

Arnold Engrg., Box "G", Marengo, IL 60152 815-568-2000
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282

Cores, Magnetic, Silicon C-2500

Arnold Engrg., Box "G", Marengo, IL 60152 815-568-2000
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
Magnetic Metals Co., Hayes Ave. at 21st St., Camden, NJ 08105 ...609-964-7842

Cores, Magnetic, Silicon EI, EE, & F Laminations-2500

Arnold Engrg., Box "G", Marengo, IL 60152 815-568-2000
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
Magnetic Metals Co., Hayes Ave. at 21st St., Camden, NJ 08105 ...609-964-7842
SGL Electronics, 300 Harvard Ave., Westville, NJ 08093 609-456-7300
Thomas & Skinner, Box 150 B, Indianapolis, IN 46206 317-923-2501

Cores, Magnetic, Silicon, Toroid-2500

Arnold Engrg., Box "G", Marengo, IL 60152 815-568-2000
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
Inter-Technical Grp., Box 23, Irvington, NY 10533 914-591-8822
Magnetic Metals Co., Hayes Ave. at 21st St., Camden, NJ 08105 ...609-964-7842
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
SGL Electronics, 300 Harvard Ave., Westville, NJ 08093 609-456-7300

Corners, Waveguide — See Bends & Twists, Microwave (Vol. 1A)

Coulometers — See Timers, Electrolytic Cell (Vol. 3)

Countermeasures (CM) Sets (MIL), Airborne-3475 — *See Vol. 3*

CM Sets (MIL), Internal-3475 — *See Vol. 3*

CM Sets (MIL), Mobile-3475 — *See Vol. 3*

CM Sets (MIL), Conformal plus RWR-3475 — *See Vol. 3*

Counter/Timers-2900 — *See Vol. 3*

Counters, Bidirectional-2200 — *See Vol. 3*

Counters, Coil Winding-2200 — *See Vol. 3*

Counters, Decade-2200 — *See Vol. 3*

Counters, Directional-2200 — *See Vol. 3*

Counters, Electromagnetic-2200 — *See Vol. 3*

Counters, Event-2200 — *See Vol. 3*

Counters, Frequency-2900 — *See Vol. 3*

Counters, Mechanical-2200 — *See Vol. 3*

Counters, Particle-2900 — *See Vol. 3*

Counters, Photoelectric-2200 — *See Vol. 3*

Counters, Predetermining — See Counters, Preset (Vol. 3)

Counters, Preset-2200 — *See Vol. 3*

Counters, Printing-2200 — *See Vol. 3*

Counters, Proportional — See Counters, Particle (Vol. 3)

Counters, Pulse-2200 — *See Vol. 3*

Counters, Reversible — See Counters, Bidirectional (Vol. 3)

Counters, Revolution-2200 — *See Vol. 3*

Counters, Universal-2900 — *See Vol. 3*

Couplers, Acoustic-1900 — *See Vol. 3*

Couplers, Antenna-1900 — *See Vol. 3*

Couplers, Communications, Acoustic, Telephone-1900 — *See Vol. 3*

Couplers, Directional-3450 — *See Vol. 1A*

Couplers, Fiber Optic-2475 — *See Vol. 1B*

Couplers, Microwave-3450 — *See Vol. 1A*

Couplers, Multiset — See Couplers, Antenna (Vol. 3)

Couplers, Optoelectronic — See Isolators, Optoelectronic (Vol. 1B)

Couplers, Rotary-3450 — *See Vol. 1A*

Couplers (MIL), Directional-2440 — *See Vol. 1B*

Couplings, Quick-disconnect, Liquid or Gas-2500

§ Airmatic-Allied, 185 Park Dr., Wilmington, OH 45177 513-382-1691
§ Dayco Corp., 333 W. First St., Dayton, OH 45402 513-226-5927
Dial Prods. Co., 19-21 Cottage St., Bayonne, NJ 07002 ....201-HE7-0720
High Voltage Engrg. Corp., S. Bedford St., Burlington, MA 01803 ...617-272-1313
Vactronic Lab. Equip., 65 Brightside Ave., E. Northport, NY 11731 516-AN1-2660

Couplings, Shaft, Rigid & Flexible-2400

§† Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 ....2•1765
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ Dayco Corp., 333 W. First St., Dayton, OH 45402 513-226-5927
Dial Prods. Co., 19-21 Cottage St., Bayonne, NJ 07002 ....201-HE7-0720
Farrand Controls, Div. of Farrand Inds., 99 Wall St., Valhalla, NY 10595 ....914-RO1-2600
§ Foredom Elec. Co., Blackstone Inds., Route 6, Bethel, CT 06470 203-792-8622
Helical Prods. Co., Inc., Box 1069, Santa Maria, CA 93456 805-928-3851
† Instru-Lec, 520 Homestead Ave., Mt. Vernon, NY 10550 914-668-3754
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Machine Components Corp., 70 Newtown Rd., Plainview, NY 11803 516-694-7222
Micro Mo Electronics, Inc., 742 2nd Ave. S., St. Petersburg, FL 33701 813-822-2529
§ Millen Components, Electronic Instr. & Specialty Corp., 42 Pleasant St., Stoneham, MA 02180 617-438-6951
§ Naugler Engrg., Off Dunham Rd., Beverly, MA 01915 617-922-5634
§ Perfect Gear & Instr., 55 S. Denton Ave., New Hyde Park, NY 11040 516-328-3300
† PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Precision Mechanisms, 44 Brooklyn Ave., Westbury, NY 11590 ......516-ED3-5955
Renbrandt, Inc., 6 Parmelee St., Boston, MA 02118 617-445-8910
† Servometer Corp., 501 Little Falls Rd., Cedar Grove, NJ 07009 201-785-4630
Skyo Industries Inc., 171 Brook Ave., Deer Park, NY 11729 516-586-4702
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Prods., Div. of Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-0200
Theta Instr. Corp., 24 Dwight Pl., Fairfield, NJ 07006 201-227-1700
§ Vemaline Prods. Div., 487 Jefferson Blvd., Warwick, RI 02886 401-739-7600

Covers, Protective (Incl. Dustcovers)-3800

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ....2•1149,1151
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ....2•1233
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ....2•1414,1415
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 ....2•1765
Micro Switch, A Honeywell Div., 11 W. Spring St., Freeport, IL 61032, 815-235-6600 ....1B•1708
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
§† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
§† Amrad, Div. Transcon Mfg. Co., Box 876, Paris, TX 75460 214-785-4544
† Bean Rubber Mfg. Co., 1623 S. 10th St., San Jose, CA 95112 408-293-2790
Budwig Mfg., P.O. Box 829, Ramona, CA 92065 619-789-0900
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
Deltrol Controls, 2745 S. 19th St., Milwaukee, WI 53215 414-671-6800
§† Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
§ Heath Co., Benton Harbor, MI 49022 616-982-3886
§† ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Leader Instrs. Corp., 380 Oser Ave., Hauppauge, NY 11788-3694 ...516-231-6900
§ Potter & Brumfield, P.O. Box 322, Princeton, IN 47671 812-386-1000
† Precision Tech. Sewing, 921 E. Charleston Rd., Palo Alto, CA 94303 415-856-2128
RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
§ Schrack North America Corp., 76 N. Broadway, Irvington, NY 10533 914-591-7900
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
† Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771 914-856-6655
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Wells Elctrns., 1701 S. Main St., South Bend, IN 46613 219-287-5941

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Advanced Tool Technology, Inc., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325 213-993-1202
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
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AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Assem-Pro Instrs., Div. of Overnight Engineering Inc., 1859 Andrews Ave., San Jose, CA 95124 408-267-1168
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§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Clauss Cutlery Co., Box 667, Fremont, OH 43420 419-332-7344
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Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
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§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

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Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 213-452-6000
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Eastern Delta Corp., 29-09 S. Broadway, Fair Lawn, NJ 07410 201-797-4200
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§ L & R Mfg., 577 Elm St., Kearny, NJ 07032 201-991-5330
Mag-Con, 1626 Terrace Dr., St. Paul, MN 55113 612-633-8820
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§ Microtran Co. Inc., 145 E. Mineola Ave., Valley Stream, NY 11582 ..516-561-6050
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§ Recoton Corp., 46-23 Crane St., Long Island City, NY 11101 212-392-6442
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Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Walker Scientific, Rockdale St., Worcester, MA 01606 617-852-3674
§ Wide Range Elctrns. Corp., 2119 Schultz Rd., St. Louis, MO 63141 314-567-5366

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Microbond Div., PO Box 689, Altamonte Springs, FL 32701 305-339-8298
† Tridak, 1120 Federal Rd., Brookfield, CT 06804 203-775-1287

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Displays, Storage Tube — See Displays, CRT (Vol. 1A)

Displays, Touch Sensitive (Infrared & Membrane)-2450 — *See Vol. 1B*

Displays, Tube — See Tubes, Readout (Vol. 1A)

Displays, Vacuum Fluorescent-2450 — *See Vol. 1B*

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Dissipators, Heat — See Heat Sinks, Semiconductor (Vol. 2), Heat Sinks, Soldering (Vol. 2),

Distortion Analyzers, Indicators — See Analyzers, AF (Vol. 3)

Dividers, Analog-3130 — *See Vol. 1A*

Dividers, Frequency-3450 — *See Vol. 1A*

Dividers, Power (LF, HF, VHF, UHF)-3450 — *See Vol. 1A*

Dividers, Power, Microwave-3450 — *See Vol. 1A*

Dividers, Voltage-2900 (Also See Networks, Resistance; Transformers, Voltage Dividing) **— *See Vol. 3***

Doublers, Frequency — See Multipliers, Frequency (Vol. 1A)

Doublers, Voltage-4800 (Also See Rectifiers, Bridges & Assemblies) **— *See Vol. 1A***

Down Converters-3400 — *See Vol. 3*

Drafting Machines-4200

† Auto-trol Tech., 12500 N. Washington St., Denver, CO 80233 303-452-4919
§ Dietzgen Corp., 250 Wille Rd., Des Plaines, IL 60018 312-635-5200
§ GMR Inc., Computer Elctrns., 1048 E. Burgrove St., Carson, CA 90746 213-639-4663
§ HAPCO, Box 1205, Boulder, CO 80302 303-447-0441
† Keuffel & Esser/Kratos, 20 Whippany Rd., Morristown, NJ 07960 201-285-5181
§ Summit CAD Corp., 5222 FM 1960 W100, Houston, TX 77069 713-440-1468
ZI-TECH Instr. Corp., 2151 Park Blvd., Box 60490, Palo Alto, CA 94306 415-326-2151

Drafting Symbols, Dry Transfer, Pressure Sensitive, etc. (Incl. Lettering)-4200

§† Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 ... 2•1090, 1159
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .. 2•1091
§ Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 818-991-2600
§ Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
§ Chartpak, 1 River Rd., Leeds, MA 01053 413-584-5446
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
HAPCO, Box 1205, Boulder, CO 80302 303-447-0441
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026 314-343-1630
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000
Stanpat Prods., 366 Main St., Port Washington, NY 11050 516-883-8400

Drawers, Sliding-1400

† General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1034
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084, 404-939-6340 .... 2•1049

Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064, 213-473-0046; 800-TECHMAR .... 2•1062
Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1034
† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176 312-671-6670
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
† Chassis-Trak, P.O. Box 39100, Indianapolis, IN 46239 317-897-7000
§ Dyma Engrg., Box 1535, Los Lunas, NM 87031 505-865-6700
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
† Equipto, 225 S. Highland Ave., Aurora, IL 60507 312-859-1000
§ Lyon Metal Prods., 47 Railroad Ave., Aurora, IL 60507 312-892-8941
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451 212-993-9200
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
York Metal Products, Inc., 34-20 12th St., Long Island, NY 11367 ... 212-932-3660
§ Zero-East Div., 288 Main St., Monson, MA 01057 ....

Drills & Accessories, Manual & Power-5400

Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
§ Electronic Trend Prods., 10080 N. Wolfe Rd., Ste. 372, Cupertino, CA 95014 408-996-7401
§ Foredom Elec. Co., Blackstone Inds., Route 6, Bethel, CT 06470 203-792-8622
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ General Hardware Mfg., 80 White St., New York, NY 10013 212-431-6100
§ HAPCO, Box 1205, Boulder, CO 80302 303-447-0441
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 213-452-6000
† Lenox Laser, 615 Pittsfield Rd., Lenox, MA 01240 413-499-4477
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Moody Tools, 43 Crompton Ave., E. Greenwich, RI 02818 401-885-0911
§ Ridge Tool Co., Sub. Emerson Elec. Co., 400 Clark St., Elyria, OH 44036 216-323-5581
Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 .. 215-825-4990

Drives, Disc, Flexible and Rigid-2000 — *See Vol. 3*

Drivers & Decoders For Readouts-2450 — *See Vol. 1B*

Drivers, Chopper-1100 — *See Vol. 3*

Drivers, Nut-5400

§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§† Moody Tools, 43 Crompton Ave., E. Greenwich, RI 02818 401-885-0911
§ Standard Pneumatic Motor, Box 10530, Reno, NV 89510 702-329-6311
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 .. 215-825-4990
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Drivers, Solenoid-4550 — *See Vol. 1B*

Drivers, Speaker-1300 — *See Vol. 3*

Drivers, Switch-3450 — *See Vol. 1A*

Drivers, Tube — See Drivers & Decoders for Readouts (Vol. 1B)

Drives & Drive Mechanisms (Dial)-2400

§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1762,1763,1772
† ABA Electromechanical Sys. Inc., Box 500, Pinellas Pk., FL 34290-0500 813-541-6681
§† Bailey Controls Co., 29801 Euclid Ave., Wickliffe, OH 44092 216-585-5800
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
† Machine Components Corp., 70 Newtown Rd., Plainview, NY 11803 516-694-7222
§ Perfect Gear & Instr., 55 S. Denton Ave., New Hyde Park, NY 11040 516-328-3300
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
Portescap Transicoil, Trooper Rd., P.O. Box 99, Worcester, PA 19490-9990 215-277-1300
Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Prods., Div. of Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-0200
Theta Instr. Corp., 24 Dwight Pl., Fairfield, NJ 07006 201-227-1700
§† Vemaline Prods. Div., 487 Jefferson Blvd., Warwick, RI 02886 401-739-7600
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 . 312-585-1212

Drives/Subsystems, Core Disk Emulator-2000 — *See Vol. 3*

Drives/Subsystems, Disk, 3½ Diskette-2000 — *See Vol. 3*

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Drives/Subsystems, Magnetic Tape, Cassette-2000 — *See Vol. 3*

Drives/Subsystems, Magnetic Tape, Reel-to-Reel-2000 — *See Vol. 3*

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Dry Transfer Letters & Numbers — See Kits, Marking (Vol. 2)

Ducts, Wiring-6000

§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... 2•2139
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§ dek, inc., 3480 Swenson Ave., St. Charles, IL 60174 312-377-2575
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Gould Inc., Circuit Protection Div., 374 Merrimac St., Newburyport, MA 01950 .... 617-462-6662/3131
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 612-421-2240
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
§ Wadsworth Elec., 20 W. 11th St., Covington, KY 41011 606-431-0900
§ Wiremold Company, W. Hartford, CT 06110 203-233-6251

Dummy Loads, Electronic-2900 — *See Vol. 3*

Dummy Loads, Microwave-2900 — *See Vol. 3*

Dummy Loads, Power-2900 — *See Vol. 3*

Dummy Loads, Resistive-2900 — *See Vol. 3*

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Duplicators, Magnetic Tape-1300 — *See Vol. 3*

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DVMs — See Meters, Volt, Digital (Vol. 3)

Earphones — See Headphones (Vol. 3)

Earth Stations, TV, Receive Only-1900 — *See Vol. 3*

Editing Equipment, Tape-1300 — *See Vol. 3*

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Elastomers, Conductive — See Conductive Elastomers (Vol. 2)

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Electret — See Microphones, Condenser (Vol. 3)

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Electrodes, High Voltage-2900 — *See Vol. 3*

Electronic Counter Countermeasures (ECCM) Fixes (MIL)-3475 — *See Vol. 3*

Electronic Countermeasures (ECM) (MIL), Cruise Missiles-3475 — *See Vol. 3*

ECMs (MIL), Torpedo Defense-3475 — *See Vol. 3*

ECM Sets (MIL)-3475 — *See Vol. 3*

ECM Sets (MIL), Close Air Support-3475 — *See Vol. 3*

ECM Sets (MIL), Shipboard-3475 — *See Vol. 3*

ECM Systems (MIL)-3475 — *See Vol. 3*

ECM Systems (MIL), Deceptive-3475 — *See Vol. 3*

Electronic Intelligence (Elint) (MIL)-3475 — *See Vol. 3*

Electronic Loads — See Dummy Loads (Vol. 3)

Electronic Support Measures (ESM) Sets (MIL)-3475 — *See Vol. 3*

ESM (MIL), Digitally Controlled-3475 — *See Vol. 3*

ESM (MIL), Ships-3475 — *See Vol. 3*

ESM Suites (MIL)-3475 — *See Vol. 3*

ESM Systems (MIL), Automated-3475 — *See Vol. 3*

ESM Systems (MIL), IFM Receiver-3475 — *See Vol. 3*

Electronic Warfare (EW) Sets (MIL)-3475 — *See Vol. 3*

EW Sets (MIL), Ground Multitarget-3475 — *See Vol. 3*

EW Sets (MIL), Portable-3475 — *See Vol. 3*

EW Suites (MIL), Ships-3475 — *See Vol. 3*

EW Systems (MIL), Advanced Airborne Multitarget-3475 — *See Vol. 3*

Electroplating Equipment & Supplies-4100 — *See Vol. 3*

Electrostatic Discharge Guns — Also See Generators, ESD-2900 — *See Vol. 3*

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Encapsulating Materials — See Compounds, Encapsulating, Molding, Potting (Vol. 2)

Encapsulation Services — See Services, Encapsulation (Vol. 3)

Enclosures, Circuit Board, Module, & Relay Mounting-1400

† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670 .... 2•1006, 1007
§ Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005
Ango Electronics Corp., Post Office Box 112, Harrison, NJ 07029, 212-685-6336; 201-483-7116 .... 2•1008
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202 ..... 2•1876
§ Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731, 818-575-8144 .... 2•1016
† Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... 2•1019
Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062, 312-498-6090 .... 2•1020
† Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776, 213-287-0451 .... 2•1021
§ Compac, 279 Skidmore Rd., Deer Park, NY 11729, 516-667-3933 .... 2•1023-1027
Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242 .... 3•1106,1107,1109
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067, 215-682-7181 .... 2•1028,1029
Gemini, 103 Mensing Way, Cannon Falls, MN 55009, 507-263-3957 .... 2•1897-1899
General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1034
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 .. 2•1037
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010, 415-348-5625 .... 2•1038,1039
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1397-1415
Lansing Research Corp., 705 Willow Ave., P.O. Box 730, Ithaca, NY 14850, 607-272-3265 .... 2•1040
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084, 404-939-6340 .... 2•1047-1051
§ Opto 22, 15461 Springdale St., Huntington Bch., CA 92649, 714-891-5861 .... 1B•1470
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 .... 2•1002,1042
† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... 2•1044,1045
Prototek, Inc., 25 Standen Dr., Hamilton, OH 45015, 513-874-5094 .... 2•1893
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013, 717-243-5929 .... 2•1797
§† Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852, 301-984-1783 .... 2•1046
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886, 401-732-3770 .... 2•1053
† Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771, 914-856-6655 .... 2•1054
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505, 717-346-3871 .... 2•1058
† TA Instr. Case Co., 4625 Alger St., Los Angeles, CA 90039, 213-242-8855 .... 2•1059
† Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064, 213-478-0046; 800-TECHMAR .... 2•1062,1063
Tracewell Enclosures, 7032 Worthington Galenda Rd., Columbus, OH 43085, 14-846-6175;800-848-4525 .... 2•1065-1067
Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, 215-692-0800 .... 2•1068
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... 2•1069,3•1117
Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1034
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236, 804-794-2877 .... 2•1748
Zero Corp., 777 Front St., Burbank, CA 91503, 213-846-4191 .... 2•1076-1079
§† Abalon Precision Mfg., 540 Casanova St., Bronx, NY 10474 212-589-5682
§† Advanced Micro Devices, P.O. Box 3453, 901 Thompson Pl., Sunnyvale, CA 94088 408-732-2400
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
† American Aluminum, 230 Sheffield St., Dept. EEM, Mountainside, NJ 07092 201-233-3500
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Amtek Digital Systems, Inc., 12740 28th N.E., Seattle, WA 98125 ... 206-363-0217
Applied Micro Technlg., A Burr Brown Co., 2430 N. Hauchuca, Ste. A, Tucson, AZ 85745 602-622-8605
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 617-935-4944
Beechwood Mfg., 310 S. Ohmer, Indianapolis, IN 46219 317-356-2493
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Contours, Inc., P.O. Box 1041, Middletown, CT 06457 203-347-5694
Controls Unlimited, Inc., 1895 Blase-Nemeth Rd., Painesville, OH 44077 216-354-4111
§ CTS Metal Prods., Jose Division, 660 Lenfest Rd., San Jose, CA 95113 408-251-1600
Datec, Inc., 200 Eastowne Dr., Ste. 116, Chapel Hill, NC 27514 919-929-2135
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
§ Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700
Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245 213-643-8181
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901 507-289-3371
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 503-476-8871
§ Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 312-577-8620
§† E-Tronics, 16774 Schoenborn, Sepulveda, CA 91343 213-892-7279
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
§ Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164 312-681-7071
Hallmark Metals Inc., 610 W. Foothill Blvd., Glendora, CA 91740 213-335-1263
† Hamilton Metalcraft, 848 N. Fair Oaks Ave., Pasadena, CA 91103 .. 818-795-4811
† Hudson Tool & Die Co., Inc., 18 Malvern St., Newark, NJ 07105 201-589-1800
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 617-486-3174
§ IERC, 135 W. Magnolia Blvd., Burbank, CA 91502 818-849-2481
Industrial Fabricating Co., 820 Woodend Ave., Stratford, CT 06497 203-375-5853
Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649 714-891-5305
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
ITT Thermotech, Div. IT & T, 1203 S. 5th St., Hopkins, MN 55343 .. 612-933-9400
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Kinetic Sys., 11 Maryknoll Dr., Lockport, IL 60441 815-838-0005
Mallory Capacitor Co., Mallory Comps. Grp., 3029 E. Washington St., Indianapolis, IN 46201 317-636-5353
§† Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630

Matrox Elctrn. Sys., 5800 Andover Ave., Montreal, QU H4T 1H4 Canada 514-735-1182
McKinstry Metal Works, Inc., 285 McKinstry Ave., Chicopee, MA 01013 ....
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Miller, W. A., Co., Mingo Loop, Oquossoc, ME 04964 207-864-3344
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Motorola Semiconductor Prods. Sector, Adv. 72, Box 20912, Phoenix, AZ 85036 602-244-6900
† Plessey Electro-Products, 3860 Centinela Ave., Los Angeles, CA 90066 213-390-3585
Powerbox, Inc., 1860 Broadway, New York, NY 10023 212-586-1992
Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047 215-757-1202
† Princeton Case Co., Inc., 667 Lehigh Ave., Union, NJ 07083 201-687-1750
Pro-Log, 2411 Garden Rd., Monterey, CA 93940 408-372-4593
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 415-365-0498
RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
§ Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England 0442-40471/6
South Shore Metal Prods., 88 E Allen Blvd., Farmingdale, NY 11735 516-249-3322
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 213-357-3287
§† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
† STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073 213-204-0472
TDJ Co., Inc., 1154 Morena Blvd., San Diego, CA 92110 619-276-5920
§ Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 716-232-1291
Teradyne Connection Sys., 44 Simon St., Nashua, NH 03060 603-889-5156
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
Wescom, PO Box 1458, Downers Grove, IL 60515 312-985-9000
York Metal Products, Inc., 34-20 12th St., Long Island, NY 11367 212-932-3660
Zero-East Div., 288 Main St., Monson, MA 01057 ....

Enclosures, Equipment & Panel Mounting-1400

† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670 .... 2•1006, 1007
§ Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005
Ango Electronics Corp., Post Office Box 112, Harrison, NJ 07029, 212-685-6336; 201-483-7116 .... 2•1008
Axis, Inc., 7825 Engineer Rd., Ste. 208, San Diego, CA 92111, 619-560-7737 .... 2•1010
Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731, 818-575-8144 .... 2•1016
† Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... 2•1019
Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062, 312-498-6090 .... 2•1020
California Instruments, A Div. of Amstar Tech. Prods. Co., Inc., 5150-Convoy St., San Diego, CA 92111, 619-279-8620;800-356-2244;800-821-1634 .... 3•1841
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1222
Electronic Solutions, 9255 Chesapeake Drive, San Diego, CA 92123, 619-292-0242 .... 3•1106,1107,1109
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067, 215-682-7181 .... 2•1029
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901, 507-289-3371 .... 2•1030
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 .... 2•1031
† Gemini, 103 Mensing Way, Cannon Falls, MN 55009, 507-263-3957 .... 2•1897-1899
General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1035
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 .... 2•1036, 1037
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010, 415-348-5625 .... 2•1038,1039
§ Kepco, 131-38 Sanford Ave., Flushing, NY 11352, 212-461-7000 .... 3•1643,1644
Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 .... 2•1491
Lansing Research Corp., 705 Willow Ave., P.O. Box 730, Ithaca, NY 14850, 607-272-3265 .... 2•1040
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084, 404-939-6340 .... 2•1047,1050-1052
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 .... 2•1002,1042,1043
† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... 2•1044,1045
§† Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852, 301-984-1783 .... 2•1046
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886, 401-732-3770 .... 2•1053
† Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771, 914-856-6655 .... 2•1054
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605, 818-875-0800 .... 2•1055
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505, 717-346-3871 .... 2•1058
† TA Instr. Case Co., 4625 Alger St., Los Angeles, CA 90039, 213-242-8855 .... 2•1059
TDJ Co., Inc., 1154 Morena Blvd., San Diego, CA 92110, 619-276-5920 .... 2•1060, 1061
† Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064, 213-478-0046; 800-TECHMAR .... 2•1062,1063
Tracewell Enclosures, 7032 Worthington Galenda Rd., Columbus, OH 43085, 14-846-6175;800-848-4525 .... 2•1065-1067
Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... 2•1069,3•1117
† Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1035
Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236, 804-794-2877 .... 2•1748
Zero Corp., 777 Front St., Burbank, CA 91503, 213-846-4191 .... 2•1074-1079
§† Abalon Precision Mfg., 540 Casanova St., Bronx, NY 10474 212-589-5682
Adams Rite Prods., Inc., 540 W. Chevy Chase Dr., Glendale, CA 91209 213-241-5121
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Amtek Digital Systems, Inc., 12740 28th N.E., Seattle, WA 98125 206-363-0217
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 617-935-4944
† Astronautics Corp. of America, P.O. Box 523, Milwaukee, WI 53201 414-447-8200
§ Atlas Sound Div., 10 Pomeroy Rd., Parsippany, NJ 07054 201-887-7800
§ ATR Elctrns., Inc., 280 E. Lafayette Frontage Rd., St. Paul, MN 55107 612-222-3791
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Beechwood Mfg., 310 S. Ohmer, Indianapolis, IN 46219 317-356-2493
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§ Bryant Circuit Devices Div., Westinghouse Elec. Corp., 500 Sylvan Ave., Bridgeport, CT 06606 203-334-5561
† BTU Engrg. Corp., Bruce Sys., Esquire Rd., N. Billerica, MA 01862 617-667-4111
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Chassis-Trak, P.O. Box 39100, Indianapolis, IN 46239 317-897-7000
† Churchill Corp., 344 Franklin St., Melrose, MA 02176 617-665-4700
§ CompuPro, 3506 Breakwater Ct., Hayward, CA 94545 415-786-0909
Contours, Inc., P.O. Box 1041, Middletown, CT 06457 203-347-5694
Controls Unlimited, Inc., 1895 Blase-Nemeth Rd., Painesville, OH 44077 216-354-4111
† Craig Sys., 360 Merrimack St., Lawrence, MA 01842 617-688-6961
§ CTS Metal Prods., Jose Division, 660 Lenfest Rd., San Jose, CA 95113 408-251-1600
Datec, Inc., 200 Eastowne Dr., Ste. 116, Chapel Hill, NC 27514 919-929-2135
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
§ Dyma Engrg., Box 1535, Los Lunas, NM 87031 505-865-6700
† Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245 213-643-8181
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
† Enclosure Corp., 4529 Adams Circle, Cornwells Hts., PA 19020 215-638-9550
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 503-476-8871
§ Erni Comps. Corp., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005 312-577-8620
§† E-Tronics, 16774 Schoenborn, Sepulveda, CA 91343 213-892-7279
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 201-768-8082
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164 312-681-7071
† Hamilton Metalcraft, 848 N. Fair Oaks Ave., Pasadena, CA 91103 818-795-4811
§ Harris Corp., Dracon Div., 809 Calle Plano, Camarillo, CA 93010 805-987-9511
† Henschel, 14 Cedar St., Amesbury, MA 01913 617-388-1103
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 612-421-2240
† House of Metal Enclosures, Box 225, Hermann, MO 65041 314-486-3111
Industrial Fabricating Co., 820 Woodend Ave., Stratford, CT 06497 203-375-5853
† Innovatek Microsystems, Inc., Smithfield Rd., Millerton, NY 12546 914-373-9003
† Instrument Enclosures, 9767 Glenoaks Blvd., Sun Valley, CA 91352 213-768-4622
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
† JRW Inds., Inc., 2312 N Second St., Harrisburg, PA 17110 717-236-1418
† Langley, P.O. Box 2911, San Diego, CA 92112 619-264-3181
Mallory Capacitor Co., Mallory Comps. Grp., 3029 E. Washington St., Indianapolis, IN 46201 317-636-5353
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 313-628-9711
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
Matrox Elctrn. Sys., 5800 Andover Ave., Montreal, QU H4T 1H4 Canada 514-735-1182
McKinstry Metal Works, Inc., 285 McKinstry Ave., Chicopee, MA 01013 ....
Miller, W. A., Co., Mingo Loop, Oquossoc, ME 04964 207-864-3344
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Pacific Instrs. Inc., 2355 Whitman Rd., Concord, CA 94518 415-827-9010
Parsons Mfg., 1055 O'Brien Dr., Menlo Park, CA 94025 415-324-4726
Powerbox, Inc., 1860 Broadway, New York, NY 10023 212-586-1992
† Princeton Case Co., Inc., 667 Lehigh Ave., Union, NJ 07083 201-687-1750
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 415-365-0498
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England 0442-40471/6
Scientific-Atlanta, Inc., P.O. Box 105600, Atlanta, GA 30348 404-441-4000
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

† Spectro Equipment, Inc., 6021 Royalton Rd., N. Royalton, OH 44133 216-237-8910
Spectron Corp., 344 New Albany Rd., Moorestown, NJ 08057 609-234-5700
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ... 213-357-3287
§† Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
Stanley-Vidmar, Stanley Works, 11 Grammes Rd., Allentown, PA 18103 215-797-6600
† STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073 213-204-0472
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Systems Furniture Co., 2727 Maricopa St., Torrance, CA 90503 213-533-1212
§ Ten-Tec, Industrial Park, Sevierville, TN 37862 615-453-7172
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 213-603-1976
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
† Tridak, 1120 Federal Rd., Brookfield, CT 06804 203-775-1287
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380 215-692-0800
York Metal Products, Inc., 34-20 12th St., Long Island, NY 11367 ... 212-932-3660
§ Zero-East Div., 288 Main St., Monson, MA 01057 ....

Enclosures, Keyboard-1400

§ **Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 .. 2•1037**
§ **PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 .... 2•1042,1043**
Tracewell Enclosures, 7032 Worthington Galenda Rd., Columbus, OH 43085, 14-846-6175;800-848-4525 .... 2•1065-1067
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
§ CTS Metal Prods., Jose Division, 660 Lenfest Rd., San Jose, CA 95113 408-251-1600
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067 215-682-7181
FCM Plastics, Plastics Technologies Inc., 2555 Oak Industrial Dr. NE, Grand Rapids, MI 49505 616-451-4502
† Hamilton Metalcraft, 848 N. Fair Oaks Ave., Pasadena, CA 91103 .. 818-795-4811
† Instrument Enclosures, 9767 Glenoaks Blvd., Sun Valley, CA 91352 213-768-4622
ISL Products Intl. Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 516-822-9601
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 313-628-9711
§ Risk, George, Inds., GRI Plaza, Kimball, NE 69145 308-235-4645
§† Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852 301-984-1783
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 717-346-3871
York Metal Products, Inc., 34-20 12th St., Long Island, NY 11367 ... 212-932-3660

Enclosures, Nonmetallic-1400

§ **Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005**
Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731, 818-575-8144 .... 2•1016
† **Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... 2•1019**
† **Gemini, 103 Mensing Way, Cannon Falls, MN 55009, 507-263-3957 .... 2•1897-1899**
§ **Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 . 2•1036, 1037**
§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1397-1401**
§† **Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 .... 2•1491**
§ **PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 .... 2•1002,1042,1043**
§† **Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852, 301-984-1783 .... 2•1046**
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886, 401-732-3770 .... 2•1053
† **Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771, 914-856-6655 .... 2•1054**
Tracewell Enclosures, 7032 Worthington Galenda Rd., Columbus, OH 43085, 14-846-6175;800-848-4525 .... 2•1065-1067
Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005
§ **Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236, 804-794-2877 .... 2•1748**
Zero Corp., 777 Front St., Burbank, CA 91503, 213-846-4191 .... 2•1076-1079
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Beechwood Mfg., 310 S. Ohmer, Indianapolis, IN 46219 317-356-2493
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Diversified Case Co., Ellis Ave., Off. 2, Whitesboro, NY 13492 315-736-3028
§ Dyma Engrg., Box 1535, Los Lunas, NM 87031 505-865-6700
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901 507-289-3371
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 503-476-8871
FCM Plastics, Plastics Technologies Inc., 2555 Oak Industrial Dr. NE, Grand Rapids, MI 49505 616-451-4502
General Devices, Box 39100, Indianapolis, IN 46239-9632 317-897-7000
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
§ GMR Inc., Computer Elctrns., 1048 E. Burgrove St., Carson, CA 90746 213-639-4663
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 612-421-2240
IET Labs, Inc., 534 Main St., Westbury, NY 11590 516-334-5959
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
ISL Products Intl. Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 516-822-9601
† Isotronics, Industrial Park, New Bedford, MA 02745 617-998-2000
ITT Thermotech, Div. IT & T, 1203 S. 5th St., Hopkins, MN 55343 .. 612-933-9400
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
Kole Ind., 3553 N.W. 50th St., Miami, FL 33102-0152 .... 305-633-2556; 800-327-6085
Mallory Capacitor Co., Mallory Comps. Grp., 3029 E. Washington St., Indianapolis, IN 46201 317-636-5353
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 313-628-9711
† Mercury Plastics, A Unit of Zero Corp., 672 Fuller Rd., Chicopee, MA 01020 .... 413-592-5118;413-267-5561
Miller, W. A., Co., Mingo Loop, Oquossoc, ME 04964 207-864-3344
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Parsons Mfg., 1055 O'Brien Dr., Menlo Park, CA 94025 415-324-4726
Plastic Forming Co., Inc., 5 Lunar Dr., P.O. Box N, Woodbridge, CT 06525 203-397-1338
† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451 212-993-9200
† Princeton Case Co., Inc., 667 Lehigh Ave., Union, NJ 07083 201-687-1750
§ Risk, George, Inds., GRI Plaza, Kimball, NE 69145 308-235-4645
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England 0442-40471/6
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
† Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064 .... 213-478-0046; 800-TECHMAR
† Terminal Data Corp., 11878 Coakley Circle, Rockville, MD 20852 ... 301-881-7655
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 213-603-1976
Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632 317-897-7000
† Zero-East Div., 288 Main St., Monson, MA 01057 ....

Enclosures, Portable, Metallic & Nonmetallic-1400

† **Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670 .... 2•1006, 1007**
§ **Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005**
Ango Electronics Corp., Post Office Box 112, Harrison, NJ 07029, 212-685-6336; 201-483-7116 .... 2•1008
Axis, Inc., 7825 Engineer Rd., Ste. 208, San Diego, CA 92111, 619-560-7737 .... 2•1010
§ **Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731, 818-575-8144 .... 2•1016**
† **Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... 2•1019**
Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062, 312-498-6090 .... 2•1020
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901, 507-289-3371 .... 2•1030
† **Gemini, 103 Mensing Way, Cannon Falls, MN 55009, 507-263-3957 .... 2•1897-1899**
§ **Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 .. 2•1037**
§ **Interlok, 770 Airport Blvd., Burlingame, CA 94010, 415-348-5625 .... 2•1038,1039**
† **Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084, 404-939-6340 .... 2•1047-1049**
§ **PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 .... 2•1002,1042,1043**
† **Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... 2•1044,1045**
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013, 717-243-5929 .... 2•1797
§† **Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852, 301-984-1783 .... 2•1046**
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886, 401-732-3770 .... 2•1053
† **Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771, 914-856-6655 .... 2•1054**
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605, 818-875-0800 .... 2•1055
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505, 717-346-3871 .... 2•1058
† **TA Instr. Case Co., 4625 Alger St., Los Angeles, CA 90039, 213-242-8855 .... 2•1059**
TDJ Co., Inc., 1154 Morena Blvd., San Diego, CA 92110, 619-276-5920 ..... 2•1060, 1061
† **Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064, 213-478-0046; 800-TECHMAR .... 2•1062,1063**
Tracewell Enclosures, 7032 Worthington Galenda Rd., Columbus, OH 43085, 14-846-6175;800-848-4525 .... 2•1065-1067
Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 .... 2•1005
§ **Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... 2•1069,3•1117**
Zero Corp., 777 Front St., Burbank, CA 91503, 213-846-4191 .... 2•1074,1075
§† Abalon Precision Mfg., 540 Casanova St., Bronx, NY 10474 212-589-5682
Adams Rite Prods., Inc., 540 W. Chevy Chase Dr., Glendale, CA 91209 213-241-5121
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
† American Aluminum, 230 Sheffield St., Dept. EEM, Mountainside, NJ 07092 201-233-3500

American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Amtek Digital Systems, Inc., 12740 28th N.E., Seattle, WA 98125 ...206-363-0217
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 617-935-4944
§ Atlas Sound Div., 10 Pomeroy Rd., Parsippany, NJ 07054 201-887-7800
† Atmosphere Controls Prods., 295 Polaris, Mountain View, CA 94043 415-969-2640
Beechwood Mfg., 310 S. Ohmer, Indianapolis, IN 46219 317-356-2493
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
† Craig Sys., 360 Merrimack St., Lawrence, MA 01842 617-688-6961
§ Davies, Harry, Molding Co., 4920 Bloomingdale Ave., Chicago, IL 60639 312-622-8966
Diversified Case Co., Ellis Ave., Off. 2, Whitesboro, NY 13492 315-736-3028
§ Dyma Engrg., Box 1535, Los Lunas, NM 87031 505-865-6700
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067 215-682-7181
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 503-476-8871
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507 312-897-4691
FCM Plastics, Plastics Technologies Inc., 2555 Oak Industrial Dr. NE, Grand Rapids, MI 49505 616-451-4502
General Devices, Box 39100, Indianapolis, IN 46239-9632 317-897-7000
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
§ GMR Inc., Computer Elctrns., 1048 E. Burgrove St., Carson, CA 90746 213-639-4663
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 612-421-2240
† House of Metal Enclosures, Box 225, Hermann, MO 65041 314-486-3111
IET Labs, Inc., 534 Main St., Westbury, NY 11590 516-334-5959
† Instrument Enclosures, 9767 Glenoaks Blvd., Sun Valley, CA 91352 213-768-4622
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
ISL Products Intl. Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 516-822-9601
† Isotronics, Industrial Park, New Bedford, MA 02745 617-998-2000
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
† Mercury Plastics, A Unit of Zero Corp., 672 Fuller Rd., Chicopee, MA 01020 ....413-592-5118;413-267-5561
Miller, W. A., Co., Mingo Loop, Oquossoc, ME 04964 207-864-3344
Parsons Mfg., 1055 O'Brien Dr., Menlo Park, CA 94025 415-324-4726
Plastic Forming Co., Inc., 5 Lunar Dr., P.O. Box N, Woodbridge, CT 06525 203-397-1338
Powerbox, Inc., 1860 Broadway, New York, NY 10023 212-586-1992
Precision Tech. Sewing, 921 E. Charleston Rd., Palo Alto, CA 94303 415-856-2128
† Princeton Case Co., Inc., 667 Lehigh Ave., Union, NJ 07083 201-687-1750
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ...415-365-0498
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England 0442-40471/6
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ...213-357-3287
Stanley-Vidmar, Stanley Works, 11 Grammes Rd., Allentown, PA 18103 215-797-6600
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
§ Ten-Tec, Industrial Park, Sevierville, TN 37862 615-453-7172
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 213-603-1976
† Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632 317-897-7000
York Metal Products, Inc., 34-20 12th St., Long Island, NY 11367 ...212-932-3660
§† Zero-East Div., 288 Main St., Monson, MA 01057 ....

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† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176, 312-671-6670 .... 2•1006, 1007
Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 .... 2•1904
§† Compac, 279 Skidmore Rd., Deer Park, NY 11729, 516-667-3933 ....2•1023-1027
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067, 215-682-7181 .... 2•1029
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901, 507-289-3371 .... 2•1030
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 .... 2•1031
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ....2•1402-1415
Lindgren RF Enclosures, Inc., 1228 Capitol Drive, Addison, IL 60101, 312-628-9100 .... 2•1041
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 .... 2•1042
Prototek, Inc., 25 Standen Dr., Hamilton, OH 45015, 513-874-5094 .... 2•1893
† Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771, 914-856-6655 .... 2•1054
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505, 717-346-3871 .... 2•1058
† TA Instr. Case Co., 4625 Alger St., Los Angeles, CA 90039, 213-242-8855 .... 2•1059
TDJ Co., Inc., 1154 Morena Blvd., San Diego, CA 92110, 619-276-5920 .... 2•1060, 1061
Tracewell Enclosures, 7032 Worthington Galenda Rd., Columbus, OH 43085, 14-846-6175;800-848-4525 ....2•1065-1067
§† Abalon Precision Mfg., 540 Casanova St., Bronx, NY 10474 212-589-5682
Adams Rite Prods., Inc., 540 W. Chevy Chase Dr., Glendale, CA 91209 213-241-5121
† Adams-Russell, Anzac Div., 80 Cambridge St., Burlington, MA 01803 671-273-3333
† Adams Russell, Modpak Div., 80 Cambridge St., Burlington, MA 01803 617-273-3333
† Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975 219-223-3158
§ Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
† American Aluminum, 230 Sheffield St., Dept. EEM, Mountainside, NJ 07092 201-233-3500
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
† Ark Elctrns. Corp., 1325 Industrial Hwy., Southampton, PA 18966 ..215-322-6510
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 617-935-4944
Beechwood Mfg., 310 S. Ohmer, Indianapolis, IN 46219 317-356-2493
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§† Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731 818-575-8144
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
† Churchill Corp., 344 Franklin St., Melrose, MA 02176 617-665-4700
† Craig Sys., 360 Merrimack St., Lawrence, MA 01842 617-688-6961
CTS Metal Prods., Jose Division, 660 Lenfest Rd., San Jose, CA 95113 ....408 251-1600
Diversified Case Co., Ellis Ave., Off. 2, Whitesboro, NY 13492 315-736-3028
§ Dyma Engrg., Box 1535, Los Lunas, NM 87031 505-865-6700
† Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245 213-643-8181
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
† Enclosure Corp., 4529 Adams Circle, Cornwells Hts., PA 19020 215-638-9550
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 503-476-8871
FCM Plastics, Plastics Technologies Inc., 2555 Oak Industrial Dr. NE, Grand Rapids, MI 49505 616-451-4502
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
Gemini, 103 Mensing Way, Cannon Falls, MN 55009 507-263-3957
General Devices, Box 39100, Indianapolis, IN 46239-9632 317-897-7000
§ GMR Inc., Computer Elctrns., 1048 E. Burgrove St., Carson, CA 90746 213-639-4663
† Gordon, L., Packaging, 1050 S. Paca St., Baltimore, MD 21230 301-539-6537
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 716-894-5710
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 612-421-2240
† House of Metal Enclosures, Box 225, Hermann, MO 65041 314-486-3111
† Hudson Tool & Die Co., Inc., 18 Malvern St., Newark, NJ 07105 201-589-1800
IET Labs, Inc., 534 Main St., Westbury, NY 11590 516-334-5959
† Instrument Enclosures, 9767 Glenoaks Blvd., Sun Valley, CA 91352 213-768-4622
† Isotronics, Industrial Park, New Bedford, MA 02745 617-998-2000
§† ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
Keene Ray Proof, Keene Corp., 50 Keeler Ave., Norwalk, CT 06878 203-838-4555
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Langley, P.O. Box 2911, San Diego, CA 92112 619-264-3181
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106 312-766-7800
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 313-628-9711
Miller, W. A., Co., Mingo Loop, Oquossoc, ME 04964 207-864-3344
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148 617-321-4410
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 ..404-939-6340
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ...415-365-0498
§† Rose Enclosures Sys., Inc., 12140 Parklawn Dr., Rockville, MD 20852 301-984-1783
§ Schroff UK Ltd., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG England 0442-40471/6
§† Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 215-822-2171
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505 814-455-0966
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ...213-357-3287
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
† STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073 213-204-0472
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 213-603-1976
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 ....614-276-5522; 800-245-5253
Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
† Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632 317-897-7000
York Metal Products, Inc., 34-20 12th St., Long Island, NY 11367 ...212-932-3660
† Zero-East Div., 288 Main St., Monson, MA 01057 ....

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† Gemini, 103 Mensing Way, Cannon Falls, MN 55009, 507-263-3957 ....2•1897-1899
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† Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771, 914-856-6655 .... 2•1054

† TA Instr. Case Co., 4625 Alger St., Los Angeles, CA 90039, 213-242-8855 ... 2•1059
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, 215-692-0800 ... 2•1068
Zero Corp., 777 Front St., Burbank, CA 91503, 213-846-4191 ... 2•1070-1073
ADE, Inc., 1560 E. 98th St., Chicago, IL 60628 ... 312-221-3400
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 ... 617-935-4944
Beechwood Mfg., 310 S. Ohmer, Indianapolis, IN 46219 ... 317-356-2493
† Craig Sys., 360 Merrimack St., Lawrence, MA 01842 ... 617-688-6961
Diversified Case Co., Ellis Ave., Off. 2, Whitesboro, NY 13492 ... 315-736-3028
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067 ... 215-682-7181
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901 ... 507-289-3371
† Environmental Container Sys., Inc., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526 ... 503-476-8871
§† E-Tronics, 16774 Schoenborn, Sepulveda, CA 91343 ... 213-892-7279
General Devices, Box 39100, Indianapolis, IN 46239-9632 ... 317-897-7000
† Gordon, L., Packaging, 1050 S. Paca St., Baltimore, MD 21230 ... 301-539-6537
Hardigg Inds., Inc., North Main St., South Deerfield, MA 01373 ... 413-665-2163
† Instrument Enclosures, 9767 Glenoaks Blvd., Sun Valley, CA 91352 ... 213-768-4622
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 ... 213-991-9614
† Kole Ind., 3553 N.W. 50th St., Miami, FL 33102-0152 ... 305-633-2556; 800-327-6085
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 ... 714-540-6630
† Mercury Plastics, A Unit of Zero Corp., 672 Fuller Rd., Chicopee, MA 01020 ... 413-592-5118;413-267-5561
Parsons Mfg., 1055 O'Brien Dr., Menlo Park, CA 94025 ... 415-324-4726
Plastic Forming Co., Inc., 5 Lunar Dr., P.O. Box N, Woodbridge, CT 06525 ... 203-397-1338
Precision Tech. Sewing, 921 E. Charleston Rd., Palo Alto, CA 94303 ... 415-856-2128
† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451 ... 212-993-9200
† Princeton Case Co., Inc., 667 Lehigh Ave., Union, NJ 07083 ... 201-687-1750
§ Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 ... 215-822-2171
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ... 213-357-3287
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 ... 717-346-3871
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 ... 213-603-1976
† Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632 ... 317-897-7000
§† Zero-East Div., 288 Main St., Monson, MA 01057 ...

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§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 ... 2•1771
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 ... 213-603-0400
† Topflight, 160 East 9th Ave., York, PA 17404 ... 717-843-9901

Etchants, Fluorocarbon-1600

Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290

Etchants, Printed Circuit-1700

Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 ... 2•1090
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 ... 2•1091
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 ... 517-636-1000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 ... 302-773-3218
§ Electronic Trend Prods., 10080 N. Wolfe Rd., Ste. 372, Cupertino, CA 95014 ... 408-996-7401
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026 ... 314-343-1630
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 ... 818-365-9661

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§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ... 2•1426
§ Eraser Co., Box 4961, Syracuse, NY 13221 ... 315-454-3237
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 ... 215-949-2300
Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 ... 215-355-7200
§† Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 ... 818-365-9661

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† Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 ... 201-943-7650
§† Aimsco Inc., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056 ... 206-284-5563
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 ... 516-222-1200
Atlas Eyelets, Pinkham St., Fairhaven, MA 02719 ... 617-997-9491
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ... 203-929-1401
† Braxton Mfg., Echo Lake Rd. N., Watertown, CT 06795 ... 203-274-6781
† Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 ... 212-597-1773;914-699-7223
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 ... 818-243-2069
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 ... 502-684-0431
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 ... 212-475-4600
† Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 ... 203-756-8847
§ Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 ... 301-490-9860
§ POP Fasteners Div., 510 River Rd., Shelton, CT 06484 ... 203-735-9341
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ... 814-723-2000; 800-221-3333
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 ... 213-786-9388
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 ... 914-666-2911

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American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 ... 201-831-3148
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 ... 201-753-7988
Carbone Lorraine Inds., 400 Myrtle Ave., Boonton, NJ 07005 ... 201-DE4-0700
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 ... 617-935-4850
Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 ... 714-993-4200
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 ... 714-540-6630
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 ... 312-221-8242
Precision Tech. Sewing, 921 E. Charleston Rd., Palo Alto, CA 94303 ... 415-856-2128
Schweitzer, Div., Kimberly Clark Corp., Lee, MA 01238 ... 413-243-1000
§ Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 ... 215-822-2171
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 ... 800-628-8862
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016 ... 201-272-5500
§ TWP, Inc., 2133 4th St., Berkeley, CA 94710 ... 415-548-4434
§ Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 ... 415-969-7717
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 ... 213-321-3901

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Buehler Prods., P.O. Box A, Hwy. 70 E., Kinston, NC 28501, 919-522-3101 .... 1B•1137

Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776, 213-287-0451 .... 2•1021

Eastern Air Devices Motor Div., 1 Progress Dr., Dover, NH 03820, 603-742-3330 .... 1B•1141

§ **ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... 2•1806,1807**

EG & G Rotron, Commercial Div., Shokan, NY 12481, 914-657-6661 .... 2•1800, 1808-1813

§† **EG & G Rotron, Custom Div., Hasbrouck La., Woodstock, NY 12498, 914-679-5201 .... 2•1814,1815**

Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 .... 2•1031

§ **ETRI, 608 Broome St., P.O. Box 568, Monroe, NC 28110, 704-289-5423 .... 2•1818-1820**

Frederick Components Intl., 20806 Plummer St., Chatsworth, CA 91311, 18-882-0868;800-354-0660 .... 2•1821

General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1034

† **Hi-Tech, Inc., 3600 16th St., Zion, IL 60099, 312-746-2447 .... 2•1822**

† **IMC Magnetics Corp., Eastern Div., 570 Main St., Westbury, NY 11590, 516-334-7070 .... 2•1823**

† **McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550, 609-799-0100 .... 2•1824,1825**

Micronel U.S., 2142F Industrial Ct., Sycamore Research Center, Vista, CA 92083, 619-727-7400 .... 2•1830-1838

Motor-Tronics, Inc., 2142 Industrial Ct., Bldg. F2, Vista, CA 92083, 619-727-7430 .... 1B•1167

† **Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084, 404-939-6340 .... 2•1047**

§ **Pamotor, 770 Airport Blvd., Burlingame, CA 94010, 415-347-1203 .... 2•1840-1850**

Shinano Kenshi Corp. (SKC), 7525 Ethel Ave., Ste. 1, N. Hollywood, CA 91605, 818-764-4266 .... 1B•1181

TECA, ThermoElectric Cooling America Corp., 448 N. Halsted St., Chicago, IL 60622, 312-666-1600 .... 2•1805

TRW Motor Div. (Military), 2275 Stanley Ave., Dayton, OH 45404, 513-228-3171 .... 2•1852,1853

§ **U.S. Toyo Fan Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776, 213-287-5297 .... 2•1854,1855**

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Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Brailsford & Co., 670 Milton Rd., Rye, NY 10580 914-967-1820
§ Fan-S Corp., 7158 Industrial Pk. Blvd., Mentor, OH 44060 216-951-3300
§ Hoffman Engrg., Federal Cartridge, 9th & Tyler Sts., Anoka, MN 55303 612-421-2240
IMC Magnetics Corp., New Hampshire Div., Rte. 16B, Rochester, NH 03867 603-332-5300
§ I.M.S. Equipment, Inc., P.O. Box 16909, Irvine, CA 92713 714-559-6901
Inmark Corp., 147 West Cedar St., Norwalk, CT 06854 203-866-8474
§ Japanese Prods. Corp., 31368 Via Colinas, Ste. 103-104, West Lake Village, CA 91362 818-991-6111
Merrill, POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437 215-643-2116
§ MG Electronics, 32 Ranick Rd., Hauppauge, NY 11788 516-582-3400
Papst Mechatronic Corp., Aquidneck Indl. Pk., Newport, RI 02840 401-849-5930
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
Torin Corp., 100 Franklin Drive, Torrington, CT 06790 203-482-4422
§† Zero-East Div., 288 Main St., Monson, MA 01057 ....

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Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1768

§† **Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 .... 2•1489**

§ **Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1585**

† **Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 .... 2•1868**

† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 516-546-1751
§† Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 201-943-7650
Adams Rite Prods., Inc., 540 W. Chevy Chase Dr., Glendale, CA 91209 213-241-5121
§† Aimsco Inc., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056 206-284-5563
Alinabal, 28 Woodmont Rd., Milford, CT 06460 203-877-3241
§† Allen Mfg., 22 E. Dudley Town Rd., Bloomfield, CT 06002 203-242-8511
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
† APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700
§ Arrow Fastener, 271 Mayhill St., Saddlebrook, NJ 07662 201-843-6900
§† Associated Spring, Barnes Grp., 18 Main St., Bristol, CT 06010 203-583-1331
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
† Avibank Mfg., 210 S. Victory Blvd., Burbank, CA 91503 818-843-4330
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731 818-575-8144
Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491 309-695-2511
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
† Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 .... 212-597-1773;914-699-7223
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Delbert Blinn Co., Box 2007, Pomona, CA 91766 714-629-3900
§† Deutsch Fastener, 1315 East Grand Ave., El Segundo, CA 90245 213-322-8840
§ Dimco-Gray, 8200 S. Suburban Rd., Dayton, OH 45459 513-433-7600
Dupree, Inc., 9835 Dupree St., So. El Monte, CA 91733 818-442-4700
† Dzus Fastener, 425 Union Blvd., W. Islip, NY 11795 516-669-6000
Eberhard Mfg. Co., Div., Eastern Co., 21944 Drake Rd., Strongsville, OH 44136 216-238-9720
§ Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† ESNA Div., 2330 Vauxhall Rd., Union, NJ 07083 201-686-6000
§† Esna Div., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083 201-686-6000
§ Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
KDI Electronics, Inc., 60 S. Jefferson Rd., Whippany, NJ 07981 201-887-8100
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 .... 213-849-6211; 800-423-2734
§ Markat Div., Wild Oats Corp., 3 Country Dr., Plainview, NY 11803 516-549-9272
§† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milford Rivet & Mach., 857 Bridgeport Ave., Milford, CT 06460 203-878-4631
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
† Morris, J. I., Co., 372 Elm St., Southbridge, MA 01550 617-764-4394
§ Nelson Stud Welding TRW Inc., 28th & Toledo Ave., Lorain, OH 44055 216-245-6931
NKR Precision Mfg., Rte. 17M, Box 333, Harriman, NY 10926 914-782-8562
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§† Penn Engrg. & Mfg., P.O. Box 1000, Danboro, PA 18916 215-766-8853
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§ POP Fasteners Div., 510 River Rd., Shelton, CT 06484 203-735-9341
† Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 617-699-7646
§† RAF Elctrn. Hardware, 95 Silvermine Rd., Seymour, CT 06483 203-888-2133
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 818-245-9121
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
Skyo Industries Inc., 171 Brook Ave., Deer Park, NY 11729 516-586-4702
† Southco, Inc., Concordville, PA 19331 215-459-4000
Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Prods., Div. of Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-0200
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388
† Waldes Kohinoor, 47-16 Austel Pl., Long Island City, NY 11101 212-392-3100
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Weckesser Co. Inc., 4444 W. Irving Park Rd., Chicago, IL 60641 312-282-8626
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Fasteners, Nonmetallic-2825

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 .... 2•1787

§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... 2•2091**

§ **Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033; 800-526-4182 .... 2•1861**

† **Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 .... 2•1868**

† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 516-546-1751
Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 201-943-7650
§† Aimsco Inc., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056 206-284-5563
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
§† All-States, Inc., 1801 W. Foster Ave., Chicago, IL 60640 312-728-0525
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§† Amrad, Div. Transcon Mfg. Co., Box 876, Paris, TX 75460 214-785-4544
APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ Bivar, Inc., 4 Thomas, Irvine, CA 92714 714-951-8808
§ Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Budwig Mfg., P.O. Box 829, Ramona, CA 92065 619-789-0900
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Delbert Blinn Co., Box 2007, Pomona, CA 91766 714-629-3900
† Dennison Mfg. Co., 300 Howard St., Framingham, MA 01701 617-879-0511
† Dzus Fastener, 425 Union Blvd., W. Islip, NY 11795 516-669-6000

§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
† Esna Div., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083 201-686-6000
§ Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Globe Plastics, 1342 S. Signal Dr., Pomona, CA 91766 714-623-2747
Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
Hanscom, H. F., Co., Inc., 225 Chapman St., Providence, RI 02905 401-941-1455
Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 .... 213-849-6211; 800-423-2734
§ Mallory Capacitor Co., Mallory Comps. Grp., 3029 E. Washington St., Indianapolis, IN 46201 317-636-5353
§ Markat Div., Wild Oats Corp., 3 Country Dr., Plainview, NY 11803 516-549-9272
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§† Penn Fibre & Spec., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124 215-288-7366
† PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 617-699-7646
§† RAF Elctrn. Hardware, 95 Silvermine Rd., Seymour, CT 06483 203-888-2133
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Southco, Inc., Concordville, PA 19331 215-459-4000
Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Prods., Div. of Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-0200
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§† Weckesser Co. Inc., 4444 W. Irving Park Rd., Chicago, IL 60641 312-282-8626

Fault Locators — See Detectors (Vol. 3)

Feedthrus & Seals, Environmental-2500

§ Compac, 279 Skidmore Rd., Deer Park, NY 11729, 516-667-3933 .... 1A•1587,1690
Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... 2•2092
Metuchen Capacitors, Inc., 420 Park Ave., Perth Amboy, NJ 08861, 201-442-0500 .... 2•1527
Airpax Corporation, Woods Rd., Cambridge, MD 21613 301-228-4600
† Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
Alco Elctrn. Prods., Inc., 1551 Osgood St., N. Andover, MA 01845 617-685-4371
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
† APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700
Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
§† Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731 818-575-8144
† Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
Corning Glass Works, Main Plant, MS 2136, Corning, NY 14831 607-974-4102
§ Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
Eltec Instrs., P.O. Box 9610, Daytona Bch., FL 32020 904-252-0411
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351
§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 617-699-7646
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
Schott Elctrns., Hershey Dr., Ansonia, CT 06401 203-736-2677
† Servometer Corp., 501 Little Falls Rd., Cedar Grove, NJ 07009 201-785-4630
§ Sloan Technology, P.O. Box 4608, Santa Barbara, CA 93103 805-963-4431
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 213-357-3287
§ Teledyne Mecca, Box 36393, Houston, TX 77036 713-772-2811
Vactronic Lab. Equip., 65 Brightside Ave., E. Northport, NY 11731 516-AN1-2660
Varian Associates, Inc., Microwave Tube Div., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000
Veeco Instruments Inc., Terminal Dr., Plainview, NY 11803 516-349-8300
Vernay Laboratories, Inc., S. College St., Yellow Springs, OH 45387 513-767-7261

Ferrite Material & Parts-2500

Allen-Bradley Co., 1201 S. Second St., Milwaukee, WI 53204, 414-671-2000 .... 1A•1788,2•1790,1791
Fair-Rite Prods., PO Box J, Wallkill, NY 12589, 914-895-2055 .... 2•1907
§† Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07509, 201-345-8900 .... 2•1793
§ Amperex Electronic Corp., Ferroxcube Div., 5083 Kings Hwy., Saugerties, NY 12477 914-246-2811
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Ceramic Magnetics, Inc., 87 Fairfield Rd., Fairfield, NJ 07006 201-227-4222
§† Countis Inds., 2670 Lockheed Way, Carson City, NV 89701 702-882-6123
Ferro Corp., Ottawa Chem. Div., 700 N. Wheeling St., Toledo, OH 43605 419-691-3507
Ferronics, 66 N. Main St., Fairport, NY 14450 716-223-1010
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
Jobmaster Corp., 9008 Liberty Rd., Randallstown, MD 21133 301-655-1400
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
Multi Prods. Intl., 218 Little Falls Rd., P.O. Box 238, Cedar Grove, NJ 07009 201-239-8183
§ Murata Mfg. Co. Ltd., 26-10 2-chome-Temjin, Nagaoka-Kyo-Shi, Kyoto, Japan 075-921-9111
National Micronetics, Route 28, West Hurley, NY 12136 914-338-0333
Permag, 400 Karin La., Hicksville, NY 11801 516-822-3311
Quartzite Processing, Inc., 6 Holyoke St., Malden, MA 02148 617-322-1380
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Siemens Corp., 186 Wood Ave., S., Iselin, NJ 08830 201-494-1000
Stackpole, Electronic Components Div., 201 Stackpole St., St. Marys, PA 15857 814-781-1234
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 615-867-4100
† Thomson-CSF Comps. Corp., Special Prods. Div., 301 Rte. 17 North, Rutherford, NJ 07070 201-438-2300
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan .... Tokyo 03-402-6161
† TRAK Microwave Corp., 4726 Eisenhower Blvd., Dept. E4, Tampa, FL 33614 813-884-1411
Trans-Tech, 12 Meem Ave., Gaithersburg, MD 20760 301-948-3800
Trans-Tech, Inc., Alpha Inds., Inc., 20 Sylvan Rd., Woburn, MA 01801 617-935-5150

Ferrules, Cable-end-2825

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1237
§ Augat Fiberoptics, 40 Perry Ave., Attleboro, MA 02703 617-222-2202
Fiberoptic Fabrications, Inc., 70 Pullman St., Worcester, MA 01606 617-853-6449
Fiberoptics Technlg., Inc., Quassett Rd., Pomfret, CT 06258 203-928-0443
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
Sumita Optical Glass Mfg. Co., Ltd., P.O. Box 521, Millwood, NY 10546 914-762-4959

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Films, Masking (Incl. Photographic)-3100

§ AGFA-Gevaert, Inc., 275 North St., Teterboro, NJ 07608 201-288-4100
Conforming Matrix, Box 5126, Pt. Pl. Sta., Toledo, OH 43611 419-729-3777
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
† Keuffel & Esser/Kratos, 20 Whippany Rd., Morristown, NJ 07960 201-285-5181
† Lenox Laser, 615 Pittsfield Rd., Lenox, MA 01240 413-499-4477
Nitto Denko America, Inc., 27 Seaview Blvd., Port Washington, NY 11050 516-484-9700
Photronic Labs., Secor Rd., Brookfield Ctr., CT 06805 203-775-0465

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Flux, Brazing & Soldering Materials-4600

§† **Gardiner Solder Co., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632, 312-847-0100 .... 2•1927**
§† **Kester Solder Div., 4201 Wrightwood Ave., Chicago, IL 60639, 312-235-1600 .... 2•1929**
§† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 201-434-6778
§ Bow Solder Prods., 900 Hobson St., Union, NJ 07083 .... 201-686-6040; 800-526-4496
§† Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
Degussa, Rte. 46 & Hollister, Teterboro, NJ 07608 201-288-6500
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 415-592-9440
§ Handy & Harman, 850 Third Ave., New York, NY 10022 212-752-3400
§† Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
§ LMB Heeger, Inc., 2946 E. 11th St., Los Angeles, CA 90023 213-261-0382
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
§ Superior Flux & Mfg. Co., 95 Alpha Pk., Cleveland, OH 44143 216-461-3315
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523

Foil, Magnetic-2500

† **Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 .... 2•1902**
† **Eagle Magnetic Company, Inc., 7417 Crawfordsville Rd., P.O. Box 24283, Indianapolis, IN 46224, 317-297-1030 .... 2•1905**
† **Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 .... 2•1911**
† Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124 215-535-3000
Arnold Engrg., Box "G", Marengo, IL 60152 815-568-2000
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
§† Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§ Magnetic Metals Co., Hayes Ave. at 21st St., Camden, NJ 08105 609-964-7842
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 818-849-4543
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000
SGL Electronics, 300 Harvard Ave., Westville, NJ 08093 609-456-7300
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan .... Tokyo 03-402-6161
† Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

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Frames, Cabinet & Rack-1400

† **Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... 2•1019**
Cabtron Sys., Inc., 200 N. Anets Dr., Northbrook, IL 60062, 312-498-6090 .... 2•1020
General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1034
§ **Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225, 716-894-5710 .. 2•1036**
Interlok, 770 Airport Blvd., Burlingame, CA 94010, 415-348-5625 .... 2•1038,1039
† **Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... 2•1044,1045**
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505, 717-346-3871 .... 2•1058
§ **Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... 2•1069,3•1117**
Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1034
† Amco Engrg., 3801 N. Rose St., Schiller Pk., IL 60176 312-671-6670
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§† Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731 818-575-8144
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
† Craig Sys., 360 Merrimack St., Lawrence, MA 01842 617-688-6961
§ Dyma Engrg., Box 1535, Los Lunas, NM 87031 505-865-6700
† Electronic Enclosures, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245 213-643-8181
Emcor Products, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901 507-289-3371
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507 312-897-4691
Forma Scientific, Div. of Mallinckrodt Inc., Box 649, Marietta, OH 45750 614-373-4763
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164 312-681-7071
High Voltage Engrg. Corp., S. Bedford St., Burlington, MA 01803 617-272-1313
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 617-486-3174
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 404-939-6340
Skydyne Division, AAR/Brooks & Perkins, River Rd., Port Jervis, NY 12771 914-856-6655
Standard Engrg., 44800 Girmmer, Fremont, CA 94538 415-657-7555
Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707 714-979-4770
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605 818-875-0800
§† Thermodyne International Ltd., 20850 S. Alameda, Long Beach, CA 90810 213-603-1976
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
† Zero-East Div., 288 Main St., Monson, MA 01057 ....

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Gauges, Displacement, Linear-5400

Applied Control, 1275 Bloomfield Ave., Fairfield, NJ 07006-2828 201-227-5454
Automatic Timing & Controls Co., 201 So. Gulph Rd., King of Prussia, PA 19406 ....215-337-5500;800-441-8245
§† Bourns Instrs., Inc., Technical Prods. Grp., 6135 Magnolia Ave., Riverside, CA 92506 714-781-5433
§ Bourns Instrs., Inc., Industrial Div., 1960 Chicago Ave., Unit F, Riverside, CA 92503 714-781-5147
Celesco Transducer Prods., Inc., 7800 Deering Ave., Canoga Park, CA 91304 818-884-6860
Computer Instrs., 100 Madison Ave., Hempstead, NY 11550 516-483-8200
EOTec Corp., 200 Frontage Rd., W. Haven, CT 06516 203-934-7961
Hewlett-Packard Co., 1820 Embarcadero Rd., Palo Alto, CA 94303 ....Call Local Sls. Off.
Instron Corp., 100 Royall St., Canton, MA 02021 617-828-2500
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
† Kode, 2752 Walnut Ave., Tustin, CA 92680 714-730-6901
§ Lion Precision, 60 Bridge St., Newton, MA 02195 617-969-4710
Marlow Inds., 10451 Vista Park Rd., Dallas, TX 75238 214-340-4900
§ Mechanical Techn., 968 Albany Shaker Rd., Latham, NY 12110 518-785-2353
Nuclear Resch. Corp., 125 Titus Ave., Warrington, PA 18976 215-343-5900
Robinson-Halpern, One Apollo Rd., P.O. Box 248, Plymouth Meeting, PA 19462-0248 215-825-9200
Schaevitz Engrg., U.S. 130, Union Ave., Pennsauken, NJ 08110 609-662-8000
Siltran Digital, 2250 Monterey Rd., Atascadero, CA 93422 805-466-3209
Teledyne Gurley, 514 Fulton St. P.O. Box 88, Troy, NY 12181 518-272-6300
§ Temposonics, 131 East Ames Ct, Plainview, NY 11803 516-349-1950
Trans-Tek, P.O. Box 338, Rte. 83, Ellington, CT 06029 203-872-8351
† Validyne Engrg. Corp., 8626 Wilbur Ave., Northridge, CA 91324 818-886-2057
† Warren-Knight Instr. Co., Warren Inds., Inc., 2045 Bennett Rd., Philadelphia, PA 19116 215-464-9300

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Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 ....2•1902
Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 ....2•1904
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ....2•1380,1415
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ....2•1916-1919,1922
† Airtron, 200 E. Hanover Ave., Morris Plains, NJ 07950 201-539-5500
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
† Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
† Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§† CHR Inds., 407 East St., P.O. Box 1911, New Haven, CT 06509 203-777-3631
§ Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327 717-424-8510
† McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550 609-799-0100
† Mitec Elctrns., 15 Commerce St., Williston, VT 05495 802-864-0064
§† Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351
§† Penn Fibre & Spec., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124 215-288-7366
† Premier Microwave, 35 New Broad St., Port Chester, NY 10573 914-939-8900
§† Press-On Prods., 39 Factory Rd., Addison, IL 60101 312-628-2255
† Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 201-985-8800
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505 814-455-0966
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 213-357-3287
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 716-621-8400
§† Tech-Etch Inc., 45 Aldrin Rd., Plymouth, MA 02360 617-747-0300

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Gears & Gear Mechanisms (Precision)-2500

Maxon Precision Motors, Inc., 838 Mitten Rd., Burlingame, CA 94010, 415-697-9614 ....1B•1163
† Micro Mo Electronics, Inc., 742 2nd Ave. S., St. Petersburg, FL 33701, 813-822-2529 ....1B•1164,3•1135
† Portescap Transicoil, Trooper Rd., P.O. Box 99, Worcester, PA 19490-9990, 215-277-1300 ....1B•1172
Portescap U.S., 1547 Trooper Rd., P.O. Box 666, Worcester, PA 19490, 215-277-0433 ....1B•1172
Airpax/NA Philips Controls Corp., Ft. Lauderdale Div., 6801 W. Sunrise Blvd., Ft. Lauderdale, FL 33313 305-587-1100
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
† Bowmar Instrument Corp., Aerospace Div., 8000 Bluffton Rd., Ft. Wayne, IN 46809 219-747-3121
† Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 ....212-597-1773;914-699-7223
† EEMCO Div., 4585 Electronics Pl., Los Angeles, CA 90039 213-247-7060
§ Electrol Co., 321 Dewey St., P.O. Box 29, York, PA 17405 717-848-1722
† Evershed & Vignoles Ltd., Acton Lane, Chiswick, London, W4 5HJ England 01-994-3670
Gibson/Egan, 2666 East Huntington Dr., Duarte, CA 91010 818-358-0191
Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702 914-968-8400
† IMC Magnetics Corp., Eastern Div., 570 Main St., Westbury, NY 11590 516-334-7070
† Industrial Control Co., 3100 Pineda Ave., Rockledge, FL 32955 305-259-7105
† Instru-Lec, 520 Homestead Ave., Mt. Vernon, NY 10550 914-668-3754
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 213-452-6000
† Machine Components Corp., 70 Newtown Rd., Plainview, NY 11803 516-694-7222
† Micro-Products Engrg. Co., 230 Ridgewood Ave., Newark, NJ 07108 201-824-8467
Millen Components, Electronic Instr. & Specialty Corp., 42 Pleasant St., Stoneham, MA 02180 617-438-6951
§ Perfect Gear & Instr., 55 S. Denton Ave., New Hyde Park, NY 11040 516-328-3300
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
† Precision Mechanisms, 44 Brooklyn Ave., Westbury, NY 11590 ....516-ED3-5955
Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
† Stock Drive Prods., Div. of Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-0200
† Valley Electromagnetics Corp., P.O. Box 557, Crystal Lake, IL 60014 815-459-3080
† Valley Electromagnetics, P.O. Box 131, Spring Valley, IL 61362 815-664-2348
† Western Gear Corp., Applied Tech. Div., 14724 E. Proctor, City of Industry, CA 91744 818-968-6525

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Glass Parts-2500

† Applied Instrs., Inc., 25 Will Place, Brooklyn, NY 11207 212-257-0885
† Atlantic Optical Moulding, Ellis St., P.O. Box 309, Dudley, MA 01570 617-943-1746
Corning Glass Works, Main Plant, MS 2136, Corning, NY 14831 607-974-4102
§ EDL Inc., 385 Oser Ave., Hauppauge, NY 11787 ....516-435-2808;800-DIAL EDL; 800 342-5335
Garner Glass Co., 177 S. Indian Hill Blvd., Claremont, CA 91711 714-624-5071
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
Kontes, Kimble Div. of Owens/IL, 1001 Spruce St., Vineland, NJ 08360 609-692-8500

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Graphite Parts-2500

Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702, 914-968-8400 ....1B•1156
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
† Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000
§ Carbone Lorraine Inds., 400 Myrtle Ave., Boonton, NJ 07005 ....201-DE4-0700
Carbone USA Corp., Carbone Lorraine Inds. Corp., 402 Myrtle Ave., Boonton, NJ 07005 201-334-0700
Laser Techn., 10624 Ventura Blvd., N. Hollywood, CA 91604 213-763-7091
Stackpole, Carbon Div., St. Marys, PA 15857 814-781-1234
Superior Carbon Prods. Inc., 9115 George Ave., Cleveland, OH 44105 216-883-4880
Ultra Carbon, Box X-747, Bay City, MI 48707 517-894-2911

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Grilles, Metal, Plastic-1400

ETRI, 608 Broome St., P.O. Box 568, Monroe, NC 28110, 704-289-5423 ....2•1820
Atmosphere Controls Prods., 295 Polaris, Mountain View, CA 94043 415-969-2640
§ Fourjay Industries, Box 1465 Northridge Br., Dayton, OH 45414 513-278-9416
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
LaFrance Corp., Entprs & Exec Aves, Philadelphia, PA 19153 215-365-8000
§ Martin Sound Prods., 28 Alpha Park, Cleveland, OH 44143-2297 216-442-2286
† McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550 609-799-0100
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084 ..404-939-6340
§† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451 212-993-9200
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sparkomatic, Rte. 6 & 209, Milford, PA 18337 717-296-6444
§ SPECO Div., Components Specialties, Inc., P.O. Box 624, 1172 Rte. 109, Lindenhurst, NY 11757 ....516-957-8700;800-645-5516
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505 717-346-3871
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
§ TWP, Inc., 2133 4th St., Berkeley, CA 94710 415-548-4434
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Grommets & Bushings-2800

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ....2•1215,1225
§ E-A-R Div., Cabot Corp., 7911 Zionsville Rd., Indianapolis, IN 46268, 317-872-1111 ....2•1867
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033; 800-526-4182 ....2•1861
Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 ....2•1489
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 ....2•2138
§† Aimsco Inc., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056 206-284-5563
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Budwig Mfg., P.O. Box 829, Ramona, CA 92065 619-789-0900
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
† Gasket Intl. Inc., 49 Ackerman St., Bloomfield, NJ 07003 201-338-6814
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 .213-777-8108
§ POP Fasteners Div., 510 River Rd., Shelton, CT 06484 203-735-9341
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

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§ Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 ....2•1009
Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731, 818-575-8144 ....2•1015, 1017
§ Bivar, Inc., 4 Thomas, Irvine, CA 92714, 714-951-8808 ....2•1018
§† Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 ....2•1019
§† Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776, 213-287-0451 ....2•1021
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ....2•1223
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067, 215-682-7181 ....2•1028
Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649, 714-891-5305 ....2•1890
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104, 717-232-0500 ....2•1542
§† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 ....2•1045
Suckle Corp., 733 Davis St., Dept. EM, Scranton, PA 18505, 717-346-3871 ....2•1058
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ....2•1655
Unibox, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516, 714-686-1400 ....2•1005
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, 215-692-0800 ....2•1068
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 ....2•1069,3•1117

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Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§ Circuit Structures Lab., Div. D-Cemco Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 818-849-6341
Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933
Components Corp., 6 Kinsey Pl., Denville, NJ 07834 201-627-0290
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
§† E-Tronics, 16774 Schoenborn, Sepulveda, CA 91343 213-892-7279
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Gibson/Egan, 2666 East Huntington Dr., Duarte, CA 91010 818-358-0191
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153 215-365-8400
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 213-357-3287
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
† Taurus Corp., Academy Hill, P.O. Box 278, Lambertville, NJ 08530 609-397-2390
§† Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 716-232-1291
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

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Handlers, Integrated Circuit (Automatic)-4100 — *See Vol. 3*

Handles For Cabinets, Circuit Boards, Racks, etc.-1400

§ **Bivar, Inc., 4 Thomas, Irvine, CA 92714, 714-951-8808 .... 2•1018**
† **Chassis-Trak, P.O. Box 39100, Indianapolis, IN 46239, 317-897-7000 .... 2•1033**
§† **Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1223,1237,1238**
† **General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1033**
§† **Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1767**
† **Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084, 404-939-6340 .... 2•1048**
§† **Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451, 212-993-9200 .... 2•1045**
§ **Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1565**
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1596
Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 .... 2•1868
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
Adams Rite Prods., Inc., 540 W. Chevy Chase Dr., Glendale, CA 91209 213-241-5121
§† Aimsco Inc., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056 206-284-5563
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§ Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731 818-575-8144
§† Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776 213-287-0451
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
Davies, Harry, Molding Co., 4920 Bloomingdale Ave., Chicago, IL 60639 312-622-8966
Eberhard Mfg. Co., Div., Eastern Co., 21944 Drake Rd., Strongsville, OH 44136 216-238-9720
§† Electronic Hardware, 320 Broad Hollow Rd., Farmingdale, NY 11735 516-752-1950
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 716-894-5710
Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 .... 213-849-6211; 800-423-2734
† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153 215-365-8400
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
† Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
† Southco, Inc., Concordville, PA 19331 215-459-4000
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
† Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064 .... 213-478-0046; 800-TECHMAR
Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 716-232-1291
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380 215-692-0800
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§† Vemaline Prods. Div., 487 Jefferson Blvd., Warwick, RI 02886 401-739-7600
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

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Headers, Hermetic — See Seals, Hermetic (Vol. 2), Services, Hermetic Sealing (Vol. 3),

Headers, Relay & Transformer-2500

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
Aura Mfg., 50 McDermott Rd., New Haven, CT 06473 203-777-2541
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
Essex Group, 9933 13th St., Ft. Wayne, IN. 46809 219-478-1521
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Moldtronics, Inc., 707 Roger St., Downers Grove, IL 60515 312-968-7000
Morris Entprs., 16799 Schoenborn St, Sepulveda, CA 91343 213-894-9103
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388

Headers, Shrouded-2500

§ **Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060, 216-354-9239 .... 2•1161**
Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... 2•1278,1279
§† **H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810, 203-794-1798 .... 2•1320,1321**
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 .... 800-237-BERG
§† 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600

Headers, Transistor & Diode-2500

§ **Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1149**
† Airpax Corporation, Woods Rd., Cambridge, MD 21613 301-228-4600
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Moldtronics, Inc., 707 Roger St., Downers Grove, IL 60515 312-968-7000
§ Motorola Semiconductor Prods. Sector, Adv. 72, Box 20912, Phoenix, AZ 85036 602-244-6900
† National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600

Headphones-1300 — *See Vol. 3*

Heads, Magnetic Recording-1300 — *See Vol. 3*

Heads, Reflective-3700 — *See Vol. 1B*

Headsets (MIL)-2440 — *See Vol. 1B*

Heat Dissipators — See Heat Sinks, Semiconductor (Vol. 2), Heat Sinks, Soldering (Vol. 2),

Heaters, Immersion-4100 — *See Vol. 3*

Heaters & Heating Elements (For Components & Equipment)-5300 (Also See Ovens) — *See Vol. 1B*

Heat Exchangers & Systems-2600

† **Electro Impulse, Box 870, Red Bank, NJ 07701-0870, 201-741-0404 .... 2•1817**

† McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550, 609-799-0100 .... 2•1824
† McLean Midwest, 4000 83rd Ave. N., Brooklyn Pk., MN 55443, 612-561-9400 .... 2•1827
TECA, ThermoElectric Cooling America Corp., 448 N. Halsted St., Chicago, IL 60622, 312-666-1600 .... 2•1805
§ AAVID Engrg., 30 Cook Ct., Laconia, NH 03246 603-524-4443
§ Aerotronic Assocs., Inc., Riverside Dr., Contoocook, NH 03229 603-746-4631
† Aham Tor Inc (ATI), 999, 27901 Front St., Rancho California, CA 92390 714-676-4151
Astrodyne, 35 Executive Dr., Hudson, NH 03051 603-880-8600
† Bemco, 9908 San Fernando Rd., Pacoima, CA 91331 818-899-5296
Bird Elctrn., 30303 Aurora Rd., Cleveland, OH 44139 216-248-1200
Capitol Temptrol, 5 Coulton Rd., Old Lyme, CT 06371 203-739-4421
Corning Glass Works, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830 607-974-9000
Corning Glass Works, Telecomm Prods Dept., BH-5, Corning, NY 14830 607-974-9000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
EG & G Rotron, Commercial Div., Shokan, NY 12481 914-657-6661
† EG & G Rotron, Custom Div., Hasbrouck La., Woodstock, NY 12498 914-679-5201
§ EG&G Wakefield Engrg., 60 Audubon Rd., Wakefield, MA 01880 617-245-5900
† Electro-Optical Inds., Box 3770, Santa Barbara, CA 93105 805-964-6701
Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
§ International Rectifier Corp., Semiconductor Div., 233 Kansas St., El Segundo, CA 90245 213-772-2000
† Kooltronic, Hamilton Ave., Hopewell, NJ 08525 609-466-3400
† Lepel, 59-21 Queens-Midtown Expwy., Maspeth, NY 11378 212-426-4580
Melcor/Materials Elctrn. Prods., 994 Spruce St., Trenton, NJ 08648 609-393-4178
† Merrill, POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437 215-643-2116
Micronel U.S., 2142F Industrial Ct., Sycamore Research Center, Vista, CA 92083 619-727-7400
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
Technipower, A Penril Co., P.O. Box 222, Commerce Pk., Danbury, CT 06810 203-748-7001
§ Temptronic, 55 Chapel St., Newton, MA 02158 617-969-2501
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
WEI Corp., 1405 S. Village Way, Santa Ana, CA 92705 714-834-9333
§ Wellman Thermal Sys., 1 Progress Rd, Shelbyville, IN 46176 317-398-4411

Heat Guns, Production-5400

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Commercial Elec. Heating Devices & Mfg., Inc., 1008 E. Garvey Blvd., Monterey Park, CA 91754 213-288-9445
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
§ GTE Corp., Sylvania Emissive Prods./Process Heat, Portsmouth Ave., Exeter, NH 03833 603-772-4331
Henes Prods., 4301 E. Madison St., Phoenix, AZ 85034 602-275-4126
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§† Master Appliance Corp., 2420 18th St., Box 68, Racine, WI 53403 .414-633-7791
Micronel U.S., 2142F Industrial Ct., Sycamore Research Center, Vista, CA 92083 619-727-7400
§ Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945 617-631-7100
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
§ Pamran, 1101 Cedar Creek, Racine, WI 53402 414-639-9076
Penntube Plastics, Madison Ave. & Holly St., Clifton Heights, PA 19018 215-622-2300
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
Sigma Systems Corp., 3163 Adams Ave., San Diego, CA 92116 619-283-3193
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ Ungar, Div. Eldon Inds., Inc., 100 W. Manville St., Compton, CA 90224-6005 213-774-5950

Heating Elements, Infrared-5300 — *See Vol. 1B*

Heat Pumps — See Cooling/Heating Modules, Thermoelectric (Vol. 1B)

Heat Shrinkable Elastomers, Plastics — See Caps, Forms & Tapes, Heat Shrinkable (Vol. 2), Tubing, Heat Shrinkable (Vol. 2),

Heat Sinks, Semiconductor-2600

Delbert Blinn Co., Box 2007, Pomona, CA 91766, 714-629-3900 .... 1A•2093
§ AAVID Engrg., 30 Cook Ct., Laconia, NH 03246 603-524-4443
† Aham Tor Inc (ATI), 999, 27901 Front St., Rancho California, CA 92390 714-676-4151
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
† Astro Dynamics, Inc., 2 Gill St., Woburn, MA 01801 617-935-4944
Astrodyne, 35 Executive Dr., Hudson, NH 03051 603-880-8600
Atlee Inc., One Gill St., Woburn, MA 01801 617-933-3510
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§† Bergquist, 5300 Edina Ind'l., Minneapolis, MN 55435 612-835-2322
Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731 818-575-8144
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§ EG&G Wakefield Engrg., 60 Audubon Rd., Wakefield, MA 01880 617-245-5900
Fab-Tek Inc., 68 Morgan Ave., Danbury, CT 06810 203-743-3312
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
General Electric Co., Power Elctrns. Semiconductor Dept., W. Genesee St., Auburn, NY 13021 315-253-7321
§ Hobson Bros., 4940 W. Lawrence Ave., Chicago, IL 60630-3884 312-283-3600
§ IERC, 135 W. Magnolia Blvd., Burbank, CA 91502 818-849-2481
Thermal Prods. Group, IMC Magnetics Corp., 100 Jericho Quad., Ste. 221, Jericho, NY 11753 516-938-0800
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
§ Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
Merrill, POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437 215-643-2116
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
§ NEC Elctrns. USA Inc., NEC Electron Div., 252 Humboldt Ct., Sunnyvale, CA 94086 408-745-6520
Plessey Ceramic Div., 8th & Harrison Sts., Frenchtown, NJ 08825 ..201-996-2121
§ RCA Distr. & Special Prods. Div., RCA Corp., 2000 Clements Bridge Rd., Deptford, NJ 08096 609-541-3636
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706 516-666-8000
§ Sylvania Electronic Components, Philips ECG Inc., A North American Philips Co., 100 First Ave., Waltham, MA 02254 617-890-6107
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
Tran-Tec, Box 1044, Columbus, NE 68601 402-564-2748
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380 215-692-0800
§† Vemaline Prods. Div., 487 Jefferson Blvd., Warwick, RI 02886 401-739-7600
WEI Corp., 1405 S. Village Way, Santa Ana, CA 92705 714-834-9333
§ Westinghouse Elec. Corp., Semiconductor Div., Armbrust Rd., Youngwood, PA 15697 412-925-7272
§ Winslow Intl., 2471 E. Bayshore 20, Palo Alto, CA 94303 415-856-0552

Heat Sinks, Soldering-4600

American Etching & Mfg., 13730 Desmond St., Pacoima,, CA 91331 213-896-1187
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
§† Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731 818-575-8144
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
Delbert Blinn Co., Box 2007, Pomona, CA 91766 714-629-3900
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§ EG&G Wakefield Engrg., 60 Audubon Rd., Wakefield, MA 01880 617-245-5900
§ Engineering & Elctrn. Devices, 1024 N. McCadden Pl., Los Angeles, CA 90038 213-463-4175
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706 516-666-8000
Syntel Div., Tegam, Inc., 7230 North Ridge Rd., Madison, OH 44057 216-428-7505
TECA, ThermoElectric Cooling America Corp., 448 N. Halsted St., Chicago, IL 60622 312-666-1600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Tempil Div., Big Three Inds., Hamilton Blvd., S. Plainfield, NJ 07080 201-757-8300
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380 215-692-0800
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

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Hinges-2825

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1235

Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 .... 2•1491

Eberhard Mfg. Co., Div., Eastern Co., 21944 Drake Rd., Strongsville, OH 44136 216-238-9720

Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200

Holders, Battery — See Retainers, Battery (Vol. 2), Connectors, Battery (Vol. 2),

Holders, Brush — See Brushes & Brush Assemblies (Vol. 1B)

Holders, Circuit Board (Production Type)-4100 — ***See Vol. 3***

Holders, Crystal-2300 — ***See Vol. 1A***

Holders, Diode-2500

§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913

† Sage Laboratories, Inc., 3 Huron Dr., Natick, MA 01778 617-653-0844

Holders, Fuse — See Clips & Holders, Fuse (Vol. 1B), Panels, Fuse (Vol. 1B),

Holders, Lamp — See Sockets, Lamp & Lamp Assemblies (Vol. 1B)

Holders, Test Lead-2900 — ***See Vol. 3***

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Holders & Carriers, Chip (Capacitor, IC, LSI)-2100

ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708, 714-964-7400 .... 2•1353

Mini-Systems, Inc., Electronic Package Div., 168 E. Bacon St., P.O. Box 1597, Plainville, MA 02762, 617-695-2000 .... 1A•1666

Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1608

§ **Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 .... 2•1755**

American Etching & Mfg., 13730 Desmond St., Pacoima, CA 91331 213-896-1187

AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100

Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800

§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600

Gibson/Egan, 2666 East Huntington Dr., Duarte, CA 91010 818-358-0191

Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200

3M Co., Tech Ceramic Resources, 3M Center 225-4W, St. Paul, MN. 55101 617-736-0601

§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400

† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200

§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 214-243-0611

§ Schott Elctrns., Hershey Dr., Ansonia, CT 06401 203-736-2677

§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Holders & Carriers, IC, LSI (Packaged)-3130 — ***See Vol. 1A***

Honeycomb Sheets, Panels, etc.-2500

† **Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... 2•1923**

Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988

† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850

Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515

Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800

§† Lectro Magnetics, Inc., 6056 W. Jefferson Blvd., Los Angeles, CA 90016 .... 213-870-9383;800-325-9814

† Nurad, Inc., 2165 Druid Pk. Dr., Baltimore, MD 21211 301-462-1700

Hoods, Oscilloscope-2975 — ***See Vol. 3***

Housings, Circuit Module — See Enclosures, Circuit Board, Module & Relay Mounting (Vol. 2)

Housings, Photomultiplier Tube — See Photomultiplier Tube Housings (Vol. 1A)

Housings, Terminal-1400

Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1151

Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... 2•1743

Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913

Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 .... 800-237-BERG

BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400

Contact Electronics Inc., 30 Plymouth St., Fairfield, NJ 07006 .... 201-575-7660; 800-221-1451

Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067 215-682-7181

Hum Eliminators-2700 — ***See Vol. 1A***

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Identification, Friend or Foe (IFF) ESM (MIL)-3475 — ***See Vol. 3***

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Indicators, Azimuth-5500 — ***See Vol. 1B***

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Indicators, Electromechanical — See Indicators, Circuit Condition, On / Off (Vol. 1B)

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Indicators, Directional-2200 — ***See Vol. 3***

Indicators, Illumination — See Meters, Light (Nonphotographic) (Vol. 3)

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Indicators, Null-2900 — ***See Vol. 3***

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Indicators, Positioning-2200 — ***See Vol. 3***

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Indicators, Pressure — See Gauges, Pressure (Vol. 3)

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Indicators, Speed-3500 — ***See Vol. 1B***

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Indicators, Temperature (Not Meter Type)-5300 — ***See Vol. 1B***

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Indicators (MIL), Fault Locating-3475 — ***See Vol. 3***

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Infrared (IF) Equipment (MIL)-3475 — *See Vol. 3*

Inks for Thick Film Microcircuits-1700

† Advanced Coatings & Chem., 4343 Temple City Blvd., Temple City, CA 91780 818-579-6270
† DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 ..617-448-5485
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
† Ferro, Thick Film Sys. Div., 25 CASTILIAN DR., Santa Barbara, CA 93117 805-968-5000
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
Ohmtek, Inc., 2160 Liberty Dr., Niagara Falls, NY 14304 716-283-4025
Transene, Rte. 1, Rowley, MA 01969 617-948-2501

Input/Output Equipment, Voice-2000 — *See Vol. 3*

Input/Output Switching Modules — See Modules, Control & Switching (Vol. 3)

Inserters, DIP & IC — See Extractors, DIP & IC (Vol. 2)

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Instruments, Test & Measuring, GPIB (IEEE 488) Compatible-2900 — *See Vol. 3*

Insulation Materials-3100

§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2092
§† HumiSeal Div., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377, 212-932-0800 .... 2•1083
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 .... 2•1913
§ Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945, 617-631-7100 .... 2•2133
† Zeus Indl. Prods. Inc., P.O. Box 298, Raritan, NJ 08869, 201-526-0800; 800-526-3842 .... 2•1871
Acme Chem. & Insulation, 166 Chapel St., New Haven, CT 06513 ...203-562-2171
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Armstrong World Inds., W. Liberty St., Lancaster, PA 17604 717-397-0611
† Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Bird, Richard H., & Co., Inc., 1 Spruce St., Waltham, MA 02154 617-894-0160
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
† Cleveland Mica Co., 1360 Hird Ave., Lakewood, OH 44107 216-226-1360
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
Dow Corning Corp., Box 1767, Midland, MI 48640-0994 517-496-4000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Ferro Corp., Composites Div., 34 Smith St., Norwalk, CT 06852 203-853-2123
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 415-592-9440
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
† Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865 401-723-2100
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
3M Co., Tech Ceramic Resources, 3M Center 225-4W, St. Paul, MN. 55101 617-736-0601
§ Murata Mfg. Co. Ltd., 26-10 2-chome-Temjin, Nagaoka-Kyo-Shi, Kyoto, Japan 075-921-9111
§† National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
§† Penn Fibre & Spec., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124 215-288-7366
Rexnord Chemical Prods. Inc., 6120 E. 58th Ave., Commerce City, CO 80022 303-289-5651
† Rogers Corp., One Technology Dr., Rogers, CT 06263 203-774-9605
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
† Saphikon, 51 Powers St., Milford, NH 03055 603-673-5831
Schweitzer, Div., Kimberly Clark Corp., Lee, MA 01238 413-243-1000
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Thermal Amer. Fused Quartz, Change Bridge Rd., Montville, NJ 07045 201-334-7770
Ultra Carbon, Box X-747, Bay City, MI 48707 517-894-2911
§† Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
§ Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

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§ Bivar, Inc., 4 Thomas, Irvine, CA 92714, 714-951-8808 .... 2•1018
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1173,1233
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2092
Delbert Blinn Co., Box 2007, Pomona, CA 91766, 714-629-3900 ....1A•2093
Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033; 800-526-4182 .... 2•1861
§ Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 818-875-0213 .... 2•1314,1315
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1501
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 .... 2•1913
† Robison Elctrns., P.O. Box Y, San Luis Obispo, CA 93406, 805-544-8000 .. 2•1870, 1857
Semiconductor Circuits, 49 Range Rd., Windham, NH 03087, 603-893-2330 .... 2•1865
Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 .... 2•1868
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 ..914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
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† Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
§† Bergquist, 5300 Edina Ind'l., Minneapolis, MN 55435 612-835-2322
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
† BTU Engrg. Corp., Bruce Sys., Esquire Rd., N. Billerica, MA 01862 .617-667-4111
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† Cleveland Mica Co., 1360 Hird Ave., Lakewood, OH 44107 216-226-1360
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ...219-784-3011
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
† Garner Glass Co., 177 S. Indian Hill Blvd., Claremont, CA 91711 714-624-5071
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
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Quartzite Processing, Inc., 6 Holyoke St., Malden, MA 02148 617-322-1380
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Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
Star Porcelain, 71 Muirhead Ave., Trenton, NJ 08638 609-392-3154
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ...615-867-4100
† Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
Tran-Tec, Box 1044, Columbus, NE 68601 402-564-2748
Ultra Carbon, Box X-747, Bay City, MI 48707 517-894-2911
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Weckesser Co. Inc., 4444 W. Irving Park Rd., Chicago, IL 60641 312-282-8626
§ Winslow Intl., 2471 E. Bayshore 20, Palo Alto, CA 94303 415-856-0552
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Insulators, Antenna-3100

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Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ... 216-365-1211
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† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 ... 201-423-0505
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
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§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 ... 617-828-3300
ITT Jennings, Div. ITT Corp., 970 McLaughlin Ave., San Jose, CA 95122 ... 408-292-4025
Nitto Denko America, Inc., 27 Seaview Blvd., Port Washington, NY 11050 ... 516-484-9700
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 ... 516-249-7245
Nyltite, 3451 S. Clinton Ave., S. Plainfield, NJ 07080 ... 201-561-1300
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 ... 314-481-2450
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
Star Porcelain, 71 Muirhead Ave., Trenton, NJ 08638 ... 609-392-3154

Insulators, Bushing (Metallized) — See Bushings, etc. (Vol. 2)

Insulators, Clip, Test & Battery-3100

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ... 2•1225
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2092
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 ... 2•1485
§† Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 ... 2•1528,1529,3•1265
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ... 216-365-1211
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ... 215-825-4990

Insulators, Mica-3100

† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106 ... 312-766-7800
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 ... 704-765-4241
§ Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 ... 716-232-1291

Integrated Circuit Handlers — See Handlers, Integrated Circuit (Automatic) (Vol. 3)

Integrated Circuit Interconnect Systems-3200

§ Bivar, Inc., 4 Thomas, Irvine, CA 92714, 714-951-8808 ... 2•1018
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 ... 2•1095,3•1117
AMP Incorporated, Box 3608, Harrisburg, PA 17105 ... 717-564-0100
Ark-Les, 51 Water St., Watertown, MA 02172 ... 617-924-2330
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ... 800-237-BERG
BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 ... 516-234-0400
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 ... 203-838-4444
§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 ... 714-497-1506
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 ... 415-483-8770
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 ... 714-558-8755
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 ... 401-769-3800
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 ... 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 ... 215-949-2300
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 ... 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 ... 714-752-3800
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 ... 213-991-9614
† Isotronics, Industrial Park, New Bedford, MA 02745 ... 617-998-2000
3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 ... 612-733-7408
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ... 312-867-9600
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 ... 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
Mupac, 10 Mupac Dr., Brockton, MA 02401 ... 617-588-6110
† National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 ... 201-839-1600
† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 ... 603-424-4111
PCK Technlg. Div./Kollmorgen Corp., 322 South Service Rd., Melville, NY 11747 ... 516-454-4400
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013 ... 717-243-5929
Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 ... 812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 ... 812-944-6733
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 ... 213-579-2300
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 408-980-1600

Integrated Circuit Design Aids-4200

§† Advanced Microcomputers, 3340 Scott Blvd., Santa Clara, CA 95051 ... 408-732-2400
§† Advanced Micro Devices, P.O. Box 3453, 901 Thompson Pl., Sunnyvale, CA 94088 ... 408-732-2400
Exar Integrated Sys., P.O.B. 62229, Sunnyvale, CA 94088 ... 408-732-7970
Fairchild Camera & Instr. Corp., 464 Ellis St., MS15-1035, Mountain View, CA 94042 ... 415-962-5011
Holt Inc., 8 Chrysler Ave., Irvine, CA 92714 ... 714-859-8800
Integrated Circuit Engrg. Corp. (ICE), 15022 N. 75th St., Scottsdale, AZ 85260 ... 602-998-9780
† Interdesign, Inc., 1500 Green Hills Rd., Scotts Valley, CA 95066 ... 408-438-2900
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 ... 213-991-9614
International Microelectronic Prods., 2830 North First Street, San Jose, CA 95134 ... 408-262-9100
† Isotronics, Industrial Park, New Bedford, MA 02745 ... 617-998-2000
Linear Technlg., P.O. Box 489, Sta. "A", Burlington, ON L7R 3Y3 Canada ... 416-632-2996
MCE Semiconductor, 1111 Fairfield Dr., West Palm Beach, FL 33407 ... 305-845-2837
Polycore Elctrns., 1107 Tourmaline Dr., Newbury Pk., CA 91320 ... 213-991-1061
§† Raytheon Semiconductor, 350 Ellis St., Mountain View, CA 94043 ... 415-968-9211
§ Rockwell Int'l., 4311 Jamboree Rd., Newport Beach, CA 92660 ... 800-854-8099
Tektronix, Inc., P.O. Box 500, V3-314, Beaverton, OR 97077 ... 800-547-1512; Oregon only 800-452-1877
VLSI Technology, Inc., 1101 McKay Dr., San Jose, CA 95131 ... 408-942-1810
ZyMOS Corp., 477 N. Mathilda Ave., Sunnyvale, CA 94086 ... 408-730-8800; 408-730-5400

Integrated Circuits, Custom/Semicustom-3130 — *See Vol. 1A*

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Integrated Circuits, Interface-3130 — *See Vol. 1A*

Integrated Circuits, Linear-3130 — *See Vol. 1A*

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Interrupters, Power-4300 — *See Vol. 1B*

Interrupters, Vacuum-4300 — *See Vol. 1B*

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Isolators, Ferrite-3450 — *See Vol. 1A*

Isolators, Line-4050 — *See Vol. 3*

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Isolators, Optoelectronic-3700 — *See Vol. 1B*

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Jack Adapters (All Types)-2100

§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ... 2•1364,1370-1379,1398,1399
† Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 ... 2•1562,1563,2150
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ... 3•1303
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ... 216-365-1211
§† ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 ... 612-835-6800
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 ... 817-737-2900
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 ... 201-862-0022
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 ... 212-777-6571
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
§ Duotone, 6875 S.W. 81st St., S. Miami, FL 33143 ... 305-665-1121
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
Interlok, 770 Airport Blvd., Burlingame, CA 94010 ... 415-348-5625

ISL Products Intl. Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 516-822-9601

§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111

§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600

Modu-tel Corp., 1429 N. Halstead, Hutchinson, KS 67501 316-662-3302

§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440

§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080

Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600

Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700

Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282

§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700

§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Jack Covers-2100

Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294

† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022

Beau Products Div., Box 10, Laconia, NH 03247 603-524-5101

§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463

§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800

§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600

Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400

Pass & Seymour, Inc., P.O. Box 4822, Syracuse, NY 13221 315-468-6211

§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700

§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Jack Panel Assemblies & Access. — See Panels, Jack (Vol. 2)

Jacks (All Types)-2100

† Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 .... 2•1118,1119

AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... 2•1124,1125

§ Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1175-1188,1234,1241

Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... 2•1244,1245

§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... 2•2092, 2093

§† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... 2•1269

§ Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 818-875-0213 .... 2•1314,1315

International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 .... 2•1338

§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1357,1359-1366,1368-1370,1384-1388,1391,1392,1394-1396,1447, 1463

§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 .... 2•1494,1495

Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406, 707-578-8811 .... 2•1503-1507,1512

§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... 2•1530,1531

Power Dynamics, 177 Valley, S. Orange, NJ 07079, 201-762-6886 .... 2•1544,1545

Sealectro, 225 Hoyt St., Mamaroneck, NY 10543, 914-698-5600 .... 2•1561

Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... 2•1562,1563,2150

§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1565

§† Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 .... 2•1578,1582-1585

§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1707-1715

TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... 2•1734,1735

Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... 2•1742

§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 516-546-1751

Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211

§† ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800

§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800

§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304

§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900

† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022

† Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000

§† Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401

Barber-Colman Co., Indl. Instrs. Div., P.O. Box 2940, 1354 Clifford Ave., Loves Park, IL 61132 815-877-0241

Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124

Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451

Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 .... 800-237-BERG

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886

§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 212-691-9050

§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 215-969-4200

§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661

Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 .... 617-568-0451; 800-225-9228

† Imtronics Inds., 11930 31st Ct., Clearwater, FL 33520 813-577-9010

Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625

ISL Products Intl. Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 516-822-9601

§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222

§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840

Lab-Line Instrs., 15th & Bloomingdale, Melrose Park, IL 60160 312-450-2600

§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111

† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111

§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600

Middleburg Corp., Middco Connectors, 220 Albany Turnpike, Canton, CT 06019 203-693-8361

Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400

§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360

† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771 516-922-6000

§ Modu-tel Corp., 1429 N. Halstead, Hutchinson, KS 67501 316-662-3302

Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640

National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400

§ Neutrik Products, 77 Selleck St., Stamford, CT 06902 203-348-2121

Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660

§† Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300

† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151

§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080

§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733

Schurter, Inc., 1016 Clegg Ct., Petaluma, CA 94952 707-778-6311

Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700

SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960

§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010 203-582-9561

§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700

† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020

† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376

§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

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Jumpers, Bonding-2100

§† **Janco Corp., Box 3038-Glenoaks Sta., Burbank, CA 91504, 818-846-1800 .... 1B•1668**
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1499
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Beau Products Div., Box 10, Laconia, NH 03247 603-524-5101
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
§† Excel Specialty Corp., 6335 N. Broadway, Chicago, IL 60660 312-262-4781
Mini-Systems, Inc., 20 David Rd., North Attleboro, MA 02761 617-695-0203
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 818-245-9121
§ Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361

Jumpers, Circuit Board-2100

Allen-Bradley Co., 1201 S. Second St., Milwaukee, WI 53204, 414-671-2000 .... 1A•1802
§ **A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060, 216-354-2101 .... 2•1900**
Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060, 216-354-9239 .... 2•1161
§ **Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1149,1152**
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 .... 2•1255
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 .... 1A•1876
§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1426,1446,1447**
Micro-Ohm Corp., 4900 Santa Anita Ave., El Monte, CA 91731, 818-442-3310; 213-686-0535 .... 1A•1894
§† **RCD Components, Inc., 330 Bedford St., Manchester, NH 03101, 603-669-0054 .... 1A•1929**
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1607
§ **TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1706**
§ **TRW Resistive Products Div., TRW Electronic Components Grp., 401 N. Broad St., Philadelphia, PA 19108, 215-922-8900 .... 1A•1944,1990**
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
B & G Precision Elctrns., 538 Maple Ave., Doylestown, PA 18901 ... 215-348-4413
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ... 800-237-BERG
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Cross Elctrns., 100 Commonwealth Dr., Warrendale, PA 15086 412-776-1591
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 215-969-4200
§ Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
† Fancort Industries, Inc., 111 Clinton Rd., Fairfield, NJ 07006 201-575-0610
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
§ Holmberg Elctrns., Asheville Hwy., Inman, SC 29349 803-472-4141
† Kantz Elctrn. Ind., 1804 Wall Church Rd., Wall Township, NJ 07719 201-974-0090
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 203-348-7761
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ... 312-532-1800
RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 818-245-9121
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§ Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077 216-354-0925
§† T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376

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Keyboards, Ferrite Core-5150 — *See Vol. 1B*

Keyboards, Full Travel-5150 — *See Vol. 1B*

Keyboards, Hall Effect-5150 — *See Vol. 1B*

Keyboards, Hard Contact-5150 — *See Vol. 1B*

Keyboards, Low Profile-5150 — *See Vol. 1B*

Keyboards, Membrane-5150 — *See Vol. 1B*

Keyboards, Modular-5150 — *See Vol. 1B*

Keyboards, Pad-5150 — *See Vol. 1B*

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Kits, Breadboarding (For Engineers)-4200

§ **A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060, 216-354-2101 .... 2•1901**
Industrial Computer Designs, Inc., 31121 Via Colinas 1005, Westlake Village, CA 91362, 818-889-3179 .... 3•1111
§ **Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... 2•1094,1095,3•1117**
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Baytron, 344 Salem St., Medford, MA 02155 617-391-1550
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§ Birtcher Corp., 4501 N. Arden Dr., El Monte, CA 91731 818-575-8144
Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 818-991-2600
§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
Circuit Structures Lab., Div, D-Cemco Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 818-849-6341
Clarostat Mfg., Washington St., Dover, NH 03820 603-742-1120
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
§† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
§ Heath Co., Benton Harbor, MI 49022 616-982-3886
Holt Inc., 8 Chrysler Ave., Irvine, CA 92714 714-859-8800
Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649 714-891-5305
† Interdesign, Inc., 1500 Green Hills Rd., Scotts Valley, CA 95066 408-438-2900
§ International Comps. Corp., 105 Maxess Rd., Melville, NY 11747 516-293-1500
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026 314-343-1630
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Linear Technlg., P.O. Box 489, Sta. "A", Burlington, ON L7R 3Y3 Canada 416-632-2996
Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Multi-Tronix, 3210 Terry Dr, Toledo, OH 43613 419-472-0723
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
Pulse Instrs. Co., 1536 W. 25th St., San Pedro, CA 90732 213-548-1327
Rehlander Assocs., 363 Rantoul St., Beverly, MA 01915 617-922-5961
SMD Technology Svc. Ctr., North American Philips, 5855 N. Glen Pk. Rd., Milwaukee, WI 53209 800-431-4444
Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707 714-979-4770
Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
§ Sunshine Sci. Instr., 1810 Grant Ave., Philadelphia, PA 19115 215-673-5600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 .. 215-825-4990
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
§ Victory Engrg. Corp., Victory Rd., Springfield, NJ 07081 201-379-5900

Kits, Connector-2100

§ AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... 2•1123,1124, 1137
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936, 201-887-0571 .... 2•1471
Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
Bendix Corp., Electrical Comps. Div., Sidney, NY 13838 607-563-5324
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Deutsch Co., Deutsch Fiber Optics Div., 7001 W. Imperial Hwy., Los Angeles, CA 90045 213-649-1400
§ E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
† Hewlett-Packard Co., 1820 Embarcadero Rd., Palo Alto, CA 94303 .... Call Local Sls. Off.
Heyco Molded Products, Box 160, Kenilworth, NJ 07033 .... 201-245-0033; 800-526-4182
† Hollingsworth Solderless Terminal Co., 700 N.W. 57th Pl., Ft. Lauderdale, FL 33309 305-772-7660
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
Maury Microwave, 8610 Helms Ave., Cucamonga, CA 91730 714-987-4715
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§ Neutrik Products, 77 Selleck St., Stamford, CT 06902 203-348-2121
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
† Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Kits, Enclosure Prototyping-1400

Axis, Inc., 7825 Engineer Rd., Ste. 208, San Diego, CA 92111, 619-560-7737 .... 2•1010
Lansing Research Corp., 705 Willow Ave., P.O. Box 730, Ithaca, NY 14850, 607-272-3265 .... 2•1040
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 .... 2•1002,1042
† STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073, 213-204-0472 .... 2•1056
Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064, 213-478-0046; 800-TECHMAR .... 2•1062
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605 818-875-0800

Kits, Fiber Optic-2475 — *See Vol. 1B*

Kits, Marking (Dial, Instrument, Equipment, etc.)-2400

APA Division, 399 Executive Blvd., Elmsford, NY 10523, 914-592-7322 ...... 2•1924
§ Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 ... 2•1759, 2095
† Adcotech, 1980 Tarob St., Milpitas, CA 95035 408-943-9430
Allen Avionics, 224 E. 2nd St., Mineola, NY 11501 516-248-8080
§ Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
Chartpak, 1 River Rd., Leeds, MA 01053 413-584-5446
§ Eastern Marking Machines, 422 S Franklin St., Hempstead, NY 11550 516-483-7070
§ Electronic Trend Prods., 10080 N. Wolfe Rd., Ste. 372, Cupertino, CA 95014 408-996-7401
† JRW Inds., Inc., 2312 N Second St., Harrisburg, PA 17110 717-236-1418
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026 314-343-1630
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Metron Optics Inc., P.O. Box 690, Solana Beach, CA 92075-0690 ... 619-755-4477
† Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 .213-603-0400
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000
Systonics, Inc., Box 121, Winchester, MA 01890 617-729-4439
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§ Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Kits, Potentiometer, Rheostat-4750 — *See Vol. 1A*

Kits, Printed Circuit-1700

APA Division, 399 Executive Blvd., Elmsford, NY 10523, 914-592-7322 ...... 2•1924
Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 .... 2•1090
† Automated Prod. Equip. Corp., 142 Peconic Ave., Medford, NY 11763 516-654-1197
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 818-991-2600
§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
Cybernetic Micro Sys., P.O. Box 3000, 3000 Hwy. 84, San Gregorio, CA 94074 415-726-3000
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
§ Electronic Trend Prods., 10080 N. Wolfe Rd., Ste. 372, Cupertino, CA 95014 408-996-7401
Foredom Elec. Co., Blackstone Inds., Route 6, Bethel, CT 06470 203-792-8622
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542 516-671-6010
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026 314-343-1630
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
SMD Technology Svc. Ctr., North American Philips, 5855 N. Glen Pk. Rd., Milwaukee, WI 53209 800-431-4444
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§† Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

Kits, Programming Board-4200

† Crosspoint, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022, 201-941-4455 .... 1B•1574
Industrial Computer Designs, Inc., 31121 Via Colinas 1005, Westlake Village, CA 91362, 818-889-3179 .... 3•1111
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093 201-869-2200
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
UVP, Inc., 5100 Walnut Grove Ave., P.O. Box 1501, San Gabriel, CA 91778 818-285-3123

Kits, Shielding-4525

† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 .... 2•1913
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... 2•1916-1919,1921-1923
Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491 309-695-2511
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
† Craig Sys., 360 Merrimack St., Lawrence, MA 01842 617-688-6961
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
§† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
Ferronics, 66 N. Main St., Fairport, NY 14450 716-223-1010
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327 717-424-8510
§ Lectro Magnetics, Inc., 6056 W. Jefferson Blvd., Los Angeles, CA 90016 .... 213-870-9383;800-325-9814
MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148 617-321-4410
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000
† Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Kits, Terminal-2100

§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 .... 2•1492
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
† Hollingsworth Solderless Terminal Co., 700 N.W. 57th Pl., Ft. Lauderdale, FL 33309 305-772-7660
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 ..215-323-7120
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§ Teledyne Ansonia, Riverside Dr., Ansonia, CT 06401 203-735-9311
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

Kits, Training Aid-4200

† Arra Inc., 15 Harold Ct., Bay Shore, NY 11706 516-231-8400
§ Chartpak, 1 River Rd., Leeds, MA 01053 413-584-5446
Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
Digiac Corp., 175 Engineers Rd., Hauppauge, NY 11788 516-273-8600
Diversified Case Co., Ellis Ave., Off. 2, Whitesboro, NY 13492 315-736-3028
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
Electronic Kits Intl., Inc., 791 Redrock Rd., St. George, UT 84770 ... 801-628-3627
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
Hewlett-Packard Co., 1820 Embarcadero Rd., Palo Alto, CA 94303 .... Call Local Sls. Off.
† Interdesign, Inc., 1500 Green Hills Rd., Scotts Valley, CA 95066 408-438-2900
MCE Semiconductor, 1111 Fairfield Dr., West Palm Beach, FL 33407 305-845-2837
† Microlab/FXR, 10 Microlab Rd., Livingston, NJ 07039 201-992-7700
§ Midwest Comps., 1981 Port City Blvd., Muskegon, MI 49443 616-777-2602
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§ Paccom, 3928 148th NE, Redmond, WA 98052 .... 206-883-9200;800-426-6254
§ Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860

Kits, Training Aid-4200 (Cont'd)

Philips Test & Measuring Instrs., 85 McKee Dr., Mahwah, NJ 07430 201-529-3800
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990

Knobs & Dials-2400

§ **Alco Elctrn. Prods., Inc., 1551 Osgood St., N. Andover, MA 01845, 617-685-4371 .... 2•1758**
Bourns, Inc., Resistive Components Group, 1200 Columbia Ave., Riverside, CA 92507, 714-781-5050 .... 1A•2033
† **Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... 2•1019**
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1222
§ **Interlok, 770 Airport Blvd., Burlingame, CA 94010, 415-348-5625 .... 2•1761**
§† **Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1762,1772-1779**
† **Microavionics Corp., 3198-K Airport Loop Dr., Costa Mesa, CA 92626, 714-957-6904 .... 2•1781**
§ **Power Dynamics, 177 Valley, S. Orange, NJ 07079, 201-762-6886 .... 2•1782,1783**
§† **Rogan, 3455 Woodhead Dr., Northbrook, IL 60062, 312-498-2300 .... 2•1786**
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Cole Hersee, 20 Old Colony Ave., Boston, MA 02127-2467 617-268-2100
§† Davies, Harry, Molding Co., 4920 Bloomingdale Ave., Chicago, IL 60639 312-622-8966
§† Electronic Hardware, 320 Broad Hollow Rd., Farmingdale, NY 11735 516-752-1950
§ Front Panel Devices, Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
ISL Products Intl. Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 516-822-9601
§† Kurz-Kasch, Knob Div., 711 Hunter Dr., Wilmington, OH 45177 513-382-0966
Millen Components, Electronic Instr. & Specialty Corp., 42 Pleasant St., Stoneham, MA 02180 617-438-6951
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§† Radial Controls, 2555 E. 55th Place, Indianapolis, IN 46220 317-255-2796
§ Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Security Plastics Inc., 14427 N.W. 60th Ave., Miami Lakes, FL 33014 305-823-5440
§ Selco Products Co., 7580 Stage Rd., Buena Park, CA 90621 714-521-8673
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§† Vemaline Prods. Div., 487 Jefferson Blvd., Warwick, RI 02886 401-739-7600

Knobs, Limit Stop-2400

Alco Elctrn. Prods., Inc., 1551 Osgood St., N. Andover, MA 01845, 617-685-4371 .... 2•1758
§ **Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1778**
Amerex, P.O. Box 2815, Riverside, CA 92516 714-686-1400
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Front Panel Devices, Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
Kurz-Kasch, Knob Div., 711 Hunter Dr., Wilmington, OH 45177 513-382-0966
† Microavionics Corp., 3198-K Airport Loop Dr., Costa Mesa, CA 92626 714-957-6904
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 201-762-6886
§ Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300
§† Rogan, 3455 Woodhead Dr., Northbrook, IL 60062 312-498-2300

Knobs, Locking, Control Shaft-2400

§† **Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1778**
§ **Power Dynamics, 177 Valley, S. Orange, NJ 07079, 201-762-6886 .... 2•1782**
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
† Dupree, Inc., 9835 Dupree St., So. El Monte, CA 91733 818-442-4700
§ ETI Systems, Polaris Indl. Entprs., 215 Via Del Norte, Oceanside, CA 92054 619-757-7770
Front Panel Devices, Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
Kurz-Kasch, Knob Div., 711 Hunter Dr., Wilmington, OH 45177 513-382-0966
† Microavionics Corp., 3198-K Airport Loop Dr., Costa Mesa, CA 92626 714-957-6904
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§† Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

Knobs, Slip Clutch-2400

§† **Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1773,1778**
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Kurz-Kasch, Knob Div., 711 Hunter Dr., Wilmington, OH 45177 513-382-0966
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 201-762-6886

Knobs, Torque, Incremental, Ratio Drive-2400

§† **Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1762,1772**
§† **Rogan, 3455 Woodhead Dr., Northbrook, IL 60062, 312-498-2300 .... 2•1786**
Alco Elctrn. Prods., Inc., 1551 Osgood St., N. Andover, MA 01845 617-685-4371
Kurz-Kasch, Knob Div., 711 Hunter Dr., Wilmington, OH 45177 513-382-0966
† Microavionics Corp., 3198-K Airport Loop Dr., Costa Mesa, CA 92626 714-957-6904
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 201-762-6886
§ Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300

Labels, Pressure Sensitive, Adhesive-2400

§ **Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 .... 2•1759**
† Ashland Chemical, Ashland Oil, Inc., Box 2219, Columbus, OH 43216 614-889-3333
Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 818-991-2600
Brady, W.H., Co., Elctrn. Prods. Div., 6150 N. Flint Rd., Milwaukee, WI. 53201 414-332-8100
§ Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
Computype, Inc., 2285 W. County Road "C", St. Paul, MN 55113 .... 612-633-0633; 800-328-0852
Display Devices, Box 667, Encinitas, CA 92024 619-753-0113
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
GM Nameplate, Inc., 2040 15th Ave. West, Seattle, WA 98119 206-284-2200
Gordon, L., Packaging, 1050 S. Paca St., Baltimore, MD 21230 301-539-6537
† GraphTec Services, Inc., 1600 N.W. Madrid Way, Boca Raton, FL 33432 305-392-3373
† Hallmark Nameplate, Inc./Electropanel Co., 1855 New Highway, Farmingdale, NY 11735 516-454-0700
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
Inmac, 2465 Augustine Dr., Santa Clara, CA 95051 408-727-1970
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
† JRW Inds., Inc., 2312 N Second St., Harrisburg, PA 17110 717-236-1418
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Mantex Corp., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051 313-628-9711
Markem Corp., 1000 Congress St., Keene, NH 03431 603-352-1130
† Meyercord, 365 E. North Ave., Carol Stream, IL 60187 312-682-6200
§† Miller Dial Corp., 4400 N. Temple City Blvd., El Monte, CA 91734 818-283-5111
Oliver Advanced Engrg., 676 W. Wilson Ave., Glendale, CA 91203 818-240-0080
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
† Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 213-603-0400
† Screenprint/Dow Industries, 271 Ballardvale St., Wilmington, MA 01887 617-935-6395
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Stanpat Prods., 366 Main St., Port Washington, NY 11050 516-883-8400
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 716-621-8400
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
† Topflight, 160 East 9th Ave., York, PA 17404 717-843-9901

Labels, Coatings, Crayons, Pellets, etc., Temperature Indicating-5300 — *See Vol. 1B*

Laboratories, Testing — See Services, Electrical Measurement & Test (Vol. 3)

Lacing, Cable — See Cords & Tapes, Lacing (Vol. 2)

Laminates, Metal Clad (Including Copper)-2500

§ **Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542, 516-671-6010 .... 2•1091**
Alinabal, 28 Woodmont Rd., Milford, CT 06460 203-877-3241
Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 818-991-2600
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§ Electronic Trend Prods., 10080 N. Wolfe Rd., Ste. 372, Cupertino, CA 95014 408-996-7401
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
General Elec. Co., Electromaterials Bus. Dep., Coshocton, OH 43812 614-622-5310
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026 314-343-1630
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
† Mica Corporation, 8536 National Blvd., Culver City, CA 90230 213-837-8100
§† Miller Dial Corp., 4400 N. Temple City Blvd., El Monte, CA 91734 818-283-5111
† OAK Materials Group Inc., Laminates Div., 174 N. Main St., Franklin, NH 03235 603-934-5736
† Rogers Corp., One Technology Dr., Rogers, CT 06263 203-774-9605
† Semiconductor Packaging Matls. Co. Inc., 700 Waverly Avenue, Mamaroneck, NY 10543 914-698-5353
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 716-621-8400
Tech Materials, 5 Wellington Rd., Lincoln, RI 02865 401-333-1700
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

Laminates, Plastic Impregnated (Unclad)-2500

American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Brady, W.H., Co., Elctrn. Prods. Div., 6150 N. Flint Rd., Milwaukee, WI. 53201 414-332-8100
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§ General Elec. Co., Electromaterials Bus. Dep., Coshocton, OH 43812 614-622-5310
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Mica Corporation, 8536 National Blvd., Culver City, CA 90230 213-837-8100
Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
† OAK Materials Group Inc., Laminates Div., 174 N. Main St., Franklin, NH 03235 603-934-5736
§† Penn Fibre & Spec., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124 215-288-7366
† Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 213-603-0400
Rogers Corp., One Technology Dr., Rogers, CT 06263 203-774-9605
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241

Laminates, Plastic (With Integral Heating Elements)-5300 — *See Vol. 1B*

Lamp Adapters-2450 — *See Vol. 1B*

Lamp Assembly Color Filters, Lens Mountable-2450 — *See Vol. 1B*

Lamp Drivers-2450 — *See Vol. 1B*

Lamp Holders — See Sockets, Lamp & Lamp Assemblies (Vol. 1B)

Lamps, Arc-2450 — *See Vol. 1B*

Lamps, Edge Lighting, Panel-2450 — *See Vol. 1B*

Lamps, Electroluminescent-2450 — *See Vol. 1B*

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LCDs — See Diodes, Liquid Crystal (Vol. 1B)

Lead Assemblies, High Voltage-6000 (Also See onnectors; Cable Assemblies & Harnesses)

† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
† Aircraft & Electrn. Spec., Box 248, Plainfield, IN 46168 317-272-2551
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
† Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491 309-695-2511
Cardinal Control Co., 110 Kensington Rd., Kensington, CT 06037 203-828-6379
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 .... 617 585-4315
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
§† Electronic Coil Corp., 347 New Britain Ave., Plainville, CT 06062 203-747-1213
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
§† Excel Specialty Corp., 6335 N. Broadway, Chicago, IL 60660 312-262-4781
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 201-887-0571
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 203-348-7761
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
† PTK Corporation, 1173 Los Olivos Ave., Los Osos, CA 93402 805-528-5858
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 .... 419-729 9761
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Simmonds Precision, P.O. Box 310, Norwich, NY 13815 607-335-5000
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

Leads, Test & Adapters-2900 — *See Vol. 3*

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Lights, Pilot — See Lights, Indicator (Vol. 1B)

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Limit Stops, Mechanical-2500

§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Dillon, W. C., & Co., 2320 Airport Blvd., Santa Rosa, CA 95401 707-527-5555
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§ Perfect Gear & Instr., 55 S. Denton Ave., New Hyde Park, NY 11040 516-328-3300
† PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Precision Mechanisms, 44 Brooklyn Ave., Westbury, NY 11590 .... 516-ED3-5955
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
§ Tapeswitch Corp. of America, 100 Schmitt Blvd., Farmingdale, NY 11735 516-694-6312

Limiters, Current-4300 — *See Vol. 1B*

Limiters, Microwave-3450 — *See Vol. 1A*

Limiters, Surge-4300 — *See Vol. 1B*

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§—Product sold through distributors ; †—Product meets MIL specs

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Locks, Dial & Shaft-2400

Illinois Lock Co., The Eastern Co., 301 W. Hintz Rd., Wheeling, IL 60090, 312-537-1800 .... 1B•1655,2•1332,1333
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1766
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† Aimsco Inc., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056 206-284-5563
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§† Vemaline Prods. Div., 487 Jefferson Blvd., Warwick, RI 02886 401-739-7600

Logic Cards (without Components) — See Boards, Plug-in (Vol. 2)

Logic Circuits — See Cards, Logic (Vol. 3), Modules, Logic (Vol. 1A),

Loudspeakers — See Speakers (Vol. 3)

Louvers, Vents, & Windows (For Equipment) — See Enclosures, Equipment & Panel Mounting (Vol. 2)

Lubricants-1600

† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... 2•1922
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
† Ashland Chemical, Ashland Oil, Inc., Box 2219, Columbus, OH 43216 614-889-3333
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
§ CVC Prods., 525 Lee Rd., Rochester, NY 14603 716-458-2550
Diamond Shamrock Corp, 1100 Superior Ave, Cleveland, OH 44114 216-694-5000
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
§† Dow Corning Corp., Box 1767, Midland, MI 48640-0994 517-496-4000
† DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
† Electrofilm, 27727 Avenue Scott, Valencia, CA 91355 805-257-2240
† E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 317-463-2511
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† General Devices, Box 39100, Indianapolis, IN 46239-9632 317-897-7000
General Electro-Mechanical Corp., 785 Hertel Ave., Buffalo, NY 14207 716-876-9685
§† Holt Lloyd Corp., LPS Chem. Prods., 4647 Hugh Howell Rd., Tucker, GA 30084 404-934-7800
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
Metron Optics Inc., P.O. Box 690, Solana Beach, CA 92075-0690 ... 619-755-4477
Monsanto Co., 800 N. Lindbergh Blvd., St. Louis, MO 63167 314-694-1000
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
† Nye, William F., Inc., P.O. Box G-927, New Bedford, MA 02742-0927 617-996-6721
† Pennwalt Corp., Three Pkwy., Philadelphia, PA 19102 215-587-7000
§ Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 .. 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

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Machines, Hermetic Sealing-4100 — *See Vol. 3*

Machines, Induction Heating (Electronic)-4100 — *See Vol. 3*

Machines, Lead Cutting & Forming-4100 — *See Vol. 3*

Machines, Marking & Numbering-4100 — *See Vol. 3*

Machines, Mask Alignment & Exposure-4100 — *See Vol. 3*

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Machines, Plating-4100 — *See Vol. 3*

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Machines, Terminal Installing-4100 — *See Vol. 3*

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Machines, Wafer Alignment — See Machines, Mask Alignment & Exposure (Vol. 3)

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Magnets (Lab. Type)-2500

Allen-Bradley Co., 1201 S. Second St., Milwaukee, WI 53204, 414-671-2000 .... 2•1788,1789
Jobmaster Corp., 9008 Liberty Rd., Randallstown, MD 21133, 301-655-1400 .... 2•1792
† Magnet Sales & Mfg. Co. Inc., 11250 Playa Court, Culver City, CA 90230-6127, 13-391-7213;800-421-6692 .... 2•1794
Elma Engrg., 1066 E. Meadow Circle, Palo Alto, CA 94303 415-494-7303
§ General Hardware Mfg., 80 White St., New York, NY 10013 212-431-6100
High Voltage Engrg. Corp., S. Bedford St., Burlington, MA 01803 ... 617-272-1313
LDJ Incorporated, 2200 Stephenson Hwy., P.O. Box 219, Troy, MI 48099-0219 313-528-2202
Magnetic Instrumentation, 8350 E. 48TH ST., Indianapolis, IN 46226 317-545-2102
§ Magnos, Old School House Rd., Harvard, MA 01451 617-456-8880
Sensitive Research Instrs., 25 Dock St., Mt. Vernon, NY 10550 914-699-9717
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ... 615-867-4100
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 .. 215-825-4990
Varian Assocs., Instr. Grp., 611 Hansen Way, Palo Alto, CA 94303 . 415-493-4000
Walker Scientific, Rockdale St., Worcester, MA 01606 617-852-3674

Magnets, Permanent-2500

Allen-Bradley Co., 1201 S. Second St., Milwaukee, WI 53204, 414-671-2000 .... 2•1788,1789
Hamlin, Lake & Grove Sts., Lake Mills, WI 53551, 414-648-2361 .... 1B•1646
§† Jobmaster Corp., 9008 Liberty Rd., Randallstown, MD 21133, 301-655-1400 .... 2•1792
† Magnet Sales & Mfg. Co. Inc., 11250 Playa Court, Culver City, CA 90230-6127, 13-391-7213;800-421-6692 .... 2•1794
Micro Switch, A Honeywell Div., 11 W. Spring St., Freeport, IL 61032, 815-235-6600 .... 1B•1682
TDK Corporation of America, 4711 Golf Rd., Skokie, IL 60076, 312-679-8200 .... 2•1798
Arnold Engrg., Box "G", Marengo, IL 60152 815-568-2000
Bunting Magnetics, 500 So. Spencer Rd., Newton, KS 67114 316-284-2020
Ceramic Magnetics, Inc., 87 Fairfield Rd., Fairfield, NJ 07006 201-227-4222
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Ferronics, 66 N. Main St., Fairport, NY 14450 716-223-1010
§ General Hardware Mfg., 80 White St., New York, NY 10013 212-431-6100
§ Indiana General/Div. Emm Corp., Magnet Prods., 405 Elm St., Valparaiso, IN 46383 219-462-3131
§† Magnetic Systems Inc., 95 Saginaw Dr., Rochester, NY 14623 716-244-2940
Multi Prods. Intl., 218 Little Falls Rd., P.O. Box 238, Cedar Grove, NJ 07009 201-239-8183
Ogallala Elctrns., Div. Arnold Engrg. Co., Box 59, Ogallala, NE 69153 308-284-4093
† Permanent Magnet, 4437 Bragdon St., Indianapolis, IN 46226 317-547-1336
R-Columbia Prods. Co., Inc., 2008 St. Johns Ave., Highland Park, IL 60035 312-432-7915
§ Reed Switch Dev. Co. Inc., PO Box 1464, Kerrville, TX 78028 512-896-4444

§ Risk, George, Inds., GRI Plaza, Kimball, NE 69145 308-235-4645
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Stackpole, Magnet Div., 700 Elk Ave., Kane, PA 16735 814-837-7000
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 615-867-4100
Thomas & Skinner, Box 150 B, Indianapolis, IN 46206 317-923-2501
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan .... Tokyo 03-402-6161
Varian Assocs., Instr. Grp., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000
Varian Associates, Inc., Microwave Tube Div., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000

Magnets, Superconducting-2500

Jobmaster Corp., 9008 Liberty Rd., Randallstown, MD 21133, 301-655-1400 .... 2•1792
Advanced Kinetics, 1231 Victoria St., Costa Mesa, CA 92627 714-646-7165
American Magnetics, Box R, Oak Ridge, TN 37830 615-482-1056
Cryomagnetics, Inc., 795 Oak Ridge Tpk., Oak Ridge, TN 37830 615-482-9551
Elma Engrg., 1066 E. Meadow Circle, Palo Alto, CA 94303 415-494-7303
§ Magnetic Systems Inc., 95 Saginaw Dr., Rochester, NY 14623 716-244-2940
Varian Assocs., Instr. Grp., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000

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Mask Alignment & Exposure Systems — See Machines, Mask Alignment & Exposure (Vol. 3)

Materials, Shock, Noise, & Vibration Control-2500

§ E-A-R Div., Cabot Corp., 7911 Zionsville Rd., Indianapolis, IN 46268, 317-872-1111 .... 2•1867
§ Vibro-Meter Corp., 1 Progress Rd., Billerica, MA 01821 617-663-7322

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Meters, Ampere Hour-2900 — ***See Vol. 3***

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Meters, Q-2900 — ***See Vol. 3***

Meters, Ratio-2900 — ***See Vol. 3***

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§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, 215-365-8400 ..... 2•1042,1043
Tracewell Enclosures, 7032 Worthington Galenda Rd., Columbus, OH 43085, 14-846-6175;800-848-4525 ..... 2•1067
† Astronautics Corp. of America, P.O. Box 523, Milwaukee, WI 53201 414-447-8200
† CELCO, 70 Constantine Dr., Mahwah, NJ 07430 201-327-1123
§ Conrac Div., Conrac Corp., 600 N. Rimsdale Ave., Covina, CA 91722 213-966-3511
Corning Glass Works, Main Plant, MS 2136, Corning, NY 14831 607-974-4102
Infodex, Inc., 395 W. Main St., Waterbury, CT 06702 203-757-9291
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
† Syntronic Instruments, Inc., 100 Industrial Rd., Addison, IL 60101 312-543-6444
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161

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Mounts, Shock & Vibration-2825

§ E-A-R Div., Cabot Corp., 7911 Zionsville Rd., Indianapolis, IN 46268, 317-872-1111 ..... 2•1867
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, 215-692-0800 ..... 2•1068
† Aeroflex Labs., Magnetic Prods. Div., , So. Service Rd., Plainview, NY 11803 516-694-6700
Airpot, 27 Lois St., Norwalk, CT 06851 203-846-2021
Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
† Barry Controls, Barry Wright Corp., 700 Pleasant St., Watertown, MA 02172 617-923-1150
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Hardigg Inds., Inc., North Main St., South Deerfield, MA 01373 413-665-2163
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§ Projects Unltd., 3680 Wyse Rd., Dayton, OH 45414 513-890-1918
† Stock Drive Prods., Div. of Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-0200
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161

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Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1232
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1768
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Deutsch Fastener, 1315 East Grand Ave., El Segundo, CA 90245 ...213-322-8840
Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406 707-578-8811
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

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Packaging Materials, Antistatic-3800

Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
§ Clean Room Prods., 56 W. Penataquit Ave., Bay Shore, NY 11706 . 516-968-8282
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 ... 312-233-6530
§† Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 215-822-2171

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Robison Elctrns., P.O. Box Y, San Luis Obispo, CA 93406, 805-544-8000 ... 2•1887
ADE, Inc., 1560 E. 98th St., Chicago, IL 60628 312-221-3400
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Hardigg Inds., Inc., North Main St., South Deerfield, MA 01373 413-665-2163
International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
Kole Ind., 3553 N.W. 50th St., Miami, FL 33102-0152 ..... 305-633-2556, 800-327-6085
† 3M Co., Static Control Sys. Div., 3M Center, Bldg. 225-4S-04, St. Paul, MN 55144 612-733-9420
† Mercury Plastics, A Unit of Zero Corp., 672 Fuller Rd., Chicopee, MA 01020 ..... 413-592-5118;413-267-5561
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 ... 312-233-6530
Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717

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§† Bivar, Inc., 4 Thomas, Irvine, CA 92714, 714-951-8808 ..... 2•1018
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ..... 2•1233
Delbert Blinn Co., Box 2007, Pomona, CA 91766, 714-629-3900 ..... 1A•2093
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 ..... 2•1487,1493
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 . 516-546-1751
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
§† Bergquist, 5300 Edina Ind'l., Minneapolis, MN 55435 612-835-2322
Budwig Mfg., P.O. Box 829, Ramona, CA 92065 619-789-0900
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§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
§ Circuit Structures Lab., Div. D-Cemco Inc., 3200 N. San Fernando Blvd., Burbank, CA 91504 818-849-6341
§† Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 201-887-9270
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ Globe Plastics, 1342 S. Signal Dr., Pomona, CA 91766 714-623-2747
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Mini-Systems, Inc., 20 David Rd., North Attleboro, MA 02761 617-695-0203
† Moldtronics, Inc., 707 Roger St., Downers Grove, IL 60515 312-968-7000
§ National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 ... 312-233-6530
† Robison Elctrns., P.O. Box Y, San Luis Obispo, CA 93406 805-544-8000
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§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§† Teknational Inds., Inc., 430 S. Clinton Ave., Rochester, NY 14620 .. 716-232-1291
§† Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 . 312-585-1212
§ Winslow Intl., 2471 E. Bayshore 20, Palo Alto, CA 94303 415-856-0552

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Paints, Finishing-1600

§† Casso-Solar, 3 Pearl Ct., Allendale, NJ 07401 201-825-4600

Paints, Metallic, Conductive-1600

† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ..... 2•1922
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
Acme Chem. & Insulation, 166 Chapel St., New Haven, CT 06513 ... 203-562-2171
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 .. 617-448-5485
E/M Lubricants, Inc., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906 317-463-2511
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 ..... 614-276-5522; 800-245-5253
§ Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717

Paints, Radioactive — See Coatings, Radioactive (Vol. 2)

Paints, Resistive-1600 (Also See Inks for Thick Film Microcircuits)

† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 .. 617-448-5485
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 914-698-8434
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Ferro, Thick Film Sys. Div., 25 CASTILIAN DR., Santa Barbara, CA 93117 805-968-5000
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
† Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865 401-723-2100
§† Kepro Circuit Sys., 630 Axminister Dr., Fenton, MO 63026 314-343-1630
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
Metron Optics Inc., P.O. Box 690, Solana Beach, CA 92075-0690 ... 619-755-4477
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
§ Murata Mfg. Co. Ltd., 26-10 2-chome-Temjin, Nagaoka-Kyo-Shi, Kyoto, Japan 075-921-9111
Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 . 213-603-0400
Tempil Div., Big Three Inds., Hamilton Blvd., S. Plainfield, NJ 07080 201-757-8300
Transene, Rte. 1, Rowley, MA 01969 617-948-2501

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Panels, Jack-2100

Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 ..... 2•1244
† GRIM Corporation, Box 67, Medford, NJ 08055, 609-267-7950 ..... 3•1064
§† Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 ..... 2•1584
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
† Anchor Specialty Mfg. Inc., 300 Hollister Rd., Teterboro, NJ 07608 201-288-1939
Apahouser-Elcom, Inc., 101 Walnut St., Watertown, MA 02172 617-924-1500
§ Armiger & Assocs., Inc., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116 817-737-2900
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000
B & G Precision Elctrns., 538 Maple Ave., Doylestown, PA 18901 ... 215-348-4413
§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
Crosspoint, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022 201-941-4455
Dataprobe, 110 Palisades Blvd., Palisades Park, NJ 07650 201-947-9500
Dynatech Corp., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702 714-558-8755
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
§ Electro Standards Lab., Inc., P.O. Box 9144, Providence, RI 02940 401-943-1164
Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Front Panel Devices, Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
§ Glasgal Communications, Inc., 207 Washington St., Northvale, NJ 07647 201-768-8082
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164 312-681-7071
Honeywell, Process Control Div., 1100 Virginia Dr., Ft. Washington, PA 19034 ..... 800-321-5111, Ext, 596
§ International Data Sciences, 7 Wellington Rd., Lincoln, RI 02865 401-333-6200
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
§† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600

Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
York Metal Products, Inc., 34-20 12th St., Long Island, NY 11367 ...212-932-3660

Panels, Metal — See Enclosures, Circuit Board, Module & Relay Mounting (Vol. 2)

Panels, Meter — See Enclosures, Circuit Board, Module, & Relay Mounting (Vol. 2)

Panels, Patch — See Panels, Jack (Vol. 2)

Panels, Power BUS for ICs-3200

Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202 ..... 2•1877
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... 2•1872
Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... 2•1892
† Anchor Specialty Mfg. Inc., 300 Hollister Rd., Teterboro, NJ 07608 201-288-1939
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
Spectro Equipment, Inc., 6021 Royalton Rd., N. Royalton, OH 44133 216-237-8910
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600

Panels, Relay Rack — See Enclosures, Circuit Board, Module, & Relay Mounting (Vol. 2)

Paper Tape Equipment, Punch-2000 — *See Vol. 3*

Paper Tape Equipment, Reader-2000 — *See Vol. 3*

Paper Tape Equipment, Reader/Punch-2000 — *See Vol. 3*

Paper, Graphic Recording-3000 — *See Vol. 3*

Paper, Thermal-2000 — *See Vol. 3*

Patch Boards — See Boards, Programming (Vol. 2)

Peltier (Thermoelectric) Heat Pumps — See Cooling/Heating Modules, Thermoelectric (Vol. 1B)

Perforators, Paper Tape (Electrically Powered)-2000 — *See Vol. 3*

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Photocells & Phototubes — See Cells, Photoconductive (Vol. 1B)

Photodetectors, GaAs-3700 — *See Vol. 1B*

Photoelectric Equipment — See Alarms, Controls, Photoelectric (Vol. 1B)

Photoelectric Tubes — See Cells, Photoconductive (Vol. 1B)

Photoemissive Detectors — See Cells, Photoemissive (Vol. 1B)

Photographic Services — See Services, Photographic (Vol. 3)

Photometers — See Meters, Light (Vol. 3)

Photomultiplier Tube Housings-5700 — *See Vol. 1A*

Pickups, Magnetic, Proximity, Torque, Vibration, etc. — See Transducers, Specific Type (Vol. 1B)

Pickups, Telephone (For Recording)-1300 — *See Vol. 3*

Piezoelectric Ceramics-2300 — *See Vol. 1A*

Pilot Lights — See Lights, Indicator (Vol. 1B)

Pin Straighteners, Tube-5700 — *See Vol. 1A*

Pins, Cotter, Dowel, Taper, etc.-2825

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... 2•1860
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010

Pins, Electrically Conductive-2100

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... 2•1860
§ Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ....2•1190-1200
Crosspoint, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022, 201-941-4455 ....1B•1574
H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810, 203-794-1798 ....2•1320-1323
Lear Siegler, Inc., Elctrn. Instr. Div., 714 N. Brookhurst St., Anaheim, CA 92803, 714-774-1010 .... 2•1502
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771, 516-922-6000 ... 2•1523
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
§† Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-267-2000
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§ Automatic Connector, Inc., 400 Moreland Rd., Commack, NY 11725 516-543-5000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§ Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047 215-757-1202
§ Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 617-699-7646
RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ....814-723-2000; 800-221-3333
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
"World" Enterprises, Inc., 550 N. Bayard Ave., Waynesboro, VA 22980 703-942-4159

Pins, Mechanical-2825

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... 2•1860
§† Allen Mfg., 22 E. Dudley Town Rd., Bloomfield, CT 06002 203-242-8511
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-267-2000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
† Avibank Mfg., 210 S. Victory Blvd., Burbank, CA 91503 818-843-4330
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Bird, Richard H., & Co., Inc., 1 Spruce St., Waltham, MA 02154 617-894-0160

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Deutsch Fastener, 1315 East Grand Ave., El Segundo, CA 90245 213-322-8840
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† ESNA Div., 2330 Vauxhall Rd., Union, NJ 07083 201-686-6000
§† Esna Div., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083 201-686-6000
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Lear Siegler, Inc., Elctrn. Instr. Div., 714 N. Brookhurst St., Anaheim, CA 92803 714-774-1010
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771 516-922-6000
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
§ Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
Torrington Co., 59 Field St., Torrington, CT 06790 203-482-9511
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

Plastic Raw Materials, Liquids, Pellets, Powders, Resins-1600

Monsanto Co., 800 N. Lindbergh Blvd., St. Louis, MO 63167, 314-694-1000 .... 2•1085-1087
† Allaco Prods. Div., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
§† Ashland Chemical, Ashland Oil, Inc., Box 2219, Columbus, OH 43216 614-889-3333
† Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
† Castall, Inc., Weymouth Indl. Park, E. Weymouth, MA 02188 617-337-6075
§† Celanese Plastics, 26 Main St., Chatham, NJ 07928 201-635-2600
† Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 .... 212-597-1773;914-699-7223
† Dennis Chemical, 2701 Papin St., St. Louis, MO 63103 314-771-1800
Diamond Shamrock Corp, 1100 Superior Ave, Cleveland, OH 44114 216-694-5000
§ Dolph, John C., Co., New Rd., Monmouth Junction, NJ 08852 201-329-2333
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
§† Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 201-887-9270
† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
Epoxylite Corp., 1265 N. Kraemer Blvd., Anaheim, CA 92806 714-630-7910
† FMC Corp., Ind'l. Chemical Grp., 2000 Market St., Philadelphia, PA 19103 215-299-6000
† Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
† Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
† Hightemp Resins, Inc., 225 Greenwich Ave., Stamford, CT 06902 203-357-7401
† Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865 401-723-2100
Leepoxy Plastics, 3324 Ferguson Rd., Ft. Wayne, IN 46809 219-747-7411
† M & T Chemicals Inc., Woodbridge Rd. & Randolph Ave., Rahway, NJ 07065 201-499-0200
Mereco Products Div., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893 401-828-4550
§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242
§ Pennwalt Corp., Three Pkwy., Philadelphia, PA 19102 215-587-7000
Permagile-Salmon Ltd.; Insulcast Div., 101 Commercial St., Plainview, NY 11803 516-349-1100
§ Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
Republic Packaging Corp., 9160 S. Green St., Chicago, IL 60620 312-233-6530
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
† Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 .... 614-276-5522; 800-245-5253
§ Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717
Whittaker Corp., 10880 Wilshire Blvd., Los Angeles, CA 90024 213-475-9411
Whittaker Corp., Providence Chemicals Div., King Philip Rd., E. Providence, RI 02914 401-434-1770

Plastics, Encapsulating — See Compounds, Encapsulating, Molding, Potting (Vol. 2)

Plastics Fabrication — See Services, Plastics Fabrication (Vol. 3)

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Plastics, Custom Molding — See Services, Custom Molding, Plastic (Vol. 3)

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Platforms, Thermal — See Thermal Platforms (Vol. 3)

Plating Services — See Services, Plating (Vol. 3)

Players, Magnetic Tape — See Recorders, Magnetic Tape (Vol. 3)

Pliers-5400

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1226
Advanced Tool Technology, Inc., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325 213-993-1202
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§ Engineering & Elctrn. Devices, 1024 N. McCadden Pl., Los Angeles, CA 90038 213-463-4175
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§ Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
§ Ridge Tool Co., Sub. Emerson Elec. Co., 400 Clark St., Elyria, OH 44036 216-323-5581
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
† Waldes Kohinoor, 47-16 Austel Pl., Long Island City, NY 11101 212-392-3100

Plotters/Hard-Copy Devices-2000 — *See Vol. 3*

Plotters, X-Y, & Accessories-3000 — *See Vol. 3*

Plug & Jack Sets-2100

Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 .... 2•1119
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1184,1234,1241
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1357-1361,1363-1365,1367-1371,1374-1377,1387
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 .... 2•1494
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... 2•1530
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... 2•1562,1563,2150
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530, 914-681-0700 .... 3•1055
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1565
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010, 203-582-9561 .... 2•1577
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 .... 2•1578,1584
Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada, 514-457-3648 .... 2•1746,1747
Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236, 804-794-2877 .... 2•1748
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022
† Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000
Barber-Colman Co., Indl. Instrs. Div., P.O. Box 2940, 1354 Clifford Ave., Loves Park, IL 61132 815-877-0241
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 .... 800-237-BERG
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 212-691-9050
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ GIC Thermodynamics, 2611 Parmenter, Royal Oak, MI 48073 313-280-1648
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164 312-681-7071
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 312-681-7100
Honeywell, Process Control Div., 1100 Virginia Dr., Ft. Washington, PA 19034 .... 800-321-5111, Ext. 596
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 .... 617-568-0451; 800-225-9228
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625

Plug & Jack Sets-2100 (Cont'd)

§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
§ Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
† Roanwell, 180 Varick St., New York, NY 10014 212-989-1090
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

Plug Adapters-2100

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1172,1241
Corcom, Inc., 1600 Winchester Rd., Libertyville, IL 60048, 312-680-7400 .1A•1589
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 .... 2•1338
§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1359,1361-1364,1366,1370-1378,1387,1398,1399**
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 .... 2•2140,2141
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... 2•1562,1563
§ **Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 3•1303**
Todd Systems, 50 Ash St., Yonkers, NY 10701, 914-963-3400 ....1A•2311
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ...212-691-9050
§ Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164 312-681-7071
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 312-681-7100
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406 707-578-8811
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
§ Mura Corp., 177 Cantiague Rock Rd., Westbury, NY 11590 516-935-3640
National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

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Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1225
§ **Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033; 800-526-4182 .... 2•1861**
† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630 312-792-2700
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

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§ **Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033; 800-526-4182 .... 2•1861**
§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1381**
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1605,1611
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
§ ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661

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Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 .... 2•1119
§ **AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ..... 2•1124,1125**
Beau Products Div., Box 10, Laconia, NH 03247, 603-524-5101 .... 2•1165,1166
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ....2•1172,1174-1176,1183,1184,1188,1189,1200,1213,1234,1241
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... 2•1244,1245
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .. 2•2092, 2093**
H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810, 203-794-1798 .... 2•1324
§ **Interlok, 770 Airport Blvd., Burlingame, CA 94010, 415-348-5625 .... 2•1334**
International Comps. Corp., 105 Maxess Rd., Melville, NY 11747, 516-293-1500 .... 2•1338
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ... 2•1358-1365,1367-1371,1376,1382,1384-1388,1391,1392,1394-1396, 1453,1463
§† **Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 .... 2•1494,1495**
Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406, 707-578-8811 ....2•1503-1507,1512
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936, 215-699-5373 .... 2•1521
§ **National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... 2•1530**
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 ....2•1536-1539,2140,2141
§ **Power Dynamics, 177 Valley, S. Orange, NJ 07079, 201-762-6886 .... 2•1544**
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543, 914-698-5600 .... 2•1561
§ **Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1565**
Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 ... 2•1578,1584, 1585
Todd Systems, 50 Ash St., Yonkers, NY 10701, 914-963-3400 ....1A•2311
TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ....2•1707-1715
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... 2•1734,1735
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... 2•1742
§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
Cole Hersee, 20 Old Colony Ave., Boston, MA 02127-2467 617-268-2100
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ...212-691-9050
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154 215-969-4200
Ericson Mfg. Co., 4215 Hamann Pkwy., Willoughby, OH 44094 216-951-8000

§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ......617-568-0451; 800-225-9228
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
† Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 919-884-8111
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
SGL Waber, 300 Harvard Ave., Westville, NJ 08093 .609-456-5400;800-257-8384
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ SPEMCO Switches, 23425 Harper, St. Clair Shores, MI 48080 800-482-2828
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010 203-582-9561
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Plugs, Fused-2100

§ Power Dynamics, 177 Valley, S. Orange, NJ 07079, 201-762-6886 ...... 2•1544
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Ericson Mfg. Co., 4215 Hamann Pkwy., Willoughby, OH 44094 216-951-8000
Schurter, Inc., 1016 Clegg Ct., Petaluma, CA 94952 707-778-6311
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700

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Power Dynamics, 177 Valley, S. Orange, NJ 07079, 201-762-6886 ...... 2•1783
† Astronautics Corp. of America, P.O. Box 523, Milwaukee, WI 53201 414-447-8200
Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
§† Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300
Selco Products Co., 7580 Stage Rd., Buena Park, CA 90621 714-521-8673
Spectra Lux Corp., 12840 N.E. 21 St. Pl., Bellevue, WA 98005 206-747-0560
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

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Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ......2•1170-1173
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2092
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 .... 2•1256
Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702, 914-968-8400 ......1B•1156
§ Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525, 312-354-1040 ...... 2•1294
§† ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ......2•1362,1363,1367,1371-1375,1378
Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 ......2•1490,1495
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 ......2•1530
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079, 201-762-6886 ...... 2•1783
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ......2•1565
§† Superior Elec. Co., 383 Middle St., Bristol, CT 06010, 203-582-9561 ...... 2•1577
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Bussco Engrg., 119 Standard St., El Segundo, CA 90245 213-322-6580
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010 415-348-5625
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
§ NOBEX Div., Griffith Plastics Corp., 1027 California Dr., Box 4365, Burlingame, CA 94010 415-342-8170
§† Raytheon Co., 465 Centre St., Quincy, MA 02169 617-479-5300
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021 516-466-0911
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

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Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 201-762-6886
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000

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† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
§† Gardiner Solder Co., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632 312-847-0100
GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 415-592-9440
§ Handy & Harman, 850 Third Ave., New York, NY 10022 212-752-3400
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
† Semiconductor Packaging Matls. Co. Inc., 700 Waverly Avenue, Mamaroneck, NY 10543 914-698-5353
† Wilkinson, P.O. Box 4558, Westlake Village, CA 91359 ....818-889-0050; 800-822-4653

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Printers, Page-2000 — ***See Vol. 3***

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Probes, Hall-4800 — ***See Vol. 1A***

Probes, High Voltage (1,000 Volts & Over)-2900 — ***See Vol. 3***

Probes, Logic Test-2900 — ***See Vol. 3***

Probes, Microwave-3450 — ***See Vol. 1A***

Probes, Oscilloscopes-2975 — ***See Vol. 3***

Probes, RF-2900 — ***See Vol. 3***

Probes, Temperature-2900 — ***See Vol. 3***

Probes, Test Lead-2900 — ***See Vol. 3***

Process Control Systems-2200 — ***See Vol. 3***

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Processors, Communications, Front End-1900 — ***See Vol. 3***

Processors, Communications, Message Switching-1900 — ***See Vol. 3***

Processors, Communications, Network Node-1900 — ***See Vol. 3***

Processors, Communications, Standalone-1900 — ***See Vol. 3***

Processors, Image-2000 — ***See Vol. 3***

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Programmers, Matrix Boards — See Boards, Programming (Vol. 2)

Programmers, PROM & Logic Array-3130 — ***See Vol. 1A***

Programmers, Punched Card-2000 — ***See Vol. 3***

Programmers, Tape-2000 — ***See Vol. 3***

PROM Programmers — See Programmers, PROM & Logic Array (Vol. 1A)

Protectors, Brownout-4300 — ***See Vol. 1B***

Protectors, Surge-4300 (Also See Suppressors, Transient Voltage) — ***See Vol. 1B***

Public Address Systems-1300 — ***See Vol. 3***

Pullers, Circuit Board-5400

§ Bivar, Inc., 4 Thomas, Irvine, CA 92714, 714-951-8808 .... 2•1018
§† Calmark Corp., 4915 Walnut Grove Ave., San Gabriel, CA 91776, 213-287-0451 .... 2•1021
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1223
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067, 215-682-7181 .... 2•1028
UNITRACK Div., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, 215-692-0800 .... 2•1068
§ Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§ Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Gibson/Egan, 2666 East Huntington Dr., Duarte, CA 91010 818-358-0191
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
† Micro-Products Engrg. Co., 230 Ridgewood Ave., Newark, NJ 07108 201-824-8467
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

Pullers, Tube-5400

Allen-Bradley Co., 1201 S. Second St., Milwaukee, WI 53204 414-671-2000
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700

Pulleys-2500

Belting Inds. Co. Inc., 20 Boright Ave., Kenilworth, NJ 07033 201-272-8591

Pulsers, Diode — See Power Supplies, AC Input, Greater than 1,000 VDC Output (Vol. 3)

Pulsers, Logic Test-2900 — ***See Vol. 3***

Pumps, Vacuum-4100 — ***See Vol. 3***

Punches, Chassis-5400

§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Greenlee Tool Co., 2330 23rd Ave., Rockford, IL 61108 815-399-3903
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Pyrometers, Infrared-2900 — ***See Vol. 3***

Pyrometers, Optical, Noninfrared-5300 — ***See Vol. 1B***

Pyrometers, Recording-2900 — ***See Vol. 3***

Q Bus — See Board Computers & Subassemblies (Vol. 3)

Quartz, Fused-2500

† Accumet Engrg., 518 Main St., Hudson, MA 01749 617-568-8311
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Corning Glass Works, Main Plant, MS 2136, Corning, NY 14831 607-974-4102
† Ferro Ceramic Grinding, Inc., 247 Water St., Wakefield, MA 01880 617-245-1833
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
§ Optics International, Box 101, Tenafly, NJ 07670 201-567-4799
Quartzite Processing, Inc., 6 Holyoke St., Malden, MA 02148 617-322-1380
Thermal Amer. Fused Quartz, Change Bridge Rd., Montville, NJ 07045 201-334-7770

Quartz, Raw — See Crystals, Quartz (Vol. 1A)

Racks, Aging — See Ovens, Aging, Burn-in, Life Test (Vol. 3)

Racks, Cabinet — See Enclosures, Equipment & Panel Mounting (Vol. 2)

Racks, Circuit Board — See Enclosures, Circuit Board, Module & Relay Mounting (Vol. 2)

Racks, Desk & Console — See Enclosures, Equipment & Panel Mounting (Vol. 2)

Racks, Module — See Enclosures, Circuit Board, Module & Relay Mounting (Vol. 2)

Racks, Relay & Mounting — See Enclosures, Circuit Board, Module & Relay Mounting (Vol. 2)

Radar Homing & Warning (RHAW) Systems (MIL)-3475 — ***See Vol. 3***

Radar Forward-Looking Infrared (FLIR) Sets (MIL)-3475 — ***See Vol. 3***

Radar Intercept (MIL)-3475 — ***See Vol. 3***

Radar (MIL), Tail Warning-3475 — ***See Vol. 3***

Radar Systems (MIL), Elint-3475 — ***See Vol. 3***

Radar System Components-3450 — ***See Vol. 1A***

Radio Communications Systems — See Communications Systems (Vol. 3)

Radiographic Equip. — See X-ray Inspection Equip. (Vol. 3)

Radiometers-2900 — ***See Vol. 3***

Radomes & Windows, Microwave-3450 — ***See Vol. 1A***

Reactors, Charging-5600 — ***See Vol. 1A***

Reactors, Epitaxial — See Machines & Accessories, Semiconductor Manufacturing (Vol. 3)

Reactors, Filter-5600 — ***See Vol. 1A***

Reactors, Loading-5600 — ***See Vol. 1A***

Reactors, Saturable-1800 — ***See Vol. 1A***

Reactors (MIL)-2440 — ***See Vol. 1B***

Readers, Badge-2000 — ***See Vol. 3***

Readers, Bar Code-2000 — ***See Vol. 3***

Readers, Character-2000 — ***See Vol. 3***

Readers, Magnetic Card-2000 — ***See Vol. 3***

Readers, Magnetic Stripe Card-2000 — ***See Vol. 3***

Readers, Punched Card-2000 — ***See Vol. 3***

Readers, Punched Tape-2000 — ***See Vol. 3***

Readers, Static Card-2000 — ***See Vol. 3***

Readers, Time Code-2000 — ***See Vol. 3***

Readouts — See Tubes, Readout (Vol. 1A)

Reamers-5400

† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Ridge Tool Co., Sub. Emerson Elec. Co., 400 Clark St., Elyria, OH 44036 216-323-5581
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Receivers, AM/FM (Incl. Precision Test)-2900 — ***See Vol. 3***

Receivers, Communication-1900 — ***See Vol. 3***

Receivers, Fiber Optic-2475 — ***See Vol. 1B***

Receivers, Field Intensity, Microwave — See Receivers, Microwave (Vol. 3)

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Receivers, Frequency Shift-1900 — ***See Vol. 3***

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Receivers, Loran & Omega-1900 — ***See Vol. 3***

Receivers, Microwave-3400 — ***See Vol. 3***

Receivers, Monitoring, Communications-1900 — ***See Vol. 3***

Receivers, NBS-2900 — ***See Vol. 3***

Receivers, Telemetry-1900 — ***See Vol. 3***

§—Product sold through distributors †—Product meets MIL specs

Receivers, Tone-1900 — ***See Vol. 3***

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Receivers (MIL), Compass Sail/Clockwise-3475 — ***See Vol. 3***

Receivers (MIL), Digital Warning-3475 — ***See Vol. 3***

Receivers, (MIL), ECM-3475 — ***See Vol. 3***

Receivers (MIL), Elint-3475 — ***See Vol. 3***

Receivers (MIL), ESM-3475 — ***See Vol. 3***

Receivers (MIL), Handoff-3475 — ***See Vol. 3***

Receivers (MIL), IFM-3475 — ***See Vol. 3***

Receivers (MIL), IR Warning-3475 — ***See Vol. 3***

Receivers (MIL), Missile Launch Warning-3475 — ***See Vol. 3***

Receivers (MIL), Radar Warning-3475 — ***See Vol. 3***

Receivers (MIL), Radio-3475 — ***See Vol. 3***

Receivers (MIL), Recon-3475 — ***See Vol. 3***

Receivers (MIL), Search-3475 — ***See Vol. 3***

Receivers (MIL), Shipboard-3475 — ***See Vol. 3***

Receivers (MIL), Submarine-3475 — ***See Vol. 3***

Receivers (MIL), Surveillance-3475 — ***See Vol. 3***

Receivers (MIL), Warning-3475 — ***See Vol. 3***

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Recognition Equipment, Speech-2000 — ***See Vol. 3***

Recorders, Computer Data-2000 — ***See Vol. 3***

Recorders, Electrostatic-3000 — ***See Vol. 3***

Recorders, Event/Multievent-3000 — ***See Vol. 3***

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Recorders, Polar-3000 — ***See Vol. 3***

Recorders, Program Loading-2000 — ***See Vol. 3***

Recorders, Pyrometer — See Pyrometers, Recording (Vol. 3)

Recorders, Sound Level-1300 — ***See Vol. 3***

Recorders, Strip Chart-3000 — ***See Vol. 3***

Recorders, Transient-3000 — ***See Vol. 3***

Recorders, Vibration-3000 — ***See Vol. 3***

Recorders, Video-1900 — ***See Vol. 3***

Recorders, X-Y — See Plotters X-Y (Vol. 3)

Recorders (MIL), Infrared-3475 — ***See Vol. 3***

Recorders (MIL), Magnetic Tape-3475 — ***See Vol. 3***

Recorders (MIL), RHAW-3475 — ***See Vol. 3***

Recording Systems (MIL)-3475 — ***See Vol. 3***

Rectifiers, Bridges & Assemblies-4800 — ***See Vol. 1A***

Rectifiers, Copper Oxide-4800 — ***See Vol. 1A***

Rectifiers, Copper Sulfide-4800 — ***See Vol. 1A***

Rectifiers, Electron Tube — See Tubes, Rectifying (Vol. 1A)

Rectifiers, Germanium-4800 — ***See Vol. 1A***

Rectifiers, Selenium-4800 — ***See Vol. 1A***

Rectifiers, Silicon-4800 — ***See Vol. 1A***

Rectifiers, Silicon Controlled — See Thyristors (Vol. 1A)

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Reducers, Speed-3500 (Also See Gears & Gear Mechanisms) — ***See Vol. 1B***

Reels, Tape — See Tape Recording Accessories (Vol. 3)

Reference Books — See Technical Books (Vol. 3)

References, DC Voltage-2900 — ***See Vol. 3***

Refrigerants, Spray-1600

§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
§ Dow Chemical Co., 2020 Dow Center, Midland, MI 48640 517-636-1000
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Refrigerated Cooling Equipment — See Air Conditioners (Vol. 2)

Refrigerators, Environmental Test-2550 — ***See Vol. 3***

Regulators, Current-4000 — ***See Vol. 3***

Regulators, Frequency-4050 — ***See Vol. 3***

Regulators & References, Silicon-4800 (Also See Diodes, Zener & Stabistors) — ***See Vol. 1A***

Regulators & Stabilizers, Voltage-4000 (Also See Transformers, Voltage Regulating; Hybrid Voltage Regulators) — ***See Vol. 3***

Relays, Antenna — See Relays, RF (Incl. Antenna & Coaxial) (Vol. 1B)

Relays, Audio Operated — See Relays, Frequency Selective (Vol. 1B)

Relays, Coaxial — See Relays, RF (Vol. 1B)

Relays, Contact — See Relays, Power (Vol. 1B)

Relays, Cradle-4500 — ***See Vol. 1B***

Relays, Crystal Can, 1/2 Crystal Can-4500 — ***See Vol. 1B***

Relays, Current Sensing-4500 — ***See Vol. 1B***

Relays, Differential-4500 — ***See Vol. 1B***

Relays, Frequency Selective-4500 — ***See Vol. 1B***

Relays, General Purpose-4500 — ***See Vol. 1B***

Relays, High Voltage (500 Volts & Over)-4500 — ***See Vol. 1B***

Relays, Hybrid-4500 — ***See Vol. 1B***

Relays, Impulse — See Relays, Stepping (Vol. 1B)

Relays, I/O Modules — See Modules, I/O Relays (Vol. 1A)

Relays, Latching-4500 — ***See Vol. 1B***

Relays, Mercury-Wetted Contacts-4500 — ***See Vol. 1B***

Relays, Meter-4500 — ***See Vol. 1B***

Relays, Motor Start-4500 — ***See Vol. 1B***

Relays, Phase Sensing-4500 — ***See Vol. 1B***

Relays, Plug-in-4500 — ***See Vol. 1B***

Relays, Power-4500 — ***See Vol. 1B***

Relays, Printed Circuit Mounting (Including Transistor & DIP Case Types)-4500 — ***See Vol. 1B***

Relays, Programmable-4500 — ***See Vol. 1B***

Relays, RF (Incl. Antenna & Coaxial)-4500 — ***See Vol. 1B***

Relays, Reed-4500 — ***See Vol. 1B***

Relays, Sealed-4500 — ***See Vol. 1B***

Relays, Sensitive-4500 — ***See Vol. 1B***

Relay, Solid State-4500 — ***See Vol. 1B***

Relays, Stepping-4500 — ***See Vol. 1B***

Relays, Telephone-4500 — ***See Vol. 1B***

Relays, Thermal-4500 — ***See Vol. 1B***

Relays, Time Delay-4500 — *See Vol. 1B*

Relays, Transistor & DIP Case Types — See Relays, Printed Circuit Mounting (Vol. 1B)

Relays, Vacuum-4500 — *See Vol. 1B*

Relays, Voltage Sensitive-4500 — *See Vol. 1B*

Relays (MIL)-2440 — *See Vol. 1B*

Repeaters, Pulse — See Transponders (Vol. 3)

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Resins, Encapsulating — See Compounds, Encapsulating, Molding & Potting (Vol. 2)

Resins, Synthetic — See Plastic Raw Materials (Vol. 2)

Resistance Comparators — See Bridges, Resistance (Vol. 3)

Resistor Hardware-2800

Caddock Electronics, Inc., 1717 Chicago Ave., Riverside, CA 92507, 714-788-1700 .... 1A•1815
§ Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
§ Bivar, Inc., 4 Thomas, Irvine, CA 92714 714-951-8808
Bourns, Inc., Resistive Components Group, 1200 Columbia Ave., Riverside, CA 92507 714-781-5050
§† Dale Electronics, Inc., Columbus Div., Box 609, 2064 12th Ave., Columbus, NE 68601 402-564-3131
§† Dale Electronics, Inc., Norfolk Div., 2300 Riverside Blvd., Norfolk, NE 68701 402-371-0080
† International Sensor Systems, Inc., Aurora Industrial Pk., Box 345, Aurora, NE 68818 402-694-6111
Lectrohm Div. of Capco, Inc., Box 1028, Grand Junction, CO 81502 303-243-8480
Micro-Ohm Corp., 4900 Santa Anita Ave., El Monte, CA 91731 ...... 818-442-3310; 213-686-0535
Milwaukee Resistor Corp., 700 W. Virginia St., Milwaukee, WI 53204 414-271-9900
§† Ohmite Mfg. Co., 3601 W. Howard St., Skokie, IL 60076 312-675-2600
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ... 615-867-4100
TRW Resistive Products Div., TRW Electronic Components Grp., 401 N. Broad St., Philadelphia, PA 19108 215-922-8900
Vishay Resistive Sys. Grp., 63 Lincoln Hwy., Malvern, PA 19355 215-644-1300
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
Ward Leonard Elec., 31 South St., Mt. Vernon, NY 10550 914-664-1000

Resistors, Adjustable-4700 (Also See Potentiometers; Rheostats) — ***See Vol. 1A***

Resistors, Ballast (Incl. Tube & Solid State Devices)-4700 — *See Vol. 1A*

Resistors, Beryllia Core — See Resistors, Integral Heat Dissipator (Vol. 1A)

Resistors, Bulk Ceramic-4700 — *See Vol. 1A*

Resistors, Carbon Film-4700 — *See Vol. 1A*

Resistors, Ceramic Core-4700 — *See Vol. 1A*

Resistors, Ceramic Metal (Cermet)-4700 — *See Vol. 1A*

Resistors, Chip (For Microcircuits)-4700 — *See Vol. 1A*

Resistors, Composition, Carbon-4700 — *See Vol. 1A*

Resistors, Decade-4700 — *See Vol. 1A*

Resistors, Deposited Carbon-4700 — *See Vol. 1A*

Resistors, Disk, Rod & Tube-4700 — *See Vol. 1A*

Resistors, Film, Metallized & Nonmetallized-4700 — *See Vol. 1A*

Resistors, Flame Retardant-4700 — *See Vol. 1A*

Resistors, Flux Sensitive-4700 — *See Vol. 1A*

Resistors, Foil, Ultraprecision-4700 — *See Vol. 1A*

Resistors, Fuse-4300 — *See Vol. 1B*

Resistors, Glass-4700 — *See Vol. 1A*

Resistors, Heat Sink Encased — See Resistors, Integral Heat Dissipator (Vol. 1A)

Resistors, High Frequency-4700 — *See Vol. 1A*

Resistors, High Megohm (Over 22 Megohms)-4700 — *See Vol. 1A*

Resistors, High Temperature (Over 125)-4700 — *See Vol. 1A*

Resistors, High Voltage (1,000 Volts & Over)-4700 — *See Vol. 1A*

Resistors, Hot Molded-4700 — *See Vol. 1A*

Resistors, Integral Heat Dissipator-4700 — *See Vol. 1A*

Resistors, Low Temperature Coefficient-4700 — *See Vol. 1A*

Resistors, Metal Glazed-4700 — *See Vol. 1A*

Resistors, Microwave-4700 — *See Vol. 1A*

Resistors, Negative Temperature Coefficient-4700 — *See Vol. 1A*

Resistors, Noninductive-4700 — *See Vol. 1A*

Resistors, Oil Filled-4700 — *See Vol. 1A*

Resistors, Plug-in-4700 — *See Vol. 1A*

Resistors, Positive Temperature Coefficient-4700 — *See Vol. 1A*

Resistors, Power-4700 — *See Vol. 1A*

Resistors, Precision-4700 — *See Vol. 1A*

Resistors, Pressure Sensitive-4700 — *See Vol. 1A*

Resistors, Rectilinear-4700 — *See Vol. 1A*

Resistors, Standards — See Standards, Resistance (Vol. 3)

Resistors, Strip-4700 — *See Vol. 1A*

Resistors, Suppressor-4700 — *See Vol. 1A*

Resistors, Surge-4700 — *See Vol. 1A*

Resistors, Tapped-4700 — *See Vol. 1A*

Resistors, Temperature Sensitive — See Thermistors (Vol. 1B)

Resistors, Tin Oxide-4700 — *See Vol. 1A*

Resistors, Variable — See Potentiometers (Vol. 1A), Rheostats (Vol. 1A), Resistors, Adjustable (Vol. 1A),

Resistors, Voltage Sensitive-4700 — *See Vol. 1A*

Resistors, Wirewound-4700 — *See Vol. 1A*

Resistors (MIL)-2440 — *See Vol. 1B*

Resolvers, Synchro-4900 — *See Vol. 3*

Resonators, Ceramic-2700 — *See Vol. 1A*

Resonators, SAW-2300 — *See Vol. 1A*

Retainers, Battery-2800

Elctrn. Precision Comps., 11 W. Sandford Blvd., Mt. Vernon, NY 10550, 914-664-2333 .... 1A•1869
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 .... 2•1484-1486
§† Memory Protection Devices Inc., 320 Broad Hollow Rd., Farmingdale, NY 11735, 516-454-0340 .... 2•1519
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 .... 2•1564
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530, 914-681-0700 .... 3•1055
§† Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 ... 201-943-7650
ISL Products Intl. Ltd., 235 P Robbins Lane, Syosset, NY 11791-6093 516-822-9601
§† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† N.C.E., Mall Station 331, 9925 Lyndale Ave. S., Bloomington, MN 55420 .... 612 890-1360
† Power Group International, 1137 Cliff Rd., Burnsville, MN 55337 612-890-1360
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Retainers, Relay-4500 — *See Vol. 1B*

Retainers, Tube-5700 — *See Vol. 1A*

Retractors & Carriers — See Cable Retractors (Vol. 2)

RFI Measuring Equipment-2900 — *See Vol. 3*

RFI Shielding — See Shields, RF (Vol. 2)

RFI Testing Services — See Services, Electrical Measurement & Test (Vol. 3)

Rheostats-4750 — *See Vol. 1A*

Rings, Retaining-2500

† Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
† Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000

- §† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
- § Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
- § GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
- §† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
- † PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
- † Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
- Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
- § Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
- † Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
- § TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
- † Waldes Kohinoor, 47-16 Austel Pl., Long Island City, NY 11101 212-392-3100

Rivets-2825

- **Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... 2•1860**
- † Allmetal Screw Products Co., Inc., 821 Stewart Ave., Garden City, NY 11530 516-222-1200
- † Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-267-2000
- Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
- † Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 ....212-597-1773;914-699-7223
- §† Deutsch Fastener, 1315 East Grand Ave., El Segundo, CA 90245 ...213-322-8840
- † Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
- § Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
- § GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
- General Electro-Mechanical Corp., 785 Hertel Ave., Buffalo, NY 14207 716-876-9685
- § Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
- † Milford Rivet & Mach., 857 Bridgeport Ave., Milford, CT 06460 203-878-4631
- §† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
- † Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 .213-777-8108
- § POP Fasteners Div., 510 River Rd., Shelton, CT 06484 203-735-9341
- § Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 617-699-7646
- † Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
- † Southco, Inc., Concordville, PA 19331 215-459-4000

Robotics — See Arms & Manipulators, Robotic (Vol. 3), Control Systems, Robotic (Vol. 3),

Rods, Ground-2800

- §† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
- § GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
- § Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
- § Premax Prods. Div., Highland & College Aves., Niagara Falls, NY 14305 716-285-9186

Rotators — See Antenna Rotators (Vol. 3)

Rotors, Motor & Generator — See Motor & Generator Armatures, Rotors, Stators (Vol. 1B)

Rubber, Conductive-1600

- **† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... 2•1921,1922**
- † AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
- American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
- § Bowmar Instrument Corp., Commercial Products Div., 4640 126th Ave. N., Clearwater, FL 33520 813-576-2525
- Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
- Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
- §† Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 ....212-597-1773;914-699-7223
- Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
- Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 ..617-448-5485
- §† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
- † Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
- International Instrumentation, 31131-602 Via Colinas, Westlake Vlg., CA 91362 213-991-9614
- † 3M Co., Static Control Sys. Div., 3M Center, Bldg. 225-4S-04, St. Paul, MN 55144 612-733-9420
- † Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 201-985-8800
- † Sigma Plastronics, 14531-33 Tireman Ave, Dearborn, MI 48126 313-846-4410
- Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
- † SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ...213-357-3287
- § Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
- Vernay Laboratories, Inc., S. College St., Yellow Springs, OH 45387 513-767-7261
- § Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717

Rubber Guards (For Equipment) — See Bumpers (Vol. 2)

Rubber, Silicone-1600

- **§† Dow Corning Corp., Box 1767, Midland, MI 48640-0994, 517-496-4000 ...... 2•1080, 1081**
- † Allaco Prods. Div., 192 Pleasant St., Watertown, MA 02172-2399 ...617-926-2550
- † AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
- † APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700
- † Bacon Inds., 192 Pleasant St., Watertown, MA 02172-2399 617-926-2550
- §† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
- † Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
- §† CHR Inds., 407 East St., P.O. Box 1911, New Haven, CT 06509 203-777-3631
- §† Christie, S. D., Assocs. Inc., 693 Locust St., Mt. Vernon, NY 10552 ....212-597-1773;914-699-7223
- Conductive Rubber Technlg., 1235 Coast Village Rd., Santa Barbara, CA 93108 805-969-5805
- † Formulated Resins Inc., Box 508, Greenville, RI 02828 401-949-2060
- † Gasket Intl. Inc., 49 Ackerman St., Bloomfield, NJ 07003 201-338-6814
- § GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
- † Hardman Inc., 600 Cortlandt St., Belleville, NJ 07109 201-751-3000
- § Ram Chemicals, Div. Whittaker Corp., 210 E. Alondra Blvd., Gardena, CA 90248 213-321-0710
- † SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ...213-357-3287
- Tra-Con, Inc., 55 North St., Medford, MA 02155 617-391-5550
- Vernay Laboratories, Inc., S. College St., Yellow Springs, OH 45387 513-767-7261

Scale Expanders, Meter — See Multipliers, Meter (Vol. 3)

Scalers, Binary, Decade-2325 — *See Vol. 3*

Scales, Dial-2400

- Apahouser-Elcom, Inc., 101 Walnut St., Watertown, MA 02172 617-924-1500
- Beckman Instrs., 2500 Harbor Blvd., Fullerton, CA 92634 714-871-4848
- §† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
- § Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093 201-869-2200
- Dillon, W. C., & Co., 2320 Airport Blvd., Santa Rosa, CA 95401 707-527-5555
- § Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
- §† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
- † Photo Chem. Prods. Cal., 18031 Susana Rd., Compton, CA 90224 .213-603-0400
- § Sunshine Sci. Instr., 1810 Grant Ave., Philadelphia, PA 19115 215-673-5600
- Theta Instr. Corp., 24 Dwight Pl., Fairfield, NJ 07006 201-227-1700
- 3D Optics, Box 224, 4 Strathmore Cir., Braintree, MA 02184 617-848-8002
- § Vemaline Prods. Div., 487 Jefferson Blvd., Warwick, RI 02886 401-739-7600
- § Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

Scanners, Bar Code-2000 — *See Vol. 3*

Scanners, Crossbar-1900 — *See Vol. 3*

Scanners, Fiber Optic-2475 — *See Vol. 1B*

Scanners, Flying Spot-1900 — *See Vol. 3*

Scanners, Infrared-2900 — *See Vol. 3*

Scanners, Instrument, Input/Output-2900 — *See Vol. 3*

Scanners, Optical-2900 — *See Vol. 3*

Scanners, Reed-2900 — *See Vol. 3*

Scissors-5400

- §† Clauss Cutlery Co., Box 667, Fremont, OH 43420 419-332-7344
- §† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
- § Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
- § Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
- §† Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
- Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
- § Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Scope Dollies — See Carts & Dollies, Instrument & Equipment (Vol. 2)

SCRs — See Thyristors (Vol. 1A)

SCR Firing Controls — See Controls, SCR (Vol. 3)

Scramblers, Data-2325 — *See Vol. 3*

Scramblers, Speech-1900 — *See Vol. 3*

Screens, Printed Circuit-1700

- Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
- Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
- NAZ-DAR Intl., 1087 N. Branch St., Chicago, IL 60622 312-943-8338
- Photronic Labs., Secor Rd., Brookfield Ctr., CT 06805 203-775-0465
- TRW/Cinch-Graphik, 200 S. Turnbull Canyon Rd., City of Industry, CA 91744 213-333-1201
- § TWP, Inc., 2133 4th St., Berkeley, CA 94710 415-548-4434
- Universal Instrs., P.O. Box 825, Binghamton, NY 13902 607-775-1102
- § Zenrad Circuits Co., 529 E. Gutierrez St., Santa Barbara, CA 93103 805-963-3527

Screwdrivers-5400

- **§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236, 804-794-2877 .... 2•1748**
- Advanced Tool Technology, Inc., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325 213-993-1202
- Black & Webster, 281 Winter St., Waltham, MA 02154 617-890-9100
- §† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
- Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
- § Foredom Elec. Co., Blackstone Inds., Route 6, Bethel, CT 06470 203-792-8622

§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§ Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
Kedman Co., Box 25667, Salt Lake City, UT 84125 801-973-9112
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§† Moody Tools, 43 Crompton Ave., E. Greenwich, RI 02818 401-885-0911
§ Ridge Tool Co., Sub. Emerson Elec. Co., 400 Clark St., Elyria, OH 44036 216-323-5581
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Skyo Industries Inc., 171 Brook Ave., Deer Park, NY 11729 516-586-4702
§ Standard Pneumatic Motor, Box 10530, Reno, NV 89510 702-329-6311
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Screws, Lead, Feed & Translatory — See Drives & Drives Mechanisms (Dial) (Vol. 2)

Screws, Fastening-2825

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ....2•1232,1235
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033; 800-526-4182 ....2•1861
ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ....2•1380
Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 ....2•1868
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Deutsch Fastener, 1315 East Grand Ave., El Segundo, CA 90245 ...213-322-8840
§ Foredom Elec. Co., Blackstone Inds., Route 6, Bethel, CT 06470 203-792-8622
† Morris, J. I., Co., 372 Elm St., Southbridge, MA 01550 617-764-4394
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Southco, Inc., Concordville, PA 19331 215-459-4000

Scribers-5400

§ Apollo Lasers, Inc., 9201 Independence Ave., Chatsworth, CA 91311 213-709-1111
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
Coherent, Inc., 3210 Porter Dr., Palo Alto, CA 94304 415-493-2111
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§ General Hardware Mfg., 80 White St., New York, NY 10013 212-431-6100
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§† Moody Tools, 43 Crompton Ave., E. Greenwich, RI 02818 401-885-0911
Penn Resch. Corp. (PRC), 2652 South Main St., P.O. Box 3357, Kennesaw, GA 30144 404-429-9061
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Scribers, Wafer-4100 (Also See Machines & Accessories, Semiconductor Manufacturing) — *See Vol. 3*

Sealers — See Coatings (Vol. 2)

Sealing Equipment, Metal to Glass/Ceramic-4100 — *See Vol. 3*

Seals & Feedthrus, Environmental — See Feedthrus & Seals, Environmental (Vol. 2)

Seals, Ceramic To Metal-2500

† Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ... 2•1787
† Ceramaseal, Box 25, New Lebanon Center, NY 12126, 518-794-7800 ....2•1168
† Airpax Corporation, Woods Rd., Cambridge, MD 21613 301-228-4600
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Coors Porcelain, 600 Ninth St., Golden, CO 80401 303-278-4000
Corning Glass Works, Main Plant, MS 2136, Corning, NY 14831 607-974-4102
Corning Glass Works, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830 607-974-9000
† Gulton Inds., Inc., Servonic Div., 1644 Whittier Ave., Costa Mesa, CA 92627 ....714-642-2400;800-854-4066
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
3M Co., Tech Ceramic Resources, 3M Center 225-4W, St. Paul, MN. 55101 617-736-0601
National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
§ Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351
§ Plessey Ceramic Div., 8th & Harrison Sts., Frenchtown, NJ 08825 ..201-996-2121
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
Simmonds Precision, P.O. Box 310, Norwich, NY 13815 607-335-5000
Varian Associates, Inc., Microwave Tube Div., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000
Wilbrecht Elctrns., 240 Plato Blvd., St. Paul, MN 55107 612-222-2791

Seals, Glass To Metal-2500

† Airpax Corporation, Woods Rd., Cambridge, MD 21613 301-228-4600
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
§† Armstrong World Inds., W. Liberty St., Lancaster, PA 17604 717-397-0611
Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
† Connector Inds. of Amer., 639 N. Wayne, Cincinnati, OH 45215 513-733-3680
Corning Glass Works, Main Plant, MS 2136, Corning, NY 14831 607-974-4102
Corning Glass Works, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830 607-974-9000
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
Ferro, Thick Film Sys. Div., 25 CASTILIAN DR., Santa Barbara, CA 93117 805-968-5000
Fredericks Co., Philmont & Anne Sts., Huntingdon Valley, PA 19006 215-947-2500
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
† GTI/Elctrns. Div., P.O. Box 96, Hadley, PA 16130 412-253-3161
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
High Voltage Engrg. Corp., S. Bedford St., Burlington, MA 01803 ...617-272-1313
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
† National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
§ Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351
† Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013 717-243-5929
SermeTel, 155 Limerick Rd., Limerick, PA 19468 215-948-5100
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ...213-357-3287
Thermal Amer. Fused Quartz, Change Bridge Rd., Montville, NJ 07045 201-334-7770
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan ....Tokyo 03-402-6161
Wall, A. T., Co., 55 Service Ave., Warwick, RI 02886 401-739-0740
Wilbrecht Elctrns., 240 Plato Blvd., St. Paul, MN 55107 612-222-2791

Seals, Hermetic-2500 (Also See Services, Hermetic Sealing)

† Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ... 2•1787
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013, 717-243-5929 ....2•1795-1797
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
† Connector Inds. of Amer., 639 N. Wayne, Cincinnati, OH 45215 513-733-3680
Corning Glass Works, Main Plant, MS 2136, Corning, NY 14831 607-974-4102
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
Ferro, Thick Film Sys. Div., 25 CASTILIAN DR., Santa Barbara, CA 93117 805-968-5000
GTI/Elctrns. Div., P.O. Box 96, Hadley, PA 16130 412-253-3161
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
† Master Bond, P.O. Box 522, Teaneck, NJ 07666 201-343-8983
Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 ...619-449-3844
Mini-Systems, Inc., 20 David Rd., North Attleboro, MA 02761 617-695-0203
National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
Nyltite, 3451 S. Clinton Ave., S. Plainfield, NJ 07080 201-561-1300
§ Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351
Plessey Ceramic Div., 8th & Harrison Sts., Frenchtown, NJ 08825 ..201-996-2121
§ Schott Elctrns., Hershey Dr., Ansonia, CT 06401 203-736-2677
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 213-357-3287
Varian Associates, Inc., Microwave Tube Div., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000
Wilbrecht Elctrns., 240 Plato Blvd., St. Paul, MN 55107 612-222-2791
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Seals, Microwave — See Gaskets, Shielding, RF (Vol. 2), Seals, Waveguide (Vol. 1A),

Seals, Pressure Sensitive-2500

† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
§ Parker Seal Grp., P.O. Box 11751, Lexington, KY 40512 606-269-2351
SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ...213-357-3287

Seals, Waveguide-3450 — *See Vol. 1A*

Search, Interceptor Set (MIL)-3475 — *See Vol. 3*

Search Unit, Magnetic Tape — See Tape Search Equipment (Vol. 3)

Security Systems, Data-2325 — *See Vol. 3*

Seizers-5400

§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Selsyns — See Motors, Synchronous (Vol. 1B)

Semiconductor Material — See Crystals, Semiconductor (Vol. 1A)

Semiconductor Wafer Fabrication, Assembling (Packaging)-4100 — *See Vol. 3*

Semiconductor Wafer Fabrication, Designing (Topological)-4100 — *See Vol. 3*

Semiconductor Wafer Fabrication, Maskmaking (Tooling)-4100 — *See Vol. 3*

Semiconductor Wafer Fabrication, Processing-4100 — ***See Vol. 3***

Semiconductor Wafer Fabrication, Testing-4100 — ***See Vol. 3***

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Sensors, Chemical-2200 — ***See Vol. 3***

Sensors, Fiber Optic-2475 — ***See Vol. 1B***

Sensors, Light-3700 — ***See Vol. 1B***

Sensors, Proximity-2200 — ***See Vol. 3***

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Services, Assembly & Fabrication (Incl. R&D)-4100 — ***See Vol. 3***

Services, Backplane Wiring-4100 — ***See Vol. 3***

Services, Calibration & Instrument Repair-4100 — ***See Vol. 3***

Services, Coating (All Types)-4100 — ***See Vol. 3***

Services, Computer-Aided Design (CAD)—Also See Computers, CAD, CAM, & CAD/CAM-4200 — ***See Vol. 3***

Services, Computer Programming-2050 — ***See Vol. 3***

Services, Computer Systems, Builders-2050 — ***See Vol. 3***

Services, Computer Systems, Consulting-2050 — ***See Vol. 3***

Services, Computer Systems, Integrators-2050 — ***See Vol. 3***

Services, Computer Systems, Turnkey-2050 — ***See Vol. 3***

Services, Crimping-4100 — ***See Vol. 3***

Services, Custom Molding, Plastics-4100 — ***See Vol. 3***

Services, Data Processing, Consulting-2050 — ***See Vol. 3***

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Services, Electrical Measurement & Test-4100 — ***See Vol. 3***

Services, EMI/RFI Testing-4100 — ***See Vol. 3***

Services, Encapsulation-4100 — ***See Vol. 3***

Services, Environmental Testing-4100 — ***See Vol. 3***

Services, Hermetic Sealing-4100 — ***See Vol. 3***

Services, High Vacuum-4100 — ***See Vol. 3***

Services, Instrument Design (Industrial)-4100 — ***See Vol. 3***

Services, Metal Etching, Engraving-4100 — ***See Vol. 3***

Services, Metal Parts Fabrication-4100 — ***See Vol. 3***

Services, Metallizing (Incl. Electroforming)-4100 — ***See Vol. 3***

Services, Microprocessor-4100 — ***See Vol. 3***

Services, Molding-4100 — ***See Vol. 3***

Services, Packaging-4100 — ***See Vol. 3***

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Services, Plastics Fabrication-4100 — ***See Vol. 3***

Services, Plating-4100 — ***See Vol. 3***

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Shells, Encapsulation — See Cups, Encapsulation (Vol. 2)

Shielding, EMI/RFI-4525

Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 .... 2•1904

Shielding Beads, Ferrite-4525

Allen-Bradley Co., 1201 S. Second St., Milwaukee, WI 53204, 414-671-2000 .... 2•1790,1791
Fair-Rite Prods., PO Box J, Wallkill, NY 12589, 914-895-2055 .... 2•1907
† Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07509, 201-345-8900 .... 2•1793
† Air/Flex Inds. Inc., 2422 Merced Ave., S. El Monte, CA 91733 818-579-7060
§ Amperex Electronic Corp., Ferroxcube Div., 5083 Kings Hwy., Saugerties, NY 12477 914-246-2811
Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491 309-695-2511
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 ..617-448-5485
Ferronics, 66 N. Main St., Fairport, NY 14450 716-223-1010
Micrometals, 1190 N. Hawk, Anaheim, CA 92807 714-630-7420
Stackpole, Electronic Components Div., 201 Stackpole St., St. Marys, PA 15857 814-781-1234
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ...615-867-4100

Shields, Cable — See Braid, Cable (Vol. 2)

Shields, Cathode-Ray Tube-4525

† Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 .... 2•1902
Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124, 215-535-3000 .... 2•1903
† Eagle Magnetic Company, Inc., 7417 Crawfordsville Rd., P.O. Box 24283, Indianapolis, IN 46224, 317-297-1030 .... 2•1905
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148, 617-321-4410 .... 2•1915
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
† CELCO, 70 Constantine Dr., Mahwah, NJ 07430 201-327-1123
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
Inter-Technical Grp., Box 23, Irvington, NY 10533 914-591-8822
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106 312-766-7800
Panelgraphic Corp., 10 Henderson Dr., W. Caldwell, NJ 07006 201-227-1500
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ...415-365-0498
§ THORN EMI Gencom Inc., 23 Madison Rd., Fairfield, NJ 07006 516-433-5900

Shields, Coil-4525

† Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 .... 2•1902
† Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124, 215-535-3000 .... 2•1903
Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 .... 2•1904
† Eagle Magnetic Company, Inc., 7417 Crawfordsville Rd., P.O. Box 24283, Indianapolis, IN 46224, 317-297-1030 .... 2•1905
§† Krystinel Corp., 126 Pennsylvania Ave., Paterson, NJ 07509, 201-345-8900 .... 2•1793
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148, 617-321-4410 .... 2•1915

Caddell-Burns Mfg., 40 E. 2nd St., Mineola, NY 11501 516-746-2310
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106 312-766-7800
§ Microtran Co. Inc., 145 E. Mineola Ave., Valley Stream, NY 11582 ..516-561-6050
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ...415-365-0498
SGL Electronics, 300 Harvard Ave., Westville, NJ 08093 609-456-7300
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706 516-666-8000
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 716-621-8400

Shields, Corona-4525

Ross Engrg. Corp., 559 Westchester Dr., Campbell, CA 95008, 408-377-4621 ....1B•1472
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 ..617-448-5485
Hipotronics, P.O. Drawer A, Brewster, NY 10509 914-279-8091
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ...415-365-0498
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 215-822-2171
§† TAFA Inc., Dow Rd., Bow, NH 03301 603-224-9585
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523

Shields, Electrostatic — See Shields, Tube (Vol. 2)

Shields, Indicator Light-4525

† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706 516-666-8000

Shields, Magnetic-4525

† Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 ....2•1902
† Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124, 215-535-3000 ....2•1903
† Eagle Magnetic Company, Inc., 7417 Crawfordsville Rd., P.O. Box 24283, Indianapolis, IN 46224, 317-297-1030 ....2•1905
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 ....2•1770
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 ....2•1911,1913
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148, 617-321-4410 ....2•1915
ATV Research, Inc., 1301 Broadway, Dakota City, NE 68731 402-987-3771
† Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491 309-695-2511
† CELCO, 70 Constantine Dr., Mahwah, NJ 07430 201-327-1123
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
Hamamatsu Photonics K.K., 1126 Ichino-Cho, Hamamatsu City, Shizuoka Pref, Japan 0534-34-3311
† Hudson Tool & Die Co., Inc., 18 Malvern St., Newark, NJ 07105 201-589-1800
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327 717-424-8510
Inter-Technical Grp., Box 23, Irvington, NY 10533 914-591-8822
§† Lectro Magnetics, Inc., 6056 W. Jefferson Blvd., Los Angeles, CA 90016 ....213-870-9383;800-325-9814
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 818-849-4543
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ...415-365-0498
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000
Schonstedt Instr. Co., 1775 Wiehle Ave., Reston, VA 22090 703-471-1050
SGL Electronics, 300 Harvard Ave., Westville, NJ 08093 609-456-7300
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ...213-357-3287
Stackpole, Electronic Components Div., 201 Stackpole St., St. Marys, PA 15857 814-781-1234
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 716-621-8400
THORN EMI Gencom Inc., 23 Madison Rd., Fairfield, NJ 07006 516-433-5900
§ Tohoku Metal Inds., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan ....Tokyo 03-402-6161
Topflight, 160 East 9th Ave., York, PA 17404 717-843-9901
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Shields, Photomultiplier-4525

Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 ....2•1902
† Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124, 215-535-3000 ....2•1903
† Eagle Magnetic Company, Inc., 7417 Crawfordsville Rd., P.O. Box 24283, Indianapolis, IN 46224, 317-297-1030 ....2•1905
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 ....2•1912
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148, 617-321-4410 ....2•1915
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Inter-Technical Grp., Box 23, Irvington, NY 10533 914-591-8822
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§ THORN EMI Gencom Inc., 23 Madison Rd., Fairfield, NJ 07006 516-433-5900

Shields, RF-4525 (Also See Gaskets, Shielding, RF)

Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 ....2•1902
Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 ....2•1904
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327, 717-424-8510 ....2•1908
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ....2•1916-1919,1921-1923
† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581
Acme Chem. & Insulation, 166 Colonial St., New Haven, CT 06513 ...203-562-2171
† Adams Russell, Modpak Div., 80 Cambridge St., Burlington, MA 01803 617-273-3333
† Air/Flex Inds. Inc., 2422 Merced Ave., S. El Monte, CA 91733 818-579-7060
† AME Corp., 101 E. Main St., Little Falls, NJ 07424 201-256-3939
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124 215-535-3000
† Ark Elctrns. Corp., 1325 Industrial Hwy., Southampton, PA 18966 ..215-322-6510
Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000
§ Bergquist, 5300 Edina Ind'l., Minneapolis, MN 55435 612-835-2322
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491 309-695-2511
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Compac, 279 Skidmore Rd., Deer Park, NY 11729 516-667-3933
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
† Emerson & Cuming, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021 617-828-3300
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 206-457-0904
Evaporated Coatings, 798 Welsh Rd., Huntingdon Valley, PA 19006 215-947-1465
Hartwell Corp., 900 S. Richfield Rd., Placentia, CA 92670 714-993-4200
Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
Isochem Prods. Co., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865 401-723-2100
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
Keene Ray Proof, Keene Corp., 50 Keeler Ave., Norwalk, CT 06878 203-838-4555
§† Lectro Magnetics, Inc., 6056 W. Jefferson Blvd., Los Angeles, CA 90016 ....213-870-9383;800-325-9814
Libby Owens-Ford, 811 Madison Ave., Toledo, OH 43695 419-247-4797
† McLean Engrg., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550 609-799-0100
† 3M Co., Static Control Sys. Div., 3M Center, Bldg. 225-4S-04, St. Paul, MN 55144 612-733-9420
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
† Optical & Conductive Coatings, Meridian Inds., Inc., 428 N. Buchanan Cir., Pacheco, CA 94553 415-798-6066
§ PacTec Div., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153 215-365-8400
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ...415-365-0498
† Shielding Technology, Inc., 120 Ethel Rd. West, Piscataway, NJ 08854 201-985-8800
Spectrum Control, Inc., 2185 W. 8th St., Erie, PA 16505 814-455-0966
† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ...213-357-3287
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706 516-666-8000
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
§† TAFA Inc., Dow Rd., Bow, NH 03301 603-224-9585
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 716-621-8400
§† Tech-Etch Inc., 45 Aldrin Rd., Plymouth, MA 02360 617-747-0300
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
† Titchener, E. H., & Co., 1 Titchener Pl., Binghamton, NY 13902 607-772-1161
Topflight, 160 East 9th Ave., York, PA 17404 717-843-9901
Transmet Corp., 4290 Perimeter Dr., Columbus, OH 43228 ....614-276-5522; 800-245-5253
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Shields, Transformer-4525

† Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 ....2•1902
† Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124, 215-535-3000 ....2•1903
Atlee Inc., One Gill St., Woburn, MA 01801, 617-933-3510 ....2•1904
† Eagle Magnetic Company, Inc., 7417 Crawfordsville Rd., P.O. Box 24283, Indianapolis, IN 46224, 317-297-1030 ....2•1905
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148, 617-321-4410 ....2•1915
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Framar Metal Prods., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829 201-638-6688
† Hudson Tool & Die Co., Inc., 18 Malvern St., Newark, NJ 07105 201-589-1800
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§ Lectro Magnetics, Inc., 6056 W. Jefferson Blvd., Los Angeles, CA 90016 ....213-870-9383;800-325-9814
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106 312-766-7800

Shields, Transformer-4525 (Cont'd)

† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
Microtran Co. Inc., 145 E. Mineola Ave., Valley Stream, NY 11582 ..516-561-6050
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ...415-365-0498
SGL Electronics, 300 Harvard Ave., Westville, NJ 08093 609-456-7300
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706 516-666-8000
§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 716-621-8400

Shields, Tube-4525

† Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975, 219-223-3158 ..... 2•1902
† Amuneal Mfg., 4737 Darrah St., Philadelphia, PA 19124, 215-535-3000 ..... 2•1903
† Eagle Magnetic Company, Inc., 7417 Crawfordsville Rd., P.O. Box 24283, Indianapolis, IN 46224, 317-297-1030 ..... 2•1905
† MuShield Co., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148, 617-321-4410 ..... 2•1915
† Air/Flex Inds. Inc., 2422 Merced Ave., S. El Monte, CA 91733 818-579-7060
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
† Cleveland Mica Co., 1360 Hird Ave., Lakewood, OH 44107 216-226-1360
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Drawn Metal Products, 6143 W. Howard St., Niles, IL 60648 312-647-8941
Hamamatsu Photonics K.K., 1126 Ichino-Cho, Hamamatsu City, Shizuoka Pref, Japan 0534-34-3311
§† IERC, 135 W. Magnolia Blvd., Burbank, CA 91502 818-849-2481
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327 717-424-8510
§† Intl. Elctrn. Resch., 135 W. Magnolia Blvd., Burbank, CA 91502 213-849-2481
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106 312-766-7800
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
† Micro-Circuits Co., Inc., Route 1 - Box 518, New Buffalo, MI 49117 616-469-2727
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
† Proto Stamping Corp., 850 Charter St., Redwood City, CA 94063 ...415-365-0498
Staver Co., Inc., 47 Saxon Ave., Bay Shore, NY 11706 516-666-8000
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Shields, Wire — See Braid, Cable (Vol. 2)

Shift Registers-2325 — *See Vol. 3*

Shifters, Frequency — See Converters, Frequency to Frequency (Vol. 3)

Shifters, Phase, Microwave-3450 — *See Vol. 1A*

Shifters, Phase, RF-3450 — *See Vol. 1A*

Shifters, Phase 60/400 Hz-4050 — *See Vol. 3*

Shrinkable Plastics & Elastomers — See Caps, Forms & Tapes, Heat Shrinkable (Vol. 2), Tubing, Heat Shrinkable (Vol. 2),

Shunts, Meter-2900 — *See Vol. 3*

Shutters, Microwave-3450 — *See Vol. 1A*

Signal Averagers-2900 — *See Vol. 3*

Signal Conditioners & Equipment-1100 — *See Vol. 3*

Signal Generators — See Generators, Specific Type (Vol. 3)

Signal Systems, Fiber Optic-2325 — *See Vol. 3*

Signal Tracers — See Testers, Signal Tracing (Vol. 3)

Silica, Fused-2500

† Accumet Engrg., 518 Main St., Hudson, MA 01749 617-568-8311
Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Corning Glass Works, Main Plant, MS 2136, Corning, NY 14831 607-974-4102
Corning Glass Works, Telecomm Prods Dept., BH-5, Corning, NY 14830 607-974-9000
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
§ Optics International, Box 101, Tenafly, NJ 07670 201-567-4799
Thermal Amer. Fused Quartz, Change Bridge Rd., Montville, NJ 07045 201-334-7770

Silk Screening Services — See Services, Silk Screening (Vol. 3)

Simulators, Data-2900 — *See Vol. 3*

Simulators, Motion-2550

North Atlantic Inds., Instrument Div., 60 Plant Ave., Hauppauge, NY 11788, 516-582-6500 ..... 3•1277
† Transmagnetics, 210 Adams Blvd., Farmingdale, NY 11735, 516-293-3100 ..... 3•1170,1171
T S Products, 12455 Brandford St., Unit 22, Arleta, CA 91331, 818-896-6676 ..... 3•1119
Accuride, Div. Standard Precision, 12311 S. Shoemaker, Santa Fe Springs, CA 90670 213-944-0921
Advanced Techn. Sys., 17-01 Pollitt Drive, Fair Lawn, NJ 07410 201-794-0200
† Aeroflex Labs., Magnetic Prods. Div., , So. Service Rd., Plainview, NY 11803 516-694-6700
§ Aerotech, Inc., 101 Zeta Dr., Pittsburgh, PA 15238 412-963-7470
Anorad Corp., 110 Oser Ave., Hauppauge, NY 11788 516-231-1990
Automation Unltd., 10H Roessler Rd., Woburn, MA 01801 617-933-7288
Centent Co., 3879 S. Main St., Santa Ana, CA 92707 714-979-6491
† Computer Conversions Corp., 6 Dunton Ct., E. Northport, NY 11731 516-261-3300
Contraves Goerz Corp., 610 Epsilon Dr., Pittsburgh, PA 15238 412-967-7700
† Control Technology Co., 41-16 29th St., Long Island City, NY 11101 212-361-2133
† Genisco Technlg. Corp., Rotating Test Div., 18435 Susana Rd., Rancho Dominguez, CA 90221 213-537-4750
Icon, 156 Sixth St., Cambridge, MA 02142 617-868-5400
† Instruments and Controls Div., Technology Inc., P.O. Box 3036, Overlook Branch, Dayton, OH 45431 513-426-2405
Interface Engrg., 386 Lindelof Ave., Stoughton, MA 02072 617-344-7383
PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
Stenning Instrments, Inc., 671 Enchanted Way, Pacific Palisades, CA 90272 213-459-2930
Summit Engineering Corp., Box 938, Bozeman, MT 59715 406-587-4511

Simulators, Power Failure-2900 — *See Vol. 3*

Simulators, Powerline Disturbance-2900 — *See Vol. 3*

Simulators, Radar-3475 — *See Vol. 3*

Simulators, Solar-2900 — *See Vol. 3*

Simulators (MIL), EW-3475 — *See Vol. 3*

Simulators (MIL), EW Quick Reaction Capability-3475 — *See Vol. 3*

Simulators (MIL), RHAW-3475 — *See Vol. 3*

Simulators (MIL), Weapon-3475 — *See Vol. 3*

Sinks, Heat — See Heat Sinks, Semiconductor (Vol. 2), Heat Sinks, Soldering (Vol. 2),

Sleeves — See Tubing (Vol. 2)

Slides, Cabinet & Chassis-1400

§† Barnes Engrg., 1645 So. Claudina Way, Anaheim, CA 92805, 714-533-7530 ..... 2•1011-1013
† Chassis-Trak, P.O. Box 39100, Indianapolis, IN 46239, 317-897-7000 ..... 2•1032, 1033
† General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 ... 2•1032, 1033
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084, 404-939-6340 ..... 2•1047
§† Accuride, Div. Standard Precision, 12311 S. Shoemaker, Santa Fe Springs, CA 90670 213-944-0921
§† Bud Radio, 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
† Grant Hardware Co., Div. of Grant Inds. Inc., 7 Hoover Ave, Haverstraw, NY 10927-1092 ..... 914-EL8-4400
Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 716-894-5710
Jonathan Mfg., 1101 So. Acacia Ave., Fullerton, CA 92631 714-526-4651
Lambda Electronics, 515 Broad Hollow Rd., Melville, NY 11747 516-694-4200
§† Premier Metal Prods. Co., 381 Canal Pl., Bronx, NY 10451 212-993-9200
† STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073 213-204-0472
Techmar Corp., 2232 S. Cotner Ave., Los Angeles, CA 90064 ..... 213-478-0046; 800-TECHMAR
† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191
† Zero-East Div., 288 Main St., Monson, MA 01057 .....

Slip Clutch — See Knobs, Slip Clutch (Vol. 2)

Slip Rings & Assemblies-3500 — *See Vol. 1B*

Slotted Lines, Microwave-3450 — *See Vol. 1A*

Socket Adapters-2100

Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060, 216-354-9239 ..... 2•1161
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ..... 2•1468,1469
Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 ..... 2•2140,2141
Précicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047, 215-757-1202 ..... 2•1547
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ..... 2•1565
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 ..... 2•1611
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751

Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818 401-885-0485
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825 201-996-6841
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
§ Bivar, Inc., 4 Thomas, Irvine, CA 92714 714-951-8808
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
Data I/O Corp., 10525 Willows Rd. N.E., C-46, Redmond, WA 98052 206-881-6444
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 214-243-0611
Power Controls, P.O. Box 5860, San Antonio, TX 78201 512-734-7155
§ Power Dynamics, 177 Valley, S. Orange, NJ 07079 201-762-6886
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Sockets, Capacitor-2100

§† Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676

Sockets, Crystal-2100

Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 ..... 2•1244,1245
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 ..... 2•1257
Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047, 215-757-1202 ..... 2•1547
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Sockets, Diode-2100

Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 201-887-0571
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
Leecraft Mfg., 21-02 44th Rd., Long Island City, NY 11101 212-392-8800
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 214-243-0611
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Visual Communications Co., P.O. Box 986, El Segundo, CA 90245 .213-822-4727
§ Wells Elctrns., 1701 S. Main St., South Bend, IN 46613 219-287-5941
§ Winslow Intl., 2471 E. Bayshore 20, Palo Alto, CA 94303 415-856-0552

Sockets, DIP and DIL-2100

Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818, 401-885-0485 .....2•1102-1104
Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060, 216-354-9239 ..... 2•1161
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .....2•1149-1152
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202 ..... 2•1162, 1163,1876,1878,1879
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 ..... 2•1255
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 ...2•1268-1270,1885
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753 ..... 2•1272,1274
§† H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810, 203-794-1798 ..... 2•1318,1319
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 ..... 2•1481
Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 ..... 2•1533
Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047, 215-757-1202 ..... 2•1547,1892
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150, 812-945-0211 ..... 2•1552
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ..... 2•1565
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .....2•1604,1608-1611
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ..... 2•1673,1675,1697
Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada, 514-457-3648 ..... 2•1747
§ Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 ..... 2•1750, 1755
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903. 203-322-1913
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Gibson/Egan, 2666 East Huntington Dr., Duarte, CA 91010 818-358-0191
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
§† Industrial Elctrn. Engrs., Inc., 7740 Lemona Ave., Van Nuys, CA 91405 818-787-0311
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542 516-671-6010
Interdyne Co., 157 Topaz St., Milpitas, CA 95035 408-943-9133
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
§ Mallory Capacitor Co., Mallory Comps. Grp., 3029 E. Washington St., Indianapolis, IN 46201 317-636-5353
§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 ...213-452-1336
§† 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500

Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
Nepenthe/Yamaichi, 2471 E. Bayshore, 20, Palo Alto, CA 94303 415-856-9332
§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 214-243-0611
§† Refac Elctrns. Corp., P.O. Box 809, Winsted, CT 06098 203-379-2731
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§ Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§ Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 214-995-6611
§† Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
§ Winslow Intl., 2471 E. Bayshore 20, Palo Alto, CA 94303 415-856-0552
Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Sockets, Integrated Circuit-2100

Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818, 401-885-0485 ....2•1102-1104
Aptronics Corporation, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060, 216-354-9239 ....2•1161
§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1149,1150,1152
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703, 617-222-2202 .... 2•1162, 1163,1876,1878,1879
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 ....2•1244,1245
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 ....2•1255
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 ...2•1268-1270,1885
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753 ....2•1272,1274
H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810, 203-794-1798 ....2•1318,1319
Industrial Elctrn. Engrs., Inc., 7740 Lemona Ave., Van Nuys, CA 91405, 818-787-0311 ....1B•1084
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 ....2•1481
Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 ....2•1533
§† Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047, 215-757-1202 ....2•1547,1892
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150, 812-945-0211 ....2•1552,1554
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 ....2•1604,1608-1611
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ....2•1673,1675,1697
Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada, 514-457-3648 ....2•1747
§ Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 .... 2•1750, 1751,1755
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Beckman Instrs., Electro-Prods. Grp., 2500 Harbor Blvd., Fullerton, CA 92634 714-871-4848
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Gibson/Egan, 2666 East Huntington Dr., Duarte, CA 91010 818-358-0191
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542 516-671-6010
Interdyne Co., 157 Topaz St., Milpitas, CA 95035 408-943-9133
§ ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 201-887-0571
§ Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
Loranger Mfg., Box 948, Warren, PA 16365 814-723-2250
§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 ...213-452-1336
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
Nepenthe/Yamaichi, 2471 E. Bayshore, 20, Palo Alto, CA 94303 415-856-9332
§ New-Tone Electronics, Inc., 44 Farrand St., Bloomfield, NJ 07003 ..201-748-5089
§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 214-243-0611
§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 617-699-7646
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§† Scanbe Div., 3445 Fletcher Ave., El Monte, CA 91731 213-579-2300
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§ Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§ Sylvania Electronic Components, Philips ECG Inc., A North American Philips Co., 100 First Ave., Waltham, MA 02254 617-890-6107
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
§ Winslow Intl., 2471 E. Bayshore 20, Palo Alto, CA 94303 415-856-0552

Sockets, Lamp & Lamp Assemblies-2450 — *See Vol. 1B*

Sockets, Leadless Carrier-2100

Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 ....2•1608,1609
§ Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 .... 2•1755
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676

Sockets, LIF & ZIF-2100

§† Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 .... 2•1751
Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818 401-885-0485
§ Alpha Products, Inc., 5740 Corsa Ave. 04, Westlake Village, CA 91362 818-889-9304
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676

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§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1149,1150,1152
† Aromat Corp., 250 Sheffield St., Mountainside, NJ 07092, 201-232-4260 1B•1300, 1303,1307
§ Custom Connector, 1738 E. 30th St., Cleveland, OH 44114, 216-241-1679 ....2•1249
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 .... 2•1257
§ Gould Inc., Industrial Controls Div., 901 Baltimore Blvd., Westminster, MD 21157, 301-876-2214 ....1B•1408,1409
Interlok, 770 Airport Blvd., Burlingame, CA 94010, 415-348-5625 .... 2•1334,1335
§† Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 ....2•1767
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104, 717-232-0500 ....2•1542
Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047, 215-757-1202 ....2•1547
§ RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 ....2•1548
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 ....2•1743
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ American Zettler, 16881 Hale Ave., Irvine, CA 92714 714-660-1670
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§† Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202

Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
† Branson Corp., Box 147, Newton, NJ 07860 ...201-383-3132
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 ...203-838-4444
Cardinal Control Co., 110 Kensington Rd., Kensington, CT 06037 ...203-828-6379
§ Clare Division, General Instrument Corp., 3101 W. Pratt Blvd., Chicago, IL 60645 ...312-262-7700
Computer Components, Inc., 629 Fifth Ave., Pelham, NY 10803 ...914-738-1611
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 ...312-539-3108
§ Curtis Inds., 8000 West Tower Ave., Milwaukee, WI 53223 ...414-354-1500
† DAN-L Inc., 229 Laurel Rd., E. Northport, NY 11731 ...516-757-8000
§ Deltrol Controls, 2745 S. 19th St., Milwaukee, WI 53215 ...414-671-6800
§ Diversified Elctrns., Inc., Indl. Controls Div., 119 N. Morton Ave., Evansville, IN 47711 ...812-426-2806
§ Electromatic Comps. Ltd., 1531 Burgundy Pkwy., Streamwood, IL 60103 ...312-837-4600
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 ...401-769-3800
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 ...215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ...815-968-9661
§ IDEC Systems & Controls Corp., 3050 Tasman Dr., Santa Clara, CA 95050 ...408-988-7500
§ ITT Comps. Electromechanical Grp., 3201 So. Standard St., Santa Ana, CA 92705 ...714-751-3900
§ Leach Corp., Relay Div., 5915 Avalon Blvd., Los Angeles, CA 90003 ...213-232-8221
§ Line Elec. Prods., G. General Electro-Components, Inc., 122 Naubuc Ave., Glastonbury, CT 06033 ...203-659-3573
Loranger Mfg., Box 948, Warren, PA 16365 ...814-723-2250
§ Magnecraft Elec. Co., 5575 N. Lynch Ave., Chicago, IL 60630 ...312-282-5500
§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 ...213-452-1336
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 ...612-733-7408
§† Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ...312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 ...312-392-3500
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 ...617-491-5400
§ Midland-Ross Corp., Midtex Div., P.O. Box 3328, No. Mankato, MN 56001 ...507-625-6521
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 ...312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ...215-355-0200
Omron Elctrns., Inc., Control Comps. Div., One E. Commerce Dr., Schaumburg, IL 60195 ...312-843-7900
§ Potter & Brumfield, P.O. Box 322, Princeton, IN 47671 ...812-386-1000
† PSG Inds., 1225 Tunnel Road, Perkasie, PA 18944 ...215-257-3621
§ Relay Specialties, 1300 Plaza Rd., Fair Lawn, NJ 07410 ...201-797-3313; 800-526-5376
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 ...812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 ...812-944-6733
§ Schrack North America Corp., 76 N. Broadway, Irvington, NY 10533 ...914-591-7900
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 ...914-681-0700
§ Sigma Instrs., 170 Pearl St., Braintree, MA 02184 ...617-843-5000
§ Square D Co., Executive Plaza, Palatine, IL 60067 ...312-397-2600
§† Struthers-Dunn, Lamb's Rd., Pitman, NJ 08071 ...609-589-7500
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 ...214-259-2676
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 ...312-981-6000
§ Viking Connectors, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311 ...818-341-4330
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ...312-585-1212

Sockets, SIP-2100

§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ... 2•1149,1150
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 ... 2•1268
Elfab Corp., P.O. Box 810555, Dallas, TX 75381-0555, 214-233-3033;800-527-0753 ... 2•1272,1274
Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047, 215-757-1202 ... 2•1547
§† Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 ... 2•1751
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
AMP Incorporated, Box 3608, Harrisburg, PA 17105 ...717-564-0100
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 ...203-674-1515
Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 ...203-756-8847
§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 ...213-452-1336
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 ...612-733-7408
Nepenthe/Yamaichi, 2471 E. Bayshore, 20, Palo Alto, CA 94303 ...415-856-9332
SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 ...812-944-6733
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ...408-980-1600
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 ...214-259-2676

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§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ... 2•1152
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 ... 2•1255
§ Interlok, 770 Airport Blvd., Burlingame, CA 94010, 415-348-5625 ... 2•1334
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ... 2•1468,1469
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150, 812-945-0211 ... 2•1553
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ... 2•1697
§ Wells Elctrns., 1701 S. Main St., South Bend, IN 46613, 219-287-5941 ... 2•1755
AMP Incorporated, Box 3608, Harrisburg, PA 17105 ...717-564-0100
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 ...203-674-1515
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 ...617-222-2202
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ...201-768-5400
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 ...401-769-3800
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 ...215-949-2300
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 ...203-624-3103
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ...617-568-0451; 800-225-9228
§ Interconnect Devices, Inc., 5101 Richland Ave., Kansas City, KS 66106 ...913-342-5544
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 ...201-887-0571
Loranger Mfg., Box 948, Warren, PA 16365 ...814-723-2250
Mac Panel Co., Box 5027, 216 Pine St., High Point, NC 27262 ...919-884-8111
Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 ...203-756-8847
§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 ...213-452-1336
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 ...612-733-7408
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ...215-355-0200
Nepenthe/Yamaichi, 2471 E. Bayshore, 20, Palo Alto, CA 94303 ...415-856-9332
§ Plastronics Inc., 3111 Gardenbrook, Dallas, TX 75234 ...214-243-0611
§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 ...617-699-7646
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ...914-698-0080
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 ...812-944-6733
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ...914-698-5600
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ...201-223-9400
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 ...214-259-2676
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 ...214-243-4321
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 ...813-371-4242
"World" Enterprises, Inc., 550 N. Bayard Ave., Waynesboro, VA 22980 ...703-942-4159

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§ Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ... 2•1149
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 ... 2•1244,1245
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 ... 2•1255
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 ... 2•1256
§ Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525, 312-354-1040 ... 2•1294
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 ... 2•1487,1493
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 ... 2•1743
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818 ...401-885-0485
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 ...203-397-3311
§ AMF/Electro Comps. Div., AMF, 2713 Gateway Dr., Pompano Beach, FL 33060 ...305-973-8620
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 ...203-322-1913
AMP Incorporated, Box 3608, Harrisburg, PA 17105 ...717-564-0100
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 ...203-674-1515
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 ...617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ...212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ...203-929-1401
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
Delbert Blinn Co., Box 2007, Pomona, CA 91766 ...714-629-3900
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 ...401-769-3800
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 ...215-949-2300
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 ...201-887-0571
Loranger Mfg., Box 948, Warren, PA 16365 ...814-723-2250
Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 ...203-756-8847
§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 ...213-452-1336
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 ...612-733-7408
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ...312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 ...312-392-3500
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 ...617-491-5400
§ Midway Mfr. Co., 10750 W. Grand Ave., Franklin Park, IL 60131 ...312-451-1360
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ...215-355-0200
† Moldtronics, Inc., 707 Roger St., Downers Grove, IL 60515 ...312-968-7000
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 ...312-969-4550
Nepenthe/Yamaichi, 2471 E. Bayshore, 20, Palo Alto, CA 94303 ...415-856-9332
§ New-Tone Electronics, Inc., 44 Farrand St., Bloomfield, NJ 07003 ..201-748-5089
Projects Unltd., 3680 Wyse Rd., Dayton, OH 45414 ...513-890-1918
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 ...812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 ...812-944-6733
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ...914-698-5600
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ...201-223-9400

§ Sylvania Electronic Components, Philips ECG Inc., A North American Philips Co., 100 First Ave., Waltham, MA 02254 617-890-6107
§ Textool Products, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061 214-259-2676
§ Thermalloy, Inc., 2021 W. Valley View, Dallas, TX 75234 214-243-4321
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Wells Elctrns., 1701 S. Main St., South Bend, IN 46613 219-287-5941
§ Winslow Intl., 2471 E. Bayshore 20, Palo Alto, CA 94303 415-856-0552
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Sockets, Tube-2100

Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, 617-583-0160 ......2•1116,1119
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 ......2•1244,1245
§ Eby Co., 2751 Southampton Rd., Philadelphia, PA 19154, 215-969-4200 ......2•1257
§ RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 ......2•1548
Amperite Co., Inc., 600 Palisade Ave., Union City, NJ 07087 201-864-9503
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† Jettron Prods., P.O. Box 337, E. Hanover, NJ 07936 201-887-0571
Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
§ Master Elctrn. Controls, P.O. Box 25905, Los Angeles, CA 90025 213-452-1336
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
Murata Erie North America, Inc., 1148 Franklin Rd., S.E., Marietta, GA 30067 404-952-9777
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ THORN EMI Gencom Inc., 23 Madison Rd., Fairfield, NJ 07006 516-433-5900
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
Varian Associates, Inc., Microwave Tube Div., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

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Software, Job Scheduling/Accounting-2050 — *See Vol. 3*

Software, Librarians-2050 — *See Vol. 3*

Software, Operating Systems-2050 — *See Vol. 3*

Software, Operating Systems Enhancement-2050 — *See Vol. 3*

Software, Programming/Systems Development Aids-2050 — *See Vol. 3*

Software, Program Translators-2050 — *See Vol. 3*

Software, Report Generators-2050 — *See Vol. 3*

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Software, Spoolers-2050 — *See Vol. 3*

Software, Utilities-2050 — *See Vol. 3*

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Solder (All Types)-4600

§† Gardiner Solder Co., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632, 312-847-0100 ......2•1927
§† Kester Solder Div., 4201 Wrightwood Ave., Chicago, IL 60639, 312-235-1600 ......2•1084,1929
§† Alpha Metals, 600 Rte 440, Jersey City, NJ 07304 201-434-6778
§† Bow Solder Prods., 900 Hobson St., Union, NJ 07083 ......201-686-6040; 800-526-4496
§ Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
† DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
† EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543 914-698-8434
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Kartz Elctrn. Ind., 1804 Wall Church Rd., Wall Township, NJ 07719 201-974-0090
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§† Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
† New England Smelting Works, Inc., 502 Union St., W. Springfield, MA 01090 413-734-6491
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
Transene, Rte. 1, Rowley, MA 01969 617-948-2501
§ Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada 514-457-3648
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Solder Lugs — See Terminals, Lug (All Types) (Vol. 2)

Solder Pots & Baths-4600

§ APA Division, 399 Executive Blvd., Elmsford, NY 10523, 914-592-7322 ......2•1924
Kester Solder Div., 4201 Wrightwood Ave., Chicago, IL 60639, 312-235-1600 ......2•1929
† Acme Elec. Heating Corp., 4685 E. 11th, Hialeah, FL 33013 305-685-8326
Air-Vac Engrg., 100 Gulf St., Milford, CT 06460 203-874-2541
† Automated Prod. Equip. Corp., 142 Peconic Ave., Medford, NY 11763 516-654-1197
§† Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
§ Contact, Inc., 5 Elm Ave., Hudson, NH 03051 603-883-7708
Electrovert USA Corp., 10969 Shady Trail, 01, Dallas, TX 75220 214-353-9950
§ ESICO, Inc., Box 247, Deep River, CT 06417 203-526-5361
§ Hexacon Elec., 161 W. Clay Ave., Roselle Park, NJ 07204 201-245-6200
§ Hollis Engrg., Inc., Charron Ave., Box 1189, Nashua, NH 03061 603-889-1121
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
§ Plato Prods., 2120 E. Allen Ave., Glendora, CA 91740 800-423-4510
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
† Trent, Inc., 201 Leverington Ave., Philadelphia, PA 19127 215-482-5000
§ Ungar, Div. Eldon Inds., Inc., 100 W. Manville St., Compton, CA 90224-6005 213-774-5950
§ Wellman Thermal Sys., 1 Progress Rd, Shelbyville, IN 46176 317-398-4411

Soldering Accessories-4600

APA Division, 399 Executive Blvd., Elmsford, NY 10523, 914-592-7322 ......2•1924
§ Gardiner Solder Co., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632, 312-847-0100 ......2•1927
§ Hexacon Elec., 161 W. Clay Ave., Roselle Park, NJ 07204, 201-245-6200 ......2•1928
Kester Solder Div., 4201 Wrightwood Ave., Chicago, IL 60639, 312-235-1600 ......2•1929
§ Advanced Tool Technology, Inc., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325 213-993-1202
† Air-Vac Engrg., 100 Gulf St., Milford, CT 06460 203-874-2541
§ Assem-Pro Instrs., Div. of Overnight Engineering Inc., 1859 Andrews Ave., San Jose, CA 95124 408-267-1168
† Automated Prod. Equip. Corp., 142 Peconic Ave., Medford, NY 11763 516-654-1197
§† Beau Tech, P.O. Box 523, Portland, ME 04122 207-775-6139
§ Caig Labs., 1175-0 Industrial Ave., Escondido, CA 92025 619-743-7143
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
§ Contact, Inc., 5 Elm Ave., Hudson, NH 03051 603-883-7708
Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Engineering & Elctrn. Devices, 1024 N. McCadden Pl., Los Angeles, CA 90038 213-463-4175
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§ ESICO, Inc., Box 247, Deep River, CT 06417 203-526-5361
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700

Kahle Engrg., Div. Joule Machinery Grp., 3344 Hudson Ave., P.O. Box 877, Union City, NJ 07087 201-867-6500
§ Kenco Industries, Inc., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338 404-475-6100
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Matrix Engineering Corp., 17000 S. Western Ave. 19, Gardena, CA 90247 213-770-0521
† Miller, L.C., Co., 717 Monterey Pass Rd., Monterey Pk., CA 91754 213-268-3611
Multicore Solders, Cantiague Rock Rd., Westbury, NY 11590 516-334-7997
† Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945 617-631-7100
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
§ Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
§ PanaVise Prods., 2850 E. 29th St., Long Beach, CA 90806 213-569-8108
Plato Prods., 2120 E. Allen Ave., Glendora, CA 91740 800-423-4510
§ Roean Industries, Inc., 12970 Branford, Ste. C, Pacoima, CA 91331 818-767-7047
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
§ Techcon Systems Inc., 1059 E. Bedmar St., Carson, CA 90746 213-603-8888
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§ Ungar, Div. Eldon Inds., Inc., 100 W. Manville St., Compton, CA 90224-6005 213-774-5950
§ Wall Lenk, Box 3349, Dept. EEM-71, Kinston, NC 28501 919-527-4186
§ Wellman Thermal Sys., 1 Progress Rd, Shelbyville, IN 46176 317-398-4411
§ Wilson, H.F., Engrg. Co., 475 Taft Ave., Glen Ellyn, IL 60137 312-469-8473
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Soldering Equipment, Induction Heating-4100 — *See Vol. 3*

Soldering Equipment, Printed Circuit-4100 — *See Vol. 3*

Soldering Equipment, Resistance-4100 — *See Vol. 3*

Soldering Systems, Temperature Controlled-4100 — *See Vol. 3*

Soldering Equipment, Ultrasonic-4100 — *See Vol. 3*

Soldering Guns, Irons & Desoldering Tools-4600

§ APA Division, 399 Executive Blvd., Elmsford, NY 10523, 914-592-7322 ..... 2•1924
§ Gardiner Solder Co., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632, 312-847-0100 ..... 2•1927
§ Hexacon Elec., 161 W. Clay Ave., Roselle Park, NJ 07204, 201-245-6200 ..... 2•1928
§ Advanced Tool Technology, Inc., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325 213-993-1202
† Air-Vac Engrg., 100 Gulf St., Milford, CT 06460 203-874-2541
§ Assem-Pro Instrs., Div. of Overnight Engineering Inc., 1859 Andrews Ave., San Jose, CA 95124 408-267-1168
Automated Prod. Equip. Corp., 142 Peconic Ave., Medford, NY 11763 516-654-1197
§† Chemtronics Inc., 681 Old Willets Path, Hauppauge, NY 11788 516-582-3322
§ Conseil, 463 Payne Dr., Cheshire, CT 06410 203-272-6837
§ Contact, Inc., 5 Elm Ave., Hudson, NH 03051 603-883-7708
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§ Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
§ ESICO, Inc., Box 247, Deep River, CT 06417 203-526-5361
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Heath Co., Benton Harbor, MI 49022 616-982-3886
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
Kahle Engrg., Div. Joule Machinery Grp., 3344 Hudson Ave., P.O. Box 877, Union City, NJ 07087 201-867-6500
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ MG Electronics, 32 Ranick Rd., Hauppauge, NY 11788 516-582-3400
§ Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945 617-631-7100
§ Nu-Concept Computer Sys., Rte. 309 & Advance La., Colmar, PA 18915 215-822-8400
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
§ Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
§ Paladin, 3543 Old Conejo Rd., Newbury Park, CA 91320 805-499-0318
§ Plato Prods., 2120 E. Allen Ave., Glendora, CA 91740 800-423-4510
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Roean Industries, Inc., 12970 Branford, Ste. C, Pacoima, CA 91331 818-767-7047
§ Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
§† Solder Removal, 1077 E. Edna Pl., Covina, CA 91724 213-967-3681
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Triton Mfg. Co., P.O. Box 361, East Haddam, CT 06423 203-838-4666
§ Ungar, Div. Eldon Inds., Inc., 100 W. Manville St., Compton, CA 90224-6005 213-774-5950
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978

§† Wall Lenk, Box 3349, Dept. EEM-71, Kinston, NC 28501 919-527-4186
§ Wellman Thermal Sys., 1 Progress Rd, Shelbyville, IN 46176 317-398-4411
§ Wilson, H.F., Engrg. Co., 475 Taft Ave., Glen Ellyn, IL 60137 312-469-8473
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Soldering (MIL)-2440 — *See Vol. 1B*

Solenoids, Linear-4550 — *See Vol. 1B*

Solenoids, Proportional-4550 — *See Vol. 1B*

Solenoids, Rotary-4550 — *See Vol. 1B*

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Solvents — See Cleaners & Solvents (Vol. 2)

Sonar Systems-3475 — *See Vol. 3*

S100 Bus — See Board Computers & Subassemblies (Vol. 3)

Sound Absorbing Materials-2825

§ E-A-R Div., Cabot Corp., 7911 Zionsville Rd., Indianapolis, IN 46268, 317-872-1111 ..... 2•1867
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§ Dayco Corp., 333 W. First St., Dayton, OH 45402 513-226-5927
DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
Ferro Corp., Composites Div., 34 Smith St., Norwalk, CT 06852 203-853-2123
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
† Terminal Data Corp., 11878 Coakley Circle, Rockville, MD 20852 301-881-7655
§ Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Sound Level Indicators — See Meters, Audio Level (Vol. 3)

Sound Recording Equip. — See Microphones (Vol. 3), Recorders (Vol. 3), etc.

Spacers-2825

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ..... 2•1787
Bivar, Inc., 4 Thomas, Irvine, CA 92714, 714-951-8808 ..... 2•1018
§ Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ..... 2•1214,1223,1228-1233,1235
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ..... 2•2091
Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033; 800-526-4182 ..... 2•1861
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 ..... 2•1488,1489,1491
Semiconductor Circuits, 49 Range Rd., Windham, NH 03087, 603-893-2330 ..... 2•1865
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ..... 2•1565
† Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 ..... 2•1868
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 516-546-1751
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§† Amrad, Div. Transcon Mfg. Co., Box 876, Paris, TX 75460 214-785-4544
Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Control Inds. Inc., 530 Burnside Ave., Inwood, NY 11696 212-471-9800
Delbert Blinn Co., Box 2007, Pomona, CA 91766 714-629-3900
§† Dynaloy, Inc., 7 Great Meadow La., Hanover, NJ 07936 201-887-9270
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§ Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
Garner Glass Co., 177 S. Indian Hill Blvd., Claremont, CA 91711 714-624-5071
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 ..... 213-849-6211; 800-423-2734
§ Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
† Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 213-777-8108
§ Plessey Ceramic Div., 8th & Harrison Sts., Frenchtown, NJ 08825 201-996-2121
† Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
§ Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
§ Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388

Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
§ Winslow Intl., 2471 E. Bayshore 20, Palo Alto, CA 94303 415-856-0552
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Space Surveillance Systems-3475 — *See Vol. 3*

Spaghetti — See Tubing, Spaghetti (Vol. 2)

Spark Gaps-4300 — *See Vol. 1B*

Speakers, Explosion & Flame Proof-1300 — *See Vol. 3*

Speakers, Horn-1300 — *See Vol. 3*

Speakers, Intercom-1300 — *See Vol. 3*

Speakers, Midrange-1300 — *See Vol. 3*

Speakers, Musical Instrument-1300 — *See Vol. 3*

Speakers, Paging — See Speakers, Intercom (Vol. 3)

Speakers, Pillow-1300 — *See Vol. 3*

Speakers, Public Address-1300 — *See Vol. 3*

Speakers, Replacement (Including Aircraft, Automotive & TV)-1300 — *See Vol. 3*

Speakers, Submergence Proof-1300 — *See Vol. 3*

Speakers, Subminiature-1300 (Also See Bells, Buzzers, Gongs, Sirens & Aural Warning Devices) — ***See Vol. 3***

Speakers, Tweeter-1300 — *See Vol. 3*

Speakers, Weatherproof-1300 — *See Vol. 3*

Speakers, Woofer-1300 — *See Vol. 3*

Speakers (MIL)-2440 — *See Vol. 3*

Speaker Systems-1300 — *See Vol. 3*

Spectrometers-2900 — *See Vol. 3*

Speech Compression & Synthesis Equipment-2325 — *See Vol. 3*

Speed Drives, Motor — See Controls, Motor Speed (Vol. 3)

Spiral Wrap — See Tubing, Spiral Wrap (Vol. 2)

Splicers, Coaxial Cable-5400

AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
Cablewave Sys., 60 Dodge Ave., North Haven, CT 06473 203-239-3311
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ...212-691-9050
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Splicers, Wire (Incl. Butt & Cap Types)-5400

† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... 2•1121
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
§† Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033 ....201-245-0033; 800-526-4182
Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 516-293-5244
§† Hollingsworth Solderless Terminal Co., 700 N.W. 57th Pl., Ft. Lauderdale, FL 33309 305-772-7660
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 ...215-323-7120
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000

§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 414-355-1130
United Technologies, Terminal Prods., 1230 Sabine St., Huntington, IN 46750 219-356-2700
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Splicing Equipment, Magnetic Tape-1300 — *See Vol. 3*

Splicing Equipment, Fiber Optic-5400

Power Technology, Inc., P.O. Box 9769, Little Rock, AR 72219, 501-568-1995 .... 3•1746
Custom Sci. Instrs., 13 Wing Dr., Cedar Knolls, NJ 07927 201-538-8500
Foundation Instruments Inc., 24 Colonnade Rd., Nepean, ON K2E 7J6 Canada 613-226-4000
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860

Splicers, Fiber Optic-2475 — *See Vol. 1B*

Splitters/Combiners, Power — See Dividers, Power (Vol. 1A)

Spoolers, Printer Buffers-2325 — *See Vol. 3*

Spoolers, Punched Tape — See Readers, Punched Tape (Vol. 3)

Springs (All Types)-2500

Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... 2•1860
Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 .... 3•1265
Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 ...201-943-7650
† Ametek, Inc, Hunter Spring Division, 1 Spring Ave., Hatfield, PA 19440 215-822-2971
§† Associated Spring, Barnes Grp., 18 Main St., Bristol, CT 06010 203-583-1331
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Graphite Metallizing Corp., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702 914-968-8400
Instrument Specialties Co., P.O. Box A, Delaware Water Gap, PA 18327 717-424-8510
† PIC Design, P.O. Box 1004, Middlebury, CT 06762 203-758-8272
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700

Stabilizers, Current — See Current Sources (Vol. 3), Regulators, Current (Vol. 3),

Stabilizers, Line Impedance-4050 — *See Vol. 3*

Stabilizers, Voltage — See Regulators & Stabilizers, Voltage (Vol. 3), Transformers, Voltage Regulating (Vol. 1A), Voltage Sources (Vol. 3),

Stabilizers, Voltage/Current, Automatic — See Power Supplies, Constant Current (Vol. 3)

Stalos (Stabilized Local Oscillators) — See Oscillators, Microwave (Vol. 1A)

Standards, Atomic Beam-2900 — *See Vol. 3*

Standards, Capacitance-2900 — *See Vol. 3*

Standards, Current-2900 — *See Vol. 3*

Standards, Delay Line-2350 — *See Vol. 1A*

Standards, Frequency-2900 — *See Vol. 3*

Standards, Inductance-2900 — *See Vol. 3*

Standards, Noise-2900 — *See Vol. 3*

Standards, Phase-2900 — *See Vol. 3*

Standards, Resistance-2900 — *See Vol. 3*

Standards, Temperature-2900 — *See Vol. 3*

Standards, Time-2900 — *See Vol. 3*

Standards, Voltage-2900 — *See Vol. 3*

Standards, Voltage Ratio-2900 — *See Vol. 3*

Standoffs — See Bushings, Glass, Plastic, Metal, etc. (Vol. 2)

Stands, Instruments-1400

§† Buckeye Stamping Co., 555 Marion Rd., Columbus, OH 43207, 614-445-8433 .... 2•1019
Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 .... 2•1031
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084, 404-939-6340 .... 2•1047
† Electro-Rack Products Co., 1742 S. Clementine St., Anaheim, CA 92802 714-776-5420
Mobile-Tronics Co., Inc., Box 1022, Tustin, CA 92680 714-768-4271

§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

† Zero Corp., 777 Front St., Burbank, CA 91503 213-846-4191

Stands, Printer/Terminal-1400

Equipto Elctrns. Corp., 351 Woodlawn Ave., Aurora, IL 60507, 312-897-4691 .... 2•1031

General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1035

† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084, 404-939-6340 .... 2•1047

Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1035

§ Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200

† Equipto, 225 S. Highland Ave., Aurora, IL 60507 312-859-1000

Mobile-Tronics Co., Inc., Box 1022, Tustin, CA 92680 714-768-4271

† Terminal Data Corp., 11878 Coakley Circle, Rockville, MD 20852 ...301-881-7655

Unitronix Corp., 197 Meister Ave., Somerville, NJ 08876 201-231-9400

Static Eliminating Materials, Devices, & Equipment-4525

§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1429,1430

† 3M Co., Static Control Sys. Div., 3M Center, Bldg. 225-4S-04, St. Paul, MN 55144, 612-733-9420 .... 3•1924,1925

S & H Inds., 119 Glen Cove Dr., Glen Head, NY 11545, 516-671-5600 .... 3•1928

† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 .... 2•1916-1919,1921-1923

† Acheson Colloids, P.O. Box 288, Port Huron, MI 48060 313-984-5581

ADE, Inc., 1560 E. 98th St., Chicago, IL 60628 312-221-3400

Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988

† Chapman Corp., P.O. Box 10700, Portland, ME 04104 207-773-4726

† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850

§ Clean Room Prods., 56 W. Penataquit Ave., Bay Shore, NY 11706 .516-968-8282

† Gordon, L., Packaging, 1050 S. Paca St., Baltimore, MD 21230 301-539-6537

§ Herbert Prods. Inc., 180 Linden Ave., Westbury, NY 11590-0384 516-334-6500

Lundy Elctrns. and Systems, Inc., 1 Robert La., Glen Head, NY 11545 516-671-9000

§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200

§† Merix Chem. Co., 2234 East 75th St., Chicago, IL 60649 312-221-8242

§† NRD, Mark IV Inds., 2937 Alt Blvd. N., Grand Island, NY 14072 716-773-7634

§ Nu-Concept Computer Sys., Rte. 309 & Advance La., Colmar, PA 18915 215-822-8400

§ Simco Co., 2257 North Penn Rd., Hatfield, PA 19440 215-822-2171

Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862

Static Inc., Rte. 113 & Mensch Rd., P.O. Box 80, Skippack, PA 19474 215-584-9600

Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 ...615-867-4100

§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

§† Tech Spray, Inc., Box 949, Amarillo, TX 79105 806-372-8523

Wescorp Antistatic Prods., 144 S. Whisman Rd., Mountain View, CA 94041 415-969-7717

Stators, Motor & Generator — See Motor & Generator Armatures,Rotors, Stators (Vol. 1B)

STD Bus — See Board Computers & Subassemblies (Vol. 3)

Steppers, Indexing, Motor-3500 — *See Vol. 1B*

Steppers, Indexing, Switch-5100 — *See Vol. 1B*

Storage Euipment, Cartridge/Cassette-3800

Algo, Inc., 9451 Sohap Lane, Columbia, MD 21045 301-730-7442

Astec USA, Ltd., A BSR Intl. Co., 2880 San Tomas Expwy., 00, Santa Clara, CA 95051 408-748-1200

Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 617-491-2700

§ Digi-Data Corp., 8580 Dorsey Run Rd., Jessup, MD 20794 301-498-0200

§ Dylon Data Corp., 9561 Ridgehaven Ct., San Diego, CA 92123 619-292-5584

† Equipto, 225 S. Highland Ave., Aurora, IL 60507 312-859-1000

Inmac, 2465 Augustine Dr., Santa Clara, CA 95051 408-727-1970

PHI Technologies, Inc., 4605 North Stiles, Oklahoma City, OK 73105 405-521-9000

Unitronix Corp., 197 Meister Ave., Somerville, NJ 08876 201-231-9400

Storage Equipment, Disk-3800

† Astronautics Corp. of America, P.O. Box 523, Milwaukee, WI 53201 414-447-8200

Cambridge Digital Sys., Compumart, P.O. Box 568, 65 Bent St., Cambridge, MA 02139 617-491-2700

§ Computer Maintenance Corp., 111-117 Enterprise Ave. S., Secaucus, NJ 07094 201-866-6400

§ Data General, 4400 Computer Dr., Westboro, MA 01581 617-366-8911

First Computer Corp., 645 Blackhawk Dr., Westmont, IL 60559 312-920-1050

§ GMR Inc., Computer Elctrns., 1048 E. Burgrove St., Carson, CA 90746 213-639-4663

Harris Corp., Computer Systems Div., 2101 W. Cypress Creek Rd., Ft. Lauderdale, FL 33309 305-974-1700

Inmac, 2465 Augustine Dr., Santa Clara, CA 95051 408-727-1970

Unitronix Corp., 197 Meister Ave., Somerville, NJ 08876 201-231-9400

Vermont Resch. Corp., Precision Pk., N. Springfield, VT 05150 802-886-2256

Storage Equipment, Flexible Disk-3800

Applied Micro Technlg., A Burr Brown Co., 2430 N. Hauchuca, Ste. A, Tucson, AZ 85745 602-622-8605

§ Data General, 4400 Computer Dr., Westboro, MA 01581 617-366-8911

§ GMR Inc., Computer Elctrns., 1048 E. Burgrove St., Carson, CA 90746 213-639-4663

Inmac, 2465 Augustine Dr., Santa Clara, CA 95051 408-727-1970

Storage Equipment, Magnetic Card-3800

† Astronautics Corp. of America, P.O. Box 523, Milwaukee, WI 53201 414-447-8200

† Equipto, 225 S. Highland Ave., Aurora, IL 60507 312-859-1000

Storage Equipment, Media Transport-3800

Storage Equipment, Microform-3800

† Keyan Inds., Inc., P.O. Box 1228, Middleboro, MA 02346 617-947-7719

Storage Equipment, Multifunctional-3800

Kole Ind., 3553 N.W. 50th St., Miami, FL 33102-0152 ....305-633-2556; 800-327-6085

§ Lyon Metal Prods., 47 Railroad Ave., Aurora, IL 60507 312-892-8941

Stanley-Vidmar, Stanley Works, 11 Grammes Rd., Allentown, PA 18103 215-797-6600

Storage Equipment, Paper Tape-3800

† Astronautics Corp. of America, P.O. Box 523, Milwaukee, WI 53201 414-447-8200

Storage Equipment, Printout-3800

Inmac, 2465 Augustine Dr., Santa Clara, CA 95051 408-727-1970

Storage Equipment, Punched Card-3800

† Astronautics Corp. of America, P.O. Box 523, Milwaukee, WI 53201 414-447-8200

Storage Equipment, Reel-to-Reel Tape-3800

Data Capture Technology, 5436-F South Mingo Rd., Tulsa, OK 74146 918-627-7521

§ Digi-Data Corp., 8580 Dorsey Run Rd., Jessup, MD 20794 301-498-0200

§ Dylon Data Corp., 9561 Ridgehaven Ct., San Diego, CA 92123 619-292-5584

† Equipto, 225 S. Highland Ave., Aurora, IL 60507 312-859-1000

First Computer Corp., 645 Blackhawk Dr., Westmont, IL 60559 312-920-1050

Harris Corp., Computer Systems Div., 2101 W. Cypress Creek Rd., Ft. Lauderdale, FL 33309 305-974-1700

Nissei Sangyo America, Ltd., 1701 Golf Rd., Ste. 401, Rolling Meadows, IL 60008 312-981-8989

Strain Reliefs, Cable & Wire-2800

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1226

§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033; 800-526-4182 .... 2•1861

Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, 314-392-7174 .... 2•1480

Panel Components Corp., P.O. Box 6626M, Santa Rosa, CA 95406, 707-523-0600 .... 2•2140

§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1596

TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1617,1684

Almor Co., Inc., PO Box 1790, 155 Crescent St., Brockton, MA 02403 617-586-5406

§† Amrad, Div. Transcon Mfg. Co., Box 876, Paris, TX 75460 214-785-4544

Atlantic Research, 5390 Cherokee Ave., Alexandria, VA 22312 703-642-4000

Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886

§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400

Elco Corp., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652 814-643-0700

§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661

§ Harwil, 1548 17th St., Santa Monica, CA 90404 213-829-2310

§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900

§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408

Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200

Multi-Tech Inds., 64 South Main St., P.O. Box A, Marlboro, NJ 07746 201-431-0550

§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440

† Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945 617-631-7100

§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800

Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860

† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761

Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220

§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600

§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Strip-Line Components, Microwave-3450 — *See Vol. 1A*

Strips, Ground-1900 — *See Vol. 3*

Strips, Marker & Fanning-6000

Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 .... 2•1759

§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... 2•2137

Beau Products Div., Box 10, Laconia, NH 03247 603-524-5101

§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322

§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
§† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 804-794-2877
§ Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Stroboscopes — See Lamps, Stroboscopic Source (Vol. 1B)

Substrates, Ceramic-2800

† Electro-Films, Inc., 111 Gilbane St., Warwick Central Indl. Pk., Warwick, RI 02886, 401-738-9150 ....1A•1870,1871
† HyComp Inc., 75 Union Ave., Box 377, Sudbury, MA 01776, 617-443-4631 ....1A•1875
Mini-Systems, Inc., 20 David Rd., North Attleboro, MA 02761, 617-695-0203 ....1A•1902
† Accumet Engrg., 518 Main St., Hudson, MA 01749 617-568-8311
AVX Corporation, Box 867, Myrtle Bch., SC 29577 803-448-9411
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
† Circuit Techn., 160 Smith St., Farmingdale, NY 11735 516-293-8686
† Compex Corp., 35A East Main St., Marlton, NJ 08053 609-596-9388
Coors Porcelain, 600 Ninth St., Golden, CO 80401 303-278-4000
Environmental Comm., 3150 Pullman St., Costa Mesa, CA 92627 ...714-557-7800
† Ferro Ceramic Grinding, Inc., 247 Water St., Wakefield, MA 01880 617-245-1833
Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553 516-794-4500
GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 415-592-9440
Honeywell Inc., Aerospace & Defense Grp., Honeywell Plaza, Minneapolis, MN 55408 612-870-5186
§† Kyocera Intl., Inc., Elctrn. Comps. Grp., 11425 Sorrento Valley Rd., San Diego, CA 92138 619-454-1800
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
3M Co., Tech Ceramic Resources, 3M Center 225-4W, St. Paul, MN. 55101 617-736-0601
MERET, Inc., 1815 24th St., Santa Monica, CA 90404-4998 213-828-7496
Microplex, Inc., 1977 State College Blvd., Anaheim, CA 92806 ......714-979-8833; 714-634-1535
§† National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
NTK Technical Ceramics, NGK Spark Plugs (U.S.A.), Inc., 1701 N. Greenville Ave. 05, Richardson, TX 75081 214-235-8332
Quartzite Processing, Inc., 6 Holyoke St., Malden, MA 02148 617-322-1380
TDK Corporation of America, 4711 Golf Rd., Skokie, IL 60076 312-679-8200
Trans-Tech, 12 Meem Ave., Gaithersburg, MD 20760 301-948-3800
† Union Carbide Corporation, Elctrns. Div., Crystal Prods. Dept., 9320 Chesapeake Dr., Ste. 104, San Diego, CA 92123 619-279-4500

Substrates, Flexible-2800

DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683
3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
Norton, One New Bond St., Worcester, MA 01606 617-853-1000

Substrates, Glass-2800

† HyComp Inc., 75 Union Ave., Box 377, Sudbury, MA 01776, 617-443-4631 ....1A•1875
† Accumet Engrg., 518 Main St., Hudson, MA 01749 617-568-8311
† Atlantic Optical Moulding, Ellis St., P.O. Box 309, Dudley, MA 01570 617-943-1746
Corning Glass Works, Main Plant, MS 2136, Corning, NY 14831 607-974-4102
† Ferro Ceramic Grinding, Inc., 247 Water St., Wakefield, MA 01880 617-245-1833
Frequency Elctrns., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553 516-794-4500
KLC/Karl Lambrecht Corp., 4204 N. Lincoln Ave., Chicago, IL 60618 312-472-5442
† Melles Griot, 1770 Kettering St., Irvine, CA 92714 714-556-8200
TDK Corporation of America, 4711 Golf Rd., Skokie, IL 60076 312-679-8200
Thermal Amer. Fused Quartz, Change Bridge Rd., Montville, NJ 07045 201-334-7770
† Unique Optical Co., Diversified Optical Corp., P.O. Box 585, Farmingdale, NY 11735 516-420-0288

Substrates, Metallic-2800

† HyComp Inc., 75 Union Ave., Box 377, Sudbury, MA 01776, 617-443-4631 ....1A•1875
Accumet Engrg., 518 Main St., Hudson, MA 01749 617-568-8311
Lincoln Laser Co., 234 East Mohave, Phoenix, AZ 85004 602-257-0407

Substrates, Sapphire-2800

† HyComp Inc., 75 Union Ave., Box 377, Sudbury, MA 01776, 617-443-4631 ....1A•1875
† Saphikon, 51 Powers St., Milford, NH 03055 603-673-5831
† Union Carbide Corporation, Elctrns. Div., Crystal Prods. Dept., 9320 Chesapeake Dr., Ste. 104, San Diego, CA 92123 619-279-4500

Surface Acoustic Wave, Delay Line-2350 — *See Vol. 1A*

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Switches, Coded-5100 — *See Vol. 1B*

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Switches, Diode-3450 — *See Vol. 1A*

Switches, DIP-5100 — *See Vol. 1B*

Switches, Fiber Optic-2475 — *See Vol. 1B*

Switches, Foot Pedal, Mat, Ribbon, etc.-5100 — *See Vol. 1B*

Switches, Hall Effect-5100 — *See Vol. 1B*

Switches, High Voltage (Over 250 Volts)-5100 — *See Vol. 1B*

Switches, Interlock-5100 — *See Vol. 1B*

Switches, Keyboard-5150 — *See Vol. 1B*

Switches, Key Lock-5100 — *See Vol. 1B*

Switches, Lever-5100 — *See Vol. 1B*

Switches, Limit-5100 — *See Vol. 1B*

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Switches, Momentary Action-5100 — *See Vol. 1B*

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Switches, Paddle Handle-5100 — *See Vol. 1B*

Switches, Peripheral-5100 — *See Vol. 1B*

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Switches, Snap Action (All Types)-5100 — *See Vol. 1B*

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Switch Hardware-2800

§† Eaton Corp./Cutler-Hammer Prods., Aerospace/Commercial Controls Div., 4201 N. 27th St., Milwaukee, WI 53216, 414-449-7487 ....1B•1609

Electro-Mech Comps., 1826 N. Floradale Ave., So. El Monte, CA 91733, 818-442-7180 ....1B•1618,1619

Janco Corp., Box 3038-Glenoaks Sta., Burbank, CA 91504, 818-846-1800 ....1B•1668,1669

Mechanical Entprs., 461 Carlisle Dr., Herndon, VA 22070, 703-435-9496 .1B•1677, 1784,1785

§ Micro Switch, A Honeywell Div., 11 W. Spring St., Freeport, IL 61032, 815-235-6600 ....1B•1708-1710,1716

Switchcraft, Inc., 5555 N. Elston, Chicago, IL 60630, 312-792-2700 ....1B•1752

§ Veetronix, Inc., Sub. Reach Electronics, Box 480, Lexington, NE 68850, 308-324-4600 ....1B•1757

Adams Rite Prods., Inc., 540 W. Chevy Chase Dr., Glendale, CA 91209 213-241-5121

§ Alco Elctrn. Prods., Inc., 1551 Osgood St., N. Andover, MA 01845 .617-685-4371

APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700

Arcolectric Corp., 9001 Canoga Ave., Canoga Park, CA 91304 818-700-1933

§† Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471

† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-267-2000

Capitol Machine & Switch Co., Box 890, Danbury, CT 06810 203-744-3300

§ Centralab, Inc., A North American Philips Co., Hwy. 20 W., P.O. Box 858, Ft. Dodge, IA 50501 515-573-1300

§ Crouzet Controls, Inc., 1083 State Pkwy., Schaumburg, IL 60195 312-843-2200

§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ...212-691-9050

§ EECO Incorporated, 1601 E. Chestnut Ave., P.O. Box 659, Santa Ana, CA 92702-0659 714-835-6000

§ Gaynor Elec. Co., 172 E. Aurora St., Waterbury, CT 06720 203-755-1175

§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661

§ Grayhill Inc., 569 Hillgrove Ave., La Grange, IL 60525 312-354-1040

ITT Schadow, 8081 Wallace Rd., Eden Prairie, MN 55344 612-934-4400

§ ITW Switches, Tool Works Co., 6615 W. Irving Park Rd., Chicago, IL 60634 312-282-4040

§ Licon Div., 6615 W. Irving Park Rd., Chicago, IL 60634 312-282-4040

§ Littelfuse, Inc., 800 E. Northwest Hwy., Des Plaines, IL 60016 312-824-1188

§† MSC Prods./Eaton Corp., 1640 Monrovia St., Costa Mesa, CA 92627 714-642-2427

MEC A/S, Industriparken 23, Ballerup, DK-2750 Denmark 452-973366

Oak Switch Sys., 100 S. Main St., Crystal Lake, IL 60014 815-459-5000

Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 .213-777-8108

† Radio Switch Corp., 64 S. Main St., P.O. Box A, Marlboro, NJ 07746 201-462-6100

Relay Service Co., 1310 N. Pulaski Rd., Chicago, IL 60651 .... 312-AL2-2700

Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220

§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

Switching Systems, Audio-1300 — *See Vol. 3*

Switching Systems, Test & Measurement-2900 — *See Vol. 3*

Switch Seals, Environmental-2800

Alco Elctrn. Prods., Inc., 1551 Osgood St., N. Andover, MA 01845, 617-685-4371 ....1B•1513

§† AME Corp., 101 E. Main St., Little Falls, NJ 07424, 201-256-3939 ....1B•1515

Micro Switch, A Honeywell Div., 11 W. Spring St., Freeport, IL 61032, 815-235-6600 ....1B•1710

APM-Hexseal, 44 Honeck St., Englewood, NJ 07631 201-569-5700

§ Arrow Hart Div., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101 203-249-8471

Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202

§ Brady, W.H., Co., Elctrn. Prods. Div., 6150 N. Flint Rd., Milwaukee, WI. 53201 414-332-8100

§† Clare Division, General Instrument Corp., 3101 W. Pratt Blvd., Chicago, IL 60645 312-262-7700

§ Crouzet Controls, Inc., 1083 State Pkwy., Schaumburg, IL 60195 312-843-2200

§ Eaton Corp./Cutler-Hammer Prods., Aerospace/Commercial Controls Div., 4201 N. 27th St., Milwaukee, WI 53216 414-449-7487

§† MSC Prods./Eaton Corp., 1640 Monrovia St., Costa Mesa, CA 92627 714-642-2427

† Risk, George, Inds., GRI Plaza, Kimball, NE 69145 308-235-4645

§ SPEMCO Switches, 23425 Harper, St. Clair Shores, MI 48080 800-482-2828

† SRS Industries, Inc., 903 S. Alta Vista Ave., Monrovia, CA 91016 ...213-357-3287

Swivel Units, Data Entry Terminals-1400

Synchronizers (MIL), Antenna-3475 — *See Vol. 3*

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Synchros-4900 — *See Vol. 3*

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Synthesizers, Delay Line-2350 — *See Vol. 1A*

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Tape Winders-2000 — *See Vol. 3*

Tapes, Electrical Insulation-3100

Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321

† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100

§† CHR Inds., 407 East St., P.O. Box 1911, New Haven, CT 06509 203-777-3631

† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000

DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218

§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900

Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683

§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960

† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700

Okonite, Box 340, Ramsey, NJ 07446 201-825-0300

† Press-On Prods., 39 Factory Rd., Addison, IL 60101 312-628-2255

§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000

Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241

§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600

§ Vidaire Elctrns., 150 Buffalo Ave., Freeport, NY 11520 516-623-6696

Tapes, Films & Foils, Pressure Sensitive-4525

Ad-Vance Magnetics, Inc., 625 Monroe St., Rochester, IN 46975 219-223-3158

Auburn Mfg., Pease Ave. & Stack St., Middletown, CT 06457 203-346-6677

Bishop Graphics, Inc., 5388 Sterling Center, Westlake Village, CA 91359 818-991-2600

† Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630

† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100

Chartpak, 1 River Rd., Leeds, MA 01053 413-584-5446

§† CHR Inds., 407 East St., P.O. Box 1911, New Haven, CT 06509 203-777-3631

DuPont de Nemours, E. I., & Co., 1007 Market St., Wilmington, DE 19898 302-773-3218

§ Injectorall Elctrns., 98-100 Glen St., Glen Cove, NY 11542 516-671-6010

Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 800-556-7683

Markem Corp., 1000 Congress St., Keene, NH 03431 603-352-1130

Nitto Denko America, Inc., 27 Seaview Blvd., Port Washington, NY 11050 516-484-9700

† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700

§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800

† Press-On Prods., 39 Factory Rd., Addison, IL 60101 312-628-2255

Schweitzer, Div., Kimberly Clark Corp., Lee, MA 01238 413-243-1000

§ Tapecon, Inc., 10 Latta Rd., Rochester, NY 14612 716-621-8400

§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

† Topflight, 160 East 9th Ave., York, PA 17404 717-843-9901

§ Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Tapes, Heat Shrinkable — See Caps, Forms & Tapes, Heat Shrinkable (Vol. 2)

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Tapes, Magnetic, ¼″, 300′ Cartridge-2000 — *See Vol. 3*

Tapes, Magnetic, ½″, 2400′ Reel-2000 — *See Vol. 3*

Tapes, Magnetic, ½″, 3600′ Reel-2000 — *See Vol. 3*

Tapes, Magnetic, Digital Cassette-2000 — *See Vol. 3*

Technical Books-4200

Omega Engrg., Box 4047, Stamford, CT 06907, 203-359-1660 .... 1B•1735,1819,1869,2•2135,3•1013,1089,1137,1168,1284,1346,1347,1386
§ American Radio Relay League, 225 Main St., Newington, CT 06111 203-666-1541
† Analog Devices, P.O. Box 280, Norwood, MA 02062 617-329-4700
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§ Consumertronics, 2011 Crescent Dr., Alamogordo, NM 88310 505-434-0234
† D.A.T.A., Inc., Cordura Co., P.O. Box 26875, San Diego, CA 92126 619-578-7600
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
Electro-Craft, 1600 2nd St. S., Hopkins, MN 55343 612-931-2700
Feedback, 620 Springfield Ave., Berkeley Hghts., NJ 07922 201-464-5181
§ Heath Co., Benton Harbor, MI 49022 616-982-3886
Image Makers of Pittsford, 6 Wood Gate, Pittsford, NY 14534 716-385-4567
Integrated Circuit Engrg. Corp. (ICE), 15022 N. 75th St., Scottsdale, AZ 85260 602-998-9780
† Micro Logic Corp., P.O. Box 174, 100 2nd St., Hackensack, NJ 07602 201-342-6518
§ Motorola Semiconductor Prods. Sector, Adv. 72, Box 20912, Phoenix, AZ 85036 602-244-6900
Optical Publishing Co., Inc., Berkshire Common, Pittsfield, MA 01201 413-499-0514
§† Tab Books, Monterey & Pinola Aves., Blue Ridge Summit, PA 17214 717-794-2191
Westinghouse Elec. Corp., Semiconductor Div., Armbrust Rd., Youngwood, PA 15697 412-925-7272
Xycom, 750 N. Maple Rd., Saline, MI 48176 313-429-4971

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Telephone Handsets — See Handsets, etc. (Vol. 3)

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Temperature Sensors — See Transducers, Temperature (Vol. 1B)

Tensile Testers — See Testers, Material (Vol. 3)

Terminal Blocks (Incl. Barrier Types)-2100

§ AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... 2•1138-1140
A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060, 216-354-2101 .... 2•1901
§ Beau Products Div., Box 10, Laconia, NH 03247, 603-524-5101 .... 2•1164,1165
Buggie H. H./Caton Connector Corp., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... 2•1167
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, 617-585-4315 .... 2•1167
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523, 914-592-7322 .... 2•1266, 1267
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1767
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1496-1498,1500,1501
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104, 717-232-0500 .... 2•1540-1542
§ RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 .... 2•1548-1551
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1565
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043, 415-965-4500 .... 2•1896
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1704-1706
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236, 804-794-2877 .... 2•1748
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† ADC Magnetic Controls Co., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
§† ADC Prods., 4900 W. 78th St., Minneapolis, MN 55435 612-835-6800
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
§† Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 .... 800-237-BERG
§ Bivar, Inc., 4 Thomas, Irvine, CA 92714 714-951-8808
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
§† Bussmann Div., P.O. Box 14460, St. Louis, MO 63178 314-394-2877
§ Cogenel/Entrelec Div., 2 Ram Ridge Rd., Spring Valley, NY 10977 914-425-7460
Cole Hersee, 20 Old Colony Ave., Boston, MA 02127-2467 617-268-2100
§ Control Prods. Div., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083 201-964-4400
§ Curtis Inds., 8000 West Tower Ave., Milwaukee, WI 53223 414-354-1500
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 212-691-9050
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 513-681-5424
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164 312-681-7071
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 312-681-7100
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
Jolo Inds., 13921 Nautilus Dr., Garden Grove, CA 92643 714-554-6840
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 313-848-2555
§ Marathon Special Prods., 13300 Van Camp Rd., Bowling Green, OH 43402 419-352-8441
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Multi-Amp Corp., Indian Head Corp., 4271 Bronze Way, Dallas, TX 75237 214-333-3201
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Relay Specialties, 1300 Plaza Rd., Fair Lawn, NJ 07410 .... 201-797-3313; 800-526-5376
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 818-245-9121
Selco Products Co., 7580 Stage Rd., Buena Park, CA 90621 714-521-8673
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
Sylvania Sys. Grp., Comm. Sys. Div., GTE Prods. Corp., 77 A St., Needham Hgts., MA 02194 617-449-2000
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ Trimm, Inc., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048 312-362-3700
§ Underwriters Safety Device, An Allied Co., 7300 W. Wilson Ave., Chicago, IL 60656 312-867-4600
§ Wago Corp., 6657 N. Sidney Pl., Milwaukee, WI 53209-3217 414-352-1035
§ Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada 514-457-3648

Terminal Boards-2100

Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1149,1151
Beau Products Div., Box 10, Laconia, NH 03247, 603-524-5101 .... 2•1164,1165
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 .... 2•1244,1245
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101, 212-361-0800 .... 2•1767
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 .... 2•1490
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1496-1498,1500,1501
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133, 313-848-2555 .... 2•1518
National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 .... 2•1530

§—Product sold through distributors †—Product meets MIL specs

§ RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 ....2•1548-1551
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 ....2•1563
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ....2•1565
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 ....2•1069,1094,1095,3•1117
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 ....2•1743
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 ..914-628-6952
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Airflyte Elctrns. Co., 56 New Hook Rd., Bayonne, NJ 07002 201-436-2230
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ...212-691-9050
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 ...513-681-5424
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
† Sylvania Sys. Grp., Comm. Sys. Div., GTE Prods. Corp., 77 A St., Needham Hgts., MA 02194 617-449-2000
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada 514-457-3648
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

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Terminal Strips (Including Barrier Types)-2100

AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .....2•1138-1140
A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060, 216-354-2101 ....2•1901
Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ....2•1150
§ Beau Products Div., Box 10, Laconia, NH 03247, 603-524-5101 ....2•1164,1165
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ....2•1236
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646, 312-539-3108 ....2•1244,1245
ebm Inds., Inc., 525 New Britain Ave., Unionville, CT 06085, 203-674-1515 ....2•1255
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523, 914-592-7322 . 2•1266, 1267
Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 818-875-0213 ....2•1316
Interlok, 770 Airport Blvd., Burlingame, CA 94010, 415-348-5625 ....2•1337
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 ....2•1490
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ....2•1496-1498,1500,1501
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133, 313-848-2555 ....2•1516-1518
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 ....2•1530
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104, 717-232-0500 ....2•1542
§ RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 ....2•1548-1551
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 ....2•1563
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ....2•1704-1706
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 ....2•1743
§ Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada, 514-457-3648 ....2•1747
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236, 804-794-2877 ....2•1748
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 ..914-628-6952
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 ...201-943-7650
Apahouser-Elcom, Inc., 101 Walnut St., Watertown, MA 02172 617-924-1500
Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
§ Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§ Asmann Components, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085 203-674-1515
Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Christiansen Radio Inc., 1950 San Remo, Laguna Beach, CA 92651 714-497-1506
§ Cogenel/Entrelec Div., 2 Ram Ridge Rd., Spring Valley, NY 10977 ..914-425-7460
Cole Hersee, 20 Old Colony Ave., Boston, MA 02127-2467 617-268-2100
Control Prods. Div., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083 201-964-4400
§ Curtis Inds., 8000 West Tower Ave., Milwaukee, WI 53223 414-354-1500
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 ...513-681-5424
† Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§† Mechanical Engraving, 4500 Bullard Ave, Bronx, NY 10470 212-324-4455
† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 714-996-0960
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 .415-965-4500
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388
§ Wago Corp., 6657 N. Sidney Pl., Milwaukee, WI 53209-3217 414-352-1035
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

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Terminals, Feedthru-2800

† Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ... 2•1787
§ Compac, 279 Skidmore Rd., Deer Park, NY 11729, 516-667-3933 ......1A•1587,1690
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ....2•1173,1188,1196,1197
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... 2•1269
§ Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 818-875-0213 ....2•1314,1315,1317
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ....2•1497,1498
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 ..914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 .516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§† Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-267-2000
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ...800-237-BERG
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
† CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
Curtis Inds., 8000 West Tower Ave., Milwaukee, WI 53223 414-354-1500
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dai-Ichi Shoji of Amer., Inc., 150 Fifth Ave., New York, NY 10011 ...212-691-9050
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 ...513-681-5424
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322

§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§ Johnson, E. F., Co., 299 Johnson Ave., Waseca, MN 56093 507-835-6222
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771 516-922-6000
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
† Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 617-699-7646
RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
† Taurus Corp., Academy Hill, P.O. Box 278, Lambertville, NJ 08530 609-397-2390
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 804-794-2877
§† Whitso, 9326 Byron St., Schiller Pk., IL 60176 312-678-5200
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

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Terminals, Ferrule, Cable-End-2100

§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236, 804-794-2877 ..... 2•1748
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† Sylvania Sys. Grp., Comm. Sys. Div., GTE Prods. Corp., 77 A St., Needham Hgts., MA 02194 617-449-2000

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Terminals, Intelligent/Programmable, Interactive-2000 — *See Vol. 3*

Terminals, Intelligent/Programmable, Multiprogramming-2000 — *See Vol. 3*

Terminals, Intelligent/Programmable, Multiuser-2000 — *See Vol. 3*

Terminals, Intelligent/Programmable, Real Time-2000 — *See Vol. 3*

Terminals, Intelligent/Programmable, Transaction Processing-2000 — *See Vol. 3*

Terminals, Lug (All Types)-2100

AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ..... 2•1121
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ..... 2•1173,1204-1208,1210,1211,1231,1239
Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 818-875-0213 ..... 2•1314,1315,1317
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ..... 2•1379
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ..... 2•1497,1499
National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 ..... 2•1530

§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ..... 2•1706
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 ..... 2•1094
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§† AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
§ Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
Hallmark Metals Inc., 610 W. Foothill Blvd., Glendora, CA 91740 213-335-1263
§ Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 516-293-5244
§† Hollingsworth Solderless Terminal Co., 700 N.W. 57th Pl., Ft. Lauderdale, FL 33309 305-772-7660
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 815-895-6501
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
ITT Thermotech, Div. IT & T, 1203 S. 5th St., Hopkins, MN 55343 612-933-9400
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 203-756-8847
Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
† Patton-MacGuyer Inc., 17 Virginia Ave., Providence, RI 02905 401-941-6000
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 818-245-9121
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
† Taurus Corp., Academy Hill, P.O. Box 278, Lambertville, NJ 08530 609-397-2390
§ Teledyne Ansonia, Riverside Dr., Ansonia, CT 06401 203-735-9311
§† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
United Technologies, Terminal Prods., 1230 Sabine St., Huntington, IN 46750 219-356-2700
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada 514-457-3648
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 804-794-2877
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
§† Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Terminals, Miniature & Subminiature-2100

AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ..... 2•1121,1141, 1142,1148
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 ..... 2•1860
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ..... 2•1173,1190,1201-1214,1216-1221
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 ..... 2•1269
§ Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 818-875-0213 ..... 2•1314-1317
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ..... 2•1497
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771, 516-922-6000 ..... 2•1523
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335, 814-724-6440 ..... 2•1530
Shogyo Intl. Corp., 287 Northern Blvd., Great Neck, NY 11021, 516-466-0911 ..... 2•1563
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 ..... 2•1565
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ..... 2•1706

§ **Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 ... 2•1094**
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 ... 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ... 216-365-1211
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 ... 617-995-1725
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§ Ark-Les, 51 Water St., Watertown, MA 02172 ... 617-924-2330
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 ... 201-869-4201
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 ... 201-267-2000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 212-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 ... 203-334-4124
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ... 800-237-BERG
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 ... 203-838-4444
Ceramaseal, Box 25, New Lebanon Center, NY 12126 ... 518-794-7800
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 ... 312-539-3108
Control Module, 380 Enfield St., Enfield, CT 06082 ... 203-745-2433
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 ... 516-868-1900
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 ... 201-464-3200
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 ... 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 ... 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 ... 818-243-2069
§ G. R. Electronics, 1640 5th St., Suite 224, Santa Monica, CA 90401 ... 213-395-4774
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ... 617-568-0451; 800-225-9228
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 ... 212-475-4600
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 ... 516-868-1900
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 ... 213-849-6211; 800-423-2734
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 ... 215-699-5373
Mark Eyelet & Stamping, 202 Wakelee Rd., Wolcott, CT 06716 ... 203-756-8847
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 ... 312-392-3500
† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 ... 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
Mupac, 10 Mupac Dr., Brockton, MA 02401 ... 617-588-6110
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 ... 516-249-7245
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ... 312-532-1800
† Positronic Inds., 423 North Campbell, Springfield, MO 65806 ... 417-866-2322
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 ... 617-532-5500
§ Pylon Co., 452 John Dietsch Blvd., Attleboro Falls, MA 02763 ... 617-699-7646
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 ... 812-945-0211
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 ... 812-944-6733
† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ... 914-698-5600
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 ... 401-461-8220
SMK Elctrns. Corp., U.S.A., 1901 Nancita Cir., Placentia, CA 92670 ... 714-996-0960
Staffall Inc., 7 Woodland St., Providence, RI 02908 ... 401-351-8282
† Taurus Corp., Academy Hill, P.O. Box 278, Lambertville, NJ 08530 ... 609-397-2390
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 ... 213-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 ... 513-561-8145
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ... 312-585-1212
§ Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada ... 514-457-3648
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
§† Whitso, 9326 Byron St., Schiller Pk., IL 60176 ... 312-678-5200
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 ... 914-666-2911

Terminals, Printed Circuit Board-2100

AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ... 2•1148
Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 ... 2•1149
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ... 2•1190-1200,1202,1203,1205,1207-1213,1216-1221
Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523, 914-592-7322 ... 2•1266, 1267
Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 818-875-0213 ... 2•1314-1316
§ **TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 ... 2•1706**
§ **Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 ... 2•1094**
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 ... 516-546-1751
Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 ... 216-365-1211
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 ... 215-647-1000
Applied Digital Data Systems Inc., 100 Marcus Blvd., Hauppauge, NY 11787 ... 516-231-5400
† Ark-Les, 51 Water St., Watertown, MA 02172 ... 617-924-2330
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 ... 201-267-2000
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 ... 201-783-7800
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 ... 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 ... 212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 ... 203-929-1401
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 ... 203-334-4124
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 ... 717-938-1451
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ... 800-237-BERG
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 ... 516-234-0400
BTU Engrg. Corp., Bruce Sys., Esquire Rd., N. Billerica, MA 01862 ... 617-667-4111
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 ... 203-838-4444
† Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 ... 617-585-4315
§ Cogenel/Entrelec Div., 2 Ram Ridge Rd., Spring Valley, NY 10977 ... 914-425-7460
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 ... 312-539-3108
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 ... 516-868-1900
† CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428 ... 612-533-3533
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 ... 513-681-5424
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 ... 415-483-8770
Electro Space Fabricators, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067 ... 215-682-7181
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 ... 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 ... 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 ... 815-968-9661
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 ... 818-243-2069
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 ... 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 ... 714-752-3800
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ... 617-568-0451; 800-225-9228
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 ... 212-475-4600
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 ... 201-223-9400
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 ... 516-868-1900
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 ... 313-848-2555
§ Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 ... 215-699-5373
Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 ... 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 ... 312-392-3500
† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 ... 617-491-5400
† Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771 ... 516-922-6000
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 ... 215-355-0200
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 ... 312-969-4550
Mupac, 10 Mupac Dr., Brockton, MA 02401 ... 617-588-6110
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ... 312-532-1800
§† Penn Engrg. & Mfg., P.O. Box 1000, Danboro, PA 18916 ... 215-766-8853
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 ... 717-232-0500
† Positronic Inds., 423 North Campbell, Springfield, MO 65806 ... 417-866-2322
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 ... 617-532-5500
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 ... 812-945-0211
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 ... 713-682-5151
SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 ... 812-944-6733
Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 ... 914-698-5600
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 ... 401-461-8220
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 ... 408-980-1600
† Sylvania Sys. Grp., Comm. Sys. Div., GTE Prods. Corp., 77 A St., Needham Hgts., MA 02194 ... 617-449-2000
Symbex Corp., 72 Corwin Dr., Box 938, Painesville, OH 44077 ... 216-354-0925
United Technologies, Terminal Prods., 1230 Sabine St., Huntington, IN 46750 ... 219-356-2700
Universal Instrs., P.O. Box 825, Binghamton, NY 13902 ... 607-775-1102
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 ... 213-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 ... 513-561-8145
§ Wago Corp., 6657 N. Sidney Pl., Milwaukee, WI 53209-3217 ... 414-352-1035
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 ... 312-585-1212
§ Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada ... 514-457-3648
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 ... 804-794-2877
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 ... 914-666-2911

Terminals, Point-of-Sale-2000 — *See Vol. 3*

Terminals, Push-on — See Connectors & Terminals, Push-on, Quick Disconnect (Vol. 2)

Terminals, Solderless-2100

§† **AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 ... 2•1121,1141, 1142,1145**
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 ... 2•1860
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 ... 2•1238-1241

Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523, 914-592-7322 .... 2•1266, 1267
§† Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1497
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... 2•1094
Wall-Able Manufacturing Corp., 1800 N. Clybourn Ave., Chicago, IL 60614, 312-440-1000 .... 2•1743
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236, 804-794-2877 .... 2•1748
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 215-647-1000
§ Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-267-2000
Assembly Specialists, 914 Main St., Box 965, Acton, MA 01720 617-263-9100
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
§† Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 .... 800-237-BERG
BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Burndy Corporation, Richards Ave., Norwalk, CT 06852 203-838-4444
Bussco Engrg., 119 Standard St., El Segundo, CA 90245 213-322-6580
Cole Hersee, 20 Old Colony Ave., Boston, MA 02127-2467 617-268-2100
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Doran Mfg. Co., 2851 Massachusetts Ave., Cincinnati, OH 45225 513-681-5424
E & L Instruments, Inc., 61 First St., Derby, CT 06418 203-735-8774
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Global Specialties Corp., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509 203-624-3103
§ Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 516-293-5244
§† Hollingsworth Solderless Terminal Co., 700 N.W. 57th Pl., Ft. Lauderdale, FL 33309 305-772-7660
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 815-895-6501
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 .... 617-568-0451; 800-225-9228
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 313-848-2555
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
Multi-Amp Corp., Indian Head Corp., 4271 Bronze Way, Dallas, TX 75237 214-333-3201
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
† Patton-MacGuyer Inc., 17 Virginia Ave., Providence, RI 02905 401-941-6000
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
§† Pioneer Comps., 2352 E. 66th St., Brooklyn, NY 11234 212-444-3880
§ Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Sprague Products Co., 481 Marshall St., No. Adams, MA 01247 413-664-4481
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
§ Teledyne Ansonia, Riverside Dr., Ansonia, CT 06401 203-735-9311
† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 414-355-1130
United Technologies, Terminal Prods., 1230 Sabine St., Huntington, IN 46750 219-356-2700
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388
§† Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Weco Electrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada 514-457-3648
§† Whitso, 9326 Byron St., Schiller Pk., IL 60176 312-678-5200
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Terminals, Standoff-2100

† Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 .... 2•1787
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... 2•1860
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... 2•1269
Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 818-875-0213 .... 2•1314,1315,1317
Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... 2•1547
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013, 717-243-5929 .... 2•1797
† Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 .... 2•1868
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
§ Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-267-2000
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 .... 800-237-BERG
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
† Hermetic Seal, 4232 Temple City Blvd., Rosemead, CA 91770 818-283-0411
Jan Hardware Mfg. Co., 47-27 36th St., Long Island City, NY 11101 212-361-0800
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 .... 213-849-6211; 800-423-2734
† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§† Penn Engrg. & Mfg., P.O. Box 1000, Danboro, PA 18916 215-766-8853
§ Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
† Taurus Corp., Academy Hill, P.O. Box 278, Lambertville, NJ 08530 609-397-2390
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§† Whitso, 9326 Byron St., Schiller Pk., IL 60176 312-678-5200
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Terminals, Threaded-2100

§† Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1173,1188,1201-1203,1206-1208,1210
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... 2•1269
Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 818-875-0213 .... 2•1314,1315
RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 .... 2•1550
† Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 .... 2•1868
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745 617-995-1725
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-267-2000
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600

§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ....617-568-0451; 800-225-9228
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 ....213-849-6211; 800-423-2734
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 313-848-2555
† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
§† Penn Engrg. & Mfg., P.O. Box 1000, Danboro, PA 18916 215-766-8853
§ Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
Sterling Instr., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040 516-328-3300
TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
§ Weco Elctrl. Connectors Inc., P.O. Box 84, Ste. Anne De, Bellevue, PQ H9X 3L4 Canada 514-457-3648
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Terminals, Turret-2100

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1173,1203,1204,1208,1209,1211
§ **Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 818-875-0213 .... 2•1314,1315**
§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1380**
§† **Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1497,1498**
† **Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771, 516-922-6000 .... 2•1523**
Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... 2•1547
Reeves-Hoffman Div., 400 W. North St., Carlisle, PA 17013, 717-243-5929 .... 2•1797
† Aaba Components Corp., P.O. Box 171, Baldwin Place, NY 10505 914-628-6952
§† Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
† Armel Elctrns., 1601 75th St., N. Bergen, NJ 07047 201-869-4201
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Auto-Swage Prods., 726 River Rd., Shelton, CT 06484 203-929-1401
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Electrical Inds., 691 Central Ave., Murray Hill, NJ 07974 201-464-3200
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
Hypertronics Corp., 16 Brent Dr., Hudson, MA 01749 ....617-568-0451; 800-225-9228
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 ....213-849-6211; 800-423-2734
† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
§† Precision Metal Prods. Co., Centennial Indl. Pk., Peabody, MA 01960 617-532-5500
§ RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188 312-682-4100
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
§† Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
§ Useco Div., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409 213-786-9388
† U.S. Terminals, 7502 Camargo Rd., Cincinnati, OH 45243 513-561-8145
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§† Whitso, 9326 Byron St., Schiller Pk., IL 60176 312-678-5200

Terminals, Wirewrap-2100

AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... 2•1138-1140
† **Auto-Swage Prods., 726 River Rd., Shelton, CT 06484, 203-929-1401 .... 2•1860**
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1190,1213
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895, 401-769-3800 .... 2•1269
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736, 201-223-9400 .... 2•1501
† **Mill-Max Mfg. Corp., P.O. Box 300, Oyster Bay, NY 11771, 516-922-6000 .... 2•1523**
Precicontact, Inc., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047, 215-757-1202 .... 2•1547
§ **RDI/Reed Devices Inc., 525 Randy Rd., Carol Stream, IL 60188, 312-682-4100 .... 2•1549**
Accessories for Elctrns., Inc., 800 Merrick Rd., Baldwin, NY 11510 516-546-1751
† Accurate Elctrns., 169 S. Abbe Rd., P.O. Box 1287, Elyria, OH 44036 216-365-1211
Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818 401-885-0485
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-267-2000
Assembly Specialists, 914 Main St., Box 965, Acton, MA 01720 617-263-9100
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
§† Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 ....800-237-BERG
§ BICC-Vero Elctrns., Inc., 171 Bridge Rd., Hauppauge, NY 11788 516-234-0400
Bussco Engrg., 119 Standard St., El Segundo, CA 90245 213-322-6580
Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
§ Cogenel/Entrelec Div., 2 Ram Ridge Rd., Spring Valley, NY 10977 914-425-7460
Connector Corp., 6025 N. Keystone Ave., Chicago, IL 60646 312-539-3108
† CO-ORD Switch Div., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
† CTS Fabri-Tek, Inc., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428 612-533-3533
Douglas Elctrns., 718 Marina Blvd., San Leandro, CA 94577 415-483-8770
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
§† Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
† General Mfg., 724 Ruberta Ave., Glendale, CA 91201 818-243-2069
† Hybricon Corp., 410 Great Rd., Littleton, MA 01460 617-486-3174
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 714-623-3463
† LVC Inds., Inc., CO-ORD Switch Div., 23 Hanse Ave., Freeport, NY 11520 516-868-1900
§ Magnum Elec., 6385 Dixie Hwy., Erie, MI 48133 313-848-2555
§ Methode Elctrns., Inc., 7444 W. Wilson Ave., Chicago, IL 60656 312-867-9600
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
† Midland-Ross Corp., Cambion Div., One Airwife Place, Cambridge, MA 02140 617-491-5400
† Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Mupac, 10 Mupac Dr., Brockton, MA 02401 617-588-6110
§ National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Nepenthe/Yamaichi, 2471 E. Bayshore, 20, Palo Alto, CA 94303 415-856-9332
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
§† Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Phoenix Contact, 1900 Greenwood St., Harrisburg, PA 17104 717-232-0500
§ Positronic Inds., 423 North Campbell, Springfield, MO 65806 417-866-2322
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150 812-944-6733
Staffall Inc., 7 Woodland St., Providence, RI 02908 401-351-8282
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§† TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§ Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236 804-794-2877
§† Whitso, 9326 Byron St., Schiller Pk., IL 60176 312-678-5200
Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Terminals (MIL), Ground Data-3475 — *See Vol. 3*

Terminations, Antenna-2800 (Also See Dummy Loads)

† Airtron, 200 E. Hanover Ave., Morris Plains, NJ 07950 201-539-5500
† Alan Inds., P.O. Box 1203, Columbus, IN 47201 812-372-8869
† Arra Inc., 15 Harold Ct., Bay Shore, NY 11706 516-231-8400
§ Astrolab, 345 Dalziel Rd., Linden, NJ 07036 201-862-0022
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
† Bird Elctrn., 30303 Aurora Rd., Cleveland, OH 44139 216-248-1200
Carborundum Co., Electric Prods. Div., Box 339, Niagara Falls, NY 14302 716-278-2383
Coaxial Dynamics, 13110 Enterprise, Cleveland, OH 44135 216-267-2233
† Connecticut Microwave Corp., 106 Powder Mill Rd., Box 389, Canton, CT 06019 203-693-4247
§† Dielectric Communications, General Signal, Tower Hill Rd., Raymond, ME 04071 .... 207-655-4555;800-341-9678
† Elcom Systems, Inc., 4032 Clint Moore Rd., Boca Raton, FL 33431 305-994-1774
† Electro Impulse, Box 870, Red Bank, NJ 07701-0870 201-741-0404
§† EMC Technology Inc, 1971 Old Cuthbert Rd., Cherry Hill, NJ 08034 609-429-7800
Gabriel Elctrns., Box 70, Scarborough Indl. Pk., Scarborough, ME 04074 207-883-5161
§† JFW Inds., Inc., 2719 E. Troy Ave., Indianapolis, IN 46203 317-783-9875
KDI Electronics, Inc., 60 S. Jefferson Rd., Whippany, NJ 07981 201-887-8100
§† Kings Elctrns., 40 Marbledale Rd., Tuckahoe, NY 10707 914-793-5000
Maury Microwave, 8610 Helms Ave., Cucamonga, CA 91730 714-987-4715
† Microlab/FXR, 10 Microlab Rd., Livingston, NJ 07039 201-992-7700

† Microwave Applications Grp., 3030 Industrial Pkwy., Santa Maria, CA 93455 805-928-5711

Microwave Development Labs., 10 Michigan Dr., Natick, MA 01760 617-655-0060

§† Microwave Filter Inc., 6743 Kinne St., East Syracuse, NY 13057 .....315-437-4529; 800-448-1666

† Narda Microwave Corp., 435 Moreland Rd., Hauppauge, NY 11788 516-231-1700

RLC Elctrns., Inc., 83 Radio Cir., Mt. Kisco, NY 10549 914-241-1334

† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761

† Sage Laboratories, Inc., 3 Huron Dr., Natick, MA 01778 617-653-0844

§ Sealectro, 225 Hoyt St., Mamaroneck, NY 10543 914-698-5600

Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220

† Sylvania Sys. Grp., Comm. Sys. Div., GTE Prods. Corp., 77 A St., Needham Hgts., MA 02194 617-449-2000

§† Systron-Donner Microwave Div., 14844 Oxnard St., Van Nuys, CA 91409 818-786-1760

† Transco Prods., 4241 Glencoe Ave., Marina del Rey, CA 90291 213-822-0800

Varian Associates, Inc., Microwave Tube Div., 611 Hansen Way, Palo Alto, CA 94303 415-493-4000

§† Waveline, Box 718, W. Caldwell, NJ 07006 201-226-9100

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Testers, Transistor-2900 — *See Vol. 3*

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Timers, Programmed-2200 — *See Vol. 3*

Timers, Sequence-2200 — *See Vol. 3*

Timers, Solid State-2200 — *See Vol. 3*

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Tool Kits & Sets-5400

§ **Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040, 602-968-6241 .... 2•1931**
§† Allen Mfg., 22 E. Dudley Town Rd., Bloomfield, CT 06002 203-242-8511
§† Astro Tool Co., Inc., 21615 Southwest Tualatin Valley Hwy., Beaverton, OR 97006 503-642-9853
Bearing Inspection, 10041 Shoemaker Ave., Santa Fe Springs, CA 90670 213-944-6251
§† Beau Tech, P.O. Box 523, Portland, ME 04122 207-775-6139
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
Contact East, 7 Cypress Dr., Burlington, MA 01803 617-272-5051
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809 305-855-6161
Diversified Case Co., Ellis Ave., Off. 2, Whitesboro, NY 13492 315-736-3028
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ General Hardware Mfg., 80 White St., New York, NY 10013 212-431-6100
§† Grover Patent Products, 339 W. Arden Ave., Glendale, CA 91203 213-245-4400
§ Heath Co., Benton Harbor, MI 49022 616-982-3886
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§† Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 619-449-3844
§† Moody Tools, 43 Crompton Ave., E. Greenwich, RI 02818 401-885-0911
Multi-Amp Corp., Indian Head Corp., 4271 Bronze Way, Dallas, TX 75237 214-333-3201
§ Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
Skyo Industries Inc., 171 Brook Ave., Deer Park, NY 11729 516-586-4702
Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ Uber Grafic Instrs., Box 4, Palo Alto, CA 94302 415-327-4732
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Tools & Kits, Contact Insertion/Removal-5400

AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... 2•1121
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 .... 800-237-BERG
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809 305-855-6161
Elctrn. Molding Corp., 96 Mill St., Woonsocket, RI 02895 401-769-3800
§† Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
§ ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
§† Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ 3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144 612-733-7408
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Symtron Corp., 2415 E. Charleston Rd., Mountain View, CA 94043 415-965-4500
Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007 312-981-6000
§† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010
§ Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Tools, Alignment & Tuning-5400

Quantum Data, Inc., 455 E. Kehoe, Carol Stream, IL 60188, 312-668-3301 .... 3•1289
Spectrol Elctrns., 17070 East Gale Ave., City of Industry, CA 91749, 818-964-6565 .... 1A•2056
§† Astro Tool Co., Inc., 21615 Southwest Tualatin Valley Hwy., Beaverton, OR 97006 503-642-9853
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Goldwell Comps., 1815 W. 205th St. Ste. 201, Torrance, CA 90501 213-533-1228
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§† Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§† Pioneer Comps., 2352 E. 66th St., Brooklyn, NY 11234 212-444-3880
§ PTS Electronics Inc., Box 272, Bloomington, IN 47401 812-824-9331
Skyo Industries Inc., 171 Brook Ave., Deer Park, NY 11729 516-586-4702
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Tools, Cable Tie-5400

§† **Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... 2•2138**
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809 305-855-6161
§ Dennison Mfg. Co., 300 Howard St., Framingham, MA 01701 617-879-0511
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
Heyco Molded Products, Box 160, Kenilworth, NJ 07033 .... 201-245-0033; 800-526-4182
† Hollingsworth Solderless Terminal Co., 700 N.W. 57th Pl., Ft. Lauderdale, FL 33309 305-772-7660
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Paladin, 3543 Old Conejo Rd., Newbury Park, CA 91320 805-499-0318
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 414-355-1130

Tools, Connector-5400

Advanced Interconnections Corp., 5 Division St., Warwick, RI 02818, 401-885-0485 .... 2•1104
† **AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... 1B•1109, 2•1125**
§ **Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1149,1151**
Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... 2•1292
§ **3M-Electronic Products Division, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144, 612-733-7408 .... 2•1514**
§ **Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... 2•1532,1533**
§† **Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, 201-469-4000 .... 2•1603**
§† **TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1616,1677,1686**

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† Appleton Elctrns., 2205 12th Ave., So. Milwaukee, WI 53172 414-764-7200
§† Astro Tool Co., Inc., 21615 Southwest Tualatin Valley Hwy., Beaverton, OR 97006 503-642-9853
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 .... 800-237-BERG
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Cambridge Prods., Hi-G, Inc., 244 Woodland Ave., Bloomfield, CT 06002 203-243-1761
† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809 305-855-6161
Deutsch Co., Deutsch Fiber Optics Div., 7001 W. Imperial Hwy., Los Angeles, CA 90045 213-649-1400
§† Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
† Glenair, 1211 Air Way, Glendale, CA 91201 213-247-6000
§ H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810 203-794-1798
§ Harris Corp., Dracon Div., 809 Calle Plano, Camarillo, CA 93010 805-987-9511
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033 .... 201-245-0033; 800-526-4182
Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 516-293-5244
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
§† Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Macom Inds., 8230 Haskell Ave., Van Nuys, CA 91406 ....
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
Micro Mode Prods., 1870 John Towers Ave., El Cajon, CA 92020 619-449-3844
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
§† Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
§ Robinson-Nugent, Inc., 800 East 8th St., New Albany, IN 47150 812-945-0211
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ T&B/Ansley Corp., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869 201-685-1600
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
§† TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428 612-537-1010
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212

Tools, Crimping & Swaging-5400

Fujitsu America, Inc., 918 Sherwood Dr., Lake Bluff, IL 60044, 312-295-2610 .... 2•1292
Hiram Jones Elctrns., 11607 Vanowen St., No. Hollywood, CA 91605, 818-875-0213 .... 2•1316
§ **Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... 2•1533**
§ **TRW Connector Div., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, 312-981-6000 .... 2•1643,1686**
TRW Cylindrical Connector Div., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, 612-537-1010 .... 2•1725
§ **Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236, 804-794-2877 .... 2•1748**

§ Advanced Tool Technology, Inc., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325 213-993-1202
Allied Systems Corp., Box 18077, Greensboro, NC 27419 919-299-2294
Amatom Elctrn. Hardware, 446 Blake St., New Haven, CT 06515 203-397-3311
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
† Ark-Les, 51 Water St., Watertown, MA 02172 617-924-2330
§† Astro Tool Co., Inc., 21615 Southwest Tualatin Valley Hwy., Beaverton, OR 97006 503-642-9853
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Bead Elctrns., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605 203-334-4124
Beman Mfg., P.O. Box 370, New Cumberland, PA 17070 717-938-1451
Berg Elctrns., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011 .... 800-237-BERG
Black & Webster, 281 Winter St., Waltham, MA 02154 617-890-9100
BLACK BOX Corp., Micom Sys., P.O. Box 12800, Pittsburgh, PA 15241 412-746-5500
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
§ Cambridge Prods., Hi-G, Inc., 244 Woodland Ave., Bloomfield, CT 06002 203-243-1761
Clauss Cutlery Co., Box 667, Fremont, OH 43420 419-332-7344
§ Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809 305-855-6161
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§† Flight Connector Corp., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220 213-631-1133
§ General Hardware Mfg., 80 White St., New York, NY 10013 212-431-6100
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 516-293-5244
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 815-895-6501
Hughes Aircraft Co, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009 213-670-1515
Hughes Aircraft Co., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714 714-660-5701
Hughes Aircraft Co., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715 714-752-3800
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§ ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§† Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012 212-475-4600
§† M/A-COM Omni Spectra, Inc., 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§† Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Methode Electronics, Inc., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008 312-392-3500
§ Molex, 2222 Wellington Ct., Lisle, IL 60532 312-969-4550
National Tel-Tronics, State Road Hill, Meadville, PA 16335 814-724-6440
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§† Omni Spectra, 21 Continental Blvd., Merrimack, NH 03054 603-424-4111
§ Paladin, 3543 Old Conejo Rd., Newbury Park, CA 91320 805-499-0318
§ PanaVise Prods., 2850 E. 29th St., Long Beach, CA 90806 213-569-8108
§† Pico Crimping Tools, 9832 Jersey Ave., Santa Fe Springs, CA 90670 213-723-2150
§ Ripley, 46 Nooks Hill Rd., Cromwell, CT 06416 203-635-2200
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Schroff Inc., 170 Commerce Dr., Warwick, RI 02886 401-732-3770
Sjoberg, C., & Son, Inc., 415 Station St., Cranston, RI 02910 401-461-8220
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Support Systems Intl. Corp., 150 South Second St., Richmond, CA 94804 415-234-9090
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Teledyne Ansonia, Riverside Dr., Ansonia, CT 06401 203-735-9311
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
† Trompeter Electronics, Inc., 8936 Comanche, Chatsworth, CA 91311 818-882-1020
United Technologies, Terminal Prods., 1230 Sabine St., Huntington, IN 46750 219-356-2700
§† Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
V.I.P. Inds. Inc., 246 Knickerbocker Ave., Paterson, NJ 07503 201-345-5800
† Virginia Panel, 1400 New Hope Rd., Waynesboro, VA 22980 703-949-8376
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
§ Zierick Mfg. Corp., 44 Radio Circle, Mt. Kisco, NY 10549 914-666-2911

Tools, Heat Sealing-5400

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Harwil, 1548 17th St., Santa Monica, CA 90404 213-829-2310
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200

§† Master Appliance Corp., 2420 18th St., Box 68, Racine, WI 53403 .414-633-7791
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§ Pamran, 1101 Cedar Creek, Racine, WI 53402 414-639-9076
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Tools, Lead Bending & Insertion-5400

APA Division, 399 Executive Blvd., Elmsford, NY 10523, 914-592-7322 ...... 2•1924
§ **Aries Elctrns., Box 130, Frenchtown, NJ 08825, 201-996-6841 .... 2•1150**
§ Advanced Tool Technology, Inc., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325 213-993-1202
§† Beau Tech, P.O. Box 523, Portland, ME 04122 207-775-6139
Black & Webster, 281 Winter St., Waltham, MA 02154 617-890-9100
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§ Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
§ Fancort Industries, Inc., 111 Clinton Rd., Fairfield, NJ 07006 201-575-0610
§ Harwil, 1548 17th St., Santa Monica, CA 90404 213-829-2310
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978

Tools, Magnetic Pickup-5400

Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
† E-Z-Hook, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006 818-446-6175
Jobmaster Corp., 9008 Liberty Rd., Randallstown, MD 21133 301-655-1400
§ Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Matrix Engineering Corp., 17000 S. Western Ave. 19, Gardena, CA 90247 213-770-0521
§ Orbit Inds., 2670 Lockheed Way, Carson City, NV 89701 702-882-6123

Tools, Marking, Numbering, Engraving-5400

Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
Electro Stylus, 31 Cheyenne Blvd., Colorado Springs, CO 80906 303-633-5969
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800

Tools, Parts Handling, Vacuum Operated-5400

† Air-Vac Engrg., 100 Gulf St., Milford, CT 06460 203-874-2541
Black & Webster, 281 Winter St., Waltham, MA 02154 617-890-9100
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§ Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Orbit Inds., 2670 Lockheed Way, Carson City, NV 89701 702-882-6123
Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
§ PanaVise Prods., 2850 E. 29th St., Long Beach, CA 90806 213-569-8108
§ POP Fasteners Div., 510 River Rd., Shelton, CT 06484 203-735-9341
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Tools, Relay Servicing-5400

GTE Automatic Elec., 400 N. Wolf Rd., Northlake, IL 60164 312-681-7071
GTE Switching & Telephone Products, 400 N. Wolf Rd., Northlake, IL 60164 312-681-7100
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§ Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Multi-Amp Corp., Indian Head Corp., 4271 Bronze Way, Dallas, TX 75237 214-333-3201
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Tools, Resistance Soldering — See Soldering Equip., Resistance (Vol. 2)

Tools, Wire Wrapping-5400

§ **Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, 818-365-9661 .... 2•1094**
† Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 ...415-592-4550
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809 305-855-6161
§† Excel Prods., 401 Joyce Kilmer Ave., New Brunswick, NJ 08903 201-249-6600
Garry Mfg. Co., Div. of Brand-Rex Co., 9 Queen Anne Ct., Laghorne, PA 19047 215-949-2300
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Hollis Engrg./Wire-Wrap, 15 Charron Ave., Nashua, NH 03061 603-889-1121
Interconnection Technology, Inc., 5542 Buckingham Drive, Huntington Beach, CA 92649 714-891-5305
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Kel-Am, 308 E. 5th, P.O. Box 313, Eldon, MO 65026 314-392-7174
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Standard Logic, 2215 S. Standard Ave., Santa Ana, CA 92707 714-979-4770
§ Standard Pneumatic Motor, Box 10530, Reno, NV 89510 702-329-6311
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978
Wilson, H.F., Engrg. Co., 475 Taft Ave., Glen Ellyn, IL 60137 312-469-8473

Torches, Soldering, Welding & Accessories-4600

Henes Prods., 4301 E. Madison St., Phoenix, AZ 85034 602-275-4126
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Pamran, 1101 Cedar Creek, Racine, WI 53402 414-639-9076
§ Ridge Tool Co., Sub. Emerson Elec. Co., 400 Clark St., Elyria, OH 44036 216-323-5581
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
§ Wall Lenk, Box 3349, Dept. EEM-71, Kinston, NC 28501 919-527-4186

Toroids — See Coils, Toroidal (Vol. 1A)

Torque Control — See Knobs, Torque, Incremental, Ratio Drive (Vol. 2)

Torquers, Gyro — See Motors, Torque (Vol. 1B)

Totalizers, Digital-2200 — *See Vol. 3*

Touch Panels — See Displays, Touch Sensitive (Vol. 1B)

Touch Terminals — See Displays, Touch Sensitive (Vol. 1B)

Tracers, Curve-2900 — *See Vol. 3*

Tracers, Signal — See Testers, Signal Tracing (Vol. 3)

Trackballs, XY Positioning-2200 — *See Vol. 3*

Track Breaker (MIL), I-band-3475 — *See Vol. 3*

Trackers (MIL), Laser-3475 — *See Vol. 3*

Tracking Systems (MIL)-3475 — *See Vol. 3*

Trainers (MIL), ECM-3475 — *See Vol. 3*

Trainers (MIL), Elint-3475 — *See Vol. 3*

Trainers (MIL), EW-3475 — *See Vol. 3*

Trainers (MIL), IR Detection-3475 — *See Vol. 3*

Trainers (MIL), Maritime-3475 — *See Vol. 3*

Training Systems (MIL)-3475 — *See Vol. 3*

Transceivers-1900 — *See Vol. 3*

Transducer Elements-5500 — *See Vol. 1B*

Transducers, Acceleration — See Accelerometers (Vol. 1B)

Transducers, Audio-5500 — *See Vol. 1B*

Transducers, Ceramic-5500 — *See Vol. 1B*

Transducers, Displacement-5500 — *See Vol. 1B*

Transducers, Flow-5500 — *See Vol. 1B*

Transducers, Force-5500 — *See Vol. 1B*

Transducers, Frequency — See Transducers, Volt, Watt, Current, etc. (Vol. 1B)

Transducers, Incremental Digital Position, Rotary — See Encoders, Shaft Angle (Vol. 1B)

Transducers, Magnetic Pickup-5500 — *See Vol. 1B*

Transducers, Piezoelectric-5500 — *See Vol. 1B*

Transducers, Position, Linear-5500 — *See Vol. 1B*

Transducers, Position, Rotary-5500 — *See Vol. 1B*

Transducers, Power — See Transducers, Volt, Watt, Currents, etc. (Vol. 1B)

Transducers, Pressure-5500 — *See Vol. 1B*

Transducers, Proximity-5500 — *See Vol. 1B*

Transducers, Sonic-5500 — *See Vol. 1B*

Transducers, Strain Gauge-5500 — *See Vol. 1B*

Transducers, Temperature-5500 — *See Vol. 1B*

Transducers, Thermoelectric — See Transducers, Temperature (Vol. 1B)

Transducers, Torque-5500 — *See Vol. 1B*

Transducers, Ultrasonic-5500 — *See Vol. 1B*

Transducers, Velocity-5500 — *See Vol. 1B*

Transducers, Vibration-5500 — *See Vol. 1B*

Transducers, Volt, Watt, Current VAR, Power Factor, Frequency-5500 — *See Vol. 1B*

Transformers, Audio-5600 — *See Vol. 1A*

Transformers, Autotransformer-5600 — *See Vol. 1A*

Transformers, Bias — See Transformers, Power (Vol. 1A)

Transformers, Bridging — See Transformers, Matching (Vol. 1A)

Transformers, Chopper-5600 — *See Vol. 1A*

Transformers, Constant Voltage-5600 — *See Vol. 1A*

Transformers, Control — See Transformers, Power (Vol. 1A), Transformers, Synchro, Control (Vol. 1A),

Transformers, Converter, DC To DC-5600 — *See Vol. 1A*

Transformers, Current — See Transformers, Instrument (Vol. 1A)

Transformers, Data — See Transformers, Telephone Coupling (Vol. 1A)

Transformers, Decade-5600 — *See Vol. 1A*

Transformers, Differential-5600 — *See Vol. 1A*

Transformers, Discriminator-5600 — *See Vol. 1A*

Transformers, Donut — See Transformers, Toroidal (Vol. 1A)

Transformers, Driver-5600 — *See Vol. 1A*

Transformers, Ferroresonant-5600 — *See Vol. 1A*

Transformers, Filament-5600 — *See Vol. 1A*

Transformers, Flyback-5600 — *See Vol. 1A*

Transformers, Foil Wound — See Coils, Foil Wound (Vol. 1A)

Transformers, 400 Hz-5600 — *See Vol. 1A*

Transformers, High Voltage (1,000 Volts & Over)-5600 — *See Vol. 1A*

Transformers, Horizontal Sweep-5600 — *See Vol. 1A*

Transformers, Hybrid-5600 — *See Vol. 1A*

Transformers, IF-5600 — *See Vol. 1A*

Transformers, Input-5600 — *See Vol. 1A*

Transformers, Instrument-5600 — *See Vol. 1A*

Transformers, Interstage-5600 — *See Vol. 1A*

Transformers, Inverter-5600 — *See Vol. 1A*

Transformers, Isolation-5600 — *See Vol. 1A*

Transformers, Line-5600 — *See Vol. 1A*

Transformers, Linear Variable-Differential — See Transformers, Differential (Vol. 1A)

Transformers, Magnetic Amplifier-5600 — *See Vol. 1A*

Transformers, Matching-5600 — *See Vol. 1A*

Transformers, Microminiature-5600 — *See Vol. 1A*

Transformers, Microphone-5600 — *See Vol. 1A*

Transformers, Mixing-5600 — *See Vol. 1A*

Transformers, Modulation-5600 — *See Vol. 1A*

Transformers, Output-5600 — *See Vol. 1A*

Transformers, Plate-5600 — *See Vol. 1A*

Transformers, Power-5600 — *See Vol. 1A*

Transformers, Power Distribution-5600 — *See Vol. 1A*

Transformers, Printed Circuit Mounting-5600 — *See Vol. 1A*

Transformers, Programmable Ratio-5600 — *See Vol. 1A*

Transformers, Pulse-5600 — *See Vol. 1A*

Transformers, RF-5600 — *See Vol. 1A*

Transformers, Reactor — See Reactors, Filter (Vol. 1A)

Transformers, Rectifier-5600 — *See Vol. 1A*

Transformers, Reference-5600 — *See Vol. 1A*

Transformers, Rotary-5600 — *See Vol. 1A*

Transformers, Scott T-5600 — *See Vol. 1A*

Transformers, Servo-5600 — *See Vol. 1A*

Transformers, Split Bobbin-5600 — *See Vol. 1A*

Transformers, Step Down, Step Up — See Transformers, Power (Vol. 1A)

Transformers, Synchro Control-5600 — *See Vol. 1A*

Transformers, Telephone Coupling-5600 — *See Vol. 1A*

Transformers, Toroidal-5600 — *See Vol. 1A*

Transformers, Transistor-5600 — *See Vol. 1A*

Transformers, Trigger — See Transformers, Pulse (Vol. 1A)

Transformers, Variable-5600 — *See Vol. 1A*

Transformers, Voltage Dividing-5600 — *See Vol. 1A*

Transformers, Voltage Regulating-5600 (Also See Regulators & Stabilizers, Voltage) **— *See Vol. 1A***

Transformers, Wall Plug-in — See Power Supplies, Plug-in (Vol. 3)

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Transistor Arrays-4800 — *See Vol. 1A*

Transistor, Diode, Thyristor Heat Dissipators — See Heat Sinks, Transistor (Vol. 2)

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Transistors, Chip, Unpackaged-4800 — *See Vol. 1A*

Transistors, Darlington-4800 — *See Vol. 1A*

Transistors, Dual-4800 — *See Vol. 1A*

Transistors, Field Effect-4800 — *See Vol. 1A*

Transistors, Germanium-4800 — *See Vol. 1A*

Transistors, Low Noise, GaAs, FETs — Also See Transistors, Microwave-4800 — *See Vol. 1A*

Transistors, Microwave-4800 — *See Vol. 1A*

Transistors, Photo (Incl. Arrays)-3700 — *See Vol. 1B*

Transistors, Power-4800 — *See Vol. 1A*

Transistors, Power, Bipolar-4800 — *See Vol. 1A*

Transistors, Power, FET-4800 — *See Vol. 1A*

Transistors, Pressure Sensitive-4800 — *See Vol. 1A*

Transistors, RF-4800 — *See Vol. 1A*

Transistors, Silicon-4800 — *See Vol. 1A*

Transistors, Switching-4800 — *See Vol. 1A*

Transistors, Unijunction-4800 — *See Vol. 1A*

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Transmission Line, Wire & Cable — See Cable, Transmission Line (Vol. 2)

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Transmitters, Fiber Optic-3700 — *See Vol. 1B*

Transmitters, Fixed Frequency-1900 — *See Vol. 3*

Transmitters, Laser-3700 — *See Vol. 1B*

Transmitters, Pressure & Flow-5500 — *See Vol. 1B*

Transmitters, Radar — See Radar System Components (Vol. 1A)

Transmitters, Telemetry-1900 — *See Vol. 3*

Transmitters, Tone-1900 — *See Vol. 3*

Transmitters (MIL), ECM-3475 — *See Vol. 3*

Transmitters (MIL), Shipboard Jamming-3475 — *See Vol. 3*

Transmitters (MIL), TWTs-3475 — *See Vol. 3*

Transponders-1900 — *See Vol. 3*

Transports, Tape (all kinds)-2000 — *See Vol. 3*

Triacs-4800 — *See Vol. 1A*

Triggers, SCR — See Controls, SCR (Vol. 3)

Tube Heat Dissipators-5700 — *See Vol. 1A*

Tubes, Backward Wave-5700 — *See Vol. 1A*

Tubes, Ballast — See Resistors, Ballast (Vol. 1A)

Tubes, Cathode Ray, General Purpose-5700 — *See Vol. 1A*

Tubes, Cathode Ray, Special Purpose-5700 — *See Vol. 1A*

Tubes, Counting-5700 — *See Vol. 1A*

Tubes, Electrometer-5700 — *See Vol. 1A*

Tubes, Electron Multiplier-5700 — *See Vol. 1A*

Tubes, Flash-5700 — *See Vol. 1A*

Tubes, Gas-5700 — *See Vol. 1A*

Tubes, Ignitron-5700 — *See Vol. 1A*

Tubes, Image Converter-5700 — *See Vol. 1A*

Tubes, Indicator — See Tubes, Readout (Vol. 1A)

Tubes, Magnetron — See Tubes, Microwave (Vol. 1A)

Tubes, Microwave-5700 — *See Vol. 1A*

Tubes, Noise Source-5700 — *See Vol. 1A*

Tubes, Photomultiplier-5700 — *See Vol. 1A*

Tubes, Readout (CRT, Cold-Cathode, Vacuum Fluorescent, Incandescent, etc.)-5700 — *See Vol. 1A*

Tubes, Receiving-5700 — *See Vol. 1A*

Tubes, Rectifying-5700 — *See Vol. 1A*

Tubes, Strobe — See Lamps, Stroboscopic Source (Vol. 1B)

Tubes, Switching-5700 — *See Vol. 1A*

Tubes, TV Camera Pickup-5700 — *See Vol. 1A*

Tubes, Transmitting-5700 — *See Vol. 1A*

Tubes, Voltage Reference or Regulating-5700 — *See Vol. 1A*

Tubes, X-ray-5700 — *See Vol. 1A*

Tubes (MIL), Indicator & Pickup-2440 — *See Vol. 1B*

Tubes (MIL), Microwave-2440 — *See Vol. 1B*

Tubes (MIL), Power & Gas, Planar-2440 — *See Vol. 1B*

Tubes (MIL), Receiving, & Tube Shields-2440 — *See Vol. 1B*

Tubing, Ceramic-2500

Alberox, New Bedford Ind'l. Pk., New Bedford, MA 02745, 617-995-1725 ... 2•1787
Aremco Prods., Box 429, Ossining, NY 10562 914-762-0685
† Centerflex Techn. Corp., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507 201-423-0505
Coors Porcelain, 600 Ninth St., Golden, CO 80401 303-278-4000
Corning Glass Works, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830 607-974-9000
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 415-592-9440
3M Co., Tech Ceramic Resources, 3M Center 225-4W, St. Paul, MN. 55101 617-736-0601
§ National Beryllia Corp., Greenwood Ave., Haskell, NJ 07420 201-839-1600
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Plessey Ceramic Div., 8th & Harrison Sts., Frenchtown, NJ 08825 201-996-2121
Quartzite Processing, Inc., 6 Holyoke St., Malden, MA 02148 617-322-1380
Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
† Saphikon, 51 Powers St., Milford, NH 03055 603-673-5831
Star Porcelain, 71 Muirhead Ave., Trenton, NJ 08638 609-392-3154
Steward, D. M., Mfg. Co., P.O. Box 510, Chattanooga, TN 37401 615-867-4100
Thermal Amer. Fused Quartz, Change Bridge Rd., Montville, NJ 07045 201-334-7770

Tubing, Fiberglass-2800

† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
† Cleveland Mica Co., 1360 Hird Ave., Lakewood, OH 44107 216-226-1360
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Pannier Corp., Graphics Div., John Fitch Industrial Park, Warminster, PA 18974 215-672-3600
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140

Tubing, Glass-2500

§† Alltech Assocs. Inc., Applied Science Labs., 2051 Waukegan Rd., Deerfield, IL 60015 312-948-8600
Corning Glass Works, Main Plant, MS 2136, Corning, NY 14831 607-974-4102
Corning Glass Works, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830 607-974-9000
Corning Glass Works, Telecomm Prods Dept., BH-5, Corning, NY 14830 607-974-9000
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Garner Glass Co., 177 S. Indian Hill Blvd., Claremont, CA 91711 714-624-5071
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
† GTI/Elctrns. Div., P.O. Box 96, Hadley, PA 16130 412-253-3161

Tubing, Heat Shrinkable-2800 (Also See Caps, Forms & Tapes, Heat Shrinkable)

Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 .... 2•1941
§† AMP Incorporated, Box 3608, Harrisburg, PA 17105, 717-564-0100 .... 2•1869
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... 2•1994,1995
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .. 2•2083, 2084
§† Zeus Indl. Prods. Inc., P.O. Box 298, Raritan, NJ 08869, 201-526-0800; 800-526-3842 .... 2•1871
† Antex Div., 7 Hawkes St., Marblehead, MA 01945 617-631-7100
† Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
§ Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012 212-777-6571
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
H-A-Z Laboratories, Brass Castle Rd., P.O. Box 67-M, Washington, NJ 07882 201-689-0110
High Voltage Engrg. Corp., S. Bedford St., Burlington, MA 01803 617-272-1313
† Hollingsworth Solderless Terminal Co., 700 N.W. 57th Pl., Ft. Lauderdale, FL 33309 305-772-7660
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 .... 212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
§† Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945 617-631-7100
† Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 215-323-7120
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700

§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§† Penntube Plastics, Madison Ave. & Holly St., Clifton Heights, PA 19018 215-622-2300
§ Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Russell Inds., 3000 Lawson Blvd., Oceanside, NY 11572 516-536-5000
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Tubing, Metal-2500

† Cabot Berylco, Div. Cabot Corp., PO Box 1296, Reading, PA 19603 215-921-5000
Carpenter Techn., Box 662, Reading, PA 19603 215-371-2000
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
† ITT-Higbie Mfg., Wagner Rd., Rochester, MI 48063 313-651-5300
† KBI, A Div. of Cabot Corp., PO Box 1462, Reading, PA 19603 215-371-3600
Lear Siegler, Inc., 2850 Ocean Park Blvd., P.O. Box 2158, Santa Monica, CA 90406 213-452-6000
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§† Uniform Tubes, Collegeville, PA 19426 215-539-0700
Wall, A. T., Co., 55 Service Ave., Warwick, RI 02886 401-739-0740
Whittaker Corp., 10880 Wilshire Blvd., Los Angeles, CA 90024 213-475-9411

Tubing, Paper-2800

Tubing, Plastic-2800 (Also See Tubing, Spaghetti)

Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 .... 2•1940,1941
§† **Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... 2•1994,1995**
Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1226
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .. 2•2083, 2084,2090**
§† **Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945, 617-631-7100 .... 2•2133**
§† **Zeus Indl. Prods. Inc., P.O. Box 298, Raritan, NJ 08869, 201-526-0800; 800-526-3842 .... 2•1871**
Acme Model Engrg. Co., 654 Bergen Blvd., Ridgefield, NJ 07657 201-943-7650
† Antex Div., 7 Hawkes St., Marblehead, MA 01945 617-631-7100
§ Bivar, Inc., 4 Thomas, Irvine, CA 92714 714-951-8808
§† Blum, Julius & Co., Inc., Box 292, Carlstadt, NJ 07072 201-438-4600
§† Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
§ Dayco Corp., 333 W. First St., Dayton, OH 45402 513-226-5927
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
Gasket Intl. Inc., 49 Ackerman St., Bloomfield, NJ 07003 201-338-6814
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
§† Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
§† Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
Norton, One New Bond St., Worcester, MA 01606 617-853-1000
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
Nyltite, 3451 S. Clinton Ave., S. Plainfield, NJ 07080 201-561-1300
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§† Penntube Plastics, Madison Ave. & Holly St., Clifton Heights, PA 19018 215-622-2300
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Polymer Corp., P.O. Box 422, Reading, PA 19603 215-320-6600
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
SGL Homalite, Div. of SGL Inds., 11 Brookside Dr., Wilmington, DE 19804 302-652-3686
Sinclair & Rush, 6900 S. Broadway, St. Louis, MO 63111 314-481-2450
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Spruce Pine Mica Co., Mtn. Laurel Dr., Spruce Pine, NC 28777 704-765-4241
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
† Stevens Products, Inc., 128 N. Park St., E. Orange, NJ 07019 201-672-2140
† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
† Teledyne Aerospace Sys., 1007 E. 10th St., Fairmont, MN 56031 ..507-235-3355; 07-235-9712;507-238-9494
§ Thermoplastic Processes, Inc., 1268 Valley Rd., Stirling, NJ 07980 .201-647-1000
Thielex Plastics Corp., 201 11th St., Piscataway, NJ 08854 201-968-5300
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Tubing, Spaghetti-2800

Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, 201-925-8000 .... 2•1941
§† **Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... 2•1994,1995**
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .. 2•2083, 2084**
§† **Zeus Indl. Prods. Inc., P.O. Box 298, Raritan, NJ 08869, 201-526-0800; 800-526-3842 .... 2•1871**
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
† Cadillac Plastic & Chem., 1221 Bowers St., P.O. Box P-2020, Birmingham, MI 48012 313-646-5100
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
§ Norelcom Inds., 63 Marine St., Farmingdale, NY 11735 516-249-7245
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
§† Penntube Plastics, Madison Ave. & Holly St., Clifton Heights, PA 19018 215-622-2300
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006

Tubing, Spiral Wrap-2800

§† **Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... 2•1995**
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2090**
§† **Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945, 617-631-7100 .... 2•2133**
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§† Amrad, Div. Transcon Mfg. Co., Box 876, Paris, TX 75460 214-785-4544
† Antex Div., 7 Hawkes St., Marblehead, MA 01945 617-631-7100
† Chomerics, Inc., 77 Dragon Ct., Woburn, MA 01888 617-935-4850
§ Dayco Corp., 333 W. First St., Dayton, OH 45402 513-226-5927
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Dixon Inds., 386 Metacom Ave., Bristol, RI 02809 401-253-2000
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
† Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 ..215-323-7120
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800
§† Penntube Plastics, Madison Ave. & Holly St., Clifton Heights, PA 19018 215-622-2300
§ Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 805-238-2840
§† Zeus Indl. Prods. Inc., P.O. Box 298, Raritan, NJ 08869 ....201-526-0800; 800-526-3842

Tubing, Waveguide-3450 — *See Vol. 1A*

Tubing, Zipper-6000

Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 201-753-7988
§† Electronized Chemicals Co., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887 617-657-8030
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Tuners, AM/FM-1300 — *See Vol. 3*

Tuners, Microwave-3450 — *See Vol. 1A*

Tuning Forks-2300 — *See Vol. 1A*

Tweezers, Manual & Vacuum-5400

† Air-Vac Engrg., 100 Gulf St., Milford, CT 06460 203-874-2541
§ Clauss Cutlery Co., Box 667, Fremont, OH 43420 419-382-7344
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§ Engineering & Elctrn. Devices, 1024 N. McCadden Pl., Los Angeles, CA 90038 213-463-4175
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ General Hardware Mfg., 80 White St., New York, NY 10013 212-431-6100
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ Orbit Inds., 2670 Lockheed Way, Carson City, NV 89701 702-882-6123
§ Plato Prods., 2120 E. Allen Ave., Glendora, CA 91740 800-423-4510
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990

Ultraviolet Inspection Lighting-4100 (Also See Microscopes, Ultraviolet) — ***See Vol. 3***

Urea Formaldehyde — See Plastic Raw Materials (Vol. 2)

Valves, Solenoid-4550 — *See Vol. 1B*

Valves, Vacuum-4100 — *See Vol. 3*

Varactors — See Diodes, Varactor (Vol. 1A)

Varistors — See Resistors, Voltage Sensitive (Vol. 3;1A)

VHF Equipment — See Generators (Vol. 3), Receivers (Vol. 3), etc.

Vibration Surveys — See Services, Vibration Surveys (Vol. 3)

Vibration Test Systems — See Testers, Vibration (Vol. 3)

Vibrators-4050 — *See Vol. 3*

Video Components & Equipment — See Specific Component: Amplifiers (Vol. 3), Cameras (Vol. 3), Networks (Vol. 3), etc.

Viewers (MIL), Infrared-3475 — *See Vol. 3*

Viewing Hoods, Cathode Ray Tube-2975 — *See Vol. 3*

Vinyl Compounds — See Plastic Raw Materials (Vol. 2)

Vises-5400

§ PanaVise Prods., 2850 E. 29th St., Long Beach, CA 90806 213-569-8108

VLF Equipment — See Receivers (Vol. 3), Transmitters (Vol. 3), etc.

Voice Recognition Equipment — See Recognition Equipment, Speech (Vol. 3)

Voltage Sources-4000 — *See Vol. 3*

Wafer Fabrication, Semiconductor — See Semiconductor Wafer Fabrication (Vol. 3)

Wall Plates — See Boxes, Junction, Outlet & Wall Plates (Vol. 2)

Warning Systems, Lightning-4300 — *See Vol. 1B*

Warning Systems (MIL), Computerized-3475 — *See Vol. 3*

Warning Systems (MIL), EW-3475 — *See Vol. 3*

Warning Systems (MIL), IR-3475 — *See Vol. 3*

Warning Systems (MIL), Laser-3475 — *See Vol. 3*

Warning Systems (MIL), SAM Launch-3475 — *See Vol. 3*

Washers, Lock-2825

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1232
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
† Morris, J. I., Co., 372 Elm St., Southbridge, MA 01550 617-764-4394
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 818-245-9121
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

Washers, Plain-2825

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1215,1227,1232
§ **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 .... 2•2091**
§ **Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033; 800-526-4182 .... 2•1861**
Keystone Elctrns. Corp., 49 Bleecker St., New York, NY 10012, 212-475-4600 .... 2•1489
Unicorp, 291 Cleveland St., Orange, NJ 07050, 201-674-1700 .... 2•1868
§† Berg, W. M., Inc., 499 Ocean Ave., East Rockaway, NY 11518 516-599-5010
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Forma Scientific, Div. of Mallinckrodt Inc., Box 649, Marietta, OH 45750 614-373-4763
Lemo U.S.A. Inc., P.O. Box 11006M, Santa Rosa, CA 95406 707-578-8811
† Morris, J. I., Co., 372 Elm St., Southbridge, MA 01550 617-764-4394
§† Penn Fibre & Spec., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124 215-288-7366
Seastrom Mfg. Co., Inc., 701 Sonora Ave., Glendale, CA 91201 818-245-9121
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400

Wave Soldering Equipment — See Soldering Equip, Printed Circuit (Vol. 2)

Waveguide-Coax Adapters-3450 — *See Vol. 1A*

Waveguides-3450 — *See Vol. 1A*

Waveguides (MIL)-2440 — *See Vol. 1B*

Wave Traps — See Filters, Antenna (Vol. 1A), Filters, Microwave (Vol. 1A), etc.

Welding Equipment & Accessories (Excl. Equipment for Semiconductor Devices)-5400

§ Apollo Lasers, Inc., 9201 Independence Ave., Chatsworth, CA 91311 213-709-1111
BEA electro-optics, Inc., 690 First Ave., Des Plaines, IL 60016 312-298-1420
Black & Webster, 281 Winter St., Waltham, MA 02154 617-890-9100
† BTU Engrg. Corp., Bruce Sys., Esquire Rd., N. Billerica, MA 01862 .617-667-4111
Coherent, Inc., 3210 Porter Dr., Palo Alto, CA 94304 415-493-2111
§† Despatch Inds., P.O. Box 1320, Minneapolis, MN 55440 612-331-1873
Dillon, W. C., & Co., 2320 Airport Blvd., Santa Rosa, CA 95401 707-527-5555
† Dukane Corp., Communications Sys. Div., 2900 Dukane Dr., St. Charles, IL 60174 312-584-2300
Henes Prods., 4301 E. Madison St., Phoenix, AZ 85034 602-275-4126
§† Hughes Aircraft Co., 6155 El Camino Real, Carlsbad, CA 92008 619-438-9191
Kahle Engrg., Div. Joule Machinery Grp., 3344 Hudson Ave., P.O. Box 877, Union City, NJ 07087 201-867-6500
† Laser Inc., Laser Lane, Box 537, Sturbridge, MA 01566 617-347-7314
Nelson Stud Welding TRW Inc., 28th & Toledo Ave., Lorain, OH 44055 216-245-6931
Penn Resch. Corp. (PRC), 2652 South Main St., P.O. Box 3357, Kennesaw, GA 30144 404-429-9061
Solder Absorbing Technology (SAT), South End Bridge Circle, Agawam, MA 01001 800-628-8862
Venable Industries, Inc., 3555 Lomita Blvd., Torrance, CA 90505 213-539-2522
† Weltek Intl., Inc., 760 W. Cotter St., South Bend, IN 46613 219-232-5400

Windows, Sapphire-2500

Ceramaseal, Box 25, New Lebanon Center, NY 12126 518-794-7800
† Saphikon, 51 Powers St., Milford, NH 03055 603-673-5831
† Union Carbide Corporation, Elctrns. Div., Crystal Prods. Dept., 9320 Chesapeake Dr., Ste. 104, San Diego, CA 92123 619-279-4500

Windows, Shielded — See Shields, RF (Vol. 2)

Wire & Cable Ties-2825

Concord Elctrns., 30 Great Jones St., Dept. JE, New York, NY 10012, 212-777-6571 .... 2•1222,1227
§† **Heyco Molded Products, Box 160, Kenilworth, NJ 07033, 201-245-0033; 800-526-4182 .... 2•1861**
Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead, MA 01945, 617-631-7100 .... 2•2133
§† **Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... 2•2136,2137**
§† All-States, Inc., 1801 W. Foster Ave., Chicago, IL 60640 312-728-0525
§ Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
AMP Incorporated, Box 3608, Harrisburg, PA 17105 717-564-0100
§ AMP Products Corp.; P.O. Box 1776, Paoli, PA 19301 215-647-1000
§† Amrad, Div. Transcon Mfg. Co., Box 876, Paris, TX 75460 214-785-4544
Antex Div., 7 Hawkes St.; Marblehead, MA 01945 617-631-7100
§ Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
† Budwig Mfg., P.O. Box 829, Ramona, CA 92065 619-789-0900
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† dek, inc., 3480 Swenson Ave., St. Charles, IL 60174 312-377-2575
† Dennison Mfg. Co., 300 Howard St., Framingham, MA 01701 617-879-0511
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
§ Fastex, 195 Algonquin Rd., Des Plaines, IL 60016 312-299-2222
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ Gries/Dynacast, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801 914-633-8600
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 301-252-1768
Hanscom, H. F., Co., Inc., 225 Chapman St., Providence, RI 02905 401-941-1455
Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 516-293-5244
† Hollingsworth Solderless Terminal Co., 700 N.W. 57th Pl., Ft. Lauderdale, FL 33309 305-772-7660
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 815-895-6501
§† ICO-Rally, 2575 E. Bayshore Rd., Palo Alto, CA 94303 415-856-9900
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§† Lyn-Tron, Inc., 3150 Damon Way, Burbank, CA 91505 ....213-849-6211; 800-423-2734
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 203-348-7761
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Milton Ross Co., 511 Second St. Pike, Southampton, PA 18966 215-355-0200
§† Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 ..215-323-7120
§† Pioneer Comps., 2352 E. 66th St., Brooklyn, NY 11234 212-444-3880
Plastiglide Mfg., 2701 W. El Segundo Blvd., Hawthorne, CA 90250 .213-777-8108
Richco Plastic Co., 5825 N. Tripp Ave., Chicago, IL 60646 312-539-4060
§ RMS Electronics Inc., 50 Antin Pl., Bronx, NY 10462 212-892-6700
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 414-355-1130
§† Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

§† Weckesser Co. Inc., 4444 W. Irving Park Rd., Chicago, IL 60641 312-282-8626
Whitso, 9326 Byron St., Schiller Pk., IL 60176 312-678-5200
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
† Zeus Indl. Prods. Inc., P.O. Box 298, Raritan, NJ 08869 ....201-526-0800; 800-526-3842
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Wire, Airframe-2440 — *See Vol. 1B*

Wire, Antenna (All Types)-6000

§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2069,2074
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Carolina Steel & Wire, I-20 & S.C. 6, Lexington, SC 29072 803-359-5501
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 ....212-775-1395;800-221-3333
§ Saxton Prods., 215 N. Rte. 303, Congers, NY 10920 914-268-6848;800-431-2774
Sparkomatic, Rte. 6 & 209, Milford, PA 18337 717-296-6444
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Wire, Bare, Copper-6000

American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 .... 2•1942
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... 2•1989
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 .... 2•2014,2015
§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2074
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 .... 2•2076-2078
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 .... 2•2110
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 317-664-6211
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
GTE Wesgo Technical Ceramics & Metals, 477 Harbor Blvd., Belmont, CA 94002 415-592-9440
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 ....212-775-1395;800-221-3333
§† Phelps Dodge Magnet Wire, P.O. Box 600, Ft. Wayne, IN 46801 219-456-4444
† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
Richards, Arklay S., Co., Inc., 72 Winchester St., Newton Highlands, MA 02161 617-527-1512
Saxton Prods., 215 N. Rte. 303, Congers, NY 10920 914-268-6848;800-431-2774
† Semiconductor Packaging Matls. Co. Inc., 700 Waverly Avenue, Mamaroneck, NY 10543 914-698-5353
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
† Wilkinson, P.O. Box 4558, Westlake Village, CA 91359 ....818-889-0050; 800-822-4653

Wire, Bare, Nickel-6000

§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 .... 2•2110
Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
† Magnetics, Box 391, Butler, PA 16003-0391 412-282-8282
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
† Semiconductor Packaging Matls. Co. Inc., 700 Waverly Avenue, Mamaroneck, NY 10543 914-698-5353
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
† Wilkinson, P.O. Box 4558, Westlake Village, CA 91359 ....818-889-0050; 800-822-4653

Wire, Bare, Nickel-Chrome-6000

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
Materials Resch., Route 303, Orangeburg, NY 10962 914-359-4200
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 818-991-8553
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Richards, Arklay S., Co., Inc., 72 Winchester St., Newton Highlands, MA 02161 617-527-1512
† Semiconductor Packaging Matls. Co. Inc., 700 Waverly Avenue, Mamaroneck, NY 10543 914-698-5353
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006

Wire, Braid (Excluding Shielding)-6000

§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2073
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 .... 2•2102
† Aircraft & Electrn. Spec., Box 248, Plainfield, IN 46168 317-272-2551
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
† Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
† National-Standard Co., 601 N. 8th, Niles, MI 49120 616-683-8100
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
Pyrocom Co., 924 N. 143rd St., Seattle, WA 98133 206-365-3535
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872

† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Wire, Braid (Shielding) — See Braid, Cable (Vol. 2)

Wire, Ceramic Insulated-6000

§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
Hy-Temp Transducers, Box 1084, Cranford, NJ 07016 201-276-1170
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 818-991-8553
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 818-849-4543
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ....203-265-5533;800-243-3959
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600

Wire, Clad (All Types)-6000

Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ....2•2074
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ....1B•1011
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ....1B•1011
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ....2•2110
Omega Engrg., Box 4047, Stamford, CT 06907, 203-359-1660 ....2•2135
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
† Fema Elctrns. Corp., 12-6 Edgeboro Rd., E. Brunswick, NJ 08816 201-238-1223
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
Handy & Harman, 850 Third Ave., New York, NY 10022 212-752-3400
† Handy & Harman Elctrn. Matls. Corp., 72 Elm St. N., Atteboro, MA 02760 617-695-1401
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
† National-Standard Co., 601 N. 8th, Niles, MI 49120 616-683-8100
† Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 818-849-4543
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Semiconductor Packaging Matls. Co. Inc., 700 Waverly Avenue, Mamaroneck, NY 10543 914-698-5353
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ....814-723-2000; 800-221-3333
Texas Instrs., Inc., Box 225012-MS-84, Dallas, TX 75265 214-995-6611
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800

Wire Cutting & Stripping — See Services, Wire Cutting & Stripping (Vol. 3)

Wire, Enamel Insulated — See Wire, Hookup (All Types) (Vol. 2)

Wire, Fiberglass Insulated — See Wire, Glass Insulated (Vol. 2)

Wire, Flame Retardant-6000

Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ....2•2014
§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ....2•2058,2063
§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ....1B•1011,2•2104,2105
§† Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ....1B•1011,2•2104,2105
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ....2•2110
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
† Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 312-276-4454
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 818-849-4543
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 ....212-775-1395;800-221-3333
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
† Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 203-265-5533,800-243-3959
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
§ Saxton Prods., 215 N. Rte. 303, Congers, NY 10920 914-268-6848;800-431-2774
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
† Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 212-939-8300
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296

Wire, Flat Strip — See Cable, Flat (Vol. 2)

Wire, Glass Insulated-6000

Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ....2•2062
Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
Corning Glass Works, Main Plant, MS 2136, Corning, NY 14831 607-974-4102
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511

§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ... 219-784-3011
† Electro Weave, 38 Harlow St., Worcester, MA 01605 ... 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ... 312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 ... 201-938-9473
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 ... 818-991-8553
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 ... 503-620-9400
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 ... 609-235-6700
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ... 203-265-5533;800-243-3959
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 ... 714-751-7733
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872

Wire, Guy-6000

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
§ Carolina Steel & Wire, I-20 & S.C. 6, Lexington, SC 29072 ... 803-359-5501
Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
§ Lance Inds., P.O. Box 4156, Sylmar, CA 91342-0156 ... 818-367-1811
National-Standard Co., 601 N. 8th, Niles, MI 49120 ... 616-683-8100
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 ... 914-681-0700

Wire, Heater — See Cable, Heater (Vol. 2)

Wire, High Temperature (Over 125)-6000

American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 ... 2•1942
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... 2•1988
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ... 2•2060,2062,2063
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2087
Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... 1B•1011,2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... 1B•1011,2•2104
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ... 2•2110
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ... 2•2143
Acme Elec. Heating Corp., 4685 E. 11th, Hialeah, FL 33013 ... 305-685-8326
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§ Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 ... 312-728-7480
§† Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§ Berk-Tek, Inc., Box 60, RD 1, Reading, PA 19607 ... 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 ... 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ... 203-423-7771
Carpenter Techn., Box 662, Reading, PA 19603 ... 215-371-2000
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 ... 617-585-4315
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 ... 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ... 219-784-3011
† Electro Weave, 38 Harlow St., Worcester, MA 01605 ... 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
† Gavitt Wire & Cable, Brookfield, MA 01506 ... 617-867-6476
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 ... 216-266-2451
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 ... 203-382-2000
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 ... 201-891-5800
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 ... 502-684-0431
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 ... 215-272-8960
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 ... 201-938-9473
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 ... 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 ... 213-225-5611
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
† Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 ... 818-849-4543
§† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 ... 609-235-6700
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 ... 802-372-4561
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 ... 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 ... 714-751-7733
SermeTel, 155 Limerick Rd., Limerick, PA 19468 ... 215-948-5100
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
Sylvania Chemicals/Metals, Hawes St., Towanda, PA 18848 ... 717-265-2121
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 ... 213-587-7103
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
§† Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 ... 212-939-8300
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 ... 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296
† Wilkinson, P.O. Box 4558, Westlake Village, CA 91359 ... 818-889-0050; 800-822-4653
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Wire, High Voltage (1000 Volts & Over)-6000

§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ... 2•2059-2063,2071
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2087
§ Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ... 2•2104
§† Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ... 2•2104
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ... 2•2110
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ... 2•2143
† Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 ... 617-583-0160
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 ... 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§† Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 ... 312-728-7480
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ... 203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 ... 201-796-2886
Caton Connector Corp., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364 ... 617-585-4315
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ... 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ... 219-784-3011
Electrostatic Consltg. Assocs., 556 Lowell Rd., Groton, MA 01450 ... 617-448-5485
† Electro Weave, 38 Harlow St., Worcester, MA 01605 ... 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
§ General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 ... 203-382-2000
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 ... 305-894-3351
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766 ... 714-623-3463
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ... 312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 ... 215-272-8960
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 ... 503-620-9400

National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 203-625-3200
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 ....212-775-1395;800-221-3333
Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 213-587-7103
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296

Wire, Hookup (All Types)-6000

American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, 401-726-0700 .... 2•1942
§† **Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 .... 2•1989**
Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ....2•2013-2015
§† **Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ....2•2058-2063**
§† **Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2087**
§† **Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 ....2•2098-2101**
§ **ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 .... 2•1469**
§† **Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ....1B•1011,2•2104,2105**
§† **Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ....1B•1011,2•2104,2105**
MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 .... 2•2110
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780, 213-225-5611 .... 2•2117,2118
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 .... 2•2143
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 .312-728-7480
§† Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
† Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ...219-784-3011
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 317-664-6211
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
† Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ...312-276-4454
§† Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§ Macom Inds., 8230 Haskell Ave., Van Nuys, CA 91406 ....
§† Manhattan Electric Cable, 225 Passaic St., Passaic, NJ 07055 201-779-8900
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
§† Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
§† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ....203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
§ Remee Prods. Corp., 41 Bridge St., Florida, NY 10921 914-651-4451
† Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 914-429-3103
§† Saxton Prods., 215 N. Rte. 303, Congers, NY 10920 914-268-6848;800-431-2774
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 212-939-8300
† Thermo Elec., 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
Vector Electronic Co., Inc., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342 818-365-9661
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Wire, Irradiated-6000

§† **Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 .... 2•2059**
§† **Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ....1B•1011,2•2104**
§† **Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ....1B•1011,2•2104**
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
§† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
† Brand Dielectrics, Inc., Route 203, N. Windham, CT 06256 203-423-6321
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
§ Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 201-227-7996
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 818-849-4543
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Wire, Lead-in & Ground-6000

Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ....2•2013-2015
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 .... 2•2076,2077,2079
MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 .... 2•2110
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
§ Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 .312-728-7480
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141

Wire, Lead-in & Ground-6000 (Cont'd)

Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 ...219-784-3011
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 317-664-6211
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
§ General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
§ Lance Inds., P.O. Box 4156, Sylmar, CA 91342-0156 818-367-1811
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ...312-276-4454
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 ....212-775-1395;800-221-3333
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Siecor Corp., Box 489, Hickory, NC 28603 704-328-2171
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Wire, Litz-6000

American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148
§ Asco Wire & Cable Co., 412 Housatonic Ave., Bridgeport, CT 06608 203-366-5294
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 818-991-8553
§ Slepian, Arthur, & Co., 412 Housatonic Ave., Bridgeport, CT 06608 203-366-5294
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006

Wire, Magnet-6000

§† **MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 .... 2•2110,2111**
Acme Elec. Heating Corp., 4685 E. 11th, Hialeah, FL 33013 305-685-8326
§ Asco Wire & Cable Co., 412 Housatonic Ave., Bridgeport, CT 06608 203-366-5294
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Caddell-Burns Mfg., 40 E. 2nd St., Mineola, NY 11501 516-746-2310
§ Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Electromech, Inc., 528 Elm Street, Kearney, NJ 07032 201-997-0950
General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
† New Haven Wire & Cable, P.O. Box 266, New Haven, IN 46774 219-493-4489
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 818-849-4543
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 ....212-775-1395;800-221-3333
Phelps Dodge Magnet Wire, P.O. Box 600, Ft. Wayne, IN 46801 219-456-4444
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Slepian, Arthur, & Co., 412 Housatonic Ave., Bridgeport, CT 06608 203-366-5294
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 617-699-3800
United Solder Wrap Inc., 2608 Electronic La., Ste 509, Dallas, TX 75220 214-350-4978

Wire Markers (All Types)-6000 (Also See Strips Marker & Fanning)

Datak Corp., 65 Seventy-First St., Guttenberg, NJ 07093, 201-869-2200 .... 2•2095
† **GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093, 301-252-1768 .... 2•2102**
§ **Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... 2•2137,2139**
§ **Weidmuller Terminations, 821 Southlake Blvd., Richmond, VA 23236, 804-794-2877 .... 2•1748**
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† Brady, W. H., Co., Indl. Prods. Div., 2221 W. Camden Rd., Milwaukee, WI 53201 414-351-6630
Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
§† Electrovert Inc., 399 Executive Blvd., Elmsford, NY 10523 914-592-7322
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
Eubanks Engrg., 1307 So. Myrtle Ave., Monrovia, CA 91016 213-357-7011
§† Excel Specialty Corp., 6335 N. Broadway, Chicago, IL 60660 312-262-4781
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
Kensol Wire Marking, Kensol Olsenmark Inc., 40 Melville Park Road, Melville, NY 11747 516-694-7773
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 203-348-7761
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
§ Newman, M. M., Corp., Heli-Tube Div., P.O. Box 615, Marblehead; MA 01945 617-631-7100
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 414-355-1130
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 213-321-3901

Wire, Multiconductor — See Cable, Multiconductor (Vol. 2)

Wire Nuts-2800

Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
§ Heyco Molded Products, Box 160, Kenilworth, NJ 07033 ....201-245-0033; 800-526-4182
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 815-895-6501
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 ...312-532-1800
Shokai Far East Ltd., 280 North Central Ave., Hartsdale, NY 10530 914-681-0700
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 ..215-825-4990
† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 414-355-1130
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 .312-585-1212

Wire, Plastic Insulated — See Wire, Hookup (All Types) (Vol. 2)

Wire, Plated (All Types)-6000

Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 ....2•2077-2079
§† **MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 .... 2•2110**
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
† Handy & Harman Elctrn, Matls. Corp., 72 Elm St. N., Atteboro, MA 02760 617-695-1401
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
Ken-Tron Mfg., Inc., 1204 Industrial Dr., Owensboro, KY 42301 502-684-0431
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
† National-Standard Co., 601 N. 8th, Niles, MI 49120 616-683-8100
Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
§† Philips Elmet, 1560 Lisbon Rd., Lewiston, ME 04240 207-784-3591
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Semiconductor Packaging Matls. Co. Inc., 700 Waverly Avenue, Mamaroneck, NY 10543 914-698-5353
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361

Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ....814-723-2000; 800-221-3333

Wire, Radiation Resistant-6000

Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ....2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ....2•2104
§† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491 309-695-2511
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
§ General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 203-382-2000
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 818-849-4543
† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 212-939-8300
Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296

Wire, Resistance-6000

§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ....2•2110
Acme Elec. Heating Corp., 4685 E. 11th, Hialeah, FL 33013 305-685-8326
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§ Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Easy Heat-Wirekraft, 555 North Michigan St., Lakeville, IN 46536 219-784-3011
Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ....203-265-5533;800-243-3959
† Semiconductor Packaging Matls. Co. Inc., 700 Waverly Avenue, Mamaroneck, NY 10543 914-698-5353
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600

Wire, Ribbon-6000

Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ....2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ....2•2104
§ Advance Wire & Cable, 1661 Industrial Way, Belmont, CA 94002 415-592-4550
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 413-539-9893
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
§ Augat Inc., 33 Perry Ave., Box 779, Attleboro, MA 02703 617-222-2202
Autosplice, Inc., 59-12, 37th Ave, Woodside, NY 11377 212-429-0500
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§ Circuit Assembly Corp., 18 Thomas St., Irvine, CA 92714 714-540-5490
§ Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§ H&T Components Inc., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810 203-794-1798
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ....212-657-4422; 800-221-0144
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 818-991-8553
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 818-849-4543
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
† Semiconductor Packaging Matls. Co. Inc., 700 Waverly Avenue, Mamaroneck, NY 10543 914-698-5353
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
§ Stanford Applied Engrg. Inc., 3520 De La Cruz Blvd., Santa Clara, CA 95050 408-980-1600
Sylvania Chemicals/Metals, Hawes St., Towanda, PA 18848 717-265-2121
Sylvania Parts, 816 Lexington Ave., Warren, PA 16365 ....814-723-2000; 800-221-3333
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Wilkinson, P.O. Box 4558, Westlake Village, CA 91359 ....818-889-0050; 800-822-4653
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Wire, Semiconductor Lead-6000

† Art Wire/Doduco, 9 Wing Dr., Cedar Knolls, NJ 07927 201-267-2000
§† Associated Engrg. Mfg., 546 Valley Rd., Upper Montclair, NJ 07043 201-783-7800
Carpenter Techn., Box 662, Reading, PA 19603 215-371-2000
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 312-455-8830
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
General Electric Co., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117 216-266-2451
† GTI/Elctrns. Div., P.O. Box 96, Hadley, PA 16130 412-253-3161
Heraeus-Volkert Inc., 222-34 96th Ave., Queens Village, NY 11429 .212-464-8400
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 503-620-9400
† National-Standard Co., 601 N. 8th, Niles, MI 49120 616-683-8100
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Semiconductor Packaging Matls. Co. Inc., 700 Waverly Avenue, Mamaroneck, NY 10543 914-698-5353
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006

Wire, Shielded-6000

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ....2•1988,1989
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ....2•2060
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 ....2•2078
§† Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ....2•2104
§† Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ....2•2104
MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ....2•2110
† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, 419-729-9761 ....2•2143
§† Saxton Prods., 215 N. Rte. 303, Congers, NY 10920, 914-268-6848;800-431-2774 ....2•2144-2149
Alden Products Co., P.O. Box 860, 117 N. Main St., Brockton, MA 02403 617-583-0160
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Cyanamid Co., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470 201-831-3148

† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 ... 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 ... 818-982-2832
§ Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 . 312-728-7480
§† Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§† Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 ... 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 ... 617-265-2102
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 ... 201-753-7988
† Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 ... 203-423-7771
§ Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 ... 401-724-9605
§† Champlain Cable, PO Box 7, Winooski, VT 05404 ... 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 ... 203-647-1468
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 ... 516-293-1610
§ Custom Cable, 242 Butler, Westbury, NY 11590 ... 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 ... 201-768-5400
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 .. 215-785-0511
Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 ... 312-473-4990
Essex Grp., Power Conductor Div., 2601 S. Adams, Marion, IN 46953 ... 317-664-6211
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 ... 206-457-0904
† Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
† Gavitt Wire & Cable, Brookfield, MA 01506 ... 617-867-6476
§† General Electric Co., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602 ... 203-382-2000
Gore, W. L., & Assocs., Inc., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002 ... 602-526-1290
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 ... 302-738-4880
§ JSC Wire & Cable, Box 248, Burgess Pl., Wayne, NJ 07470 ... 201-694-6200
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ... 312-276-4454
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 ... 215-677-6700
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 ... 215-699-5373
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 ... 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 ... 215-272-8960
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 ... 201-938-9473
† National Electric Cable, 16566 S.W. 72nd Ave., Portland, OR 97223 ... 503-620-9400
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 ... 213-225-5611
Okonite, Box 340, Ramsey, NJ 07446 ... 201-825-0300
Olympic Wire & Cable, 1 Madison Rd., Fairfield, NJ 07006 ... 201-227-7996
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
§ Pacific Electricord, 747 W. Redondo Bch. Blvd., Gardena, CA 90247 ... 213-532-6600
Permaluster, Inc., 1844 N. Keystone St., Burbank, CA 91504 ... 818-849-4543
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 ... 617-845-5000
§† Phelps Dodge Cable & Wire, Box 2100, Greenwich, CT 06836 ... 203-625-3200
† Phelps Dodge Intl., 2121 Ponce de Leon Blvd., Ste. 850, Coral Gables, FL 33134 ... 212-775-1395; 800-221-3333
† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 ... 609-235-6700
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ... 203-265-5533; 800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 ... 201-687-8444
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
† Rockland Insulated Wire & Cable, 87 Broadway, Haverstraw, NY 10927 ... 914-429-3103
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 ... 914-698-0080
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 ... 714-751-7733
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
§ Tappan Wire & Cable, 256 Oak Tree Rd., Tappan, NY 10983 ... 914-359-9300
§ Teledyne Western Wire & Cable, 2425 E. 30th St., Los Angeles, CA 90051 ... 213-587-7103
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
§† Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 ... 212-939-8300
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 ... 203-265-8500
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 ... 401-821-1700; SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577 ... 703-985-3811
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296
† Woven Elctrns., Box 189, Mauldin, SC 29662 ... 803-963-5131

Wire Shielding-4525 (Also See Braid, Cable)

Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491, 309-695-2511 ... 2•1986
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ... 2•1989
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311, 818-882-8311 ... 2•2077,2078
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2085
† Magnetic Shield Div., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, 312-766-7800 ... 2•1913
† Tecknit (Eastern Facility), 129 Dermody St., Cranford, NJ 07016, 201-272-5500 ... 2•1916-1919,1922,1923
† Aircraft & Electrn. Spec., Box 248, Plainfield, IN 46168 ... 317-272-2551
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 ... 201-925-8000
† American Electric Cable Co., 181 Appleton St., Holyoke, MA 01040 ... 413-539-9893
§† Astrolab, 345 Dalziel Rd., Linden, NJ 07036 ... 201-862-0022
§ Baron Wire & Cable, 1811 W. Bryn Mawr Ave., Chicago, IL 60660 . 312-728-7480
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
Brady Co., 574A Somerset St., N. Plainfield, NJ 07060 ... 201-753-7988
Burndy Corporation, Richards Ave., Norwalk,, CT 06852 ... 203-838-4444
§ Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862 ... 401-724-9605
Chester Cable, Oakland Ave., Chester, NY 10918 ... 914-469-2141
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 ... 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 .. 215-785-0511
† Electro Weave, 38 Harlow St., Worcester, MA 01605 ... 617-752-8932
† Estes Engrg. Co., 930 Marine Dr., Port Angeles, WA 98362 ... 206-457-0904
† Galite, 2 Tower Dr., Wallingford, CT 06492 ... 203-265-7126
† GSI Corp., 1917 Greenspring Dr., Timonium, MD 21093 ... 301-252-1768
Keene Laminates, Keene Corp., 199 Amaral St., E. Providence, RI 02914 ... 800-556-7683
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ... 212-657-4422; 800-221-0144
Lenz Electric Mfg. Co., 1751 N. Western Ave., Chicago, IL 60647 ... 312-276-4454
† Manger Elec. Co., Inc., W. Henry St., Stamford, CT 06902 ... 203-348-7761
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 ... 201-938-9473
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 ... 617-845-5000
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 ... 415-361-3860
§† Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 ... 419-729-9761
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 ... 714-751-7733
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 ... 312-323-9121
† Sunbank Elctrns., 1740 Commerce Way, Paso Robles, CA 93446 ... 805-238-2840
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 ... 914-737-5600
Texas Instrs., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703 ... 617-699-3800
§ TWP, Inc., 2133 4th St., Berkeley, CA 94710 ... 415-548-4434
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 ... 617-757-3872
† Victor Elec. Wire & Cable, 618 Main St., W. Warwick, RI 02893 ... 401-821-1700; SALES 401-821-7800
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 ... 213-870-9933
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577 ... 703-985-3811
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 ... 818-764-6296
Zippertubing Co., P.O. Box 61129, Los Angeles, CA 90061 ... 213-321-3901

Wire, Strain Gauge-6000

§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 ... 317-983-5200
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131 ... 312-455-8830
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 ... 818-882-8311
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 ... 201-938-9473
§† MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 ... 818-991-8553
Omega Engrg., Box 4047, Stamford, CT 06907 ... 203-359-1660
Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ... 203-265-5533; 800-243-3959
† Semiconductor Packaging Matls. Co. Inc., 700 Waverly Avenue, Mamaroneck, NY 10543 ... 914-698-5353
§† Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 ... 213-536-0006

Wire Strippers, Automatic-4100 — *See Vol. 3*

Wire Strippers, Chemical — See Chemicals, Wire Stripping (Vol. 2)

Wire Strippers, Manual-5400

† Trans American Transformer, 142 Peconic Ave., Medford, NY 11763, 516-654-1880 ... 1A•2325
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 ... 203-322-1913
§ AMP Products Corp., P.O. Box 1776, Paoli, PA 19301 ... 215-647-1000

§ Assem-Pro Instrs., Div. of Overnight Engineering Inc., 1859 Andrews Ave., San Jose, CA 95124 408-267-1168
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§ Burndy Corporation, Richards Ave., Norwalk,, CT 06852 203-838-4444
Carpenter Mfg. Co., Inc., Fairgrounds Dr., P.O. Box 188, Manlius, NY 13104-0188 315-682-9176
§† Clauss Cutlery Co., Box 667, Fremont, OH 43420 419-332-7344
§ Consell, 463 Payne Dr., Cheshire, CT 06410 203-272-6837
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
§ Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
† Daniels Mfg. Corp., 6103 Anno Ave., Orlando, FL 32809 305-855-6161
§ Engineering & Elctrn. Devices, 1024 N. McCadden Pl., Los Angeles, CA 90038 213-463-4175
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§ Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
§ GC Elctrns., 400 S. Wyman St., Rockford, IL 61101 815-968-9661
§ General Hardware Mfg., 80 White St., New York, NY 10013 212-431-6100
Hoffman Industrial Prods., 170 Allen Blvd., Farmingdale, NY 11735 516-293-5244
§† Hollingsworth Solderless Terminal Co., 700 N.W. 57th Pl., Ft. Lauderdale, FL 33309 305-772-7660
Hollis Engrg./Wire-Wrap, 15 Charron Ave., Nashua, NH 03061 603-889-1121
§ Holub Industries, 1701 W. Bethany Rd., Sycamore, IL 60178 815-895-6501
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§ OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Paladin, 3543 Old Conejo Rd., Newbury Park, CA 91320 805-499-0318
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981 312-532-1800
§ Ripley, 46 Nooks Hill Rd., Cromwell, CT 06416 203-635-2200
† Rush/Houston, Inc., 600 Kealrick, Ste C-40, Houston, TX 77060 713-682-5151
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
§ Teledyne Ansonia, Riverside Dr., Ansonia, CT 06401 203-735-9311
§ Teledyne Kinetics, 410 S. Cedros Ave., Solana Beach, CA 92075 619-755-1181
† Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000
§ Waldom Elctrns., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629 312-585-1212
† Western Elctrn. Prods., 107 Los Molinos, San Clemente, CA 92672 714-492-4677
§† Workman Elctrn. Prods., Box 3828, Sarasota, FL 33578 813-371-4242

Wire Strippers, Thermal-5400

† Trans American Transformer, 142 Peconic Ave., Medford, NY 11763, 516-654-1880 ...... 1A•2325
§ Contact, Inc., 5 Elm Ave., Hudson, NH 03051 603-883-7708
§ E.P.E. Corp., P.O. Box 5238, Manchester, NH 03108 603-669-9181
§ Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
§ Ideal Industries, 4450 Becker Pl., Sycamore, IL 60178 815-895-5181
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
† Laser Inc., Laser Lane, Box 537, Sturbridge, MA 01566 617-347-7314
§† Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
§ Pace Inc., 9893 Brewers Ct., Laurel, MD 20707 301-490-9860
Penn Resch. Corp. (PRC), 2652 South Main St., P.O. Box 3357, Kennesaw, GA 30144 404-429-9061
§ Techni-Tool, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462 215-825-4990
Teledyne Kinetics, 410 S. Cedros Ave., Solana Beach, CA 92075 619-755-1181
† Western Elctrn. Prods., 107 Los Molinos, San Clemente, CA 92672 714-492-4677

Wire, Test Lead-6000

Carol Cable Co., Inc., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, 401-724-9605 ...... 2•2015
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ...... 2•2071,2072
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2087
§ Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018, 312-696-1000 ...... 2•2100
§ ITT Pomona Electronics, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, 714-623-3463 ...... 2•1469
Mueller Elec. Co., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, 216-771-5225 ...... 3•1264,1265
MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362, 818-991-8553 ...... 2•2110
† Aircraft & Electrn. Spec., Box 248, Plainfield, IN 46168 317-272-2551
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Cooner Wire Co., 9186 Independence Ave., Chatsworth, CA 91311 818-882-8311
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
Gavitt Wire & Cable, Brookfield, MA 01506 617-867-6476
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ...... 212-657-4422; 800-221-0144
§ Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
§ Rye Inds., Inc., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543 914-698-0080
§ Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933

Wire, TFE Insulated-6000

§† Brim Elctrns., 120E Home Pl., Lodi, NJ 07644, 201-796-2886 ...... 2•1988,1989
§† Consolidated Electronic Wire & Cable Corp., 11044 King St., Franklin Park, IL 60131, 312-455-8830 ...... 2•2062,2063
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648, 201-768-5400 ... 2•2087
§† Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
§† Arco Cable, 7361 Ethel Ave., North Hollywood, CA 91605 818-982-2832
§ Belden, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375 317-983-5200
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
§† Computer Cable & Prods. Inc., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735 516-293-1610
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Dearborn Wire & Cable Co., 9299 Evenhouse Ave., Rosemont, IL 60018 312-696-1000
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 215-785-0511
§ Delta Wire & Cable Co., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064 312-473-4990
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
† Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
§† King Wire & Cable Corp., 179-45 110 Ave., Jamaica, NY 11433 ...... 212-657-4422; 800-221-0144
Malco, Div. Microdot Connector Grp., 12 Progress Dr., Montgomeryville, PA 18936 215-699-5373
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
National Wire & Cable Corp., 136 San Fernando Rd., Los Angeles, CA 90031-1780 213-225-5611
† Norton Chemplast, 31-150 Dey Rd., Wayne, NJ 07470 201-696-4700
Omega Engrg., Box 4047, Stamford, CT 06907 203-359-1660
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
§† Philadelphia Insulated Wire Co. Inc., 333 New Albany Rd., Moorestown, NJ 08057 609-235-6700
† Phoenix Wire, Inc., 100 Teflon Ave., S. Hero, VT 05486 802-372-4561
† Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ...... 203-265-5533;800-243-3959
§† Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Pyrocom Co., 924 N. 143rd St., Seattle, WA 98133 206-365-3535
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
Spectra-Strip, 7100 Lampson Ave., Garden Grove, CA 92642-0415 714-892-3361
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Storm Products Co., 116 Shore Drive, Hinsdale, IL 60521 312-323-9121
§† Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§† Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 212-939-8300
§† Times Fiber Communications, Inc., 358 Hall Ave., Wallingford, CT 06492 203-265-8500
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
† Victor Wire & Cable Corp., 3601 Holdrege Ave., Los Angeles, CA 90016 213-870-9933
Virginia Plastics Co., P.O. Box 4577, Roanoke, VA 24015-0577 703-985-3811
§† Whitmor Wire & Cable, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605 818-764-6296
† Woven Elctrns., Box 189, Mauldin, SC 29662 803-963-5131

Wire, Thermocouple-6000

Judd Wire, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, 413-863-4357 ...... 2•2104
Judd Wire, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, 619-744-7720 ...... 2•2104
Omega Engrg., Box 4047, Stamford, CT 06907, 203-359-1660 ...... 2•2135
Acme Elec. Heating Corp., 4685 E. 11th, Hialeah, FL 33013 305-685-8326
§ Alpha Wire Corp., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207 201-925-8000
American Insulated Wire Corp., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862 401-726-0700
§ Amperex Electronic Corp., Hicksville Div., Box 418 - 230 Duffy Ave., Hicksville, NY 11802 516-931-6200

Barber-Colman Co., Indl. Instrs. Div., P.O. Box 2940, 1354 Clifford Ave., Loves Park, IL 61132 815-877-0241
§ Berk Tek, Inc., Box 60, RD 1, Reading, PA 19607 215-376-8071
§† BIW Cable Sys., Inc., 65 Bay St., Dorchester, MA 02125 617-265-2102
§ Brand-Rex, Electronic & Indl. Cable Div., Box 498, Willimantic, CT 06226 203-423-7771
§ Brim Elctrns., 120E Home Pl., Lodi, NJ 07644 201-796-2886
Bristol Babcock Inc., 40 Bristol St., Waterbury, CT 06708 203-575-3000
§† Champlain Cable, PO Box 7, Winooski, VT 05404 802-655-2121
Chester Cable, Oakland Ave., Chester, NY 10918 914-469-2141
Communication Cable, 5 Glen Rd., Manchester, CT 06040 203-647-1468
§ Custom Cable, 242 Butler, Westbury, NY 11590 516-334-3600
§† Daburn Elctrns. & Cable, 70 Oak St., Norwood, NJ 07648 201-768-5400
Delco Wire & Cable, Inc., 257 Rittenhouse Cir., Bristol, PA 19007 ..215-785-0511
§ EDL Inc., 385 Oser Ave., Hauppauge, NY 11787 .....516-435-2808;800-DIAL EDL; 800 342-5335
† Electro Weave, 38 Harlow St., Worcester, MA 01605 617-752-8932
† Engelhard Corp., 70 Wood Ave. S., Iselin, NJ 08830 201-321-5900
Galite, 2 Tower Dr., Wallingford, CT 06492 203-265-7126
§ GIC Thermodynamics, 2611 Parmenter, Royal Oak, MI 48073 313-280-1648
Gordon, Claud S., Co., 5710 Kenosha St., Richmond, IL 60071 815-678-2211
† Gore, W. L., & Assocs., 555 Paper Mill Rd., Newark, DE 19714 302-738-4880
Honeywell, Process Control Div., 1100 Virginia Dr., Ft. Washington, PA 19034 ....800-321-5111, Ext. 596
† International Wire Products Co., 500 W. Main St., Wyckoff, NJ 07481 201-891-5800
ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708 714-964-7400
Leeds & Northrup Instrs., A Unit of General Signal Corp., Sumneytown Pike, North Wales, PA 19454 215-643-2000
§ Love Controls, 1475 S. Wheeling Rd., Wheeling, IL 60090 312-541-3232
Lynn Elctrns., 915 Pennsylvania Blvd., Feasterville, PA 19047 215-677-6700
§† Manhattan Elec. Cable Corp., 1 Station Plaza, Rye, NY 10580 914-967-8000
§† Markel Corp., P.O. Box 752, Norristown, PA 19404 215-272-8960
Molecu-Wire, P.O. Box 495, Farmingdale, NJ 07727 201-938-9473
MWS Wire Inds., 31200 Cedar Valley Dr., Westlake Village, CA 91362 818-991-8553
† NANMAC Corp., 9 Mayhew St., Framingham, MA 01701 617-872-4811
Okonite, Box 340, Ramsey, NJ 07446 201-825-0300
Phalo Corp., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545 617-845-5000
† Pirelli Cable Corp., Special Cable Div., P.O. Box 50, Wallingford, CT 06492 ....203-265-5533;800-243-3959
Pirelli Cimco, 800 Rahway Ave., Union, NJ 07083 201-687-8444
Pyrocom Co., 924 N. 143rd St., Seattle, WA 98133 206-365-3535
Raychem Corp., Elctrns. Grp., 300 Constitution Dr., Menlo Park, CA 94025 415-361-3860
Richards, Arklay S., Co., Inc., 72 Winchester St., Newton Highlands, MA 02161 617-527-1512
Rowe Industries, Inc., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612 419-729-9761
† Santa Fe Textiles, 3151 W. Adams St., Santa Ana, CA 92704 714-751-7733
Science/Elctrns., 1224-26 McCook Ave., Dayton, OH 45404 513-228-6011
Sensortek, Inc., 154 Huron Ave., Clifton, NJ 07013 201-779-5577
† Standard Wire & Cable Co., 2345 Alaska Ave., El Segundo, CA 90245 213-536-0006
Tensolite, Old Post Rd., Rte. 9A, Buchanan, NY 10511 914-737-5600
§ Thermax Wire, 32-02 Linden Pl., Flushing, NY 11354 212-939-8300
† Thermo Elec., 109 Fifth St., Saddle Brook, NJ 07662 201-843-5800
† United Wire & Cable, 425 Shrewsbury St., Worcester, MA 01604 617-757-3872
§ West Instrs, Gulton Inds, M. C. S. Div., Gulton Indl Pk, E. Greenwich, RI 02818 401-884-6800

Wire, Transmission — See Cable, Transmission Line (Vol. 2)

Wire, Twisted Pair — See Cable, Twisted Pair (Vol. 2)

Wire (MIL)-2440 — *See Vol. 1B*

Wire Twisters, Automatic-5400

Blanck, A. R., Co., Box 249, Rutherford, NJ 07070 201-933-2091
Carpenter Mfg. Co., Inc., Fairgrounds Dr., P.O. Box 188, Manlius, NY 13104-0188 315-682-9176
§ Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
Hollis Engrg./Wire-Wrap, 15 Charron Ave., Nashua, NH 03061 603-889-1121
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Rutherford Resch. Prods., Box 249, Rutherford, NJ 07070 201-933-2091

Wire Twisters, Manual-5400

Blanck, A. R., Co., Box 249, Rutherford, NJ 07070 201-933-2091
Eraser Co., Box 4961, Syracuse, NY 13221 315-454-3237
Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
Ostby & Barton, 487 Jefferson Blvd., Warwick, RI 02886 401-739-7310

Wire Ways-6000

Breeze-Illinois, TransTechnology Corp., Main & Agard Sts., P.O. Box 368, Wyoming, IL 61491, 309-695-2511 .... 2•1986
§ Panduit Corp., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, 312-532-1800 .... 2•2139
Nichifu America, Inc., 1494 N. Charlotte St., Pottstown, PA 19464 ..215-323-7120
OK Industries, Inc., 3455 Conner St., Bronx, NY 10475 212-994-6600
§ Square D Co., Executive Plaza, Palatine, IL 60067 312-397-2600
§† Tyton Corp., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223 414-355-1130
§ Wadsworth Elec., 20 W. 11th St., Covington, KY 41011 606-431-0900
† Wire Graphics, 215 B. Central Ave., Farmingdale, NY 11735 516-293-1525

Wirewrapping Services — See Services, Wirewrapping (Vol. 3)

Wiring Panels & Boards, Computer — See Boards, Programming (Vol. 2)

Word Processors, Shared Logic Systems-2025 — *See Vol. 3*

Word Processors, Standalone Systems-2025 — *See Vol. 3*

Work Positioners, Circuit Board & Chassis — See Holders, Circuit Board (Vol. 3), Jigs (Vol. 3),

Work Stations/Decks, Data Entry-1400

General Devices, Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1035
† Optima Enclosures, 2166 Mountain Indl. Blvd., Tucker, GA 30084, 404-939-6340 .... 2•1047,1051
Stantron Div., 6900 Beck Ave., N. Hollywood, CA 91605, 818-875-0800 .... 2•1055
Vent-Rak Div., P.O. Box 39100, Indianapolis, IN 46239-9632, 317-897-7000 .... 2•1035
Amlan, Inc., 97 Thornwood Rd., Stamford, CT 06903 203-322-1913
Bay Prods., 8701 Torresdale Ave., Phila., PA 19136 ....215-DE8-7300
BMS Data Handling, Inc., 12155 Magnolia, Riverside, CA 92503 714-359-8820
Bud Inds., Inc., 4605 E. 355th St., Willoughby, OH 44094 216-946-3200
Distributed Computer Sys., 223 Crescent St., Waltham, MA 02154 .617-899-6619
Gra-Mar Inc., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803 305-894-3351
§ Hammond Mfg. Co., 1690 Walden Ave., Buffalo, NY 14225 716-894-5710
† Hewlett-Packard Co., 1820 Embarcadero Rd., Palo Alto, CA 94303 .... Call Local Sls. Off.
Jupiter Systems, 1100 Marina Village Parkway, Alameda, CA 94501 415-523-9000
† Manufacturing Sys., Div. LeDoux Inds., Inc., 2022-C S. Grand Ave., Santa Ana, CA 92705 714-540-6630
Mobile-Tronics Co., Inc., Box 1022, Tustin, CA 92680 714-768-4271
Skan-A-Matic, Box S, Elbridge, NY 13060 315-689-3961
Systems Furniture Co., 2727 Maricopa St., Torrance, CA 90503 213-533-1212
Terminal Data Corp., 11878 Coakley Circle, Rockville, MD 20852 ...301-881-7655
§ Zero-East Div., 288 Main St., Monson, MA 01057 ....

Work Room, Shielded-1400

Lindgren RF Enclosures, Inc., 1228 Capitol Drive, Addison, IL 60101, 312-628-9100 .... 2•1041

Wrenches-5400

§† Allen Mfg., 22 E. Dudley Town Rd., Bloomfield, CT 06002 203-242-8511
Communications Technology Corp., 2237 Colby Ave., Los Angeles, CA 90064 213-478-5061
§† Cooper Group, PO Box 30100, Raleigh, NC 27622 919-781-7200
† Dresser Inds., 1505 Elm St., Dallas, TX 75201 214-746-6000
Easco/K-D Tools, 3575 Hempland Rd., Lancaster, PA 17604 717-665-4557
§ Hunter Tools, 6721 Baymeadow Dr., Glen Burnie, MD 21061 301-760-2200
§ Jensen Tools, Inc., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040 602-968-6241
§† Jonard Inds. Corp., 134 Marbledale Rd., Tuckahoe, NY 10707 914-793-0700
§ Mann, Henry, Inc., 3983 Mann Road, Huntingdon Valley, PA 19006 215-355-7200
§† Moody Tools, 43 Crompton Ave., E. Greenwich, RI 02818 401-885-0911
§† Raymond Engrg. Inc., Raycorder Prods. Div., 217 Smith St., Middletown, CT 06457 203-632-1000
§ Ridge Tool Co., Sub. Emerson Elec. Co., 400 Clark St., Elyria, OH 44036 216-323-5581
Skyo Industries Inc., 171 Brook Ave., Deer Park, NY 11729 516-586-4702
Kulka Smith, Inc., 1913 Atlantic Ave., Manasquan, NJ 08736 201-223-9400
§ Thomas & Betts, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869 201-469-4000

X-ray Inspection Equipment-4100 — *See Vol. 3*

X-Y Axis Tables — See Simulators, Motion (Vol. 3)

Yokes, Deflection, Oscilloscope-1800 — *See Vol. 1A*

Yokes, Deflection, Radar PPI-1800 — *See Vol. 1A*

Yokes, Deflection, CRT-1800 — *See Vol. 1A*

Yokes, Deflection, TV Camera-1800 — *See Vol. 1A*

Zone Boxes, Thermocouple — See Thermocouples, Elements & Accessories (Vol. 1B)

MINIGLOSSARY CAPACITORS

Anode: One of two plates or conductors. In polarized capacitors, the anode should be connected to the positive conductor in the circuit.

Capacitive Reactance: The measure of the opposition of a capacitor to accepting a charge and expressed in ohms. When direct current is applied under stated conditions capacitive reactance becomes a constant but, when alternating current is applied the capacitive reactance varies until an equilibrium is achieved and the capacitor appears to have only direct current present. This condition is commonly used in filter applications or in coupling circuits.

Cathode: One of two plates or conductors. In electrostatic capacitors the cathode is metallic. In electrolytic capacitors the cathode is a liquid, gel or other conductive material which is in intimate contact with a metallic cathodic connection.

Dielectric Constant: The measure of quality of the insulating materials in a capacitor. Dry air has a dielectric constant of one (1). Aluminum oxide used in aluminum electrolytic capacitors has a nominal dielectric constant of ten (10).

Electrolytic: A capacitor with one metallic conductor (generally the anode) and with a liquid or semiconductor cathode. Nonpolarized electrolytic capacitors generally have two equal anodes as well as the liquid cathode. These anodes operate alternately as anode and cathodic connection as alternating current is applied.

Electrostatic: One of two general classes of capacitors in which two or more discrete metallic conductors are present and separated by an insulating dielectric material. Examples include: mica, ceramic, film, and paper types.

Farad: The basic unit of measure in capacitors. A capacitor charged to one volt with a charge of one coulomb (one ampere flowing for one second) has a capacitance of one farad. Capacitors are generally rated at portions of a farad (microfarads or picofarads).

1 farad (F) = 1,000,000 microfarads (μF) 1 microfarad (μF) = 1,000,000 picofarads (pF)

Impedance: All capacitors exhibit impedance. It is a function of capacitor type and internal construction. This can be particularly important in certain applications such as filters for switching power supplies. Capacitors used in these applications often have special multiple tab construction to shorten current paths and to reduce internal resistance.

Leakage Current: Expressed as dcl for electrolytic capacitors, a measure of the intrinsic losses in a charged capacitor. Generally speaking, the lower the dcl, the higher quality the capacitor.

Power Factor: A measure of the overall efficiency of a capacitor. Power factor ratings take all internal losses into consideration in a complex formula. This parameter of certain capacitors is often very important in AC applications such as motor-start and/or motor-run capacitors.

Rated Voltage: The rated working voltage of a capacitor. Generally expressed in DC Volts (Vdcw). This is the voltage at which a capacitor may be safely operated at 25°C continuously within its overall parameters.

Ripple Current: The total amount of alternating and direct current that may be applied to an electrolytic capacitor under stated conditions. In general, the higher the ripple current applied, the shorter the operating life of the capacitor will be. Application of significantly higher than rated ripple currents can shorten the capacitor life dramatically and may even cause catastrophic failure (explosion).

Surge Voltage: The momentary surge voltage which may be applied for a stated length of time without doing permanent damage to the unit.

Temperature: Capacitors are generally rated at 25°C at sea level under specific humidity conditions. Operating temperature ranges are also given, along with derating (reliability) curves for operation at temperatures other than 25°C.

Temperature Coefficient: Expressed as TC in ppm (parts per million) or in percent (%) from the norm of 25°C. This is seldom a straight line and may vary widely for certain types. Most capacitors have positive TC in that the capacitance increases as temperature increases. Some types, however, have negative TC in that the capacitance decreases as temperature increases.

Ceramic Capacitor Codes
(Capacitance Given In pF)

Color	Digit	Multiplier	Tolerance			Temperature Coefficient ppm°C	Significant Figure	Multiplier
			Class 1		Class 2			
			10pF or less	Over 10pF				
Black	0	1	±2.0pF	±20%	±20%	0	0.0	−1
Brown	1	10	±0.1pF	±1%		−33		−10
Red	2	100		±2%		−75	1.0	−100
Orange	3	1000		±3%		−150	1.5	−1000
Yellow	4	10000			+100% −0%	−220	2.0	−10000
Green	5		±0.5pF	±5%	±5%	−330	3.3	+1
Blue	6					−470	4.7	+10
Violet	7					−750	7.5	+100
Gray	8	0.01	±0.25pF		+80% −20%	+150 to −1500		+1000
White	9	0.1	±1.0pF	±10%	±10%	+100 to −750		+10000
Silver								
Gold								

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MINIGLOSSARY
BASIC CAPACITOR FORMULAS

I. Capacitance (farads)

English: $C = \frac{.224\,K\,A}{t_D}$

Metric: $C = \frac{.0884\,K\,A}{t_D}$

II. Energy stored in capacitors (Joules, watt-sec)

$$E = \tfrac{1}{2}\,CV^2$$

III. Linear charge of a capacitor (Amperes)

$$I = C\frac{dV}{dt}$$

IV. Total Impedance of a capacitor (ohms)

$$Z = \sqrt{R_s^2 + (X_C - X_L)^2}$$

Where Rs = ESR

V. Capacitive Reactance (ohms)

$$X_C = \frac{1}{2\,\pi\,fC}$$

VI. Inductive Reactance (ohms)

$$X_L = 2\,\pi\,fL$$

VII. Phase Angles:

Ideal Capacitors: Current leads voltage 90°
Ideal Inductors: Current lags voltage 90°
Ideal Resistors: Current in phase with voltage

VIII. Dissipation Factor

$DF = \tan\delta$ (loss angle) $= \frac{ESR}{X_c} =$
$(2\,\pi\,fC)\,(ESR)$

IX. Power Factor

PF = Sine δ (loss angle) = Cos ϕ (phase angle)
PF = DF (when less than 10%)

X. Quality Factor (dimensionless)

$Q = \text{Cotan}\,\delta$ (loss angle) $= \frac{1}{DF}$

XI. Equivalent Series Resistance (ohms)

$$ESR = (DF)\,(Xc) = (DF)\,(\tfrac{1}{2}\,\pi\,fC)$$

XII. Power Loss (watts)

$$\text{Power loss} = (2\,\pi\,fCV^2)\,(DF)$$

XIII. KVA (Kilowatts)

$$KVA = 2\,\pi\,fCV^2 \times 10^{-3}$$

XIV. Temperature Characteristic (ppm/°C)

$$TC = \frac{Ct - C_{25}}{C_{25}\,(T_t - 25)} \times 10^6$$

XV. Cap Drift (%)

$$C.D. = \frac{C_1 - C_2}{C_1} \times 100$$

XVI. Reliability of Ceramic Capacitors

$$\frac{L_o}{L_t} = \left(\frac{V_t}{V_o}\right)^x \left(\frac{T_t}{T_o}\right)^y$$

XVII. Capacitors in Series (current the same)

Any number: $\frac{1}{C_T} = \frac{1}{C_1} + \frac{1}{C_2} --- + \frac{1}{C_N}$

Two: $C_T = \frac{C_1\,C_2}{C_1 + C_2}$

XVIII. Capacitors in Parallel (voltage the same)

$$C_T = C_1 + C_2 --- + C_N$$

XIX. Aging Rate

A.R. = % Δ C/decade of time

XX. Decibels

$$db = 20 \log \frac{V_1}{V_2}$$

Metric prefixes:

Pico	X 10^{-12}
Nano	X 10^{-9}
Micro	X 10^{-6}
Milli	X 10^{-3}
Deci	X 10^{-1}
Deca	X 10
Kilo	X 10^{3}
Mega	X 10^{6}
Giga	X 10^{9}
Tera	X 10^{12}

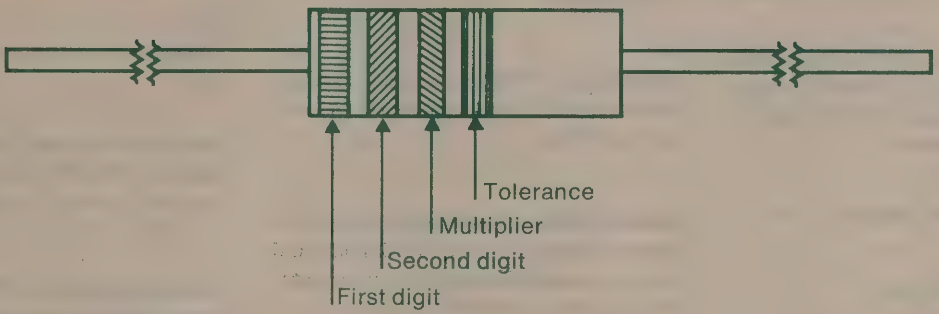
Symbols:

K = Dielectric Constant
A = Area
t_D = Dielectric thickness
V = Voltage
t = time
R_s = Series Resistance
f = frequency
L = Inductance
δ = Loss angle
ϕ = Phase angle
x + y = Exponent effect of voltage and temp
L_o = Operating life
L_t = Test life
V_t = Test voltage
V_o = Operating voltage
T_t = Test temperature
T_o = Operating temperature

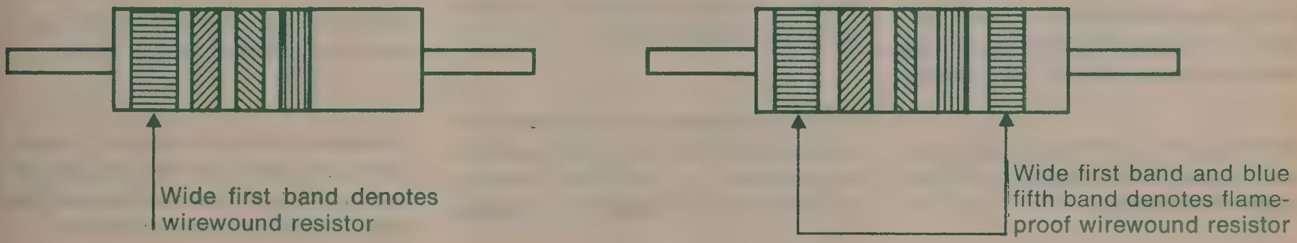
eem

MINIGLOSSARY
RESISTOR COLOR CODES

EIA/MIL Resistor Color Codes


Tolerance
Multiplier
Second digit
First digit

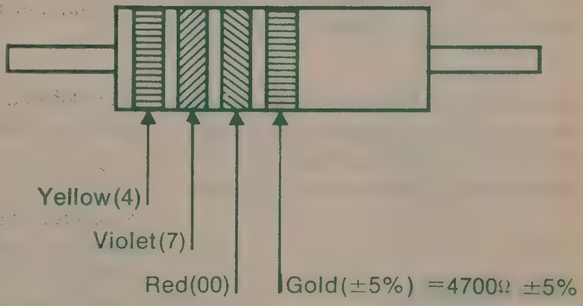
Color code for general-purpose industrial resistors


Wide first band denotes wirewound resistor
Wide first band and blue fifth band denotes flame-proof wirewound resistor

Color code for general-purpose wirewound resistors

Color	Significant digit	Multiplier	Tolerance
Black	0	1	—
Brown	1	10	± 1%
Red	2	100	± 2%
Orange	3	1000	± 3%
Yellow	4	10,000	± 4%
Green	5	100,000	—
Blue	6	1,000,000	—
Violet	7	10,000,000	—
Gray	8	—	—
White	9	—	—
Gold	—	0.1	± 5%
Silver	—	0.01	±10%
No color	—	—	±20%

Example:


Yellow(4)
Violet(7)
Red(00)
Gold(±5%) =4700Ω ±5%

eem

MINIGLOSSARY ENCAPSULATION

MATERIALS/HANDLING

Catalyst: A substance which changes the *rate* of chemical reaction. Very small quantities can cause fast change.

Conformal coating Sprayed or dipped. A thin conformal jacket which protects an assembly from moisture or other degrading environments.

Curing agent: See catalyst.

Hardener: See catalyst.

Hermetic: A permanent gas-tight seal.

RTV: Room Temperature Vulcanizing. Associated with silicone rubber sealants which vulcanize at room temperature.

Thermoplastic: Plastic materials which can be made to flow *repeatedly* with the application of heat.

Thermosetting: Plastics which once cured cannot be made to flow again.

Thixotropy: The property of a coating compound which has low viscosity when agitated, but which thickens when the agitation ceases.

Viscosity: Measured in units of *poise* or *centipoise.* The property of a liquid which resists internal flow. Low viscosity equates with thin and vice-versa.

PROCESSING

Casting: Parts or assemblies are placed in a mold. Encapsulating material is added and cured. Part is then removed from the mold.

Dip coating: Part or assembly is dipped into the encapsulating material. Final thickness is determined by number of dips, viscosity, rate of withdrawal, and temperature.

Embedding: Wherein an encapsulant substantially fills all voids in and about an assembly.

Impregnation: A process of encapsulation involving evacuating all air and then allowing the encapsulating material to flow in and fill all voids.

Molding: Similar to casting except this process usually implies multicavity molds and costly machines.

Potting: Wherein the part or assembly is immersed in an encapsulating material contained in a shell which becomes a permanent outer surface after curing.

DIELECTRIC

Arc resistance: An encapsulant's resistance to the formation of a conductive path or track. Measured in time.

Breakdown voltage: The voltage at which an encapsulant fails electrically.

Capacitance: The property of conductors and dielectrics which allows the storage of an electrical charge when the voltage is applied.

Corona: A luminous discharge of electricity due to air ionization when a certain voltage is reached. Can be internal or external. The formation of ozone can cause rapid deterioration of certain materials.

Dielectric: Insulator (Nonconductor.)

Dielectric constant: The property of a material that determines its ability to store electrostatic energy.

Dielectric strength: The ratio of dielectric breakdown to the thickness of insulating material.

Dissipation factor: The ratio of a dielectric material's energy losses.

Flashover: Point at which an electric discharge occurs around an edge or across a surface. Can result in a carbon track and permanent degradation.

Insulation resistance: (IR) An insulating material's total DC leakage.

Surface resistivity: The resistance of the surface of an insulating material to the flow of direct current.

Voltage endurance: Sometimes called corona resistance. The ability of a material to withstand the application of sustained high voltage.

Volume resistivity: The resistance of a material to direct current flow as a measure of volume. Expressed as ohm-centimeters.

MINIGLOSSARY
BASIC EBCDIC CODE

Bit Positions 4, 5, 6, 7	Second Hexadecimal Digit	Digit Punches	00				01				10				11				Bit Positions 0, 1
			00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	Bit Positions 2, 3
			0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	First Hexadecimal Digit
			12				12	12		12	12	12		12	12				Zone Punches
				11				11	11	11		11	11	11		11			
					0		0		0	0	0		0	0			0		
			9	9	9	9	9	9	9	9									Digit Punches
0000	0	8-1	① NUL	② DLE	③ DS	④	⑤ SP	⑥ &	⑦ -	⑧					⑨	⑩	⑪	⑫ 0	8-1
0001	1	1	SOH	DC1	SOS				⑬		a	j			A	J	⑭	1	1
0010	2	2	STX	DC2	FS	SYN					b	k	s		B	K	S	2	2
0011	3	3	ETX	TM							c	l	t		C	L	T	3	3
0100	4	4	PF	RES	BYP	PN					d	m	u		D	M	U	4	4
0101	5	5	HT	NL	LF	RS					e	n	v		E	N	V	5	5
0110	6	6	LC	BS	ETB	UC					f	o	w		F	O	W	6	6
0111	7	7	DEL	IL	ESC	EOT					g	p	x		G	P	X	7	7
1000	8	8		CAN							h	q	y		H	Q	Y	8	8
1001	9	8-1		EM							i	r	z		I	R	Z	9	9
1010	A	8-2	SMM	CC	SM		¢	!	⑮	:									8-2
1011	B	8-3	VT	CU1	CU2	CU3	.	$	,	#									8-3
1100	C	8-4	FF	IFS		DC4	<	*	%	@									8-4
1101	D	8-5	CR	IGS	ENQ	NAK	(	)	_	'									8-5
1110	E	8-6	SO	IRS	ACK		+	;	>	=									8-6
1111	F	8-7	SI	IUS	BEL	SUB	|	¬	?	"									8-7
			12				12				12	12		12	12	12		12	Zone Punches
				11				11				11	11	11		11	11	11	
					0				0		0		0	0	0		0	0	
			9	9	9	9									9	9	9	9	

Card Hole Patterns

①	12-0-9-8-1
②	12-11-9-8-1
③	11-0-9-8-1
④	12-11-0-9-8-1
⑤	No-Punches
⑥	12
⑦	11
⑧	12-11-0
⑨	12-0
⑩	11-0
⑪	0-8-2
⑫	0
⑬	0-1
⑭	11-0-9-1
⑮	12-11

Control Character Representations

ACK	Acknowledge
BEL	Bell
BS	Backspace
BYP	Bypass
CAN	Cancel
CC	Cursar Control
CR	Carriage Return
CU1	Customer Use 1
CU2	Customer Use 2
CU3	Customer Use 3
DC1	Device Control 1
DC2	Device Control 2
DC4	Device Control 4
DEL	Delete
DLE	Data Link Escape
DS	Digit Select
EM	End of Medium
ENQ	Enquiry
EOT	End of Transmission
ESC	Escape
ETB	End of Transmission Block
ETX	End of Text
FF	Form Feed
FS	Field Separator
HT	Horizontal Tab
IFS	Interchange File Separator
IGS	Interchange Group Separator
IL	Idle
IRS	Interchange Record Separator
IUS	Interchange Unit Separator
LC	Lower Case
LF	Line Feed
NAK	Negative Acknowledge
NL	New Line
NUL	Null
PF	Punch Off
PN	Punch On
RES	Restore
RS	Reader Stop
SI	Shift In
SM	Set Mode
SMM	Start of Manual Message
SO	Shift Out
SOH	Start of Heading
SOS	Start of Significance
SP	Space
STX	Start of Text
SUB	Substitute
SYN	Synchronous Idle
TM	Tape Mark
UC	Upper Case
VT	Vertical Tab

Special Graphic Characters

¢	Cent Sign
.	Period, Decimal Point
<	Less-than Sign
(	Left Parenthesis
+	Plus Sign
|	Logical OR
&	Ampersand
!	Exclamation Point
$	Dollar Sign
*	Asterisk
)	Right Parenthesis
;	Semicolon
¬	Logical NOT
-	Minus Sign, Hyphen
/	Slash
,	Comma
%	Percent
_	Underscore
>	Greater-than Sign
?	Question Mark
:	Colon
#	Number Sign
@	At Sign
'	Prime, Apostrophe
=	Equal Sign
"	Quotation Mark

MINIGLOSSARY
BASIC ASCII CODE

Bit positions 4, 3, 2, 1	Second Hexadecimal Digit																
Bit Positions 8, 7		00				01				10				11			
Bit Positions 6, 5		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
First Hexadecimal Digit		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0	NUL	DLE			SP	0					@	P			`	P
0001	1	SOH	DC1			!	1					A	Q			a	q
0010	2	STX	DC2			"	2					B	R			b	r
0011	3	ETX	DC3			#	3					C	S			c	s
0100	4	EOT	DC4			$	4					D	T			d	t
0101	5	ENQ	NAK			%	5					E	U			e	u
0110	6	ACK	SYN			&	6					F	V			f	v
0111	7	BEL	ETB			'	7					G	W			g	w
1000	8	BS	CAN			(	8					H	X			h	x
1001	9	HT	EM			)	9					I	Y			i	y
1010	A	LF	SUB			*	:					J	Z			j	z
1011	B	VT	ESC			+	;					K	[			k	{
1100	C	FF	FS			,	<					L	\			l	¦
1101	D	CR	GS			-	=					M	]			m	}
1110	E	SO	RS			.	>					N	^			n	~
1111	F	SI	US			/	?					O	_			o	DEL

Control Character Representations

NUL	Null
SOH	Start of Heading (CC)
STX	Start of Text (CC)
ETX	End of Text (CC)
EOT	End of Transmission (CC)
ENQ	Enquiry (CC)
ACK	Acknowledge (CC)
BEL	Bell
BS	Backspace (FE)
HT	Horizontal Tabulation (FE)
LF	Line Feed (FE)
VT	Vertical Tabulation (FE)
FF	Form Feed (FE)
CR	Carriage Return (FE)
SO	Shift Out
SI	Shift In
DLE	Data Link Escape (CC)
DC1	Device Control 1
DC2	Device Control 2
DC3	Device Control 3
DC4	Device Control 4
NAK	Negative Acknowledge (CC)
SYN	Synchronous Idle (CC)
ETB	End of Transmission Block (CC)
CAN	Cancel
EM	End of Medium
SUB	Substitute
ESC	Escape
FS	File Separator (IS)
GS	Group Separator (IS)
RS	Record Separator (IS)
US	Unit Separator (IS)
DEL	Delete

(CC)	Communication Control
(FE)	Format Effector
(IS)	Information Separator

Special Graphic Characters

SP	Space
!	Exclamation Point
|	Logical OR
"	Quotation Marks
#	Number Sign
$	Dollar Sign
%	Percent
&	Ampersand
'	Apostrophe
(	Opening Parenthesis
)	Closing Parenthesis
*	Asterisk
+	Plus
,	Comma
-	Hyphen (Minus)
.	Period (Decimal Point)
/	Slant
:	Colon
;	Semicolon
<	Less Than
=	Equals
>	Greater Than
?	Question Mark
@	Commercial At
[	Opening Bracket
\	Reverse Slant
]	Closing Bracket
^	Circumflex
¬	Logical NOT
_	Underline
`	Grave Accent
{	Opening Brace
¦	Vertical Line (This graphic is stylized to distinguish it from Logical OR)
}	Closing Brace
~	Tilde

84
85 Manufacturers and Sales Offices Directory

Each manufacturer is listed alphabetically with complete address and telephone number of main offices. The names of those with data pages in this edition of EEM are shown in boldface.

Many manufacturers also show TWX and Telex numbers, FSC (Federal Supply Code), other pertinent company data, their sales and/or local distributor offices and phones. The page numbers of their data pages in this edition are shown in all volumes.

AABA COMPONENTS CORP., P.O. Box 171, Baldwin Place, NY 10505, Tel: 914-628-6952; Empl.: 15; *Sls. Mgr.:* D. McVey; *Dist. Mgr.:* D. McVey

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CO	Aurora, Elctrn. Hardware, Ltd.	303-363-6100
CT	East Haven, J. V. Elctrns. of Boston	203-469-2321
CT	Norwalk, Cobra Comps.	203-847-6442
FL	Palm Bay, Action Elctrns.	305-725-4920
IL	Arlington Heights, Lo Dan Elctrns., Inc.	312-398-5311; 800-323-5207
MD	Gaithersburg, Axis Elctrns. Inc.	301-840-9640
MD	Owings Mills, Cameo Elctrns. Co.	301-363-6161
MA	Burlington, J. V. Elctrns. of Boston	617-273-4300
NJ	Nutley, Vantage Comps., Inc.	201-667-1840
NJ	Whippany, Tonar Inds., Inc.	201-884-1400
NY	Commack, Vantage Comps., Inc.	516-543-2000
NY	Rochester, Masline Elctrns., Inc.	716-546-5373
RI	Warwick, Cal-Greg Comps.	401-738-6170
TX	Austin, Active Comp. Tech.	512-452-5254
TX	Dallas, Active Comp. Tech.	214-980-1888
TX	Houston, Active Comp. Tech.	713-496-4000
UT	No. Salt Lake, Western Controls	801-292-5900
WA	Lynnwood, Oman & Assocs.	206-774-1887

ADVANCED KINETICS, 1231 Victoria St., Costa Mesa, CA 92627, Tel: 714-646-7165; Empl.: 32; *Sls. Mgr.:* R. L. Gradishar

ADVANCED MATERIALS SYSTEMS, See Handy & Harman Electronic Materials Corp.

ADVANCED MICROCOMPUTERS, 3340 Scott Blvd., Santa Clara, CA 95051, Tel: 408-732-2400, Telex: 34-6306, TWX: 910-339-9280; *Sls. Mgr.:* Steve Zelencik; *Dist. Mgr.:* Rick Marz

ADVANCED MICRO DEVICES, P.O. Box 3453, 901 Thompson Pl., Sunnyvale, CA 94088, Tel: 408-732-2400, Telex: 34-6306, TWX: 910-339-9280; Empl.: 11000; *Sls. Mgr.:* Steve Zelencik; *Dist. Mgr.:* Len Brown

ADVANCED SYS. CONCEPTS, 435 N. Lake Ave., Pasadena, CA 91101, Tel: 818-793-8971, Telex: 701 215 ASCI; *Sls. Mgr.:* Wesley Ferris; *Dist. Mgr.:* Laurie Kalnin .... **1B**•1501

Local Sales Offices & Reps

IA	Des Moines, Beams Co.	515-255-1148
MN	Edina, Integrated Peripheral Sys.	612-831-0349
OH	Dayton, Ashby Assocs.	513-252-5627
VA	Vienna, Advanced Technlg. Assocs.	703-556-0500

ADVANCED TECHN. RESEARCH LABS., 5645 K General Washington Dr., Alexandria, VA 22312, Tel: 703-750-2920; *Sls. Mgr.:* Bob Palma, Sr.; *Dist. Mgr.:* Bob Palma, Sr.

ADVANCED TECHN. SYS., 17-01 Pollitt Drive, Fair Lawn, NJ 07410, Tel: 201-794-0200, TWX: 710-988-2262; Empl.: 250; *Sls. Mgr.:* R. R. Draudin

ADVANCED TOOL TECHNOLOGY, INC., Sub. of Alliance Resch. Corp., 18217 Parthenia St., Northridge, CA 91325, Tel: 213-993-1202, Telex: 181011; *Sls. Mgr.:* Lou Davis

ADVANCED TRANSFORMERS INDS., INC., 114 Center St., El Segundo, CA 90245, Tel: 213-322-4249; *Sls. Mgr.:* Irma Spreitzer .... **1A**•2264, 2265; **1B**•1473

ADVANCE ENGRG., 18225 So. Hoover St., Gardena, CA 90248, Tel: 213-321-3100

AD-VANCE MAGNETICS, INC., 625 Monroe St., Rochester, IN 46975, Tel: 219-223-3158, TWX: 810-290-0294; FSC No.: 50788; Empl.: 30; *Sls. Mgr.:* Kay Nixon .... **2**•1902

Local Sales Offices & Reps

AL	Huntsville, Remco	205-533-3763
CA	El Cajon, A-Tronics	619-444-1501
CA	Los Altos, Frauman Assoc.	415-941-0660
CA	Woodland Hills, A-Tronics	213-703-7212
CT	Meriden, A. Allison	203-237-9232
FL	Orlando, Gillum Sales	305-857-2110
GA	Atlanta, Remco	404-447-6937
IL	Westchester, Brouillette	312-345-6500
NY	Commack, RC Engrg.	516-543-3325
NC	Raleigh, Remco	919-847-5079
OH	Cincinnati, Makin Assocs.	513-871-2424
PA	W. Conshohocken, Eastern Comps.	215-825-8610
TX	Houston, Space Elctns.	713-266-9245
TX	Irving, Space Elctns.	214-251-3636
VA	Herndon, Eastern Comps.	703-471-1025

ADVANCE WIRE & CABLE, 1661 Industrial Way, Belmont, CA 94002, Tel: 415-592-4550, Telex: 334475; FSC No.: 57775; Empl.: 158; *Sls. Mgr.:* Ed Mittelbusher; *Dist. Mgr.:* Ed Mittelbusher

Local Sales Offices & Reps

AL	Decatur, Tenn Tech Inc.	205-350-0630
AZ	Phoenix, Advance Electrical Sls.	602-243-4326
CA	Belmont, Advance Electrical Sls.	415-592-4550
CO	Denver, Advance Electrical Sls.	303-388-0923
FL	Ft. Lauderdale, Hollingsworth & Still	305-748-8964
FL	Winter Pk., Hollingsworth & Still	305-699-0505
GA	Atlanta, Tenn Tech Inc.	404-622-5784
IL	Highland Pk., Bransky Sls.	312-433-2375
KY	Fort Mitchell, G. W. Thelen Co.	606-341-8181
MD	Ellicott City, Marketing Technology	301-465-5944
MA	Sharon, Adcour Inc.	617-784-8123
MN	St. Paul, SKOR Inc.	612-426-1160
NJ	Haddonfield, Mill-Brown Assoc.	609-429-1005
NJ	Parlin, JMR Sls.	201-727-5335
NY	Rochester, Ontec	716-464-8636
NC	Raleigh, Tenn-Tech.	919-266-3610
TN	Nashville, Tenn Tech Inc.	615-646-9811
TX	Houston, Advance Electrical Sls.	713-956-5436
WA	Seattle, Advance Electrical Sls.	206-575-4323
WI	Cedarburg, Bransky Sls.	414-377-6837

A E CORP., 65 Wellesley Ave., Needham, MA 02194, Tel: 617-449-3142; Empl.: 10; *Sls. Mgr.:* H. Harrison

A E G TELEFUNKEN, High Power Grp., Rte. 22, Orr Dr., Somerville, NJ 08876, Tel: 201-722-9800, Telex: 833409; *Sls. Mgr.:* John Szafranski

A E G TELEFUNKEN, Semiconductor Grp., Rte. 22, Somerville, NJ 08876, Tel: 201-722-9800, Telex: 833409; *Sls. Mgr.:* Carl Golasa; *Dist. Mgr.:* Carl Golasa

AEL, INC, See American Electronic Labs

AEMC, 99 Chauncy, Boston, MA 02111, Tel: 617-451-0227, 800-343-1391, Telex: 95-1073; *Sls. Mgr.:* Jon Henderson

AERCOM, 405 Tasman Dr., Sunnyvale, CA 94086, Tel: 408-744-1320, TWX: 910-339-9308; Empl.: 50; *Sls. Mgr.:* H. Putnam

AEROCOM, 3090 S.W. 37th Ave., Miami, FL 33133, Tel: 305-448-6503, Telex: 51-9209; FSC No.: 81535; Empl.: 100; *Sls. Mgr.:* Thomas A. Coleman

AEROFLEX LABS., INTEGRATED MICROSYSTEMS DIV., See Aeroflex Labs., Microelectronics Div.

AEROFLEX LABS., MAGNETIC PRODS. DIV., So. Service Rd., Plainview, NY 11803, Tel: 516-694-6700, TWX: 510-224-6417; Empl.: 490; *Sls. Mgr.:* Herbert S. Kulik .... **1B**•1123, 1829

Local Sales Offices & Reps

EXP	New York, Frathom Co.	212-687-9390

AEROFLEX LABS., MICROELCTRNS. DIV., 35 S. Service Rd., Plainview, NY 11803, Tel: 516-694-6700, TWX: 510-224-6417; FSC No.: 88379; Empl.: 100; *Sls. Mgr.:* Melvin D. Schwartz .... **1A**•1644

Local Sales Offices & Reps

AZ	Phoenix, The Knight Co.	602-994-1311
CA	Los Altos Hills, HB Mktg.	415-941-4080

CA	Los Angeles, The Knight Co.	213-670-2833
CA	San Diego, The Knight Co.	714-451-0529
CO	Parker, Parker Webster Co.	303-841-4888
CT	Simsbury, Multitronics Sls. Co.	203-651-0140
FL	Altamonte Springs, R. W. Mitscher Co., Inc.	305-788-6844
FL	Boca Raton, R. W. Mitscher Co., Inc.	305-482-5649
IL	Northfield, Feller Assocs., Inc.	312-446-8065
IA	Cedar Rapids, Feller Assocs., Inc.	319-364-0566
MD	Baltimore, Micro Comp, Inc.	301-247-0400
MN	Minneapolis, International Elctrns, Inc.	612-571-0000
NJ	Cherry Hill (Southern N.J.), Danco Elctrn. Sls. Corp.	609-424-5590
NJ	Teaneck (Northern N.J.), Spectrum Sls., Inc.	201-692-8314
NY	Hartsdale, Spectrum Sls, Inc.	914-472-8600
TX	Garland, Tesco Inc.	214-681-1376
UT	Salt Lake City, Parker Webster Co.	801-266-9939
EXP	New York City, New York, Henley & Co.	212-687-9390

AEROSPACE OPTICS INC.

AEROSPACE OPTICS INC., 3201 Sandy La., Dept. E-83, Fort Worth, TX 76112, Tel: 817-451-1141, Telex: 75-8461; Empl.: 83; *Sls. Mgr.:* R. E. Borkowski .... **1B**•1503

AEROTECH, INC., 101 Zeta Dr., Pittsburgh, PA 15238, Tel: 412-963-7470, TWX: 710-795-3125; Empl.: 125; *Sls. Mgr.:* Robert Mitchell

AEROTRONIC ASSOCS., INC., Riverside Dr., Contoocook, NH 03229, Tel: 603-746-4631; FSC No.: 67272; Empl.: 225; *Sls. Mgr.:* Gary Moravchik

AERTECH INDS., See TRW Microwave

AES CORP., 285 Newbury St., P.O. Box 2093, Peabody, MA 01960, Tel: 617-531-8886; *Sls. Mgr.:* Michael Sherman

AETNA ENGRG., P.O. Box 7749, Van Nuys, CA 91409-7749, Tel: 818-341-9409; Empl.: 10; *Sls. Mgr.:* T. W. Collins

AETNA TELECOMMUNICATIONS LABS., P.O. Box 723, 131 Flanders Rd., Westborough, MA 01581, Tel: 617-366-0400, Telex: 951356; *Sls. Mgr.:* Marjorie Katz

AGFA-GEVAERT, INC., 275 North St., Teterboro, NJ 07608, Tel: 201-288-4100, TWX: 710-990-6137; Empl.: 750

AHAM TOR INC (ATI), 999, 27901 Front St., Rancho California, CA 92390, Tel: 714-676-4151, Telex: 910-332-6201

AIE MAGNETICS, Div. of Vernitron, 701 Murfreesboro Rd., Nashville, TN 37210, Tel: 615-244-9024, Telex: 554466; FSC No.: 06978; Empl.: 300; *Sls. Mgr.:* J. Holeman

Local Sales Offices & Reps

AL	Huntsville, Glen White Assoc.	205-533-5272
CA	Culver City, De Angelo, Rothman & Co.	213-827-2202
CA	Santa Clara, Novatronix	408-727-9530
CO	Thronton, E & C Johnson Co.	303-457-2247
FL	Ft. Lauderdale, Donato & Assoc.	305-352-0727
FL	Tampa, Glen White Assocs.	813-886-6980
GA	Duluth, Glen White Assoc.	404-447-1825
IL	Chicago, M. Gottleib Assoc.	312-775-1151
IN	Indianapolis, Gottleib Assoc.	317-846-5788
IA	Cedar Rapids, Seltec Sales Corp.	319-393-1114
MD	Timonium, Glen White & Assoc.	301-252-6360
MA	Waltham, AIE-Eastern Region	617-899-5900
MI	Livonia, Luebbe Sls. Co.	313-477-3131
MO	Kansas City, A.G.E.S.	816-421-0426
NY	Great Neck, Tylinski Assoc.	516-466-9070
NY	Rochester, Canavan-Scanlon	716-424-1830
NY	Syracuse, Canavan-Scanlon	315-437-1271
NC	Raleigh, Glen White Assoc.	919-848-1931
OH	Cincinnati, Luebbe Sls. Co.	513-891-5770
OH	Cleveland, Luebbe Sls. Co.	216-333-0425
OH	Columbus, Luebbe Sls.	614-431-0474
OH	Dayton, Luebbe Sls. Co.	513-294-0426
OK	Tulsa, MGR, Inc.	918-369-5186
OR	Beaverton, W^3 Associates, Inc.	503-641-5790
PA	Pittsburgh, Luebbe Sales Co.	412-931-0414
PA	Washington Crossing, DVS Co.	215-493-4642
TN	Gray, Glen White Assocs.	615-477-8850
TX	Austin, MGR, Inc.	512-250-0926
TX	Dallas, MGR, Inc.	214-357-3173
VA	Charlottesville, Glen White Assoc.	804-295-0435
VA	Lynchburg, Glen White Assoc.	804-237-6291
WA	Seattle, W^3 Associates, Inc.	206-285-2663

AIKEN ADVANCED SYS., 5901 Edsall Rd., Alexandria, VA 22304, Tel: 703-370-0900, TWX: 710-832-0612; Empl.: 175; *Sls. Mgr.:* C. G. Gilmer

AIL, DIV. CUTLER-HAMMER, See Eaton Corp. AIL Div.

AILTEC DIV. CUTLER-HAMMER, See Eaton Corp., Elctrn. Instrmn. Div.

AIMSCO INC., 4000-4024 22nd Ave. W., Seattle, WA 98199-0056, Tel: 206-284-5563, TWX: 910-444-1333; Empl.: 30; *Sls. Mgr.:* C. Ernst; *Dist. Mgr.:* E. Chadwick

AIPHONE, 1700 130th St. NE, Bellevue, WA 98005, Tel: 206-455-0510, Telex: 32-0288; Empl.: 27; *Sls. Mgr.:* Jim Morrison

AIRBORN, INC., 4321 AirBorn Dr., Addison, TX 75001, Tel: 214-931-3200, Telex: 79-4200, TWX: 910-860-5230; FSC No.: 10400; Empl.: 350; *Sls. Mgr.:* J. L. Wolbrink .... **2**•1105-1112

Local Sales Offices & Reps

AZ	Tempe, Piper Sls. Co.	602-949-0048
CA	Los Angeles, Air Born	213-670-7983
CA	Mountain View, Serra Assocs.	415-964-4300
CA	No. Hollywood, R. A. Strassner	213-761-1231
CA	San Diego, Ohm Spun Elctrns.	619-695-8102
FL	Cocoa Beach, Reynolds & Assoc.	305-259-7000
IL	Chicago, ESCO Assoc.	312-763-0800
MN	Edina, PWC	612-831-5999
MO	Bridgeton, Dytronics, Inc.	314-731-5799
NH	Nashua, Solla - Tronics	603-882-7146
NJ	Manville, Dynorep	201-685-0135
NY	Coxackie, R.P. Kennedy Co.	914-876-2700
NY	Rochester, R.P. Kennedy Co.	716-271-6322
OH	Dayton, Electro-Com	513-898-5140
PA	Doylestown, Monteiro Assocs.	215-345-5855
WA	Bellevue, Dillenbeck Sls.	206-747-4323

Local Distributors

TX	Addison, AirBorn Distribution Service	214-931-3200

AIRCO SPEER ELCTRNS., Resistor Plant, Bolivar Rd., Box 547, Bradford, PA 16701, Tel: 814-362-5536, Telex: 914404, TWX: 510-695-5921; Empl.: 1000; *Sls. Mgr.:* Larry Holzwarth; *Dist. Mgr.:* John Petersen

AIRCRAFT & ELCTRN. SPEC., Box 248, Plainfield, IN 46168, Tel: 317-272-2551; FSC No.: 00529; Empl.: 150; *Sls. Mgr.:* Harry Newburg

AIR ELECTRO SUPPLY, INC., 7700 Gloria Ave., Van Nuys, CA 91406, Tel: 213-873-6400, 818-988-4400, Telex: 66-2459, TWX: 910-495-1794

AIR/FLEX INDS. INC., 2422 Merced Ave., S. El Monte, CA 91733, Tel: 818-579-7060; FSC No.: 22782; *Sls. Mgr.:* Karl Thorp

airflyte ELECTRONICS CO.

AIRFLYTE ELCTRNS. CO., 56 New Hook Rd., Bayonne, NJ 07002, Tel: 201-436-2230, TWX: 710-729-4489; Empl.: 70; *Sls. Mgr.:* John Piret .... **1B**•1124-1129

Local Sales Offices & Reps

CA	Culver City, Westaironics	213-641-4122
CA	Los Altos, Poltronics	415-941-3020
CT	No. Haven, Kitchen & Kutchin	203-239-0212
IL	Park Ridge, Probe Elctrns.	312-698-2044
MA	Lexington, Kitchen & Kutchin	617-862-8230
NJ	Kinnelon, Avionics Equip.	201-838-8105
NY	Rochester, R. P. Kennedy Co.	716-271-6322
PA	Philadelphia, R. P. Luce & Co.	215-884-8365
TX	Dallas, Jacobson Co.	214-363-7584

AIR LAND SYS., 2710 Prosperity Ave., Fairfax, VA 22031, Tel: 703-573-1100, Telex: 710-833-1174, TWX: Airland Frax; Empl.: 35; *Sls. Mgr.:* William C. Axe

AIRMATIC-ALLIED, 185 Park Dr., Wilmington, OH 45177, Tel: 513-382-1691; Empl.: 150

AIR-MAZE DIV., 25000 Miles Rd., Cleveland, OH 44128, Tel: 216-292-6800, Telex: 98-5413; *Sls. Mgr.:* John Cummings; *Dist. Mgr.:* Bob Glasier

AIR-O-TRONICS PRODS., Box K, Morrisville, NY 13408, Tel: 315-684-3705; FSC No.: 16663; Empl.: 10; *Sls. Mgr.:* G. M. Trush

AIRPAX CORPORATION, Woods Rd., Cambridge, MD 21613, Tel: 301-228-4600, Telex: 8-7715, TWX: 710-865-9655; FSC No.: 81541; Empl.: 550; *Sls. Mgr.:* D. Marshall .... **1B**•1256

Local Sales Offices & Reps

AL	Huntsville, BCI	205-539-4411
AZ	Phoenix, Westrep	602-997-8899
CA	Pico Rivera, Westrep	213-949-2551
CA	San Diego, Westrep	714-276-0751
CO	Littleton, Lange Sls.	303-795-3600
CT	Wallingford, Selmark Assocs.	203-573-9088
FL	Ft. Lauderdale, ElectroComp	305-491-4141
GA	Chamblee, BCI	404-455-0405
IL	Palatine, Somers-Reagan, Inc.	312-991-1108
IN	Indianapolis, Leslie M. Devoe	317-842-3245
IA	Marion, Rep Assocs.	319-373-0152
MD	Baltimore, Pro-Rep, Inc.	301-653-3600
MA	Millis, Selmark	617-376-2914
MI	Troy, Pine Sls.	313-589-0350
MN	Hopkins, Peterson & Wolff	612-941-5400
MO	St. Louis, Delltron	314-869-4779
NY	Jericho, Airpax Corp.	516-822-2410
NY	Poughkeepsie, C. W. Floring	914-471-2973
NY	Rochester, Electra Sls.	716-461-5252
NY	Syracuse, C.W. Floring & Assoc.	315-478-2144
NC	Winston-Salem, L.G. White	919-725-3612
OH	Cincinnatti, Baehr, Greenleaf	513-891-3826
OH	Cleveland, Baehr, Greenleaf	216-221-9030
OH	Columbus, Baehr, Greenleaf	614-486-4046
PA	Harleysville, T. Jackson	215-643-5560
PA	Pittsburgh, Russell F. Clark	412-242-9500
SC	Greenville, L.G. White	803-271-0630
TX	Dallas, Airpax Corp.	214-733-4377
UT	Salt Lake City, Lange Sls.	801-487-0843
VA	Richmond, L.G. White	804-740-7093
WA	Seattle, Don Smith	206-633-3160
WI	Wauwatosa, Larsen Assocs.	414-258-0529

AIRPAX CORPORATION, CHESHIRE DIV., Cheshire Indl. Pk., Box E, Cheshire, CT 06410, Tel: 203-272-0301, Telex: 962421, TWX: 710-455-4048; Empl.: 800; *Sls. Mgr.:* Robert Chlebek .... **1B**•1131; **3**•1121

Local Sales Offices & Reps

AL	Huntsville, B.C.I.	205-539-4411
AZ	Phoenix, Westrep	602-997-8899
CA	Anaheim, Westrep	213-404-3881
CA	San Diego, Westrep	619-276-0751
CA	Santa Clara, Airpax Corp.	408-980-0410
CO	Littleton, Lange Sls.	303-795-3600
CT	Wallingford, Selmark Assocs.	203-573-9088
FL	Ft. Lauderdale, Electrocomp Assocs.	305-491-4141
GA	Chamblee, B.C.I.	404-455-0405
IL	Palatine, Somers-Reagan, Inc.	312-991-1108
IN	Indianapolis, Leslie M. Devoe	317-842-3245
IA	Marion, Rep Assocs.	319-373-0152
MD	Baltimore, Pro-Rep, Inc.	301-653-3600
MA	Millis, Selmark Assocs.	617-376-2914
MI	Madison Heights, Pine Sls, Inc.	313-589-0350
MN	Bloomington, PWC	612-831-5999
MO	St. Louis, Delltron	314-869-4779
NH	Hopkinton, Selmark Assocs.	603-746-3299
NY	Jericho, Airpax Corp.	516-822-2410
NY	Rochester, Electra Sls.	716-461-5252
NY	Syracuse, C.W. Floring & Assocs.	315-478-2149
NC	Winston Salem, L.G. White Southern, Inc.	919-725-3612
OH	Cleveland, Baehr, Greenleaf & Assocs.	216-221-9030
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
OR	Beaverton, Don Smith Sls. Co.	503-643-8020
PA	Harleysville, Thomas Jackson Assocs.	215-256-8877
PA	Pittsburgh, Russell F. Clark Co.	412-242-9500
SC	Greenville, L.G. White Southern, Inc.	803-271-0630
TX	Dallas, Airpax Corp.	214-733-4377
UT	Salt Lake City, Lange Sls.	801-487-0843
WA	Seattle, Don Smith Sls Co.	206-633-3160
WI	Wauwatosa, Larson Assocs.	414-258-0529

AIRPAX/NA PHILIPS CONTROLS CORP., Ft. Lauderdale Div., 6801 W. Sunrise Blvd., Ft. Lauderdale, FL 33313, Tel: 305-587-1100, Telex: 51-4448, TWX: 510-955-9866; Empl.: 200 .... **3**•1929

Local Sales Offices & Reps

AZ	Scottsdale, Martech Assoc.	602-994-1285
CA	Buena Park, Pactec	213-921-8381

CA	Mountain View, Manco	415-964-7281
CO	Lafayette, Spectrum Sls.	303-759-4007
CT	Madison, S.I.R. Assoc.	203-245-2242
FL	Ft. Lauderdale, Bredesen Assoc.	305-566-3289
IL	Chicago, Somers Reagan Inc.	312-991-1108
IN	Indianapolis, Electro Dev. Engrg.	317-547-5274
LA	Kenner, D & W System Sls.	504-466-1692
MD	Phoenix, Rebco Sls.	301-592-8907
MA	Lexington, S.I.R. Assoc.	617-862-1812
MI	Detroit, Automatic Controls Co.	313-533-8890
MN	St. Paul, Kencotronics	612-645-7717
MO	Grandview, Harris-Hanson Co.	816-763-6200
MO	St. Louis, Harris-Hanson Co.	314-432-3611
NJ	Spring Lakes Hgts., Neville & Vespo	201-974-1520
NY	Buffalo, Process Mgmt.	716-847-0450
NY	Montgomery, Vespo Mktg.	914-457-9209
NC	Charlotte, MacGuire & Crawford Inc.	704-366-3454
OH	Cincinnati, J. W. Murray & Assoc.	513-574-8500
OH	Cleveland, Automatic Controls Corp.	216-631-0333
OR	Portland, Fry Controls	503-226-2620
PA	Harleysville, T. Jackson & Assocs.	215-643-5560
PA	Pittsburgh, Friday Engrg. Sls.	412-341-1444
TX	Dallas, Automatic Sys.	214-688-1810
TX	Houston, Haltom Co.	713-782-5625
VA	Salem, Process Specialties	703-345-5683
WI	Wauwatosa, Larsen Assocs.	414-258-0529

AIRPAX CORP., FREDERICK DIV., A North American Philips Co., Husky Park P.O. Box 500, Frederick, MD 21701, Tel: 301-663-5141, TWX: 710-862-0901; Empl.: 600; *Sls. Mgr.:* Robert Chlebek; *Dist. Mgr.:* B. L. Reeder .... **1B**•1291, 1793

Local Sales Offices & Reps

AL	Huntsville, B.C.I.	205-539-4411
AZ	Scottsdale, TC Elctrns.	602-994-5153
CA	Brea, Masco	714-529-0866
CA	Los Angeles, Masco	213-295-7781
CA	Santa Clara, Airpax/NAPCC	408-980-0410
CA	Santee, Masco	714-448-6400
CO	Littleton, Lange Sls.	303-795-3600
CT	Cheshire, Selmark Assoc.	203-573-9088
FL	Lauderhill, B.C.I.	305-731-5851
FL	Orlando, B.C.I.	305-851-5747
GA	Doraville, B.C.I.	404-455-0405
IL	Palatine, Somers-Reagan	312-991-1108
IN	Indianapolis, Leslie M. De Voe Co.	317-842-3245
MA	Millis, Selmark Assocs.	617-376-2914
MI	Troy, C.B. Jensen & Assocs.	313-643-0506
MN	St. Paul, Cahill, Schmitz & Cahill	612-646-7217
MO	St. Louis, Delltron Co.	314-869-4779
NH	Concord, Selmark Assocs.	603-623-5774
NJ	Parsippany, NAPCC/Airpax	201-887-6074
NJ	Pitman, Colrud Co.	609-589-5866
NY	Poughkeepsie, C.W. Floring Assocs.	914-471-2973
NY	Rochester, J.G. Welch Assocs.	716-266-2798
NY	Syracuse, C.W. Floring Assocs.	315-478-2149
NC	Raleigh, B.C.I.	919-781-9426
OH	Columbus, Rockford Controls Ohio	614-231-5890
OH	Dayton, Rockford Controls Ohio	513-898-5452
OH	Euclid, Rockford Controls Ohio	216-731-5250
TX	Austin, R.F. Kimball Co.	512-443-5284
TX	Houston, R.F. Kimball Co.	713-840-0590
TX	Richardson, R.F. Kimball Co.	214-231-3447
UT	Salt Lake City, Lange Sls.	801-487-0843
WA	Bellevue, Paul-Hilty Company	206-747-5767
WA	Renton, B&P Assocs.	206-454-6571

Local Distributors

CA	Santa Ana, Norstan Elctrns.	714-540-4165
OK	Tulsa, Altair	918-665-0524
TX	Houston, Altair	713-462-3029
TX	Richardson, Altair	214-231-5166

AIRPOT, 27 Lois St., Norwalk, CT 06851, Tel: 203-846-2021, Telex: 643-688; *Sls. Mgr.:* Mark A. Gaberman

AIRTRON, 200 E. Hanover Ave., Morris Plains, NJ 07950, Tel: 201-539-5500, TWX: 710-986-7473; FSC No.: 80006; Empl.: 350

AIR-VAC ENGRG., 100 Gulf St., Milford, CT 06460, Tel: 203-874-2541; Empl.: 30

AJAX MAGNETHERMIC CORP., 1745 Overland Ave., N.E., Warren, OH 44482, Tel: 216-372-8511, Telex: 098-2482; Empl.: 500

AKG ACOUSTICS, INC., 77 Selleck St., Stamford, CT 06902, Tel: 203-348-2121; Empl.: 40; *Sls. Mgr.:* Peter Wellikoff

Local Sales Offices & Reps

CA	Culver City, Marshank Sls. Co.	213-559-2591
CA	San Francisco, L.P. Mktg.	415-532-5600
CO	Denver, Brake & Assoc.	303-431-5791
DC	Washington, Taub Sls. Inc.	301-942-3100
FL	Miami, World Wide Prods.	305-754-5475
GA	Atlanta, Elrep Sls. Co.	404-938-7108
IL	Chicago, Steffey Mktg.	312-480-3575
IN	Fort Wayne, N. Browning & Co.	219-432-9738
KY	Louisville, N. Browning & Co.	502-955-6473
MA	Boston, VF Sls. Inc.	617-237-6544
MI	Detroit, VF Sls. Inc.	313-453-8720
MN	Minnetonka, Clark Gibb Co.	612-938-5050
MO	Ballwin, Throckmorton Sls.	314-227-7222
MO	Kansas City, Throckmorton Sls.	816-333-0303
NE	Omaha, Throckmorton Sls.	402-346-7500
NY	Stamford, J. B. Anthony Co.	203-322-9209
NY	Syracuse, B. Darmstedter Assoc.	315-638-1261
PA	Erie, N. Browning & Co.	814-456-6453
TX	Dallas, Dimension Mktg.	214-348-9657
TX	Houston, Dimension Mktg.	713-870-9094
WA	Redmond, Luppnow Assoc.	206-883-3205

AKRO-MILS, 1293 S. Main St., Akron, OH 44301, Tel: 216-253-5593, Telex: 98-6321; Empl.: 200; *Sls. Mgr.:* W. J. Tonachio; *Dist. Mgr.:* D. Martin

Local Sales Offices & Reps

CA	Cerritos, Akro-Mils, Inc.	213-926-0465

ALADDIN ELCTRNS., See AIE Div. of Vernitron

ALAN GORDON ENTPRS., INC., P.O. Box 3914, 5362 Cahuenga Blvd., N. Hollywood, CA 91605, Tel: 818-985-5500, Telex: 662532 A-GB FOTO. LSA, TWX: 910-321-4526 GORDON NT LSA; *Sls. Mgr.:* D. Sahlenn

ALAN INDS., P.O. Box 1203, Columbus, IN 47201, Tel: 812-372-8869; FSC No.: 52750; Empl.: 36

Local Sales Offices & Reps

AL	Huntsville, Saber Assocs.	800-327-0853
CA	Los Angeles, RF Assocs.	213-478-1586
CA	Mountain View, Mark V Assoc.	415-964-6275
FL	Bradenton, Saber Assocs.	800-327-0853
FL	Longwood, Saber Assocs.	800-327-0853
FL	Melbourne, Saber Assoc.	800-327-0853
GA	Griffin, Saber Assocs.	800-327-0853
IN	Columbus, Chambers Mktg.	812-372-0272
MD	Randallstown, C. L. Malinow & Co.	301-922-2092
MA	Needham, Addelco Corp.	617-444-4754
MO	St. Louis, Abrams & Assocs.	314-569-0447
NY	Liverpool, R. & D. Assocs.	315-457-0100
NY	New Rochelle, Ascor Elctrns.	914-235-8838
NC	Clayton, Saber Assocs.	800-327-0853
OH	Dayton, Frederic L. Ohmer	513-434-1454
PA	Lafayette Hill, M. Lader Co.	215-825-3177
SC	Columbia, Saber Assoc.	800-327-0853
TX	Dallas, Airep Elctrns.	214-349-4360
TX	Houston, Airep Elctrns.	713-944-2055
EXP	CT, Stamford, Dage Corp.	203-324-3123

ALARM CONTROLS, 19 Brandywine Dr., Deer Park, NY 11729, Tel: 516-586-4220; FSC No.: 55042; Empl.: 50; *Sls. Mgr.:* Howard Berger

ALBAR, INC., 19013 36th Ave. W., Lynnwood, WA 98036, Tel: 206-771-4006; *Sls. Mgr.:* Ronald B. Bradshaw

ALBEROX, New Bedford Ind'l. Pk., New Bedford, MA 02745, Tel: 617-995-1725; Empl.: 140 .... **2**•1787

Local Sales Offices & Reps

CA	Los Gatos, Alberox Corp.	408-358-1714
IL	Chicago, Karl D. Engle Co.	312-539-1820
IN	Indianapolis, Butler Components	317-253-5143
MA	Weston, J. Goode Assocs.	617-235-3900
MI	Birmingham, Clifford Armstrong Co.	313-851-1404
MN	Minneapolis, Magner & Assocs.	612-483-0656
NY	Fayetteville, S. F. Foster Co.	315-637-5427
NY	Valley Stream, Levison Sls.	516-561-9696
OH	Cleveland, Greenleaf & Assocs.	216-333-5480
PA	Philadelphia, Shelton Sls. Corp.	215-248-0131
TX	Dallas, C. M. Farmer Co., Inc.	214-339-4970
WA	Seattle, Demarest Assocs.	206-523-3210

ALCO ELCTRN. PRODS., INC., 1551 Osgood St., N. Andover, MA 01845, Tel: 617-685-4371, TWX: 710-342-0552; Empl.: 300 .... **1B**•1029, 1504-1514; **2**•1758; **3**•1122

Local Sales Offices & Reps

AL	Huntsville, Glen White Assocs. Inc.	205-883-7938
AZ	Phoenix, Knight Co.	602-582-8506
CA	Los Angeles, Knight Co.	213-670-2833
CA	Redwood City, J. Heaton Co.	415-367-9000
CA	San Diego, Knight Co.	619-571-7903
CO	Littleton, Simpson & Assocs.	303-794-8381
FL	Safety Harbor, Augat/ALCO	813-725-1037
FL	Tamarac, Augat/ALCO	305-721-6021
GA	Norcross, Glen White Assocs. Inc.	404-441-1447
IN	Indianapolis, Rockford Controls	317-248-2518
MA	Norwood, Augat Sls.	617-762-3164
MI	Livonia, Luebbe Sls. Co.	313-477-3131
MN	St. Paul, Countryman Assocs.	612-645-9151
MO	Blue Springs, Kathrinus-Kelly-Baumhauer-Co.	816-229-0001
MO	St. Louis, Kathrinus-Kelly-Baumhauer-Co.	314-647-2400
NM	Albuquerque, C. T. Carlberg & Assoc.	505-888-3883
NY	E. Rochester, Tri-Tech Elctrns.	716-385-6500
NY	Endwell, Tri-Tech Elctrns.	607-754-1094
NY	Fayetteville, Tri-Tech Elctrns.	315-446-2881
NY	Fishkill, Tri-Tech Elctrns.	914-897-5611
NY	Great Neck, Cooper-Simon & Co. Inc.	516-487-1142
NC	Raleigh, Glen White Assocs. Inc.	919-787-7023
OH	Cincinnati, Luebbe Sls. Co.	513-891-5770
OH	Cleveland, Luebbe Sls. Co.	216-333-0425
OH	Columbus, Luebbe Sls. Co.	614-431-0474
OH	Dayton, Luebbe Sls. Co.	513-294-0426
OR	Beaverton, D. Smith Sls. Co.	503-643-8020
PA	Pittsburgh, Luebbe Sls. Co.	412-931-0414
PA	Trevose, P.S.A., Inc.	215-245-0513
TN	Gray, Glen White Assocs. Inc.	615-477-8850
TX	Dallas, Augat/ALCO	214-788-4211
TX	Georgetown, Augat/ALCO	512-479-9447
TX	Houston, Augat/ALCO	713-495-3100
UT	Midvale, Simpson Assocs. Inc.	801-566-3691
VA	Lynchburg, P.S.A. Inc.	800-233-4242
VA	McLean, P.S.A. Inc.	800-233-4242
WA	Seattle, D. Smith Sls. Co.	206-633-3160

Local Distributors

AL	Huntsville, Hall-Mark Elexs.	205-837-8700
AL	Huntsville, Arrow Elctrns.	205-882-2730
AZ	Phoenix, Hall-Mark Elexs.	602-437-1200
AZ	Phoenix, Kachina Elctrns.	602-269-6201
AZ	Tempe, Acacia Sls.	602-894-2874
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Burbank, Switching Devices	213-849-3211
CA	Chatsworth, Arrow Elexs.	213-701-7500
CA	Gardena, CA Switch & Signal	213-770-2330
CA	Hollywood, Yale Radio Electric	213-465-3186
CA	Irvine, Acacia Sales	714-660-0834
CA	Los Angeles, Electric Switch	213-664-1141
CA	Mountain View, Abacus Elctrns.	415-961-1500
CA	Newport Beach, Arrow Elexs.	714-851-8961

ALCO
ELECTRONIC PRODUCTS, INC
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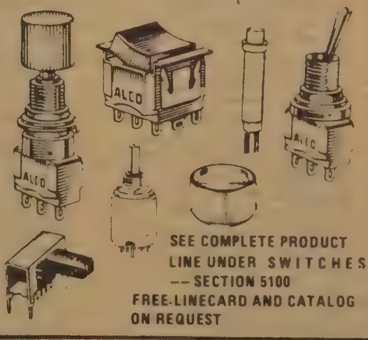
TOLL FREE WATS
NATIONAL: 800-421-8855
CALIFORNIA: 800-252-4640
TWX 910-321-2971



SEE COMPLETE PRODUCT LINE UNDER SWITCHES
-- SECTION 5100
FREE LINECARD AND CATALOG ON REQUEST

CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Pasadena, Dow Radio	213-793-1195
CA	Riverside, Elctrn. Supp.	714-683-7300
CA	San Diego, Arrow Elexs.	619-565-4800
CA	San Diego, Hall-Mark Elexs.	619-268-1201
CA	San Diego, Acacia Sls.	619-565-4365
CA	San Diego, El-Com Inc.	619-578-0900
CA	San Francisco, Steven Engrg.	415-588-9200
CA	San Jose, Ratel Inc.	408-946-4300
CA	San Jose, Hall-Mark Elexs.	408-946-0900
CA	Santee, Mouser Elexs.	619-449-2300
CA	Sunnyvale, Arrow Elexs.	408-745-6600
CA	Sunnyvale, Acacia Sls.	408-745-7200
CA	Van Nuys, Pacific Switch Controls	213-873-4802
CO	Denver, Arrow Elexs.	303-758-2100
CO	Denver, Ragon Elexs.	303-744-1992
CO	Englewood, Hall-Mark Elexs.	303-694-1662
CO	Lakewood, Acacia Sls.	303-232-2882
CT	Greenwich, Wise Comps.	203-531-4880
CT	Hartford, Wes-Garde	203-525-6907
CT	Stratford, Utronics	203-378-4201
CT	W. Hartford, Atlantic Switch Controls	203-527-7705
CT	Wallingford, Arrow Elexs.	203-265-7741
FL	Ft. Lauderdale, Arrow Elexs.	305-776-7790
FL	Ft. Lauderdale, Hall-Mark Elexs.	305-971-9280
FL	Lakeland, Switch Controls	813-644-7564
FL	Miami, Elctrn. Equip.	305-871-3500
FL	Orlando, Hall-Mark Elexs.	305-855-4020
FL	Orlando, Hammond Elctrns.	305-849-6060
FL	Palm Bay, Arrow Elexs.	305-725-1480
FL	Pompano Beach, Components South	305-971-0350
GA	Norcross, Hall-Mark Elexs.	404-447-8000
GA	Norcross, Arrow Elexs.	404-449-8252
IL	Arlington Heights, Lo Dan Elctrns.	312-398-5311
IL	Bensenville, Diplomat/Illinois	312-595-1000
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Glen Ellyn, Rockford Controls Co.	312-469-6016
IL	Itasca, Voyager Elexs. Corp.	312-773-4900
IL	Palatine, OHM Elexs.	312-359-5500
IL	Rockford, Midwest Assocs. Inc.	815-962-8036
IL	Rosemont, Advent Elctrns.	312-298-4210
IL	Schaumberg, Arrow Elexs.	312-397-3440
IL	Wheaton, Conectrix	312-653-1460
IN	Indianapolis, Neunier Elex. Supply	317-635-3511
IN	Indianapolis, Arrow Elexs.	317-243-9353
IN	Indianapolis, Graham Elexs.	317-634-8202
IN	South Bend, Genesis Elctrns.	219-287-2911
IA	Cedar Rapids, Deeco Inc.	319-365-7551
IA	Cedar Rapids, Arrow Elexs.	319-395-7230
KS	Lenexa, Hall-Mark Elexs Corp.	913-888-4747
KS	Witchita, Lee Products	316-264-2172
MD	Baltimore, Arrow Elexs	301-247-5400
MD	Baltimore, A. S. I.	301-265-5100
MD	Gaithersburg, Pioneer Wash.	301-921-0660
MD	Kensington, Marine Air Supp.	301-949-9560
MD	Rockville, Arrow Elexs	301-251-0644
MA	Burlington, Heilind Elexs	617-272-5610
MA	Canton, Impact Sls.	617-821-1500
MA	Canton, H. Young Jr. Co.	617-828-4880
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Lynn, Land Elctrns.	617-592-2220
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Woburn, Arrow Elexs	617-933-8130
MA	Woburn, CNC	617-933-5017
MI	Ann Arbor, Arrow Elexs	313-971-8220
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Grand Rapids, Arrow Elexs	616-243-0912
MI	Zeeland, Tubergen & Assocs. Inc.	616-772-1548
MN	Edina, Arrow Elexs	612-830-1800
MN	Minneapolis, Newark Elexs	612-331-6350
MN	St. Paul, Ragon	612-642-2828
MO	Kansas City, Walter's Radio Supply	816-531-7015
MO	Maryland Heights, Hall-Mark Elexs.	314-291-5350
MO	St. Louis, Van Sickle Elexs.	314-621-5000
MO	St. Louis, Arrow Elexs.	314-426-4500
MO	St. Louis, Olive Elctrn. Supp.	314-426-4500
NH	Manchester, Arrow Elexs.	603-668-6968
NJ	Bellmawr, Mid Atlantic Elctrns.	609-931-5303
NJ	Camden, General Radio	609-961-8560
NJ	Clifton, J-Mar Elexs. Inc.	201-772-6400
NJ	E. Marlton, Arrow Elexs.	609-596-8000
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Mt. Laurel, Jerseyswitch	609-778-8190
NJ	Springfield, Federated Purchaser	201-272-0505
NM	Albuquerque, Walker Elex. Sup.	505-242-2288
NM	Albuquerque, Arrow Elexs.	505-243-4566
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Farmingdale, Arrow Elctrns.	516-293-4020
NY	Hauppauge, Broadline Elexs.	516-231-4100
NY	Hauppauge, Arrow Elexs.	516-231-1000
NY	Hempstead, Elctrn. Equip.	516-538-5510
NY	Liverpool, Arrow Elexs.	315-652-1000
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Melville, Arrow Elexs.	516-694-6800
NY	Rochester, Arrow Elexs.	716-275-0300
NY	Rochester, Simcona Elctrns.	716-328-3230
NY	Vestal, Pioneer/Harvey	607-748-8211
NC	Raleigh, Hall-Mark Elex. Inc.	919-722-9131
NC	Raleigh, Arrow Elexs.	919-725-8711
NC	Winston-Salem, Arrow Elexs.	919-725-8711
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Centerville, Arrow Elexs.	513-435-5563
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cleveland, Pruitt Energy Sources Inc.	216-566-1545
OH	Columbus, Ohioswitch	614-885-0319
OH	Columbus, Arrow Elexs.	614-885-8362
OH	Columbus, Hughes-Peter	614-294-5351
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Solon, Arrow Elexs.	216-248-3990
OK	Tulsa, Arrow Elexs.	918-665-7700
OK	Tulsa, Hall-Mark Elexs.	918-665-3200
OR	Beaverton, Component Resources Inc.	503-641-8188
OR	Beaverton, Acacia Sales	503-646-3377
PA	Allentown, A.A. Peters	215-434-5237
PA	Braddock, Leff Elexs.	412-351-5000
PA	McKean, Advacom	814-476-7774
PA	Monroeville, Arrow Elexs.	412-856-7000
PA	Norristown, Century Elctrns.	215-631-5400
PA	Philadelphia, Philadelphia Elexs.	215-568-7400
PA	Philadelphia, Almo Elctrns.	215-698-4000
TN	Knoxville, Indl. Elctrns.	615-573-7135
TX	Austin, Arrow Elexs.	512-835-4180
TX	Austin, Hall-Mark Elex. Corp.	512-258-8848
TX	Dallas, Hall-Mark Elex. Corp.	214-341-1147
TX	Dallas, Arrow Elexs.	214-386-7500
TX	Dallas, Texaswitch	214-357-1768
TX	El Paso, Ideal Industrial Elexs.	915-779-6643
TX	Garland, Newark Elexs.	214-494-5911
TX	Houston, Hall-Mark Elexs. Corp.	713-781-6100
TX	Midland, E.S.I.	915-694-9657
TX	Stafford, Arrow Elexs.	713-491-4100
TX	Stafford, Southwest Elctrns.	713-240-4000
UT	Salt Lake City, Arrow Elexs.	801-539-1135
UT	Salt Lake City, Standard Supply	801-486-3371
VA	Arlington, Arrow Elexs.	804-282-0413
VA	Arlington, Arlington Elctrns.	703-524-2412
WA	Bellevue, Arrow Elexs.	206-643-4800
WA	Bellevue, Almac/Stroum Elctrns.	206-643-9992
WA	Seattle, Zepher Elctrns.	206-241-1980
WI	Madison, Arrow Elexs.	608-273-4977
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Oak Creek, Arrow Elexs.	414-764-6600

ALCOSWITCH, See Alco Elctrn. Prods., Inc.

ALDEN COMPUTER SYSTEMS, 27 Strathmore Rd., Natick, MA 01760, Tel: 617-655-6610; *Sls. Mgr.:* Bob Whitten

ALDEN ELCTRNS. INC., Washington St., Westboro, MA 01581, Tel: 617-366-8851, Telex: 94-8404; Empl.: 125; *Sls. Mgr.:* L. A. Farrington

ALDEN

ALDEN PRODUCTS CO., P.O. Box 860, 117 N. Main St., Brockton, MA 02403, Tel: 617-583-0160, Telex: 92-4451; FSC No.: 01009; Empl.: 135; *Sls. Mgr.:* Donald J. Paul .... **2**•1113-1119

Local Sales Offices & Reps

CA	Tarzana, High Voltage Sales	213-881-9194

ALDEN SYS., 262 N. Main St., P.O. Box 860, Brockton, MA 02403, Tel: 617-583-0160, Telex: 92-4451; Empl.: 5; *Sls. Mgr.:* G. Morrison

A.L. DESIGN INC., 2070 Niagara Falls Blvd., Tonawanda, NY 14150, Tel: 716-692-6272; Empl.: 9

ALESSI INDS., INC., 3195-C Airport Loop Dr., Costa Mesa, CA 92626, Tel: 714-979-8912, TWX: 910-595-1528; *Sls. Mgr.:* Tim McFadden

ALFORD MFG. CO., P.O. Box 2116, 32 Sixth Rd., Woburn, MA 01888, Tel: 617-935-8610, TWX: 710-348-1063; FSC No.: 07177; Empl.: 30; *Sls. Mgr.:* Fred Abel

ALGO, INC., 9451 Sohap Lane, Columbia, MD 21045, Tel: 301-730-7442; *Sls. Mgr.:* C.W. "Chuck" Alexander

Local Sales Offices & Reps

AL	Huntsville, Ram-Z Assoc. Inc.	205-532-7808
CA	Novato, Ed Driscoll Assoc.	415-883-0353
FL	Sarasota, Ram-Z Assoc.	813-921-5561
GA	Atlanta, Ram-Z Assoc.	404-898-9091
IL	Park Ridge, Adtech Inc.	312-692-7320
MA	Framingham, J.M. Lancaster Assoc.	617-875-8893
MO	Grandview, Digital Sys. Sls.	316-685-9725
NJ	Englewood Cliffs, Sci. Dvs. East	201-871-3916
OH	Chesterland, EQS, Sys. Inc.	216-729-2222
TX	Houston, Knox Mktg.	713-780-2516
VA	Alexandria, Dyna-Repco	703-354-1222
WA	Bellevue, Gerry Mara Assoc.	206-614-3535

ALINABAL, 28 Woodmont Rd., Milford, CT 06460, Tel: 203-877-3241, TWX: 710-462-1178; Empl.: 255

ALLACO PRODS. DIV., 192 Pleasant St., Watertown, MA 02172-2399, Tel: 617-926-2550, TWX: 710-327-6518; FSC No.: 99098; Empl.: 23; *Sls. Mgr.:* R.S. Cass

ALLEN AVIONICS, INC.

ALLEN AVIONICS, 224 E. 2nd St., Mineola, NY 11501, Tel: 516-248-8080 .... **1A**•1446-1449, 1578-1583, 2124

Local Sales Offices & Reps

AZ	Tempe, J. F. Hurlbut Co.	602-968-5962
CA	Arcadia, Van Gott & Assocs.	818-445-9728
CA	Palo Alto, Adtek Assocs.	415-323-5414
CA	San Diego, Van Gott & Assocs.	619-272-8452
CO	Golden, J. F. Hurlbut Co.	303-279-7796
FL	Ft. Lauderdale, Reynolds & Assocs.	305-581-6611
FL	Melbourne, Reynolds & Assocs.	305-259-7000
FL	St. Petersburg, Reynolds & Assocs.	813-360-1484
GA	Atlanta, Reynolds & Assocs.	404-393-9113
MA	Wayland, High-Tech Sls.	617-653-3838
MN	Anoka, Ken Haugen & Assocs.	612-421-3395
MO	Independence, Engrg. Svcs. Co.	816-254-3600
MO	St. Louis, Engrg. Svcs. Co.	314-997-1515
NJ	Bloomingdale, Eastern Metro Assocs.	201-492-1747
NY	Plainview, Eastern Metro Assocs.	516-931-1414
NY	Rochester, J. G. Welch Assocs.	716-244-1100
NY	Utica, J. G. Welch Assocs.	315-736-7821
OR	Portland, Components West	503-643-5588
PA	Huntingdon Valley, Rabal Assocs.	215-947-4825
TX	Dallas, Bradenco Corp.	214-243-7261
UT	Salt Lake City, J. F. Hurlbut Co.	801-973-4443
VA	Alexandria, Vanguard Engrg. Sls.	703-768-1660
WA	Redmond, Components West	206-885-5880
EXP	CT, Stamford, Dage Corp.	203-324-3123

A-B ALLEN-BRADLEY

ALLEN-BRADLEY CO., 1201 S. Second St., Milwaukee, WI 53204, Tel: 414-671-2000, TWX: 910-262-3451; Empl.: 6500; *Sls. Mgr.:* C. Grimsley; *Dist. Mgr.:* Dale Van Scoyk .... **1A**•1788, 1792-1802, 2019-2021, 2088, 2089; **2**•1788-1791

Local Sales Offices & Reps

AL	Birmingham, A-B Co.	205-879-4641
AK	Anchorage, J. A. Tudor & Assoc.	907-243-4641
AZ	Scottsdale, A-B Co.	602-994-9547
AR	Little Rock, C. H. Stout Inc.	501-372-2555
CA	City of Commerce, A-B Co.	213-724-5713
CA	S. San Francisco, A-B Co.	415-871-0200
CA	San Diego, A-B Co.	619-292-4016
CO	Denver, A-B Co.	303-985-8787
CT	Stratford, A-B Co.	203-378-7364
FL	Ft. Lauderdale, A-B Co.	305-771-0400
FL	Jacksonville, Van & Smith Co.	904-384-2376
FL	Orlando, Van & Smith Co.	305-898-8520
FL	Tampa, Van & Smith Co.	813-877-8393
GA	Doraville, A-B Co.	404-455-7422
HI	Honolulu, J. M. Elec. Sls.	808-833-1744
IL	Chicago, A-B Co.	312-922-9302
IL	Rockford, A-B Co.	815-965-8795
IN	Fort Wayne, A-B Co.	219-432-9538
IN	Indianapolis, A-B Co.	317-293-5223
IN	Merrillville, A-B Co.	219-769-7770
IA	Bettendorf, A-B Co.	319-355-5316
KS	Wichita, A-B Co.	316-686-9631
KY	Louisville, A-B Co.	502-893-2571
LA	Baton Rouge, A-B Co.	504-927-5955
LA	Metairie, A-B Co.	504-888-2281
LA	Shreveport, C. H. Stout	318-221-5555
ME	Portland, A-B Co.	207-772-3555
MD	Baltimore, A-B Co.	301-265-5600
MA	Agawam, A-B Co.	413-785-1984
MA	Framingham, A-B Co.	617-879-5900
MI	Flint, A-B Co.	313-733-3560
MI	Grand Rapids, A-B Co.	616-455-2250
MI	Kalamazoo, A-B Co.	616-344-6163

MI	Lansing, A-B Co.	517-351-4560
MI	Madison Heights, A-B Co.	313-583-9400
MN	Minneapolis, A-B Co.	612-781-3406
MS	Jackson, A-B Co.	601-981-4191
MO	Kansas City, A-B Co.	816-421-4595
MO	Maryland Heights, A-B Co.	314-567-6326
NE	Omaha, A-B Co,	402-592-2010
NJ	Bloomfield, A-B Co.	201-338-4600
NM	Albuquerque, A-B Co.	505-265-7723
NY	Albany, A-B Co.	518-869-5373
NY	Buffalo, A-B Co.	716-634-2711
NY	Rochester, A-B Co.	716-461-3660
NY	Syracuse, A-B Co.	315-463-4501
NC	Charlotte, A-B Co.	704-394-9341
NC	Greensboro, A-B Co.	919-272-5870
OH	Akron, A-B Co.	216-253-2106
OH	Cincinnati, A-B Co.	513-793-7580
OH	Cleveland, A-B Co.	216-442-0000
OH	Columbus, A-B Co.	614-882-7722
OH	Dayton, A-B Co.	513-294-4466
OH	Toledo, A-B Co.	419-841-7726
OK	Tulsa, J. W. Elder Co.	918-583-9149
OR	Eugene, J. A. Tudor & Assoc.	503-686-1252
OR	Portland, J. A. Tudor & Assoc.	503-288-5154
PA	Allentown, A-B Co.	215-437-2401
PA	Erie, A-B Co.	814-868-8214
PA	King of Prussia, A-B Co.	215-337-1990
PA	Pittsburgh, A-B Co.	412-923-1844
PA	York, A-B Co.	717-848-2239
SC	Greenville, A-B Co.	803-235-1280
TN	Knoxville, A-B Co.	615-588-0591
TN	Memphis, C. H. Stout	901-362-1616
TN	Nashville, A-B Co.	615-834-1860
TX	Dallas, A-B Co.	214-243-3665
TX	Houston, A-B Co.	713-445-8474
TX	San Antonio, A-B Co.	512-732-4362
UT	Salt Lake City, Stevens Sls. Co.	801-487-8971
VA	Richmond, A-B Co.	804-282-4285
WA	Pasco, J. A. Tudor & Assoc.	509-547-8414
WA	Seattle, J. A. Tudor & Assoc.	206-682-7444
WA	Spokane, J. A. Tudor & Assoc.	509-327-3328
WV	Charleston, S. C. Payne	304-755-8193
WI	Appleton, A-B Co.	414-731-3202

ALLEN CO., INC., ROBERT G., 7267 Coldwater Canyon, N. Hollywood, CA 91605, Tel: 818-765-8300, Telex: 18-2699; *Sls. Mgr.:* Carl M. Witas

ALLEN DATAGRAPH, INC., 24 Keewaydin Dr., Salem, NH 03079, Tel: 603-893-1983, TWX: 710-366-0504; *Sls. Mgr.:* David Colinan

ALLEN MFG., 22 E. Dudley Town Rd., Bloomfield, CT 06002, Tel: 203-242-8511, Telex: 710-425-0099; Empl.: 420; *Sls. Mgr.:* M. Kubick; *Dist. Mgr.:* M. Kubick

ALLIED CORP. AEROSPACE SECTOR, Bendix Communications Div., East Joppa Rd., Towson, MD 21204, Tel: 301-583-4000, TWX: 710-232-1823; Empl.: 1350; *Sls. Mgr.:* Palmer H. Arnold

ALLIED SYSTEMS CORP., Box 18077, Greensboro, NC 27419, Tel: 919-299-2294; Empl.: 25; *Sls. Mgr.:* E. V. Saude ..... 2•1874

Local Sales Offices & Reps

CA	Seal Beach, Texel Engr. Sls. Rep.	213-596-9411
NY	New Hook, R. P. Kennedy Co.	914-876-2700
NY	Rochester, R. P. Kennedy Co.	716-271-6322
NC	Bladenboro, Everette Bolte	919-294-4141
VA	Arlington, H. J. Heffernan Co.	703-522-6666

ALLMETAL SCREW PRODUCTS CO., INC., 821 Stewart Ave., Garden City, NY 11530, Tel: 516-222-1200, TWX: 510-222-8132; Empl.: 200; *Sls. Mgr.:* Fred C. Sidebotham

ALL-STATES, INC., 1801 W. Foster Ave., Chicago, IL 60640, Tel: 312-728-0525; FSC No.: 26863; *Sls. Mgr.:* E. B. Phillips; *Dist. Mgr.:* E. B. Phillips

ALLTECH ASSOCS. INC., Applied Science Labs., 2051 Waukegan Rd., Deerfield, IL 60015, Tel: 312-948-8600, Telex: 687-1132; FSC No.: 36-2696920; *Sls. Mgr.:* Pat Krebs

ALMOND INSTRUMENTS, See EG & G Almond Instruments

ALMOR CO., INC., PO Box 1790, 155 Crescent St., Brockton, MA 02403, Tel: 617-586-5406; *Sls. Mgr.:* Bill Wolfreys

ALPHA COMPS., 115 Eucalyptus Dr., El Segundo, CA 90245, Tel: 213-322-7780; Empl.: 12

ALPHA COMPS., 1106 E. Simpson Rd., Mechanicsburg, PA 17055, Tel: 717-697-8595, TWX: 510-650-4930; FSC No.: 52748

Local Sales Offices & Reps

CO	Boulder, Herb Bass Assocs.	303-499-7509
MD	Towson, Dickison Sls. Co.	301-823-0923
NY	Rochester, H. C. Johnson Agencies	716-586-8777

ALPHA INDS., INC.-MICROELECTRONIC DIV., 3015 Advance Lane, Colmar, PA 18915, Tel: 215-822-1311, TWX: 510-661-7370; FSC No.: 17540; *Sls. Mgr.:* Joe Diesso

ALPHA INDS., INC., Microwave Comp. Div., 90 Glenn St., Lawrence, MA 01843, Tel: 617-681-8520, Telex: 949436, TWX: 710-342-8033; FSC No.: 17540; *Sls. Mgr.:* Frank Tarr

ALPHA INDS., INC.-MSD DIV., 20 Sylvan Rd., Woburn, MA 01801, Tel: 617-935-5150, Telex: 949436, TWX: 710-393-1236; FSC No.: 17540; *Sls. Mgr.:* Peter K. Butler; *Dist. Mgr.:* Nicholas Bishop

ALPHA INDS., INC., 20 Sylvan Rd., Woburn, MA 01801, Tel: 617-935-5150, Telex: 949436, TWX: 710-393-1236; FSC No.: 17540; Empl.: 1200

ALPHA INDS., INC. - TRG MILLIMETER COMP., 20 Sylvan Rd., Woburn, MA 01801, Tel: 617-935-5150, Telex: 949436, TWX: 710-393-1236; FSC No.: 17540; *Sls. Mgr.:* Peter K. Butler; *Dist. Mgr.:* Nicholas Bishop

ALPHA-M CORP., 3009 Wildflower Dr., Dallas, TX 75229, Tel: 214-620-0021; Empl.: 8; *Sls. Mgr.:* W. L. Cowley

ALPHA MERICS CORP., 20931 Nordhoff St., Chatsworth, CA 91311, Tel: 213-709-1155, Telex: 182314, TWX: ALPHA-MER-CHCA 910-494-1931; *Sls. Mgr.:* Geoffrey Groom; *Dist. Mgr.:* Geoffrey Groom

ALPHA METALS, 600 Rte 440, Jersey City, NJ 07304, Tel: 201-434-6778, Telex: 12-5798; Empl.: 400; *Sls. Mgr.:* D. Zerfoss

ALPHA PRODUCTS, INC., 5740 Corsa Ave. #104, Westlake Village, CA 91362, Tel: 818-889-9304

ALPHA WIRE CORP., 711 Lidgerwood Ave., P.O. Box 711, Elizabeth, NJ 07207, Tel: 201-925-8000, Telex: 6853017, TWX: 710-996-5895; Empl.: 450; *Sls. Mgr.:* Paul Dietlian ..... 2•1940, 1941

ALPS ELECTRIC (USA), INC., 3553 N. First St., San Jose, CA 95131, Tel: 408-946-6000, Telex: 157061; Empl.: 21 ..... 3•1068

Local Sales Offices & Reps

AL	Huntsville, Jack Harvey & Assocs.	205-536-4414
AZ	Phoenix, Eltron	602-266-2164
CA	Garden Grove, West Electronic Sls. Co.	714-829-0120
CA	San Diego, Harvey King, Inc.	619-566-5252
CA	Santa Clara, Nova-Tronix	408-727-9530
CO	Englewood, Nelligan Co.	303-761-2121
CT	Yalesville, Technology Sls.	203-269-8853
FL	Clearwater, Jack Harvey & Assocs.	813-725-1841
FL	Ft. Lauderdale, Jack Harvey & Assocs.	305-763-1945
GA	Norcross, Jack Harvey & Assocs.	404-449-4643
IL	Arlington Hgts., Micro Sls.	312-956-1000
IN	Indianapolis, Jack Harvey & Assocs.	317-872-1031
IN	Indianapolis, Alps Elec. (USA)	317-248-2577
IN	Kokomo, Jack Harvey & Assocs.	317-453-4260
KS	Kansas City, BC Electronic Sls.	913-342-1211
KS	Wichita, BC Elctrn. Sls.	316-942-9840
KY	Prospect, Jack Harvey & Assocs.	502-228-4100
MD	Baltimore, Burgin-Kreh Assocs., Inc.	301-265-8500
MA	Waltham, Technology Sls.	617-647-5700
MI	Oak Park, A. Blumenberg Assoc.	313-968-3230
MN	Minneapolis, PSI	612-944-8545
MO	St. Louis, BC Elec. Sls.	314-291-1101
NJ	Boonton, PAF Assoc.	201-335-0680
NY	Albany, Reagan/Compar Albany	518-489-4777
NY	Endwell, Reagan/Compar	607-723-8743
NY	Fairport, Reagan/Compar	716-271-2230
NY	New Hartford, Reagan/Compar	315-732-3775
NY	Rockville Centre, Alps Elec. (USA)	516-766-3636
NY	Smithtown, PAF Assocs.	516-360-0940
NC	Greensboro, Wallace Elctrn. Sls.	919-996-2742
OH	Rocky River, Norm Case Assocs.	216-333-0400
OK	Tulsa, Norcom	918-832-7747
OR	Aloha, Venture Elctrns.	503-642-9090
PA	Willow Grove, Harry Nash Assocs.	215-657-2213
TN	Johnson City, Jack Harvey & Assocs.	615-928-7588
TX	Austin, Norcom	512-451-2757
TX	Dallas, Norcom	214-386-4888
TX	Houston, Norcom	713-778-0392
UT	Salt Lake City, Nelligan Co.	802-261-1121
VA	Lynchburg, Burgin-Kreh Assocs., Inc.	804-239-2626
WA	Bellevue, Venture Elctrns.	206-454-4594
WI	Milwaukee, Micro Sales, Inc.	414-782-1171

ALTEC LANSING, Altec Corp., 1250 N. Red Gum St., Anaheim, CA 92806, Tel: 714-632-7117, Telex: 665415; Empl.: 200; *Sls. Mgr.:* Gayle Campbell

ALTEK CO., P.O. Box 1128, Torrington, CT 06790, Tel: 203-482-7626; FSC No.: 53939; Empl.: 34; *Sls. Mgr.:* Stephen Altschuler

ALTEK CORP., 2150E Indl. Pkwy., Silver Spring, MD 20904, Tel: 301-622-3906, TWX: 710-825-0422; Empl.: 55; *Sls. Mgr.:* Lowell Nerenberg; *Dist. Mgr.:* Lowell Nerenberg

ALUMINUM FILTER, P.O. Box 1311, Santa Barbara, CA 93102, Tel: 805-684-7651, Telex: 658325, TWX: 910-336-1113; FSC No.: 17504; Empl.: 40; *Sls. Mgr.:* B. L. Baker

Local Sales Offices & Reps

AZ	Tucson, Windcliff Service Co.	602-624-2272
CA	Fremont, Vontek	415-651-7966
CA	Reseda, Jerry Budenz & Assoc.	818-342-4276
CA	San Diego, Aluminum Filter	805-684-7651
CO	Louisville, X-O Sales Inc.	303-666-7690
MA	Brookline, Harman & Assocs.	617-232-6687
MN	Edina, Peterson & Wolff	612-941-5400
OK	Tulsa, NTR/Data Comp Inc.	918-664-2180

ALZBEAR CORP., 15411 Red Hill Ave., Unit F, Tustin, CA 92680, Tel: 714-557-0910; Empl.: 45; *Sls. Mgr.:* Al Robinson; *Dist. Mgr.:* Al Robinson

AMATOM ELCTRN. HARDWARE, 446 Blake St., New Haven, CT 06515, Tel: 203-397-3311, Telex: 963-419; FSC No.: 06540; Empl.: 55; *Sls. Mgr.:* Vince Maida

Local Sales Offices & Reps

AL	Huntsville, Remco	205-533-3763
AZ	Phoenix, Gabriel & Assoc.	602-866-3622
AR	Ft. Smith, Electra Reps.	501-452-4030
CA	Costa Mesa, Gabriel & Assoc.	714-957-1981
CA	El Monte, MITE/Western	213-686-1354
CA	San Francisco, Tom Boyd	408-727-4401
CO	Englewood, Dynatech, Inc.	303-773-2830
CT	Bethany, Reps. Corp.	203-393-0024
FL	Ft. Lauderdale, Electrocomp Assoc.	305-491-4141
FL	Melbourne, Electrocomp Assoc.	305-242-0621
FL	St. Petersburg, Electrocomp Assoc.	813-327-9677
GA	Atlanta, Remco	404-447-6937
IL	Elk Grove Village, Control Sls.	312-595-2110
IN	Ft. Wayne, Aktron Corp.	219-747-3650
IA	Marion, M.S.B. Assocs.	319-377-6261
KS	Shawnee Mission, M.S.B. Assocs.	913-432-2131
MA	Wellesley, Reps. Corp.	617-237-6476
MI	Dearborn, Pitcher-Poulin	313-582-5450
MN	St. Louis Pk., C. E. Bohlig Co.	612-922-7011
MO	St. Charles, M.S.B. Assocs.	314-946-5577
NY	Bayside, Robert Diamond, Inc.	212-423-7330
NY	Syracuse, Lenard Co.	315-479-9191
NC	Raleigh, Remco	919-847-5079
OH	Cincinnati, J. O. Olsen Co.	513-574-7711
OH	Cleveland, J. O. Olsen Co.	216-662-3454
PA	Birchrunville, Jadelectronics Assocs.	215-296-3800
PA	Pittsburgh, J. O. Olsen Co.	412-279-2550
TX	Dallas, Electra Reps.	214-387-3594
TX	Houston, Electra Reps.	713-988-9022
WA	Seattle, Blum & Assocs.	206-285-2590
WI	Thiensville, Control Sls.	414-242-4580
EXP	NY, North Babylon, EIM	516-643-5700

AMBI-TECH INDS., 319 Knickerbocker Ave., Hillsdale, NJ 07642, Tel: 201-666-0504; Empl.: 20; *Sls. Mgr.:* Al Nagler; *Dist. Mgr.:* Al Nagler

AMBROID CO., P.O. Box 1089, Taunton, MA 02780, Tel: 617-823-1726; Empl.: 10; *Sls. Mgr.:* J. F. Strauss

AMCO ENGRG., 3801 N. Rose St., Schiller Pk., IL 60176, Tel: 312-671-6670, TWX: 910-227-3152; Empl.: 280; *Sls. Mgr.:* F. A. Johnson ... 2•1006, 1007, 1803

Local Sales Offices & Reps

AL	Huntsville, Kemp Instrs.	205-837-4304
AZ	Phoenix, Gramer & Co.	602-995-9455
CA	Burlingame, Polach & Bensinger	415-697-2525
CA	Los Angeles, Knight Co.	213-670-2833
CA	Orange County, Knight Co.	714-833-8250
CA	San Diego, Knight Co.	619-693-1806
CO	Englewood, FG Mktg. Co.	303-795-9176
CT	Stratford, Instr. Dynamics	203-378-6019
FL	Altamonte Springs, WMM Assocs.	305-831-4530
FL	Clearwater, WMM Assocs.	813-442-3913

FL	Davie, WMM Assocs.	305-581-7036
FL	Indialantic, WMM Assocs.	305-773-1157
GA	Atlanta, Kemp Instrs.	404-452-8050
IL	Schiller Park, R. L. Lang & Assocs.	312-671-3228
IN	Ft. Wayne, Aktron Corp.	219-747-3650
IA	Davenport, Ensco-Rep	319-386-6600
KS	Overland Park, Ensco-Rep	913-381-7557
KS	Wichita, Ensco-Rep	316-683-1070
LA	Lafayette, Kemp Engrg.	318-269-9452
MD	Silver Spring, L. G. White & Co.	301-434-1555
MA	Wakefield, Instr. Dynamics	617-245-5100
MI	Livonia, Electro Sls. Assocs.	313-474-7320
MN	St. Paul, Bonament Heyda Co.	612-484-8531
MO	Maryland Heights, Ensco-Rep	314-423-3935
NJ	Woodcliff Lake, J. Freid & Assocs.	201-391-6792
NM	Albuquerque, C. T. Carlberg Assocs.	505-888-3883
NY	Fairport, Naco Elctrns.	716-223-4490
NY	Great Neck, F & F Metro Inc.	516-482-4080
NY	Syracuse, NACO Elctrns.	315-699-2651
NY	Utica, Naco Elctrns.	315-732-1801
NC	Winston Salem, L. G. White & Co.	919-725-3612
OH	Cleveland, Electro Sls. Assocs.	216-261-5440
OH	Dayton, Electro Sls. Assocs.	513-426-5551
OK	Tulsa, Don Shuhart Co.	918-747-4136
OR	Beaverton, Barrett/Squibb & Assocs.	503-642-1661
PA	Allison Park, Electro Sls. Assocs.	412-487-3801
PA	Broomall, White-Whiddett	215-353-6343
SC	Greenville, L. G. White & Co.	803-271-0630
TX	Dallas, Don Shuhart Co.	214-349-6000
TX	Houston, Kemp Engrg.	713-466-1465
VA	Richmond, L. G. White & Co.	804-740-7093
WA	Redmond, Barrett/Squibb & Assocs.	206-885-6991
EXP	NJ, Mahwah, Intl. Sls. Div.	201-825-0473

AMDAHL COMMUNICATIONS SYS. DIV., Amdahl Corp., 2500 Walnut Ave., Marina del Rey, CA 90291, Tel: 213-822-3202; Empl.: 350

AMECON

AMECON, INC., 1900 S. Chris La., Anaheim, CA 92805, Tel: 714-634-2220, 800-392-2292; *Sls. Mgr.:* Frank Carleone .... **1A**•2125-2130

AME CORP., 101 E. Main St., Little Falls, NJ 07424, Tel: 201-256-3939; Empl.: 12; *Sls. Mgr.:* Edward Dimitry .... **1B**•1515

Local Sales Offices & Reps

FL	Orlando, EAB Inc.	305-898-7444
NJ	Wyckoff, Chandler Co.	201-891-7866
TX	Dallas, Control Comps. Corp.	214-559-4090

AMERACE CORP., Elastimold Div., Newburg Rd., P.O. Box 503, Hackettstown, NJ 07840, Tel: 201-852-1122

AMEREX, P.O. Box 2815, Riverside, CA 92516, Tel: 714-686-1400; *Sls. Mgr.:* Roger D. Orton .... **2**•1005

AMERICAN AEROSPACE CONTROLS, 570 Smith St., Farmingdale, NY 11735, Tel: 516-694-5100; Empl.: 37; *Sls. Mgr.:* Gregory D'Abramo .... **1B**•1830, 1831

Local Sales Offices & Reps

CA	Los Angeles, Dyna Sls. Co.	213-268-1175
WA	Bellevue, Al Smith Co.	206-746-6770

AMERICAN ALUMINUM, 230 Sheffield St., Dept. EEM, Mountainside, NJ 07092, Tel: 201-233-3500; Empl.: 125

AMERICAN AUTOMATION, 14731 Franklin Avenue, Tustin, CA 92680, Tel: 714-731-1661, TWX: 910-595-2670 AMAUTO TSTN; *Sls. Mgr.:* Paul Niquette

AMERICAN CAPACITOR, 2080 Central Ave, Duarte, CA 91010, Tel: 818-357-8806; FSC No.: 59366; Empl.: 50

AMERICAN CHEMICAL ETCHING, See American Etching & Mfg.

AMERICAN COMPUTER HARDWARE CORP., 2205 S. Wright St., Santa Ana, CA 92705, Tel: 714-549-2688

AMERICAN CYANAMID CO., Metal Coated Fibers Dept., One Cyanamid Plaza, Wayne, NJ 07470, Tel: 201-831-3148, Telex: 130-400, TWX: 710-988-3045; *Sls. Mgr.:* James Tonges;Dave Molnar

AMERICAN ELECTRIC CABLE CO., 181 Appleton St., Holyoke, MA 01040, Tel: 413-539-9893; Empl.: 100; *Sls. Mgr.:* P. Tutschek

AMERICAN ELECTRONIC LABS., Box 552, Lansdale, PA 19446, Tel: 215-822-2929, TWX: 510-661-4976; Empl.: 1300

AMERICAN ELCTRN. LABS., INC., Antenna Div., P.O. Box 552, Lansdale, PA 19446

AMERICAN ELCTRN. LABS., INC., Govt. Grp. Div., P.O. Box 552, Lansdale, PA 19446

AMERICAN ELCTRN. LABS., INC., Hybrid/MIC Div., P.O. Box 552, Lansdale, PA 19446

AMERICAN ELCTRN. LABS., INC., Special Prods. Div., P.O. Box 552, Lansdale, PA 19446

AMERICAN ELCTRNS., 1600 E. Valencia Dr., Fullerton, CA 92631, Tel: 714-871-3020, TWX: 910-592-1256; FSC No.: 89321; Empl.: 200; *Sls. Mgr.:* B. G. Guy

AMERICAN ETCHING & MFG., 13730 Desmond St., Pacoima,, CA 91331, Tel: 213-896-1187; Empl.: 90

Local Sales Offices & Reps

AZ	Tucson, Clemick & Assoc.	602-749-4003
CA	San Diego, The Rep. Co.	619-292-9001
CA	San Mateo, Halbar Assoc.	415-349-4700
CT	Guilford, Hamer Assocs.	203-457-1634
MA	W. Boylston, Compatible Comps.	617-835-3614
TX	Plano, Precision Devices	214-596-7379

AMERICAN
HV TEST SYSTEMS, INC.

AMERICAN HV TEST SYSTEMS INC., Central Garrett Ind'l. Pk., Accident, MD 21520, Tel: 301-826-8651, Telex: 86223; Empl.: 45; *Sls. Mgr.:* Rolf B. Persson .... **3**•1188

AMERICAN INSULATED WIRE CORP., Leviton Mfg. Co., 36 Freeman St., Pawtucket, RI 02862, Tel: 401-726-0700, TWX: 710-384-0150; *Sls. Mgr.:* Stanton D. Ose; *Dist. Mgr.:* Gilbert R. DuBois .... **2**•1942

Local Sales Offices & Reps

CA	Los Angeles, Leviton/American	213-949-6575
GA	Atlanta, Leviton/American	404-691-9303
IL	Chicago, Leviton/American	312-766-4100
MA	Boston, Associated Agencies	617-423-9880
MI	Detroit, Jim Groff Sls. Co.	313-933-3100
NY	New York, Leviton Mfg. Co.	212-229-4040
OH	Cleveland, Leviton/American	216-831-0615
WA	Seattle, Leviton/American	206-576-0242

AMERICAN LASER SYS., INC., 106 Fowler Rd., Goleta, CA 93117, Tel: 805-967-0423, Telex: 364412 INTR; *Sls. Mgr.:* L. Shallenberger

AMERICAN MAGNETICS, 740 Watson Center Rd., Carson, CA 90745, Tel: 213-775-8651, TWX: 910-345-6258; Empl.: 175; *Sls. Mgr.:* Robert Mos

AMERICAN MAGNETICS, P.O. Box 8, Carterville, IL 62918, Tel: 618-985-4838; Empl.: 120

AMERICAN MAGNETICS, Box R, Oak Ridge, TN 37830, Tel: 615-482-1056, Telex: 557-482; Empl.: 16

AMERICAN MICROSEMICONDUCTOR, 133 Kings Rd., Madison, NJ 07940, Tel: 201-377-9566, TWX: 710-986-8500; Empl.: 15; *Sls. Mgr.:* W. M. Foley; *Dist. Mgr.:* D. B. Wilson . **1A**•1645, 2090, 2091

AMERICAN MICROSIGNAL, 8431 Monroe Ave., Stanton, CA 90680, Tel: 714-761-1222, TWX: 910-591-1202; Empl.: 80; *Sls. Mgr.:* Pat Nelson

AMERICAN MICROSYSTEMS, INC., See GOULD AMI

AMERICAN MONARCH, 2801-37th Ave., N.E., Minneapolis, MN 55421, Tel: 612-788-9161; Empl.: 300; *Sls. Mgr.:* B. Sutherland

AMERICAN PHOTONICS INC., 71 Commerce Dr., Brookfield Center, CT 06805, Tel: 203-775-8950; *Sls. Mgr.:* James A. Walyus

AMERICAN PLASTICRAFT CO., 814 N. Sacramento Blvd., Chicago, IL 60622, Tel: 312-722-7727, Telex: 910-221-6068; Empl.: 250; *Sls. Mgr.:* Larry J. Ferguson

AMERICAN POWER DEVICES, 7 Andover St., Andover, MA 01810, Tel: 617-475-4074, Telex: 951206; Empl.: 140; *Sls. Mgr.:* Robert Dimodana

AMERICAN RADIO RELAY LEAGUE, 225 Main St., Newington, CT 06111, Tel: 203-666-1541; Empl.: 120; *Sls. Mgr.:* Bobbie Chamalian

AMERICAN RESEARCH & ENGINEERING, 1500 Executive Dr., Elgin, IL 60120, Tel: 312-888-7245, TWX: 910-251-3008 .... **1B**•1516-1518

ASC American Switch Corp.

AMERICAN SWITCH CORP., 134 Water St., Wakefield, MA 01880, Tel: 617-246-1007, TWX: 710-348-6756; FSC No.: 54659; Empl.: 40; *Sls. Mgr.:* Mike Palmerino; *Dist. Mgr.:* Mike Palmerino .... **1B**•1519

Local Sales Offices & Reps

AZ	Scottsdale, Bill Earl Assoc.	602-994-3813
CA	Mountain View, Serra Assocs.	415-964-4300
CA	Temple City, HMC Inc.	818-285-0485
CO	Aurora, Sage Sls.	303-750-3501
CT	Madison, Eastronix, Inc.	203-421-4514
FL	Tampa, J-R Controls, Inc.	813-961-9478
GA	Lawrenceville, Tek-Rep Mktg.	404-963-1600
IL	Wheaton, Chadra-Schilke & Assoc.	312-653-8126
IN	Ft. Wayne, Augnat Assoc.	219-483-0259
IA	Marion, M-S-B Assocs.	319-377-6261
KS	Shawnee Mission, M-S-B Assocs.	913-432-2131
MA	Bedford, Eastronix	617-275-5775
MI	Detroit, Burcaw Co.	313-533-7700
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
MO	St. Charles, M-S-B Assocs.	314-946-5577
NJ	Englewood, ABS Assocs.	201-871-0020
NY	Macedon, M. M. Hare Co.	315-986-3742
OH	Medina, Augnat Assocs.	216-273-1211
PA	Elkins Park, Arnold Assocs.	215-742-0600
PA	Pittsburgh, Augnat Assocs.	412-281-8283
TX	Dallas, TPC, Inc.	214-357-8207
UT	Salt Lake City, Sage Sls.	801-467-5451
VT	Shelburne, Eastronix	802-985-3743
WA	Bellevue, Comtec	206-453-1188
EXP	CT, Litchfield, Intrade	203-567-5901

Local Distributors

AL	Huntsville, RM Alabama	205-852-1550
AL	Mobile, Specialty Distrbg.	205-344-0450
AZ	Phoenix, Arizona Comps.	602-269-5655
AZ	Phoenix, Kachina Elctrn. Distrs.	602-269-6201
CA	Buena Park, RPS Elctrns.	213-744-0355
CA	Burlingame, Rose Elctrns.	415-348-2740
CA	Los Angeles, Elec. Switches	213-660-1310
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Sunnyvale, Sierra West	408-747-1188
CA	Tustin, Western Switch & Controls	714-731-4333
CA	Van Nuys, Patane Avionics	818-988-4455
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Englewood, Indl. Elctrns.	303-771-2636
CT	Greenwich, Wise Comps.	203-531-4880
CT	Wallingford, Mid-State Elctrns.	203-265-9900
FL	Casselberry, Afcom Inc.	305-831-6630
IL	Chicago, NEP Elctrns.	312-625-8400
IL	Northbrook, Rayal Elctrns.	312-498-0935
IN	Terre Haute, Indl. Elctrns.	812-232-5328
IA	Cedar Rapids, Iowa Radio Supply	319-393-4510
IA	W. Des Moines, Ramco Co.	515-225-6933
KS	Wichita, Radio Inc.	316-264-2798
MD	Kensington, Marine Air Supp.	301-949-9560
MA	Newton Upper Falls, In-Stock Prods. Co.	617-964-6200
MA	Woburn, Abbott Elctrns.	617-935-2040
MN	Eden Prairie, Cassidy Elctrns.	612-944-0100
MN	Minneapolis, Tortec Corp.	612-866-3662
NE	Omaha, Radio Equip. Co.	402-341-7700
NJ	E. Brunswick, Brothers Elctrns.	201-238-2200
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	Mt. Laurel, P.A.C. Elctrns.	609-778-1526
NM	Albuquerque, Intl. Elctrns.	505-345-8127
NY	Bohemia, Key Comps.	516-567-7500
NY	E. Syracuse, Add Elctrns.	315-437-0300

NY	Hempstead, Davis Elctrns.	516-483-9200
NY	Mt. Vernon, QAR	914-699-2224
NC	Winston-Salem, Kirkman Elect.	919-722-9131
OH	Columbus, Whitehead Elctrns.	614-224-1186
OH	Dayton, Stotts-Friedman	513-298-5555
OK	Tulsa, Radio Inc.	918-587-9123
PA	Norristown, Kimberly James Co.	215-666-7286
PA	Philadelphia, Shap Elctrns.	215-969-3300
RI	Pawtucket, MAJOR/Edwards	401-725-7400
TN	Knoxville, Industrial Elctrns.	615-573-7135
TX	Austin, Galtronics	512-837-7470
TX	Dallas, Force/Solid State	214-438-5700
TX	Dallas, Wholesale Elctrn. Supp.	214-824-3001
TX	El Paso, Intl. Elctrns.	915-598-3406
TX	Ft. Worth, Industrial Elctrns.	817-731-7321
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
WA	Kent, Pyramid/Interface	206-872-5800
WA	Redmond, Murphy Elctrns.	206-881-1234
WI	Mequon, Lakeview Elctrns.	414-377-8250

AMERICAN TECH. CERAMICS, 1 Norden La., Huntington Sta., NY 11746, Tel: 516-271-9600, Telex: 221201, TWX: 510-226-6993; FSC No.: 29990; Empl.: 482; *Sls. Mgr.:* R. Blumkin .... **1A**•1007-1009

Local Sales Offices & Reps

AL	Huntsville, Interep Assocs.	205-533-1730
AZ	Scottsdale, Faser Tech. Sls.	602-948-4404
CA	El Segundo, Fetty/Schoenduve	213-322-4991
CA	Mtn. View, Fetty/Schoenduve	415-962-8330
CA	San Diego, Fetty/Schoenduve	619-292-5136
CO	Englewood, FC Mktg.	303-795-9176
DC	Washington, M. Lader Co.	202-296-2497
FL	Lighthouse Point, R. C. Simon & Co.	305-941-2757
GA	Norcross, Interep Assocs.	404-449-8680
IL	Chicago, Tech. Sls.	312-237-7210
MA	Topsfield, R.F. Assocs.	617-887-9762
MN	New Brighton, TWC Sls.	612-636-1770
MO	Grandview, Harris-Hanson Co.	816-763-6200
MO	St. Louis, Harris-Hanson Co.	314-432-3611
NY	Rochester, Sweetco Assocs.	716-225-2383
NY	Utica, Sweetco Assocs.	315-797-6721
OH	Chagrin Falls, Crest Comp. Sls. Co.	216-543-9808
PA	Lafayette Hill, M. Lader Co.	215-825-3177
TX	Richardson, Vector Sls. Co.	214-234-4291
WA	Bellevue, SD-R^2	206-747-9424

AMERICAN TIME PRODS. DIV., See Frequency Control Prods., Inc.

AMERICAN ULTRAVIOLET, 320 Commerce St., Chatham, NJ 07928, Tel: 201-635-8355, Telex: 13-9266; Empl.: 14; *Sls. Mgr.:* M. C. Stines; *Dist. Mgr.:* M. C. Stines

AMERICAN VOLPI CORP., 26 Aurelius Ave., Auburn, NY 13021, Tel: 315-255-1105

AMERICAN ZETTLER, 16881 Hale Ave., Irvine, CA 92714, Tel: 714-660-1670, Telex: 67-8472; Empl.: 200; *Sls. Mgr.:* D. O. Barkhurst .... **1B**•1322, 1520-1530

Local Sales Offices & Reps

AL	Huntsville, MacKay, Smith & Assocs.	205-539-8000
AZ	Scottsdale, Thorson Desert States, Inc.	602-998-2444
CA	Fullerton, Groh Assocs.	714-738-7105
CA	Mountain View, G.C. Woempner	415-964-5454
CA	San Diego, Addem/San Diego	619-729-9216
CO	Englewood, Delta Sls. Assoc.	303-799-0646
CT	Madison, Forsberg Sls.	800-343-9610
FL	Clearwater, Perrott Assoc.	813-443-5214
FL	Orlando, Perrott Assoc.	305-298-7748
FL	Sunrise, Perrott Assoc.	305-792-2211
GA	Norcross, McKay, Smith & Assoc.	404-449-7444
IL	Rolling Meadows, KMA Sls.	312-398-5300
IN	Carmel, Berndt Assocs.	317-844-0114
KS	Wichita, Baka Corp.	316-262-0179
MA	Brockton, Forsberg Sls.	617-522-6300
MI	Union Lake, Imtech	313-363-7129
MN	Minneapolis, R.W. Marshall Co.	612-929-0457
MO	Ferguson, Baka Corp.	314-878-4224
NJ	Cherry Hill, Danco Elctrn. Sls.	609-424-5590
NJ	Parlin, Martech	201-721-2200
NM	Albuquerque, Thorson Desert States, Inc.	505-293-8555
NY	Alexander, B.H. Tollefson Assoc.	716-591-1219
NY	Auburn, B.H. Tollefson Assocs.	315-253-4109
NY	Manhasset, Martech	516-627-1151
NY	Rochester, B.H. Tollefson Assoc.	716-271-4141
NC	Raleigh, J & B Sales	919-878-8600
OH	Cincinnati, Makin Assocs.	513-871-2424
OR	Beaverton, Thorson Co. N.W.	503-644-5900
TX	Houston, AID Elctrns.	713-955-6204
TX	Irving, AID Elctrns.	214-259-4761
UT	Salt Lake City, Delta Sls. Assocs.	801-487-7571
WA	Bellevue, Thorson Co. N.W.	206-455-9180
WI	Milwaukee, KMA Sales Company	414-259-1771

Local Distributors

AZ	Tempe, Acacia Sls.	602-894-2874
CA	Irvine, Acacia Sls.	714-660-0834
CA	Los Angeles, Master Distrs.	213-452-1229
CA	San Diego, Acacia Sls.	619-565-4365
CA	San Diego, Shanks & Wright	619-239-0176
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Santa Clara, Components Center	408-988-3751
CA	Santa Monica, Distr. Spec.	213-393-9666
CA	Torrance, Cypress Elctrns.	213-533-6005
CO	Lakewood, Acacia Sls.	303-232-2882
CT	New Haven, The Green-Shaw Co.	203-397-0710
IL	Northbrook, Classic Comps.	312-272-9650
IN	Carmel, Altex Elctrns.	317-848-1323
MD	Savage, Pyttronic Inds.	301-953-9650
MA	Woburn, Time Elctrns./New England	617-935-8080
NV	Reno, Elec. Dist. Co. of Nev.	702-323-2766
NJ	Fairlawn, Relay Specialties	201-797-3313
NY	Farmingdale, Pride Elctrns.	516-293-4020
OR	Beaverton, Acacia Sls.	503-646-3377
TN	Memphis, Bluff City Elctrns.	901-345-9500
TX	Dallas, Wallace Elctrns.	214-340-0400
WA	Seattle, Westlake Elec. Supp.	206-622-6600
Can	Vancouver, B.C., Intek	604-324-6831
Can	Winnipeg, Manitoba, L. A. Varah, Ltd.	204-633-6190

AMETEK, 2 Station Square, Paoli, PA 19301, Tel: 215-355-6900; Empl.: 100

AMETEK, INC, Hunter Spring Division, 1 Spring Ave., Hatfield, PA 19440, Tel: 215-822-2971, TWX: 510-661-4888; Empl.: 270; *Sls. Mgr.:* F. J. York

AMETEK/RODAN DIV., 2905 Blue Star St., Anaheim, CA 92806, Tel: 714-630-0081, TWX: 910-591-1684; FSC No.: 15454; Empl.: 100; *Sls. Mgr.:* Steve Iovin

Local Sales Offices & Reps

AL	Huntsville, Alpha Marketing	205-533-0766
CA	Mountain View, Gene Woempner Co.	415-964-5454
CO	Westminster, Straube Assocs.	303-426-0890
FL	Coral Springs, H.A. Inc.	305-752-7520
IL	Downers Grove, Richmar Elctrns.	312-968-0118
IN	Ft. Wayne, Menze Sls. Co.	219-747-5616
IA	Cedar Rapids, Snider Sls.	319-362-4410
KS	Overland Park, S. W. Wollard Co.	913-898-6552
MA	Hopkinton, Marathon Sls.	617-435-6984
MI	Lathrup Village, R. C. Nordstrom Co.	313-559-7373
MI	Southfield, R. A. Casalou	313-559-0350
MN	Mendota Hgts., G-II Sls.	612-454-3086
MO	St. Louis, Abrams & Assocs.	314-569-0447
NJ	Cherry Hill, Danco Elctrn. Sls.	609-424-5590
NM	Albuquerque, Straube Assocs.	505-265-7759
NY	Fayetteville, Henry G. Richter, Inc.	315-637-6713
NY	Melville, Comtronic Assoc.	516-249-0505
NY	Rochester, Henry G. Richter, Inc.	716-436-0300
TX	Dallas, Cunningham Components Corp.	214-233-4303
TX	Houston, Cunningham Components Corp.	713-461-4197
UT	Salt Lake City, Straube Assocs.	801-486-5473
VA	Gladys, Ralley Entprs.	804-283-5656
WA	Vancouver, R. Over Sls.	206-695-6179
EXP	NY, Westbury, CPS Intl.	516-334-8500

AMF INC., AMF Cuno/General Filter Products Division, 400 Research Pkwy., Meriden, CT 06450, Tel: 203-237-5541, Telex: 962457; Empl.: 700; *Sls. Mgr.:* Gregg Samal

AMF/ELECTRO COMPS. DIV., AMF, 2713 Gateway Dr., Pompano Beach, FL 33060, Tel: 305-973-8620, TWX: 510-956-9400; Empl.: 900; *Sls. Mgr.:* C. Smith; *Dist. Mgr.:* C. Smith

AMF POTTER & BRUMFIELD, See Potter & Brumfield

AMGLO, 5265 Michigan Ave., Rosemont, IL 60018, Tel: 312-671-4321; Empl.: 21

AMI/COAST MAGNETICS, AMI Div., 1207 North La Brea Ave., Inglewood, CA 90302, Tel: 213-673-3245

AMICON CORP., 25 Hartwell Ave., Lexington, MA 02173, Tel: 617-861-9600; Empl.: 300; *Sls. Mgr.:* James Gilliland

AMILON CORP., 49-12 30th Ave., Woodside, NY 11377, Tel: 212-274-1794; Empl.: 50; *Sls. Mgr.:* L. Rosenblatt

AMKEY, INC., Sub. American Pwr. Dvs., Inc., 220 Ballardvale St., Wilmington, MA 01887, Tel: 617-658-7800; *Sls. Mgr.:* P. D. Prevett

AMLAN, INC., 97 Thornwood Rd., Stamford, CT 06903, Tel: 203-322-1913, Telex: 643647; *Sls. Mgr.:* Mark Landeweer; *Dist. Mgr.:* Mark Landeweer .... **2**•1153-1159

Local Sales Offices & Reps

AL	Huntsville, Interep Assocs., Inc.	205-533-1730
CA	Escondido, Cirolia Elctrn. Sls., Inc.	619-489-9607
CA	Santa Cruz, Krippner & Assocs.	408-429-9798
CA	Ventura, Astralonics	213-706-0488
FL	Tampa, J-R Controls	813-961-9478
GA	Norcross, Interep Assocs. Inc.	404-449-8680
IL	Chicago, Electro-Tech Mktg. Assoc.	312-588-4535
MA	Scituate, Marketing Svcs.	617-545-0899
MN	St. Paul, Complete Sls.	612-644-0484
NJ	Parlin, JMR Sales	201-727-5335
NY	E. Setauket, JMR Sales	516-689-8871
NY	N. Syracuse, JMR Sales, Inc.	315-458-6576
NC	Raleigh, Interep Assocs. Inc.	919-872-1401
TN	Greeneville, Interep Assocs. Inc.	615-639-3491
VA	Reston, Tytronics Tech. Sls.	703-471-0440
WA	Mukilteo, Krippner & Assocs.	206-743-3579

Local Distributors

CT	New Haven, Greene-Shaw Co., Inc.	203-397-0710
CT	Torrington, Northeast Connectors	203-482-2817
MA	Chelmsford, Dynamic Engrg.	617-250-0200
MA	Norwood, Emtel Elctrns.	617-769-9500
MA	Waltham, Vantage Elctrns. Corp.	617-894-8690
MA	Woburn, EPC	617-935-0400
WA	Seattle, Pacific Elctrns.	206-575-1057

AMP INCORPORATED, Box 3608, Harrisburg, PA 17105, Tel: 717-564-0100, TWX: 510-657-4110; Empl.: 19,650 ... **1A**•1584; **1B**•1109-1111, 1532-1536, 1761; **2**•1121-1148, 1869, 1944

Local Sales Offices & Reps

CA	Compton	213-537-4490
CA	Cupertino	408-255-3830
CO	Englewood	303-773-0422
CT	Windsor	203-683-2715
FL	Altamonte Springs	305-869-6766
GA	Atlanta	404-934-6363
IL	Edwardsville	618-656-5081
IL	Schaumburg	312-351-7811
IN	Carmel	317-848-1250
MA	Boston	617-891-7500
MA	Framingham	617-879-3255
MI	Southfield	313-645-5590
MN	Minneapolis	612-831-8242
NJ	Parsippany	201-334-6664
NY	Holbrook	516-585-4430
NY	Pittsford	716-385-2860
NC	Winston- Salem	919-725-8968
OH	Dublin	614-764-8866
PA	Berwyn	215-647-6060
PA	Malvern	215-296-5303
TN	Knoxville	615-691-5711
TX	Irving	214-258-1114
VA	Alexandria	703-683-5955
WA	Renton	206-255-0064

Local Distributors

AL	Huntsville, Powell Elctrns.	205-539-2731
AZ	Phoenix, Dalis Elctrn. Supp.	602-275-2626
CA	Buena Park, RPS Elctrns.	213-744-0355
CA	Canoga Park, Marshall Elctrns. Grp., LA Div.	213-999-5001
CA	Fullerton, Pyramid Elctrns., Fullerton Div.	714-773-0781
CA	Hawthorne, Electro-Sonic Comps.	213-679-9781
CA	Irvine, Marshall Elctrns. Grp., Irvine Div.	714-556-6400
CA	San Diego, Marshall Elctrns. Grp., San Diego Div.	619-578-9600
CA	San Jose, Powell Elctrns.	408-943-9020
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CO	Denver, CSID, Inc.	303-893-9594
CT	Wallingford, Cronin Elctrns.	203-265-3134
FL	Orlando, Hammond Elctrns.	305-849-6060
GA	Norcross, Schweber Elctrns. Corp.	404-449-9170
IL	Elk Grove, Schweber Elctrns. Corp.	312-364-3750
IL	Elmhurst, Semiconductor Spec.	312-279-1000
IN	Indianapolis, Graham Elctrns.	317-634-8202
KS	Edwardsville, C. Tennant, Sons & Co.	913-441-1801
MD	Columbia, Powell Elctrns.	301-621-4070
MD	Rockville, MS Elctrns.	301-621-4070
MA	Needham, Cronin Elctrns.	617-449-5000
MA	Winchester, Rush Industries, Inc.	617-729-5800
MI	Grand Rapids, RS Elctrns.	616-241-3483
MI	Livonia, RS Elctrns.	313-525-1155
MO	St. Charles, Lectronix	314-946-6424
NH	Hudson, C & H Elctrns.	603-882-1133
NJ	Buffalo, Summit Distrs.	716-884-3450
NJ	Kenilworth, Federated Purchaser	201-272-0505
NY	Farmingdale, Harrison Radio Corp.	516-293-7990
NY	Lynbrook, Peerless Elctrns.	516-593-2121
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Akron, Akron Elctrn. Supp. Co.	216-762-8818
OH	Columbus, Hughes-Peters Inc.	614-294-5351
PA	Philadelphia, Powell Elctrns.	215-365-1900
PA	Philadelphia, Almo Elctrns. Corp.	215-698-4000
TX	Austin, Kent Elctrns. Corp.	512-834-1900
TX	Houston, Kent Elctrns.	713-780-7770
TX	Richardson, Kent Elctrns. Corp.	214-669-2600
UT	Salt Lake City, Kimball Elctrns.	801-328-2075
WA	Kent, Interface Elctrns. Corp.	206-872-5800

AMP PRODUCTS CORP., P.O. Box 1776, Paoli, PA 19301, Tel: 215-647-1000; Empl.: 20,000
.... **1B**•1531; **2**•1120, 1858, 1945

Local Sales Offices & Reps

CA	Los Angeles	213-639-1691
CA	San Francisco	415-573-7722
CO	Denver	303-773-1885
GA	Atlanta	404-939-7604
IL	Chicago	312-439-7800
KS	Kansas City	913-642-9800
MA	Boston	617-879-8221
MI	Detroit	313-646-0090
NJ	Cranford	201-272-4600
NC	Winston-Salem	919-725-9222
OH	Cincinnati	513-984-5302
PA	Philadelphia	215-647-3250
PA	Pittsburgh	412-344-7900
TX	Dallas (Irving)	214-258-1911

Local Distributors

AMP Standard Distributors

AL	Birmingham, Forbes Elctrn. Distr.	205-251-3941
AL	Decatur, Forbes Elctrn. Distr.	205-353-4546
AZ	Tucson, Inland Elctrns.	602-889-5301
AR	Little Rock, Electro Entprs.	501-664-9207
AR	Little Rock, Carlton-Bates Co.	501-562-9100
CA	Cerritos, El-Com	213-404-2961
CA	Costa Mesa, Mar Vac Elctrns.	714-540-3280
CA	Fountain Valley, Comps. Center	714-979-0433
CA	Fresno, Jack C. Arbuckle Co.	209-264-6554
CA	Gardena, California Switch & Signal	213-538-9830
CA	Manhattan Bch., Prime Electro Prods.	213-379-3642
CA	Monrovia, Erik-A-Elctrn. Distr.	213-574-1020
CA	North Hollywood, Alatec Prods.	213-875-1790
CA	Northridge, Acort Inds.	213-993-6444
CA	Oakland, Brill Elctrns.	415-834-5888
CA	Sacramento, Dunlap Elctrns.	916-442-5801
CA	Sacramento, Sacramento Elctrn. Supp. Co.	916-441-4821
CA	San Diego, Western Radio	619-239-0361
CA	San Diego, El-Com	619-578-0900
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	San Jose, Quement Elctrns.	408-998-5900
CA	Santa Ana, C R Elctrns.	714-556-2040
CA	Santa Clara, Cypress Elctrns.	408-945-8400
CO	Commerce City, Waco Elctrns.	303-289-4743
CO	Denver, Denver Wintronics	303-934-2406
CT	Danbury, Pilgrim Elctrns.	203-792-7274
CT	E. Hartford, R & S Elctrn Distrs.	203-528-9901
CT	Norwalk, Park Distrs.	203-853-2010
CT	Stratford, Electro Comp.	203-375-5811
FL	Casselberry, AFCOM	305-831-6630
FL	Dania, Summit Distrs.	305-920-6263
FL	Ft. Lauderdale, EMSCO Div. Hammond Elctrns.	305-973-7103
FL	Ft. Lauderdale, Southeastern Elctrns.	305-563-4131
FL	Jacksonville, EMSCO Div. Hammond Elctrns.	904-356-4851
FL	Miami, Elctrn. Equip. Co.	305-871-3500
FL	Miami, Electro Std. Labs.	305-633-6973
FL	Orlando, EMSCO Div. Hammond Elctrns.	305-849-6362
FL	Pensacola, Pensacola Elctrns.	904-478-3771
FL	Sarasots, Dow Elctrns.	813-365-3393
FL	Tampa, EMSCO Div. Hammond Elctrns.	813-253-0104
FL	Tampa, Leader Elctrns.	813-870-3315
GA	Atlanta, Ack Radio Supp. Co.	404-351-6340
GA	Atlanta, Specialty Distrbg. Co.	404-873-2521
HI	Honolulu, Tech. Mktg. Corp.	808-841-4175
HI	Honolulu, Elctrl. Equip. Co.	808-533-3884
ID	Boise, Kimball Elctrns.	208-342-3559
ID	Pocatello, Kimball Elctrns.	208-232-2201
ID	Spirit Lake, A-I Elctrn. Supp.	208-623-3111
IL	Addison, L-Comp	312-628-1400
IL	Berwyn, B-B&W Elctrns.	312-749-1710
IL	Chicago, Elctrn. Connector Corp.	312-767-2200
IL	Chicago, Stranco Prods.	312-738-1580
IL	Chicago, NEP Elctrns.	312-625-8400
IL	Harvey, George Elctrns.	312-331-1983
IL	Melrose Park, Belford Elctrns.	312-865-2400
IL	Mt. Prospect, Tri-State Elctrn. Corp.	312-255-0600
IL	Niles, Joseph Elctrns.	312-297-4200
IL	Northbrook, Classic Comps. Supp.	312-272-9650
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Peoria, Warren Radio Co.	309-674-5998
IL	Rosemont, Advent Elctrns.	312-297-6200
IL	Villa Pk., Melvin Elctrns.	312-279-5015
IL	Wheeling, Hawk Elctrns.	312-459-4030
IN	Evansville, Hutch & Son	812-425-7201
IN	Fort Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Meunier Elctrns.	317-635-3511
IN	Indianapolis, Advent Elctrns.	317-872-4910
IA	Cedar Rapids, Deeco	319-365-7551
KY	Louisville, Peerless Elctrn. Equip. Co.	502-637-7674
LA	Lafayette, Ralph's Elctrns. Supp.	318-233-0105
LA	Marrero, AFG Elctrn. Supp.	504-368-9696
LA	New Orleans, Radio Parts	504-581-5959
LA	New Orleans, Southern Radio Supp. Co.	504-524-2343
LA	New Orleans, W. B. Allen Supp. Co.	504-525-8222
LA	Shreveport, Industrial Elctrn. Supp.	318-222-9459
MD	Aberdeen, Harco Elctrns.	301-838-7990
MD	Baltimore, Whitney Distrs.	301-944-8080
MD	Rockville, Capitol Radio Wholesalers	301-881-2270
MA	Burlington, J. V. Elctrns. of Boston	617-273-4300
MA	Burlington, Heiland Elctrns.	617-272-5610
MA	Burlington, QPL Elctrn Distrs.	617-891-0460
MA	Cambridge, Apollo Elctrns.	617-868-3120
MA	Canton, Impact Sls. Co.	617-821-1500
MA	Lynn, Land Elctrns. Supp.	617-592-2220
MA	Mendon, ADD Elctrns. Corp.	617-478-4200
MA	Middleboro, Glynn Elctrns.	617-947-4262
MA	N. Chelmsford, Pilgrim Elctrns.	617-251-8746
MA	Needham, You Do It Elctrns.	617-449-1005
MA	Newton, In-Stock Prods. Co.	617-964-6200
MA	S. Boston, Controller Svc & Sls. Co.	617-269-1300
MA	Waltham, March Elctrns.	617-899-4220
MA	Waltham, Vantage Elctrns. Corp.	617-894-8690
MA	Westboro, Future Elctrns. Corp.	617-366-2400
MA	Westborough, Powell Elctrns.	617-366-6100
MA	Wilmington, Aved Elctrns.	617-657-8310
MA	Woburn, AFCOM	617-935-3200
MA	Woburn, A.C,I. Elctrns. Corp.	617-935-7230
MA	Woburn, Abbot Elctrns.	617-935-2040
MA	Woburn, Semtex Indl. Corp.	617-935-2466
MI	Flint, Shand Elctrns.	313-743-8940
MI	Grand Rapids, RM Elctrns.	616-531-9300
MI	Grand Rapids, S-F Elctrn. Supp.	616-459-0219
MI	Livonia, Camelot Elctrns.	800-482-3905
MI	Troy, Northern Wire & Cable	313-589-0510
MN	Minneapolis, Stark Elctrns. Supp.	612-332-1325
MN	Minneapolis, Elctrn. Center	612-371-5200
MN	St. Paul, Gopher Elctrns. Co.	612-483-3322
MS	Pascagoula, Hooper Elctrns. Supp. Co.	601-762-9383
MO	Kansas City, Electrn. Supp. Co.	816-931-0250
MO	St. Louis, Olive Elctrns.	314-426-4500
MO	St. Louis, Van Sickle Radio-Elctrns.	314-621-5000
NE	Lincoln, Scott Elctrns. Supp. Corp.	402-466-8221
NV	Las Vegas, CRW, Inc.	702-451-5490
NH	Manchester, Yankee Elctrn. Supp.	603-625-9746
NJ	Edison, William Elctrns. Supp.	201-985-3700
NJ	Hanover, State Elctrns. Parts Corp.	201-887-2550
NJ	Pine Brook, Alatec Prods.	201-227-8140
NJ	Prospect Park, Kappe Inds.	201-790-1999
NJ	Springfield, Route Elctrns. 22	201-379-7710
NM	Albuquerque, Elctrn. Parts	505-293-6161
NY	Binghamton, Help Elctrns.	607-729-3528
NY	Brooklyn, Brooklyn Elctrns.	212-748-1300
NY	Buffalo, Genesee Radio & Parts Co.	716-873-9661
NY	Elmsford, Ancar Elctrns. Supp.	914-592-7100
NY	Hempstead, Davis Elctrns. Corp.	516-483-9200
NY	Port Chester, Wise Components	914-939-8600
NY	Poughkeepsie, Chief Elctrns.	914-471-1300
NY	Rochester, Rochester Radio Supp. Co.	716-454-7800
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Rome, Rome Elctrns.	315-337-5400
NY	West Babylon, Delman Elctrns.	516-420-1234
NY	West Hempstead, March Elctrns.	516-486-6511
NC	Cary, Powell Elctrns.	919-467-1212
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Cincinnati, U.R.I. Elctrns.	513-761-4030
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Columbus, Whitehead Elctrns.	614-224-1186
OH	Columbus, Thompson Elctrn. Supplies	614-228-6191
OH	Dayton, Stotts-Friedman Co.	513-298-5555
OH	Dayton, E.S.C.O., Inc.	513-226-1133
OH	Lima, LRP Elctrns.	419-228-1220
OH	Marion, Servex Elctrns. Distrib.	614-383-3117
OH	Solon, Repco Elctrns.	216-248-8900
OH	Solon, Target Elctrns. Corp.	216-248-7930
OH	Twinsburg, Schuster Elec. Co.	216-425-8134
OH	Warren, REM Elctrns. Supp. Co.	216-373-1300
OK	Oklahoma City, Elctrn. Supp. Co.	405-232-5215
OK	Oklahoma City, Electro Engerprises	405-478-1752
OK	Tulsa, Combined Technlog. Cos.	918-582-8242
OK	Tulsa, Radio, Inc.	918-587-9123
PA	Allentown, P.A. Peters, Inc.	215-434-5237
PA	Altoona, Allegheny Elctrns.	814-946-0871
PA	Braddock, Leff Radio Parts Co.	412-351-5000
PA	Drexel Hill, Kass Elctrns. Distrib.	215-449-2300
PA	Essington, Tri-Com Inc.	215-521-3080
PA	Folcroft, Delphi Wire and Cable	215-534-3900
PA	Philadelphia, Arch Elctrns. Co.	215-563-4660
PA	Reading, Barbey Elctrns. Corp.	215-376-6116
PA	Wayne, Peak Elctrns. Corp.	215-293-9000
RI.	Pawtucket, Major Elctrn. Supp.	401-725-7400
RI	Pawtucket, Jabbour Elctrn. Supplies	401-728-4600
SC	Charleston, Wholesale Indl. Elctrns.	803-722-2634
SC	Columbia, Dixie Elctrns.	803-779-5332
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Chattanooga, Curle Elctrns.	615-266-4727
TN	Nashville, Electra Distrib. Co.	615-329-3971
TX	Corpus Christi, Douglas Elctrns.	512-883-5103
TX	Dallas, LBI Electro-Optics Corp.	214-358-4151
TX	Dallas, Wallace Elctrns. Co.	214-340-0400
TX	Dallas, Target Elctrns. Ind.	214-350-6853
TX	El Paso, Ideal Indl. Elctrn.	915-779-6647
TX	Fort Worth, Indl. Elctrns.	817-731-7321
TX	Fort Worth, Swieco, Inc.	817-335-6521
TX	Fort Worth, Texas Connector Corp.	817-246-0109
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TX	Houston, Geophysical Supp. Co.	713-666-4100
TX	Houston, Elctrn. Packaging Comp.	713-447-5800
TX	Houston, Powerline Products	713-461-9791
TX	Midland, ESI Supp.	915-694-9657
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WV	Dunbar, State Electric Supp.	304-523-7491
WV	Kenova, Burco Distrs.	304-292-1641
WV	Morgantown, State Elctrns. Co.	304-292-1641
WI	Fond du Lac, Fedco Elctrns.	414-922-6490
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WI	Milwaukee, Indl. Elctrns. Corp. of WI	414-276-1212
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Oshkosk, Elctrn. Inds.	414-235-8930

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AL	Huntsville, Powell Elctrns.	205-539-2731
AZ	Phoenix, Dalis Elctrn. Supp.	602-275-2626
CA	Buena Park, RPS Elctrns.	213-744-0355
CA	Canoga Park, Marshall Elctrns. Grp.	213-999-5001
CA	Fullerton, Pyramid Elctrns.	714-773-0781
CA	Hawthorne, Electro-Sonic Comps.	213-679-9781
CA	Irvine, Marshall Elctrns. Grp.	714-556-6400
CA	San Diego, Marshall Elctrns. Grp.	619-578-9600
CA	San Jose, Powell Elctrns.	408-943-9020
CA	Santa Clara, Pyramid Elctrns. Supp.	408-727-9810
CO	Denver, CSID	303-292-9594
CT	Wallingford, Cronin Elctrns.	203-265-3134
FL	Orlando, Hammond Elctrns.	305-849-6060
GA	Norcross, Schweber Elctrns. Corp.	404-449-9170
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IN	Indianapolis, Graham Elctrns.	317-634-8202
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MA	Needham, Cronin Elctrns.	617-449-0500
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NJ	Kenilworth, Federated Purchaser	201-272-0505
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Farmingdale, Harrison Radio Corp.	516-293-7990
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Akron, Akron Elctrn. Supp. Co.	216-762-8818
OH	Columbus, Hughes-Peters	614-294-5351
PA	Philadelphia, Powell Elctrns.	215-365-1900
PA	Philadelphia, Almo Elctrns. Corp.	215-698-4000
TX	Austin, Kent Elctrns. Corp.	512-834-1900
TX	Houston, Kent Elctrns. Corp.	713-780-7770
TX	Richardson, Kent Elctrns. Corp.	214-669-2600
UT	Salt Lake City, Kimball Elctrns.	801-328-2075
WA	Kent, Interface Elctrns.	206-872-5800

AMPEREX ELECTRONIC CORP., Ferroxcube Div., 5083 Kings Hwy., Saugerties, NY 12477, Tel: 914-246-2811, TWX: 510-247-5410; Empl.: 1200; *Sls. Mgr.:* R. Denison; *Dist. Mgr.:* Ed Hellenschmidt

Refer to Amperex, Slatersville Div. for sales office information.

AMPEREX ELECTRONIC CORP., Hicksville Div., Box 418 - 230 Duffy Ave., Hicksville, NY 11802, Tel: 516-931-6200, TWX: 510-221-1839; Empl.: 270; *Sls. Mgr.:* Robert Carlin; *Dist. Mgr.:* Robert Carlin

AMPEREX ELCTRN. CORP., Slatersville Div., Providence Pike, Slatersville, RI 02876, Tel: 401-762-3800, Telex: 927584, TWX: 710-382-6332; FSC No.: 73445; Empl.: 565; *Sls. Mgr.:* Robert Carlin

AMPEREX ELECTRONIC INDS., Smithfield Div., George Washington Hwy., Smithfield, RI 02917, Tel: 401-232-0500, Telex: 92 76 43

Refer to Amperex, Slatersville Div. for sales office information.

AMPERITE CO., INC., 600 Palisade Ave., Union City, NJ 07087, Tel: 201-864-9503, TWX: 710-992-8834; FSC No.: 70563; Empl.: 76; *Sls. Mgr.:* T. Whalen; *Dist. Mgr.:* T. Whalen

AMPEX CORP., 401 Broadway, Redwood City, CA 94063, Tel: 415-367-2011, TWX: 910-364-9034; Empl.: 9,800

AMPHENOL, 2801 South 25th Ave., Broadview, IL 60153, Tel: 312-345-9000

AMPHENOL, An Allied Co., 2122 York Rd., Oak Brook, IL 60521, Tel: 312-986-2300, TWX: 910-651-0191; Empl.: 3600

AMPHENOL R F OPERATIONS, 33 E. Franklin St., Danbury, CT 06810, Tel: 203-743-9272

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AMPLIFIER RESEARCH, 160 School House Rd., Souderton, PA 18964-9990, Tel: 215-723-8181, TWX: 510-661-6094; FSC No.: 30639; Empl.: 27; *Sls. Mgr.:* D.W. Roth .... 3•1002, 1003

Local Sales Offices & Reps

AZ	Tempe, Mar Tech Assocs.	602-968-4944
CA	N. Hollywood, O'Halloran Assoc.	213-877-0173
CA	Palo Alto, O'Halloran Assoc.	415-326-1493
CA	Santa Ana, Shoshin, U.S.A.	714-641-0417
CO	Boulder, H. Bass. Assoc.	303-499-7509
CT	Hamden, J.B.L. Assoc.	203-281-3161
FL	Orlando, E.G. Holmes & Assocs.	305-894-8901
GA	Chamblee, E.G. Holmes & Assocs.	404-451-6161
IL	Park Ridge, Elctrn. Instr. Assocs.	312-298-2290
IN	Indianapolis, Elctrn. Instr. Assocs.	317-257-7231
MD	Severna Park, Delmarva Eng. Assoc. Ltd.	301-647-8007
MA	Lexington, R.J. Sickles	617-862-5100
NJ	Denville, Metro-Mics	201-625-5959
NJ	Westfield, Metro Mics	201-233-6116
NM	Albuquerque, Don Hewitt & Assocs.	505-299-7746
NY	Melville, Metro Mics	516-433-3333
NC	Cary, E.G. Holmes & Assocs.	919-469-8850
OH	Centerville, Micro Sls.	513-433-8171
OH	North Olmsted, Micro Sls.	216-734-3080
PA	Philadelphia, R. Meyers Assoc.	215-224-1663
TX	Austin, Airep Elctrns.	512-327-0778
TX	Dallas, Airep Elctrns.	214-349-4360
TX	Houston, Airep Elctrns.	713-944-2055
UT	Bountiful, Herb Bass Assoc.	801-295-0469
UT	Salt Lake City, Herb Bass Assoc.	801-268-0262
WA	Seattle, J. B. Jolly	206-938-4166

AMPLIFONIX INC., 220 Rte. 13, Bristol, PA 19007, Tel: 215-788-2350, TWX: 510-667-0501; *Sls. Mgr.:* Jason A. Day; *Dist. Mgr.:* Jason A. Day

AMPROBE INSTR., 630 Merrick Rd., Lynbrook, NY 11563, Tel: 516-LY3-5600, TWX: 510-225-8403; Empl.: 230; *Sls. Mgr.:* W. Eagle

AMPTEK, INC., 6 De Angelo Dr., Bedford, MA 01730, Tel: 617-275-2242; Empl.: 11; *Sls. Mgr.:* George Kobaly, Jr.

Local Sales Offices & Reps

EXP	MA, Plainville, Teknis	617-695-3591

AMPTEK INC., Teksys Inc., 11103 Dennis Rd., P.O. Box 59841, Dallas, TX 75229, Tel: 214-241-2511, Telex: 730338; *Sls. Mgr.:* Don Stephens

AMRAD, Div. Transcon Mfg. Co., Box 876, Paris, TX 75460, Tel: 214-785-4544; FSC No.: 55943; Empl.: 17; *Sls. Mgr.:* Curtis Vining; *Dist. Mgr.:* Curtis Vining

AMTEK DIGITAL SYSTEMS, INC., 12740 28th N.E., Seattle, WA 98125, Tel: 206-363-0217, Telex: 329473 (Burgess Sea); Empl.: 18; *Sls. Mgr.:* Fred Graham

AMTEK SYS., INC., 1400 S. Sherman, #202, Richardson, TX 75081, Tel: 214-238-5300; *Sls. Mgr.:* Barry Epstein; *Dist. Mgr.:* Peter Diamond

AMUNEAL MFG., 4737 Darrah St., Philadelphia, PA 19124, Tel: 215-535-3000; FSC No.: 23740; Empl.: 120; *Sls. Mgr.:* S. M. Kamens; *Dist. Mgr.:* S. M. Kamens .... 2•1903

Local Sales Offices & Reps

AZ	Phoenix, Shefler-Kahn	602-257-9015
CA	Fremont, William Parks Assocs.	415-490-2011
CA	San Diego, C.E.M., Inc.	619-692-3551
CA	Santa Ana, C.E.M., Inc.	714-835-2702
CO	Wheatridge, Waugaman Assocs.	303-423-1020
GA	Stone Mountain, Dixie Tech. Mktg.	404-962-2530
IL	Chicago, Brock & Cushman, Inc.	312-622-4110
KS	De Soto, Midtec Assocs.	913-441-6565
MD	Baltimore, Muncy Sls.	301-484-6376
MA	Norwood, MPS Elctrns.	617-769-8700
MI	Ann Arbor, Metal-Tronics	313-437-7530
MN	Hamel, Hedtke Mktg.	612-478-2120
MO	Florissant, Midtec Assocs.	314-837-5200
NM	Albuquerque, Shefler Kahn Co.	505-296-0749
NY	Queens Village, L.A. Buscaglia Co.	212-468-3666
OH	Akron, Imtech Inc.	216-666-1185
OH	Dayton, Imtech Inc.	513-278-6507
OK	Tulsa, Barry Sls.	918-749-7775
TX	Houston, Barry Sls.	713-784-5860
TX	Richardson, Barry Sls.	214-234-0255
UT	Salt Lake City, Waugaman Assocs. Utah, Inc.	801-261-0802
WA	Seattle, Rep-West	206-283-8351
WI	Menomonee Falls, Brock & Cushman, Inc.	414-255-2166
EXP	NJ, Oradell, Sylvan Ginsbury	201-261-3200

ANACONDA-ERICSSON INC., Continental Wire & Cable, P.O. Box 1863, York, PA 17405, Tel: 717-767-4434

ANADEX, 1001 Flynn Rd., Camarillo, CA 93010, Tel: 805-987-9660, TWX: 910-494-2761; Empl.: 350

ANADYNE, 14830 Valley View Ave., La Mirada, CA 90638, Tel: 714-522-8924, TWX: 910-583-4807; Empl.: 100

ANAHEIM AUTOMATION, 910 E. Orangefair Lane, Anaheim, CA 92801, Tel: 714-992-6990; Empl.: 25; *Sls. Mgr.:* Bud McNally

ANALOG & DIGITAL PERIPHERALS, INC. (ADPI), 815 Diana Dr., Troy, OH 45373, Tel: 513-339-2241, TWX: 810-450-2685; FSC No.: 31-0949-745; Empl.: 19; *Sls. Mgr.:* Alan Kuebier

ANALOG DEVICES, P.O. Box 280, Norwood, MA 02062, Tel: 617-329-4700, TWX: 710-394-6577; FSC No.: 24355; Empl.: 4,000

ANALOGIC CORP., 8 Centennial Dr., Peabody, MA 01961, Tel: 617-777-4500, 617-246-0300, 800-451-1816, Telex: 94-9307, TWX: 710-348-0425; Empl.: 2000; *Sls. Mgr.:* M. E. Culverhouse; *Dist. Mgr.:* D. Vermilyea

Local Distributors

AL	Mobile, Brownell Electro	205-479-8581
AZ	Phoenix, Metermaster	602-243-4111
CA	Costa Mesa, F.L.W.	714-751-7512
CA	Gardena, Instr. Lab.	213-327-3279
CA	Los Angeles, E.I.L. Instrs.	213-685-7020
CA	Los Angeles, Metermaster	213-685-4340
CA	North Hollywood, B. J. Wolfe Entprs.	213-877-5518
CA	Palo Alto, Metermaster	415-968-0313
CA	Redwood City, Marchi Assoc.	415-364-3411
CA	San Diego, Metermaster	714-560-4841
CA	Santa Clara, Fisher Brownell	408-988-6041
CA	Santa Clara, E.I.L. Instrs.	408-727-0396
CO	Denver, E.I.L. Instrs.	303-534-4160
CT	Middletown, E.I.L. Instrs.	203-346-6646
FL	Miami, Brownell Electro.	305-591-3215
FL	Orlando, Brownell Electro.	305-843-6770
FL	Palm Bay, E.I.L. Instrs.	305-725-8300
GA	Atlanta, Brownell Electro	404-762-5181
IL	Bridgeview, E.I.L. Instrs.	312-430-2292
IL	Elk Grove Village, Metermaster	312-593-8650
IN	Indianapolis, E.I.L. Instrs.	317-545-1373
LA	Kenner, Breard-Gardner	504-466-3401
LA	Slidell, Mid-South Sls.	504-641-7480
MD	Gaithersburg, Pioneer Instr.	301-948-0710
MD	Sparks, E.I.L. Instrs.	301-771-4800
MA	Burlington, E.I.L. Instrs.	617-272-9450
MA	Waltham, Calibron Corp.	617-894-6440
MA	Woburn, Brownell Electro	617-935-7820
MI	Farmington Hills, Star-Tronic Dist.	313-477-7586
MI	Royal Oak, George Instr. Co.	313-280-1111
MN	Minneapolis, Process Meas. Co.	612-544-4035
MO	St. Louis, Instr. & Control Sls.	314-535-5760
NJ	Fairfield, Ampower Elctrn. Instr.	201-227-7720
NJ	Plainfield, Brownell Electro.	201-753-4600

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NY	Rochester, E.I.L. Instrs.	716-424-5750
NC	Charlotte, Trott Elctrns.	704-376-2237
NC	Charlotte, Brownell Electro	704-597-1270
OH	Cleveland, Pioneer/Instr. Div.	216-587-3600
OH	Dayton, Pioneer/Dayton Div.	513-236-9900
OH	Dayton, E.I.L. Instrs.	513-435-2134
OR	Portland, Branom Instr.	503-283-2555
PA	Philadelphia, Sunshine Sci. Instr.	215-673-5600
PA	Pittsburgh, E.I.L. Instrs.	412-731-5230
TN	Knoxville, Brownell Electro	615-966-3441
TN	Memphis, Brownell Electro	901-795-8487
TN	Nashville, Brownell Electro	615-889-8230
TX	Allen, Prime Distrib. Co.	214-231-0170
TX	Dallas, Economy Gauge & Instr. Supp.	214-243-8370
TX	Garland, Metermaster	214-271-5671
TX	Houston, Quality Instr.	713-524-0528
TX	Houston, E.I.L. Instrs.	713-271-3100
UT	North Salt Lake, Western Controls	801-292-5900
VA	Alexandria, E.I.L. Instrs.	703-354-4330
VA	Virginia Beach, E.I.L. Instrs.	804-499-3746
WA	Seattle, Eicher-Richards	206-523-7888
WA	Seattle, Branom Instr.	206-762-6050
WA	Seattle, E.I.L. Instrs.	206-762-0880

ANALOGIC CORP., Data Conversion Prods. Grp., Audubon Rd., Wakefield, MA 01880, Tel: 617-246-0300, Telex: 94-9307, TWX: 710-348-0425; *Sls. Mgr.:* Leonard D. Sacon .... **3**•1140, 1141

Local Sales Offices & Reps

AZ	Scottsdale, Arcom Sls., Inc.	602-947-5745
CA	Carson, AMASCO	213-516-8561
CA	San Jose, Analogic Corp.	408-247-6401
CA	Sunnyvale, AMASCO	408-733-8690
CO	Denver, Westek Data Prods., Inc.	303-232-2250
CT	Portland, BBI	203-342-0648
GA	Atlanta, Beacon Elctrns. Assoc.	404-256-9640
IL	Rosemont, Synmark Sls. Co.	312-825-3455
MA	Holbrook, McLellan Assocs.	617-767-4771
MI	Livonia, Lowell-Wendt Mktg. Co.	313-464-2722
MO	St. Louis, Engrg. Svcs. Co.	314-997-1515
NJ	Montville, PAF Assocs.	201-335-0680
NY	Smithtown, PAF Assocs.	516-360-0940
OH	Cincinnati, Analogic Corp.	606-371-0064
OH	Dayton, Midwest Mktg. Assocs.	513-433-2511
PA	Ambler, Denco Data Equip. Corp.	215-542-9876
TX	Dallas, Norcom	214-386-4888

ANALOG MODULES, INC., 126 Baywood Avenue, Longwood, FL 32750, Tel: 305-339-4356/4355, Telex: ANALOG MOD C1 467617; FSC No.: 61651; Empl.: 20; *Sls. Mgr.:* Ian D. Crawford .... **3**•1004

ANALOG SYSTEMS, P.O. Box 35879, Tucson, AZ 85740-5879, Tel: 602-293-4923, TWX: 910-952-1185; FSC No.: 58976; Empl.: 13; *Sls. Mgr.:* Sharon Raban; *Dist. Mgr.:* Julie Kosmata

ANALOG TECHNOLOGY CORP., 15859 E. Edna Pl., Irwindale, CA 91706, Tel: 213-960-4004, TWX: 910-584-1855; *Sls. Mgr.:* James L. Lawrence, Jr.

ANALYTICAL MEAS., 31 Willow St., Chatham, NJ 07928, Tel: 201-273-7500; Empl.: 35

ANALYTICS COMMUNICATIONS SYS., 1820 Michael Faraday Dr., Reston, VA 22090, Tel: 703-471-0892, Telex: 710-833-0326; Empl.: 35; *Sls. Mgr.:* Paul G. Jones

ANAREN MICROWAVE, P.O. Box 178, 6635 Kirkville Rd., E. Syracuse, NY 13057, Tel: 315-432-8909, Telex: 937351, TWX: 710-541-1507; FSC No.: 31597; Empl.: 310

ANCHOR SPECIALTY MFG. INC., 300 Hollister Rd., Teterboro, NJ 07608, Tel: 201-288-1939; Empl.: 10

AN/COM INDUSTRIES, P.O. Box 530, 5521 Cleon Ave., N. Hollywood, CA 91603, Tel: 818-769-5518, TWX: 910-498-5713; *Sls. Mgr.:* E. J. Wubben; *Dist. Mgr.:* E. J. Wubben

AND, 770 Airport Blvd., Burlingame, CA 94010, Tel: 415-347-9916, TWX: 910-374-2353; Empl.: 30; *Sls. Mgr.:* Dean Ransom .... **1B**•1023-1025

Local Sales Offices & Reps

AL	Huntsville, Currie, Peak, Frazier	205-536-1506
AZ	Tempe, Foley, Tallent & Lee	602-438-1564
AR	Little Rock, J. Y. Schoonmaker	501-375-2168
CA	Burlingame, William J. Purdy	415-347-7701
CA	Costa Mesa, Berman-Gravely Co.	714-549-2122
CO	Denver, William J. Purdy	303-777-1411
CT	Hartford, Sturgeon Co.	203-249-7800
FL	Orlando, Currie, Peak, Frazier	305-855-0843
IL	Elmhurst, Hill-Gray Assocs.	312-832-4101
MD	Baltimore, S. K. MacDonald	301-924-5880
MA	Needham Heights, Sturgeon Co.	617-444-6603
MI	Detroit, R. P. Urban Assoc.	313-535-2355
MI	Grand Rapids, R. P. Urban Assoc.	616-245-0511
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
MO	Grandview, Harris-Hanson	816-763-6200
MO	St. Louis, Harris-Hanson	314-432-3611
NJ	Englewood, Harold Gray Assocs.	201-894-0894
NM	Albuquerque, William J. Purdy	505-266-7959
NY	Syracuse, Paston-Hunter Co.	315-437-2843
NC	Greensboro, Currie, Peak, Frazier	919-273-3040
OH	Columbus, McFadden Sls.	614-459-1280
OR	Beaverton, W. J. Purdy Co.	503-641-9373
PA	Philadelphia, Samuel K. MacDonald	215-545-1205
TX	Austin, J. Y. Schoonmaker	512-467-8809
TX	Dallas, J. Y. Schoonmaker	214-349-1650
TX	Houston, J. Y. Schoonmaker	713-738-2427
UT	Salt Lake City, W. J. Purdy Co.	801-486-8557
WA	Seattle, William J. Purdy	206-284-8020

Local Distributors

CA	Burlingame, Rose Elctrn.	415-348-2740
CA	Chatsworth, Panel Parts Co.	213-998-5991
CA	Sacramento, Dunlap Elctrns.	916-442-5801
CA	Sacramento, Zackit	916-446-3131
CA	San Diego, Pro-Am	619-274-4120
CA	Santa Clara, Waltronic Sls.	408-727-1200
CA	Sunnyvale, Sierra West Elctrns.	408-747-1188
CA	Van Nuys, Patane Avionics	213-988-4455
CO	Denver, Denver Wintronics	303-934-2406
CO	Denver, Integrated Elctrns.	303-534-6121
CT	Stratford, Utronics	203-378-4201
CT	Wallingford, Sager Electrical Supp.	203-265-4600
FL	Miami, ESL Elctrn. Distr.	305-633-6973
HI	Honolulu, Honolulu Elctrns.	808-949-5564
IL	Chicago, Newark/Chicago	312-638-4411
IL	Rosemont, Advent Elctrns.	312-298-4210
MA	Lynn, Land Elctrn. Supp.	617-592-2220
MI	Farmington Hills, Advent Elect.	313-447-1650
MN	Minneapolis, Elctrn. Center	612-371-5200
MN	Minneapolis, The Joel Co.	612-545-5669
NJ	Cranford, Garden State Elect.	201-272-6400
NY	Buffalo, Genessee Radio & Parts Co., Inc.	716-873-9661
NY	East Syracuse, ADD Elctrns.	315-437-0300
NY	Farmingdale, Midway Indl. Elctrns. Inc.	516-293-6800
NY	Rochester, Simcona	716-328-3230
NY	Rome, Rome Elctrns.	315-337-5400
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Warren, REM Elect.	216-373-1300
OR	Beaverton, Almac/Stroum	503-641-9070
OR	Lake Oswego, Rose Elctrns.	503-635-8823
PA	Drexel Hill, Kass Elect.	215-449-2300
PA	Philadelphia, Almo Elctrns.	215-698-4000
TX	Fort Worth, Allied Elctrns.	817-336-5401
TX	Richardson, Southwest Elect.	214-234-3050
TX	Stafford, Southwest Elctrns.	713-491-4900
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
WA	Bellevue, Integrated Elctrns.	206-455-2727
WA	Bellevue, Almac/Stroum	206-643-9992
WA	Seattle, United Products	206-682-5025
WI	Milwaukee, Industrial Elect.	414-276-1212

ANDERS, INC., 77 Wolcott Rd., Simsbury, CT 06070, Tel: 203-658-7666; FSC No.: 52045; Empl.: 18; *Sls. Mgr.:* R. A. Grover

ANDERSEN LABS., 1280 Blue Hills Ave., Bloomfield, CT 06002, Tel: 203-242-0761, TWX: 710-425-2390; FSC No.: 03947; Empl.: 125; *Sls. Mgr.:* Donald Lowcavage .... **1A**•1450

Local Sales Offices & Reps

AL	Huntsville, Beacon	205-881-5031
AR	Little Rock, Beacon	501-224-5449
CA	Mountain View, Peninsula Tech. Sls.	415-965-3636
CA	Sherman Oaks, Midwin & Olifson	213-996-9093
FL	Clearwater, Beacon	813-796-2378
FL	Ft. Lauderdale, Beacon	305-491-1054
FL	Maitland, Beacon	305-647-3498
FL	Melbourne, Beacon	305-724-8010
GA	Atlanta, Beacon	404-256-9640
IL	Northfield, Feller Assocs.	312-446-8065
IA	Cedar Rapids, Feller Assocs.	319-364-0566
MD	Randallstown, Beacon	703-591-1300
MA	Wayland, High-Tech Sls.	617-653-3838
NY	Melville, Carnes Assocs.	516-694-1600
NC	Greensboro, Beacon	919-275-9997
PA	Huntingdon Valley, Rabal Assoc.	215-947-4825
TN	Johnson City, Beacon	615-282-2421
TX	Fort Worth, McDonald Assocs.	817-429-4272
VA	Fairfax, Beacon North	703-591-1300

ANDERSON ELCTRNS., 310 Penn St., P.O. Box 89, Hollidaysburg, PA 16648, Tel: 814-695-4428, TWX: 510-691-2516; Empl.: 85; *Sls. Mgr.:* W. H. Anderson .... **1A**•1313

Local Sales Offices & Reps

AZ	Scottsdale, Fryco	602-945-3281
CA	Fullerton, GRU Assocs.	714-738-0903
CA	Santa Clara, Logan Sls	408-496-0660
GA	Lawrenceville, B. T. Funderburk, Inc.	404-963-9495
IL	South Elgin, R.K. Elctrn.	312-695-8552
IN	Indianapolis, Wilson Techn. Sls.	317-259-4032
MA	Plymouth, Newby, Inc.	617-746-3869
MI	Lathrup Village, R. C. Nordstrom & Co.	313-559-7373
NY	Smithtown, Long Island, PAF Assocs.	516-360-0940
NC	Apex, Wolff's Elctrn Sls.	919-362-5022
OH	Dayton, Dynel Co.	513-434-6467
OR	Hillsboro, Western Techn. Sls.	503-640-4621
PA	Rydal, Espy Sls.	215-576-0780
TX	Plano, GW Prods.	214-422-1746
WA	Bellevue, Western Techn. Sls.	206-641-3900

ANDERSON POWER PRODS., Div. of High Voltage Engrg., 145 Newton St., Boston, MA 02135, Tel: 617-787-5880, Telex: 940453; *Sls. Mgr.:* Robert G. Maxwell; *Dist. Mgr.:* Robert G. Maxwell

ANDREW CORP., 10500 W. 153rd St., Orland Pk., IL 60462, Tel: 312-349-3300, Telex: 25-3897, TWX: 910-651-3340; *Sls. Mgr.:* Carl Van Hecke

ANDRICH SYS., INC., 1699 Roosevelt Ave., Bohemia, NY 11716, Tel: 516-589-5656; *Sls. Mgr.:* Robert G. Andrews

ANDROMEDA SYS., 9000 Eton Ave., Canoga Park, CA 91304, Tel: 818-709-7600, TWX: 910-444-1248; Empl.: 23; *Sls. Mgr.:* Mike Morgan; *Dist. Mgr.:* J. William Graham

ANDROTEK/DMI, Box 29098, Columbus, OH 43229, Tel: 614-882-7821; *Sls. Mgr.:* James M. Shively

ANGENIEUX INC., 120 Derry Rd., Hudson, NH 02051, Tel: 603-889-2116, Telex: 94-3469; *Sls. Mgr.:* Edward A. Wollensak

ANGO ELECTRONICS CORP., Post Office Box 112, Harrison, NJ 07029, Tel: 212-685-6336, 201-483-7116, Telex: 421531; *Sls. Mgr.:* Brian K. Yuen .... **2**•1008

ANN ARBOR TERMINALS, 6175 Jackson Rd., Ann Arbor, MI 48103, Tel: 313-663-8000, TWX: 810-223-6033; Empl.: 50; *Sls. Mgr.:* Gary DeLuca

ANORAD CORP., 110 Oser Ave., Hauppauge, NY 11788, Tel: 516-231-1990, TWX: 510-227-9894; Empl.: 200

ANRO ELCTRN. INDS., 300 Wildcat Rd., Downsview, ON , Canada, Tel: 416-661-2600; Empl.: 85; *Sls. Mgr.:* E.H. Jones

ANSLEY ELECTRONICS, DIVISION OF THOMAS & BETTS, See Thomas & Betts

ANTENNACRAFT, Box 1005, Burlington, IA 52601

ANTENNA RESCH. ASSOCS., 11317 Frederick Ave., Beltsville, MD 20705, Tel: 301-937-8888, Telex: 908754; Empl.: 25; *Sls. Mgr.:* H.W. Rapalus

ANTENNA SPECIALISTS, 12435 Euclid Ave., Cleveland, OH 44106, Tel: 216-791-7878, Telex: 980-732, TWX: 810-421-8149; Empl.: 1000; *Sls. Mgr.:* Patti Fritz

ANTEX DIV., 7 Hawkes St., Marblehead, MA 01945, Tel: 617-631-7100; *Sls. Mgr.:* C. Loutrel; *Dist. Mgr.:* C. Loutrel

ANTONA CORP., 13600 Ventura Blvd.,, Sherman Oaks, CA 91423, Tel: 213-986-6651

ANTRONIC CORP., 7755 E. Redfield Rd., Ste. 300, Scottsdale, AZ 85260, Tel: 312-287-5110

APAHOUSER-ELCOM, INC., 101 Walnut St., Watertown, MA 02172, Tel: 617-924-1500; FSC No.: 53721; Empl.: 90; *Sls. Mgr.:* Fred Gately

APA DIVISION, 399 Executive Blvd., Elmsford, NY 10523, Tel: 914-592-7322, Telex: 646186; *Sls. Mgr.:* Carl Gruenberg ....2•1924

Local Distributors

AZ	Phoenix, Scottsdale Tool & Supply	602-273-7376
AZ	Tempe, Marshall Claude Michael	602-894-2188
CA	El Monte, Marshall Claude Michael	213-442-7204
CA	Fullerton, Bertech	714-526-3700
CA	Irvine, Marshall Claude Michael	714-556-6500
CA	Sunnyvale, Marshall Claude Michael	408-739-8720
CA	Sunnyvale, Com-Kyl	408-734-9660
CO	Denver, Marshall Claude Michael	305-841-1878
FL	Clearwater, Tartan Tools	813-447-5364
GA	Norcross, Marshall Claude Michael	404-925-1895
IL	Chicago, McMaster-Carr Supp.	312-834-9600
IL	Chicago, EMF Co. Inc.	312-889-8323
IL	Chicago, Addison Int'l Soldering Sy. Inc.	312-628-8083
IL	Hillside, Miltex Sls. Co.	312-449-0420
MA	Burlington, Marshall Claude Michael	617-272-1234
MI	Royal Oak, Murray Percival Co.	313-548-1971
MN	Excelsior, Tonka Elctrn. Supp.	612-474-5414
NJ	Fairfield, Marshall Claude Michael	201-882-0320
NJ	Mt. Laurel, Marshall Claude Michael	609-778-8720
NM	Alberquerque, Betatron Elctrns.	505-344-2381
NY	Hauppauge, Marshall Claude Michael	516-273-1515
OR	Portland, Murphy Indl. Supp.	503-620-8680
OR	Portland, MPI Assocs.	503-641-6624
TX	Dallas, Marshall Claude Michael	214-233-7650
TX	Dallas, Roy E. Davis Co.	214-688-0652
TX	Houston, Specialized Prods.	713-995-0595
UT	Salt Lake City, Indl. Supp.	801-484-8644
Can	Markham, ON, Brock Elctrns. Ltd.	416-294-8080

A. P. CIRCUIT CORP., 513 East 86th St., P.O. Box 1350, New York, NY 10028, Tel: 212-737-1348, Telex: 428759 ....1A•1585

Local Sales Offices & Reps

MI	Detroit, Comtel Instrs.	313-255-1970
OH	Cleveland, Comtel Instrs.	216-442-8080
OH	Dayton, Comtel Instrs.	513-298-7573

APEX MICROTECHNOLOGY CORP., 1130 E. Pennsylvania St., Tucson, AZ 85714, Tel: 602-746-0849, TWX: 910-952-1176; Empl.: 30; *Sls. Mgr.:* Rita Olschewski; *Dist. Mgr.:* Rita Olschewski ....3•1005

Local Sales Offices & Reps

CA	Los Altos, Kolm Mktg.	415-948-2635
CA	San Diego, California Elctrn. Mktg.	619-692-3551
CA	Santa Ana, California Elctrn. Mktg.	714-835-2702
CO	Denver, W. H. Howard Assocs.	303-426-3499
IL	La Grange Park, Bierhaus Sls.	312-354-5100
IN	Indianapolis, J & B Sales	219-483-2813
MD	Ellicott City, Nelson Elctrns.	301-747-7887
MA	Malden, J.K. Assocs.	617-321-2922
MN	Bloomington, Merril Franklin Co.	612-854-9446
NJ	Upper Saddle River, Bob Cameron Assocs., Inc.	201-825-1304
NY	Smithtown, T & K Sls.	516-724-3456
OH	Fort Wayne, TX Sales	219-489-4447
PA	Pittsburgh, Covert & Newman Co.	412-531-2002
TX	Dallas, Repmasters	214-247-6236
TX	Houston, Repmaster	713-692-8204
WI	Elm Grove, Bierhaus Sls.	414-963-0318

Local Distributors

Intl	Finland, Helsinki, Turion Oy	90-372144
Intl	France, Orsay, Microel	907-08-24
Intl	Germany, Nauheim, Emtron Vertriebs GmbH	(06152) 6003
Intl	India, Bombay, Elmatronic Dvs.	362421
Intl	Israel, Giuataim, EIM	03-77-40-41
Intl	Italy, Milan, Disprel	02-284-0539
Intl	Japan, Tokyo, Kyokuto Boeki Kaisha	244-3511
Intl	Netherlands, Oosterhout, Klaasing Elctrns.	01620-51400
Intl	Norway, Oslo, Eltron	02-462-870
Intl	South Africa, Johannesburg, Advanced Semiconductor	27/11802-4107
Intl	Sweden, Stockholm, Scancopter AB	046-828-9425
Intl	Switzerland, Zug, Anatech AG	042-315-477
Intl	Taiwan, Taipei, Hitek Co. Ltd.	536-1157
Intl	UK, Sunbury-on-Thames, Pascall Elctrns.	09327-87418

API INSTRS., 1601 Trapelo Rd., Waltham, MA 02254, Tel: 617-890-2000, Telex: 92-3445, TWX: 710-324-0681; FSC No.: 20905; Empl.: 350; *Sls. Mgr.:* R. Yates; *Dist. Mgr.:* G. Wood

APM-HEXSEAL, 44 Honeck St., Englewood, NJ 07631, Tel: 201-569-5700, Telex: 13-3403; Empl.: 80; *Sls. Mgr.:* Riva Solins; *Dist. Mgr.:* Riva Solins

APOLLO LASERS, INC., 9201 Independence Ave., Chatsworth, CA 91311, Tel: 213-709-1111, Telex: 66-2278; Empl.: 82; *Sls. Mgr.:* John Q. Adams

APOLLO MAGNETICS CORP., 2720 W. Beverly Rd., Los Angeles, CA 90057, Tel: 213-381-2500, TWX: 910-321-4348; Empl.: 420 ....3•1069

Local Sales Offices & Reps

CT	Stratford, Gerald Rosen	203-375-5456
MA	Framingham, Gerald Rosen	617-879-5505
NH	Hollis, Gerald Rosen	603-465-7902
NY	Rochester, J. W. Welch	716-244-1100
NY	Utica, J. W. Welch	716-244-1100
OK	Oklahoma City, MGR Elctrns.	918-366-0125
TX	Dallas, MGR Elctrns.	214-349-9940

APPLETON PAPERS INC., P.O. Box 359, Appleton, WI 54912, Tel: 414-734-9841 ....3•1070

APPLIED CIRCUITS, INC., 36-06 43rd. Ave., Long Island City, NY 11101, Tel: 212-786-7200; Empl.: 20

APPLIED CIRCUIT TECHNLG. (ACT), 2931 La Jolla St., Anaheim, CA 92806, Tel: 714-632-9230; *Sls. Mgr.:* Hank Pselos

APPLIED COMMUNICATIONS, Amstar Tech. Prods. Co., 9125 Gaither Rd., Gaithersburg, MD 20877, Tel: 301-948-5210, TWX: 710-828-9706; Empl.: 200; *Sls. Mgr.:* Joseph Rock

APPLIED COMMUNICATIONS, 9125 Gaither Rd., Gaithersburg, MD 20877, Tel: 301-948-5210, TWX: 701-828-9706; Empl.: 200; *Sls. Mgr.:* Joseph Rock

APPLIED CONTROL, 1275 Bloomfield Ave., Fairfield, NJ 07006-2828, Tel: 201-227-5454; FSC No.: 4A725; Empl.: 26; *Sls. Mgr.:* Monica E. Merel

APPLIED DATA COMMUNICATIONS, 14272 Chambers Rd., Tustin, CA 92680, Tel: 714-731-9000; Empl.: 75

APPLIED DIGITAL DATA SYSTEMS INC., 100 Marcus Blvd., Hauppauge, NY 11787, Tel: 516-231-5400, TWX: 510-227-9886; Empl.: 760; *Sls. Mgr.:* Dennis O'Donnell

APPLIED ELECTRO TECHNOLOGY, INT.
AN Sti COMPANY

APPLIED ELECTRO TECHNLG., INT., STI Company, 2220 So. Anne St., Santa Ana, CA 92704, Tel: 714-556-6570, TWX: 910-595-1797; FSC No.: 52797; Empl.: 25; *Sls. Mgr.:* Deborah Core ....1B•1293

Local Sales Offices & Reps

CA	Mountain View, Scientific Technlg.	415-965-0910
OR	Eugene, Dennis Ellingsen	503-484-5564
TX	Richardson, Dwain Lawhon	214-231-2289

APPLIED ENGRG. PRODS., P.O. Box A-D, Amity Sta., New Haven, CT 06525, Tel: 203-387-5282, TWX: 710-465-1173; FSC No.: 19505; Empl.: 65; *Sls. Mgr.:* C. Goff; *Dist. Mgr.:* C. Goff

APPLIED INSTRS., INC., 25 Will Place, Brooklyn, NY 11207, Tel: 212-257-0885; *Sls. Mgr.:* I. L. Litty

APPLIED MAGNETICS, 75 Robin Hill Rd., Goleta, CA 93117, Tel: 805-683-5353, TWX: 910-334-1195; FSC No.: 11935; Empl.: 4000; *Sls. Mgr.:* O. M. Fundingsland

APPLIED MICRO TECHNLG., A Burr Brown Co., 2430 N. Hauchuca, Ste. A, Tucson, AZ 85745, Tel: 602-622-8605, TWX: 910-952-1164; Empl.: 15; *Sls. Mgr.:* Lee Davis

APPLIED MICROWAVE DIV. EPSCO, See Epsco Microwave

APPLIED RESEARCH INC., 160 Dupont St., Plainview, NY 11803, Tel: 516-349-9200; Empl.: 50; *Sls. Mgr.:* S. Klipper ....1A•1686, 1687

Local Sales Offices & Reps

CA	Los Angeles, EBA Microwave	213-822-7510
CA	Orange, E. Bell Assocs.	714-857-6079
MA	Lowell, Russell Engrg.	617-458-7146
NY	Great Neck, Industron Assocs.	516-487-2620

Applied
Solar
Energy
Corporation

APPLIED SOLAR ENERGY CORP., Photosensor Div., 15251 E. Don Julian Rd., City of Industry, CA 91749, Tel: 818-968-6581, TWX: 910-584-4890; Empl.: 160; *Sls. Mgr.:* George Pankau ....1B•1211

Local Sales Offices & Reps

CA	Lomita, Component Mkt. Assoc.	213-326-1460
CA	Mountain View, Weseloh Swanson	415-961-0565
CT	Hartford, Sturgeon Co.	203-249-7800
GA	Stone Mountain, Dixie Tech.	404-962-2530
IL	Chicago, Hill Sls.	312-541-0661
MA	Needham, Sturgeon Co.	617-444-6603
MI	Brooklin, Engineered Comps.	517-592-3236
MN	Minneapolis, Furber Sales	612-881-3620
OH	Centerville, Engrg. Mktg. Assocs.	513-433-2800
PA	Lancaster, Supra Tech.	717-569-0243

APPLIED SYS., 26401 Harper Ave., St. Clair Shores, MI 48081, Tel: 313-779-8700; Empl.: 15; *Sls. Mgr.:* Marty Wyrod

AP PRODUCTS
INCORPORATED

A P PRODUCTS INCORPORATED, 9450 Pineneedle Dr., Box 540, Mentor, OH 44060, Tel: 216-354-2101, TWX: 810-425-2250; Empl.: 84; *Sls. Mgr.:* Kathy M. Dusa ....2•1900, 1901

Local Sales Offices & Reps

AZ	Tempe, Electronic Development & Sls.	602-829-9699
AR	Little Rock, Erickson Sls.	501-225-7379
CA	Anaheim, Westrep	714-527-2822
CA	Los Altos, Ewing-Foley, Inc.	415-941-4525
CA	San Diego, D² Sales, Inc.	619-560-6266
CO	Englewood, Computech Mktg.	303-773-3981
FL	Clearwater, Hutto-Hawkins-Peregoy	813-797-4447
FL	Ft. Lauderdale, Hutto-Hawkins-Peregoy	305-971-5750
FL	Maitland, Hutto-Hawkins-Peregoy	305-831-2474
GA	Roswell, Henry W. Philips Co.	404-992-3070
IL	Lombard, RMP/McBride Corp.	312-932-9090
IN	Indianapolis, M & L Elctrn. Sls.	317-359-4742
LA	Chalmette, Erickson Sls.	504-271-1976
MA	Norwood, MacInnis Co.	617-762-8090
MN	Minneapolis, Donald Luger & Assocs.	612-553-1122
MO	Blue Springs, Kathrinus Kelly Baumhauer	816-229-0001
MO	St. Louis, Kathrinus Kelly Baumhauer	314-647-2400
NJ	Englewood, ABS Assocs.	201-871-0020
NJ	Medford, Champion Elctrn. Sls.	609-983-0932
NY	Buffalo, R. W. Mitscher Co.	716-633-7970
NC	Matthews, Henry W. Phillips Co.	704-882-2878
OH	Dayton, Shamrock Elctrn. Sls.	513-258-1227
OH	Mentor, K. W. Braund Co.	216-255-2334
OK	Oklahoma City, Erickson Sls.	405-682-2947
OR	Portland, Dussault & Assocs. Inc.	503-641-8540
TX	Austin, Erickson Sls.	512-244-3068
TX	Dallas, Erickson Sls.	214-739-5833
TX	Houston, Erickson Sls.	713-980-9609
UT	Salt Lake City, Meridian Mktg.	801-968-4177
WA	Seattle, Dussault & Assocs. Inc.	206-527-5454
WI	Colgate, Rep 1 & Assocs.	414-628-4016

Local Distributors

AL	Birmingham, Ack Radio Supp. Co.	205-322-0588
AZ	Phoenix, Arizona Comps. Co.	602-269-5655
AZ	Phoenix, Tri-Tek	602-995-9352
CA	Burlingame, Rose Elctrn. Dist.	415-348-2740
CA	Chatsworth, Priority One Elctrns.	213-709-5464
CA	Concord, Pacific Radio Supp.	415-682-4700
CA	El Monte, Marshall Inds.	213-442-7204
CA	Laguna Hills, M P Systems	714-770-6411
CA	Mountain View, Haltek Elctrns.	415-969-0510
CA	Palo Alto, Zack Elctrns. of Palo Alto	415-326-5432

CA	Redwood City, HDB Elctrns.	415-368-1388
CA	San Diego, Mock III Sls. Co.	619-560-0515
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	San Jose, Advanced Computer	408-946-7010
CA	San Jose, Ratel Elctrns.	408-946-4300
CA	San Jose, Quement Elctrns.	408-998-5900
CA	Santa Clara, R.G.B. Electro-Industrial	408-980-1300
CA	Santa Clara, Quest Elctrns.	408-988-1640
CA	Santa Clara, Anchor Elctrns.	408-727-3693
CA	Sun Valley, Richey Western	213-768-3800
CA	Sunnyvale, Sunnyvale Elctrns.	408-736-1324
CO	Colorado Springs, Centennial Elctrns.	303-633-4666
CO	Denver, Integrated Elctrns.	303-292-6121
CT	Danbury, Pilgrim Elctrns.	203-792-7274
CT	East Hartford, E. J. Stephens Inc.	203-568-1927
CT	Hartford, Hatry Elctrns.	203-527-1881
CT	New Haven, Hatry Elctrns.	203-787-5921
CT	New London, Jan Elctrn. Supplies	203-442-4386
CT	New London, Aikens Elctrn.	203-442-4406
CT	Norwalk, Park Distributors	203-853-2010
CT	Old Lyme, Electronics Warehouse	203-434-8308
CT	Stratford, Hatry Elctrns.	203-375-5886
CT	West Hartford, Signal Elctrn. Ctr.	203-233-8551
FL	Ft. Lauderdale, Southeastern Elect.	305-563-4131
FL	Melbourne, H.I.S. Computermation Inc.	305-254-9399
FL	Miami, Electronic Equip.	305-871-3500
FL	Orlando, Hammond Elctrns.	305-849-6060
FL	Orlando, Sun Elctrn. Supp. Inc.	305-841-4650
FL	W. Palm Beach, Nurmi Elctrn. Supp.	305-686-8553
GA	Atlanta, Atlanta Computer Mart	404-455-0647
GA	Atlanta, Ack Radio Supp. Co.	404-351-6340
IL	Champaign, Klaus Radio, Inc.	217-356-1896
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Chicago, Semiconductor Specialists	312-279-1000
IL	Mt. Prospect, Tri State Elect. Corp.	312-255-0600
IL	Niles, Joseph Elctrns., Inc.	312-297-4200
IL	Rosemont, Advent Elctrns.	312-298-4210
IN	Evansville, Ohio Valley Sound, Inc.	812-425-6173
IN	Fort Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Pioneer/Indiana	317-849-7300
IN	Indianapolis, Graham Elctrns.	317-634-8202
IA	Cedar Rapids, Deeco	319-365-7551
KY	Louisville, Peerless Elctrn. Equip. Co.	502-637-7677
LA	New Orleans, Wm. B. Allen Supp. Co., Inc.	504-525-8222
MD	Aberdeen, Harco Elctrns., Inc.	301-838-7990
MD	Rockville, Capitol Radio Wholesalers	301-881-2270
MA	Burlington, Contact East	617-272-5051
MA	Lowell, Frank P. McCartin Co.	617-454-9101
MA	Lowell, A B Company	617-452-6120
MA	Needham, YDI Elctrn. Corp.	617-449-1005
MA	Needham, Cronin Elctrns.	617-449-0500
MA	Newton, In-Stock Products Co.	617-964-6200
MA	Newton, Greene-Shaw Co.	617-969-8900
MA	Somerville, Solid State Sls.	617-547-7053
MA	Westboro, Future Elctrns. Corp.	617-366-2400
MA	Wilmington, R C Components	617-273-1860
MA	Woburn, Pacer Elctrns.	617-935-8330
MA	Worcester, RM Elctrns.	617-756-8311
MI	Livonia, RS Elctrns.	313-525-1155
MI	Westland, Westland Elctrns.	313-728-0650
MN	Burnsville, Electronic Tool Supp.	612-894-3700
MN	Minneapolis, Acme Elctrns.	612-338-4754
MN	St. Paul, Ragon Elctrns.	612-642-2828
MN	Thief River Falls, Digi-Key Corp.	800-346-5144
MO	Columbia, Alpha Labs	314-874-1514
MO	St. Louis, Van Sickle Radio	314-621-5000
MO	St. Louis, Olive Elctrns.	314-426-4500
NH	Hudson, C & H Elctrns.	603-882-1133
NH	Manchester, Yankee Elctrns.	603-625-9746
NJ	Camden, General Radio Supp.	609-964-8560
NJ	East Brunswick, Brothers Elctrns.	201-238-2200
NJ	East Hanover, State Elctrns. Parts	201-887-2550
NJ	Greenbrook, Greenbrook Elect.	201-968-3500
NJ	Kenilworth, Federated Purchaser	201-272-0505
NJ	Rahway, R.S.R./Elctrns.	201-381-8777
NJ	Springfield, Route Elctrns.	201-467-0166
NM	Albuquerque, Electronic Devices Co.	505-884-2950
NY	Astoria, S. L. Jack	212-545-8843
NY	Bohemia, Car Lac Elctrns.	516-567-4200
NY	Buffalo, Summit Distributors	716-887-2800
NY	Hempstead, Davis Elctrns. Corp.	516-483-9200
NY	Mamaroneck, Logicomp Elctrns.	914-698-9332
NY	Plainview, ACI Elctrns. Corp.	516-293-6630
NY	Pleasantville, Electronic Tool Co.	914-769-8070
NY	Rochester, Compuworld	716-473-5790
NY	Rochester, Rochester Radio Supp.	716-454-7800
NY	Schenectady, Grimmer's Elect. Supp.	518-374-8480
NY	Troy, Trojan Elctrn. Supp.	518-274-4481
NY	Yorktown Hts., ABL Elctrn. Supp.	914-962-2253
OH	Cincinnati, United Radio	513-761-4030
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Englewood, Argent/Electra	513-836-8633
OH	Reynoldsburg, Hydun Lab Assocs.	614-861-7779
OR	Beaverton, Norvac Elctrns.	503-644-1025
PA	Allentown, P. A. Peters, Inc.	215-434-5237
PA	Colmar, A. B. Computers	215-822-7727
PA	Drexel Hill, Kass Elctrns.	215-449-2300
PA	Philadelphia, Almo Elctrns. Corp.	215-698-4000
PA	Reading, Barbey Elctrns.	215-376-7451
PA	York, Alvo Elctrns.	814-238-0506
PA	York, E.C.I. Inc.	717-843-8971
RI	Pawtucket, Major Elctrn. Supp.	401-724-7100
RI	Pawtucket, Jabbour Elctrn. Supplies	401-728-4600
SC	Columbia, Dixie Elctrns.	803-779-5332
TN	Chattanooga, Curle Elctrns.	615-266-4727
TN	Nashville, Eddie Warner's, Inc.	615-254-1224
TX	Dallas, Specialized Prods. Co.	214-358-4663
TX	Dallas, Pioneer/Dallas	214-386-7300
TX	Dallas, Redco	214-688-0652
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Fort Worth, Allied Elctrns.	817-336-5401
UT	Salt Lake City, Kimball Elctrns.	801-328-2075
UT	Salt Lake City, Standard Supply Co.	801-486-3371
VT	Essex Junction, I.E.S. Elctrns. Inc.	802-878-5369
VA	Annandale, Arcade Elctrns.	703-256-4610
VA	Arlington, Arlington Elctrn. Wholesalers	703-524-6256
VA	Fairfax, Nine Assocs.	703-273-1803
WA	Bellevue, Integrated Elctrns.	206-455-2727
WA	Seattle, Radar Elec. Co.	206-282-2511
WA	Seattle, United Products	206-682-5025
WI	Madison, Schrenk Sls. Co.	608-255-7400
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Milwaukee, Industrial Elctrns.	414-276-1212
WI	Oshkosh, Electronic Inds.	414-235-8930

APTEK MICROSYSTEMS, INC., Hillsboro Plaza, 700 N.W. 12th Ave., Deerfield Beach, FL 33441, Tel: 305-421-8450, Telex: 441020; Empl.: 250; *Sls. Mgr.:* Joseph F. Centeno

APT APTRONICS
CORPORATION

APTRONICS CORPORATION, 9450 Pineneedle Dr., P.O. Box 270, Mentor, OH 44060, Tel: 216-354-9239, TWX: 810-425-2250; FSC No.: 30146; *Sls. Mgr.:* Phillip F. Fram; *Dist. Mgr.:* Debra L. Kardum .... **2**•1160, 1161

Local Sales Offices & Reps

AL	Huntsville, Electronic Sls.	205-533-1735
AZ	Tempe, Electronic Dev. & Sls.	602-438-1547
AR	Little Rock, Erickson Sls.	501-225-7379
CA	Anaheim, Westrep	714-527-2822
CA	Mountain View, Brooks Tech. Grp.	415-960-3880
CA	San Diego, D^{2}'Sales	619-560-6266
CA	Santa Clara, Ross Mktg. Assocs.	408-988-8111
CO	Denver, West Inc.	303-692-0131
FL	Ft. Lauderdale, Interface Dynamics	305-565-5075
GA	Norcross, Electronic Sls.	404-448-6554
IL	Lombard, RMP/McBride Corp.	312-932-9090
IN	Indianapolis, M & L Elctrn. Sls., Inc.	317-359-4742
LA	Chalmette, Erickson Sls.	504-271-1976
MA	Burlington, Omni-Rep	617-938-0039
MI	St. Joseph, I. E. Hampton & Assocs.	616-983-0862
MO	Blue Springs, Kathrinus-Kelly-Baumhauer	816-229-0001
MO	St. Louis, Kathrinus-Kelly-Baumhauer	314-647-2400
NJ	Englewood, ABS Assocs.	201-871-0020
NJ	Medford, Champion Elctrn. Sls. Co.	609-983-0932
NY	Buffalo, R. W. Mitscher Co.	716-633-7970
OH	Rocky River, Norm Case Assocs.	216-333-0400
OK	Oklahoma City, Erickson Sls.	405-682-2947
TX	Austin, Erickson Sls.	512-445-2952
TX	Dallas, Erickson Sls.	214-739-5833
TX	El Paso, Epec, Inc.	915-593-8481
TX	Houston, Erickson Sls.	713-980-9606
UT	Salt Lake City, West, Inc.	801-466-2888
WA	Seattle, ECCO Mktg.	206-364-0200

Local Distributors

AL	Huntsville, Marshall Inds.	205-381-9235
AZ	Phoenix, Arizona Comps.	602-279-9446
AZ	Tempe, Marshall Inds.	602-968-6181
AZ	Tempe, Richey Elctrns.	602-894-9251
CA	Burlingame, Rose Elctrn. Distributing	415-348-2740
CA	Canoga Park, Marshall Inds.	213-999-5001
CA	El Monte, Marshall Inds.	213-442-7204
CA	Fremont, Terminal Sls. Corp.	415-656-7722
CA	Irvine, Marshall Inds.	714-556-6400
CA	Irvine, Ratel Elctrns.	714-549-8611
CA	San Diego, Mock III Sls. Co.	619-560-0515
CA	San Diego, Marshall Inds.	619-578-9600
CA	San Jose, Richey Elctrns.	408-946-6611
CA	San Jose, Ratel Elctrns.	408-946-4300
CA	Sun Valley, Richey Elctrns.	213-768-3800
CA	Sunnyvale, Marshall Inds.	408-732-1100
CO	Denver, Integrated Elctrns.	303-534-6121
CO	Denver, Marshall Inds.	303-427-1818
CT	Danbury, Pilgrim Elctrns.	203-792-7274
CT	Norwalk, Park Distrs.	203-853-2010
CT	Wallingford, Marshall Inds.	203-265-3822
FL	Orlando, Marshall Inds.	305-841-1878
GA	Norcross, Marshall Inds.	404-923-5750
IL	Chicago, Semiconductor Specialists	312-279-1000
IL	Rosemont, Advent Elctrns.	312-298-4210
IL	Schaumberg, Marshall Inds.	312-490-0155
IN	Indianapolis, Pioneer/Indiana	317-849-7300
MD	Gaithersburg, Marshall Inds.	301-840-9450
MA	Burlington, Marshall Inds.	617-272-8200
MA	Newton, In-Stock Products	617-964-6200
MA	Newton Upper Falls, Greene-Shaw Co.	617-969-8900
MA	Westboro, Future Elctrns.	617-366-2400
MA	Wilmington, RC Components	617-273-1860
MN	Minneapolis, Semiconductor Specialists	612-854-8841
MN	Plymouth, Marshall Inds.	612-559-2211
MO	Kansas City, Semiconductor Specialists	816-452-3900
MO	St. Charles, Finnigan Elctrns., Inc.	314-946-6201
NH	Hudson, C & H Elctrns.	603-882-1133
NJ	Camden, General Radio Supp.	609-964-8560
NJ	East Brunswick, Brothers Elctrns.	201-238-2200
NJ	East Hanover, State Elctrns. Parts	201-887-2550
NJ	Fairfield, Marshall Inds.	201-882-0320
NJ	Mt. Laurel, Marshall Inds.	609-234-9100
NY	Bohemia, Car Lac Elctrn. Indl. Sls.	516-567-4200
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Endwell, Marshall Inds.	607-754-1570
NY	Hauppauge, Marshall Inds.	516-273-2424
NY	Mamaroneck, Logicomp Elctrns.	914-698-9332
NY	Rochester, Masline Elctrns., Inc.	716-546-5373
NY	Rochester, Marshall Inds.	716-235-7620
NY	Troy, Trojan Elctrn. Supp.	518-274-4481
NY	Yorktown Hgts., ABL Elctrn. Supp.	914-962-2253
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Dayton, Marshall Inds.	513-236-8088
OK	Tulsa, Norvell Elctrns.	918-663-1247
OR	Portland, Radar Elec. Co.	503-232-3404
PA	Pittsburgh, Semiconductor Specialists	412-963-7241
PA	York, E.C.I., Inc.	717-843-8971
TX	Austin, Norvell Elctrns.	512-458-8106
TX	Dallas, Pioneer/Dallas	214-386-7300
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Dallas, Marshall Inds.	214-233-5200
TX	Houston, Norvell Elctrns.	713-777-1666
TX	Houston, Marshall Inds.	713-789-6600
WA	Bellevue, Marshall Inds.	206-747-9100
WA	Seattle, Radar Elec. Co.	206-282-2511
WA	Seattle, Carlyle Technical Sls.	206-575-6750
WA	Spokane, Radar Elec. Co.	509-747-3053
WI	Milwaukee, Marsh Elctrns.	414-475-6000

A.P.W. CO., 72 W. Main, Rockaway, NJ 07866, Tel: 201-627-0643; Empl.: 18

AQ SYS., 1736 Front St., Yorktown Hgts., NY 10598, Tel: 800-431-2104; Empl.: 15; *Sls. Mgr.:* Charles E. Fitzsimmons; *Dist. Mgr.:* Charles E. Fitzsimmons

ARCO CABLE, 7361 Ethel Ave., North Hollywood, CA 91605, Tel: 818-982-2832; Empl.: 10; *Sls. Mgr.:* J. R. Parke

ARCO ELCTRNS., 400 Moreland Rd., Commack, NY 11725, Tel: 516-864-7000, TWX: 510-226-0241; FSC No.: 84171; Empl.: 40; *Sls. Mgr.:* Abe Kosakowsky

ARCOLECTRIC CORP., 9001 Canoga Ave., Canoga Park, CA 91304, Tel: 818-700-1933, Telex: 65-1349; Empl.: 20; *Sls. Mgr.:* L. Lewis; *Dist. Mgr.:* G. Miller .... **1B**•1026-1028, 1538-1542

Local Distributors

AZ	Tucson, Electronic City	602-622-1173
CA	Berkeley, Al Lashers Elctrns.	415-843-5915
CA	Fullerton, Orvac Elctrns.	714-871-1020
CA	Los Angeles, Electric Switches	213-664-1141
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Pasadena, Dow Radio	213-681-3416
CA	Riverside, Material Techniques	714-686-6186
CA	San Diego, Western Radio	619-239-0361
CA	San Jose, Quement Elctrns.	408-998-5900
FL	Hialeah, Hialeah Elctrns.	305-887-5936
ID	Caldwell, A Gem Supply	208-537-5291
IL	Rockford, GC Elctrns.	815-968-9661
LA	Harvey, AFG Elctrns.	504-368-9696
MA	Needham, YDI Elctrns.	617-449-1005
NJ	Denville, Lashen Elctrns.	201-627-3783
NJ	Springfield, Route Elctrns.	201-379-7710
NY	Bronx, CAM Elctrns.	212-893-8300
NY	Bronx, Wescon Elctrns.	212-584-6325

NY	New Hyde Park, Electronic City	516-352-7145
NC	Raleigh, Capital Elctrns.	919-832-2811
OH	Ashtabula, Sesco Sims Elctrns.	216-997-8391
OR	Eugene, Larsco	503-484-7491
PA	Willow Grove, Resco Elctrns.	215-659-4575
RI	Newport, J. S. Elctrns.	401-847-2991
TX	Houston, City Elctrns.	713-621-1060

ARC SYSTEMS, INC., 400 Oser Ave., Hauppauge, NY 11788, Tel: 516-231-9261, Telex: 230199 SWIFT UR ARC; *Sls. Mgr.:* Robert Miller

AREMCO PRODS., Box 429, Ossining, NY 10562, Tel: 914-762-0685, Telex: 13-7442; Empl.: 30; *Sls. Mgr.:* Mark Wandzilak

ARENBERG SAGE INC., P.O. Box 250, 57 Cornwall St., Jamaica Plain, MA 02130, Tel: 617-522-8640; FSC No.: 04-2593524; Empl.: 9; *Sls. Mgr.:* R. J. Toronto

A.R.F. PRODS., 2559 75th St., Boulder, CO 80301, Tel: 303-443-4844, TWX: 910-940-3446; Empl.: 65; *Sls. Mgr.:* R. C. Lloyd, Jr.

ARGA CONTROLS, 35 E. Glenarm St., Pasadena, CA 91105, Tel: 213-682-3314; FSC No.: 50290; Empl.: 20; *Sls. Mgr.:* Linda Galman

Local Sales Offices & Reps

AL	Atlanta, A.P. Beamish & Assocs.	404-394-0077
AZ	Phoenix, RLS Instrs.	602-892-9329
CA	Santa Ana, Brooks-Moore & Assoc.	714-544-8900
GA	Atlanta, A.P. Beamish & Assocs.	404-394-0077
MA	Boston, Adcour	617-784-8123

ARGENT ELCTRNS., 3245 S. County Rd., 25A, Troy, OH 45373, Tel: 513-335-0031; FSC No.: 55901; Empl.: 20; *Sls. Mgr.:* W. Zickafoose

ARGOS PRODS., 600 S. Sycamore St., Genoa, IL 60135, Tel: 815-784-5118; Empl.: 50; *Sls. Mgr.:* Ron Evers

Local Sales Offices & Reps

CA	Burlingame, Meyer, Ross & Fleming	415-348-6800
CA	Culver City, W. Alderson	213-837-1398
CO	Wheatridge, Bill Newman & Co.	303-425-9503
FL	Ocala, Bencsik Assoc.	904-732-9775
GA	Atlanta, Murphy & Cota	404-875-2525
IL	Chicago, G. Mcl. Cole	312-774-3535
IN	Mulberry, Maish Sls.	317-296-2322
MA	North Scituate, W.A. Hendrickson	617-545-0652
MI	Pontiac, Ted Firaneck Sls.	313-373-9595
MN	Edina, Foster Tech. Sls.	612-941-9800
MO	Kansas City, Nevco	816-421-1751
NJ	Fort Lee, TMC Sls.	201-944-5665
NY	Syracuse, Lewis & Dunnigan	315-446-5522
OH	Dayton, Shamrock Elctrn	513-258-1227
PA	Wynnewood, Stinson Assocs.	215-896-7378
WA	Lynnwood, Pacnor Mktg.	206-284-8020
EXP	N.Y., New York, Roburn Agencies	212-989-5939

ARGO TRANSDATA CORP., Box 554, Clinton, CT 06413, Tel: 203-669-2233; Empl.: 15

ARIES®
ELECTRONICS, INC.

ARIES ELCTRNS., Box 130, Frenchtown, NJ 08825, Tel: 201-996-6841, TWX: 510-235-3391; FSC No.: 51167; Empl.: 110; *Sls. Mgr.:* Frank Folmsbee .... 2•1149-1152

Local Sales Offices & Reps

AL	Huntsville, CSR	205-533-2444
AZ	Glendale, Adtek, Inc.	602-931-9289
CA	Los Angeles, Universal Comp.	213-641-4255
CA	Santa Clara, Nova-Tronix	408-727-9530
CO	Aurora, Mountain View Mktg.	303-360-9641
CT	Canton, Bell Controls	203-693-8926
FL	Ft Lauderdale, APM Assoc.	305-565-0056
FL	Longwood, APM Assoc.	305-869-6831
FL	Merritt Island, APM Assoc.	
FL	Tampa, APM Assoc.	813-886-2457
GA	Atlanta, CSR	404-396-3720
ID	Boise, Doran Sls. Assoc.	208-343-9969
IL	Elk Grove Village, Carlson Sls. Assoc.	312-956-8240
IN	Indianapolis, J and W Sls.	317-842-3740
IA	Cedar Rapids, Carlson Sls. Assoc.	319-377-6341
KS	Gladstone, Delltron Co.	816-436-6445
MD	Lutherville, J. A. Dougherty Sls.	301-321-7890
MI	St. Joseph, OBE Inc.	616-429-7788
MI	W. Bloomfield, OBE Inc.	313-332-4900
MI	West Bloomfield, OBE Inc.	313-332-4900
MN	Bloomington, Northport Engrg.	612-854-5556
MO	Gladstone, Delltron Co.	816-436-6445
MO	St. Louis, Delltron Co.	314-869-4779
NH	Nashua, Bell Controls	603-882-6984
NJ	Ho-Ho-Kus, DJ Fisher Co.	201-652-0090
NM	Albuquerque, Varigon Assoc.	505-344-5503
NY	Morrisville, Promark Elect.	315-662-3310
NC	Raleigh, CSR	919-878-9200
OH	Akron, Augnat Assoc.	216-273-1211
OH	Dayton, Augnat Assoc.	513-298-1507
OH	Mansfield, Augnat Assoc.	419-526-1488
OK	Tulsa, Advance Technical Sls.	918-664-0482
OR	Forest Grove, Doran Sls. Assoc.	503-357-3333
PA	Harleysville, Thomas Jackson Assoc.	215-643-5560
PA	Harrison City, Augnat Assoc.	412-281-8283
SC	Matthews, CSR	704-847-1927
TX	Austin, Advance Tech. Sls.	512-459-1351
TX	Dallas, Advance Tech. Sls.	214-340-1300
TX	Houston, Advance Tech. Sls.	713-440-3888
UT	Murray, Mountain View Mktg.	801-261-4867
WA	Greenacres, Doran Sales Assoc.	509-922-2317
WA	Redmond, Doran Sls. Assoc.	206-885-1885
WI	Milwaukee, Carlson Sls. Assoc.	414-476-2790

Local Distributors

AL	Huntsville, Comp. Dist.	205-993-7501
AZ	Phoenix, Arizona Comps.	602-269-5655
AZ	Scottsdale, Fiesta Elctrns.	602-861-1141
AZ	Tempe, Circuit Specialists	602-966-2878
AR	Little Rock, Component Distrs.	501-227-6278
CA	Canoga Park, Tim-Co	213-992-5040
CA	Fullerton, Pyramid Elctrns.	213-691-0561
CA	San Diego, Sigma Elec.	619-565-2000
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Santa Clara, Peters De-Laet	408-727-9440
CO	Englewood, Industrial Elctrns.	303-694-9444
CT	Danbury, Pilgrim Elect.	203-792-7274
CT	Norwalk, Cobra Comps.	203-847-6442
CT	Wallingford, Cronin	203-265-3134
FL	Ft. Lauderdale, Comp. Dist.	305-971-4950
GA	Atlanta, KSM Elect.	800-554-9227; 404-458-2013
GA	Norcross, CDI	404-441-3320
IL	Northbrook, Classic Comps. Supply	312-272-9650
IN	Indianapolis, Meunier Elctrn. Supply	317-635-3511
LA	Lafayette, Ralph's	318-234-4507
MD	Baltimore, A S I Elctrns.	301-265-5100
MA	Burlington, OPL Elctrns.	617-229-2424
MA	Middleboro, Glynn Elctrns.	617-947-4262
MA	Wilmington, Cronin Elctrns.	617-449-5000
MI	Grand Rapids, T & W Elctrns.	616-241-3645
MN	Minneapolis, The Joel Co.	612-545-5669
MO	Valley Park, Beckwith Computer Elctrns.	314-825-2237
NH	Salem, Cronin	603-898-4440
NM	Albuquerque, Intl. Elctrns.	505-345-8120
NY	Rochester, Simcona Elctrns.	716-328-3230
NC	Raleigh, Comp. Distrs.	919-834-9465
OH	Cleveland, Pruitt Energy	216-566-1545
OH	Columbus, Wedemeyer Elect. Supp.	614-436-9600
OH	Warren, REM Elctrns.	216-373-1300
OR	Portland, Carlyle	503-292-2053
PA	Erie, REM Elctrns.	814-453-5626
PA	McKeesport, Barno Radio	412-751-5966
PA	Philadelphia, Shap Elctrns.	215-969-3300
TX	Addison, Connec-Tek	214-239-7552
TX	Arlington, Bell Comp. Sls.	817-461-5303
TX	Austin, Quality/Components	512-835-0220
TX	El Paso, Intl. Elctrns.	915-598-3406
TX	Fort Worth, Indl. Elctrns.	817-731-7321
TX	Houston, Ralph's	713-748-4909
TX	Richardson, Air Quip Sls.	214-234-3285
VA	Falls Church, Comp. Dist.	703-533-3500
WA	Seattle, Pacific Elctrns	206-575-1050
WA	Seattle, Carlyle Wire & Cable	206-575-6750
WI	Mequon, Taylor	414-241-4321
WI	New Berlin, Classic	414-786-5300

ARISTO GRID LAMP PRODS., 65 Harbor Rd., Port Washington, NY 11050, Tel: 516-944-3030; Empl.: 21

ARK ELCTRNS. CORP., 1325 Industrial Hwy., Southampton, PA 18966, Tel: 215-322-6510; *Sls. Mgr.:* S. Kalos

ARMIGER & ASSOCS., INC., Daniel Woodhead, Inc., 2525 Ridgmar Blvd., Fort Worth, TX 76116, Tel: 817-737-2900; *Sls. Mgr.:* Dave Forcey; *Dist. Mgr.:* Dave Forcey

ARK-LES, 51 Water St., Watertown, MA 02172, Tel: 617-924-2330, Telex: 92-2441; Empl.: 700; *Sls. Mgr.:* Stephen Glorioso

ARMEL ELCTRNS., 1601 75th St., N. Bergen, NJ 07047; Tel: 201-869-4201, TWX: 710-992-8842; FSC No.: 91663; Empl.: 55; *Sls. Mgr.:* V. A. Pasqualino

ARMSTRONG WORLD INDS., W. Liberty St., Lancaster, PA 17604, Tel: 717-397-0611, TWX: 717-560-4405; Empl.: 24,000

ARMTEC INDUSTRIES, INC., Daven Components Grp., Manchester Airport, Manchester, NH 03103, Tel: 603-669-0940, TWX: 710-220-1747; FSC No.: 58880; Empl.: 400; *Sls. Mgr.:* Dave Richards .... 1B•1543

Local Sales Offices & Reps

AL	Huntsville, Technlg. Mktg. Assoc.	205-883-7893
AZ	Tempe, Trembly Assoc.	602-967-2058
CA	Fullerton, Groh Assoc.	714-738-7105
CA	Santa Clara, Fischer Assoc.	408-733-7350
CO	Lakewood, Trembly Assoc.	303-233-9544
FL	Pompano Beach, Techlg. Mktg. Assoc.	305-942-0774
GA	Atlanta, Technlg. Mktg. Assoc.	404-257-0374
IL	Northfield, Imex	312-446-8934
IN	Ft. Wayne, J&B Eng. Sls.	219-483-2813
KS	Shawnee Mission, Technical Sls.	913-888-3330
MD	King of Prussia, Freedman-Malta Assoc.	215-337-9211
MA	Norwood, MPS Elctrns.	617-769-8700
MN	Minneapolis, R-J Inc.	612-866-3661
MO	St. Louis, Technical Sls.	314-725-5361
NV	Las Vegas, Trembly Assoc.	702-739-9770
NJ	New Providence, Al Robinson Assoc.	201-464-4812
NM	Albuquerque, Trembly Assoc.	505-266-8616
NY	Clarence Center, Nu-Tekneex Inc.	716-741-9138
NY	Guilderland, Nu-Tekneex Inc.	518-355-1829
NY	Lynbrook, HLJ Comp-Tech	516-599-2999
NC	Burlington, P. J. Nahser	919-226-8053
OH	Englewood, Allen Nace Co.	513-836-0931
OH	Richfield, Allen Nace Co.	216-659-7178
OR	Portland, Comp. Technlg. Inc.	503-292-1518
PA	King of Prussia, Freedman-Malta Assoc.	215-337-9211
TX	Dallas, Oeler & Menelaides	214-361-8876
TX	Houston, Oeler & Menelaides	713-772-0730
UT	Salt Lake City, Trembly Assoc.	801-486-5292
WA	Seattle, Comp. Technlg. Inc.	206-789-4555
EXP	NY, Islip, Lothar-Sanford	516-581-3662

ARNOLD ENGRG., Box "G", Marengo, IL 60152, Tel: 815-568-2000, Telex: 25-7448, TWX: 910-642-2790; Empl.: 900; *Sls. Mgr.:* C. F. Templeton, V.P.

ARNOLD MAGNETICS

ARNOLD MAGNETICS, 11520 W. Jefferson Blvd., Culver City, CA 90230, Tel: 213-390-3537/8837, TWX: 910-343-6468; FSC No.: 04879; Empl.: 105; *Sls. Mgr.:* Phil Kite; *Dist. Mgr.:* Phil Kite .... 3•1496-1499

Local Sales Offices & Reps

AZ	Phoenix, Faser Tech. Sls.	602-948-4404
CA	El Segundo, L. L. Stoakes	213-640-2178
CA	Los Altos, Kolm Mktg. Assocs.	415-948-2635
CA	San Diego, L. L. Stoakes	619-452-1600
FL	DeBary, DJE Assocs.	305-668-6827
MD	Silver Springs, Youth Assocs.	301-598-5740
MA	Andover, Bee Assocs.	617-475-2124
NY	New Rochelle, Ascor Elctrns.	914-235-8838
TX	Houston, Spectra Sls.	713-747-2798
TX	Richardson, Spectra Sls.	214-234-3600

Aromat
Member of Matsushita Group

AROMAT CORP., 250 Sheffield St., Mountainside, NJ 07092, Tel: 201-232-4260, TWX: 710-997-9536; Empl.: 150 .... 1B•1294-1309

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns. Assoc.	205-881-5031
AZ	Tempe, Sys. Sls. of Arizona, Inc.	602-829-9338
AR	Little Rock, Beacon Elctrns. Assoc.	501-224-5449
CA	Cupertino, Aromat Corp.	408-446-5000
CA	Garden Grove, Aromat Corp.	714-895-7707
CA	Garden Grove, Elsco	213-533-1255

CA	Santa Clara, Westrep	408-988-8833
CO	Littleton, Omega Ltd.	303-798-7040
CT	Madison, United Comps.	203-245-4810
FL	Fern Park, EIR	305-830-9600
FL	Orlando, Aromat Corp.	305-855-1075
GA	Atlanta, Beacon Elctrns. Assoc.	404-256-9640
IL	Elk Grove Village, Carlson Elctrn. Sls.	312-956-8240
IL	Elk Grove Village, Aromat Corp.	312-593-8535
IN	Indianapolis, J & W Sls. Co.	317-842-3740
IA	Cedar Rapids, Carlson Elctrn. Sls.	319-377-6341
MD	Pikesville, Imagitron Sls.	301-521-2020
MA	Gilman, United Comps.	203-889-4050
MA	Norwood, United Comps.	617-226-0556
MI	Grand Rapids, R. P. Urban & Assocs.	616-245-0511
MI	Redford, R. P. Urban & Assocs.	313-535-2355
MN	Bloomington, Northport Engrg.	612-854-5556
MO	Independence, Repco	816-254-3410
NJ	Hackensack, Meg Elctrn. Sls.	201-489-7700
NJ	Mountainside, Aromat Corp.	201-232-4260
NM	Albuquerque, SSA Inc. of New Mexico	505-881-8877
NY	Binghamton, Rochester Comps.	607-772-9292
NY	W. Henrietta, Rochester Comp.	716-546-4766
NC	Raleigh, Beacon Elctrns. Assoc.	919-787-0330
OH	Cleveland, J. R. Thornberry Co.	216-321-3328
OH	Kettering, J. R. Thornberry Co.	513-258-1863
OK	Tulsa, Advanced Tech. Sls.	918-664-0482
PA	Pittsburgh, Covert & Newman Co.	412-531-2002
TX	Austin, C. R. Colvin & Assocs.	512-474-8698
TX	Dallas, Advanced Tech. Sls.	214-340-1300
TX	Houston, C. R. Colvin & Assocs.	713-961-1262
TX	Richardson, Aromat Corp.	214-235-0415
WA	Bellevue, Sls. & Engrg.	206-883-4999
WA	Vancouver, Sls. & Engrg.	206-573-5161
WI	Milwaukee, Carlson Elctrn. Sls.	414-476-2790

Local Distributors

AL	Huntsville, Contact Elctrns.	205-881-9321
AZ	Tempe, Bell Inds.	602-966-7800
CA	Chatsworth, Mil-Com Dist.	213-998-3111
CA	Mountain View, U.S.I.	415-969-5420
CA	Santa Clara, Patane Selectronics	408-496-6151
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Van Nuys, Patane Avionics	213-988-4455, 213-873-5541
CO	Denver, Ragon Elctrns.	303-744-3601
CO	Englewood, Industrial Elctrns.	303-694-9444
CT	Naugatuck, SCR Elec. Co.	203-729-8274
FL	Longwood, Intertec Comps.	305-834-7777
IL	Lombard, R. M. Elctrns.	312-932-5150
IL	Mt. Prospect, Magnuson Elctrns.	312-956-0700
IN	Indianapolis, R. M. Elctrns.	317-247-9701
IN	Indianapolis, Magnuson Elctrns.	317-247-5108
IA	Cedar Rapids, Bergquist Co.	319-366-8733
IA	Cedar Rapids, Ragon Elctrns.	816-254-3410
KS	Derby, Ragon Elctrns.	816-254-3410
MA	Canton, Impact Sls. Co.	617-821-1500
MA	Middleboro, Glynn Elctrns.	617-947-4262
MI	Grand Rapids, R. M. Elctrns.	616-531-9300
MN	Minneapolis, Joel Co.	612-545-5669
MN	Minneapolis, Bergquist Co.	612-835-2322
MN	St. Paul, Ragon Elctrns.	612-642-2828
MO	Berkeley, Ragon Elctrns.	319-254-3410
MO	Independence, Ragon Elctrns.	816-254-3410
NJ	Bellmawr, Mid-Atlantic Elctrns. Corp.	609-931-5303, 215-923-6868
NJ	Fair Lawn, Relay Specialties	201-797-3313
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Lynbrook, Peerless Radio Corp.	516-593-2121, 212-523-3456
NY	Millbrook, Villarreal Elctrns.	914-677-3447
NY	Mt. Vernon, QAR Indl. Elctrn. Sls.	914-699-2224
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Rome, Rome Elctrns.	315-337-5400
NC	Charlotte, Elctrns. Mktg. Corp.	704-394-6195
NC	Charlotte, Dixie Elctrns.	704-377-5413
NC	Hickory, Dixie Elctrns.	704-328-2646
NC	Winston-Salem, Dixie Elctrns.	919-724-5961
OH	Columbus, Elctrns. Mktg. Corp. (EMC)	614-299-4161
OH	Highland Heights, Elctrns. Mktg. Corp. (EMC)	216-442-3441
OH	Kettering, Elctrns. Mktg. Corp. (EMC)	513-439-4711
OK	Tulsa, Norvell Elctrns.	918-254-8606
OR	Portland, P&R Inds.	503-641-9525
PA	Harrisburg, Advacom	717-545-5674
PA	Horsham, Pioneer/Delaware Valley	215-674-4000
PA	McKean, Advacom	814-476-7774
PA	Wayne, Peak Elctrns.	215-293-9000
RI	Pawtucket, Major/Edwards	401-725-7400
SC	Charleston, Dixie Elctrns.	803-554-7515
SC	Columbia, Dixie Elctrns.	803-779-5332
SC	Greenville, Dixie Elctrns.	803-297-1430
TN	Gray, Dixie Elctrns.	615-477-3838
TN	Knoxville, Dixie Elctrns.	615-938-4131
TX	Austin, Southwest Elctrns.	512-837-8971
TX	Austin, Norvell Elctrns.	512-458-8106
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Dallas, Computer Comps. Corp.	214-239-0271
TX	El Paso, ERA Elctrns., Inc.	915-592-4126
TX	Houston, Norvell Elctrns.	713-777-1666
TX	Richardson, Southwest Elctrns.	214-234-3050
TX	Stafford, Southwest Elctrns.	713-491-4900
VA	Roanoke, Mexitronics Corp.	703-342-4444
WA	Bellevue, Bell Inds.	206-747-1515
WA	Seattle, Pacific Elctrns.	206-575-1050
WI	Mequon, Taylor Electric	414-241-4321

ARROW-HART
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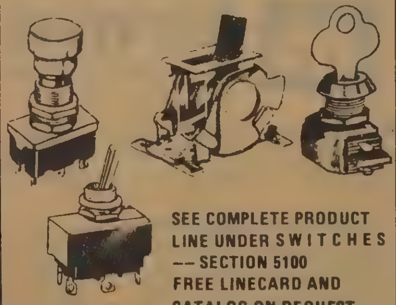

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ARRA INC., 15 Harold Ct., Bay Shore, NY 11706, Tel: 516-231-8400, TWX: 510-227-6231; Empl.: 50; *Sls. Mgr.:* M. V. Geraci .... **1A**•1689

Local Sales Offices & Reps

AL	Huntsville, Redstone Military Svc.	205-837-6136
AZ	Chandler, Blackhart Assoc.	602-831-2566
CA	Los Angeles, McDougall/McLaughlin	213-477-8556
CA	Mountain View, Mark V Assocs.	415-964-6275
FL	Winter Park, Microwave Mktg.	305-678-2141
IL	Mt. Prospect, Cain & Co.	312-253-3578
IA	Cedar Rapids, Palatine Sls.	319-365-8071
KS	Mission, Palatine Sls.	913-831-0555
KS	Wichita, Palatine Sls.	316-776-0065
MD	Ellicott City, Doss Elctrns.	301-465-1336
MA	Chelmsford, BBC	617-256-6593
MO	Hazelwood, Palatine Sls.	314-839-0800
NY	Great Neck, EAC	516-466-9798
NY	Utica, B D Hummel Co.	315-736-7821
NC	Raleigh, Barker Assoc.	919-851-7841
OH	Dayton, Haacke Co.	513-254-1951
OH	Lancaster, Cain & Co.	614-654-4800
PA	Newtown, SWR Assocs. Corp.	215-356-8550
TX	Garland, TESCO	214-681-1376
WA	Seattle, Datacom Assocs.	206-285-2525

ARRAY TECHNOLOGY, 992 S. Saratoga-Sunnyvale Rd., San Jose, CA 95129, Tel: 408-252-9900; *Sls. Mgr.:* Jim Schenck

ARROW FASTENER, 271 Mayhill St., Saddlebrook, NJ 07662, Tel: 201-843-6900; Empl.: 600

COOPER
INDUSTRIES
ARROW HART

ARROW HART DIV., Cooper Inds., 103 Hawthorn St., Hartford, CT 06101, Tel: 203-249-8471, Telex: 99328 .... **1B**•1568-1573

Local Sales Offices & Reps

AL	Huntsville, Hollingsworth & Still	800-241-5712
AZ	Phoenix, Elec-Com	602-967-8643
CA	Los Angeles, Arrow Hart Div.	213-588-5251
CO	Denver, West, Inc.	303-692-0131
CT	Hartford, Arrow Hart	203-249-8471
FL	Ft. Lauderdale, Hollingsworth & Still	800-241-5712
FL	Miami, Hollingsworth & Still	800-241-5712
FL	Orlando, Hollingsworth & Still	800-241-5712
GA	Norcross, Hollingsworth & Still	800-241-5712
IL	Wood Dale, Arrow Hart Div.	312-766-9570
MO	St. Louis, Arrow Hart	314-569-0626
NJ	Berlin, Arrow Hart	609-768-9520
NM	Albuquerque, Elec-Com Assoc.	505-898-6101
NC	Greensboro, Hollingsworth & Still	800-241-5712
NC	Kernersville, Hollingsworth & Still	800-241-5712
OH	Mason, Arrow Hart	513-398-0156
OR	Portland, Micro Sales, Inc.	503-297-4726
PA	Willow Grove, Arrow Hart	215-659-3728
TX	Richardson, Arrow Hart Div.	214-644-6210
UT	Salt Lake City, Meridian West	801-466-2888
WA	Belleview, Micro Sales, Inc.	206-451-0569
WI	Pewaukee, Arrow Hart Div.	414-367-0081

Local Distributors

AL	Muscle Shoals, Jones Elctrns.	205-383-1241
AZ	Phoenix, Be Switched	602-275-4805
AZ	Tempe, Fisher/Brownell	602-967-1464
AR	Little Rock, Carlton-Bates Co.	501-562-9100
CA	Alhambra, Fisher/Brownell	213-289-0255
CA	Commerce, Electro Comps.	213-727-0200
CA	Covina, Selecta Switch	213-967-4123
CA	Gardena, California Switch & Signal	213-770-2330
CA	Los Angeles, Master Distributor	213-452-1229
CA	Los Angeles, Electric Switches	213-660-1310
CA	Sacramento, Integrated Elctrns.	916-424-5297
CA	San Diego, Fisher/Brownell	714-560-8545
CA	San Francisco, Zack Elctrns.	408-626-1444
CA	San Jose, Consolidated Parts	408-263-9521
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	San Leandro, Electro Components	415-352-5210
CA	Santa Clara, Fisher/Brownell	408-988-6041
CA	Santa Fe Springs, Eurton Elec.	213-946-4477
CA	Tustin, Western Switches & Control	714-731-4333
CO	Denver, Elctrn. Parts	303-744-1992
CO	Denver, Integrated Elctrns.	303-534-6121
CO	Denver, Denver Wintronics	303-934-2406
CO	Denver, Consolidated Parts	303-623-5313
CO	Denver, Star for Parts	303-623-4224
CO	Denver, Fistells Elctrn. Supp.	303-244-4691
CT	Shelton, Century Elec. Sy	203-736-2684
CT	West Hartford, Gal Elec.	203-232-9880
FL	Ft. Lauderdale, Peerless Radio	305-973-4141
FL	Jacksonville, Ace Elec. Supp.	904-398-9857
FL	Miami, Electrn. Equip.	305-871-3500
FL	Miami, Alpeco Intl.	305-592-2985
FL	Sarasota, Workman Elctrn.	813-371-4242
FL	Sarasota, Dow Elctrns.	813-365-3393
GA	Atlanta, Ack Radio Supply	404-351-6340
GA	Atlanta, A-C Equip.	404-451-2747
HI	Honolulu, Honolulu Elctrns.	808-949-5564
IL	Addison, LComp Chicago	312-628-1400
IL	Chicago, Revere Elec. Supp.	312-738-3636
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Rockford, G. C. Elctrns.	815-968-9661
IL	Wood Dale, Electro Kinetics	312-595-6700
IN	East Chicago, Acro Elctrns.	219-397-8681
IN	Evansville, Hutch & Son	812-425-7201
IN	Indianapolis, Graham Elctrns.	317-634-8202
IA	Marion, Brenneman & Assoc.	319-377-6394
LA	Lafayette, Ralph's Elctrns.	318-233-0105
LA	New Orleans, William B. Allen	504-525-8222
LA	Shreveport, Ind. Elctrns.	318-222-9459
MD	Bethesda, Empire Elec. Sy	301-656-3300
MD	Rockville, Capital Radio Whlsrs.	301-881-2270
MA	Allston, Hilco Elec. Supp.	617-783-2600
MA	Billerica, A. W. Mayer Co.	617-229-2255
MA	Hingham, Sager Elctrl.	617-749-6700
MI	Grand Rapids, S-F Elctrn. Sy.	616-459-0216
MI	Livonia, Pioneer Michigan	313-525-1800
MI	Livonia, RS Elctrns.	313-525-1155
MI	St. Clair Shores, SPEMCO	313-771-2700

MN	Minneapolis, Sterling Elec.	612-332-4571
MN	St. Paul, Gopher Elctrns. Co.	612-483-4450
MS	Jackson, Ellington Elctrns.	601-355-0561
MO	Kansas City, LComp Kansas City	816-221-2400
MO	Maryland Heights, LComp St. Louis	314-291-6200
NE	Lincoln, Scott Elctrns.	402-466-8221
NJ	Camden, General Radio Sy. Co.	609-964-8560
NJ	East Hanover, State Elctrn. Parts	201-887-2550
NJ	Manasquan, Heiman H. Smith	201-223-9400
NJ	Prospect Park, Kappe	201-790-1999
NM	Albuquerque, Walker Radio	505-247-2288
NY	Binghamton, Florance Elec Sy	607-724-2455
NY	Buffalo, Genesee Radio & Parts	716-873-9661
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Farmingdale, S.A.I.	516-293-2710
NY	Hempstead, Electronic Equip.	516-538-5510
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	New York City, Browneli Electro	212-691-1171
NY	Rochester, Rochester Radio Sy.	716-454-7800
NY	Woodside, Switches Unltd.	212-478-5000
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Cleveland, Midland Elec.	216-248-3800
OH	Columbus, Hughes-Peters	614-294-5351
OH	Dayton, Esco	513-226-1133
OH	Dayton, Pioneer/Dayton	513-236-9900
OR	Portland, Johnstone Corp.	503-231-4833
PA	Philadelphia, Philadelphia Elctrns.	215-568-7444
RI	Providence, W. M. Dandreta	401-861-2800
TN	Memphis, Bluff City Elctrns.	901-345-9500
TN	Nashville, Carlton-Bates	615-244-3562
TN	Nashville, Randolph & Rice	615-255-5602
TX	Austin, Harrison Equip.	512-458-3555
TX	Dallas, Associated Aircraft	214-331-4381
TX	Dallas, Wilkinson Brothers	214-941-9963
TX	Dallas, Harrison Equip.	214-239-2750
TX	El Paso, Midland Specialty	915-533-9555
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Garland, Newark Elctrns.	214-494-5911
TX	Houston, Harrison Equip.	713-879-2600
TX	Lubbock, Texas Elctrn. Sy. Corp.	806-765-8456
TX	Richardson, Fisher/Brownell	214-235-3177
TX	San Antonio, Sherman Elctrns.	512-224-1004
UT	Salt Lake City, Standard Supp.	801-486-3371
VA	Charlottesville, Virginia Radio Sy	804-296-4184
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Bellevue, Bell Ind.	206-747-1515
WA	Bellevue, Integrated/Jaco	206-455-2727
WA	Seattle, Zepher Elctrn. Sls.	206-241-1980
WA	Seattle, Radar Elec.	206-282-2511
WI	Mequon, Taylor Elec. Co.	414-241-4321

ARSTAN PRODUCTS INTL. LTD., 99 Jericho Tpke., Jericho, NY 11753, Tel: 516-333-8100, Telex: 221519 ARSTN; Empl.: 8; *Sls. Mgr.:* Stan Shapiro ....**1A**•2132-2134

Local Sales Offices & Reps

CA	San Diego, S & A Technical Sales	619-295-8330
FL	North Miami, Ben Goldner	305-932-2782
GA	Atlanta, Electro Sls.	404-394-1122
IL	Chicago, Berndt Assoc.	312-283-0713
KY	Louisville, KW Electronic Sales, Inc.	502-451-1860
MA	Southboro, K.S.A. of New England	617-485-9432
MI	Novi, Lektronics Sales	313-349-3304
MN	Minneapolis, Berndt Assoc.	612-546-2021
NY	Bayside, John Kavanagh	212-229-2731
NC	Greensboro, KZJ Component Sales	919-852-5990
OH	Dayton, KW Electronic Sales, Inc.	513-890-2150
OH	Shaker Heights, KW Electronic Sales, Inc.	216-491-9177
OH	Worthington, KW Electronic Sales, Inc.	614-888-0483
PA	Philadelphia, Check Associates	215-487-3007
TN	Chattanooga, Electro Sales	615-267-4260

ARTECH CORP., 2901 Telestar Ct., Falls Church, VA 22042, Tel: 703-560-3292; Empl.: 40; *Sls. Mgr.:* S. Martin

ARTEL COMMUNICATIONS CORP., 93 Grand St., Worcester, MA 01602, Tel: 617-752-5690

ARTISAN ELCTRNS., 5 Eastmans Rd., Parsippany, NJ 07054, Tel: 201-887-7100; Empl.: 200; *Sls. Mgr.:* Gail Norton; *Dist. Mgr.:* Gail Norton

Local Distributors

CA	Haywards, Allied Elctrns. Inc.	415-487-5250
IL	Elgin, Allied Elctrns. Inc.	312-697-8200
NJ	Fair Lawn, Relay Specialties	800-526-5376
NY	Rochester, Simcona Elctrns. Corp.	716-328-3230
OH	Euclid, Rockford Controls Ohio, Inc.	216-731-5250
PA	Washington Crossing, Riverside Comp. Supp. Co.	215-493-5228
TX	Fort Worth, Allied Elctrns.	817-336-5401

ARTRONIC INSTR. CO., INC., 9 Division St., Sidney, NY 13838, Tel: 607-563-8444; FSC No.: 09446

ART WIRE/DODUCO, 9 Wing Dr., Cedar Knolls, NJ 07927, Tel: 201-267-2000, Telex: 13-6455; Empl.: 100

ASACA SHIBASKU CORP. OF AMER., 12509 Beatrice St., Los Angeles, CA 90066, Tel: 827-7144, Telex: 182089; *Sls. Mgr.:* Alan R. Davis; *Dist. Mgr.:* Susan Grossinger

ASCO WIRE & CABLE CO., 412 Housatonic Ave., Bridgeport, CT 06608, Tel: 203-366-5294; Empl.: 30; *Sls. Mgr.:* M. Madow

Local Sales Offices & Reps

FL	Melbourne Beach, James Indus.	305-725-9807
IL	Inverness, James Indus.	312-358-8000
VA	Portsmouth, FBD Sales	804-484-3162

Local Distributors

NY	Corona, Magnet Wire	212-651-0900

ASHLAND CHEMICAL, Ashland Oil, Inc., Box 2219, Columbus, OH 43216, Tel: 614-889-3333

ASHLAND ELEC. PRODS., 32-02 Queens Blvd., Long Island City, NY 11101, Tel: 212-392-4010; Empl.: 115; *Sls. Mgr.:* Harland W. Cashman

ASHMAN INDUSTRIES (1966) LTD., 66 Brock Rd., Greensville Dundas, ON , Canada, Tel: 416-628-6371; Empl.: 56

ASM, 525 Truck La., Smithfield, NC 27577, Tel: 919-934-3104; FSC No.: 31336; Empl.: 12; *Sls. Mgr.:* L. L. Armstrong

ASMANN COMPONENTS, Div. of ebm Industries, Inc., 525 New Britain Ave., Unionville, CT 06085, Tel: 203-674-1515, TWX: 710-423-8723; *Sls. Mgr.:* Edward A. Cyr ....**2**•1255

ASPECT ELCTRNS., 725 San Aleso, Sunnyvale, CA 94086, Tel: 408-737-2290; *Sls. Mgr.:* Doug Coke

A. S. R. SERVOTRON, INC., (Sub. Baldor Elec. Co.), 7945 Deering Ave., Canoga Park, CA 91304, Tel: 818-999-6193, Telex: 181213 ASR USA CNPK; Empl.: 2400; *Sls. Mgr.:* Robert W. Ferran

ASSEM-PRO INSTRS., Div. of Overnight Engineering Inc., 1859 Andrews Ave., San Jose, CA 95124, Tel: 408-267-1168; *Sls. Mgr.:* Lynn Riordan; *Dist. Mgr.:* Lynn Riordan

ASSEMBLY SPECIALISTS, 914 Main St., Box 965, Acton, MA 01720, Tel: 617-263-9100; *Sls. Mgr.:* George L. Boyden

ASSOCIATED CIRCUITS INC., 621 Old County Rd., San Carlos, CA 94070, Tel: 415-592-7528; *Sls. Mgr.:* Betty Smeland

ASSOCIATED ENGRG. MFG., 546 Valley Rd., Upper Montclair, NJ 07043, Tel: 201-783-7800, Telex: 138866; Empl.: 69

ASSOCIATED ENVIRONMENTAL SYSTEMS, 10 Industrial Way, Amesbury, MA 01913-4848, Tel: 617-388-5662, TWX: 710-347-0590; Empl.: 300; *Sls. Mgr.:* A. P. Campagna

ASSOCIATED RESEARCH, INC., 8221 N. Kimball Ave., Skokie, IL 60076, Tel: 312-647-7850, Telex: 28-3511; FSC No.: 04237; Empl.: 80; *Sls. Mgr.:* Larry Gulik

ASSOCIATED SPECIALTIES, 1751 Main St., Orefield, PA 18069, Tel: 215-395-9172; *Sls. Mgr.:* V. Laudenslager; *Dist. Mgr.:* V. Laudenslager

ASSOCIATED SPRING, BARNES GRP., 18 Main St., Bristol, CT 06010, Tel: 203-583-1331, Telex: 962449, TWX: 710-454-0592; Empl.: 1850; *Sls. Mgr.:* R. Hufsmith

Local Sales Offices & Reps

CA	Gardena	213-323-4833
CT	Bristol	203-582-9581
GA	Atlanta	404-955-1123
IL	Lombard	312-495-4760
IL	Mattoon	217-235-5601
MI	Ann Arbor	313-665-8686
MI	Livonia	313-478-5300
NY	Syracuse	315-457-9200
NC	Arden	704-684-7836
OH	Dayton	513-253-4131
PA	Corry	814-664-9646
TN	Memphis	901-362-9544
TX	Dallas	214-330-8661
WI	Milwaukee	414-482-1600

ASSOCIATED TESTING LABS., Div. of Kidde, Inc., 53 Second Ave., Burlington, MA 01803, Tel: 617-272-9050; Empl.: 80; *Sls. Mgr.:* Robert H. Croft

ASTEC USA, LTD., A BSR Intl. Co., 2880 San Tomas Expwy., #200, Santa Clara, CA 95051, Tel: 408-748-1200, Telex: 4745018 ASTEC UI, TWX: 310-474-5018; *Sls. Mgr.:* Russ Sinagra ....**3**•1500

Local Sales Offices & Reps

AL	Huntsville, 20th Century Mktg.	205-533-9281
AZ	Tempe, Cantec Sls.	602-829-0191
CA	San Diego, SR Elctrns.	619-560-8330
CA	Santa Clara, I Squared	408-988-3400
CA	Santa Clara, Astec (USA) Ltd.	408-748-1200
CA	Thousand Oaks, SC Cubed	805-496-7307
CA	Tustin, SC Cubed	714-731-9206
CO	Wittleton, Lange Sales Inc.	303-795-3300
DC	Fairfax, Scientific Assocs.	703-385-0600
GA	Stone Mtn., 20th Century Mktg.	404-292-7088
IL	Rolling Meadows, Sumer	312-991-8500
MA	Burlington, Mill-Bern Assocs.	617-273-1313
MN	Bloomington, Elctrn. Sls. Agency	612-884-8291
NJ	Pennsauken, Representatives Inc.	609-662-5222
NY	Jamaica, SJ Assocs.	212-291-3232
OH	Beachwood, Elctrn. Salesmasters	216-831-9555
OK	Tulsa, West Assocs.	918-492-0390
TN	Knottsville, 20th Century Mktg.	615-690-1618
TX	Austin, West Assocs.	512-454-3681
TX	Dallas, West Assocs.	214-248-7060
TX	Houston, West Assocs.	713-777-4108
WA	Bellevue, SDR Squared	206-747-9424

Local Distributors

CA	El Segundo, Wyle Labs.	213-322-8100
CA	Irvine, Wyle Labs.	714-863-9953
CA	Rancho Cordova, Wyle Labs.	916-638-5282
CA	San Diego, Wyle Labs.	619-565-9171
CA	Santa Clara, Wyle Labs.	408-727-2500
CO	Phoenix, Wyle Labs.	602-249-2232
CO	Thornton, Wyle Labs.	303-457-9953
OK	Tulsa, Quality Comps.	918-634-8812
OR	Hillsboro, Wyle Labs.	503-640-6000
TX	Austin, Quality Comps.	512-835-0220
TX	Dallas, Quality Comps.	214-387-4949
TX	Sugarland, Quality Comps.	713-491-8812
UT	Salt Lake City, Wyle Labs.	801-974-9953
WA	Bellevue, Wyle Labs.	206-453-8300

ASTRO CIRCUIT, 100 Hale St., Lowell, MA. 01851, Tel: 617-458-3240, TWX: 710-343-0754; Empl.: 220

ASTROCOM ELECTRONICS, INC., Box 370, Oneonta, NY 13820, Tel: 607-432-1930

ASTRO DYNAMICS, INC., 2 Gill St., Woburn, MA 01801, Tel: 617-935-4944; Empl.: 50

ASTRODYNE, 35 Executive Dr., Hudson, NH 03051, Tel: 603-880-8600; FSC No.: 28023; Empl.: 60; *Sls. Mgr.:* Warren Heinzelmann; *Dist. Mgr.:* Warren Heinzelmann

ASTRO-GEO-MARINE, INC., 202 E. Cota St., Santa Barbara, CA 93101, Tel: 805-965-7005; FSC No.: 51473; Empl.: 15

ASTRO INSTRUMENT CORP., 2501 NW 17th Ln., Pompano Beach, FL 33064, Tel: 305-748-5527, TWX: 510-956-9601; FSC No.: 51761; *Sls. Mgr.:* William E. Watson

ASTROLAB, 345 Dalziel Rd., Linden, NJ 07036, Tel: 201-862-0022, TWX: 710-996-5930; FSC No.: 16301; Empl.: 36; *Sls. Mgr.:* J. R. Toma

ASTRO-MED, INC., Atlan-Tol Indl. Pk., W. Warwick, RI 02893, Tel: 401-828-4000, TWX: 710-382-6409; Empl.: 120; *Sls. Mgr.:* Everett V. Pizzuti; *Dist. Mgr.:* Everett V. Pizzuti ....**3**•1382

ASTRONAUTICS CORP. OF AMERICA, P.O. Box 523, Milwaukee, WI 53201, Tel: 414-447-8200, TWX: 910-262-3153; FSC No.: 10138

ASTRON CORP., 2852 Walnut #E, Tustin, CA 92680, Tel: 714-832-7770; *Sls. Mgr.:* William Pochirowski; *Dist. Mgr.:* William Pochirowski ....**3**•1501

Local Distributors

CA	Los Angeles, Henry Radio	213-820-1234
CA	Northridge, Ora Elctrns.	213-701-5848
CA	Sun Valley, Cartwright Comms.	213-768-7744
CO	Aurora, Electro Tech Sls.	303-343-8937
GA	Marrietta, NBC Mktg.	404-424-9097
IL	Joliet, Primus Elctrns.	815-436-8945
IL	Joliet, Communications Assoc.	815-744-6444
MD	Cockleysville, Tessco.	301-252-0860
NJ	Clifton, Meridian Comms.	201-473-1623
OH	Cincinnati, Cartwright Comms.	513-489-1755
TX	Dallas, M. Hutton Co.	214-484-0580

ASTROSYN AMERICA, 14349 Victory Blvd., Ste. 304, Van Nuys, CA 91401, Tel: 213-785-2197, Telex: 651446; *Sls. Mgr.:* D. F. Dowis; *Dist. Mgr.:* D. F. Dowis

ASTROSYSTEMS, 6 Nevada Dr., Lake Success, NY 11042, Tel: 516-328-1600, TWX: 510-223-0411; Empl.: 150; *Sls. Mgr.:* James R. Boyer ....**3**•1189, 1504, 1817

Local Sales Offices & Reps

AL	Huntsville, Kemp Engrg.	205-837-4304
AR	El Dorado, Indust. Controls Assoc.	501-862-2051
CA	Cerritos, Foxco Equip.	213-921-3421
CO	Englewood, Dynatech	303-773-2830
CO	Englewood, Dynatech	303-773-2830
FL	Sanibel, Motion Products	813-472-0066
GA	Atlanta, Kemp Instrs.	404-452-8050
GA	Doraville, Kemp Inst.	404-938-5973
IL	Elgin, JHS Assocs.	312-741-9070
IN	Mishawaka, Engineered Sls.	219-255-5111
MD	Bethesda, Multi-Measurements, Inc.	301-889-0471
MI	Detroit, Static Controls Corp.	313-537-2975
MI	Walled Lake, Static Controls Corp.	313-363-4500
MS	Industrial, Controls Assoc.	501-862-2051
NC	Charlotte, Jake Rudisill Assoc. Inc.	704-377-6901
OH	Cleveland, Instr. Sys.	216-845-8800
OH	Dayton, Instr. Sys.	513-294-2838
OK	Tulsa, Industrial Controls Assoc.	501-862-2051
PA	Pittsburgh, Instrumentation Sys.	412-243-1111
PA	Warminster, Multi-Measurements	215-675-3082
TX	Fort Worth, Indust. Controls Assoc.	501-862-2051
TX	Houston, Indust. Controls Assoc.	501-862-2051
WA	Bothell, Pacific N.W. Controls Inc.	206-821-0448

ASTRO TOOL CO., INC., 21615 Southwest Tualatin Valley Hwy., Beaverton, OR 97006, Tel: 503-642-9853

AT&T, 475 South St., Morristown, NJ 07960, Tel: 201-631-6790; *Sls. Mgr.:* D. J. Liedberg

Local Sales Offices & Reps

CA	Sunnyvale	408-746-2332
CO	Denver	303-538-2406
GA	Atlanta	404-257-6495
MA	Burlington	617-229-5672
MN	Minneapolis	612-724-2019
NJ	Morristown	201-631-6790
OH	Columbus	614-860-5155
PA	King of Prussia	215-768-2626

ATEC, Box 19426, 8219 Kempwood Dr., Houston, TX 77055, Tel: 713-468-7971, Telex: 77-4132 FLEKS HOU; FSC No.: 09552; Empl.: 80; *Sls. Mgr.:* F. Sawberger

A-SYSTEMS INC., Box 13, Ivy, VA 22945, Tel: 804-295-7200; *Sls. Mgr.:* F. M. Artrip

ATEC SYS., 107 N. Washington St., E. Rochester, NY 14445, Tel: 716-381-4740; Empl.: 6; *Sls. Mgr.:* Harry Turner

ATHENA CONTROLS, INC., 5145 Campus Dr., Whitemarsh Ind. Campus, Plymouth Meeting, PA 19462, Tel: 215-828-2490; Empl.: 85; *Sls. Mgr.:* David A. Tryon; *Dist. Mgr.:* Allen Breckenridge

ATKINS TECH., 3321 S.W. 40th Blvd., Gainesville, FL 32608, Tel: 904-378-5555, Telex: 51-4736-HALA; Empl.: 30; *Sls. Mgr.:* Walter Fitz-William; *Dist. Mgr.:* Walter Fitz-William

ATLANTIC MAGNETICS, INC., P.O. Box 4127, Margate, FL 33063, Tel: 305-492-5196; *Sls. Mgr.:* Edward Cammarata; *Dist. Mgr.:* Rolando Marrero

ATLANTIC OPTICAL MOULDING, Ellis St., P.O. Box 309, Dudley, MA 01570, Tel: 617-943-1746; Empl.: 6

ATLANTIC RESEARCH, 5390 Cherokee Ave., Alexandria, VA 22312, Tel: 703-642-4000, Telex: 248893; FSC No.: 95335; Empl.: 2000

ATLANTIC SCIENTIFIC CORP., 2711 S. Harbour City Blvd., Melbourne, FL 32901, Tel: 305-725-8000, Telex: 755959; *Sls. Mgr.:* Murray W. Boggs ....**1B**•1257

Local Sales Offices & Reps

AZ	Phoenix, R. A. Mayes Co.	602-279-5243
CO	Englewood, R. A. Mayes Co.	303-761-9447
CT	Mt. Carmel, Scientific Dvcs.	203-248-9361
MA	Waltham, Scientific Dvcs.	617-890-2252
NM	Albuquerque, R. A. Mayes Co.	505-292-2330
NY	Albany, H. C. Johnson Agencies Inc.	518-459-1239
NY	Buffalo, H. C. Johnson Agencies Inc.	716-632-7880
NY	Rochester, H. C. Johnson Agencies Inc.	716-586-0777

Distributor

ATLANTIC SWITCH CONTROLS, INC., 194 Elliott St., Hartford, CT 06114, Tel: 203-527-7705 ....**1B**•1742

ATLANTIC SWITCH CONTROLS, INC., 5 Coliseum Ave., Nashua, NH 03063, Tel: 603-880-1971 ....**1B**•1742

ATLAS ENERGY SYS., 9457 Rush St., S. El Monte, CA 91733, Tel: 213-575-0755, TWX: 910-587-3531; Empl.: 35; *Sls. Mgr.:* J. Thompson ....**3**•1826

Local Sales Offices & Reps

CA	Santa Ana	714-953-9645
CA	Santa Clara	408-988-5386
IL	Chicago	312-372-2237
MA	Boston	617-492-2525

ATLAS ENGRG. CORP., 10 Cheney St., Dorchester, MA 02121, Tel: 617-445-7100; FSC No.: 07001; Empl.: 75; *Sls. Mgr.:* Norman Scotch

ATLAS EYELETS, Pinkham St., Fairhaven, MA 02719, Tel: 617-997-9491; *Sls. Mgr.:* Arthur S. Tisch

ATLAS SOUND DIV., 10 Pomeroy Rd., Parsippany, NJ 07054, Tel: 201-887-7800, Telex: 13-6119; Empl.: 350; *Sls. Mgr.:* H. M. Jaffe; *Dist. Mgr.:* David A. Chambers

ATLEE INC., One Gill St., Woburn, MA 01801, Tel: 617-933-3510, Telex: 949407; FSC No.: 99378; Empl.: 40; *Sls. Mgr.:* Leon Kadis ......**1B**•1259; **2**•1009, 1859, 1875, 1904

Local Sales Offices & Reps

CA	Agoura, Cal Rep	213-991-1940
CA	Corte Madera, Paul Oneal Assoc.	415-924-1691
CO	Arvada, Challange Sls.	303-427-3149
FL	Melbourne, R-Rep	305-725-6993
MD	Baltimore, Stitzer Assocs.	301-823-7688
MN	St. Paul, Countryman Assoc	612-645-9151
NY	Huntington, C. R. Mayer Co.	516-921-7876
NY	Rochester, Net Sls.	716-467-4538
NC	Raleigh, B. T. Funderburk	919-782-3493
OH	Cleveland, Techn. Sls. Assocs.	216-461-0826
PA	Paoli, Stitzer Assocs.	215-644-5500
TX	Dallas, Rem-Air Comp. Corp.	214-234-1069

Local Distributors

AZ	Phoenix, EGR	602-840-0320
CA	Northridge, Acort Inds.	213-993-6444
CA	San Jose, Afcom	408-263-0660
CA	San Jose, Bisco Inds.	408-946-8980
IN	Ft. Wayne, Graham Elec. Supp.	219-423-3422
IA	Cedar Rapids, Deeco	319-365-7551
MA	Winchester, Rush Inds.	617-729-5800
MN	Minneapolis, Aerospace Computer	612-884-4725
NJ	Nutley, Essex Electric	201-661-2600
NJ	Paramus, N.Y. Fastener	201-265-8770
NY	Bayshore, Merrit Fastener	516-242-1800
NY	Bohemia, Car-Lac	516-567-4200
NY	Buffalo, Summit Dist.	716-887-2800
NY	Long Island City, Hardware Specialty	212-361-9393
NY	Plainview, G & B Fastener	516-694-0990
NY	Plainview, G & B Fasteners	516-694-0990
TX	Dallas, National Precision	214-357-3921
TX	Richardson, Altair Co.	214-231-5166
VA	Charlottesville, Virginia Radio Supp. Co.	804-296-4184

ATMOSPHERE CONTROLS PRODS., 295 Polaris, Mountain View, CA 94043, Tel: 415-969-2640; Empl.: 14; *Sls. Mgr.:* Walter Quave Jr.; *Dist. Mgr.:* W. H. Ellis

ATR ELCTRNS., INC., 280 E. Lafayette Frontage Rd., St. Paul, MN 55107, Tel: 612-222-3791; *Dist. Mgr.:* R. D. Van Valin ....**3**•1827

ATV RESEARCH, INC., 1301 Broadway, Dakota City, NE 68731, Tel: 402-987-3771; *Sls. Mgr.:* Mel Shadbolt

AUBURN MFG., Pease Ave. & Stack St., Middletown, CT 06457, Tel: 203-346-6677; Empl.: 45; *Sls. Mgr.:* Richard Agria

AUDIO EQUIP., Div. W. Kidde & Co., Inc., 706 Forrest St., Charlottesville, VA 22901, Tel: 804-977-8050, TWX: 510-587-5461; Empl.: 50

AUDIOSEARS, South St., Stamford, NY 12167, Tel: 607-652-7305; FSC No.: 97101; Empl.: 140; *Sls. Mgr.:* D. Hartwell

AUDIOSONE, INC., 617 Fan Hill Rd., Monroe, CT 06468, Tel: 203-268-4372, 800-243-8160; *Sls. Mgr.:* Rudolph Duris

AUDIOTRONICS CORP., 7428 Bellaire Ave., N. Hollywood, CA 91605, Tel: 818-765-2645, Telex: 69-1241; Empl.: 300; *Sls. Mgr.:* Roy Schaub

AUDIOVOX CORP., 150 Marcus Blvd., Hauppage, NY 11787

AUGAT INC., 33 Perry Ave., Box 779, Attleboro, MA 02703, Tel: 617-222-2202, TWX: 710-391-0644; FSC No.: 91506; Empl.: 3,200; *Sls. Mgr.:* Jim Fuchs; *Dist. Mgr.:* William Hall ....**2**•1162, 1163, 1876-1879

Local Sales Offices & Reps

AL	Huntsville, Glen White Assocs.	205-883-7938
CA	Los Angeles, Wiley Co.	213-666-1611
CA	San Diego, Wiley Co.	619-571-2881
CA	Santa Clara, Augat Sls.	408-980-0955
CO	Littleton, Simpson Assocs.	303-794-8381
FL	Castleberry, Augat Sls.	305-339-3724
FL	Safety Harbor, Augat Sls.	813-725-1037
FL	Tamarac, Augat Sls.	305-721-6021
GA	Norcross, Glen White Assocs.	404-441-1447
HI	Honolulu, Hawaii Elctrns. Sls. & Svc.	808-845-8207
IL	Rolling Meadows, Sumer	312-991-8500
IA	Davenport, Ensco-Rep. Inc.	319-386-6600
KS	Overland Park, Ensco-Rep, Inc.	913-381-7557
KS	Wichita, Ensco-Rep. Inc.	316-683-1070
MD	Silver Spring, NKA Inc. (Govt.)	301-585-6141
MA	Norwood, Augat Sls.	617-762-3164
MI	Detroit, Rathsburg Assocs.	313-882-1717
MN	Edina, Augat Sls.	612-925-0255
MO	Maryland Hts., Ensco-Rep. Inc.	314-423-3935
NJ	Cherry Hill, Trinkle Sls.	609-795-4200
NJ	Maple Shade, NKA Inc. (Govt.)	609-234-4008
NM	Albuquerque, C. T. Carlberg Assoc.	505-888-3883
NY	Mt. Vernon, D. Sonkin Assocs.	914-668-9809
NY	N. Syracuse, L. D. Allen, Inc.	315-437-8387
NC	Raleigh, Glen White Assocs.	919-787-7016
OH	Dayton, NKA, Inc.	513-268-8771
OH	Englewood, A. Nace Co.	513-836-0931
OH	Richfield, A. Nace Co.	216-659-7178
TN	Gray, Glen White Assocs.	615-447-8850
TX	Houston, Augat Sls.	713-495-3100
TX	Richardson, Augat Sls.	214-235-7166
UT	Midvale, Simpson Assocs.	801-566-3691
VA	Lynchburg, Glen White Assocs.	804-237-6291
WA	Bellevue, Augat Sls.	206-455-2846
WI	Brookfield, Sumer Inc.	414-784-6641

AUGAT/ALCOSWITCH, See Alco Elctrn. Prods., Inc.

AUGAT/ES•P, INC., 12832 Chadron Ave., Hawthorne, CA 90250, Tel: 213-973-0262, Telex: 66-4467; Empl.: 85

AUGAT FIBEROPTICS, 40 Perry Ave., Attleboro, MA 02703, Tel: 617-222-2202, TWX: 710-391-0644; *Sls. Mgr.:* Bob Goecheler; *Dist. Mgr.:* Bill Hall

AULT, INC.

AULT, INCORPORATED, 1600 Freeway Blvd., Minneapolis, MN 55430, Tel: 612-560-9300, TWX: 910-756-3435; Empl.: 450; *Sls. Mgr.:* Dennis Getter .... **3**•1502, 1503

Local Sales Offices & Reps

AL	Huntsville, L & D, Inc.	205-837-1469
AZ	Scottsdale, DAR-C, Inc.	602-948-2240
CA	Los Angeles, West Elctrn. Sls.	714-898-0120
CA	San Diego, Dick West & Assocs.	619-233-0236
CA	Santa Clara, Magna Sls.	408-727-8753
CO	Denver, William J. Purdy	303-777-1411
CT	Manchester, G/M Assocs.	203-646-4443
FL	Ft. Lauderdale, QXI, Inc.	305-485-6030
FL	St. Petersburg, QXI, Inc.	813-821-2281
GA	Atlanta, L & D, Inc.	404-455-3483
IL	Arlington Hgts., MSI	312-956-1000
IN	Indianapolis, McFadden Sls.	614-459-1280
IA	Des Moines, Beams Co.	515-255-1148
KS	Shawnee Mission, Beams Co.	913-631-0300
MD	Columbia, Delta III Assocs.	301-730-4700
MA	Framingham, G/M Assocs.	617-872-4871
MI	Plymouth, Jay Mktg. Assocs.	313-459-1200
MO	St. Louis, Beams Co.	314-569-1060
NV	Carson City, Magna Sls.	702-883-1471
NH	Exeter, G/M Assocs.	603-778-7472
NJ	Ocean, P. Saftler Assoc.	201-922-3014
NY	Lynbrook, P. Saftler Assoc.	516-593-7880
NC	Greensboro, L & D, Inc.	919-292-3201
OH	Cleveland, Lyons Corp.	216-659-9224
OH	Dayton, E. Lyons Co.	513-278-0714
OR	Portland, Jas. J. Bacher Co.	503-297-8744
PA	Philadelphia, Samuel K. MacDonald, Inc.	215-545-1205
TX	Austin, R. F. Kimball Co.	512-443-5284
TX	Houston, R. F. Kimball Co.	713-840-0590
TX	Richardson, R. F. Kimball Co.	214-231-3447
WA	Seattle, Jas. J. Backer Co.	206-285-1300

Local Distributors

CA	Cincinnati, Hughes Peters	513-351-2000
CA	Mountain View, USI Elctrn. Comps.	415-969-5420
CA	San Diego, Tauber Elctrns.	619-274-7242
CA	Santa Monica, Distr. Specialists	213-393-9666
CA	Van Nuys, Natl. Electro Sls. Corp.	213-781-0505
IL	Downers Grove, JaBro Batteries	312-964-9358
MA	Sharon, Adcour	617-784-8123
MO	St. Charles, Finnigan Elctrns.	314-946-6201
Can	St. Laurent, Quebec, Tech-Rep Elctrns. Ltd.	514-337-6046

AURA MFG., 50 McDermott Rd., New Haven, CT 06473, Tel: 203-777-2541; Empl.: 150; *Sls. Mgr.:* Joe Abbatiello

AURIC CORP., 470 Frelinghuysen Ave., Newark, NJ 07114, Tel: 201-242-4100; Empl.: 35

AUSTRON, INC., P.O. Box 14766, Exit 248 N. IH 35, Austin, TX 78761, Tel: 512-251-2313, TWX: 910-874-1356; FSC No.: 24672; Empl.: 153; *Sls. Mgr.:* R. Ellis .... **1A**•1314, 1315

Local Sales Offices & Reps

AL	Huntsville, Sci. Devices - SE	205-536-1969
AZ	Scottsdale, Territorial Mktg.	602-994-8665
CA	Goleta, Thorson Co.	805-964-8751
CA	Pleasant Hill, Austron	415-930-7268
CA	San Carlos, Westronics Assocs.	415-592-1417
CA	San Diego, Thorson Co.	619-292-8525
CA	Signal Hill, Thorson Co.	213-595-0361
CT	Southington, Scheinfein Assocs.	203-621-3492
FL	Orlando, Sci. Devices - SE	305-841-8180
FL	Shalimar, Sci. Devices - SE	904-651-4407
GA	Atlanta, Sci. Devices-SE	404-452-8709
IL	Elk Grove, Loren Green Assoc.	312-593-0282
IN	Indianapolis, Loren Green Assoc.	317-293-9827
MA	Reading, Scheinfein Assocs.	617-944-2304
MI	Union Lake, Ashby Assocs.	313-363-1100
MN	Minneapolis, Loren Green Assoc.	612-571-6666
NY	Frankfort, Kapital Instr. Sls.	315-894-4245
NY	Huntington, CDB Entprs.	516-692-5200
NC	Winston Salem, Sci. Devices-SE	919-765-5766
OH	Dayton, Ashby Assocs.	513-252-5627
OH	Lyndhurst, Ashby Assocs.	216-461-0826
OR	Portland, Cascade Data Mktg.	503-641-9266
PA	Plymouth Meeting, Sci. Devices - Phila.	215-825-9515
TX	Houston, Sci. Devices - Gulfcoast	713-864-1711
TX	Richardson, Sci. Devices - SW	214-231-8106
VA	McLean, Austron	703-734-1990
WA	Woodinville, Cascade Data Mktg.	206-788-3421

AUTOMATED PROD. EQUIP. CORP., 142 Peconic Ave., Medford, NY 11763, Tel: 516-654-1197, TWX: 510-228-2120; FSC No.: 57216; *Sls. Mgr.:* Edward F. Farnham; *Dist. Mgr.:* Edward F. Farnham

AUTOMATIC COIL CORP., Sub. Designatronics, Inc., 455 E. 10th Ave., Hialeah, FL 33010, Tel: 305-883-5311, TWX: 810-848-8097; Empl.: 125 .... **1A**•1221-1223, 1451-1453

Local Sales Offices & Reps

AL	Huntsville, CRS Elctrns.	205-533-2444
CA	Huntington Beach, Mil-Com Sls.	714-840-2424
GA	Atlanta, CRS Elctrns., Inc.	404-396-3720
IL	Palatine, T-Squared Assocs.	312-999-2144
MA	Manchester, Alard, Galagan & Assoc.	617-526-7733
NY	Brooklyn, Irv Morse Sls.	212-444-4974
OH	Dayton, Rockford Controls Ohio, Inc.	513-898-5452
OH	Euclid, Rockford Controls Ohio, Inc.	216-731-5250
OK	Broken Arrow, Genzel Sls. & Assoc., Inc.	918-258-8656

AUTOMATIC Connector, Inc.

AUTOMATIC CONNECTOR, INC., 400 Moreland Rd., Commack, NY 11725, Tel: 516-543-5000, TWX: 510-226-3744; FSC No.: 94375; Empl.: 250; *Sls. Mgr.:* William Pitcher

Local Sales Offices & Reps

AZ	Tucson, WJM Sls.	602-888-4847
CA	Cupertino, Dura Elctrn. Sls.	408-255-2084
CA	Garden Grove, Elsco Elctrns.	714-891-4621
CA	San Diego, Elsco Elctrns.	714-292-1771
CO	Boulder, Comp. Prods. Sls.	303-530-2800
CT	Bridgeport, Millennium Elctrn. Sls.	203-372-2037
FL	Clearwater, Brennan Assoc.	813-446-5006
FL	Melbourne, Brennan Assoc.	305-724-0854
GA	Atlanta, Brennan Assoc.	404-996-6623
IL	Westchester, WG Controls	312-344-0690
IN	Ft. Wayne, Given Corp.	219-432-5585
MD	Union, Jedco Elctrn. Sls.	201-355-0474
MA	Woburn, Component Technology	617-933-5390
MO	St. Louis, R. F. Carlson Co.	314-961-4485
NJ	Haddonfield, Sunday - O'Brien	609-429-4013
NJ	Ho-Ho-Kus, J&B Assocs.	201-447-0126
NJ	Union, Jedco Elctrn. Sls.	201-355-0474
NM	Albuquerque, WJM Sls.	505-898-5917
NY	Buffalo, Quality Comp.	716-837-5430
NY	Manlius, Quality Comp.	315-682-8885
NY	Mt. Vernon, Sonkin Assoc.	914-668-9809
NC	Raleigh, B. T. Funderburk	919-782-3493
OH	Cincinnati, Stegman Blaine Mktg.	513-729-1969
OH	Kettering, Government Bidders Svc.	513-296-5991
OH	Vandalia, Stegman Blaine Mktg.	513-890-7975
TX	El Paso, WJM Sls.	915-566-4628
TX	Houston, Aid Elctrns.	713-777-3882
TX	Irving, Aid Elctrns.	214-259-4761
UT	Salt Lake City, Comp. Prods. Sls.	801-262-0000
WA	Bellevue, Venture Elctrn.	206-454-4594

AUTOMATIC TEST SYSTEMS, 23 Poplar St., Malden, MA 02148, Tel: 617-322-1107

AUTOMATIC TIMING & CONTROLS CO., 201 So. Gulph Rd., King of Prussia, PA 19406, Tel: 215-337-5500, 800-441-8245, Telex: 84-6437; Empl.: 300; *Sls. Mgr.:* V. C. McMahon .... **3**•1123

Local Sales Offices & Reps

AZ	Phoenix, Portis & Assocs.	602-947-4379
CA	Gardena, Instrument Lab.	213-327-3282
CA	San Francisco, Automated Process Controls	415-467-6162
CO	Englewood, E & M Sls.	303-761-6202
FL	Lakeland, A.A. Elec. Div.	813-665-6941
GA	Norcross, A.A.Electric Div. of AEC	404-449-8670
IL	Glen Ellyn, Rockford Controls	312-469-6016
IN	Indianapolis, Rockford Controls	317-248-2518
KY	Louisville, Air-Hydro Power	502-451-1000
LA	New Orleans, Mid South Sls.	504-641-7480
MD	Baltimore, Jobe & Co.	301-327-0220
MA	Hingham, Hingham Bay Corp.	617-749-8700
MI	Brighton, H. H. Barnum Co.	313-229-2961
MN	Minneapolis, Automated Controls	612-941-4092
MO	Kansas City, Duncan Sls. & Engrg.	816-356-1888
MO	St. Louis, E. Mooney Co.	314-878-9910
NE	Omaha, Lakeland Engrg. Equipt.	402-734-2600
NJ	Newark, Norman Bragar Co.	201-344-1100
NM	Albuquerque, E & M Sls.	505-883-8955
NY	Buffalo, Niagara Electric Sls.	716-886-4000
NY	Rochester, Niagara Electric Sls.	716-271-1223
NY	Syracuse, Niagara Elec. Sls.	315-437-1656
NC	Charlotte, Brown & Morrison	704-554-8570
OH	Cincinnati, Anderson-Bolds	513-528-5680
OH	Cleveland, Anderson-Bolds	216-229-4700
OH	Worthington, Anderson-Bolds	614-885-3933
OK	Tulsa, Driscoll Automatic Control	918-747-6625
OR	Portland, Coons Western	503-295-0411
PA	King of Prussia, Applied Controls	215-265-3832
PA	Pittsburgh, Gilson Engrg. Sls.	412-931-6114
TX	Houston, Gettys-Eads-Adair	713-781-3005
UT	Salt Lake City, Control Equip.	801-487-7741
VA	Richmond, Jobe & Co.	804-282-6508
WA	Seattle, J. A. Tudor & Assoc.	206-682-7444
WA	Spokane, J. A. Tudor & Assoc.	509-327-3328
WI	Cedarburg, Automation Engrg.	414-377-7500

AUTOMATION ASSOCS., 1212 Westheimer #120, Austin, TX 78752, Tel: 512-458-4412

AUTOMATION DISPLAYS INC., 3833 N. White Ave., Eau Claire, WI 54701, Tel: 715-834-9595; Empl.: 38

Local Sales Offices & Reps

AZ	Scottsdale, Al Meurer Co.	602-941-4848
GA	Atlanta, Secom Sys.	404-434-8101
IN	Indianapolis, GEB Controls Group Inc.	317-271-9008
MA	Norwell, Besco	617-659-4915
MN	Minneapolis, Countryman Assocs.	612-645-9151
NY	New York, Friedman-Smith Elctrn. Sls.	914-664-4866
TX	Dallas, Jacobson Co.	214-363-7584
WA	Bellevue, Hudson Co.	206-455-0773

AUTOMATION DYNAMICS, 77 Brookside Pl., Hillsdale, NJ 07642, Tel: 201-666-2458; FSC No.: 53089; Empl.: 40

AUTOMATION COMPONENTS, INC., One Short Ave., Peckville, PA 18452, Tel: 717-489-7508

AUTOMATION PRODS., INC., 3030 Max Roy, Houston, TX 77008, Tel: 713-869-0361, Telex: 775-959

AUTOMATION UNLTD., 10H Roessler Rd., Woburn, MA 01801, Tel: 617-933-7288, Telex: 949329; *Sls. Mgr.:* Stephen A. Gould

AUTOSPLICE, INC., 59-12, 37th Ave, Woodside, NY 11377, Tel: 212-429-0500, Telex: 420902, TWX: 968171; Empl.: 86; *Sls. Mgr.:* O. Nedelkovich

Local Sales Offices & Reps

CA	Glendale, Tooltronics	213-240-4000
CA	San Diego, Autosplice West	619-560-0571
CA	Santa Clara, Tooltronics	408-496-6000
IL	Chicago, Schiffer Assoc.	312-847-2400
IN	Fort Wayne, Menze Sls.	219-747-5616
MA	Cambridge, Autosplice Northeast	617-576-3838

AUTO-SWAGE PRODS., 726 River Rd., Shelton, CT 06484, Tel: 203-929-1401, Telex: 963-542; Empl.: 170; *Sls. Mgr.:* R. Mikulsky .... **2**•1860

Local Sales Offices & Reps

CA	Glendale, Haldeman & Frazier	213-247-3330
CO	Denver, Regional Sls. Co.	303-433-7397
CT	Newtown, Yankee Engrg.	203-426-5679
FL	Boca Raton, F/G Assocs.	305-395-3907
IL	Barrington, Perhats Assocs.	312-381-6360
IN	Greensburg, H. K. Feaster Assocs.	812-663-5689
MN	Minneapolis, W. R. Maleckar Co.	612-926-7601
MO	St. Louis, Meiners Sls.	314-383-4833
NY	Rochester, Antil-Thrasher Assoc.	315-468-2370
OH	Chagrin Falls, Bray Assocs.	216-247-4474
PA	Broomall, AM Tech. Sls. Co.	215-356-0574
SC	Fort Mills, Eagle Sales, Inc.	803-548-2222
EXP	NY, New York, Lang & Zysk	212-227-1743

AUTOTROL, P.O. Box 557, Crystal Lake, IL 60014, Tel: 815-459-3080, Telex: 72-2417; Empl.: 140; *Sls. Mgr.:* Gerald L. Adair

AUTO-TROL TECH., 12500 N. Washington St., Denver, CO 80233, Tel: 303-452-4919, TWX: 910-320-0772; Empl.: 600; *Sls. Mgr.:* Jim Norrod

AUTRONICS, 314 E. Live Oak, Ste. A, Arcadia, CA 91006, Tel: 818-445-5470, TWX: 910-582-3216; FSC No.: 03972; Empl.: 65

Local Sales Offices & Reps

CA	Fullerton, Hawk Assocs.	714-773-4152
CA	Los Altos, Frauman Assocs.	415-941-0660
CA	Westlake Village, Jayess Co.	213-991-0632
TX	Richardson, Scientific Sls. & Svcs.	214-231-6541
WA	Bellevue, Thorson Northwest	206-455-9180

AVA INSTRMN., INC., 8010 Highway 9, Ben Lomond, CA 95005, Tel: 408-336-2281, Telex: 357403 AVA; FSC No.: 61933; Empl.: 6; *Sls. Mgr.:* Allan Hughes

Local Sales Offices & Reps

CA	Encino, King Eng.	213-995-7271
CA	San Jose, Data Rep.	408-279-1212
MA	Andover, PC Associates	617-475-3298
NY	NY, Hartford, PDQ Assocs.	315-768-8167
PA	Huntingdon Valley, Lynbar Group	215-947-3554

AVANTEK, INC., 3175 Bowers Ave., Santa Clara, CA 95051, Tel: 408-496-6710, Telex: 34-6337, TWX: 910-339-9274; Empl.: 2268

Local Distributors

AL	Huntsville, CDI Branch Off.	205-883-7501
AZ	Scottsdale, Spirit Elctrns.	602-998-1533
CA	Los Altos, Pen Stock Co.	415-948-6552
CA	Los Angeles, Sertek, Inc.	213-477-9051
CA	Orange, Sertek, Inc.	714-997-7311
FL	Ft. Lauderdale, Component Distrs.	305-971-4950
IL	Arlington Heights, Peak Distrs.	312-255-0707
IN	Indianapolis, Peak Distrs.	317-247-1316
MD	Beltsville, Applied Specialties	301-595-5393
NC	Raleigh, CDI Branch Off.	919-781-0262

AVCO-ELCTRNS. DIV., 4807 Bradford Dr., Huntsville, AL 35805, Tel: 205-837-6500, TWX: 810-726-2240; Empl.: 700; *Sls. Mgr.:* Jim Pool and David Helms

AVEL-LINDBERG INC., Peacock Alley 116, 1 Padanaram Rd., Danbury, CT 06810, Tel: 203-797-8698, TWX: 710-456-9984; Empl.: 4; *Sls. Mgr.:* Harvey R. Snider

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Off-the-shelf and custom designed transformers for low radiated noise, high efficiency and smaller size and weight. Toroidal transformers in ratings from 15 VA to 1900 VA are offered in the "Budget", open style or encapsulated in a polycarbonate case. The "On-Board" range, PCB styled miniatures, bobbin wound for close card spacing in ratings from 2 VA to 30 VA.

Local Distributors

CT	Wallingford, Sager Elctrl. Supp. Co.	203-265-4600
MA	Hingham, Sager Electrical Supp. Co.	617-749-6700
NY	New York, Martin Audio/Video Corp.	212-541-5900

AVEX ELCTRNS., 1683 Winchester Rd., P.O. Box 1026, Bensalem, PA 19020, Tel: 215-638-3300; FSC No.: 58414; *Sls. Mgr.:* Mike Battery Batley; *Dist. Mgr.:* Mike Batley .... **3**•1403

AVIBANK MFG., 210 S. Victory Blvd., Burbank, CA 91503, Tel: 818-843-4330, TWX: 910-498-2215; FSC No.: 84256; Empl.: 330; *Sls. Mgr.:* D. Ladin

AVIONIC INSTRS., 943 E. Hazelwood Ave., Rahway, NJ 07065, Tel: 201-388-3500, Telex: 844413; Empl.: 42; *Sls. Mgr.:* Wallace J. Izzo; *Dist. Mgr.:* Wallace J. Izzo .... **3**•1828, 1829

Local Sales Offices & Reps

EXP	NJ, Rahway, REA Intl. Ltd.	201-382-7100

AVIONICS, Box 200, Niagara-On-Lake, ON, Canada, Tel: 416-468-3632; Empl.: 25

AVTEL DIV., UNITRON INC., 2826 W. Kingsley Rd., Dept. G, Garland, TX 75041, Tel: 214-271-4531, Telex: 73-0644; FSC No.: 6130; Empl.: 95; *Sls. Mgr.:* R. L. Beutel .... **3**•1831, 1832

Local Sales Offices & Reps

CA	Sunland, Unitron (Jim Crevier)	818-352-7348
GA	Byron, Unitron (Joe Joiner)	912-956-2866
PA	Lansdowne, Unitron (Douglas S. Feisler)	215-622-4811

AVX CORPORATION, Box 867, Myrtle Bch., SC 29577, Tel: 803-448-9411, TWX: 810-661-2252; FSC No.: 9K916; *Sls. Mgr.:* John Winn; *Dist. Mgr.:* George Lees .... **1A**•1002, 1010-1014; **1B**•1002, 1008, 1009

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Tempe, Interstate Mktg.	602-244-9050
AR	Little Rock, Beacon Elctrns.	501-224-5449
CA	San Diego, Interstate Mktg.	619-292-8117
CA	San Jose, Quadrep Inc.	408-946-4000
CA	Woodland Hills, Interstate Mktg. Assocs.	213-883-7606
CO	Denver, Elcom	303-337-2300
FL	Clearwater, Dyne-a-Mark	813-441-4702
FL	Fort Lauderdale, Dyne-a-Mark	305-771-6501
FL	Maitland, Dyne-a-Mark	305-831-2097
FL	Palm Bay, Dyne-a-Mark	305-727-0192
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Highland Park, T.B. Hunter Assocs.	312-433-7000
IN	Ft. Wayne, F.J. Campisano Co.	219-747-2633
IN	Indianapolis, Frank J. Campisano	317-253-7651
IA	Cedar Rapids, Comstrand	319-377-1575
MD	Baltimore, Burgin-Kreh Assocs.	301-265-8500
MA	Lexington, J.E. Boeing Co.	617-862-2500
MI	Grand Rapids, J.L. Montgomery	616-774-9308
MI	Southfield, J.L. Montgomery	313-358-2616
MN	Minneapolis, Comstrand Inc.	612-788-9234
MO	Grandview, Beneke & McCaul	816-765-2998
NJ	Bellmawr, Thomas Assoc.	609-933-2600
NM	Albuquerque, Thorson Co.	505-293-8555
NY	Ithaca, Bob Dean, Inc.	607-257-1111
NY	Melville, Comtronic Assocs.	516-249-0505
NC	Raleigh, Tingen Technical Sales	919-781-1100
OH	Cincinnati, F.J. Campisano Co.	513-574-7111
OH	Cleveland, Frank J. Campisano	216-749-5550
OH	Dayton, Schmidt & Assoc.	513-293-6652
OK	Oklahoma City, Ammon & Rizos	405-942-2552
OR	Hillsboro, Western Tech. Sls.	503-640-4621
PA	Coraopolis, F.J. Campisano Co.	412-264-5151
TX	Austin, Ammon & Rizos Co.	512-454-5131
TX	Dallas, Ammon & Rizos Co.	214-644-5591
TX	Houston, Ammon & Rizos Co.	713-781-6240
UT	Salt Lake City, Elcom, Inc.	801-532-7940
VA	Lynchburg, Burgin-Kreh Assoc.	804-239-2626
WA	Bellevue, Western Tech. Sls.	206-641-3900
WA	Spokane, Western Techn. Sls.	509-922-7600

Local Distributors

AL	Huntsville, R. M. Elctrns.	205-852-1550
AZ	Phoenix, TTI	602-966-1616
AZ	Phoenix, Kierulff Elctrns.	602-243-4101
AZ	Phoenix, Wyle Distr.	602-249-2232
AZ	Tempe, Arrow Elctrns.	910-950-2019
CA	Chatsworth, IEC	213-998-2200
CA	Chatsworth, Arrow Elctrns.	213-701-7500
CA	Chatsworth, IEC Elctrns.	213-998-2200
CA	El Monte, Marshall Elctrns	818-442-7204
CA	El Segundo, Wyle Distribution Grp.	213-322-8100
CA	Hayward, Arrow Dist. Center	415-487-4300
CA	Irvine, Wyle Dist. Gp.	714-863-9953
CA	Irvine, IEC	714-660-1055
CA	Irvine, Marshall Elctrns	714-556-6400
CA	Irvine, Wyle Distr. Grp.	714-863-9953
CA	Los Angeles, Kierulff Elctrns.	213-725-0325
CA	N. Hollywood, T.T.I.	818-982-0201
CA	Rancho Cordous, Wyle Dist. Gp.	916-638-5252
CA	Sacramento, IEC	916-424-5297
CA	San Diego, Kieruff Elctrns.	714-278-2112
CA	San Diego, Wyle Distr.	619-565-9171
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Jose, Cetec Elctrns.	408-263-7373
CA	San Jose, Eric Elctrns.	408-262-1111
CA	San Jose, IEC	408-263-1100
CA	Santa Clara, Wyle Distr.	408-727-2500
CA	Southgate, Cetec Elctrns.	213-773-6521
CA	Sun Valley, Q.C. Components	213-768-6111
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Tustin, Arrow Elctrns.	714-838-5422
CA	Tustin, Kierulff Elctrns.	714-731-5711
CO	Denver, IEC	303-292-6121
CO	Denver, Arrow Elctrns.	303-758-2100
CO	Denver, Kierulff Elctrns.	303-371-6500
CO	Thornton, Wyle Dist. Gp.	303-457-9953
CT	E. Haven, J. V. Elctrns.	203-469-2321
CT	Wallingford, Marshall Elctrns.	203-265-3822
CT	Wallingford, Kierulff Elctrns.	203-265-1115
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Ft. Lauderdale, NRC Elctrns.	305-772-4500
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Orlando, Marshall Elctrns.	305-841-1878
FL	Orlando, T.T.I.	305-859-1000
FL	Palm Bay, Arrow Elctrns.	305-725-1480
FL	St. Petersburg, Kierulff Elctrns.	813-576-1966
GA	Norcross, Kierulff Elctrns.	800-241-0560
GA	Norcross, Marshall Elctrns.	404-923-5750
GA	Norcross, Arrow Elctrns.	404-449-8252
IL	Elk Grove, Kierulff Elctrns.	312-640-0200
IL	Lombard, RM Elctrns.	312-932-5150
IL	Schaumburg, Marshall Elctrns.	314-490-0155
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, RM Elctrns.	317-247-9701
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Gaithersburg, Marshall Elctrns.	301-840-9450
MD	Rockville, M.S. Elctrns.	301-340-6400
MA	Wakefield, MCI	617-245-5967
MA	Westboro, Future Elctrns.	617-366-2400
MA	Wilmington, RC Components	617-273-1860
MA	Woburn, Arrow Elctrns.	617-933-8130
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Grand Rapids, Arrow Elctrns.	616-243-0912
MI	Grand Rapids, RM Elctrns.	616-531-9300
MI	Livonia, Marshall Elctrns.	313-525-5850
MN	Edina, Kierulff Elctrns.	612-941-7500
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Plymouth, Marshall Elctrns.	612-559-2211
MO	Maryland Hgts., Kierulff Elctrns.	314-739-0855
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	Clifton, J-Mar Elctrns.	201-772-6400
NJ	Fairfield, Marshall Elctrns.	201-882-0320
NJ	Fairfield, Arrow Elctrns.	201-797-5800
NJ	Marlton, Arrow Elctrns.	609-596-8000
NJ	Mt. Laurel, Marshall Elctrns.	609-234-9100
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	Bohemia, TTI	516-567-1500
NY	E. Farmingdale, Tri-Start	516-293-0400
NY	Endwell, Marshall Industries	607-754-1570
NY	Hauppague, Arrow Elctrns.	516-231-1000
NY	Hauppauge, Marshall Industries	516-273-2424
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Liverpool, Arrow Elctrns	315-652-1000
NY	Lynbrook, Patriot	516-599-8881
NY	Melville, Arrow Elctrns.	516-391-1484
NY	Rochester, Marshall Industries	716-235-7620
NY	Rochester, Arrow Elctrns.	716-275-0300
NC	Greensboro, Kierulff Elctrns.	919-852-9440
NC	Raleigh, Kierulff Elctrns.	919-872-8410
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Winston Salem, Arrow Elctrns.	919-725-8711
OH	Akron, Akron	216-762-8818
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cleveland, Kierulff Elctrns.	216-587-6558
OH	Dayton, Marshall Elctrns.	513-236-8088
OH	Solon, Arrow Elctrns.	216-248-3990
OK	Tulsa, Kierulff Elctrns.	918-252-7537
OK	Tulsa, Arrow Elctrns.	918-665-7700
OR	Tigard, Arrow Elctrns.	503-684-1690
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Philadelphia, Almo Elctrns.	215-698-4000
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Austin, Kierulff Elctrns.	512-835-2090
TX	Dallas, Kierulff Elctrns.	214-343-2400
TX	Dallas, R.M. Elctrns.	214-235-3100
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Ft. Worth, T.T.I.	817-429-1440
TX	Houston, Kierulff Elctrns.	713-530-7030
TX	Richardson, Jaco	214-235-9575
TX	Stafford, Arrow Elctrns.	713-491-4100
UT	N. Salt Lake City, IEC	801-298-1868
UT	Salt Lake City, Arrow Elctrns.	801-539-1135
UT	Salt Lake City, Kierulff Elctrns.	801-973-6913
WA	Bellevue, Arrow Elctrns.	206-643-4800
WA	Bellevue, Wyle Elctrns.	206-453-8300
WA	Bellevue, IEC	206-455-2727
WI	New Berlin, R.M. Elctrns.	414-784-4420
WI	Oak Creek, Arrow Elctrns.	414-764-6600

AXEL ELCTRNS., 134-20 Jamaica Ave., Jamaica, NY 11418, Tel: 212-291-3900, TWX: 710-582-2618; FSC No.: 13058; Empl.: 210; *Sls. Mgr.:* J. Alaimo

AXIAL MAGNETICS, 6600 Whitaker Ave., Van Nuys, CA 91406, Tel: 818-994-3346

AXIOM CORP., 1014 Griswold Ave., San Fernando, CA 91340, Tel: 213-365-9521

AXIS, INC.

AXIS, INC., 7825 Engineer Rd., Ste. 208, San Diego, CA 92111, Tel: 619-560-7737; FSC No.: 9S849; Empl.: 12; *Sls. Mgr.:* Mark J. Prager ....2•1010

Local Sales Offices & Reps

FL	St. Petersburg, Southern Engrg. Assoc.	813-577-7700
IL	Chicago, Fairlines Co.	312-735-2606
MD	Catonsville, Robert Elctrn. Sls.	301-788-2380
MI	Southfield, Infinity	313-557-7230
MN	Eden Prairie, First Rep Co. of Minn.	612-944-2097
MO	St. Louis, Design Solutions	314-961-7170
WA	Bellevue, Olson Ferree & Assocs.	206-883-7792

AYDIN CORP., 700 Dresher Rd., Horsham, PA 19044, Tel: 215-657-7510, Telex: 685 1211, TWX: 510-661-0518; Empl.: 2,000; *Sls. Mgr.:* B. Jack Miller

AYDIN CONTROLS, 414 Commerce Dr., Ft. Washington, PA 19034, Tel: 215-542-7800, Telex: 6851057, TWX: 510-661-0518; Empl.: 533; *Sls. Mgr.:* Joseph J. Taylor

AYDIN MICROWAVE, 75 East Trimble Rd., San Jose, CA 95131, Tel: 408-946-5600, Telex: 4990756, TWX: 910-338-0216; Empl.: 200; *Sls. Mgr.:* Bruce M. Jennings

Local Sales Offices & Reps

VA	Alexandria, Aydin Corp.	703-823-9735

AYDIN MONITOR SYS., 502 Office Center Dr., Ft. Washington, PA 19034, Tel: 215-646-8100, TWX: 510-661-1520; Empl.: 241

AYDIN VECTOR DIV., Box 328, Newtown, PA 18940, Tel: 215-968-4271, TWX: 510-667-2320; FSC No.: 13923; Empl.: 280

BABCOCK ELECTRO-MECHANICAL, INC., Sub. of Electro-Module, Inc., 3535 Harbor Blvd., Costa Mesa, CA 92626, Tel: 714-540-1234, TWX: 910-595-1517; FSC No.: 56623; Empl.: 245; *Sls. Mgr.:* Albin Gudis; *Dist. Mgr.:* Albin Gudis

Local Sales Offices & Reps

CA	Palo Alto, Horne Electro Sales	415-494-6777
TX	Houston, Barry Sls.	713-784-5860

BACH-SIMPSON LTD., 1255 Brydges St., London, ON N5W-2C2, Canada, Tel: 519-452-3200

BACON INDS., 192 Pleasant St., Watertown, MA 02172-2399, Tel: 617-926-2550, TWX: 710-327-6518; FSC No.: 99098; Empl.: 23; *Sls. Mgr.:* R. S. Cass

BAILEY CONTROLS CO., 29801 Euclid Ave., Wickliffe, OH 44092, Tel: 216-585-5800, Telex: 980621, TWX: 216-944-4160; Empl.: 2300; *Sls. Mgr.:* R. A. Purmal; *Dist. Mgr.:* R. C. Wright

BAKER, J. T., CHEMICAL CO., 222 Red School La., Phillipsburg, NJ 08865, Tel: 201-859-2151, TWX: 510-235-2924; Empl.: 1,200; *Sls. Mgr.:* D. J. Calder

BAKER CO., INC., Drawer E - Sanford Airport, Sanford, ME 04073, Tel: 207-324-8773; Empl.: 105

BALLANTINE LABS., 90 Fanny Rd., Boonton, NJ 07005, Tel: 201-335-0900, TWX: 710-987-8380; FSC No.: 50423; Empl.: 90; *Sls. Mgr.:* Joe Deery; *Dist. Mgr.:* Joe Deery ....3•1191

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CA	Costa Mesa, FLW Inc.	714-751-7512
CA	San Jose, MCH Assocs.	408-246-7330
CA	Van Nuys, FLW Inc.	213-989-5237
CO	Denver, Zeus Elctrns.	303-321-6818
FL	Orlando, Micro Spec, Inc.	305-299-6508
GA	Lawrenceville, Micro Spec, Inc.	404-979-3444
IL	Arlington Hgts., Dytec/Central	312-394-3380
IN	Indianapolis, Dytec/Central	317-247-1316
MA	Reading, Scheinfein Assoc.	617-944-2304
MI	Madison Hgts., WKM Assoc.	313-588-2300
NJ	Elmwood Park, L & M Assocs.	201-797-0441
NM	Albuquerque, Zeus Elctrns.	505-842-6633
OH	Cleveland, WKM Assoc.	216-267-0445
OH	Dayton, WKM Assoc.	513-434-7500
OR	Portland, Westcon	503-283-0132
PA	Andalusia, L & M Assocs.	215-245-6658
PA	Pittsburgh, WKM Assoc.	412-292-2953
SC	Rock Hill, Micro Spec, Inc.	803-366-3015
UT	Salt Lake City, Zeus Elctrns.	801-534-0500
VA	Alexandria, Dyna Rep Co.	703-354-1222

BALL ELECTRONIC DISPLAY DIV, Box 43376, St Paul, MN 55164, Tel: 612-786-8900, TWX: 910-563-3552; Empl.: 500; *Sls. Mgr.:* L. R. Lemke

BALL ELCTRN., Systems Div., 1950 33rd St., Boulder, CO 80302, Tel: 303-441-5400, Telex: 45776; Empl.: 500

BALSTON, 703 Massachusetts Ave., Lexington, MA 02173, Tel: 617-861-7240, Telex: 92-3481; Empl.: 50; *Sls. Mgr.:* J. Alpert

BALZERS OPTICAL GRP., 170 Locke Dr., Marlboro, MA 01752, Tel: 617-481-9860, Telex: 951-562; Empl.: 136; *Dist. Mgr.:* Michael G. Allen

B & B MOTOR & CONTROL CORP., Apple Hill Commons, Burlington, CT 06013, Tel: 203-673-7151, Telex: 14-1484; Empl.: 90; *Sls. Mgr.:* Sam Mandel

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CT	Berlin	203-828-8550
FL	Clearwater	800-845-1020
IL	Chicago	312-681-0089
IN	Indianapolis	317-248-0396
KY	Louisville	502-589-7753
MA	Boston	617-890-4944
NH	Nashua	603-883-1062
NJ	Piscataway	201-572-0500
NY	Baldwin	212-784-1313
NY	Elmira	607-732-6599
NY	Long Island City	212-784-1313
NY	Rochester	716-424-7040
NC	Charlotte	704-375-0577
OH	Cincinnati	513-381-1885
SC	Greenville	803-268-5702
TX	Dallas	214-641-0857
TX	Houston	713-820-7931

B & G PRECISION ELCTRNS., 538 Maple Ave., Doylestown, PA 18901, Tel: 215-348-4413; *Sls. Mgr.:* Eugene R. Bigay; *Dist. Mgr.:* Xavier Garcia

B & K PRECISION PROD. GRP., DYNASCAN, 6460 W. Cortland, Chicago, IL 60635, Tel: 312-889-9087, Telex: 253475; FSC No.: 08098, 18110, 48560, 30678; Empl.: 250; *Sls. Mgr.:* Dennis Hoy ....3•1182, 1198-1202, 1362-1364, 1509

Local Sales Offices & Reps

CA	Irvine, Mike Roth Sls.	714-250-0722
CA	Pleasanton, Moulthrop Sls.	415-463-0450
CO	Louisville, Stan Sliz & Assocs.	303-666-4760
FL	Maitland, Hutto, Hawkins, Peregoy	305-831-2474
GA	Tucker, Maitland K. Smith	404-939-3322
IL	Arlington Hgts., Brainard-Wilson Mktg.	312-437-2700
IN	Carmel, Brainard-Wilson Mktg.	317-844-2800
KS	Shawnee Mission, Lowell-Kangas & Assocs.	913-631-3515
LA	Chalmette, Erickson Sls.	504-271-1976
MD	Perry Hall, Electra-Tech	301-256-2723
MA	Woburn, W & D Marketing	617-935-5610
MI	Southfield, Robert Milsk Co., Inc.	313-354-3310
MN	Minneapolis, HMR, Inc.	612-888-2100
MO	St. Louis, Lowell-Kangas Assoc.	314-821-4050
NY	Bellmore, Selectra Sls.	516-221-7865
NY	Rochester, Warren Kaufman & Assoc.	716-266-2728
OH	Conneaut, Thomas P. Clements	412-261-0950
OK	Oklahoma City, Erickson Sls.	405-682-2947
OR	Portland, Fleehart & Sullivan	503-641-8540
PA	Norristown, Precision Meas. Co.	215-279-4242
TX	Dallas, Erickson Sls.	214-739-5833
VA	Dumfries, Electra-Tech	703-670-6962
WA	Seattle, Fleehart & Sullivan	206-527-5454
WI	Waukesha, Brainard-Wilson Mktg.	414-547-2285
EXP	NY, Plainview, Empire Exporters	516-293-5582

BANNER ENGRG. CORP., 9714 - 10th Ave. N., Minneapolis, MN 55441, Tel: 612-544-3164, Telex: 29-1011; *Sls. Mgr.:* Floyd Schneider

BARBER-COLMAN CO., Indl. Instrs. Div., P.O. Box 2940, 1354 Clifford Ave., Loves Park, IL 61132, Tel: 815-877-0241, Telex: 257327; Empl.: 5000; *Sls. Mgr.:* John Parry

BARBER-COLMAN CO., Motor Div., 14116 Rock St., Rockford, IL 61101, Tel: 815-877-0241, Telex: 25-7419, TWX: 910-631-3425; Empl.: 3500; *Sls. Mgr.:* R. B. Nelson

BARCEL WIRE & CABLE CORP., Electronics Div., 2851 Aton Ave., Irvine, CA 92714

BARKSDALE CONTROLS DIV., Transamenca DeLaval, 3211 Fruitland Ave., P.O. Box 58843, Los Angeles, CA 90058, Tel: 213-589-6181, Telex: 67-4113; Empl.: 325; *Sls. Mgr.:* R. C. Wolf

BARNES & REINECKE, INC., 2375 Estes Ave., Elk Grove Village, IL 60007, Tel: 312-640-7200; Empl.: 290

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BARNES ENGRG., 1645 So. Claudina Way, Anaheim, CA 92805, Tel: 714-533-7530; FSC No.: FSCM 53823 S.I.C. 3469; Empl.: 38; *Sls. Mgr.:* Gorgdon Mackenzie ....2•1011-1013

BARNES ENGRG., 44 Commerce Rd., P.O. Box 53, Stamford, CT 06904, Tel: 203-348-5381, Telex: 965921, TWX: 710-474-3367; Empl.: 300; *Sls. Mgr.:* H. R. Hofmann, Jr.

BARON-BLAKESLEE, INC., Sub. Purex Inds., Inc., 2001 N. Janice Ave., Melrose Pk., IL 60160, Tel: 312-450-3900, Telex: 25-4701; *Sls. Mgr.:* B. Uffer

BARON WIRE & CABLE, 1811 W. Bryn Mawr Ave., Chicago, IL 60660, Tel: 312-728-7480, Telex: 72-4322; Empl.: 50; *Sls. Mgr.:* Al Desaluo

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BARTLETT-EMERY INSTR., 14th & Ave. 'M', P.O. Box 445, Ft. Madison, IA 52627, Tel: 319-372-8366; Empl.: 25; *Sls. Mgr.:* P. R. Bartlett

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Local Sales Offices & Reps

IL	Union	815-923-4494
MA	Norwood	617-769-9660
PA	Pittsburgh	412-279-5544

BASE TEN SYS., One Electronics Dr., Box 3151, Trenton, NJ 08619, Tel: 609-586-7010, Telex: 4754158, TWX: 510-685-5692; FSC No.: 30377; Empl.: 255; *Sls. Mgr.:* Oleh Pavlovsky

BASF SYS., Crosby Dr., Bedford, MA 01730, Tel: 617-271-4000, 800-343-4600, Telex: 92-3423; Empl.: 1,100; *Sls. Mgr.:* David F. Pippin

BASIC MEASURING INSTRS., 402 Lincoln Centre Dr., Foster City, CA 94404, Tel: 415-570-5355; *Sls. Mgr.:* Joseph K. Kirkup .... 3•1830

BASLER ELEC., Rte. 143, Highland, IL 62249, Tel: 618-654-2341, TWX: 910-996-2522; Empl.: 940

BASLER ELEC. CIRCUITS, INC., 204 Highland Dr., P.O. Box 1165, Taylor, TX 76574, Tel: 512-352-7683; Empl.: 110; *Sls. Mgr.:* Sam Jones

Local Sales Offices & Reps

CO	Lakewood, Mike Ikeda	303-987-0900
TX	Dallas, Barry Black	214-321-4359

BAUSCH & LOMB, 820 Linden Ave., Rochester, NY 14625, Tel: 716-338-6000, Telex: 97-2286; *Sls. Mgr.:* Martin Green

BAUSCH & LOMB, 820 Linden Ave., Rochester, NY 14625, Tel: 716-338-6314, Telex: 98-8286; Empl.: 500

BAUSCH & LOMB, S.O.P.D. DIV, 1400 N. Goodman St., Rochester, NY 14602, Tel: 716-338-6000, Telex: 97-8231, TWX: 510-253-6189; Empl.: 5000; *Sls. Mgr.:* D. Curtiss

BAYLEY INSTR. CO., Box 357, Kenwood, CA 95452, Tel: 707-833-6014

BBC BROWN BOVERI GOERZ METRAWATT

BBC-METRAWATT/GOERZ, 6901 W. 117th Ave., Broomfield, CO 80020, Tel: 303-469-5231, 800-821-6327, Telex: 45-4540; Empl.: 12; *Sls. Mgr.:* Andy Zeidler .... 3•1192, 1193

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AL	Trussville, Adams & Assocs.	205-681-5162
CA	Campbell, Olsheski & Assoc.	408-378-6003
CA	Sun Valley, Tequni-Rep. Assoc.	213-768-4223
FL	Lake Worth, Adams & Assocs.	305-588-7630
GA	Marietta, Adams & Assocs.	404-973-0853
KS	Wichita, Maury Bettis	316-265-8250
KS	Olathe, Maury Bettis	913-764-0621
IN	Indianapolis, DeVoe Co.	317-842-3246
IL	Chicago, Industrial Reps.	312-647-7755
LA	Kenner, Gunn & Assocs.	504-443-5072
MA	Norwood, MacInnis Corp.	617-762-8090
MI	Livonia, Harvey Sls.	313-476-1974
MN	Bloomington, Northport Engineer	612-854-5556
MO	St. Louis, Maury Bettis	314-429-2099
NY	Whitestone, Jack Brown Elect.	212-767-1977
NY	Kew Gardens, Jack Brown Elect.	212-846-5130
NC	Greensboro, Adams & Assocs.	919-272-6838
OH	Cleveland, Kirik Sls.	216-581-7722
OK	Oklahoma City, Gunn & Assocs.	405-721-9400
PA	Wynnewood, Stinson Assocs.	215-896-7278
TN	Memphis, Hicks Sls.	901-386-5725
TX	Carrollton, Gunn & Assocs.	214-733-1222
TX	Houston, Gunn & Assocs.	713-466-8673
TX	San Antonio, Gunn & Assocs.	512-655-1041
WA	Seattle, Pacific Mktg. Grp.	206-485-1888

Recorder Rep List

AL	Huntsville, Newcombe Assocs.	201-837-3233
CA	Martinez, Rotech	415-372-6007
CA	Woodland Hills, Friedman & Assoc.	213-702-0665
CO	Arvada, Air-Row Entprs.	303-421-4204
IL	Rolling Meadows, Commodore 1	312-394-5441
IL	Fairview Heights, Delta Inst.	618-939-7755
IA	Coralville, Delta Inst.	319-626-6794
KS	Wellington, Delta Inst.	316-326-6398
MA	West Roxbury, Reptek	617-469-3311
MD	Wheaton, Brimberg Sls.	301-946-2670
MI	Hazel Park, TIBY Company	313-547-3550
NC	R.T.P., Newcomb Assocs.	919-549-0486
NY	Rochester, L-Tron	716-436-4410
NY	Albany, L-Tron	518-482-1987
NY	Roslyn Heights, Penzias Assocs.	516-621-8522
OH	Cleveland, TIBY Co.	216-371-5335
OR	Portland, Westcon	503-283-0132
PA	Philadelphia, DANA Scientific	215-969-8550
TX	Austin, Acudata	512-346-4033
TX	Houston, Acudata	713-580-2451
TX	Plano, Acudata	214-424-3567

Multimeter Distributors

AL	Dothan, Carmichael Elect.	205-793-7066
AL	Mobile, Arnolds Inst.	205-478-3230
AL	Mobile, Brownell-Electro	205-479-8581
AL	Mobile, Breard-Gardner	205-476-6174
AK	Anchorage, Alaska Electr. Sup.	907-563-3774
AK	Juneau, Juneau Elctrns.	907-586-2260
AZ	Phoenix, Arizona Whls. Supp.	602-258-7901
AZ	Phoenix, Parts Elect. of Arizona	602-968-6231
AZ	Phoenix, Tri-Tek	602-995-9352
AZ	Scottsdale, Beta Distrs.	602-947-7841
CA	Alameda, Alameda Elctrn. Dist.	415-523-6933
CA	Berkley, Al Lasher's Elctrns.	415-843-5915
CA	Burbank, Elctrn. City	213-842-5275
CA	Chatsworth, Intl. TV Cor	213-700-0900
CA	Costa Mesa, Marvac Elctrns.	714-540-3280
CA	Costa Mesa, Wesco Elect. Supp.	714-556-8788
CA	El Segundo, WASSCO	213-772-8171
CA	Fullerton, Specialized Prods.	714-773-9555
CA	Hawaiian Gardens, Carson Elctrns.	213-421-3786
CA	Hayward, Alameda Elect. Dist.	415-786-1400
CA	Hollywood, Yale Elctrns.	213-465-4169
CA	Inglewood, Inglewood Elctrns.	213-674-2366
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CO	Aurora, Anixter	303-371-6992
CO	Aurora, R&R Instrument	303-340-8728
CO	Englewood, Beta Distrs.	303-779-4494
CT	Norwalk, Park Distrib.	800-243-5006
FL	Hialeah, Kimball Elect Lab	305-822-5792
FL	Miami, Brownell Electro	305-591-3215
FL	Orlando, Brownell Electro	305-843-6770
GA	Atlanta, Brownell Electro	404-762-5181
GA	Atlanta, Wholesale Ind. Elect.	404-447-8431
HI	Honolulu, Integrated Cir.	808-841-4175
IN	East Chicago, Acro Elect.	219-397-8681
IN	Evansville, Electro-Lab	812-423-5211
IN	Indianapolis, Graybar	317-631-1411
IN	Indianapolis, MAR Elctrns.	317-875-4510
IN	Indianapolis, Graham Elctrns.	317-634-8202
LA	Baton Rouge, Breard-Gardner	504-272-4420
LA	Baton Rouge, Barnhill Assoc.	504-924-6826
LA	New Orleans, WB Allen Sup.	504-525-8222
MD	Rockville, Capitol Radio Whsle.	301-881-2270
MD	Wheaton, Brimberg Sls.	301-946-2670
MA	Boston, Hub Matl.	617-542-7531
MA	Cambridge, Kaufman Co.	617-491-5500
MA	N. Billerica, AST Servo Sys.	617-667-8541
MA	Newtonville, Security Sup. Serv.	617-965-3400
MA	Waltham, Calibron Instr.	617-894-6440
MA	Woburn, Brownell Electro	617-935-7820
MI	Detroit, Elctrn. Parts Co.	313-891-7400
MI	East Detroit, Elctrn. Parts Co.	313-773-0030
MN	Barnville, Atrix Tool	612-894-6154
MS	Jackson, Ellington Electr.	601-355-0561
MS	Meridian, Hooper Electr. Sup.	601-693-2668
MO	Rolla, Show-Me Elctrns.	314-364-1515
MO	St. Louis, Van Sickle Radio Elect.	314-621-5000
MT	Helena, D. N. Latus & Co.	406-442-3940
NV	Las Vegas, Hurley Elctrns.	702-384-5666
NJ	Bergenfield, Schirmer Nat'l.	201-385-1200
NJ	North Caldwell, Hosica Labs	201-256-7724
NJ	Raritan, Masters Elect. Supp.	201-725-3533
NJ	S. Plainfield, Brownell Electro	201-753-4600
NJ	Trenton, Jackson Distrs.	609-392-4141
NM	Albuquerque, Barnhill Assoc.	505-299-7658
NY	New York, Taft Elctrns.	212-575-5194
NY	New York, Brownell Electro	212-691-1171
NC	Charlotte, Brownell Electro	704-597-1270
NC	Fayette, Eastern Radio Supp.	919-485-2161
NC	Raleigh, Brownell Electro	919-876-6524
NC	Raleigh, Meter Metrics	800-446-7230
OH	Cleveland, Christie Labs	216-651-4100
OK	Enid, Enid Walker Elect.	405-234-2218
OK	Tulsa, Inotek Corp.	918-627-1500
OK	Tulsa, Tri-State Instr. Lab	918-836-0286
OR	Beaverton, Eicher-Richards Co.	503-221-1123
OR	Lake Oswego, Com-Kyl	800-538-1578
OR	Medford, United Radio Supp.	503-779-7933
OR	Portland, United Radio Supp.	503-223-5341
PA	Plymouth Meeting, Techni-Tool	215-825-4990
RI	Pawtucket, Jabbour Elect. Supp.	401-728-4600
SC	Charlestown, Whsle. Ind. Elect.	803-577-6388
SC	Greenville, Whsle. Ind. Elect.	803-235-8334
TN	Chattanooga, Curle Elctrns.	615-266-4727
TN	Knoxville, Brownell Electro	615-966-3441
TN	Memphis, Bluff City Electr.	901-345-9500
TN	Memphis, Brownell Electro	901-795-8487
TN	Nashville, Bluff City Elect.	615-242-8000
TN	Nashville, Brownell Electro	615-889-8230
TX	Austin, Beta Distrs.	512-452-0199
TX	Brownsville, Rio Radio Supp.	512-546-2492
TX	Corpus Christie, Leader Elctrns.	512-884-5527
TX	Dallas, Inotek Corp.	214-243-7000
TX	Dallas, Specialized Prods.	214-358-4663
TX	Ft. Worth, Inotek Corp.	817-877-5100
TX	Harlingen, Rio Radio Supp.	512-423-1959
TX	Houston, Specialized Prods.	713-789-6610
TX	Houston, Gilbert Elctrns.	713-225-0107
TX	Houston, Beta Distrs.	713-688-9971
TX	Houston, Angie Elctrns.	713-659-8386
TX	Houston, Brownell Electro	713-699-1981
TX	Houston, Inotek Corp.	713-688-7000
TX	McAllen, Rio Radio Supp.	512-682-5524
TX	Richardson, Beta Distrs.	214-783-1065
TX	San Antonio, Sherman Elect. Supp.	512-224-1001
UT	Salt Lake City, Beta Distrs.	801-973-4455
UT	Salt Lake City, Standard Sup.	800-662-7537
VT	Roanoke, Peoples Elect. Supp.	703-342-8933
VA	Richmond, Meter Metrics	800-552-7952
WA	Bellevue, United Radio Supp.	206-451-9396
WA	Seattle, Eicher-Richards Co.	206-523-7888

BBK, INC., 75 Travis Ave., Binghamton, NY 13904, Tel: 607-772-8119; *Sls. Mgr.:* Jerome Kunze

B-D CRYSTAL ENTPRS., INC., 1727 W. Galbraith Rd., Cincinnati, OH 45239, Tel: 513-522-3300, Telex: 21-4545; *Sls. Mgr.:* Janet Wood, Charles Fithen

BDS COMPUTER CORP., 800 Maude Ave., Mountain View, CA 94043, Tel: 415-964-2115, TWX: 910-373-2005; *Sls. Mgr.:* Dave Lester

BEAD ELCTRNS., Div. Bead Chain Mfg. Co., 110 Mountain Grove St., Bridgeport, CT 06605, Tel: 203-334-4124; Empl.: 175

BEA ELECTRO-OPTICS, INC., 690 First Ave., Des Plaines, IL 60016, Tel: 312-298-1420; *Sls. Mgr.:* George E. Magerl; *Dist. Mgr.:* Vic Halkyn

BEAM TUBE CORP., 11 Beach St., Milford, MA 01757, Tel: 617-473-0660

BEAN RUBBER MFG. CO., 1623 S. 10th St., San Jose, CA 95112, Tel: 408-293-2790; FSC No.: 18545; *Sls. Mgr.:* Kris Mosher

BEARING INSPECTION, 10041 Shoemaker Ave., Santa Fe Springs, CA 90670, Tel: 213-944-6251; Empl.: 31

BEAU PRODUCTS DIV., Box 10, Laconia, NH 03247, Tel: 603-524-5101, TWX: 710-364-1843; Empl.: 230; *Sls. Mgr.:* John Jansen; *Dist. Mgr.:* Larry Murphy .... 2•1164-1166

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, The Knight Co.	602-582-8506
CA	Los Angeles, The Knight Co.	213-670-2833
CA	Santa Clara, Nova-Tronix Elec. Sls.	408-727-9530
CO	Denver, W.J. Purdy Co.	303-777-1411
FL	Orlando, Cartwright & Bean	305-422-4531
GA	Atlanta, Cartwright & Bean	404-233-2939
IL	Lisle, W-G Controls	312-963-5954
LA	Kenner, Cartwright & Bean	504-466-0020
MA	Needham, R. Perron & Co.	617-449-6162
MI	Lathrup Village, R.C. Nordstrom Co.	313-559-7373
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
MS	Jackson, Cartwright & Bean	601-981-1170
MO	Kansas City, Forristal-Young Sls. Co.	816-358-6771
NH	Dover, R. Perron & Co.	603-742-2321
NJ	West Caldwell, Grimm, Siegel Assoc.	201-575-9300
NM	Albuquerque, C.T. Carlberg & Assoc.	505-883-3883
NY	Buffalo, Rudell-Merrifield Assoc	716-634-4300
NC	Charlotte, Cartwright & Bean	704-377-5673
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
OK	Oklahoma City, Erickson Sls.	405-682-2947
PA	Broomall, L.D. Lowery	215-356-5300
PA	Pittsburgh, Jim Finnegan	412-561-4687
TN	Memphis, Cartwright & Bean	901-276-4442
TX	Dallas, Erickson Sls.	214-739-5833
WA	Medina, Henry Paulman Sls. Co.	206-455-3311

BEAU TECH, P.O. Box 523, Portland, ME 04122, Tel: 207-775-6139; Empl.: 9

BEAVER LABS, P.O. 1290, Framingham, MA 01701, Tel: 617-653-2025; Empl.: 5

BEC INC., 2709 N. Broad St., Philadelphia, PA 19132, Tel: 215-229-9800; *Sls. Mgr.:* Bob Kandel

BECKMAN INSTRS., 2500 Harbor Blvd., Fullerton, CA 92634, Tel: 714-871-4848, Telex: 06-7413; Empl.: 12000

BECKMAN INSTRS., Cedar Grove Opers., 89 Commerce Rd., Cedar Grove, NJ 07009, Tel: 201-239-6200, TWX: 710-994-5781

BECKMAN INSTRS., Electro-Prods. Grp., 2500 Harbor Blvd., Fullerton, CA 92634, Tel: 714-871-4848, Telex: 06-78413, TWX: 910-592-1260; FSC No.: 73138; Empl.: 3700; *Sls. Mgr.:* M. P. Crugnale

BECKMAN INSTRS., HELIPOT DIV., See Beckman Instrs., Electro-Prods. Grp.

BEECHWOOD MFG., 310 S. Ohmer, Indianapolis, IN 46219, Tel: 317-356-2493; *Sls. Mgr.:* Robt. Cox

BEEDE ELECTRICAL INSTR. CO., S. Main St., Penacook, NH 03303, Tel: 603-753-6362, TWX: 710-364-6977; Empl.: 500; *Sls. Mgr.:* Mike Harbour

BEHLMAN DIV., CALIFORNIA INSTRS., Div. of Norlin Inds., 5150 Convoy St., San Diego, CA 92111, Tel: 619-279-8620, Telex: 695-047; FSC No.: 16067; Empl.: 90

BEHLMAN ENGINEERING CORPORATION, 1142 Mark Ave., Carpinteria, CA 93013, Tel: 805-684-8311; FSC No.: 53636; *Sls. Mgr.:* Edward C. Bertolet .... 3•1834-1839

Local Sales Offices & Reps

AZ	Phoenix, R. L. Davis	602-955-2266
CA	Cupertino, T. Louis Snitzer	408-257-8333
CA	Del Mar, T. Louis Snitzer	714-226-0305
CA	Los Angeles, T. Louis Snitzer	213-836-6170
FL	Satellite, Reynolds & Assocs.	305-773-4700
GA	Atlanta, Reynolds & Assocs.	404-252-5360
MD	Rockville, Farrell Assocs.	301-424-9460
MA	Needham, Addelco	617-444-4754
MN	St. Paul, Dytec No.	612-645-5816
EXP	CA, Los Angeles, Hanex	213-556-3807

BEI MOTION SYSTEMS CO., Corporate Off., 681 Market St., Ste. 741, San Francisco, CA 94105, Tel: 415-974-1275 .... 1B•1832

Local Sales Offices & Reps

CA	Santa Ana, BEI Motion Sys. Co.	714-973-8510
CA	Santa Clara, BEI Motion Sys. Co.	408-986-9006
CO	Boulder, BEI Motion Sys. Co.	303-440-7240
GA	Lawrenceville, BEI Motion Sys. Co.	404-963-0673
IL	Rockford, BEI Motion Sys. Co.	815-968-9528
MA	Wakefield, BEI Motion Sys. Co.	617-245-3851
MI	Plymouth, BEI Motion Sys. Co.	313-451-0359
OH	Cincinnati, BEI Motion Sys. Co.	513-321-1121
PA	King of Prussia, BEI Motion Sys. Co.	215-337-9228
TX	Euless, BEI Motion Sys. Co.	817-267-9351
WA	Bellevue, Thorson Co. Northwest	206-455-2300

BEI MOTION SYS. CO., Computer Prod. Div., 1755 B La Costa Meadows Dr., San Marcos, CA 92069, Tel: 619-471-2600; *Sls. Mgr.:* Everett McElroy .... 1B•1832

Refer to BEI Motion Sys. Co., Corporate Off., San Francisco, CA for sales office information.

BEI MOTION SYS. CO., Digital Prods. Div., P.O. Box 3838, Little Rock, AR 72203, Tel: 501-851-4000, TWX: 910-722-7384; Empl.: 506; *Sls. Mgr.:* H. O. Tyler .... 1B•1832

Refer to BEI Motion Sys. Co., Corporate Off., San Francisco, CA for sales office information.

BEI MOTION SYS. CO., General Control Systems Div., 564 Alpha Dr., Pittsburgh, PA 15238, Tel: 412-963-0515; *Sls. Mgr.:* Chic Sweeney .... 1B•1832

Refer to BEI Motion Sys. Co., Corporate Off., San Francisco, CA for sales office information.

BEI MOTION SYS. CO., Industrial Encoder Div., 7230 Hollister Ave., Goleta, CA 93117, Tel: 805-968-0782; *Sls. Mgr.:* Glenn Avolio .... 1B•1832

Refer to BEI Motion Sys. Co., Corporate Off., San Francisco, CA for sales office information.

BEI MOTION SYS. CO., Position Controls Div., 819 Reddick Ave., Santa Barbara, CA 93103, Tel: 805-966-1538, TWX: 910-334-4903; *Sls. Mgr.:* K. Capps .... 1B•1832

Refer to BEI Motion Sys. Co., Corporate Off., San Francisco, CA for sales office information.

BELDEN, Electronic Wire & Cable, P.O. Box 1980, Richmond, IN 47375, Tel: 317-983-5200, TWX: 810-345-1393; Empl.: 2180; *Sls. Mgr.:* Bill Donahoe .... 2•1934, 1946-1985

Regional Sales Offices

CA	Irvine	714-474-1200
IN	Richmond	317-983-5200
MA	Framingham	617-872-7846
TX	Dallas	214-788-4300

Local Sales Reps.

AZ	Scottsdale, W. Atkins	602-998-7355
CA	Huntington Beach, E. Kerezsi	714-848-2157
CA	Newark, R. Tribendis	415-490-0838
CA	Northridge, J. Duffin	213-993-8919
CA	Orange, K. Wales	714-750-9066
CA	San Jose, S. Landis	408-723-7117
CA	Tustin, W. Caughlin	714-832-5278
CO	Aurora, S. Groves	303-695-8466
CT	South Bury, L. Kerchief	212-264-8012
FL	Boca Raton, G. Pedigo	305-482-1279
FL	Longwood, J. Vandemark	305-774-0959
GA	Marietta, J. Fienning	404-973-6212
IL	Schaumburg, M. Peterschmidt	312-490-9244
IL	Wheaton, M. Davis	312-653-0695
IN	Indianapolis, L. Brown	317-849-1945
IN	Richmond, J. Daggy	317-962-6103
LA	Kenner, K. Ingram	504-469-9154
MD	Columbia, E. Wunder	301-997-4480
MA	Framingham, A. Harris	617-872-2066
MA	Franklin, S. LaRocco	617-528-1896
MI	Southfield, W. Bryant	313-559-1944
MN	Mound, J. Hughes	612-472-7545
MN	Robbinsdale, J. Stanley	612-522-9183
MO	Clayton, F. Lane	314-725-1488
NY	Northport, LI, L. Thompson	516-754-9038
NY	Rochester, T. Centofonti	716-461-0818
NY	Sunnyside, E. Mammone	212-361-0993
NC	Raleigh, A. Hatcher	919-848-3342
OH	Medina, H. Flanders	216-725-4285
OR	Lake Oswego, D. Clicquennoi	503-638-0271
PA	Norristown, B. Easley	215-272-8044
SC	Columbia, G. Owen	803-781-9739
TX	Austin, M. Mullery	512-345-5204
TX	Dallas, M. McQuistion	214-341-3424
TX	Houston, M. Masucci	713-721-6023
TX	Houston, E. Cheney	713-729-1259
TX	Houston, C. Amonett	713-350-2271
TX	Richardson, D. Berg	214-349-7712
WA	Bellevue, S. Abernethy	206-885-5808
WI	Milwaukee, M. Lucky	414-355-4986

BELDEN, Fiber Optics, 2000 S. Batavia Ave., Geneva, IL 60134, Tel: 312-232-8900, TWX: 910-237-1681

BEL FUSE, 198 Van Vorst St., Jersey City, NJ 07302, Tel: 201-432-0463, TWX: 710-730-5301; Empl.: 225; *Sls. Mgr.:* A. Sutta .... 1A•1454-1465; 1B•1260-1262

Local Sales Offices & Reps

Delay Lines

AL	Huntsville, EMA Inc.	205-830-4030
AZ	Scottsdale, SMS & Assocs.	602-998-0831
CA	Cupertino, Thresum Assocs.	408-996-9889
CA	Escondido, Cirolia Elctrn. Sls.	619-743-3015
CA	Los Angeles, Corcoran	213-823-4589
CO	Boulder, Front Range Mktg.	303-443-4780
CT	Branford, L.J.M. Assocs.	203-488-4244
FL	Altamonte Springs, Semtronics Assocs.	305-831-8233
FL	Clearwater, Semtronic Assocs.	813-461-4675
FL	Fort Lauderdale, Semtronics Assoc.	305-731-2484
IL	Chicago, MGA	312-775-1151
IN	Indianapolis, Insul-Reps	317-842-5203
MA	Wellesley Hills, Sturdy Co.	617-235-2330
MI	Bloomfield Hills, Enco Mktg.	313-642-0203
NJ	East Brunswick, Winch Sls. Assocs.	201-828-4615
NY	East Syracuse, Nycom	315-437-8343
NC	Apex, FBD Sls.	919-362-4091
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
PA	Bala Cynwyd, Friedman & Assocs.	215-667-1838
SC	Mauldin, FBD Sales	803-288-2323
TN	Knoxville, Insul-Reps	615-691-7586
TX	Austin, Oeler & Menelaides	512-453-0275
TX	Dallas, Oeler & Menelaides	214-381-8876
TX	Houston, Oeler & Menelaides	713-772-0730
UT	Salt Lake City, Front Range Mktg.	801-364-6481
VA	Chesapeake, FBD Sls.	804-484-3162
WA	Kent, R & R Assocs.	206-251-5396
PR	Hato Rey, M. Anderson Co.	809-751-2026

Fuses

AL	Huntsville, EMA Inc.	205-830-4030
CA	Los Altos, Landia	415-490-5651
CA	Los Angeles, Corcoran Assoc.	213-823-4589
CA	Huntington Beach, Corcoran Assoc.	714-841-4759
CO	Boulder, Front Range Mkt.	303-443-4780
CT	North Haven, Coakley, Boyd & Abbett	203-239-6217
IL	Chicago, MGA Assoc.	312-775-1151
IN	Indianapolis, Insul-Reps	317-842-5203
MA	Needham Heights, Coakley, Boyd & Abbett	617-444-5470
MI	Bloomfield Hills, ENCO Mktg.	313-642-0203
MN	Minnetonka, Beta Engrg.	612-544-1800
NH	Plaistow, Coakley, Boyd & Abbett	603-382-9234
NM	Albuquerque, Syntech	505-266-7951
NY	Hempstead, Kahgan Sls.	516-538-2300
NC	Cary, FBD Sls.	919-467-7595
PA	Narbeth, Samuel Jeffries Inc.	215-664-8500
SC	Mauldin, FBD Sls.	802-288-2323
TN	Knoxville, Insul-Reps	615-691-7586
UT	Salt Lake City, Front Range Mktg.	801-364-6481
VA	Chesapeake, FBD Sls.	804-484-3162
WA	Kent, R & R Assoc.	206-251-5396

Local Distributors

Delay Lines

CA	Inglewood, Force Elctrns.	213-776-1324; 800-421-5880
CA	San Jose, Force Elctrns.	408-943-1324
NH	Hudson, C & H Elctrns.	603-882-1133

Fuses

AZ	Phoenix, Lion Elctrns.	602-869-9611
CA	City of Industry, Ital Elctrns.	213-968-8515
CA	Costa Mesa, Deco Elctrns.	714-754-1322
CA	Hayward, KEA Elctrns.	415-887-2900
CA	San Diego, Sigma Elctrns.	619-763-0545
CO	Aurora, Jet Elctrn. Supp. Co.	303-364-1000
CT	Norwalk, Cobra Comps.	203-847-6442
FL	Boca Raton, D & R Assocs.	305-395-2341
MA	Woburn, Elctrn. Packaging Comps.	617-935-0400
NH	Hudson, C & H Elctrns.	603-882-1133
NY	Bohemia, Key Comps.	516-567-7500
OH	Columbus, Seneca Fuse	614-895-2631
PA	Cornwells Heights, Reliance Merchandising	215-638-8200
TX	Dallas, Fuses Inc.	214-341-6407
WA	Kent, Shannon Ltd.	206-763-0545

BELL, FLOYD, ASSOCS., INC., 897 Higgs Ave., Columbus, OH 43212, Tel: 614-488-3193, TWX: 810-482-1763; FSC No.: 56493; *Sls. Mgr.:* Tom Shain .... 3•1026-1028

Local Sales Offices & Reps

CA	Pasadena, Paul Nurches Co.	213-681-8957
CA	Redwood City, Hickey Indl. Sls. Corp.	415-368-3849
CO	Denver, Moss Mktg.	303-455-7205
FL	Casselberry, Barrett & Assocs.	305-699-0311
FL	Melbourne, Barrett Assocs.	305-727-2491
FL	Miami, Barrett Assocs.	305-681-4957
FL	Palm Harbor, Barrett Assocs.	813-785-1954
GA	Marietta, Dahlcom Sls.	404-424-8909
IL	Mt. Prospect, Robert Adams Sls. Co.	312-297-8733
KY	Edgewood, ELECCO	606-341-0330
MD	Columbia, Tyler Griffin Co.	301-995-1215
MA	Scituate, New England Area Reps.	617-545-6327
MI	Jenison, R.C. Nordstrom	616-457-5762
MI	Lathrup Village, R.C. Nordstrom	313-559-7373
MN	Minneapolis, A.J. Warner Co.	612-729-7371
NJ	Ocean, P. Saftler Assocs.	516-593-7880
NM	Albuquerque, Moss Mktg.	505-298-4275
NY	Fulton, P. Saftler Assocs.	315-592-7184
NY	Lynbrook, P. Saftler Assocs.	516-593-7880
OH	Cleveland, ROC Assocs.	
OH	Worthington, ROC Assocs.	614-885-1057
OR	Aloha, Elctrn. Comp. Sls.	503-245-2342
PA	Paoli, Tyler Griffin Co.	215-647-1550
TX	Dallas, Jim D. Gray & Assocs.	214-341-7190
UT	Bountiful, Moss Mktg.	801-292-8660
WA	Mercer Island, Elctrn. Comp. Sls.	206-232-9301

BELL, F. W., INC., 6120 Hanging Moss Rd., Orlando, FL 32807, Tel: 305-678-6900, TWX: 810-853-3115; FSC No.: 18479; *Dist. Mgr.:* Edward S. Wilush .... 3•1194-1197

Local Sales Offices & Reps

CA	Milpitas, Maxim Elctrn. Sls.	408-946-6001
CA	Pasadena, Jim Robins Assoc.	818-795-9118
CO	Denver, Moss Mktg.	303-455-7205
FL	Indian Rock Beach, Par Assoc.	813-596-8841
GA	Atlanta, Par Assoc.	404-448-4181
IL	Downers Grove, Splon Assoc.	312-963-7011
KS	Overland Park, Ramsey Assocs.	913-649-6996
MA	Needham Hgts., Shain Assoc.	617-449-4380
MI	Royal Oak, Dave Ray & Assocs.	313-280-0000
MO	Maryland Hgts., Ramsey Assocs.	314-878-5042
NM	Albuquerque, Moss Mktg.	505-298-4275
NY	White Plains, Cane Tech. Sls.	914-694-9240
OH	Chagrin Falls, RPM Indl. Sls.	216-247-3295
PA	Paoli, T. Griffin Co.	215-644-7710
TX	Carrollton, Seaton Corp.	214-380-0414

Local Distributors

AZ	Phoenix, Jensen Tools & Alloys	602-968-6231
CA	Milpitas, Maxim Elctrn. Sls.	408-946-6001
CA	Pasadena, Jim Robins Assoc.	818-795-9118
CA	Pasadena, Pasadena Elctrns.	213-796-5844
CO	Denver, Moss Mktg.	303-455-7205
FL	Palm Bay, EIL Instrs.	305-725-8300
GA	Atlanta, Process Meas. Co.	404-696-7481
IL	Downers Grove, Splon Assocs.	312-963-7011
IL	Rolling Meadows, Commodore-1	312-394-5441
MA	Needham Hgts., Shain Assocs.	617-449-4380
MO	Maryland Hgts., Ramsey Assocs.	314-878-5042
NY	White Plains, Cane Tech. Sls.	914-694-9240
OH	Chagrin Falls, RPM Indl. Sls.	216-247-3295
OH	Dayton, National Instr. Distrs.	513-435-4503
PA	Paoli, Tyler Griffin Co.	215-644-7710
TN	Chattanooga, Edwin Bohr Elctrns.	615-877-8207
TX	Houston, Quality Instr. Lab.	713-524-0528

BELL & HOWELL/CEC DIV., 360 Sierra Madre Villa, Pasadena, CA 91109, Tel: 213-796-9381, Telex: 67-5415, TWX: 910-582-3205; Empl.: 500

BELL AUDIO SYS., 994 Freeway Drive North, Columbus, OH 43229, Tel: 614-846-2766; Empl.: 20; *Sls. Mgr.:* Thomas A. Curran

BELL CO., INC., 106 Morrow Ave., Box 92E, Trussville, AL 35173, Tel: 205-655-2135; Empl.: 19; *Sls. Mgr.:* R. Bell; *Dist. Mgr.:* Neil H. Bell

J. W. Miller Division
BELL INDUSTRIES

BELL INDS., J. W. Miller Div., 19070 Reyes Ave., P.O. Box 5825, Rancho Dominguez, CA 90224, Tel: 213-537-5200, TWX: 910-346-6740; FSC No.: 76493; Empl.: 55 .... **1A**•1224-1229

Local Sales Offices & Reps

AZ	Phoenix, Moore Sls.	602-274-4558
AR	El Dorado, D. Bellew Sls.	501-863-8325
CA	Santa Clara, Logan Sls. Co.	408-496-0660
CO	Denver, Wm. J. Purdy Co.	303-777-1411
FL	Ft. Lauderdale, Hutto-Hawkins-Peregoy	305-971-5750
FL	Maitland, Hutto-Hawkins-Peregoy	305-831-2474
GA	Atlanta, Millar Elctrns.	404-261-6160
HI	Gardena, CA, Bidwell Sls. Assoc.	213-770-0300
IL	Chicago, Ken Levy & Assocs.	312-763-5000
IN	Indianapolis, Elctrn. Reps.	317-894-1414
IN	South Bend, Elctrn. Reps.	219-277-4565
MD	Columbia, Par-Nell Sls. Co.	301-992-5454
MA	N. Scituate, W. A. Hendrickson Co.	617-545-0652
MI	Detroit, Burcaw Co. & Assoc. Inc.	313-533-7700
MI	Wyoming, Burcaw Co. & Assoc. Inc.	616-532-2756
MN	Minneapolis, Electro Mark, Inc.	612-881-3306
MO	Raytown, Marty Taraski Sls. Co.	816-358-1442
NJ	Englewood, Baum & Epstein Assoc.	201-569-7600
NM	Albuquerque, Wm. J. Purdy Co.	505-266-7959
NY	Syracuse, Pl'Tronics, Inc.	315-455-7346
NC	Raleigh, Millar Elctrns.	919-787-9564
OH	St. Marys, T. Shelby & Co.	419-394-3377
OR	Portland, Earl & Brown Co.	503-245-2283
PA	Langhorne, Par-Nell Sls. Co.	215-750-0380
TN	Memphis, D. Bellew Sls.	901-452-1468
TX	Ft. Worth, Chet Wells & Co.	817-284-0261
UT	Salt Lake City, Wm. J. Purdy Co.	801-486-8557
WA	Seattle, Earl & Brown Co.	206-284-1121
EXP	NY, New York, Roburn Agencies	212-989-5939

Local Distributors

AZ	Tempe, Circuit Specialists	602-966-0764
AZ	Tempe, Bell Industries/EDD	602-966-7800
CA	Buena Park, RPS Elctrns.	714-521-5230
CA	Garden Grove, Bell Industries/EDD	714-220-0681
CA	Gardena, Bell Industries/EDD	213-515-1800
CA	Mountain View, Abacus Elctrns.	415-961-1500
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Riverside, Elctrn. Supp.	714-683-7300
CA	San Diego, Bell Industries/EDD	619-268-1277
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	San Jose, Quement Elctrns.	408-998-5900
CA	Sunnyvale, Bell Industries/EDD	408-734-8570
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Denver, Bell Industries/EDD	303-424-1985
CT	Danbury, Pilgrim Elctrns.	203-792-7274
CT	New Haven, Greene-Shaw Co.	203-397-0710
CT	Wallingford, Sager Elctrcl. Supp.	203-265-4600
FL	West Palm Beach, Nurmi Elctrns.	305-684-0320
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Chicago, Bell Industries/EDD	312-982-9210
IL	Palatine, Ohm/Elctrns, Inc.	312-359-5500
IN	Fort Wayne, Graham Elect./Div. Bell Ind.	219-423-3422
IN	Indianapolis, Graham Elect./Div. Bell Ind.	317-634-8202
IA	Cedar Rapids, Bell Industries/EDD	319-395-0730
LA	New Orleans, Wm. B. Allen Supp.	504-525-8222
MD	Rockville, MS Elctrns.	301-340-6400
MA	Hingham, Sager Elctrcl. Supp.	617-749-6700
MA	Newton, Greene-Shaw Co.	617-969-8900
MN	Minneapolis, Ind. Comps., Inc.	612-831-2666
MO	Saint Louis, Olive Elctrns.	314-426-4500
NJ	Camden, General Radio	609-964-8560
NJ	East Hanover, State Elctrn. Parts	201-887-2550
NM	Albuquerque, Bell Industries/EDD	505-292-2700
NY	Bohemia, Key Comps.	516-567-7500
NY	Buffalo, Summit Elctrns.	716-887-2800
NY	Hempstead, Davis Elctrns.	516-483-9200
NY	Rochester, Summit Elctrns.	716-334-8110
NY	Rome, Rome Elctrns.	315-337-5400
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Columbus, Hughes-Peters, Inc.	614-294-5351
OH	Dayton, Bell Industries/Micro-Mil Div.	513-434-8231
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Portland, Bell Industries/EDD	503-241-4115
PA	Allentown, P. A. Peters, Inc.	215-434-5237
PA	Braddock, Leff Elctrns.	412-351-5000
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	Willow Grove, Resco Elctrns.	215-659-4575
TN	Chattanooga, Techni-Tronics, Inc.	615-875-5449
TX	Dallas, Wholesale Elctrns./Ind. Div.	214-824-3001
TX	Fort Worth, TTI, Inc.	817-831-0441
TX	Houston, Lenert Co.	713-225-1465
UT	Salt Lake City, Bell Industries/EDD	801-972-6969
VA	Charlottesville, Virginia Radio	804-296-4184
WA	Bellevue, Bell Industries/EDD	206-747-1515
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Milwaukee, Bell Industries/EDD	414-547-8879

BELLOFRAM CORP., A Rexnord Co., 30 Blanchard Rd., Burlington, MA 01803, Tel: 617-272-2100, 800-225-1031, Telex: 94-9457; Empl.: 350; *Sls. Mgr.:* James L. Diegnan; *Dist. Mgr.:* James L. Diegnan

BELL PA PRODS., See Bell Audio Sys.

BELTING INDS. CO. INC., 20 Boright Ave., Kenilworth, NJ 07033, Tel: 201-272-8591, Telex: 138045; Empl.: 125; *Sls. Mgr.:* Harry K. Denaker

Local Sales Offices & Reps

CO	Boulder	303-443-8512
FL	Jacksonville, Quinn Indl. Inc.	904-268-3062
GA	Norcross	404-449-5616
IL	Addison, Eng. Sls. Co.	312-832-8425
MN	St. Paul, Vikeland Sls. Inc.	612-645-4647
NJ	Kenilworth, Belting Inds. Co. Inc.	201-272-8591
NY	Sodus, Warner Woven Belting	315-483-9490

Local Distributors

MI	Detroit, Michiean Indl. Belting Co.	313-584-1652

BEMAN MFG., P.O. Box 370, New Cumberland, PA 17070, Tel: 717-938-1451, TWX: 510-650-3539; Empl.: 300; *Sls. Mgr.:* D. Fortenbaugh

BEMCO, 9908 San Fernando Rd., Pacoima, CA 91331, Tel: 818-899-5296, TWX: 910-496-1520; Empl.: 45; *Sls. Mgr.:* John Riddle; *Dist. Mgr.:* Brian Duggan

BENDIX CORP., Electrical Comps. Div., Sidney, NY 13838, Tel: 607-563-5324, Telex: 932 456, TWX: 510-261-7550; FSC No.: 77820; Empl.: 3000; *Dist. Mgr.:* G. Anderson

BENDIX CORP., Electric Power Div., Hwy. 35, Eatontown, NJ 07724, Tel: 201-542-2000, Telex: 132-444 , TWX: 710-722-6686; FSC No.: 83298; Empl.: 875; *Sls. Mgr.:* H. I. Nadler; *Dist. Mgr.:* Cal Schrum

BENDIX CORP., Electrodynamics Div., 11600 Sherman Way, N. Hollywood, CA 91605, Tel: 818-765-1010, TWX: 910-499-2151; Empl.: 1200

BENDIX CORP., MOTOR COMPS. DIV., See Facet Entprs.

BENDIX CORP., Test Systems Div., Teterboro, NJ 07608, Tel: 201-288-2000, TWX: 710-990-6136; Empl.: 1,077

BENJAMIN ELECTROPRODUCTS, INC., Robins Div., 80 Smith St., Farmingdale, NY 11735, Tel: 516-293-7744, Telex: 12-7908; Empl.: 100

BENSON, INC., 2690 Orchard Parkway, P.O. Box 32059, San Jose, CA 95152-2059, Tel: 408-945-1000, Telex: 176887 BENSON SNJ, TWX: 9103382069 BENSON SNJ; Empl.: 400; *Sls. Mgr.:* Larry Maguire

BENTHOS, INC., Edgerton Dr., N. Falmouth, MA 02556, Tel: 617-563-5917, Telex: 94-0884; Empl.: 110; *Sls. Mgr.:* R. D. Jones

BENTLY NEVADA CORP., P.O. Box 157, Minden, NV 89423, Tel: 702-782-3611, Telex: 354437

BERG, W. M., INC., 499 Ocean Ave., East Rockaway, NY 11518, Tel: 516-599-5010; Empl.: 150; *Sls. Mgr.:* C. Keenan

BERG ELCTRNS., Du Pont Co., 30 Hunter La., Camp Hill, PA 17011, Tel: 800-237-BERG, TWX: 510-650-3538; *Sls. Mgr.:* J. McAluney; *Dist. Mgr.:* P. Raudensky

BERGER-LAHR CORP., Fitzgerald Dr., Jaffrey, NH 03452, Tel: 603-532-7701, Telex: 92-8445; Empl.: 50; *Sls. Mgr.:* Wolfgang Hartert

BERGQUIST, 5300 Edina Ind'l., Minneapolis, MN 55435, Tel: 612-835-2322, TWX: 910-576-2423; FSC No.: 55285; Empl.: 45; *Sls. Mgr.:* Bob Savage

BERGQUIST SWITCH, INC., Bergquist Co., 5300 Edina Indl. Blvd., Edina, MN 55435, Tel: 612-835-2322, TWX: 910-576-2423; *Sls. Mgr.:* Lamar Popp

BNC

DIGITAL DELAY
AND
LIGHT PULSE
GENERATORS

BERKELEY NUCLEONICS CORP., 1198 Tenth St., Berkeley, CA 94710, Tel: 415-527-1121, Telex: 677-1167; Empl.: 30; *Sls. Mgr.:* E. J. Buchs .... 3•1203

All sales engineering services in the U.S. and Canada are provided by our factory-direct sales staff. For immediate assistance please contact: Sales Department (415) 527-1121.

BERKSHIRE TRANSFORMER CORP., Route 341, Kent, CT 06757, Tel: 203-927-3541

BERK TEK, INC., Box 60, RD 1, Reading, PA 19607, Tel: 215-376-8071, TWX: 510-651-0511; Empl.: 185; *Sls. Mgr.:* P. J. Parrelli; *Dist. Mgr.:* P. J. Parrelli

BERMAR CORP., 6300 Westgate Rd., Raleigh, NC 27612, Tel: 919-821-5993; *Sls. Mgr.:* M. Conland

BA
BERTAN ASSOCIATES, INC.

BERTAN ASSOCS., 121 New South Rd., Hicksville, NY 11801, Tel: 516-433-3110, TWX: 510-221-2144; FSC No.: 6130; Empl.: 140; *Sls. Mgr.:* Howard Bertan .... 3•1506, 1507

Local Sales Offices & Reps

AZ	Phoenix, Sigma Engrg. Sls. Co.	602-241-1334
CA	Encino, King-Way Assoc.	213-788-4124
CA	Los Altos, Cain-White & Co.	415-948-6533
CO	Boulder, H. Bass Assocs.	303-530-7509
CT	Madison, Dave Minshall	203-421-4561
FL	DeBary, DJE Assocs.	305-668-6827
GA	Lawrenceville, Electramark	404-963-4793
IL	Arlington Hgts., Coombs Assocs.	312-439-9810
IN	Fort Wayne, Coombs Assocs.	219-747-4017
IA	Cedar Rapids, Coombs Assocs.	319-362-4116
MD	Randallstown, Beacon North	703-591-1300
MI	Farmington, Carter, McCormic & Peirce	313-477-7700
MN	St. Paul, John J. Exon Co.	612-636-5533
MO	Bridgeton, Electro Mechanical Assoc.	314-291-8661
NM	Albuquerque, Thorson Co.	505-293-8555
NY	Fairport, NACO Elctrns. Corp.	716-223-4490
NY	Syracuse, NACO Elctrns. Corp.	315-699-2651
NY	Utica, NACO Elctrns. Corp.	315-732-1801
NC	Raleigh, Barker Assocs.	919-876-0282
OH	Cleveland, Geotronix	216-526-2535
OR	Portland, Showalter Instrs.	503-224-8487
PA	Audubon, Holmes Assocs.	215-666-0636
TX	Dallas, Automated Motion Control	214-340-4192
TX	Denton, Automated Motion Control	817-382-4159
UT	Bountiful, H. Bass Assoc.	801-295-7100
VA	Fairfax, Beacon North	703-591-1300
WA	Bellevue, Showalter Instrs.	206-746-6032
WI	Milwaukee, Coombs Assocs.	414-351-6123

BERTSCH U.S.

BERTSCH U.S., Sycamore Resch. Ctr., 2142F Industrial Ct., Vista, CA 92083, Tel: 619-727-7420; Empl.: 20; *Sls. Mgr.:* S. W. Linko .... 1B•1132-1134

BEST ELECTRICS DIV., 400 Boren Ave. North, Seattle, WA 98109, Tel: 206-382-1300, TWX: 910-444-2154; Empl.: 8 .... 1B•1794

Local Sales Offices & Reps

CA	Mountain View, Straube Assocs.	415-969-6060
CO	Westminster, Straube Assocs.	303-426-0890

BETA TRANSFORMER TECHNOLOGY CORP., One Comac Loop, Ronkonkoma, NY 11779, Tel: 516-588-2505

BG ELCTRNS., 30 South St., Mt. Vernon, NY 10551, Tel: 914-664-5591, Telex: 6818048; FSC No.: 33791; Empl.: 36

B-G INSTRUMENTS, P.O. Box 67, Alta Loma, CA 91701, Tel: 714-989-4802, 980-2826, Telex: 910-581-2792; *Sls. Mgr.:* John Baum .... 3•1071

Local Sales Offices & Reps

WA	Spokane	509-238-4757

B. G. LABORATORIES, INC., 75 Travis Ave., Binghampton, NY 13904, Tel: 607-722-2376

B. H. ELCTRNS., 331 Bremer Bldg., St. Paul, MN 55101, Tel: 612-228-6463, Telex: 297080; FSC No.: 3677; Empl.: 300; *Sls. Mgr.:* Fred LaMarche .... 1A•2136, 2137

Local Sales Offices & Reps

CA	Glendale, Halbar Assocs.	213-246-8263
CA	San Mateo, Halbar Assocs.	415-349-4700
MN	Osseo, Gaffney Sls. Co.	612-425-5484
NJ	Dunellen, J. A. Maguire	201-752-8480
NY	Syracuse, C & L Sales	315-451-7810
WA	Redmond, Halbar Assocs.	206-882-0990
WI	Theinsville, TFL Assoc.	414-242-6800

B.H. INDS., INC., 5784 Venice Blvd., Los Angeles, CA 90019, Tel: 213-937-4763; Empl.: 6

BICC-VERO ELCTRNS., INC., 171 Bridge Rd., Hauppauge, NY 11788, Tel: 516-234-0400, TWX: 510-227-8890; Empl.: 25; *Sls. Mgr.:* Joseph Lago; *Dist. Mgr.:* Larry Spenceley

Local Sales Offices & Reps

AL	Huntsville, Raycom	205-859-2017
CA	Anaheim, Bicc-Vero Elctrns.	714-630-2030
CT	Milford, Todino Engrg.	203-874-6643
FL	Melbourne, Star-Tec	305-727-2247
GA	Duluth, Raycom	404-446-9015
IL	Ithasca, L-Tec	312-773-2900
IN	Indianapolis, Harrison Blind & Assocs.	317-291-0860
KS	Overland Park, Barnes-Midwest Sls.	913-341-9317
MD	Lutherville, J. A. Dougherty Sls.	301-321-7890
MA	Needham Hgts., Todino Engrg.	617-444-7925
MI	Jackson, Norwood Scroggs	517-750-1170
MN	St. Paul, Proud Inds.	612-646-9428
NM	Albuquerque, Alliance Elctrns.	505-292-3360
NY	Kingston, P.R.M. Elctrns.	914-331-0872
NC	Raleigh, Raycom	919-847-8276
OH	Chesterland, K-T Mktg.	216-729-3588
PA	Hatboro, Rep Force	215-441-4178
TX	Garland, Texport	214-681-1376
TX	Houston, Texport Elctrn. Sls. Co.	713-777-1443
UT	Salt Lake City, Chuck Fields & Assocs.	801-277-4859

Local Distributors

CA	Los Angeles, Dyna Svc.	213-268-8531
CT	Wallingford, Mid-State Elect.	203-265-9900
FL	Dania, Summit Distr.	305-920-6253
IL	Arlington Hgts., Redel Labs	312-253-5000
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
MD	Baltimore, Resco	301-823-0070
MA	Framingham, NOW Elctrns.	617-872-5876
MI	Lansing, Demco Controls	517-321-1700
MI	Madison Heights, McNaughton-McKay Electric Co.	313-399-7500
NJ	Springfield, Route Elctrns.	201-467-0166
NY	Buffalo, Summit Distr.	716-884-3450
NY	Hempstead, Davis Elctrns.	516-483-9200
NY	Rochester, Summit Distr.	716-442-3494
NC	Raleigh, Resco	919-781-5700
OH	Cleveland, Roberts Elctrns.	216-238-1711
OR	Portland, Dunn Elctrns.	503-285-0214
PA	Braddock, Leff Elctrs.	412-351-5000
TX	Houston, City Elctrns.	713-621-1060
WI	Mequon, Taylor Elctrns.	414-241-4321

BICRON ELCTRNS., Box 807, Barlow St., Canaan, CT 06018, Tel: 203-824-5125; Empl.: 100; *Sls. Mgr.:* Peter B. Kent

BIDDLE INSTRUMENTS, A Thorn EMI Co., 510 Township Line Rd., Blue Bell, PA 19422, Tel: 215-646-9200, Telex: 83-4423 BIDDLE PMTG

BIKOR
CORPORATION

BIKOR, 1504 W. 228th St., Torrance, CA 90501, Tel: 213-539-6320, TWX: 910-349-6667; Empl.: 50; *Sls. Mgr.:* Dave Jenest .... 3•1508

Local Sales Offices & Reps

CA	Santa Clara, Electro Venture North	408-727-1553
FL	Orlando, Gra-Mar	305-894-3351
MN	Minnetonka, Chris-Tek	612-934-1334
MO	St. Louis, B & H Assocs.	314-434-4425
NH	Nashua, Bell Controls	603-882-6984
NJ	Haddonfield, Tritek Sls.	609-429-1551
NJ	Hasbrouck Hgts., Comp. Tech. Sls.	201-288-7400
NY	Rochester, Tae-Rep	716-586-8710
OH	Mentor, Depco	216-951-3998
TX	Garland, Tesco	214-681-1376
WA	Kirkland, Electro Venture N.W.	206-823-1708
WI	Brookfield, Sumer	414-784-6641

Local Distributors

CA	Buena Park, RPS Elctrns.	714-521-5230
CA	Burlingame, Rose Elctrn. Distbg. Co.	415-348-2740
NJ	Hasbrouck Hgts., Tory Sls.	201-288-7400

BINDICATOR, P.O. Box 9, 1915 Dove St., Port Huron, MI 48060, Tel: 313-987-2700; *Sls. Mgr.:* Rick Secord; *Dist. Mgr.:* Rick Secord

BIO-IMAGING RESEARCH, #1 Bio-Imaging Plaza, 425 Barclay Blvd., Lincolnshire, IL 60069, Tel: 312-564-3190; *Sls. Mgr.:* J. G. Close

BIOSPHERICAL INSTRS., INC., 4901 Morena Blvd. #1003, San Diego, CA 92117, Tel: 619-270-1315; *Sls. Mgr.:* Dennis Bryan

BIRD, RICHARD H., & CO., INC., 1 Spruce St., Waltham, MA 02154, Tel: 617-894-0160, Telex: 923-441; FSC No.: 17706; Empl.: 50; *Sls. Mgr.:* R.J. Cameron

BIRD ELCTRN., 30303 Aurora Rd., Cleveland, OH 44139, Tel: 216-248-1200, Telex: 706898 Bird Elec. UD; FSC No.: 70998; Empl.: 250; *Sls. Mgr.:* W. L. Yochum; *Dist. Mgr.:* Greg Johns

Local Sales Offices & Reps

CA	Ojai	805-646-7255

BIRTCHER

BIRTCHER CORP., 4501 N. Arden Dr., El Monte, CA 91731, Tel: 818-575-8144, Telex: 4720899 BIRTCHER ELM; Empl.: 200; *Sls. Mgr.:* H. Robert Sproul .... 2•1015-1017

Local Sales Offices & Reps

AL	Huntsville, Mar-Tec.	205-883-5910
AZ	Scottsdale, Mercury Eng. Sls.	602-949-5054
CA	Brea, M. A. Stolaroff Co.	714-529-0866
CA	Los Angeles, M. A. Stolaroff Co.	213-295-7781
CA	Santa Clara, Nova Tronix	408-243-9530
CO	Broomfield, Connors, Inc.	303-466-9628
FL	Ft. Lauderdale, Hutto-Hawkins-Peregoy	305-971-5750
IL	Rolling Meadows, Heartland Tech. Mktg.	312-577-9222
KS	Mission, Midland Eng. Sls.	913-262-6565
MD	Baltimore, Burgin Kreh Assoc.	301-265-8500
MA	Burlington, Conti-Younger Assoc.	617-273-1582
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
NJ	Haddonfield, Tritek Sls.	609-429-1551
NY	Great Neck, Tylinski Assoc.	516-466-9070
NY	Syracuse, I. A. Hotze Assoc.	315-479-6641
NC	Raleigh, Burgin Kreh Assoc.	919-781-1100
OH	Cincinnati, Jim Finnegan Co.	513-321-6370
OH	Cleveland, Jim Finnegan Co.	216-238-5905
OR	Beaverton, Barrett-Squibb Assoc.	503-644-2550
TX	Dallas, Forner Sales	214-241-2166
VA	Lynchburg, Burgin Kreh Assoc.	804-239-2626
WA	Redmond, Barrett-Squibb Assoc.	206-885-6991

Local Distributors

CA	Manhattan Bch., Prime Electro Prods.	213-379-3642
CA	San Jose, Bisco Industries	408-946-8980

CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CO	Aurora, Jet Elctrns. Supp.	303-364-1000
FL	Dania, Summit Distrs.	305-920-6253
IL	Elk Grove, Dot-Tronics	312-593-0282
MA	Winchester, Rush Inds.	617-729-5800
MN	Minneapolis, Stark Elctrns.	612-322-1325
NY	Bohemia, Car Lac Indl. Sls.	516-567-4200
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Rochester, Summit Elctrns.	716-334-8110
OH	Englewood, Argent Industries	513-836-8633
TX	Ft. Worth, Industrial Elctrns.	817-731-7321
TX	Houston, Solid State Electronics	713-772-8483
WA	Redmond, Murphy Elctrns.	206-881-1234
Can	Mississauga, Ont., Rush Elctrns.	416-677-7280

BISHOP GRAPHICS, INC., 5388 Sterling Center, Westlake Village, CA 91359, Tel: 818-991-2600, Telex: 66-2400 BISHOP WKVG; Empl.: 160; *Sls. Mgr.:* Fred Kern

BIVAR, INC., 4 Thomas, Irvine, CA 92714, Tel: 714-951-8808; FSC No.: 32559; Empl.: 22; *Sls. Mgr.:* E. M. Muldoon .... **2•1018**

Local Sales Offices & Reps

AZ	Mesa, Tempe Assocs.	602-829-1901
CA	San Diego, Qualtronics Co.	619-560-8955
CO	Westminster, D. Barth	303-427-8679
FL	Plymouth, Duay Entprs.	305-889-2249
GA	Peachtree City, Spyraflo	404-487-7600
IL	Chicago, Berndt Assocs. Inc.	312-283-0713
IN	Indianapolis, Wilson Tech. Sls.	317-298-3345
KS	De Soto, Midtec Assocs.	913-441-6565
MA	Newtonville, C. Segel	617-969-6900
MI	Milford, Dodsworth	313-875-5755
MN	Minneapolis, Berndt Assocs.	612-546-2021
MO	Florissant, Midtec Assocs.	314-837-5200
NJ	Berkeley Heights, Cambridge-Allen	201-464-0203
NY	Syracuse, T-Squared Elctrns.	315-463-8592
NC	Bethania, Lee, Ltd.	919-924-8245
OH	Cincinnati, Tri-State Mktg.	513-761-7993
OR	Beaverton, Eclipse Mktg. Grp.	503-642-1661
OR	Portland, Eclipse Mktg. Grp.	503-644-2550
PA	Elkins Park, K. B. Erdman Co.	215-224-1833
TX	Richardson, Draper Co.	214-680-1650
WA	Redmond, Eclipse Mktg. Grp.	206-885-6991
WI	Milwaukee, Berndt Assocs.	414-545-8400

Local Distributors

AZ	Phoenix, Kachina Elctrn. Distr.	602-269-6201
AZ	Phoenix, EKO Sales	602-275-7501
CA	Fountain Valley, Components Ctr.	714-979-0433
CA	Mountain View, Vic/Tal Sls.	415-964-6254
CA	San Diego, Sigma Elctrns.	619-565-2000
CA	Santa Clara, Components Ctr.	408-988-3751
CA	Santa Fe Springs, F T R Fasteners	714-957-0202; 213-946-6464
CA	Temple City, Fastening Sys.	213-579-4600
CA	Westlake Village, R. C. Dudek	213-707-1310
CO	Englewood, Indus. Elctrns.	303-694-9444
CT	Milford, Plastic & Metal Comps. Co.	203-877-2723
GA	Peachtree City, Spyraflo Inc.	404-487-7600
IL	Chicago, Waldom Elctrns.	312-585-1212
IL	Chicago, EMF	800-621-0080
IL	Hillside, Miltex Sls.	312-449-0420
IL	Lisle, Components, Inc.	312-852-7707
MD	Gaithersburg, Capitol Fasteners	301-948-9310
MA	Burlington, Contact East	617-272-5051
MA	Marlboro, Hardware Specialty Co.	617-481-8622
MA	Waltham, Electronic Fasteners	617-890-7780
MA	Winchester, RUSH	617-729-5800
MI	Southfield, LSI Marketing	313-356-7002
MI	Zeeland, Tubergen & Assoc.	616-772-1548
MN	Eden Prairie, S. W. Anderson Co.	612-941-4108
NH	Goffstown, New Hampshire Fasteners	603-497-4151
NH	Londonderry, E.P.E. Corp.	603-669-9181
NJ	Kenilworth, Federated Purchaser	201-376-8900
NY	Central Islip, Domino Components	516-582-3050
NY	Johnson City, Gold Crest Elctrns.	607-797-2380
NY	Long Island City, Empire Fasteners	212-728-3900
NY	Long Island City, Hardware Specialty Co.	212-361-9393
NY	Mt. Vernon, QAR Elctrns.	914-699-2224
NY	Plainview, Tower Fastener Co.	516-349-7670
NC	Raleigh, Century Elctrn. Comps.	919-755-0537
NC	Raleigh, Century Fasteners	919-787-1800
OH	Englewood, Argent Inds.	513-836-8633
OH	Solon, REH/Electra	216-248-1636
OR	Beaverton, Murphy Elctrns.	503-642-2001
OR	Beaverton, Component Resources	503-641-8488
PA	Norristown, Century Elctrns.	215-631-5400
PA	Pittsburgh, Alder-Tronics	412-821-5565
WA	Redmond, Murphy Elctrns.	206-881-1234
WA	Seattle, Pacific Elctrns.	206-575-1050

BIW CABLE SYS., INC., 65 Bay St., Dorchester, MA 02125, Tel: 617-265-2102, Telex: 94-0604; FSC No.: 71102; Empl.: 600; *Sls. Mgr.:* E. McCormick

BLACK & WEBSTER, 281 Winter St., Waltham, MA 02154, Tel: 617-890-9100, Telex: 951102; Empl.: 80

BLACK BOX CORP., Micom Sys., P.O. Box 12800, Pittsburgh, PA 15241, Tel: 412-746-5500, Telex: 510-697-3125; *Sls. Mgr.:* Peter Highberg

BLACKHAWK NETWORKS CORP., 14 N. Parker Dr., P.O. Box 919, Janesville, WI 53545, Tel: 608-752-8701; FSC No.: 12724; Empl.: 10

BLANCK, A. R., CO., Box 249, Rutherford, NJ 07070, Tel: 201-933-2091; Empl.: 6; *Sls. Mgr.:* Dr. A. R. Blanck; *Dist. Mgr.:* Dr. A. R. Blanck

BLATEK INDS., Box 574, Bellefonte, PA 16823, Tel: 814-355-4910; Empl.: 20; *Sls. Mgr.:* Linda C. Feltman .... **1B•1835**

Local Sales Offices & Reps

CA	Burbank, Mo'Dco	213-848-2215
CO	Littleton, McCarthy Co.	303-773-0643
CT	Woodbridge, Elctrn. Mktg.	203-397-1461
IL	Elk Grove Village, Loren Green Assocs.	312-593-0282
MI	Benton Harbor, McNabb & Assocs.	616-925-2166

BLH ELCTRNS., 42 Fourth Ave., Waltham, MA 02254, Tel: 617-890-6700, Telex: 92-3413, TWX: 710-324-0683; FSC No.: 03089; Empl.: 350; *Sls. Mgr.:* D. Erikson

BLILEY ELEC. CO., 2545 W. Grandview Blvd., Erie, PA 16506, Tel: 814-838-3571, TWX: 510-696-6886; FSC No.: 71034; Empl.: 170; *Sls. Mgr.:* H. A. Yocum .... **1A•1316-1323**

Local Sales Offices & Reps

AL	Huntsville, R. W. Mitscher Co.	205-882-6050
CA	Los Angeles, Elsner-Rambo Co.	213-664-2928
CA	Mountain View, Gene C. Woempner Co.	415-964-5454
CT	Hartford, Sturgeon Co.	203-249-7800
FL	Altamonte Springs, R. W. Mitscher Co.	305-788-6844
FL	Boca Raton, R. W. Mitscher Co.	305-482-5649
GA	Lawrenceville, R. W. Mitscher Co.	404-923-3239
MD	Laurel, R. W. Mitscher Co.	301-498-6090
MA	Needham, Sturgeon Co.	617-444-6603
NY	Bainbridge, R. W. Mitscher Co.	607-967-7192
NY	Buffalo, R. W. Mitscher Co.	716-633-7970
NY	N. Syracuse, R. W. Mitscher Co.	315-458-1321
NY	Pittsford, R. W. Mitscher Co.	716-586-4012
NY	Red Hook, R. W. Mitscher Co.	914-758-8375
NY	Rochester, R. W. Mitscher Co.	716-227-0839
NY	West Hempstead, Schmitt Indl. Mktg. Corp.	516-486-3510
NC	Charlotte, R. W. Mitscher Co.	704-598-8644
NC	Raleigh, R. W. Mitscher Co.	919-848-0941
OR	Portland, Dussault & Assocs. Inc.	503-641-8780
TN	Johnson City, R. W. Mitscher Co.	615-929-7258
TX	Richardson, Vector Sls. Co.	214-234-4291
VA	Midlothian, R. W. Mitscher Co.	804-744-4676
WA	Seattle, Dussault & Assocs., Inc.	206-527-5454
EXP	CT, Stamford, Dage Corp.	203-324-3123

BLUE M

BLUE M, A UNIT OF GENERAL SIGNAL, 138th & Chatham Sts., Blue Island, IL 60406, Tel: 312-385-9000, TWX: 910-689-3398; Empl.: 300; *Sls. Mgr.:* H. G. Mathews .... **3•1173**

Local Sales Offices & Reps

AZ	Tempe	602-894-2305
CA	El Monte	818-442-6672
CA	Sunnyvale	408-734-8734
DE	Wilmington	302-478-6983
FL	Winter Park	305-671-6655
GA	Atlanta	404-455-3452
MA	Natick	617-651-1616
MI	Taylor	313-281-2107
NY	Nanuet	914-623-0900
NY	Syracuse	315-437-0192
NC	Charlotte	704-527-2492
OH	Cincinnati	513-821-6278
OH	Hudson	216-656-1177
TX	Garland	214-272-2509
TX	Houston	713-778-1146
WA	Seattle	206-763-1030

BLUM, JULIUS & CO., INC., Box 292, Carlstadt, NJ 07072, Tel: 201-438-4600, Telex: 13-3491; Empl.: 40

BMS DATA HANDLING, INC., 12155 Magnolia, Riverside, CA 92503, Tel: 714-359-8820; Empl.: 16; *Sls. Mgr.:* Richard Mestler

BODINE ELEC. CO., 2500 W. Bradley Pl., Chicago, IL 60618, Tel: 312-478-3515, Telex: 25-3646; *Sls. Mgr.:* R. E. Ford .... **1B•1135**

Local Sales Offices & Reps

CA	Los Angeles, C. E. Mello	213-626-9159
CA	San Jose, E. W. Duemmlein	408-243-4800
KS	Shawnee Mission, J. S. Gleeson & Assocs.	913-362-4422
MA	Andover, L. R. Cascino	617-470-0050
MI	Grosse Ile, Steve Cavender	313-676-2724
NY	Massapequa, D. V. Mayorga	516-541-1611
NY	Rochester, Application Specialists	716-586-6226
NY	Syracuse, Application Specialists	315-437-2813
OH	Hudson, J. H. Basten	216-656-4226
OR	Portland, D. E. Johnson	503-246-3131
TX	Richardson, General Power Equip.	214-783-8371
VA	McLean, J. S. Hsia	703-734-1739
EXP	IL., Chicago, Export Dept., Bodine Elec.	312-478-3515

Local Distributors

AL	Mobile, Brownell Electro	205-479-5405
AK	Anchorage, Airport Machinery Co	907-272-0544
AZ	Phoenix, Minarik Elec. Co.	602-233-3000
AR	Fort Smith, Dagwell-Dixie Arkansas	501-646-8028
CA	Carson, Power Trans. Specialties	213-631-7502
CA	Los Angeles, Minarik Elec. Co.	213-624-3161
CA	Mountain View, King Bearing Inc.	415-968-8316
CA	San Diego, Minarik Elec. Co.	619-560-6632
CA	San Jose, Republic Supp. Co.	408-279-2202
CA	San Jose, King Bearing Inc.	408-998-5464
CA	San Leandro, Republic Supp. Co.	415-357-2211
CA	Santa Clara, Minarik Elec. Co.	408-727-0575
CO	Denver, Wazee Elec. Co.	303-892-7004
CT	Berlin, B & B Motor & Control	203-828-8550
CT	Hartford, Machine Drives & Controls	203-728-0403
CT	Norwalk, Machine Drives & Controls	203-846-2007
FL	Miami, Brownell Electro	305-591-3215
FL	Orlando, Brownell Electro	305-843-6770
GA	Hapeville, Brownell Electro	404-762-5181
IL	Chicago, Excel Elec. Svc. Co.	312-421-7220
IL	Chicago, Harris & Lee	312-372-7272
IL	Rockford, Harris & Lee	815-398-0606
IL	St. Charles, Harris & Lee	312-584-5000
IL	Waukegan, Harris & Lee	312-662-0372
IN	Indianapolis, B & B Motor & Control	317-248-0396
IA	Cedar Rapids, Precision Bearing Co.	319-365-5276
IA	Des Moines, Precision Bearing Co.	515-265-9811
KS	Kansas City, Kornfeld Thorp Elec.	913-321-7070
MA	Medford, Empire Elctrl. Co.	617-395-5000
MA	Somerville, Electro Sls. Co., Inc.	617-666-0500
MI	Detroit, Howard Elec. Co.	313-923-0430
MN	Minneapolis, Boustead Elec. & Mfg.	612-544-9131
MO	St. Louis, Zeller Elec. Inc.	314-638-9641
NE	Omaha, Precision Bearing Co.	402-444-3939
NV	Reno, Republic Supp. Co.	702-677-1761
NJ	Cherry Hill, Jos. T. Fewkes & Co.	609-424-5810
NJ	Piscataway, B & B Motor & Control	201-572-0500
NY	Binghamton, K. J. Elec. Corp.	607-772-1760
NY	East Syracuse, K. J. Elec. Corp.	315-437-2826
NY	Long Island City, B & B Motor & Control	212-784-1313
NY	Rochester, B & B Motor & Control	716-424-7040
NC	Charlotte, Mize Co., Inc.	704-375-5761
NC	Charlotte, Brownell Electro	704-597-1270
OH	Cleveland, Reserve Elec. Co.	216-771-5764
OH	Dayton, Thal Mor Assoc., Inc.	513-298-9939
OK	Oklahoma City, Dagwell Dixie Co.	405-232-7671
OK	Tulsa, Southwest Drives, Inc.	918-834-4231
OR	Portland, Campbell Ind. Supp.	503-231-4820
PA	Pittsburgh, Braunlich-Roessie	412-471-6995
SC	Taylors, B & B Motor & Control	803-268-5702
TN	Memphis, Brownell Electro	901-795-8487
TN	Nashville, Tennessee Machinery Co.	615-244-8150
TX	Dallas, Motion Industries	214-351-2211
TX	Fort Worth, Motion Industries	817-335-8131
TX	Houston, Research Designs, Inc.	713-995-8591
TX	Houston, B & B Motor & Control	713-820-7931
TX	Houston, B & B Motor & Control	713-820-7931
VA	Richmond, Ind. Supp.	804-355-8041
WA	Seattle, Industrial Elec.	206-329-3900
WA	Seattle, Campbell Ind. Supp.	206-447-7100
WA	Spokane, Campbell Ind. Supp. Co.	509-828-8288
WA	Tacoma, Campbell Ind. Supp. Co.	206-383-2431
WI	Milwaukee, Trester Svc. Elec.	414-264-8170
WI	New Berlin, Elec. Sls. & Engrg.	414-782-2400

BOEING MICROELECTRONICS, PCB OPNS., M/S: 88-34, Box 24666, Seattle, WA 98124, Tel: 206-773-1083, Telex: 32-9430, TWX: 910-423-1563; Empl.: 120; *Sls. Mgr.:* M.A. Schalk

BOKER'S, INC., 3104 Snelling Ave., Minneapolis, MN 55406, Tel: 612-729-9365

BOMAR CRYSTAL, 201 Blackford Ave., Middlesex, NJ 08846, Tel: 201-356-7787, 800-526-3935, TWX: 710-480-4560; Empl.: 75; *Sls. Mgr.:* Phil Casciano

BOMCO, See MuShield Co.

BONUS-BILT, INC., Hofmann Inds., 1096 Air Way, Glendale, CA 91201, Tel: 818-245-9177, 800-692-8888; Empl.: 100; *Sls. Mgr.:* Robert J. Grimm

BOONTON

BOONTON ELCTRNS. CORP., 791 Route 10, Randolph, NJ 07869, Tel: 201-584-1077, TWX: 710-986-8215 BOONTRONICS; FSC No.: 04901; Empl.: 180; *Sls. Mgr.:* J. Garthwaite ....**3**•1204

Local Sales Offices & Reps

AL	Huntsville, Sci. Devices	205-536-1969
AZ	Phoenix, Aztec Entprs.	602-943-8178
CA	North Hollywood, O'Halloran Assocs.	213-877-0173
CA	Palo Alto, O'Halloran Assocs.	415-326-1493
CO	Littleton, Aztec Entprs.	303-795-0250
CT	Mt. Carmel, Sci. Devices	203-248-9361
FL	Orlando, Sci. Devices	305-841-8180
FL	Shalimer, Sci. Devices	904-651-4407
GA	Marietta, Sci. Devices SE	404-427-8660
IL	Schaumburg, K. W. Meyers	312-882-4808
IN	Indianapolis, K. W. Meyers	317-243-6681
IA	Cedar Rapids, K. W. Meyers	319-363-8987
KS	Overland Park, Ramsey Assoc.	913-649-6996
MD	Silver Spring, Sel-Tronics	301-589-3391
MA	Lexington, R. J. Sickles	617-862-5100
MN	Minneapolis, K. W. Meyers	612-920-7080
MO	Maryland Hgts., Ramsey Assoc.	314-878-5042
NJ	Englewood Cliffs, Sci. Devices	201-871-3916
NM	Albuquerque, Aztec Entprs.	505-262-1688
NY	Rochester, Sci. Devices	716-334-2445
NC	Winston-Salem, Sci. Devices	919-765-5776
OH	Centerville, Micro Sls.	513-433-8171
OH	N. Olmsted, Micro Sls.	216-734-3080
OR	Portland, Sci. Devices	503-292-6934
PA	Melrose Park, R. Meyers	215-224-1663
TX	Austin, Testech	512-327-7033
TX	Houston, Testech	713-956-0837
TX	Richardson, Testech	214-644-5010
UT	Ogden, Aztec Entprs.	801-621-1655
WA	Bellevue, Sci. Devices	206-747-5169
WI	Brookfield, K. W. Meyers	414-784-3790

BORG-WARNER THERMOELECTRICS, BORG-WARNER CORP., See TECA, ThermoElectric Cooling America Corp.

BOSCH, ROBERT, CORP., 2800 S. 25th Ave., Broadview, IL 60153, Tel: 312-865-5200, Telex: 23-5563; *Sls. Mgr.:* Dieter Bloecks; *Dist. Mgr.:* Dave Robson ....**1B**•1310, 1311

10TH Anniversary 1974–1984

BOSCHERT INC., 384 Santa Trinita Ave., Sunnyvale, CA 94086, Tel: 408-732-2440, TWX: 910-339-9241; Empl.: 600; *Sls. Mgr.:* Ed Bennett; *Dist. Mgr.:* Bill Sabetti ....**3**•1510, 1511

Local Sales Offices & Reps

AZ	Scottsdale, Fred Board Assocs.	602-994-9388
CA	Los Alamitos, Santana Sls.	714-827-9100
CA	San Diego, Harvey King	619-566-5252
CA	Santa Clara, Criterion	408-988-6300
CA	Sunnyvale, Boschert	408-732-2440
CO	Aurora, Electrodyne	303-695-8903
FL	Clearwater, Dyne-A-Mark	813-441-4702
FL	Ft. Lauderdale, Dyne-A-Mark	305-771-6501
FL	Maitland, Dyne-A-Mark	305-831-2097
FL	Palm Bay, Dyne-A-Mark	305-727-0192
GA	Atlanta, Elctrn. Mktg.	404-448-1215
GA	Huntsville, Elctrn. Mktg.	205-837-7363
IL	Arlington Hgts., Micro Sls.	312-956-1000
IN	Indianapolis, SAI Mktg.	317-241-9276
IA	Cedar Rapids, Stan Clothier	319-395-0245
MA	Framingham, Eastern Micro	617-620-1616
MI	Brighton, SAI Mktg.	313-227-1786
MN	Minneapolis, Stan Clothier Co.	612-944-3456
MO	St. Louis, Design Solutions	314-961-7170
NJ	Cherry Hill, Datronix	609-424-6622
NJ	Clifton, Boschert	201-478-4659
NM	Albuquerque, Alliance Elctrns.	505-292-3360
NY	Huntington, Morgan Elctrns.	516-549-5180
NC	Raleigh, Elctrn. Mktg.	919-847-8800
OH	Centerville, SAI Mktg.	513-435-3181
OH	Shaker Hgts., SAI Mktg.	216-751-3633
OR	Hillsboro, Olson, Ferree & Assoc.	503-640-9660
SC	Greenville, Elctrn. Mktg.	803-233-4637
TX	Austin, O. M. Sales	512-452-1838
TX	Dallas, O. M. Sales	214-241-3876
TX	Houston, O. M. Sales	713-789-4426
UT	Salt Lake City, Electrodyne	801-486-3801
WA	Bellevue, Olson, Ferree & Assoc.	206-883-7792
WI	Brookfield, Micro Sls.	414-782-1171

Local Distributors

AL	Huntsville, Marshall	205-881-9236
AL	Huntsville, Pioneer/Wash	205-837-9300
AZ	Tempe, Anthem	602-244-0900
AZ	Tempe, Marshall Inds.	602-968-6181
CA	Canoga Park, Marshall Inds.	213-999-5001
CA	Chatsworth, Anthem	213-700-1000
CA	El Monte, Marshall Inds.	213-442-7204
CA	Irvine, Marshall Inds.	714-556-6400
CA	San Diego, Anthem	619-453-9005
CA	San Diego, Marshall Inds.	619-578-9600
CA	San Jose, Anthem	408-946-8000
CA	Sunnyvale, Marshall Inds.	408-732-1100
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Tustin, Anthem	714-730-8000
CO	Denver, Marshall Inds.	303-427-1818
CO	Englewood, Anthem	303-790-4500
CT	Norwalk, Pioneer-Harvey Elctrns.	203-853-1515
CT	Wallingford, Marshall Inds.	203-265-3822
FL	Altamonte Springs, Pioneer/Wash	305-834-9090
FL	Ft. Lauderdale, Pioneer/Wash	305-771-7520
FL	Orlando, Marshall Inds.	305-841-1878
GA	Norcross, Pioneer/Wash	404-448-1711
GA	Norcross, Marshall Inds.	404-923-5750
IL	Elk Grove Vlg., Pioneer-Standard	312-437-9680
IL	Schaumberg, Marshall	312-490-0155
IN	Indianapolis, Pioneer-Standard	317-849-7300
MD	Gaithersburg, Pioneer/Wash	301-948-0710
MD	Gaithersburg, Marshall Inds.	301-840-9450
MA	Burlington, Marshall Inds.	617-272-8200
MA	Lexington, Pioneer-Harvey Elctrns.	617-861-9200
MI	Livonia, Marshall	313-525-5850
MI	Livonia, Pioneer-Standard	313-525-1800
MN	Minnetonka, Pioneer-Standard	612-935-5444
MN	Plymouth, Marshall	612-559-2211
NJ	Fairfield, Marshall Inds.	201-882-0320
NJ	Mt. Laurel, Marshall Inds.	609-234-9100
NJ	Pine Brook, Pioneer-Harvey Elctrns.	201-227-1262
NY	Endwell, Marshall	607-754-1570
NY	Fairport, Pioneer-Harvey Elctrns.	716-381-7070
NY	Hauppauge, Marshall Inds.	516-273-1515
NY	Rochester, Marshall	716-235-7620
NY	Vestal, Pioneer-Harvey Elctrns.	607-748-8211
NY	Woodbury, Pioneer-Harvey Elctrns.	516-921-8700
NC	Charlotte, Pioneer/Wash	704-572-8188
OH	Cleveland, Pioneer-Standard	216-587-3600
OH	Dayton, Marshall	513-236-8088
OH	Dayton, Pioneer-Standard	513-236-9900
OR	Beaverton, Marshall	503-644-5050
PA	Horsham, Pioneer/Wash	215-665-6778
PA	Pittsburgh, Pioneer-Standard	412-782-2300
TX	Austin, Marshall	512-458-5654
TX	Austin, Pioneer-Standard	512-835-4000
TX	Dallas, Pioneer-Standard	214-386-7300
TX	Dallas, Marshall Inds.	214-233-5200
TX	Houston, Pioneer-Standard	713-988-5555
TX	Houston, Marshall Inds.	713-789-6600
UT	Salt Lake City, Bell Inds.	801-972-6969
WA	Bellevue, Marshall Inds.	206-747-9100
WA	Redmond, Anthem	206-881-0850

BOSTON SYSTEMS OFFICE, 469 Moody St., Waltham, MA 02154, Tel: 617-894-7800, TWX: 710-324-0760; Empl.: 60; *Sls. Mgr.:* Francis X. O'Brien; *Dist. Mgr.:* Debra DellaCamera (International)

BOURNS, INC., Resistive Components Group, 1200 Columbia Ave., Riverside, CA 92507, Tel: 714-781-5050, TWX: 910-332-1252; Empl.: 4000; *Sls. Mgr.:* R. A. Sickler; *Dist. Mgr.:* Dennis Lause ....**1A**•1804-1807, 2022-2035

Local Sales Offices & Reps

AL	Huntsville, CSR Elctrns.	205-533-2444
AZ	Phoenix, Shefler-Kahn	602-257-9015
CA	Encino, Great American Rep Co.	213-990-4870
CA	San Diego, SR Elctrns.	619-560-8330
CA	San Jose, QuadRep Inc.	408-946-4000
CA	Tustin, Great American Rep Co.	714-832-8113
CO	Parker, Parker Webster	303-841-4888
FL	Altamonte Springs, Dyne-A-Mark	305-831-2097
FL	Clearwater, Dyne-A-Mark	813-441-4702
FL	Ft. Lauderdale, Dyne-A-Mark	305-771-6501
FL	Palm Bay, Dyne-A-Mark	305-727-0192
GA	Atlanta, CSR Elctrns.	404-396-3720
ID	Boise, Intermountain Technlg.	208-322-5022
IL	Elk Grove Village, John G. Twist Co.	312-593-0200
IN	Carmel, Technlg. Mktg. Corp.	317-844-8462
IN	Ft. Wayne, Technlg. Mktg. Corp.	219-432-5553
IA	Cedar Rapids, REP Assocs. Corp.	319-373-0152
KY	Louisville, Technlg. Mktg. Corp.	502-499-7808
MD	Baltimore, Micro-Comp.	301-247-0400
MA	Lexington, John E. Boeing Co.	617-862-2500
MI	Detroit, Rathsburg Assoc.	313-882-1717
MN	Edina, Mel Foster	612-941-9790
MO	Bridgeton, Centech	314-291-4230
MO	Raytown, Centech	816-358-8100
NJ	Bellmawr, Thomas Assoc.	609-933-2600
NM	Albuquerque, Shefler-Kahn Co.	505-296-0749
NY	Ithaca, B. Dean	607-257-1111
NY	Melville, Comtronic Assocs.	516-249-0505
NY	Wappingers Falls, Bourns	914-297-1180
NC	Raleigh, CSR Electronics	919-878-9200
OH	Richfield, Bear Mktg.	216-659-3131
OK	Oklahoma City, Ammon & Rizos	405-942-2552
OR	Portland, J. J. Backer	503-297-8744
OR	Salem, J. J. Backer	503-362-0717
TX	Austin, Ammon & Rizos	512-454-5131
TX	Dallas, Ammon & Rizos	214-233-5591
TX	Houston, Ammon & Rizos	713-781-6240
UT	Salt Lake City, Parker Webster	801-487-5911
VA	Huddleston, Micro-Comp	301-247-0400
WA	Seattle, J. J. Backer	206-285-1300

Local Distributors

AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AL	Huntsville, Pioneer/Washington	205-837-9300
AL	Huntsville, Schweber	205-882-2200
AL	Huntsville, Hamilton/Avnet Elctrns.	205-837-7210
AZ	Phoenix, Hall-Mark Elctrns.	602-243-6601
AZ	Phoenix, Cetec Elctrns.	602-272-7951
AZ	Phoenix, Schweber Elctrns.	602-997-4874
AZ	Phoenix, Elctrn. Parts Co.	602-277-7281
AZ	Tempe, Elctrn. Supp.	602-258-4769
AZ	Tempe, Acacia Sls.	602-894-2874
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tempe, Acacia Sales	303-232-2882
AZ	Tempe, Hamilton/Avnet	602-231-5100
CA	Canoga Park, Schweber Elctrns.	213-999-4702
CA	Chatsworth, Avnet Elctrns.	213-700-2600
CA	Citrus Hts, Hall-Mark Elctrns.	916-443-7282
CA	Compton, Harper S.I.D.	213-979-5090
CA	Costa Mesa, Hamilton Elctrns.	714-641-4100
CA	Costa Mesa, Avnet Elctrns.	213-558-2313
CA	Costa Mesa, Avnet Elctrns.	714-754-6111
CA	Culver City, Hamilton Electro Sls.	213-558-2883/84
CA	Culver City, Hamilton Electro Sls.	213-558-2121
CA	El Segundo, Hall-Mark Elctrns.	213-643-9101
CA	Garden Grove, Bell Inds.	213-444-0301
CA	Gardena, Bell Inds.	213-515-1800
CA	Irvine, Schweber Elctrns.	714-863-0261
CA	Irvine, Cetec Elctrns.	714-250-4141
CA	Irvine, Acacia Sls.	714-549-0954
CA	Irvine, Schweber Elctrns.	714-556-3880
CA	Oakland, Brill Elctrns.	415-834-5888
CA	Riverside, Elctrn. Supp. Corp.	714-787-9220
CA	Roseville, Bell Inds.	916-969-3100
CA	Sacramento, Schweber Elctrns.	916-929-9732
CA	Sacramento, Hamilton/Avnet	916-920-3150
CA	San Diego, Bell Inds.	619-268-1277
CA	San Diego, Acacia Sls.	619-565-4365
CA	San Diego, Hall-Mark Elctrns.	619-268-1201
CA	San Diego, Cetec Elctrns.	619-278-5020
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CA	San Diego, Elctrn. Supp.	619-278-5020
CA	San Diego, Hamilton/Avnet	619-571-7500
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CA	Santa Clara, Schweber Elctrns.	408-496-0200
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CA	Sunnyvale, Acacia Sales	408-745-7200
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Sunnyvale, Hall-Mark Elctrns.	408-773-9990
CA	Sunnyvale, Hamilton/Avnet	408-743-3300
CA	Tustin, Hall-Mark Elctrns.	714-669-0681
CA	Woodland Hills, Avnet Elctrns.	213-884-3322
CO	Denver, Newark Elctrns.	303-757-3351
CO	Englewood, Hall-Mark Elctrns.	303-694-1662
CO	Englewood, Hamilton/Avnet	303-779-9998
CO	Lakewood, Acacia Sales	303-232-2882
CO	Wheat Ridge, Bell Inds.	303-424-1985
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CT	Hamden, Almo Elctrns. Corp.	203-288-6556
CT	Norwalk, Pioneer Standard	203-853-1515
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FL	Altamonte Springs, Schweber Elctrns.	305-331-7555
FL	Clearwater, Hall-Mark Elctrns.	813-530-4543
FL	Dania, Summit Distrs.	305-920-6253
FL	Ft. Lauderdale, Hall-Mark Elctrns.	305-971-9280
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FL	Orlando, Pioneer/Orlando	305-834-9090
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KS	Overland Pk., Hamilton/Avnet Elctrns.	913-888-8900
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MD	Beltsville, Radio Elec. Svc. Co.	202-937-9100
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MD	Columbia, Hall-Mark Elctrns.	301-796-9300
MD	Gaithersburg, Pioneer/Washington	301-921-0660
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MN	Eden Prairie, Schweber Elctrns.	612-941-5280
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NJ	Cherry Hill, Hall-Mark Elctrns.	609-424-7300
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OH	Cleveland, Hamilton/Avnet	216-831-3500
OH	Cleveland, Pioneer Std.	216-587-3600
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OH	Columbus, Graham Elctrns.	614-895-1590
OH	Columbus, Hughes-Peters	614-294-5351
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PA	Pittsburgh, Pioneer Standard Elctrns.	412-782-2300
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Local Sales Offices & Reps

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FL	St. Petersburg, Tech. Reps. Assocs.	813-577-2779
IL	Berkeley, Balhorn & Roeser	312-449-3900
KS	Desoto, Midtec Assocs., Inc.	913-441-6565
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MN	St. Paul, Vikeland Sls.	612-645-4647
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NC	Raleigh, Leigh Sls.	919-872-1484
OH	Bucyrus, Sissler & Assoc.	419-562-9311
OH	Columbus, Sissler & Assoc.	614-488-4455
PA	Exton, Kiley Elec. Co.	215-363-8550
TN	Cleveland, Hicks Sls.	615-472-7398

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FL	Ft. Lauderdale, Johnstone	305-971-9350
GA	Norcross, Johnstone	404-446-0400
ID	Boise, Johnstone	208-377-1600
IL	Chicago, Harry Alter	312-376-3505
KS	Wichita, Johnstone	316-267-3629
LA	New Orleans, Harry Alter Co.	504-488-4435
MD	Rockville, Johnstone	301-251-0281
MA	Medford, Empire	617-395-5000
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NM	Albuquerque, Johnstone Corp.	505-884-0824
NY	Manhattan, The Harry Alter Co.	212-255-5300
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OR	Portland, Johnstone Corp.	503-233-1151

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BRIDGE COMPUTER CO., Sea Data Corp., 1 Bridge St., Newton, MA 02158, Tel: 617-244-8190, Telex: 951107; *Sls. Mgr.:* Elaine Doll

BRIGGS, C. A., CO., P.O. Box 151, Glenside, PA 19038, Tel: 215-885-2244, Telex: 83-4753; Empl.: 10; *Sls. Mgr.:* C. A. Briggs, Jr.

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Local Sales Offices & Reps

FL	De Bary, DJE Assocs.	305-668-6827
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EXP	NY, N.Y.C., Roburn Agencies	212-989-5939

Local Distributors

AL	Dothan, Carmichael Whls. Supp.	205-793-7066
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CT	Manchester, IMS	203-649-4415
CT	Waterbury, Suburban Supp.	203-757-1251
GA	Marietta, Atlanta Elec. Wire & Cable	404-955-6800
LA	New Orleans, Radio Parts	504-581-5959
MA	Billerica, Eastern Video Sys.	617-667-0009
MA	Lexington, Wholesale Elect. Supp.	617-862-3590
MA	Springfield, Electro-Term	413-734-6469
MA	Waltham, Linear Elect.	617-894-7300
MI	Troy, Northern Wire & Cable	313-589-0510
NH	Dover, American Radio Corp.	603-742-6800
NJ	Hackensack, Milcor	201-489-1313
NY	LIC, H.L. Dalis	212-361-1100
NY	N.Y.C., Center Indl.	212-YU9-6363
OK	Tulsa, Radio	918-587-9123
PA	Philadelphia, Spectrum Elec.	215-748-3010
RI	Newport, J & S Elctrn. Distb.	401-847-2977
TN	Knoxville, Bondurant Bros. Co.	615-573-9151
TX	Grand Prairie, Southwest Hardware & Fastever	214-264-4711
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TX	Texarkana, McCulloch Elctrns.	214-792-6923
VA	Norfolk, Todd Elec.	804-855-3111
WA	Seattle, Amateur Radio Supp.	206-767-3222

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CA	Los Angeles, C.E. Mello Co.	213-626-9159
CT	Old Saybrook, M-L Assoc.	203-388-9718
FL	Largo, Kirk Sls, Inc.	813-595-7353

Local Distributors

CA	Los Angeles, Minarik Electic Co.	213-624-3161
MA	Somerville, Electro Sls. Co.	617-666-0500
NY	Sodus, AED Distributors	315-483-6561

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BROOKS MFG. CO., 2016/24 Amber St., Philadelphia, PA 19125, Tel: 215-425-3395, 800-523-0130; Empl.: 35; *Sls. Mgr.:* G. Brooks; *Dist. Mgr.:* G. Brooks

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CT	Groton, Bruel & Kjaer Instrs.	617-481-7000
FL	Maitland, Bruel & Kjaer Instrs.	404-951-0115
GA	Atlanta, Bruel & Kjaer Instrs.	404-951-0115
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IA	Bettendorf, Bruel & Kjaer Instrs.	312-358-7582
KY	Louisville, Bruel & Kjaer Instrs.	313-522-8600
MD	Gaithersburg, Bruel & Kjaer Instrs.	301-948-0494
MA	Marlborough, Bruel & Kjaer Instrs.	617-481-7000
MI	Livonia, Bruel & Kjaer Instrs.	313-522-8600
MN	Minneapolis, Bruel & Kjaer Instrs.	312-358-7582
MO	St. Charles, Bruel & Kjaer Instrs.	312-358-7582
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PA	Philadelphia, Bruel & Kjaer Instrs.	201-526-2284
PA	Pittsburgh, Bruel & Kjaer Instrs.	313-622-8600
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TX	Houston, Bruel & Kjaer Instrs.	713-645-0167
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BRYANT CIRCUIT DEVICES DIV., Westinghouse Elec. Corp., 500 Sylvan Ave., Bridgeport, CT 06606, Tel: 203-334-5561, Telex: 643-817, TWX: 710-453-8709; Empl.: 1000; *Sls. Mgr.:* G. V. Curtin

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BUBBL-TEC, 6800 Sierra Ct., Dublin, CA 94566, Tel: 415-829-8705, TWX: 910-389-6890; Empl.: 19; *Sls. Mgr.:* T. J. Netoff

BUCHANAN, See Control Prods. Div., Amerace Corp.

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CA	Santa Clara, Engrg. Assocs.	408-988-5001
CO	Denver, G. Moss Elctrns.	303-455-7205
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MA	Belmont, Elctrn. Comps. & Svc.	617-484-8680
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NY	Lynbrook, P. Saftler Assoc.	516-593-7880
OH	Columbus, McFadden Sls.	614-459-1280
PA	Paoli, T. Griffin Co.	215-647-1550
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Local Sales Offices & Reps

CA	Fullerton, ISI/Mktg.	714-773-0411
TX	Dallas, CCI	214-484-9691

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BULOVA WATCH CO., See Frequency Control Prods., Inc., American Time Prods. Div.

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CA	Temple City, Fastening Systems	818-579-4600
FL	Tampa, Spencer Prods.	813-877-8276
GA	Atlanta, Georgia Rubber & Supply	404-355-0830
IL	Schaumburg, Engineered Fastener Co.	312-980-4082
IN	Ft. Wayne, Spencer Prods.	219-482-4882
IN	St. John, A.M. Associates	219-365-2100
MA	South Boston, Accurate Fasteners	617-268-8300
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MO	St. Louis, Engineered Fastener Co.	314-434-2888
NY	Buffalo, J.M. Cranz	716-832-3300
NY	Mt. Vernon, S.D. Christie Co.	914-699-7223
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CA	Mountain View, Westech Sls.	415-961-1422
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IA	Cedar Rapids, Kencotronics	319-364-5288
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MI	Ferndale, Hilltronics	313-398-5556
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NJ	Palisades Park, A. P. Technical Sls.	201-461-8875
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NY	Buffalo, Niagara Elec. Sls.	716-886-4000
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NC	Burlington, Murphy & Cota	919-584-6450
OH	Cincinnati, Anderson-Bolds, Inc.	513-528-5680
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Local Distributors

AL	Muscle Shoals, Jones Elctrns., Inc.	205-383-1241
CA	Burlingame, Elec. Control Devices	415-348-0791
CA	Redondo Beach, Elctrl. Power & Controls	213-772-8890
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FL	Miami, Electro-Standards Labs	305-633-6975
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MA	Fall River, Broadway Elec. Sls.	617-673-3339
MA	Holyoke, Falcetti & Clark Elec.	413-532-9402
MA	Springfield, Yankee Elec.	413-739-2101
MI	Grand Rapids, S & F Elctrns. Supp.	616-459-0216
MI	St. Clair Shores, Spemco	313-771-2700
MN	Minneapolis, Elctrn. Center Inc.	612-371-5200
NH	Manchester, Cohen Machinery Co. Inc.	603-624-4324
NJ	Fairlawn, Relay Specialties	201-797-3313
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CABLE SYS & ASSEMBLY, 210 Broadway, Everett, MA 02149, Tel: 617-389-7080, TWX: 710-348-1760; FSC No.: 33426; Empl.: 125; *Sls. Mgr.:* A. Armelin Jr.

CABLEWAVE SYSTEMS, INC., 718 North Colony Road, Wallingford, CT 06492, Tel: 203-265-6560

CABLEWAVE SYS., 60 Dodge Ave., North Haven, CT 06473, Tel: 203-239-3311, TWX: 710-465-0244; Empl.: 250

CABOT BERYLCO, Div. Cabot Corp., PO Box 1296, Reading, PA 19603, Tel: 215-921-5000, TWX: 510-651-0677; Empl.: 600; *Sls. Mgr.:* Thomas N. Marks

CABTRON SYS., INC., 200 N. Anets Dr., Northbrook, IL 60062, Tel: 312-498-6090; Empl.: 30; *Sls. Mgr.:* Mike Gober .... **2**•1020

Local Sales Offices & Reps

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CA	San Jose, Warren Assoc.	408-988-7762
CO	Englewood, Sierra Tech. Grp.	303-741-0227
CT	Reading, Meco, Inc.	617-944-6660
MD	Silver Spring, Ansell Engrg.	301-949-1655
MA	Reading, Meco, Inc.	617-944-6660
MI	Livonia, H. Lowell Co.	313-464-2722
MN	St. Paul, Countryman Assocs.	612-645-9151
MO	Kansas City, Prod. Automation	816-737-3030
MO	St. Charles, Prod. Automation	314-441-6600
NJ	Mt. Lakes, N.J. Comps. for Elctrns.	201-334-2921
NM	Albuquerque, Sierra Tech. Grp.	505-294-8408
NY	Syracuse, Ossmann Instrs.	315-437-7052
OH	Cleveland, Geotronix	216-526-2535
OH	Columbus, Geotronix	614-457-8472
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CADDOCK ELECTRONICS, INC., 1717 Chicago Ave., Riverside, CA 92507, Tel: 714-788-1700, TWX: 910-332-6108; FSC No.: 19647; Empl.: 240 .... **1A**•1808-1827

Local Sales Offices & Reps

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OH	Dayton, Arthur H. Baier Co.	513-276-4128
OR	Portland, Elctrn. Sources	503-684-0040
WA	Bellevue, Elctrn. Sources	206-451-3500

Local Distributors

TX	Houston, Lenert Co.	713-225-1465

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CAELUS MEMORIES, P.O. Box 6297, San Jose, CA 95150

CAI, 550 W. Northwest Hwy., Barrington, IL 60010, Tel: 312-381-2400, Telex: 25-4268, TWX: 910-651-1904; Empl.: 650

CAIG LABS., 1175-0 Industrial Ave., Escondido, CA 92025, Tel: 619-743-7143; Empl.: 10

CALABRO INDS., INC., See UNITRACK Div., Calabro Inds., Inc.

CALCOMP, 2411 W. La Palma Ave., Anaheim, CA 92801, Tel: 714-821-2011, TWX: 910-591-1154; Empl.: 2100; *Sls. Mgr.:* James F. Waltz

CAL CONTROLS INC., 1155 Waukegan Rd., Glenview, IL 60025, Tel: 312-998-5720, Telex: 256293; *Sls. Mgr.:* Alan Bates

CAL CRYSTAL LAB., INC., 1142 N. Gilbert, Anaheim, CA 92801, Tel: 714-991-1580, 800-854-XTAL, TWX: 910-591-1892; *Sls. Mgr.:* Herb Plumhoff

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Local Sales Offices & Reps

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CA	Inglewood, Basic Sys.	213-673-4300
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CA	Santa Clara, Basic Sys.	408-727-1800
CT	Washington, Tri-Com	203-868-7748
FL	Melbourne, Raycom Inc.	305-259-7988
GA	Duluth, Raycom Inc.	404-446-9015
IL	Skokie, Mar-Con Assocs.	312-675-6450
KS	Shawnee Mission, Midtec Assocs.	913-441-6565
MA	Burlington, Tri-com	617-272-8163
MI	Plymouth, Jay Mktg.	313-459-1200
MN	Eden Prairie, EIC Inc.	612-937-9701
MO	Florissant, Midtec Assocs.	314-837-5200
NY	Clarence, Trott Elctrns.	716-634-8500
NY	White Plains, Cane Techn. Sls.	914-694-9240
NC	Raleigh, Lee Assoc.	919-787-5818
OH	Chesterland, EQS	313-961-3042
PA	Media, W. Reeves Assoc.	215-566-6709
TX	Garland, Carey, McMahill & Zerbe Co.	214-681-1414
TX	Houston, Carey, McMahill & Zerbe Co.	713-771-1500
WA	Bellevue, Topp Engrg. Sls. Co.	206-747-5401

Local Distributors

CA	Inglewood, Basic Sys.	213-673-4300
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CALIBRON INSTRS., 220 Grove St., Waltham, MA 02154, Tel: 617-894-6440; Empl.: 14; *Dist. Mgr.:* W. Burton

CALIFORNIA AVIONICS LABS., Box 701, Palo Alto, CA 94302, Tel: 415-328-7999; Empl.: 5 .... **3**•1206

CALIFORNIA DC, 2150 Anchor Ct., Newbury Park, CA 91320, Tel: 805-499-3621, 213-706-8221; Empl.: 100; *Sls. Mgr.:* Peter Gajewski .... **3**•1514

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CA	San Jose, Quad Rep	408-946-4000
MA	Westboro, RJC Associates	617-366-0399
OR	Beaverton, Meritech Sls. Corp.	503-644-0304
PA	King of Prussia, Rivco-January	215-265-5211
TX	Dallas, Technology Sls.	214-380-0200
WA	Spokane, Meritech Sls. Corp.	509-255-9122

CALIFORNIA EASTERN LABS. INC., 3005 Democracy Way, Santa Clara, CA 95050, Tel: 408-988-3500, Telex: 346393, TWX: 171197; Empl.: 85; *Sls. Mgr.:* Jim McAuley; *Dist. Mgr.:* Jim McAuley

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AL	Huntsville, Saber Assocs.	800-327-0853
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CA	Los Alamitos, Sci. Dvcs. West	213-598-7678
CA	Los Altos, Jay Stone Assocs.	415-948-4563
CA	San Diego, Sci. Dvcs. West	619-573-0157
CO	Denver, Aztec Entprs.	303-779-5285
FL	Bradenton, Saber Assocs.	800-432-6288
FL	Melbourne, Saber Assocs.	800-432-6288
GA	Griffin, Saber Assocs.	800-327-0853
IL	Chicago, EIA, Inc.	312-298-2290
IN	Indianapolis, EIA, Inc.	317-257-7231
KS	DeSoto, Midtec Assocs.	913-441-6565
LA	Baton Rouge, SESCO	504-928-4951
MD	Cockeysville, SCI-REP	301-321-1411
MA	Waltham, McBar Assocs.	617-890-0233
MN	Minneapolis, Prairie Assocs.	612-559-7550
MO	Florissant, Midtec Assocs.	314-837-5200
NJ	Englewood Cliffs, Sci. Dvcs. East, Inc.	201-871-3916
NM	Albuquerque, Aztec Entprs.	505-262-1688
NY	Fayetteville, Andrews Co.	315-637-3144
NC	Clayton, Saber Assocs.	800-327-0853
OH	Dayton, Hocker Assocs.	513-298-8638
OK	Tulsa, SESCO	918-622-3868
PA	Springhouse, Sci. Dvcs. East.	215-643-3335
SC	Columbia, Saber Assocs.	800-327-0853
TX	Austin, SESCO	512-892-2490
TX	Dallas, SESCO	214-231-9364
TX	Houston, SESCO	713-999-3510
UT	Ogden, Aztec Ent., Inc.	801-621-1655
VA	McLean, Creative Mktg. Assoc. Ltd.	703-442-9100
WA	Seattle, Datacom Assocs.	206-285-2525

CALIFORNIA MICRO DEVICES, INC., 215 Topaz Street, Milpitas, CA 95035, Tel: 408-263-3214

CALIFORNIA MICROWAVE, 990 Almanor Ave., Sunnyvale, CA 94086, Tel: 408-732-4000, Telex: 35-2016, TWX: 910-339-9231; Empl.: 1200

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AL	Huntsville, Remco	205-533-3763
AZ	Tempe, Delta Elctrn. Sls.	602-224-1601
CA	San Diego, Noo Rep. Tech. Sls.	619-483-4861
CA	Santa Clara, Calmark Corp.	408-984-2618
CO	Littleton, West Mark	303-979-3720
FL	Clearwater, WMM Assoc.	813-461-7074
GA	Atlanta, Remco	404-447-6937
ID	Boise, Quest Mktg.	208-343-9969
IL	Elk Grove, Martec	312-956-8090
KS	DeSoto, Midtec Assoc.	913-441-6565
MA	Westboro, Tech. Mktg. Svcs. Co.	617-366-6655
MN	Minneapolis, Comps. Grp.	612-374-1250
MO	Florissant, Midtec Assoc.	314-837-5200
NH	Windham, Tech. Mktg. Svcs.	603-434-2716
NJ	Madison, Livera-Polk Assoc.	201-377-3220
NY	Cooperstown, Fitzêlle Assocs.	607-547-9333
NY	Glen Head, Livera-Polk Assoc.	516-759-9300
NC	Raleigh, Remco	919-847-5079
OH	Cleveland, Comps., Inc.	216-243-9200
OH	Miamisburg, Comps., Inc.	513-866-0661
OR	Beaverton, Quest Mktg.	503-644-8077
PA	Horsham, Dalbrook Corp.	215-441-8380
PA	Pittsburgh, Comps., Inc.	412-824-1600
TX	Richardson, Zonk Assoc.	214-238-7651
WA	Renton, Quest Mktg.	206-223-1541
EXP	San Gabriel, CA, Calmark Corp.	213-287-0451

Local Distributors

AZ	Phoenix, Aero-Space Computer Supps.	602-861-1785
AZ	Phoenix, Scottsdale Tool & Supp.	602-273-7376
CA	Anaheim, Henry Mann West	213-995-3900
CA	Fremont, Terminal Sls. Corp.	415-656-7722
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Torrance, Cypress Elctrns.	213-533-6005
CO	Denver, Solder Tec.	303-922-6214
FL	Longwood, Intertec Comps.	305-834-7777
IL	Elk Grove, Martec Assoc.	312-956-8090
MA	Waltham, Etchomatic	617-893-2020
MA	Westboro, TMSC Elctrn. Supp.	617-366-8462
MN	Minneapolis, Aero-Space Computer Supp.	612-884-4725
NJ	Collingswood, Index	609-429-4055
NJ	Nutley, Nationwide Circuit Prods.	201-667-1333
NY	Elmsford, Multimetrics Co.	914-347-3667
PA	Huntingdon Valley, Henry Mann, Inc.	215-355-7200
TX	Dallas, Cypress Elctrns.	214-869-1435
TX	Richardson, Zec Sls.	214-238-7651
UT	Salt Lake City, Solder Tec	801-974-0444
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EXP	Cappoquin, Ireland, Calmark-Killeen Ltd.	058-54205
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CA	Cupertino, F & F Assocs.	408-446-2349
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AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Scottsdale, Sls. Engrg.	602-994-3230
AR	Little Rock, Beacon Elctrns.	501-224-5449
CA	Los Altos, Ewing-Foley	415-941-4525
CA	Los Angeles, Universal Comps.	213-641-4255
CO	Boulder, Front Range Mktg.	303-443-4780
CT	Glastonbury, Barton Assoc.	203-633-9417
FL	Boca Raton, Beacon Elctrns.	305-392-3500
FL	Clearwater, Beacon Elctrns.	813-796-2378
FL	Maitland, Beacon Elctrns.	305-647-3498
FL	Melbourne, Beacon Elctrns.	305-724-8010
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Elk Grove Vlg., Control Sls.	312-595-2110
IN	Carmel, Technlg. Mktg. Corp.	317-844-8462
IN	Ft. Wayne, Technlg. Mktg. Corp.	219-432-5553
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MD	Randallstown, Beacon North	703-591-1300
MA	Ludlow, Gerber Sls. Corp.	413-589-9817
MA	Newton Upper Falls, Gerber Sls. Corp.	617-969-2620
MI	Brighton, AP Assocs.	313-229-6550
MN	Minnetonka, Gibb Elctrns.	612-935-4600
MO	Bridgeton, Dy-Tronix	314-731-5799
MO	Independence, Dy-Tronix	816-373-6600
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NY	Babylon, Astrorep	516-422-2500
NY	Latham, L-Tron Corp.	518-785-5032
NC	Raleigh, Beacon Elctrns.	919-787-0330
OH	Beachwood, Thompson & Assocs.	216-831-6277
OH	Dayton, Thompson & Assocs.	513-435-7733
OR	Beaverton, LD Elctrns.	503-649-6177
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TX	Richardson, R. F. Kimball Co.	214-231-3447
UT	Salt Lake City, Front Range Mktg.	801-364-6481
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VA	Forest, Beacon North	804-239-8486
WA	Snohomish, LD Elctrns.	206-568-0511
WA	Spokane, LD Elctrns.	509-922-4883
WI	Thiensville, Control Sls.	414-242-4580

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AL	Birmingham, Motion Technlg.	404-972-4040
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AR	El Dorado, Industrial Control Assocs.	501-863-2051
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CT	Wolcott, Vanguard Elctrns.	203-879-9310
FL	Orlando, Motion Technology	404-972-5050
GA	Lilburn, Motion Techn.	404-972-5050
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IL	Glenview, JHS Assocs.	312-998-1960
IN	Ft. Wayne, J&B Engrg.	219-483-2813
IN	Indianapolis, J & B Engrg.	317-842-2681
MA	Needham Hgts., Vanguard Elctrns.	617-449-5578
MI	Farmington Hills, W. R. Hummon & Associates	313-474-0661
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NJ	Wayne, SHL Assocs.	201-790-1714
NY	E. Rochester, A & D Devices	716-385-2778
NY	Sidney, A & D Devices	607-563-8488
NC	Charlotte, Motion Technology	704-525-9855
OH	Galion, Retronics	419-468-3253
OR	Portland, Controltek	503-641-0877
PA	Wayne, Technical Indl. Sls.	215-688-0220
TX	Dallas, Blackburn Assocs.	214-692-8885
TX	Houston, Blackburn Assocs.	713-463-1356
WA	Spokane, Controltek	509-922-2971
WI	Milwaukee, EMCO	414-242-0800

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TX	Plano, B & R Electrnc. Sls. Corp.	214-985-0028
UT	Salt Lake City, Aspen Sales	801-467-2401
WA	Redmond, Doran Sls. Assocs.	206-885-1885

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CAPITOL MAGNETIC PRODS., 6902 Sunset Blvd., Hollywood, CA 90028, Tel: 213-461-2701, Telex: 67-3271, TWX: 910-321-3500; Empl.: 700

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CAPTOR CORP., 5040 S. County Rd. (25A), Tipp City, OH 45371, Tel: 513-667-8484; FSC No.: 23939; Empl.: 80; *Sls. Mgr.:* Omer B. Bruns

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CARBONE LORRAINE INDS., 400 Myrtle Ave., Boonton, NJ 07005, Tel: 201-DE4-0700, Telex: 136407; Empl.: 450

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CA	El Segundo, Varigon Assocs.	213-322-1120
CA	San Diego, Varigon Assocs.	619-576-0100
CT	Greenwich, Crane & Egert Corp.	203-964-0111
FL	Cocoa Beach, Reynolds & Assocs.	305-784-4700
IL	Highland Pk., Thomas B. Hunter Assocs.	312-433-7000
NY	Elmont, Crane & Egert Corp.	516-872-0800
OH	Dayton, R.R.M. Assocs.	513-433-7761
TX	Arlington, EPR	817-467-0377

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CARDON CORP., P.O. Box 2371, Boston, MA 02107, Tel: 617-357-5898

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CARLINGSWITCH, INC., 505 New Park Ave., W. Hartford, CT 06110-0641, Tel: 203-233-5551, TWX: 710-425-0034; Empl.: 1200; *Sls. Mgr.:* Mark Facey 1B•1548, 1549

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FL	Orlando, OEM Mktg.	305-299-1000
GA	Atlanta, CSR Elect.	404-396-3720
IL	Schiller Park, Jim Hannan	312-678-1997
IN	Indianapolis, D-M Assoc.	317-842-4424
KS	Mission, Merdens Co.	913-432-9323
LA	Metairie, Automation Supplies	504-831-2183
MD	Woodbine, Naudain Assoc.	301-442-2270
MA	Hopkinton, Berkshire Elctrns.	617-435-6025
MI	Smithfield, R. C. Nordstrom	313-559-7373
MN	Edina, Monroe-Hanna Assoc.	612-925-5700
MO	Clayton, Mertens Co.	314-993-6600
NJ	Burlington, VDE Elctrns.	609-387-9331
NJ	Union, Pacent Engrg.	201-687-7197
NY	Great Neck, Pacent Engrg.	516-482-4678
NY	Rochester, VDE Elctrns.	716-473-5015
NC	Raleigh, Crossroads Elctrns.	919-362-4009
OH	Miamisburg, Gerry Bryant	614-294-7103
OR	Aloha, Elctrn. Comp. Sls.	503-245-2342
PA	Carnegie, Brown-Yates	412-279-1101
SC	W. Columbia, Crossroads Elctrns.	919-362-4099
TX	Dallas, Control Comps.	214-458-8877
WA	Mercer Island, Elctrn. Comp. Sls.	206-232-9301
WI	Mequon, Wm. Bolles Assoc.	414-241-3320

Local Distributors

CA	Anaheim, Electro Comps.	213-628-2844
CA	Los Angeles, Electric Switches	213-660-1310
CA	San Leandro, Electro Comps.	415-352-5210
CA	Van Nuys, Pacific Switch Controls	213-873-4802
CT	Hartford, Atlantic Switch Controls	203-527-7705
FL	Lakeland, Switch Controls	813-644-7564
IL	Carol Stream, Conectrix	312-653-1460
MI	St. Clair Shores, Spemco	313-771-2700
MN	Minneapolis, Carl Bergquist Co.	612-835-2322
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	Mt. Laurel, Jerseyswitch	609-778-8190
NY	Rochester, Simcona Elctrns. Corp.	716-328-3230
NY	Woodside, Switches Unltd.	212-478-5000
OH	Columbus, Ohioswitch	614-885-0319
SC	Columbia, Dixie Elctrns.	803-779-5332
TX	Dallas, Texaswitch	214-357-1768

CAROL CABLE CO. WEST, 2665 E. Del Amo Blvd., Rando Dominquez, CA 90221, Tel: 213-537-8050

CAROL

CAROL CABLE CO., INC., Columbia Elctrn. Cables Div., 249 Roosevelt Ave., Pawtucket, RI 02862, Tel: 401-724-9605, Telex: 927-750; FSC No.: 53909; Empl.: 1,000; *Dist. Mgr.:* Patrick E. Rush 2•1997-2019

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, J. R. Morgan	602-268-3464
CA	Aptós, West Cal Sls./Ind.	408-688-6568
CA	Costa Mesa, Berman-Gravley	714-549-2122
CA	San Francisco, Technical Sls.	415-467-1434
CO	Denver, William J. Purdy Co.	303-777-1411
FL	Maitland, Hutto, Hawkins, Peregoy	305-831-2474
GA	Atlanta, Cartwright & Bean	404-233-2939
HI	Honolulu, Snider, Campbell & Sutton	808-845-9937
IL	Chicago, IRI, Inc.	312-647-7755
IN	Indianapolis, Mktg. Engrs.	317-872-5665
KS	Shawnee Mission, Lowell-Kangas	913-631-3515
LA	Kenner, Cartwright & Bean	504-466-0020
MD	Mt. Airy, Lowery & Assoc.	301-831-5827
MA	Seekonk, Rudolph Mktg.	617-399-6270
MI	E. Detroit, J. M. Thorpe	313-779-6363
MN	Edina, Mel Foster Tech. Sls.	612-941-9790
MO	St. Louis, Lowell-Kangas	314-821-4050
NJ	Cedar Grove, Legtronics	201-239-4098
NY	Rochester, Apex Assocs.	716-254-6050
NY	Tuckahoe, L-C-A Sales	914-961-4700
NC	Raleigh, Cartwright & Bean	919-781-6560
OH	Cleveland, Marlow Assoc.	216-991-6500
OK	Oklahoma City, J. Y. Schoonmaker Co.	405-685-4477
OR	Beaverton, Wm. J. Purdy Co.	503-641-9373
PA	Broomall, L. D. Lowery	215-356-5300
TN	Knoxville, Cartwright & Bean	615-693-7450
TX	Dallas, J. Y. Schoonmaker Co.	214-349-1650
TX	Houston, J. Y. Schoonmaker Co.	713-686-0371
UT	Salt Lake City, W. J. Purdy Co.	801-531-0182
VA	Charlottesville, Lowery & Assoc.	804-973-6672
WA	Redmond, William J. Purdy Co.	206-882-3144
WI	Milwaukee, IRI, Inc.	414-259-0966

CAROLINA STEEL & WIRE, I-20 & S.C. 6, Lexington, SC 29072, Tel: 803-359-5501, Telex: 573355; FSC No.: 72954; Empl.: 125

CARPENTER MFG. CO., INC., Fairgrounds Dr., P.O. Box 188, Manlius, NY 13104-0188, Tel: 315-682-9176; *Sls. Mgr.:* Jack Henderson

CARPENTER TECHN., Box 662, Reading, PA 19603, Tel: 215-371-2000; Empl.: 4500; *Sls. Mgr.:* W.M. Detterer

CARROLL TOUCH TECHNOLOGY, P.O. Box 1309, Round Rock, TX 78680, Tel: 512-244-3500; *Sls. Mgr.:* Alan Hochman 3•1072, 1073

CARSON MFG. CO., 5453 N. Rural St., P.O. Box 20464, Indianapolis, IN 46220, Tel: 317-257-3191; Empl.: 75

CARTER MFG., Sugar Rd., Bolton, MA 01740, Tel: 617-779-5501; FSC No.: 03929; Empl.: 30; *Sls. Mgr.:* L. W. Tedstone

CARTER MOTOR, 2707 W. George St., Chicago, IL 60618-7898, Tel: 312-588-7700

CASSO-SOLAR, 3 Pearl Ct., Allendale, NJ 07401, Tel: 201-825-4600, Telex: 475-4099; Empl.: 50; *Sls. Mgr.:* Rolf Kates

CASTALL, INC., Weymouth Indl. Park, E. Weymouth, MA 02188, Tel: 617-337-6075; Empl.: 30

CATALYST RESEARCH, 1421 Clarkview Rd., Baltimore, MD 21209, Tel: 301-296-7000, Telex: 87-768; Empl.: 400; *Sls. Mgr.:* J. Wesley Kulp; *Dist. Mgr.:* Edward Hatch 3•1407

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
CA	Mountain View, M.T.S.R. & Co.	415-966-6446
FL	Lighthouse Point, R. C. Simon & Co.	305-941-2757
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Hinsdale, Willtech Corp.	312-655-4850
MD	Annapolis, Vince Iorio Assocs.	301-261-1716
MI	Detroit, W. R. Hummon & Assoc. Inc.	313-474-0661
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
NY	Jamaica, S-J Assocs.	212-291-3232
NC	Cary, Montgomery Mktg.	919-467-6319

OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
PA	Pittsburgh, J. C. Hofstetter Co.	412-327-1410
TX	Austin, Kruvand Assocs.	512-458-9204
TX	Dallas, Kruvand Assocs.	214-691-4592
TX	Houston, Kruvand Assocs.	713-780-9710

CATEL TELECOMMUNICATIONS, United Scientific Corp., 4800 Patrick Henry Dr., Santa Clara, CA 95054, Tel: 408-988-7722, TWX: 910-338-2263; *Sls. Mgr.:* Dick Old; *Dist. Mgr.:* Dick Old

CATON

CATON CONNECTOR CORP., Jones River Indl. Pk., 20 Wapping Rd., Kingston, MA 02364, Tel: 617-585-4315, TWX: 710-391-7546; FSC No.: 52196; Empl.: 25; *Sls. Mgr.:* D. Galambos ....**2**•1167

Local Sales Offices & Reps

CA	Van Nuys, ISI	714-773-0411
MD	Baltimore, Jack Onore	301-355-0474
OH	Dayton, Delta Sales	513-271-5444

CATRONIX CORP., 120 Ralph McGill Blvd. N.E., Ste. 800, Atlanta, GA 30308, Tel: 404-872-2300; *Sls. Mgr.:* Terence R. Binion

CATV DIV., GTE Communications Prods. Corp., 1790 Lee Trevino Dr., El Paso, TX 79936, Tel: 915-594-3555, 800-351-2345, Telex: 74 9337

C-COR ELCTRNS., 60 Decibel Rd., State College, PA 16801, Tel: 814-238-2461, TWX: 510-670-3513; FSC No.: 12775; Empl.: 600; *Sls. Mgr.:* S. Dance

CDS - COLORADO DATA SYS., 3301 W. Hampden, Unit C, Englewood, CO 80110, Tel: 303-762-1640, TWX: 910-933-0193; Empl.: 35; *Sls. Mgr.:* Louis Klahn

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Local Sales Offices & Reps

CA	Anaheim, Moxon Elctrns.	714-635-7600
FL	Pompano Beach, Saber Assocs.	305-973-3804
IL	Arlington Heights, Dytec/Central	312-394-3380
MA	Boston, Scientific Devices, N.E.	617-890-2252
MN	Eden Prairie, Scientific Devices, Minneapolis	612-944-3515
MO	St. Louis, Dytec South	314-569-2990
NJ	Englewood Cliffs, Scientific Devices, East	201-871-3916
NM	Albuquerque, Odyssey 1	505-883-4019
NY	Rochester, Scientific Devices, New York	716-334-2445
OH	Dayton, WKM Associates	513-434-7500
TX	Dallas, Data Mktg.	214-661-0300
VA	McLean, Creative Mktg. Assoc.	703-442-9100
WA	Bellevue, Showalter Instrs.	206-455-4922

CEA DIVISION OF BERKLEONICS, INC., 1 Aerovista Pk., San Luis Obispo, CA 93401, Tel: 805-544-5454, TWX: 910-351-6705; FSC No.: 04932; Empl.: 120; *Sls. Mgr.:* Jerry Satuloff ....**3**•1515

Local Sales Offices & Reps

CA	Inglewood, Basic Sys. Corp.	213-673-4300
CA	San Diego, Basic Sys. Corp.	619-268-8000
CA	Santa Clara, Basic Sys. Corp.	408-727-1800
FL	Melbourne, Jack McGirr	305-773-4313
IL	Rolling Meadows, Sieger Assocs.	312-991-6161
KS	Wichita, Electro-Mechanical Assocs.	316-682-9433
MD	Wheaton, Brimberg Sls., Inc.	301-792-8661
MA	Dover, George Urban Assocs.	617-329-4068
MI	Farmington Hills, KRW Sls.	614-464-1861
MO	Independence, Electro-Mechanical Assocs.	816-373-8539
NY	Congers, LRC Assocs.	914-268-4435
NY	Liverpool, Precision Sls.	315-451-3480
NY	Pittsford, Precision Sls.	716-381-2821
OH	Columbus, KRW Sls.	614-464-1861
PA	Broomall, Sapinosa Assocs.	215-353-7267
PA	Oakmont, KRW Sls.	614-464-1861
TN	Greenville, Lamons Sls. Co.	615-638-4320
TX	Grapevine, Elctrns. Mktg. Assocs.	817-481-7502
TX	Houston, Elctrns. Mktg. Assocs.	713-498-8120
WA	Lynnwood, IEI Inc.	206-775-3516

CEAG ELEC. CORP., Power Supply Div., 1324 Motor Pkwy., Hauppauge, NY 11788, Tel: 516-582-4422, TWX: 510-227-4904; FSC No.: 57973; *Dist. Mgr.:* G. Roger Preisick

C-E ELGIN ELCTRNS., 5533 New Perry Hwy., Erie, PA 16509-3570, Tel: 814-864-4921, TWX: 510-699-6870; Empl.: 500; *Sls. Mgr.:* J. D. Neff; *Dist. Mgr.:* J. M. Tenglund

CELANESE PLASTICS, 26 Main St., Chatham, NJ 07928, Tel: 201-635-2600; *Sls. Mgr.:* L. F. Bond

CELCO, 70 Constantine Dr., Mahwah, NJ 07430, Tel: 201-327-1123, TWX: 710-988-1018; Empl.: 35; *Sls. Mgr.:* P. S. Christaldi

celesco

CELESCO TRANSDUCER PRODS., INC., 7800 Deering Ave., Canoga Park, CA 91304, Tel: 818-884-6860, Telex: 67 3382, TWX: 910-494-1951; *Sls. Mgr.:* James P. Callahan; *Dist. Mgr.:* James P. Callahan ....**1B**•1838, 1839

Local Sales Offices & Reps

AK	Soldotna, C. Hillhouse Inc.	907-262-7340
AZ	Tempe, Trembly Assocs.	602-967-2058
CA	Palo Alto, Gado Instr. Sls.	415-961-2222
CA	Westminster, Transducer Sys.	714-840-5357
CO	Denver, Innovative Prods.	303-740-9492
FL	Indian Rocks Beach, PAR Assocs.	813-596-8841
GA	Atlanta, PAR Assocs.	404-391-9117
IL	Hindsdale, I & C Sls.	312-323-8205
LA	Baton Rouge, Charles Instrs.	504-273-3233
MA	Chestnut Hill, Reptek	617-469-3311
MI	Trenton, I & C Sales	313-671-1320
MN	Minneapolis, CMI Corp.	612-566-6930
NV	Las Vegas, Trembly Assocs.	702-739-9770
NJ	Hillsdale, C.B. Assocs.	201-664-6230
NM	Albuquerque, Trembly Assocs.	505-266-8616
NY	Clarence, Trott Elctrns.	716-634-8500
NY	Rochester, Trott Elctrns.	716-586-8251
NC	Charlotte, Par Assocs., Inc.	704-375-9403
OH	Cincinnati, I & C Sales	513-772-3101
OK	Tulsa, Advance Tech. Sls.	918-664-0482
OR	Portland, Pacific N.W. Controls	503-244-3141
PA	Bridgeville, Instrument Svcs.	412-221-3601
PA	Cheltenham, Test Equip. Sls.	215-379-5431
PA	Erie, Instrument Svcs.	814-455-1969
TX	Austin, Advance Tech. Sls.	512-459-1351
TX	Dallas, Advance Tech. Sls.	214-340-1300
TX	Houston, Advance Tech. Sls.	713-440-3888
UT	Salt Lake City, Trembly Assocs.	801-486-5292
WV	Charleston, Instrument Svcs.	304-345-0348

Local Distributors

CA	Ventura, Vacumed	805-644-7461

CELESTION INDS., INC., Kuniholm Dr., Box 521, Holliston, MA 01746, Tel: 617-429-6706, Telex: 948417

CENTENT CO., 3879 S. Main St., Santa Ana, CA 92707, Tel: 714-979-6491; Empl.: 12; *Sls. Mgr.:* A. Freimanis

CENTERFLEX TECHN. CORP., 221 Seventh Ave., P.O. Box 21, Hawthorne, NJ 07507, Tel: 201-423-0505, TWX: 710-988-4147; Empl.: 50; *Sls. Mgr.:* S. C. Kellner

CENTIGRAM CORP., 155A Moffett Park Dr., Sunnyvale, CA 94086, Tel: 408-734-3222, Telex: 171-994; *Sls. Mgr.:* Leonard H. Magnuson; *Dist. Mgr.:* Paul W. Masters

CENTRALAB, INC., A North American Philips Co., 4561 Colorado Blvd., Los Angeles, CA 90039, Tel: 818-240-4880, TWX: 910-497-2282

CENTRALAB, INC., A North American Philips Co., 2566 Northwestern Ave., McClure Pk., West Lafayette, IN 47906, Tel: 317-463-2536, TWX: 810-342-1889

CENTRALAB, INC., A North American Philips Co., Hwy. 20 W., P.O. Box 858, Ft. Dodge, IA 50501, Tel: 515-573-1300, TWX: 910-520-2493

CENTRALAB, INC., A North American Philips Co., 7158 Merchant Ave., El Paso, TX 79915, Tel: 915-779-3961, TWX: 910-964-1311

CENTRALAB, INC., A North American Philips Co., 5855 N. Glen Park Rd., Milwaukee, WI 53209, Tel: 414-228-7380, TWX: 910-262-3083; Empl.: 5000; *Sls. Mgr.:* F. Funk; *Dist. Mgr.:* R. Booker

CENTRAL DATA CORP., 1602 Newton Dr., Champaign, IL 61820, Tel: 217-359-8010, Telex: 910-245-0787; *Sls. Mgr.:* N. E. Mac Gregor

CENTRAL MICROWAVE CO., Alpha Inds., Inc., 20 Sylvan Rd., Woburn, MA 01801, Tel: 617-935-5150, Telex: 949436, TWX: 710-393-1236; FSC No.: 17540; *Sls. Mgr.:* Jim Caldwell

CENTRE ENGRG., 2820 E. College Ave., State College, PA 16801, Tel: 814-237-0321, TWX: 510-670-3517; Empl.: 425; *Sls. Mgr.:* H.D. Shirey

CENTRONIC INC., 5 Eastmans Rd., Parsippany, NJ 07054, Tel: 201-233-7200, Telex: 138275; FSC No.: 7P396; Empl.: 300; *Sls. Mgr.:* Tony Green ....**1B**•1212, 1213

Local Sales Offices & Reps

AZ	Tempe, Griot Assocs.	602-968-4428
CA	Corona del Mar, Griot Assocs.	714-675-5090
CA	El Segundo, Griot Assocs.	213-322-8383
CA	Los Altos, Griot Assocs.	415-941-2533
CA	Santa Clara, Griot Assocs.	408-727-2880
FL	Melbourne Bch., Millett Assocs.	305-725-5055
GA	Roswell, Electro Comp Sls.	404-993-4253
IL	Chicago, Coomb Assocs.	312-298-4830
MA	Concord, Nortech. Engrg. Sls.	617-259-0032
MI	Jackson, Norwood Scroggs Co.	517-750-1170
MN	Minneapolis, Intl. Sls.	612-831-8423
NY	Commack, RC Engrg.	516-543-3325
OR	Beaverton, Griot Assocs.	503-646-5627
PA	Glenside, Koebert & Assocs.	215-887-2310

CENTURY DATA SYS., Xerox Corp., 1270 N. Kraemer Blvd., Anaheim, CA 92806, Tel: 714-632-7500, Telex: 655437; Empl.: 901; *Sls. Mgr.:* Richard Brechtlein; *Dist. Mgr.:* Don Wilder

Local Distributors

NY	Westbury, Schweber Elctrns.	516-334-7474

Ceramaseal

CERAMASEAL, Box 25, New Lebanon Center, NY 12126, Tel: 518-794-7800, Telex: 14-5442; FSC No.: 07601; Empl.: 80; *Sls. Mgr.:* Gene D. Sawin ....2•1168

Local Sales Offices & Reps

AZ	Phoenix, Wadsworth/Bryant	602-275-7366
CA	Atherton, Wadsworth/Bryant	415-321-3619
CA	Hacienda Hgts., Wadsworth/Bryant	213-330-5592
CO	Golden, J. F. Hurlbut Co.	303-279-7796
IL	Mt. Prospect, Automation Equip. Co.	312-398-7550
KS	De Soto, Midtec Assocs.	913-441-6565
MD	Baltimore, R. A. Wafer Assoc.	301-744-1133
MA	Boston, P-J Engrg. Sls.	617-783-0510
MO	Florissant, Midtec Assocs.	314-837-5200
NY	Rochester, Canavan-Scanlon Assoc.	716-424-1830
NY	Syracuse, Canavan-Scanlon Assoc.	315-437-1271
NC	Charlotte, JWL Assoc.	704-523-3001
PA	Feasterville, Knowles Assocs.	215-322-7100
PA	Pittsburgh, Kurt J. Lesker Co.	412-892-2996
TN	Knoxville, C. E. Fox	615-522-4404
TX	Richardson, Spectra Sls.	214-234-3600
WA	Seattle, J. B. Jolly, Inc.	206-938-4166

CERAMIC MAGNETICS, INC., 87 Fairfield Rd., Fairfield, NJ 07006, Tel: 201-227-4222, Telex: 138 730; Empl.: 50

CERA-MITE CORP., 1327 Sixth Ave., Grafton, WI 53024, Tel: 414-377-3500

CERMETEK MICROELECTRONICS INC., 1308 Borregas Ave., Sunnyvale, CA 94089, Tel: 408-734-8150, TWX: 910-379-6931; Empl.: 130; *Sls. Mgr.:* Ken Archbold

Local Sales Offices & Reps

AZ	Scottsdale, Dar-C, Inc.	602-948-2240
CA	Garden Grove, Elsco Elctrns.	714-891-4621
CA	San Diego, Earle Assoc.	619-278-5441
CA	San Jose, H.T.S.	408-279-2443
CO	Denver, D/Z Assocs.	303-429-9369
FL	Boca Raton, Lawrence Assocs.	305-368-7373
GA	Doraville, K & E Assocs.	404-448-7025
IL	Barrington, OMNI Elctrn. Mktg.	312-381-9087
IN	Indianapolis, SAI Mktg.	317-241-9276
IA	Des Moines, Beams Co.	515-255-1148
MI	Ann Arbor, R. L. Rowe & Assocs.	313-995-8711
MN	Bloomington, Smiley Scott Assoc.	612-888-5551
NM	Albuquerque, Syntech	505-266-7951
NY	Great Neck, MOS Assoc.	516-487-3966
OK	Tulsa, Cunningham Comps. Corp.	918-492-0390
OR	Beaverton, E.S. Chase	503-641-4111
PA	L.J. Kairys, Coraopolis	412-331-6100
TX	Houston, Cunningham Co.	713-461-4197
UT	Salt Lake City, D/Z Assocs.	801-268-2876
WA	Bellevue, E.S. Chase	206-453-0765

Local Distributors

AL	Huntsville, RM Elctrns.	205-852-1550
AZ	Phoenix, R.V. Weatherford	602-272-7144
CA	Glendale, R.V. Weatherford	213-849-3451
CA	Sunnyvale, R.V. Weatherford	408-738-8694
CO	Denver, R.V. Weatherford	303-428-6900
CT	Orange, Milgray	203-795-0711
FL	Winter Park, Milgray	305-647-5747
GA	Atlanta, Milgray	404-393-9666
IL	Lombard, RM Elctrns.	312-932-5150
IN	Indianapolis, RM Elctrns.	317-247-9701
KS	Overland Park, Milgray	913-236-8800
MD	Rockville, Milgray	301-468-6400
MA	Burlington, Milgray	617-272-6800
MI	Wyoming, RM Elctrns.	616-531-9300
NJ	Marlton, Milgray	609-983-5010
NY	Farmingdale, Milgray	516-391-3000
OH	Cleveland, Milgray	216-447-1520
TX	Dallas, R.V. Weatherford	214-931-7333
WA	Seattle, R.V. Weatherford	206-575-1340
WI	New Berlin, RM Elctrns.	414-784-4420

CES ELCTRNS., 2968 Avenue Z, Brooklyn, NY 11235; Empl.: 20

CETA CORP., 160 S. Whisman Rd., Bldg. F, Mountain View, CA 94041, Tel: 415-969-5927, TWX: 910-379-5065; Empl.: 25; *Sls. Mgr.:* Tom Levenhagen ....3•1516

CETEC RAYMER, 7315 Fulton Ave., No. Hollywood, CA 91605, Tel: 213-875-0423; Empl.: 50; *Sls. Mgr.:* Jean Hurst

CGIS, A COMSAT CO., 7701 N. Lamar Blvd., Austin, TX 78752, Tel: 512-451-7938; Empl.: 150; *Sls. Mgr.:* Jack Johannsen

CGTI, 2 Windward Ave., White Plains, NY 10605, Tel: 914-949-3719, TWX: 710-568-1305; Empl.: 270; *Sls. Mgr.:* G. N. Snider

CHABIN CORP., 890 Fortress St., Chico, CA 95926, Tel: 916-891-6410, TWX: 910-536-1001; *Sls. Mgr.:* Peter Tunis

CHADWICK-HELMUTH, 4601 N. Arden Dr., El Monte, CA 91731, Tel: 213-575-6161, Telex: 194-271; Empl.: 75; *Sls. Mgr.:* John Beach

CHA INDUSTRIES, 3565 Haven Avenue, Menlo Park, CA 94025, Tel: 415-363-8011, Telex: 334426; *Sls. Mgr.:* Jack Patten

CHALCO ENGRG., 15126 S. Broadway, Gardena, CA 90248, Tel: 213-FA1-0121, TWX: 910-346-7026; Empl.: 95

CHAMPLAIN CABLE, PO Box 7, Winooski, VT 05404, Tel: 802-655-2121, TWX: 510-299-0018; FSC No.: 05973; Empl.: 425; *Sls. Mgr.:* J. Brooks

CHANNEL INDS., 839 Ward Dr., Santa Barbara, CA 93111, Tel: 805-967-0171, Telex: 658416; Empl.: 75

CHAPMAN CORP., P.O. Box 10700, Portland, ME 04104, Tel: 207-773-4726; Empl.: 60; *Dist. Mgr.:* Elizabeth Angell

Local Sales Offices & Reps

AZ	Phoenix, Pamela Hopkins Assocs.	602-252-7119
AR	El Dorado, Indl. Controls Assocs.	501-862-2051
CA	Pico Rivera, Application Reps.	213-692-7761
CA	San Jose, Domar Group	408-268-6804
IL	Elgin, J.H.S. & Assocs.	312-741-9070
MD	Baltimore, Advanced Packaging	301-358-9444
MA	Brookline, Harman Assocs.	617-232-6687
NY	Pittsford, Noeth-Honsinger	716-585-9002
NY	Smithtown, T & K Sls.	516-724-3456
NC	Charlotte, Motion Techn.	704-525-9855
OH	Reynoldsburg, Goodwin Entprs.	614-866-0168
OR	Portland, Fry Controls	503-226-2620
PA	Downingtown, Web Access.	215-269-6511
WI	Cedarburg, R. E. Norene & Assocs.	414-377-5440

CHARTPAK, 1 River Rd., Leeds, MA 01053, Tel: 413-584-5446; Empl.: 195

CHASSIS-TRAK, P.O. Box 39100, Indianapolis, IN 46239, Tel: 317-897-7000, Telex: 27-2169; FSC No.: 06666; Empl.: 190; *Sls. Mgr.:* H. L. Crouch ....2•1032, 1033

Local Sales Offices & Reps

AL	Huntsville, Hughes Assoc.	205-533-9108
AZ	Phoenix, Snyder Engr.	602-279-2010
CA	Fullerton, Groh Assocs.	714-738-7105
CA	Mountain View, G. Woempner	415-964-5454
CO	Boulder, R. F. Mayo Assoc.	303-499-2155
CT	Waterbury, Coakley, Boyd & Abbett	617-444-5470
FL	Lighthouse Point, J. Krutek & Assoc.	305-941-6544
GA	Atlanta, Hughes Assoc.	404-252-7486
IL	Glencoe, Howard Benjamin Assoc.	312-835-0150
IN	Noblesville, Century Elctrns.	317-849-2026
KS	Shawnee Mission, Lowell, Kangas & Assoc.	913-631-3515
MA	Needham, Coakley, Boyd & Abbett	617-444-5470
MI	Plymouth, J. Plass Assocs.	313-455-8262
MN	Bloomington, Northport Engrg.	612-854-5556
MS	Corinth, Hughes Assoc.	601-287-2915
MO	St. Louis, Lowell, Kangas & Assocs.	314-821-4050
NH	Plaistow, Coakley, Boyd & Abbett	617-444-5470
NJ	Mountainside, Henry G. Richter	201-233-4615
NY	Fayetteville, H. G. Richter	315-637-6713
NC	Raleigh, Hughes Assoc.	919-782-2065
OH	Cleveland, Components	216-243-9200
OH	Miamisburg, Components	513-866-0661
OK	Tulsa, Advance Tech. Sls.	918-664-0482
PA	Doylestown, Monterio Assoc.	215-345-5855
TN	Morristown, Hughes Assoc.	615-587-2433
TX	Austin, Advance Tech. Sls.	512-459-1351
TX	Dallas, Advance Tech. Sls.	214-340-1300
TX	Houston, Advance Tech. Sls.	713-440-3888
WA	Olympia, Bergford Assoc.	206-866-2001
EXP	IN, Indianapolis, General Devices	317-897-7000

CHATHAM CONTROLS, 33 River Rd., Chatham, NJ 07928, Tel: 201-635-8892; FSC No.: 04814; Empl.: 11

CHATSWORTH DATA CORP, Cablemaster Div., 20710 Lassen St., Chatsworth, CA 91311, Tel: 818-341-9200; Empl.: 65; *Sls. Mgr.:* Hank Boehm ....3•1208

Local Sales Offices & Reps

MD	Silver Spring, A.R.A. Elctrns.	301-565-2585
MA	Waltham, W. M. Hague	617-899-5600
OH	Cleveland, Triad Assoc	216-248-3350
PA	Glenside, A.R.A. Elctrns.	215-887-5250
VA	Richmond, A.R.A. Elctrns.	804-285-9309
WA	Lynnwood, Sys. Specialists	206-775-6603

CHATSWORTH DATA CORP, Impact-o-Graph Div., 20710 Lassen St., Chatsworth, CA 91311, Tel: 213-341-3000; Empl.: 50 ....3•1208

CHEM-MIXX CORP., 55 North St., Medford, MA 02155, Tel: 617-395-7270; Empl.: 9; *Sls. Mgr.:* Allen Swartz

Local Sales Offices & Reps

CA	South Gate, A. G. Barstow Co.	213-569-8125
GA	Lilburn, Georgia Airtech	404-925-3084
IN	Lawrence, American Indl.	317-897-9900
MN	Edina, Adhesive Sys. Technlg.	612-944-7999
MO	Maryland Hgts., T. B. Moore Co.	314-434-6844
PA	Pittsburgh, Kurt J. Lesker Co.	412-892-2996

CHEMTRONICS INC., 681 Old Willets Path, Hauppauge, NY 11788, Tel: 516-582-3322, Telex: 968567; FSC No.: 21267; Empl.: 40; *Sls. Mgr.:* Louis Friedman; *Dist. Mgr.:* Scott Friedman

CHERRY ELECTRICAL PRODS. CORP., 3623 Sunset Ave., Waukegan, IL 60087, Tel: 312-578-3500, TWX: 910-235-1572; Empl.: 2000; *Sls. Mgr.:* Robert Terwall; *Dist. Mgr.:* George Seyk ....1B•1551-1563, 1758, 1764-1769

Local Sales Offices & Reps

AL	Huntsville, CSR Elec.	205-533-2444
AZ	Phoenix, O'Donnell Assocs. S.W.	602-944-9542
CA	Palo Alto, Abbott Engrg. Co.	415-968-2265
CA	San Diego, O'Donnell Assocs.	619-578-1645
CA	Torrance, O'Donnell Assocs.	213-539-9664
CO	Boulder, Front Range Mktg.	303-443-4780
CT	North Haven, Coakley, Boyd & Abbett	203-239-6217
FL	Coral Springs, CBC Elctrns.	305-755-1111
FL	Longwood, CBC Elctrns.	305-831-5380
GA	Atlanta, CSR Elctrns.	404-396-3720
IL	Waukegan, Cherry Elec. Prod. Corp.	312-578-3500
IN	Ft. Wayne, Menze Sls.	219-747-5616
IA	Cedar Rapids, Dy-Tronix	319-377-8275
MA	Needham Hgts., Coakley, Boyd & Abbett	617-444-5470
MI	Grand Rapids, Miltimore Sls.	616-942-9721
MI	Novi, Miltimore Sls.	313-349-0260
MI	Southfield, Cherry Elec. Prod.	313-358-5588
MN	St. Paul, Cahill, Schmitz & Cahill	612-646-7217
MO	Bridgeton, Dy-Tronix	314-731-5799
MO	Independence, Dy-Tronix	816-373-6600
NH	Plaistow, Coakley, Boyd & Abbett	617-444-5470
NJ	Pitman, Colrud Corp.	609-589-5866
NY	Rochester, Elcom Sls.	716-385-1400
NY	Syracuse, Elcom Sls.	315-685-8245
NY	W. Hempstead, Schmitt Indl. Mktg. Corp.	516-486-3510
NC	Mathews, CSR Elctrns.	704-847-1927
NC	Raleigh, CSR Elctrns.	919-878-9200
OK	Broken Arrow, Genzel Sales & Assoc.	918-258-8656
OR	Portland, Jas. J. Bacher Co.	503-297-8744
OR	Salem, Jas. J. Bacher Co.	503-362-0717
TX	Austin, Bonser-Philhower Sales	512-346-9186
TX	Houston, Bonser-Philhower Sales	713-531-4144
TX	Richardson, Bonser-Philhower Sales	214-234-8438
UT	Salt Lake City, Front Range Mktg.	801-364-6481
WA	Seattle, Jas. J. Bacher Co.	206-285-1300
WI	Wauwatosa, Larsen Assocs.	414-258-0529

Local Distributors

AL	Birmingham, Ack Radio Supp. Co.	205-322-0588
AL	Huntsville, Powell Elctrns.	205-539-2731
AZ	Phoenix, Cetec Elctrns.	602-277-7951
AZ	Phoenix, Elctrn. Parts	602-277-7281
AZ	Temple, Fisher-Brownell	602-967-1464
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Alhambra, Fisher-Brownell	213-289-0255
CA	Chatsworth, Diplomat Westates Elctrns.	213-341-4411
CA	Costa Mesa, Diplomat Westates Elctrns.	714-549-8401
CA	Oakland, Brill Elctrns.	415-834-5888

CA	San Diego, Fisher-Brownell	619-560-8545
CA	San Diego, Diplomat Westates Elctrns.	619-292-5693
CA	San Jose, Cetec Elctrns.	408-263-7373
CA	Santa Clara, Fisher-Brownell	408-988-6041
CA	Southgate, Cetec Elctrns.	213-773-6521
CA	Sunnyvale, Diplomat Westates Elctrns.	408-744-1555
CO	Denver, Denver Wintronics	303-431-7161
CO	Denver, Integrated Elect.	303-292-6121
CT	Wallingford, Midan Elect.	203-265-2077
FL	Ft. Lauderdale, KSM Elctrns.	305-971-5900
FL	Miami, ESL Elctrn. Distrs.	305-633-6973
GA	Atlanta, KSM Elctrns.	404-458-2013
GA	Atlanta, Ack Radio Supp. Co.	404-351-6340
IL	Bensenville, Diplomat Elctrns.	312-595-1000
IL	Champaign, Klaus Radio	217-356-1896
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Wheeling, Hawk Elctrns.	312-459-4030
IN	Indianapolis, Graham Elec.	317-634-8202
IN	Indianapolis, Genesis Elctrn.	317-637-5571
IN	South Bend, Genesis Elctrns.	219-287-2911
IA	Cedar Rapids, Advent Elctrn.	319-363-0221
KS	Edwardsville, C. Tennant Sons & Co.	913-441-1801
KY	Louisville, P. I. Burks Co.	502-589-3960
MD	Savage, Pyttronic Ind.	301-792-0780
MA	Billerica, A. W. Mayer Co.	617-229-2255
MA	Needham, Cronin Elect.	617-449-5000
MI	Clawson, Empire Elctrns.	313-435-0460
MI	Farmington Hills, Star-Tronic Distr.	313-477-7586
MI	Livonia, Rep-Tron Elctrns.	313-525-2700
MN	Minneapolis, Stark Elctrns.	612-332-1325
MO	Kansas City, Walters Radio Supp.	316-531-7015
MO	St. Charles, Finnigan Elctrns.	314-946-6201
NJ	Bellmawr, Mid-Atlantic Elec.	609-931-5303
NJ	Clifton, J-Mar Elec., Inc.	201-772-6400
NM	Albuquerque, Elctrn. Parts	505-293-6161
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Mt. Vernon, QAR Ind'l. Elctrn. Sls.	914-699-2224
NY	Rochester, Rochester Radio & Supp. Co.	716-454-7800
NY	Woodbury, C. Tennant Sons & Co.	516-364-9070
NC	Cary, Powell Elctrns.	919-467-1212
NC	Winston-Salem, Kirkman Elctrn.	919-722-9131
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cleveland, Selectronics	216-621-5080
OH	Columbus, Hughes-Peters	614-294-5351
OH	Dayton, Esco Elect.	513-226-1133
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Portland, Radar Elctrns.	503-232-3404
OR	Portland, Tekelectric Control	503-246-5451
PA	Montgomeryville, Pyttronic Ind.	215-643-2850
TX	Dallas, Wallace Elec. Co.	214-340-0400
TX	Houston, Solid State Elctrns. Co.	713-772-8483
TX	Irving, Solid State Elctrns. Co.	214-438-5700
TX	San Antonio, Sherman Elctrns. Supp.	512-224-1004
TX	Stafford, Southwest Elect.	713-491-4900
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
UT	Salt Lake City, Diplomat Elctrns.	801-486-4134
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Seattle, Radar Elctrns.	206-282-2511
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	New Berlin, R. M. Wisconsin	414-784-4420

CHERRY SEMICONDUCTOR CORP, 2000 S. County Trail, East Greenwich, RI 02818, Tel: 401-885-3600; Empl.: 200

CHESSELL CORP., Penns Trail, Newtown, PA 18940, Tel: 215-968-0660, Telex: 83-1701; Empl.: 50; *Sls. Mgr.:* D. Neal .... **3**•1383

Local Sales Offices & Reps

AZ	Phoenix, Southwest Controls, Inc.	602-267-1171
CA	Fountain Valley, Yardley Instrs.	714-963-1000
CO	Lakewood, Loritz Controls	303-232-7803
FL	Orlando, Datarep, Inc.	305-843-5224
GA	Roswell, Cascade Controls	404-998-1027
HI	Honolulu, Aloha Assocs.	808-941-1574
IL	Des Plaines, Chessell Corp.	312-699-0529
IN	Ft. Wayne, Domino Unltd.	219-747-5621
KY	Louisville, Control Prods. Co.	502-452-2611
LA	Baton Rouge, Rise Inc.	504-766-4645
MA	Waltham, Techn. Entprs.	617-890-5300
MI	Royal Oak, Satullo Co.	313-549-3910
MN	Minneapolis, The Mark Co.	612-920-6280
MO	St. Louis, Adelphi, Inc.	314-821-1232
NV	Reno, Applied Indl. Controls Corp.	702-356-7401
NM	Albuquerque, Southwest Controls, Inc.	505-884-6202
NY	Rochester, Cascade Control Corp.	716-385-1410
NY	White Plains, MIT Sls.	914-946-5077
NC	Matthews, Johnston, Inc.	704-847-3107
OH	Dayton, P. J. Navin Co.	513-434-8940
OH	Willoughby, P. J. Navin Co.	216-255-1411
OK	Tulsa, Dave Allert Co.	918-743-7705
PA	Murrysville, Data Acquisition	412-327-8979
TN	Knoxville, George C. Paris	615-966-2141
TX	Arlington, Pan-Tech Controls Co.	817-640-3232
TX	Burleson, Chessell Corp.	817-572-4392
TX	Houston, Process Instruments, Inc.	713-893-3310
UT	Midvale, Bee and Tee Controls	801-566-7722
VA	Richmond, Advance Control Equip. Co.	804-270-7182
WA	Bellevue, Topp Engrg. Sls. Corp.	206-747-5400
WI	Brookfield, BII, Inc.	414-786-1980

Local Distributors

CA	Pasadena, J. Arthur Moore CA, Inc.	213-793-1145
DE	Newark, G. W. Smith Assocs.	302-738-7308
IL	Hinsdale, Envirocom Controls	312-920-8610
TX	Houston, Total Instrs.	713-488-2333

CHESTER CABLE, Oakland Ave., Chester, NY 10918, Tel: 914-469-2141, TWX: 510-249-4813; *Sls. Mgr.:* William R. Dungan

CHESTERFIELD PRODS., 37 Midland Ave., Elmwood Park, NJ 07407, Tel: 201-797-9655; Empl.: 35; *Sls. Mgr.:* M. Perry .... **1A**•1586

Local Sales Offices & Reps

CA	Palo Alto, J M Assocs.	415-857-1260
FL	Winter Haven, Heimendinger	813-294-5815
MD	Towson, Holden Engrg.	301-823-3763
MA	Framingham, Bengal Assocs.	617-877-2639
MA	Randolph, Bengal Assocs.	617-961-4120
NJ	Elmwood Park, L & M Assocs.	201-797-0441
NY	New York, L & M Assocs.	212-243-6155
PA	Andalusia, L & M Assocs.	215-245-6658
TX	Richardson, Carl Tinch Sls. Co.	214-231-1322

CHICAGO CONDENSER CORP., 2900 West Chicago Ave., Chicago, IL 60622, Tel: 312-227-7070

CHICAGO LASER SYSTEMS, INC., 4034 N. Nashville Ave., Chicago, IL 60634, Tel: 312-282-2710, Telex: 206-647; *Sls. Mgr.:* Bernard Alpiner, V.P.

CHICAGO LOCK CO., 4311 W. Belmont Ave., Chicago, IL 60641, Tel: 312-282-7177, Telex: ITT 4994023; Empl.: 426; *Sls. Mgr.:* Don Meisinger; *Dist. Mgr.:* Dale N. Padjen .... **1B**•1564

Local Sales Offices & Reps

CA	Oceanside, Sales Engineer	619-726-9499

CHICAGO SWITCH, INC., 1714 N. Damen, Chicago, IL 60647, Tel: 312-489-5500, TWX: 910-221-5252; Empl.: 250; *Sls. Mgr.:* R. Schmidt; *Dist. Mgr.:* R. Scrivner

CHLORIDE ELECTRO NETWORKS, Maple St., Caledonia, NY 14423, Tel: 716-538-4421, TWX: 510-254-0422; FSC No.: 08715; Empl.: 625; *Sls. Mgr.:* J. Joseph Cowan

Local Sales Offices & Reps

CA	San Jose, Power Supply Specialists	408-980-1677
CA	Santa Clara, Electroventure	408-727-1553
CO	Black Forest, Alan Lupton Assocs.	303-495-4707
CT	Canton, Bell Controls	203-693-8926
FL	Orlando, Perrott Assoc.	305-275-1132
IL	Downers Grove, Richmar Elctrns.	312-968-0118
NH	Nashua, Bell Controls	603-882-6984
NY	Rochester, Alan Lupton Assocs.	716-482-7700
TX	Dallas, Advance Techn. Sls.	214-340-1300

CHOMERICS, INC., 77 Dragon Ct., Woburn, MA 01888, Tel: 617-935-4850, TWX: 710-393-0173; Empl.: 500; *Sls. Mgr.:* Kevin A. Dunne

CHORUS DATA SYSTEMS, P.O. Box 810, 27 Proctor Hill Rd., Hollis, NH 03049, Tel: 603-465-7100; *Sls. Mgr.:* Bruce Monk

CHR INDS., 407 East St., P.O. Box 1911, New Haven, CT 06509, Tel: 203-777-3631, TWX: 710-465-0264; Empl.: 116

CHRISLIN INDS., 31352 Via Colinas, Westlake Village, CA 91361, Tel: 213-991-2254, TWX: 910-494-1253; Empl.: 38; *Sls. Mgr.:* John Ross; *Dist. Mgr.:* John Ross

CHRISTIANSEN RADIO INC., 1950 San Remo, Laguna Beach, CA 92651, Tel: 714-497-1506; Empl.: [illegible]

CHRISTIE, S. D., ASSOCS. INC., 693 Locust St., Mt. Vernon, NY 10552, Tel: 212-597-1773, 914-699-7223; Empl.: 8; *Sls. Mgr.:* Sam D. Christie

CHRISTIE
ELECTRIC CORP.

CHRISTIE ELEC. CORP., 20665 Manhattan Pl., Torrance, CA 90501, Tel: 213-320-0808, TWX: 910-349-6260; FSC No.: 02294; Empl.: 200 .... **3**•1517

Local Sales Offices & Reps

AZ	Phoenix, PLS Assocs.	602-246-6614
CA	Tustin, John Franek Co.	714-832-0290
CO	Englewood, PLS Assocs.	303-773-1218
FL	Orlando, Newco & Assocs.	305-422-7700
GA	Lithia Springs, Newco, Inc.	404-941-6077
MD	Laurel, CSDS	301-490-3800
MA	Needham, Shain Assocs.	617-449-4380
MO	St. Louis & Grandview, Harris-Hanson	816-763-6200; 314-432-3611
NJ	Hohokus, Hansen & Hughes	201-652-7055
NM	Albuquerque, Fry Gates Inc.	505-262-1525
NC	Charlotte, Newco, Inc.	704-527-7070
OH	Chesterland, EQS Systems	216-729-2222
PA	Philadelphia, Technical Instr. Sls. Co.	215-836-2222
SC	Florence, Newco, Inc.	803-662-4878
TX	Richardson, Carl Tinch Sls. Co.	214-231-1322
TX	Richardson, C. Tinch	214-231-1322
UT	Midvale, PLS Assocs.	801-566-0671

CHROMALOX INSTRS. & CONTROLS, 100 Heil-Quaker Blvd., Lavergne, TN 37086, Tel: 615-793-7561, Telex: 55-5129; Empl.: 110; *Sls. Mgr.:* John Cox

CHROMATICS, 2558 Mountain Indl. Bldg., Tucker, GA 30084, Tel: 404-493-7000, TWX: 810-766-8099; *Sls. Mgr.:* Donald K. McKinney

CHRONO-LOG CORP., 2 W. Park Rd., Havertown, PA 19083, Tel: 215-853-1130, Telex: 831579; Empl.: 20; *Sls. Mgr.:* David Biberman .... **3**•1074

Local Sales Offices & Reps

CA	Los Angeles, Western Sci. Mktg.	213-628-8023
CA	San Diego, Western Sci. Mktg.	619-565-6699
CT	Southboro, J. J. Wild	203-264-9494
IL	Deerfield, Deerfield Sys., Inc.	312-948-8494
MA	Needham, J. J. Wild, Inc.	617-449-5600
MI	Detroit, Comtel Instrs.	313-358-2505
MO	St. Louis, Engrg. Services	314-997-1515
NH	Merrimack, J. J. Wild	603-424-4717
NJ	Union, Friedman Assocs., Inc.	201-964-6200
NY	Albany, Ossmann Instrs.	518-374-8560
NY	Rochester, Ossmann Instrs.	716-442-6990
NY	Syracuse, Ossmann Instrs.	315-437-7052
OH	Cleveland, Comtel Instrs.	216-442-8080
OH	Columbus, Comtel Instrs.	614-876-8305
PA	Pittsburgh, Comtel Instrs.	412-922-5720
VA	Arlington, H. J. Heffernan Co.	703-522-6666
WA	Seattle, Hood Engrg. Sls.	206-453-9375

CHRONOMITE LABS, 21011 S. Figueroa St., Carson, CA 90745, Tel: 213-320-9452; Empl.: 15

CHURCHILL CORP., 344 Franklin St., Melrose, MA 02176, Tel: 617-665-4700; FSC No.: 94867; Empl.: 30; *Sls. Mgr.:* W. Schermerhorn

CIMCO WIRE & CABLE, INC., See Pirelli Cimco

CINCH, See TRW Connector Div.

CINCINNATI ELCTRNS., 2630 Glendale Milford Rd., Cincinnati, OH 45241, Tel: 513-563-6000, Telex: 21-4452, TWX: 810-464-8151; FSC No.: 80045; Empl.: 1300; *Sls. Mgr.:* W. E. Wood

CINCINNATI ELECTROSYS., 469 Wards Corner Rd., Loveland, OH 45140, Tel: 513-831-4347; *Sls. Mgr.:* J. C. Privett

CINCINNATI SUB-ZERO PRODS., 2612 Gilbert Ave., Cincinnati, OH 45206, Tel: 513-751-8810, Telex: 214390 SUBZERO CIN; Empl.: 69; *Sls. Mgr.:* George Molenaar .... **3**•1175

CIPHER DATA PRODS., INC,, P.O. Box 85170, San Diego, CA 92138, Tel: 619-578-9108, TWX: 910-335-1251; Empl.: 1100; *Dist. Mgr.:* Ruth Lewellyn

CIPRICO INC., 2405 Annapolis La., Plymouth, MN 55441, Tel: 612-559-2034; *Sls. Mgr.:* Stu Reile .... 3•1075

Local Sales Offices & Reps

AL	Birmingham, Southeastern First Rep.	205-967-7082
AZ	Scottsdale, Frontier Technlg.	602-998-4438
CA	Los Alamitos, Gemini Assocs.	213-594-9618
CA	North Hollywood	213-846-2633
CA	San Diego	619-268-1181
CA	San Jose, Data Rep	408-279-1212
CA	Sepulveda	213-891-1000
CA	Sunnyvale, Diamond Point Intl.	408-730-1187
CO	Aurora, Electrodyne	303-695-8903
FL	Kissimmee, Southeastern First Rep.	305-846-1306
FL	Melbourne, Southeastern First Rep	305-259-6373
FL	N. Palm Beach, Southeastern First Rep.	305-844-3658
HI	Honolulu, Sam O. Hirota.	808-535-9971
IL	Elmhurst, First Rep	312-530-2450
IN	Indianapolis	317-844-4175
KS	Prairie Village, Panatek	913-362-3349
MD	Silver Spring, L. G. White	301-434-1555
MA	Norwood, Northeast Peripherals.	617-769-9110
MI	Farmington Hills, Carter, McCormic & Peirce	313-477-7700
MN	Edina, Micro Resources	612-830-1454
NH	Londonderry, Ciprico	603-434-8909
NJ	Springfield, Gebhardt Marketing	201-376-4415
NY	New Hartford, PDQ Assocs.	315-768-8167
NY	W. Seneca, PDQ Assocs.	716-674-7816
NC	Southport, Southeastern First Rep.	919-457-4526
OH	Cleveland, Diamond Point Intl.	216-238-0200
OH	Cleveland, Pete Kovachy	216-779-5100
OH	Englewood	513-836-0951
OR	Portland, Northwest Mktg. Assoc.	503-297-2581
PA	Jenkintown, Monument Technical Assocs.	215-884-3737
PA	Pittsburgh	412-372-4415
TX	Austin, Microlog.	512-327-7033
TX	Houston, Microlog.	713-956-0837
TX	Richardson, Microlog.	214-644-5010
UT	Salt Lake City, Electrodyne.	801-486-3801
WA	Bellevue, Northwest Mktg. Assoc.	206-455-5846

CIRCLE ELECTRONICS, A Division of F-Dyne Elctrns., 3601 Electronics Way, W. Palm Beach, FL 33407, Tel: 305-844-1310; *Sls. Mgr.:* John Strickland

CIRCUIT ASSEMBLY CORP., 18 Thomas St., Irvine, CA 92714, Tel: 714-540-5490, TWX: 910-595-1971; FSC No.: 52072; Empl.: 275; *Sls. Mgr.:* William E. Corr

CIRCUITS, INC., 59 Deming Rd., Berlin, CT 06037, Tel: 203-828-3526; Empl.: 90

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CIRCUIT TECHN., 160 Smith St., Farmingdale, NY 11735, Tel: 516-293-8686, TWX: 510-224-6555; Empl.: 400

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CA	Sunnyvale, Schwerin & Merrill Inc.	408-735-7900
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IL	Chicago, Berndt Assoc.	312-283-0713
IN	Carmel, Berndt Assoc.	317-884-0114
KS	Overland Park, Advanced Techn. Sls.	913-492-4333
MD	Silver Springs, Youth Assoc. Inc.	301-598-5740
MA	Bolton, Clairex	617-779-2780
MI	Ferndale, Hilltronics	313-398-5556
MN	Minneapolis, H.M.R.	612-920-8200
MO	St. Louis, A.T.S. Inc.	314-227-4448
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NY	Seaford, Abbott Assoc.	516-781-5256
NC	Raleigh, Crossroads Elect. Assoc.	919-362-4099
OH	Cleveland, Geotronix	216-526-2535
OH	Trotwood, Geotronix Inc.	513-854-5939
PA	Media, W. Reeves	215-566-6709
TX	Austin, J. B. Guenther	512-258-0004
TX	Dallas, J. B. Guenther	214-691-8500
WA	Seattle, H. Levinson	206-323-5100
WI	Milwaukee, Berndt Assoc.	414-545-8400
EXP	NJ, Oradell, Sylvan Ginsbury	201-261-3200

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IN	Indianapolis, Graham Elctrns.	317-634-8486
MD	Rockville, All American Transistor	301-251-1205
MA	Hingham, Sager Elctrns.	617-749-6700
MA	Norwell, Bordewieck Eng. Sls.	617-659-4915
MI	Ann Arbor, Wedemeyer Elctrn.	313-665-8611
MN	Minneapolis, Stark Elctrns.	612-332-1325
MO	St. Louis, Van Sickle Radio Elect.	314-621-5000
NJ	Mt. Laurel, D.F. Assocs.	609-234-5324
NY	Buffalo, Summit Distr.	716-884-3450
NC	Charlotte, Dixie Elctrns.	704-377-4348
OH	Columbus, Hughes Peters	614-294-5351
OK	Tulsa, Altair	918-665-0523
SC	Columbia, Dixie Radio	803-779-5332
TN	Knoxville, Dixie Elctrns.	615-938-4131
TX	Houston, Altair	713-462-2410
TX	Richardson, Altair	214-231-5166
WA	Seattle, Radar Elec.	206-282-2511
Can	Willowdale, Ont., Electro Sonic	416-494-1666

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IL	Rolling Meadows, Sumer, Inc.	312-991-8500
IN	Indianapolis, Schank Elctrn. Mktg.	317-842-6204
KS	Overland Park, Thomas L. Dowell & Assocs.	913-648-7373
MD	Ellicott City, Doss Elctrns.	301-465-1336
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MA	Woburn, Clare Div. Genl. Instr. Corp.	617-938-0666
MN	Eden Prairie, Aldridge Assocs. Inc.	612-944-8433
MO	St. Louis, Thomas L. Dowell & Assocs.	314-849-4234
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COAST COIL CO., 5333 W. Washington Blvd., Los Angeles, CA 90016, Tel: 213-936-6188; Empl.: 50

COASTCOM, 2312 Stanwell Dr., Concord, CA 94520, Tel: 415-825-7500, TWX: 910-481-5781; Empl.: 110

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PA	Mechanicsburg, Stan Hurst	717-697-8201
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IN Indianapolis, Wilson Tech. Sls. 317-298-3345
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COMMUNICATIONS TECHNOLOGY CORP., 2237 Colby Ave., Los Angeles, CA 90064, Tel: 213-478-5061, TWX: 910-342-6983; Empl.: 250

COMMUNICATION TECHNIQUES INC., 36 Route 10, East Hanover, NJ 07936, Tel: 201-884-2580, TWX: 710-986-8265; FSC No.: 53213; *Sls. Mgr.:* Louis R. Trummel

COMPAC, 279 Skidmore Rd., Deer Park, NY 11729, Tel: 516-667-3933, TWX: 510-227-1064; FSC No.: 62099; Empl.: 50; *Sls. Mgr.:* Peter C. Rao;Charles F. Groves .... **1A**•1587, 1690, 1691; **2**•1023-1027

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrn. Assoc.	205-881-5031
AZ	Scottsdale, Territorial Mktg.	602-994-8665
AR	Little Rock, Beacon Elctrn. Assoc.	501-224-7310
CA	Agoura, Cal-Rep	213-991-1940
CA	Cupertino, Dura Elctrn. Sls.	408-255-2084
FL	Clearwater, Beacon Elctrn. Assoc.	813-796-2378
FL	Ft. Lauderdale, Beacon Elctrn. Assoc.	305-491-1054
FL	Maitland, Beacon Elctrn. Assoc.	305-647-3498
FL	Melbourne, Beacon Elctrn. Assoc.	305-724-8010
GA	Atlanta, Beacon Elctrn. Assoc.	404-256-9640
IL	Prospect Heights, R-Tek, Inc.	312-459-6170
IN	Ft. Wayne, R-Tek, Inc.	219-432-8783
MA	Haverill, L-K Assoc.	617-373-1313
NJ	Haddonfield, Mills-Brown Assoc.	609-429-1005
NY	Deer Park, Compac	516-667-3933
NY	Stoney Brook, Gama Metro	516-751-2072
NY	Utica, B. D. Hummel Co.	315-736-7821
NC	Greensboro, Beacon Elctrn. Assoc.	919-275-9997
NC	Raleigh, Beacon Elctrn. Assoc.	919-787-0330
TN	Johnson City, Beacon Elctrn. Assoc.	615-282-2421
TX	Garland, Carey, McMahill & Zerbe	214-681-1414
TX	Houston, Carey, McMahill & Zerbe	713-771-1500
VA	Fairfax, Schibley Assocs.	703-591-3008

Local Distributors

AL	Huntsville, Component Distrs.	205-883-7501
AR	Little Rock, Component Distrs.	501-227-6278
CA	Cupertino, Elctrn. Resources	408-996-8858
FL	Ft. Lauderdale, Component Distrs.	305-971-4950
LA	New Orleans, Component Distrs.	504-525-9668
NY	Deer Park, R. F. Comp. Sources	516-242-6748
NY	Utica, B. D. Hummel Co.	315-736-7821
NC	Raleigh, Component Distrs.	919-781-0262
VA	Falls Church, Component Distrs.	703-241-8227

COMPACT SOFTWARE, INC., Comsat Corp., 1131 San Antonia Rd., Palo Alto, CA 94303, Tel: 415-966-8440; *Sls. Mgr.:* Henry Wong

COMPEX CORP., 35A East Main St., Marlton, NJ 08053, Tel: 609-596-9388; Empl.: 13

COMPLIANCE DESIGN INC., 593 Massachusetts Ave., Boxboro, MA 01719, Tel: 617-264-4668; *Sls. Mgr.:* Ira Barry

COMPONENT GENERAL, INC., 13620 Wright Cir., Tampa, FL 33625, Tel: 813-855-6655; Empl.: 30; *Sls. Mgr.:* James A. Cook

Local Sales Offices & Reps

CA	Costa Mesa, EBA	714-857-6079
CA	Los Angeles, EBA	213-822-7510
CA	Santa Clara, Mollard Mktg.	408-727-2050
DC	Washington, M. Lader Co.	202-296-2497
IN	Columbus, Chambers Mktg.	812-372-0272
MA	Andover, Bee Assoc.	617-475-2124
MN	Minneapolis, Comstrand	612-788-9234
MO	Grandview, R. R. Burton	816-763-5385
MO	Maryland Hgts., R. R. Burton	314-576-4209
NY	Bayside, Robert Diamond Inc.	212-423-7330
NY	N. Tonawanda, Ed Westgren Assoc.	716-691-6143
PA	Lafayette Hill, M. Lader Co.	215-825-3177
PA	Murrysville, Pittsburgh Sls. Assoc.	412-327-3268
EXP	CT, Stamford, Control Devices	203-322-7300

COMPONENT MFG. SVC., INC., 1 Component Park, W. Bridgewater, MA 02379, Tel: 617-580-0111, TWX: 710-390-1081; *Sls. Mgr.:* R. E. Owens; *Dist. Mgr.:* R. E. Owens

COMPONENT MARKING SYS., 90 Morse St., Norwood, MA 02062, Tel: 617-762-6908

CRC
COMPONENT RESEARCH CO.

COMPONENT RESEARCH CO. INC., 1655-26 St., Santa Monica, CA 90404, Tel: 213-829-3615, TWX: 910-343-6864; FSC No.: 12517; Empl.: 230; *Sls. Mgr.:* Sylvia Kellerman .... **1A**•1022-1063

COMPONENTS CORP., 6 Kinsey Pl., Denville, NJ 07834, Tel: 201-627-0290; Empl.: 11; *Sls. Mgr.:* W. H. Gordon

COMPONENT SPECIALTIES CORP., 9143 E. La Rosa Dr., Temple City, CA 91780, Tel: 213-283-0015; FSC No.: 28984; Empl.: 45; *Sls. Mgr.:* D.R. Heins

COMPUTER PRODUCTS™
POWER CONVERSION

COMPOWER DIV., Div. of Computer Prods., Inc., 2220 Lundy Ave., San Jose, CA 95131, Tel: 408-942-1600, Telex: PE 172760 CMPL; Empl.: 200; *Sls. Mgr.:* Lyle D. Bennett, Jr.; *Dist. Mgr.:* Tazz A. Pettebone .... **3**•1701-1704

Refer to Computer Prods., Inc., Pompano Beach, FL for sales offices and representatives and for distributor listings.

COMPUCORP, 2211 Michigan Ave., Santa Monica, CA 90404, Tel: 213-829-7453, Telex: 4720106, TWX: 910-342-6510; Empl.: 450; *Sls. Mgr.:* Joe Thorpe; *Dist. Mgr.:* Richard Venn

COMPU-LITE CORP., 711 W. 17th St. #F12, Costa Mesa, CA 92627, FSC No.: 51420; Empl.: 50; *Sls. Mgr.:* W.D. Cobben

COMPUNETICS, INC., 2000 Eldo Rd., Monroeville, PA 15146, Tel: 412-373-8110; *Sls. Mgr.:* Jerry Schmitt

Local Sales Offices & Reps

NJ	Wayne, SHL Assoc.	201-790-1714
NC	Smithfield, ADI	919-934-8136
TN	Knoxville, Data World, Inc.	615-690-6966

COMPUPRO, 3506 Breakwater Ct., Hayward, CA 94545, Tel: 415-786-0909; *Sls. Mgr.:* Jim Lanphear; *Dist. Mgr.:* Kevin Coonan

COMP-U-STAFF, 1 Investment Pl., Towson, MD 21204, Tel: 301-828-0788; Empl.: 180; *Sls. Mgr.:* Catherine Harper

COMPUTER AVIONICS, 740 Market, Mt. Carmel, IL 62863, Tel: 618-263-4343; Empl.: 24; *Sls. Mgr.:* Lee Grismore

COMPUTER CABLE & PRODS. INC., Affil. Vertex Elctrns., 147 Gazza Blvd., Farmingdale, NY 11735, Tel: 516-293-1610, Telex: 14-3155, TWX: VERTEX FDLE; FSC No.: 6T500; Empl.: 100; *Sls. Mgr.:* Don McPhee; *Dist. Mgr.:* Penny Shaw

COMPUTER COMPONENTS, INC., 629 Fifth Ave., Pelham, NY 10803, Tel: 914-738-1611; FSC No.: 12965; Empl.: 25; *Sls. Mgr.:* G. Tsokris .... **1B**•1323

COMPUTER CONVERSIONS CORP., 6 Dunton Ct., E. Northport, NY 11731, Tel: 516-261-3300, TWX: 510-226-0448; FSC No.: 51086; Empl.: 100; *Sls. Mgr.:* S. J. Renard .... **3**•1144, 1145

Local Sales Offices & Reps

CA	Buena Park, Motion Control Eng.	714-994-6952
CA	Mountain View, Leddy Assocs.	415-969-6313
CA	N. Hollywood, Crown Elctrns.	213-877-3550
CO	Denver, WH Howard Assoc.	303-426-3499
FL	Melbourne, R-Rep Co.	305-725-6993
IL	Downers Grove, GnH Sales	312-985-3764
MA	Brookline, Technology Prods. Grp.	617-731-0858
MI	Newport, Industrial Sensors, Inc.	313-289-3374
NM	Albuquerque, Fry-Gates Co.	505-262-1525
NY	Liverpool, R & D Assocs.	315-457-0100
OH	Mentor, CADS & Assoc.	216-946-9635
OR	Portland, Tek Elec. Controls	503-246-5451
TX	Dallas, Jacobson Co.	214-363-7584

COMPUTER CORP. OF AMERICA, 675 Massachusetts Ave., Cambridge, MA 02139, Tel: 617-492-8860, Telex: II 710-320-6479, TWX: 710-320-6479; *Sls. Mgr.:* Mr. Robert Roda

COMPUTER DESIGN & APPLICATIONS INC., 411 Waverly Oaks Rd., Waltham, MA 02154, Tel: 617-647-1900, Telex: 232-2240; *Sls. Mgr.:* Thomas Goliash

COMPUTER DEVICES, 25 North Ave., Burlington, MA 01803, Tel: 617-273-1550, Telex: 949398; Empl.: 314; *Sls. Mgr.:* William S. Stanger; *Dist. Mgr.:* Dick Leeman

COMPUTER DEVICES CORP., 63 Austin Blvd., Commack, NY 11725, Tel: 516-543-4220; Empl.: 50 .... **1A**•1466

Local Sales Offices & Reps

MD	Baltimore, R. A. Wafer Assocs.	301-744-1133
EXP	NY, New Rochelle, Montclair Elctrns.	914-576-1400

COMPUTER DYNAMICS, 105 S. Main St., Greer, SC 29651, Tel: 803-877-7471; *Sls. Mgr.:* Kurt Priester

COMPUTER INSTRS., 100 Madison Ave., Hempstead, NY 11550, Tel: 516-483-8200, TWX: 510-222-4189; Empl.: 50; *Sls. Mgr.:* F. Cooper; *Dist. Mgr.:* F. Mitchell

COMPUTER MAINTENANCE CORP., 111-117 Enterprise Ave. S., Secaucus, NJ 07094, Tel: 201-866-6400; Empl.: 52; *Sls. Mgr.:* William Putnam

COMPUTER OPTICAL PRODS., INC., Sub. of Hathaway Corp., 9316 Deering Ave., Chatsworth, CA 91311, Tel: 818-882-0424; *Sls. Mgr.:* Brian Gillespie

COMPUTER POWER INC.

COMPUTER POWER, 124E W. Main St., High Bridge, NJ 08829, Tel: 201-735-8000, Telex: 847481; FSC No.: 3643; Empl.: 145; *Sls. Mgr.:* George A. Ardolino; *Dist. Mgr.:* Stanley A. Smith, Jr. .... **3**•1847

Local Sales Offices & Reps

AL	Huntsville, Col-Ins-Co	305-423-7615, 800-327-6600
AZ	Scottsdale, Williams-Assocs.	602-947-4297

CA	Inglewood, Basic Sys. Corp.	213-673-4300
CA	San Diego, Basic Sys. Corp.	619-279-9641
CA	Santa Clara, Basic Sys. Corp.	408-727-1800
CO	Commerce City, Williams-Assocs.	303-289-5647
CT	New Milford, Power Assocs.	800-421-0011
FL	Coral Springs, Col-Ins-Co	800-432-4480, 305-423-7615
FL	Largo, Col-Ins-Co.	305-423-7615, 800-432-4480
FL	Orlando, Col-Ins-Co	305-423-7615, 800-432-4480
GA	Atlanta, Col-Ins-Co	800-327-6600, 404-491-9395
IL	Chicago, SEA, Inc.	312-255-4820
IN	Indianapolis, SEA, Inc.	317-846-2591
KY	Louisville, SEA, Inc.	502-228-5401
LA	Baton Rouge, Col-Ins-Co	800-327-6600, 305-423-7615
MD	Linthicum, K-D Assoc.	301-859-5151
MA	N. Chelmsford, Power Assocs.	617-251-7756
MI	Farmington Hills, CMP Inc.	313-477-7700
MN	Minneapolis, SEA, Inc.	612-425-4455
NJ	Marlton, Linden C.E. Kite	201-925-1899
NM	Albuquerque, Williams-Assocs.	505-255-1638
NY	Binghamton, Tae Rep., Inc.	607-772-6952
NY	Buffalo, A. Cosentino Entprs.	716-876-4172
NY	Huntington, C. E. Kite	516-266-2808
NY	Rochester, TAE-REP, Inc.	716-586-8710
NC	Raleigh, Col-Ins-Co	800-327-6600, 305-423-7615
OH	Cleveland, CMP Inc.	216-779-5100
OH	Englewood, CMP Inc.	513-836-0951
PA	Conshohocken, TEDCO	215-825-6450
PA	Monroeville, CMP Inc.	412-372-4415
SC	Greenville, Col-Ins-Co	800-327-6600, 305-423-7615
TN	Knoxville, Col-Ins-Co	800-327-6600, 305-423-7615
TX	Garland, TESCO	214-681-1376
TX	Houston, TESCO	713-777-1443
UT	Salt Lake City, Williams-Assocs.	801-485-6511
WA	Edmonds, Power Sources Unltd.	206-784-3336
WI	Milwaukee, SEA, Inc.	414-784-9379

Local Distributors

AZ	Phoenix, Keystone Electro Sls.	602-995-3005
CA	Hayward, Elsar	415-887-8550
FL	Homossassa, Bunts Auto Elec.	904-795-0069
FL	Orlando, Veytec	305-859-7340
GA	Atlanta, Encore Lodging	404-953-1724
GA	Atlanta, Corporate Data Sys.	404-952-3376
IL	Deerfield, Electrocon	312-948-0320
MA	Cohasset, Emergency Ltg. & Sys.	617-383-6500
MA	Framingham, Total Power Corp.	617-237-2024, 2025
MA	Sharon, Adcour Assocs.	617-784-8123
NJ	Bridgeton, Penn M & G Elec. Supp.	609-451-2291
NJ	Cherry Hill, UHR Electric Supply Co.	609-795-4504
NJ	Linden, Registration Electric	516-266-2808
NY	Amherst, Standard Elctrns.	716-691-3801
NY	Orchard Park, Park Electric Supply, Inc.	716-662-7070
OK	Oklahoma City, Smith Ltg. Sls., Inc.	405-521-0093
OK	Tulsa, Computer Power of OK	918-252-5406
PA	Coatesville, Penn Elec. Supp. Co.	215-647-5552
PA	Doylestown, Penn Electric Supply Co.	215-673-4450
PA	Philadelphia, Penn Electric Supply Co.	215-471-1111
TX	Austin, Computerfixx	512-282-3472
WA	Seattle, Miller Elec.	206-248-1102
EXP	Santurce, Electronic Power Systems	809-727-7960, 1062

COMPUTER PRODUCTS™
POWER CONVERSION

COMPUTER PRODS. INC., Power Conversion Grp., 2981 Gateway Dr., Pompano Bch., FL 33069-4803, Tel: 305-974-5500, TWX: 510-956-3098; FSC No.: 62125; Empl.: 700; *Sls. Mgr.:* Martin L. Gross; *Dist. Mgr.:* Dale T. Raveny .... **3**•1438, 1518

Local Sales Offices & Reps

AL	Huntsville, Electro-Mech Sls. Engrg.	205-533-2100
AZ	Tempe, Elec-Com Assocs.	602-967-8644
CA	Danville, Power Conversion Grp.	415-837-8593
CA	Folsom, Manco	916-985-0370
CA	Santa Clara, Manco	408-496-6611
CO	Parker, Parker Webster Co.	303-841-4888
FL	Coral Springs, EPM Corp.	305-755-5387
GA	Atlanta, Electro-Mech Sls. Engrg.	404-447-6478
ID	Boise, Intermountain Technlg.	208-322-5022
IL	Des Plaines, Janus, Inc.	312-298-9330
IL	Glenview, Power Conversion Grp.	312-998-6715
IN	Indianapolis, Fred A. Dorsey & Assocs.	317-842-0060
KS	Overland Park, J. F. Guernsey Co.	913-381-2225
KY	Louisville, Fred A. Dorsey & Assocs.	502-426-3540
MD	Baltimore, Professional Reps.	301-653-3600
MA	Woburn, Power Conversion Grp.	617-933-0237
MI	Livonia, Lowell Wendt Mktg.	313-464-2722
MN	Bloomington, Smiley Scott Assocs.	612-888-5551
MO	Florissant, J. F. Guernsey Co.	314-921-5720
NJ	Englewood, Tecnimat	201-569-4200
NM	Albuquerque, Elec-Com Assocs.	505-898-6101
NY	Fayetteville, Power Unltd.	315-637-5291
NY	Lewiston, Power Unltd.	716-285-3295
NC	Raleigh, Electro-Mech Sls. Engrg.	919-851-8165
OH	Cleveland, Geotronix	216-526-2535
OH	Trotwood, Geotronix	513-854-5939
OK	Bixby, MGR Elctrns.	918-369-5186
OR	Portland, Power Sources Unltd.	503-292-0820
PA	Ambler, Denco	215-542-9876
TN	Nashville, Electro-Mech Sls. Engrg.	615-885-0073
TX	Austin, MGR Elctrns.	512-250-0926
TX	Dallas, MGR Elctrns.	214-238-5246
UT	Salt Lake City, Parker Webster	801-266-9939
VA	Charlottesville, Professional Reps.	804-971-9650
WA	Lynnwood, Power Sources Unltd.	206-743-6641

Local Distributors

CA	Milpitas, Power Systems Distrs.	408-946-8300
CA	N. Hollywood, B. J. Wolfe Entprs.	213-877-5518
MD	Columbia, Aztech Elctrs.	301-995-1760
MA	Wilmington, RC Comps.	617-273-1860
MI	Livonia, LWC Distrs.	313-464-7700
OK	Tulsa, Norvell Elctrns.	918-663-1247
TX	Austin, Norvell Elctrns.	512-458-8106
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Houston, Norvell Elctrns.	713-777-1666
Can	Concord, Ontario, Kaytronics	416-669-2262
Can	Kanata, Ontario, Kaytronics	613-592-6606
Can	Surrey, British Columbia, Kaytronics	604-581-7611
Can	Ville St. Pierre, Quebec, Kaytronics	514-367-0101

COMPUTER SYSTEM ASSOCS., 7562 Trade St., San Diego, CA 92121, Tel: 619-566-3911; Empl.: 8; *Sls. Mgr.:* Chuck Bennett

COMPUTER TALK, INC., Box 148, Morrison, CO 80465, Tel: 303-697-5485; Empl.: 20

Local Sales Offices & Reps

MN	St. Paul, Imtech, Inc.	612-646-7340

COMPUTER TERMINAL SYS., 89 Arkay Drive, Hauppauge, NY 11788, Tel: 516-435-2916, Telex: 291411, 291413, TWX: 510-224-6050; FSC No.: 33948; Empl.: 120; *Sls. Mgr.:* K. Oliver

COMPUTERVISION CORP., 201 Burlington Rd., Bedford, MA 01730, Tel: 617-275-1800

COMPUTERWISE, 4006 E 137th Terr., Grandview, MO 64030, Tel: 816-765-3330; Empl.: 20; *Sls. Mgr.:* William W. Brown; *Dist. Mgr.:* William W. Brown

COMPUTROL DIV. KIDDE AUTOMATED SYS., INC., 15 Ethan Allen Hwy., Ridgefield, CT 06877, Tel: 203-544-9371, Telex: 643358; Empl.: 85; *Sls. Mgr.:* Chuck Brewer

COMPUTYPE, INC., 2285 W. County Road "C", St. Paul, MN 55113, Tel: 612-633-0633, 800-328-0852, TWX: 910-563-3699

comstron

COMSTRON CORP., 200 E. Sunrise Hwy., Freeport, NY 11520, Tel: 516-546-9700, TWX: 510-225-3699; Empl.: 97; *Sls. Mgr.:* Stephen B. Rosenfield .... **1A**•1325-1327, 1588; **3**•1210, 1211

Local Sales Offices & Reps

AZ	Phoenix, Odyssey 1	602-246-8846
CA	Anaheim, Blair Assocs.	714-635-1350
CA	San Diego, Interstate Mktg. Assocs.	714-292-8117
CA	Sunnyvale, Applied Sys.	408-773-0616
CA	Woodland Hills, Interstate Mktg. Assocs.	213-883-7606
CO	Castle Rock, Odyssey I	303-688-3555
FL	Altamonte Springs, Dyne-A-Marr Corp.	305-831-2097
FL	Clearwater, Dyne-A-Marr Corp.	813-441-4702
FL	Fort Lauderdale, Dyne-A-Mark Corp.	305-944-5031
FL	Ft. Lauderdale, Reynolds & Assocs.	305-581-6611
FL	Melbourne, Reynolds Assocs.	305-259-7000
FL	Palm Bay, Dyne-A-Marr Corp.	305-727-0192
FL	St. Petersburg, Reynolds & Assocs.	813-360-1484
GA	Acworth, Reynolds & Assocs.	404-451-9558
GA	Marietta, Comstron/Southeast	404-973-3325
IL	Arlington Heights, Dytec Cen.	312-394-3380
IN	Indianapolis, Dytec Cen.	317-247-1316
KS	Lenexa, Dytec South	913-888-0215
MA	Lexington, Lancer Assocs.	617-861-1720
MI	Madison Hts., WKM Assocs.	313-588-2300
MN	St. Paul, Dytec North	612-645-5816
MO	Maryland Hts., Dytec South	314-569-2990
NJ	Englewood Cliffs, Sci. Devices East	201-871-3916
NM	Albequerque, Odyssey 1	505-265-6645
NY	Wantagh, Bytec Reps.	516-781-7400
NC	Spring Hope, Reynolds & Assocs.	305-259-7000
OH	Dayton, WKM Assocs., Inc.	513-434-7500
OH	Independence, WKM Assocs.	216-524-5930
PA	Pittsburgh, WKM Assocs., Inc.	412-892-2953
PA	Spring House, Sci. Devices East	215-643-3335
TX	Dallas, Marcom	214-351-4532
TX	Richardson, Sci. Devices, S.W.	214-231-8106
VA	McLean, Creative Mktg. Assocs.	703-442-9100
WA	Vancouver, Ray Over Sls.	206-695-6179

COMTECH MICROWAVE CORP., Comtech Corp., 63 Oser Ave., Hauppauge, NY 11788, Tel: 516-435-4646, Telex: 971403 COMMIC HAUP; FSC No.: 61381; *Sls. Mgr.:* M. Javits

COM/TECH SYSTEMS, 505 Eighth Ave., New York, NY 10018, Tel: 212-594-5377; Empl.: 9

COMTEC INFOR. SYS., INC., 53 John St., Cumberland, RI 02864, Tel: 401-724-8500, TWX: 710-387-1171; Empl.: 75; *Sls. Mgr.:* R. A. Hamilton

CONCORD DATA SYSTEMS, 303 Bear Hill Rd., Waltham, MA 02154, Tel: 617-890-1394, Telex: 95-1793; Empl.: 90

Local Sales Offices & Reps

CA	Santa Ana, Concord Data Sys.	714-541-4974
IL	Wilmette, Concord Data Sys.	312-251-8336

CONCORD ELCTRNS., 30 Great Jones St., Dept. JE, New York, NY 10012, Tel: 212-777-6571, TWX: 710-581-4930; Empl.: 225; *Sls. Mgr.:* Josie Wheaton .... **2**•1170-1243

CONDENSER PRODS., P.O. Box 997, Brooksville, FL 33512, Tel: 904-796-3561; Empl.: 26; *Sls. Mgr.:* Pat K. Johnson

CONDITIONING SEMICONDUCTOR DEVICES, Box 2116, Wayne, NJ 07470, Tel: 201-335-6723, Telex: 219023; FSC No.: 60644; Empl.: 20; *Sls. Mgr.:* A. G. Zimmerly; *Dist. Mgr.:* Jill Mullen

CONDOR INC.
D.C. POWER SUPPLIES

CONDOR, 201 Flynn Rd., Camarillo, CA 93010, Tel: 805-484-2851, 800-235-5929; Empl.: 220; *Sls. Mgr.:* Fred Adams .... **3**•1519-1534

Local Sales Offices & Reps

AL	Huntsville, Pen-Tech	205-881-9298
AZ	Phoenix, O'Donnell Assoc.	602-944-9542
CA	Inglewood, Basic Systems Corp.	213-673-4300
CA	Irvine, Basic Systems Corp.	714-999-0300
CA	San Diego, Basic Systems Corp.	619-268-8000
CA	Santa Clara, Basic Systems Corp.	408-727-1800
CO	Denver, R. Marketing	303-455-5360
FL	Casselberry, Pen-Tech	305-645-3444
FL	Deerfield Beach, Pen-Tech	305-421-4989
GA	Marietta, Pen-Tech	404-424-1931
IL	Schaumberg, Engrg. Prods.	312-882-7640
IN	Greenfield, Engrg. Prods.	317-894-7156
IA	Coralville, Engrg. Prods.	319-354-5344
MD	Wheaton, Brimberg Sls.	301-946-2670
MA	Wayland, Daner Hayes Inc.	617-655-0888
MN	Edina, Engrg. Prods.	612-835-9022
NJ	Bellmawr, TAI	609-933-2600; 215-627-6615
NY	Yonkers, Sonkin Assoc.	914-968-7736
NC	Greensboro, Pen-Tech	919-852-6000
OH	Dayton, Thompson Assoc.	513-435-7733
PA	Mars, Thompson Assoc.	412-776-6495
TX	Dallas, Seaton Corp.	214-380-0414
UT	N. Salt Lake City, R. Marketing	801-298-2631
WA	Bellevue, Al Smith Co.	206-746-6770

Local Distributors

CA	Inglewood, Basic Systems Corp.	213-673-4300
CA	Irvine, Basic Systems Corp.	714-999-0300

CA	San Diego, Basic Systems Corp.	619-268-8000
CA	Santa Clara, Basic Systems Corp.	408-727-1800
IL	Schaumberg, Engrg. Prods.	312-882-7640
MD	Wheaton, Brimberg Sls.	301-946-2760
MI	Madison Heights, McNaughton-McKay	313-399-7500
MN	Edina, Engrg. Prods.	612-835-9022
NY	Yonkers, Kintronics	914-968-8282
Intl	Belgium, Mulder-Hardenburg	031-680032
Intl	Denmark, Danika Supply	09-432122
Intl	England, Gresham/Powerdyne	(025-672)4246
Intl	Finland, Oy Ferrado AB	0-550002
Intl	France, AK Electronique	01-5755353
Intl	Holland, Mulder-Hardenburg BV	023-319184
Intl	Norway, Powerbox AS	02-535-837
Intl	Sweden, Power Box AB	0518-11920
Can	Canada, Duncan Inst. Ltd.	416-742-4448

CONDOR PACIFIC INDS., INC., 8053 Deering Ave., Canoga Park, CA 91304, Tel: 818-347-8331, Telex: 65-1442; Empl.: 40

CONDOR SYSTEMS, INC., 2605 S. Winchester Blvd., Campbell, CA 95008, Tel: 408-866-5900, Telex: 184819 Systems SANTA; FSC No.: 62065; *Sls. Mgr.:* Dick Keenly; *Dist. Mgr.:* Ed Brown

CONDUCTIVE RUBBER TECHNLG., 1235 Coast Village Rd., Santa Barbara, CA 93108, Tel: 805-969-5805, Telex: 658-305; *Sls. Mgr.:* Robert Webb

Distributor

CONECTRIX, INC., 376 E. Gunderson St., Carol Stream, IL 60188, Tel: 312-653-1460 .... **1B•1742**

CONFORMING MATRIX, Box 5126, Pt. Pl. Sta., Toledo, OH 43611, Tel: 419-729-3777; Empl.: 35

CONKLIN INSTR. CORP., West Rd., Pleasant Valley, NY 12569, Tel: 914-635-2136; Empl.: 65

Local Sales Offices & Reps

CA	Santa Ana, Craig Martin & Assoc.	714-556-1106
CT	Bethel, Gemini Elctrn. Sls.	203-748-5506
GA	Newnan, Dolan Assocs.	404-251-1102
NJ	Kinnelon, R.J. Alvarez, Inc.	201-838-5641
OH	Howard, Denman Assocs.	614-397-6240
WA	Redmond, Control Q	206-881-7440

CONNECTICUT HARD RUBBER CO., See CHR Inds.

CONNECTICUT MICROWAVE CORP., 106 Powder Mill Rd., Box 389, Canton, CT 06019, Tel: 203-693-4247; FSC No.: 50974; Empl.: 16; *Sls. Mgr.:* S. T. Urbank

CONNECTOR CORP., 6025 N. Keystone Ave., Chicago, IL 60646, Tel: 312-539-3108, TWX: 910-221-6059 .... **2•1244, 1245**

CONNECTOR INDS. OF AMER., 639 N. Wayne, Cincinnati, OH 45215, Tel: 513-733-3680; FSC No.: 32076; Empl.: 35

Local Sales Offices & Reps

AZ	Phoenix, Southwest e/m Engrg.	602-944-1521
CA	Anaheim, Libratronix	714-534-7073
CT	Branford, W. McCoy Co.	203-488-2012
IL	Chicago, D. Dolin Sls. Co.	312-286-6200
IN	Greenwood, Valentine & Assocs.	317-888-2260
MI	Birmingham, Forand Sls. Co.	313-644-0087
MN	Bloomington, J. G. Twist	612-835-2120
NY	N. York, ABS Assoc.	201-871-0020
PA	Hatboro, Jacobsen Assocs.	215-674-2937
TX	Dallas, Kruvand Assocs.	214-691-4592

CONNOR-WINFIELD CORP., 109 Turner Ct., POB L, W. Chicago, IL 60185, Tel: 312-231-5270, TWX: 910-230-3231; FSC No.: 21022; Empl.: 35; *Sls. Mgr.:* John Hoag .... **1A•1329-1332**

Local Sales Offices & Reps

CA	Los Altos, Frauman Assocs.	415-941-0660
CA	Westlake Village, C.D.H. Assocs.	213-707-1970

CONOLOG CORP., 5 Columbia Rd., Somerville, NJ 08876, Tel: 201-722-8081

CONRAC CORP., System Comps. Div., 1700 S. Mountain Ave., Duarte, CA 91010, Tel: 213-359-9141, Telex: 96-5978; Empl.: 200; *Sls. Mgr.:* Albert N. Caputo

CONRAC DIV., Conrac Corp., 600 N. Rimsdale Ave., Covina, CA 91722, Tel: 213-966-3511, Telex: 67-0437; Empl.: 450

CONSELL, 463 Payne Dr., Cheshire, CT 06410, Tel: 203-272-6837; Empl.: 3; *Sls. Mgr.:* A. R. Aikman

CONSOLIDATED CONTROLS, 15 Durant Ave., Bethel, CT 06801, Tel: 203-743-6721, Telex: 969615, TWX: 710-456-0446; FSC No.: 02750; Empl.: 650; *Sls. Mgr.:* A.F. Jakubauskas

Consolidated
electronic wire & cable

CONSOLIDATED ELECTRONIC WIRE & CABLE CORP., 11044 King St., Franklin Park, IL 60131, Tel: 312-455-8830, TWX: 910-227-1705; FSC No.: 73612; Empl.: 57; *Sls. Mgr.:* Karl Rankin; *Dist. Mgr.:* Steve Boynton .... **2•2021-2075**

Local Sales Offices & Reps

AL	Birmingham, Hollingsworth & Still	205-822-2846
AR	Little Rock, Erickson Sls., Inc.	501-225-7379
CA	San Jose, O'Donnell & Assoc.	408-263-6500
CO	Parker, Parker-Webster Co.	303-841-4888
FL	Orlando, Hollingsworth & Still	305-859-9423
GA	Norcross, Hollingsworth & Still	404-447-1700
IL	Highland Park, Bramsky Sls. Co.	312-433-2375
IN	Indianapolis, Green Sls. Co.	317-291-2232
KS	Prairie Village, R. W. Kunz & Assocs.	913-648-3535
KY	Louisville, K W Elctrn. Sls.	502-451-1860
KY	Louisville, Green Sls. Co.	502-241-1212
LA	Chalmette, Erickson Sls. Inc.	504-271-1976
MD	Kensington, Forti Assocs.	301-949-1706
MA	Southboro, KSA of New England	617-485-9432
MI	Detroit, Burcaw Co. & Assoc.	313-533-7700
MI	Wyoming, Burcaw Co. & Assoc.	616-532-2756
MN	Edina, Monroe-Hanna	612-925-5700
MO	St. Louis, R. W. Kunz & Assocs.	314-966-4977
NJ	East Orange, Willgold Sls. Corp.	201-678-7700
NM	Albuquerque, Trembly & Assoc.	505-266-8616
NY	Rochester, Warren Kaufman & Assoc.	716-266-2728
NY	Schenectady, Warren Kaufman & Assocs.	518-374-0749
NC	Kernersville, Hollingsworth & Still	919-996-4622
OH	Dayton, KW Elctrn. Sls.	513-890-2150
OH	Shaker Heights, KW Elctrn. Sls.	216-491-9177
OH	Worthington, K W Elctrn. Sls.	614-888-0483
OK	Oklahoma City, Erickson Sls. Inc.	405-682-2947
OR	Troutdale, Comtec Int'l.	503-661-4308
PA	Allison Park, K W Elctrn. Sls.	412-487-4300
PA	Philadelphia, Samuel K. MacDonald, Inc.	215-545-1205
TX	Dallas, Erickson Sls. Inc.	214-739-5833
UT	Salt Lake City, Parker-Webster Co.	801-266-9939
UT	Salt Lake City, Cleveland Entprs. of Colorado	801-355-8424
VA	Vinton, Forti Assocs.	703-345-2505
WA	Bellevue, Comtec, Intl.	206-453-1189
WI	Cedarburg, Branksy Sls. Co.	414-377-6837
EXP	NY, Plainview, Morhan Exporting	516-293-5582

Local Distributors

AL	Huntsville, Pioneer/Huntsville	205-837-9300
AZ	Tucson, Elctrn. City	602-622-1173
CA	Concord, Pacific Radio Supp.	415-682-4700
CA	Costa Mesa, Marvac Elctrns.	714-540-3280
CA	Fullerton, Garden Elctrns.	714-526-7882
CA	Redwood City, HDB Elctrns.	415-368-1388
CT	Wallingford, Midan Elctrns.	203-265-2077
FL	Ft. Lauderdale, Pioneer/Florida	305-771-7520
GA	Atlanta, Wholesale Ind'l. Elctrns.	404-447-8431
HI	Honolulu, Electrical Equip.	808-533-3884
IL	Peoria, Klaus Radio, Inc.	309-691-4840
IL	Wheeling, Hawk Elctrns.	312-459-4030
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
KY	Florence, URI Elctrns.	606-371-4423
LA	New Orleans, L. F. Gaubert	504-822-7272
MD	Gaithersburg, Pioneer/Washington	301-921-0660
MA	Norwook, Emtel	617-769-9500
MI	Grand Rapids, SF Elctrns.	616-459-0216
MO	Maryland Heights, L-Comp	314-291-6206
NH	Manchester, Yankee Elctrn. Supp.	603-625-9746
NJ	East Hanover, State Elctrns. Parts	201-887-2550
NJ	Kenilworth, Federated Purchaser	201-272-0505
NY	Bohemia, Key Comps.	516-567-7500
NY	Buffalo, Genesee Radio Parts	716-873-9661
NY	Rochester, Goldcrest Elctrns.	716-266-2728
NC	Greenville, Pair Elctrns.	919-756-2292
OH	Cincinnati, URI Elctrns.	513-761-4030
OH	Dayton, Pioneer/Dayton	513-236-9900
OR	Beaverton, Acacia Sls.	503-646-3377
PA	Allentown, Lehigh Elctrn. Comps.	215-433-3045
SC	Charleston, Wholesale Ind'l. Elctrns.	803-722-2634
WA	Seattle, Radar Elec. Co.	206-282-2511
WI	Appleton, Appleton Radio Supp.	414-734-5767
EXP	Plainview, Morhan Exporting	516-293-5582

CONSOLIDATED PRODUCTS CORP., P.O. Box 67, Idyllwild, CA 92349, Tel: 714-659-2183

CONSOLIDATED RESISTANCE CO. AMERICA, 222 Lake Ave., Yonkers, NY 10701, Tel: 914-YO3-5900; Empl.: 20

CONSOLINK CORP., Lestronics, Inc., 1840 Industrial Cir., Longmont, CO 80501, Tel: 303-651-2014, TWX: 910-320-0786; *Sls. Mgr.:* Lisa Estabrooks; *Dist. Mgr.:* Lisa Estabrooks

CONSUMERTRONICS, 2011 Crescent Dr., Alamogordo, NM 88310, Tel: 505-434-0234; Empl.: 5; *Sls. Mgr.:* Laurie Laurencia

CONTACT, INC., 5 Elm Ave., Hudson, NH 03051, Tel: 603-883-7708; FSC No.: M07015; Empl.: 11; *Sls. Mgr.:* T. Foresta; *Dist. Mgr.:* R. Reid

CONTACT EAST, 7 Cypress Dr., Burlington, MA 01803, Tel: 617-272-5051; *Sls. Mgr.:* Kai Juel

contact **Contact Electronics Inc.**

CONTACT ELECTRONICS INC., 30 Plymouth St., Fairfield, NJ 07006, Tel: 201-575-7660, 800-221-1451, Telex: 130-216; Empl.: 50; *Sls. Mgr.:* Thomas E. Bodnar; *Dist. Mgr.:* Thomas E. Bodnar .... **2•1169**

Local Sales Offices & Reps

CA	Santa Clara, Contact Elctrns. Inc.	408-988-5400
CA	Simi Valley, Tri Electro Sls.	805-583-5124
CT	Mystic, JMG	203-572-9448
FL	Orlando, Over & Over	305-857-4057
GA	Norcross, Over & Over	404-449-6205
IL	Chicago, KGA Engrg.	312-477-8181
IN	Indianapolis, J & W Sales	317-842-3740
MD	Glendale, Electromate, Inc.	301-262-2702
MA	Norwood, JMG	617-762-5333
MI	Farmington Hills, Willis Trombley & Son	313-553-2200
MN	Fridley, Teskey & Assocs.	612-571-0876
NJ	Haddonfield, Sunday-O'Brien	609-429-4013
NJ	Mountainside, Henry G. Richter	201-233-4615
NY	Fayetteville, Henry G. Richter	315-637-6713
NC	Charlotte, Over & Over	704-527-3070
OH	Cleveland, Pressler-Weissinger Co.	216-333-7977
OR	Tigard, Electronic Sources	503-684-0040
TN	Antioch, Over & Over	615-834-0140
TX	Dallas, Blackburn Assocs.	214-692-8885
TX	Houston, Blackburn Assocs.	713-463-1354
WA	Bellevue, Elctrn. Sources	206-451-3500

Local Distributors

CA	Irvine, Ratel Elctrns.	213-637-0839
CA	Mountain View, Cornett Elctrns.	415-969-5420
CA	Mountainview, Target Elctrns.	415-961-1170
CA	S. San Francisco, Peters de Laet	408-727-9440
CA	San Jose, Ratel Elctrns.	408-946-4300
IL	Mt. Prospect, Magnuson Elctrns.	312-956-0700
MD	Beltsville, Applied Specialties Inc.	301-792-2211
MD	Frederick, Digital Sys. Inc.	301-694-9355
MA	Burlington, JV Elctrns. of Boston	617-273-4300
MA	Middleboro, Glynn Elctrns.	617-947-4262

NJ	Berlin, GCI	609-768-6767
NJ	Frenchtown, Sintec Co.	201-996-4093
NJ	Hanover, State Elctrns.	201-887-2550
NY	Hauppauge, LI, Broadline Elctrns.	516-231-4100
NY	New York, Knickerbocker Annunciator	212-964-6258
OR	Lake Oswego, Moore Elctrns.	503-684-3100
OR	Wilsonville, Zepher Indus.	503-682-2929
TX	Stafford, Southwest Elctrns., Inc.	713-491-4900
WA	Seattle, Zepher Indus.	206-241-1980

CONTEL INFO. SYS., INC., Continental Tel. Corp., 130 Steamboat Rd., Great Neck, NY 11024, Tel: 516-829-5900; Empl.: 450

CONTINENTAL DATA SYS., 131 N. Ludlow St., Dayton, OH 45402, Tel: 513-222-8626; Empl.: 4

CONTINENTAL ELECTRONICS MFG. CO., P.O. Box 270879, Dallas, TX 75227, Tel: 214-381-7161, Telex: 73-398; FSC No.: 52151; *Sls. Mgr.:* R. L. Floyd, Domestic Broadcast

CONTINENTAL RESOURCES, INC., 175 Middlesex Tpke., Bedford, MA 01730, Tel: 617-275-0850, TWX: 710-326-0833; Empl.: 275; *Sls. Mgr.:* Michael Mattleman ....**3**•1212

Local Sales Offices & Reps

CA	Carson	213-638-0454
CA	Santa Clara	408-727-9870
FL	Orlando	305-855-9544
IL	Bensenville	312-860-5991
MD	Gaithersburg	301-948-4310
NJ	Scotch Plains	201-654-6900
TX	Dallas	214-458-7616

CONTINENTAL SPECIALTIES CORP., See Global Specialties Corp.

CONTOURS, INC., P.O. Box 1041, Middletown, CT 06457, Tel: 203-347-5694; FSC No.: 033501; *Sls. Mgr.:* Richard M. Nokes

CONTRAVES GOERZ CORP., 610 Epsilon Dr., Pittsburgh, PA 15238, Tel: 412-967-7700, Telex: 86-6237, TWX: 710-664-2082; FSC No.: 51261; *Sls. Mgr.:* Henry M. Voss; *Dist. Mgr.:* Ronald L. Ekas

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CONTROL CONCEPTS CORP., P.O. Box 1380, Binghamton, NY 13902-1380, Tel: 607-724-2484; Empl.: 41; *Sls. Mgr.:* Vieda I. Lawton ....**1B**•1263

Local Sales Offices & Reps

AZ	Phoenix, Power Specialists	602-996-4100
CA	Los Alamitos, Power Specs.	213-594-9418
CA	Redwood City, Ault Assocs.	415-367-1710
MD	Baltimore, Scientific Assocs.	301-321-1411
MA	Needham, Shain Assoc.	617-449-4380
MI	Southfield, Comtel Instrs.	313-358-2505
NJ	Cherry Hill, Scientific Reps.	609-482-0059
OH	Cleveland, Comtel Instrs.	216-442-8080
OH	Dayton, Comtel Instrs.	513-298-7573
PA	Chalfont, Eastern Scientific Marketing	215-822-6503
PA	Pittsburgh, Comtel Instrs.	412-922-5720
VA	Fairfax, Scientific Assocs.	703-385-0600

CONTROL DATA CORP., P.O. Box O, Minneapolis, MN 55440, Tel: 1-800-828-8001 Operator 82, In Minnesota 612-921-4400; Empl.: 56,000

CONTROL ELCTRNS. CO., INC., 107-B Allen Blvd., Farmingdale, NY 11735, Tel: 516-694-0125; FSC No.: 95924; Empl.: 60; *Sls. Mgr.:* Harold Goldstein; *Dist. Mgr.:* Jack Leonard ....**1A**•1467-1469

Local Sales Offices & Reps

CA	Sherman Oaks, R.T. Assocs.	213-788-7588
FL	Melbourne, VPI	305-727-3305
FL	Tampa, VPI	813-832-2041
IL	Chicago, Electro-Tech Mktg. Assoc.	312-588-4535
MD	Ellicott City, VPI	301-461-2525
MA	W. Medway, J. Gallagher	617-533-7292
MN	Fridley, Teskey & Assocs.	612-571-0876
PA	Montgomery, VPI	215-474-3200
TX	Dallas, Texas Avionics Co.	214-363-6324
EXP	FL, Hallandale, Emec	305-925-6366

CONTROL ENGRG., INC., 1686 Riverdale St., West Springfield, MA 01089, Tel: 413-781-1330; Empl.: 7; *Sls. Mgr.:* Mark Kimball

CONTROL EQUIP. CORP., 171 Lincoln St., Lowell. MA 01851, Tel: 617-459-0573; Empl.: 10

CONTROLEX/EANCO, See Fincor

CONTROL INDS. INC., 530 Burnside Ave., Inwood, NY 11696, Tel: 212-471-9800; Empl.: 40

CONTROLLED ENVIR. EQUIP. CORP., 3 Delta Drive, Westbrook, ME 04092, Tel: 207-854-9126; Empl.: 5; *Sls. Mgr.:* R. D. Peck

CONTROLLED POWER COMPANY

CONTROLLED POWER CO., 1955 Stephenson Hwy., Troy, MI 48084, Tel: 313-528-3700, TWX: 810-232-3401 ....**3**•1814, 1848-1853

CONTROL MODULE, 380 Enfield St., Enfield, CT 06082, Tel: 203-745-2433, Telex: 643167; Empl.: 160; *Sls. Mgr.:* Peter C. DiMaria

CONTROL-O-MATION, INC, 7300 W. Huron River Dr., Dexter, MI 48130, Tel: 313-426-3935; Empl.: 72; *Sls. Mgr.:* Richard Lundy

CONTROL PRODUCTS, INC., 280 Ridgedale Ave., E. Hanover, NJ 07936, Tel: 201-887-9400; FSC No.: 81901; Empl.: 62; *Sls. Mgr.:* J. R. Nile

CONTROL PRODS., Devar Inc., P.O. Box 589, Bridgeport, CT 06601, Tel: 203-368-6751, Telex: 96-4234; Empl.: 80; *Sls. Mgr.:* T. W. Tomasko

CONTROL PRODS. DIV., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083, Tel: 201-964-4400, Telex: 13-8978, TWX: 710-985-4687; FSC No.: 3L154; Empl.: 275; *Sls. Mgr.:* J. Cooper ....**3**•1125

Local Sales Offices & Reps

AL	Hoover, Control Prods. Agency	205-320-6197
AZ	Phoenix, Mercury Engrg. Sls.	602-244-0123
CA	Los Altos, J. Wilhoit Co.	415-961-3660
CA	San Diego, J. C. Henberger Co.	619-292-5772
CA	Tustin, Schoenbachler-Dobson Co.	714-544-1888
CO	Denver, C. Beabout Co.	303-244-3151
CT	Glastonbury, Tulimieri Assocs.	203-659-3531
FL	Deerfield Pk., Brandel-Stephens	305-427-8558
FL	Orlando, B. Stephens Co.	305-425-3202
GA	Atlanta, Control Prods. Div.	404-296-3115
HI	Miliani Town, H. C. Burgess	808-623-3118
IL	Algonquin, Control Prods. Div.	312-358-2840
IL	Woodridge, Control Prods. Div.	312-358-2840
IA	Des Moines, Jerry L. Shumway & Assocs.	515-285-0704
KS	Overland Park, Arehart-Barnds-Rains Sls. Co. (Buchanan Prods. Only)	913-649-9270
MD	Mount Airy, Strayton Assocs.	301-831-7007
MA	Norwell, Control Prods. Div.	617-659-4474
MI	Troy, George R. Peters Assoc.	313-362-1220
MN	Minneapolis, Harold Mercer Co.	612-933-7111
MS	Jackson, Welch & Doby, Inc.	601-932-5534
MO	Bridgeton, Dy-Tronix, Inc.	314-731-5799
MO	Independence, Dy-Tronix, Inc.	816-373-6600
NJ	Dunellen, Control Prods. Div.	201-964-4400
NM	Sandia Park, Sun Sls.	505-281-3373
NY	Camillus, Ontec	315-672-5626
NY	Manhasset, Control Prods. Div.	516-627-8809
NY	Rochester, Ontec	716-464-8636
NY	Wappinger Falls, Ontec	914-462-7188
NC	Greensboro, Hile Assocs.	919-288-1500
OH	Mentor, Control Prods. Div.	216-543-4233
OH	West Chester, Control Prods. Div.	513-777-2472
OR	Portland, Syscom	503-644-2505
PA	Pittsburgh, Control Prods. Div.	412-761-0581
PA	Willow Grove, Cusick Elec. Sls.	215-659-6666
TX	Bedford, Reynolds Assoc., Inc.	817-267-5635
TX	Houston, Control Prods. Div.	713-984-8128
WA	Bellevue, Syscom Sls.	206-641-5080
WV	Huntington, Lilly Electrical Sls.	304-523-3441
WI	Wauwatosa, Control Prods.	414-377-0800

CSI CONTROL SCIENCES INCORPORATED

CONTROL SCIENCES, INC., 9509 Vassar Ave., Chatsworth, CA 91311, Tel: 818-709-5510, Telex: 36-44-12 INTR; FSC No.: 53317; Empl.: 14; *Sls. Mgr.:* Rhod Zimmerman ....**3**•1146-1148

Local Sales Offices & Reps.

CA	Sunnyvale, Koosen Tech. Sls.	408-249-5858
CO	Boulder, Herb Bass Assocs.	303-499-7509
FL	Orlando, Gra-Mar Inc.	305-894-3351
IL	Rolling Meadows, KMA Sales	312-398-5300
IN	Ft. Wayne, J & B Engrg.	219-483-2813
MN	St. Paul, Northstar Motion & Control	612-770-5311
MO	Peculiar, PEM Sales	816-884-4784
MO	St. Louis, PEM Sales	314-427-7200
NY	Victor, A & D Devices	716-924-9171
OH	Cleveland, Geotronix	216-526-2535
OH	Columbus, Geotronix	614-457-8472
PA	Media, Homer Smith Sls.	215-543-2434
PA	Pittsburgh, Raystan/Symcon	412-734-1185
TX	Ft. Worth, Rick McDonald Assoc.	817-429-4272
TX	Richardson, McDonald Assocs.	214-238-1858
WA	Bellevue, Poggi Assocs.	206-454-2026
WI	Milwaukee, KMA	414-259-1771

CONTROLS PROTOELECTRIC, 1 Memorial Dr., Cambridge, MA 02142, Tel: 617-864-8000; *Sls. Mgr.:* S. L. Davis

CONTROLS UNLIMITED, INC., 1895 Blase-Nemeth Rd., Painesville, OH 44077, Tel: 216-354-4111; Empl.: 35

CONTROL TECHNOLOGY CO., 41-16 29th St., Long Island City, NY 11101, Tel: 212-361-2133; FSC No.: 14545; Empl.: 35; *Sls. Mgr.:* H. Cooper ....**3**•1930, 1931

Local Sales Offices & Reps

CA	Claremont, W. Roth & Assocs.	714-621-1019

CONVER CORP., 10629 Bandley Dr., Cupertino, CA 95014, Tel: 408-255-0151, TWX: 910-338-2036; *Sls. Mgr.:* Matthew Winston

CONVERSION EQUIP. CORP., 1620 So. Sunkist, Anaheim, CA 92806, Tel: 714-634-9698; *Sls. Mgr.:* Mark Kato; *Dist. Mgr.:* Mark Kato

CONVERTER CONCEPTS, INC., Industrial Pkwy., Pardeeville, WI 53954, Tel: 608-429-2144, TWX: 910-280-2630; Empl.: 75; *Sls. Mgr.:* Michael J. Schoenwald; *Dist. Mgr.:* Michael J. Schoenwald .... 3•1536-1539

Local Sales Offices & Reps

AZ	Phoenix, Thor Engrg.	602-437-1463
CA	Goleta, The Thorson Co.	805-964-8751
CA	Hayward, Pacific Mktg.	415-887-1620
CA	Signal Hill, The Thorson Co.	213-595-0361
FL	Clearwater, Perrott Assocs.	813-443-5214
FL	Orlando, Perrott Assoc.	305-298-7748
FL	Sunrise, Perrott Assocs.	305-792-2211
IL	Rolling Meadows, KMA Sales	312-398-5300
MA	Natick, Wayland Engrg. Sls.	617-655-6080
MN	Minneapolis, Jos-co/Melius	612-861-3343
NY	Syracuse, Pi-Tronics	315-455-7346
OH	Dayton, Bradcor	513-294-5477
OH	Euclid, Bradcor Elctrns.	216-261-0888
PA	Glenside, Koebert Assoc.	215-887-2310
TX	Garland, Tesco	214-681-1376
TX	Houston, Tesco	713-777-1443
WA	Linnwood, Power Sources Unltd.	206-784-3336
WI	Milwaukee, KMA Sales	414-259-1771

CONVEX CORP., P.O. Box 17225, Dulles Intl. Airport, Washington, DC 20041, Tel: 703-661-8900; Empl.: 24

COOL-AMP CONDUCTO-LUBE CO., 8621 S.W. 17th Ave., Portland, OR 97219, Tel: 503-244-2230; Empl.: 5; *Sls. Mgr.:* Audrea Dick

COONER WIRE CO., 9186 Independence Ave., Chatsworth, CA 91311, Tel: 818-882-8311; *Sls. Mgr.:* Steven W. Smith .... 2•2076-2081

COOPER GROUP, PO Box 30100, Raleigh, NC 27622, Tel: 919-781-7200, Telex: 579497; *Sls. Mgr.:* J.J. Barrese

CO-ORD SWITCH DIV., LVC Inds., Inc., 23 Hanse Ave., Freeport, NY 11520, Tel: 516-868-1900; *Sls. Mgr.:* P. Parnicas

COORS PORCELAIN, 600 Ninth St., Golden, CO 80401, Tel: 303-278-4000, Telex: 45593; Empl.: 1700

COOSOL, 3013 Harbor Blvd., Costa Mesa, CA 92626, Tel: 714-545-2216; Empl.: 20; *Sls. Mgr.:* Aram Solomonian; *Dist. Mgr.:* Aram Solomonian

CORBY INDS. INC., P. O. Box 2838, Allentown, PA 18001, Tel: 215-433-1412, Telex: 847318 CORBYUHL; Empl.: 22; *Sls. Mgr.:* Glenn M. Matz; *Dist. Mgr.:* Lewis S. Walters

CORCOM, INC., 1600 Winchester Rd., Libertyville, IL 60048, Tel: 312-680-7400, TWX: 910-684-3269; FSC No.: 05245; Empl.: 1000 .... 1A•1589

Local Sales Offices & Reps

AL	Huntsville, Robert O. Whitesell	205-883-5110
AZ	Phoenix, I.S.D.S.	602-971-6250
CA	Los Angeles, I.S.D.S.	213-478-0183
CA	Mountain View, Straube Assocs.	415-969-6060
CA	San Diego, I.S.D.S.	619-571-1544
CA	Santa Ana, I.S.D.S.	714-973-2162
CA	Woodland Hills, I.S.D.S.	213-883-7130
CO	Arvada, Straube Assocs.	303-426-0890
CT	Madison, Conti-Younger Assocs.	203-245-1136
FL	Clearwater, E.I.R. Inc.	813-531-5990
FL	Fern Park, E.I.R. Inc.	305-830-9600
FL	Plantation, E.I.R. Inc.	305-581-6905
FL	Plantation, E.I.R. Inc.	305-791-8243
ID	Boise, Cascade Comps.	208-343-9886
IL	Rolling Meadows, Sumer, Inc.	312-991-8500
IN	Ft. Wayne, Robert O. Whitesell	219-432-5591
IN	Indianapolis, Robert O. Whitesell	317-359-9283
IN	Kokomo, Robert O. Whitesell	317-457-9127
KS	Overland Park, K & H Sls.	913-642-9564
KY	Louisville, Robert O. Whitesell	502-426-7696
MD	Ellicott City, Marketing Technlg.	301-465-5944
MA	Burlington, Conti-Younger Assocs.	617-273-1582
MI	Grand Rapids, Robert O. Whitesell	616-942-5420
MI	Southfield, Robert O. Whitesell	313-559-5454
MI	St. Joseph, Robert O. Whitesell	616-983-7337
MN	Edina, Mel Foster Co.	612-941-9790
NM	Albuquerque, Straube Assocs.	505-292-0428
NY	Endicott, Noeth-Honsinger Assocs.	607-754-3214
NY	Manhasset, Win-Cor Elctrn. Sls.	516-627-9474
NY	Pittsford, Noeth-Honsinger Assocs.	716-586-9002
NC	Raleigh, Zucker Assoc.	919-782-8433
OH	Cincinnati, Robert O. Whitesell	513-521-2290
OH	Cleveland, Robert O. Whitesell	216-447-9020
OH	Columbus, Robert O. Whitesell	614-888-9396
OH	Dayton, Robert O. Whitesell	513-298-9546
OK	Hillsboro, Cascade Comps.	503-640-4714
PA	Pittsburgh, Robert O. Whitesell	412-963-6161
PA	Trevose, Professional Svc. Assoc.	215-245-0513
TN	Greenville, Robert O. Whitesell	615-639-6154
TX	Austin, K & H Sls.	512-258-8841
TX	Plano, K & H Sls.	214-423-6520
UT	Salt Lake City, Straube Assocs.	801-263-2640
VA	Lynchburg, Marketing Technlg.	804-384-6459
WA	Seattle, Cascade Comps.	206-433-1113
WI	Brookfield, Sumer, Inc.	414-784-6641

Local Distributors

AL	Huntsville, Pioneer	205-837-9300
AZ	Phoenix, Cetec Elctrns.	602-272-7951
CA	Canoga Park, Marshall Ind.	213-999-5001
CA	Chatsworth, Diplomat Elctrns.	213-341-4411
CA	Costa Mesa, Diplomat Elctrns.	714-549-8401
CA	Irvine, Marshall Ind.	213-443-3724
CA	San Diego, Marshall Ind.	619-578-9600
CA	San Diego, Cetec Elctrns.	619-278-5020
CA	San Diego, Diplomat Elctrns.	619-292-5693
CA	San Jose, Cetec Elctrns.	408-263-7373
CA	South Gate, Cetec Elctrns.	213-773-6521
CA	Sunnyvale, Marshall Ind.	408-732-1100
CA	Sunnyvale, Diplomat/Westland	408-734-1900
CO	Denver, Marshall Ind.	303-427-1818
CO	Englewood, Diplomat Elctrns.	303-740-8300
CT	Danbury, Diplomat Elctrns.	203-797-9674
CT	E. Haven, J.V. Elctrns.	203-469-2321
FL	Clearwater, Diplomat Elctrns.	813-443-4515
FL	Ft. Lauderdale, Pioneer	305-771-7520
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Orlando, Pioneer	305-834-9090
FL	Orlando, Hammond Elctrns.	305-849-6060
GA	Atlanta, Marshall Ind.	404-923-5750
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Elk Grove Village, Pioneer/Chicago	312-437-9680
IL	Palatine, OHM Elctrns.	312-359-5500
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, Pioneer	317-849-7300
MD	Baltimore, Resco	301-823-0070
MD	Beltsville, Resco/Washington	301-937-9100
MD	Gaithersburg, Pioneer	301-921-0660
MD	Savage, Pyttronic Inds.	301-792-0780
MA	Burlington, Marshall Ind.	617-272-8200
MA	Newton, Greene Shaw	617-969-8900
MA	Norwood, Gerber Elctrns.	617-769-6000
MI	Livonia, Pioneer	313-525-1800
MI	Livonia, R.S. Elctrns.	313-525-1155
MN	Minneapolis, Newark Elctrns.	612-331-6350
MN	Minnetonka, Pioneer/Twin Cities	612-935-5444
MN	St. Paul, Gopher Elctrns.	612-483-3322
MO	St. Louis, Olive Elctrns.	314-426-4500
NJ	Bellmawr, Mid Atlantic Elctrns. Corp.	609-931-5303
NJ	Totowa, Diplomat Elctrns.	201-785-1830
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Melville, Diplomat Elctrns.	516-454-6334
NY	Mt. Vernon, QAR Indl. Elctrn. Sls.	914-699-2224
NY	Rochester, Summit Distrs.	716-334-8110
NY	Rochester, Rochester Radio Supp.	716-454-7800
NC	Greensboro, Hammond Elctrns.	919-275-6391
OH	Cleveland, Pioneer	216-587-3600
OH	Dayton, Pioneer	513-236-9900
OR	Beaverton, Almac Elctrns.	503-641-9070
PA	Montgomeryville, Pyttronic Inds.	215-242-6700
PA	Philadelphia, Almo Elctrns. Corp.	215-698-4000
PA	Pittsburgh, Pioneer	412-782-2300
SC	Columbia, Dixie Elctrns.	803-779-5332
TX	Allen, Prime Distrbg. Co.	214-231-0170
TX	Austin, Pioneer	512-835-4000
TX	Dallas, Pioneer	214-386-7300
TX	Ft. Worth, TTI	817-831-0441
TX	Houston, Pioneer	713-988-5555
UT	Salt Lake City, Diplomat/Alta Land	801-486-4134
WA	Bellevue, Almac Stroum Elctrns.	206-643-9992
WI	Milwaukee, Marsh Elctrns.	414-475-6000

CORNELL-DUBILIER ELECTRONICS, 150 Avenue "L", Newark, NJ 07105, Tel: 201-589-7500, Telex: 03-8366; FSC No.: 14655; Empl.: 3000; *Sls. Mgr.:* A. Cavuto

CORNELL-DUBILIER ELECTRONICS, Div. of Federal Pacific Electric Co., 1605 East Rodney French Blvd., New Bedford, MA 02744, Tel: 617-996-8561

CORNELL-DUBILIER ELCTRNS., Wayne Interchange, Plaza 1, Wayne, NJ 07470, Tel: 201-256-2000; *Sls. Mgr.:* A. Cavuto

CORNING GLASS WORKS, Main Plant, MS 2136, Corning, NY 14831, Tel: 607-974-4102, Telex: 932-499; Empl.: 30000; *Sls. Mgr.:* B. J. Lanahan

CORNING GLASS WORKS, Corning Elctrns., Houghton Pk., Bldg. A-2, Corning, NY 14830, Tel: 607-974-9000, Telex: 932481; Empl.: 8000; *Sls. Mgr.:* Ben S. Williams; *Dist. Mgr.:* Lyle E. Pirnie

CORNING GLASS WORKS, Memory Prods. Dept., 3900 Electronic Dr., Raleigh, NC 27604, Tel: 919-876-1100, TWX: 510-928-1840; Empl.: 17; *Sls. Mgr.:* A. Greenlaw

CORNING GLASS WORKS, Telecomm Prods. Dept., BH-5, Corning, NY 14830, Tel: 607-974-9000, Telex: 932498; Empl.: 28,000

CORNING MEDICAL & SCIENTIFIC, See Corning Glass Works, Corning Elctrns.

CORTEC, INC., 15811 Chemical La., Huntington Bch., CA 92649, Tel: 714-897-2529; Empl.: 35

CORTRON DIV., 400 W. Grand Ave., Elmhurst, IL 60126, Tel: 312-279-9110, TWX: 910-254-0154; Empl.: 300; *Sls. Mgr.:* Jim Powers

COSAR, 3121 Benton St., Garland, TX 75042, Tel: 214-276-9487, 800-527-1207, Telex: 730-764; FSC No.: 20891; Empl.: 50; *Sls. Mgr.:* Jerry Jarka

COSMO PLASTICS CO., 3239 W. 14th St., Cleveland, OH 44109, Tel: 216-861-5594, TWX: 810-421-8444; Empl.: 500; *Sls. Mgr.:* B. Gordon

COTO CORPORATION, 55 DuPont Drive, Providence, RI 02907, Tel: 401-943-2686, TWX: 710-381-8016; Empl.: 200; *Sls. Mgr.:* W. Poisson .... 1B•1324-1330

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
CA	Lomita, Component Mktg. Assoc.	213-326-1460
CA	San Diego, D Squared Sls.	619-560-6266
CA	Saratoga, Testco Inc.	408-253-1900
CO	Denver, Spectrum Sls.	303-696-1601
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Downers Grove, Richmar Elctrns.	312-968-0118
IN	W. Lafayette, Richmar Elctrns.	317-846-6383
NY	Melville, Jarms Assoc.	516-752-0404
NC	Cary, Montgomery Mktg.	919-467-6319
OR	Portland, Ecco Mktg.	503-254-5588
PA	Ardmore, Manreps	215-649-6300
TX	Plano, Richmar Elctrns.	214-867-8224
WA	Seattle, Ecco Mktg.	206-364-0200
WA	Spokane, Ecco Mktg.	509-926-9950
WI	Butler, Richmar Elctrns.	414-781-1730

Local Distributors

Intl	England, Surrey, Rhopoint	08833-OX-7988

COTRONICS, 3379 Shore Pkwy., Brooklyn, NY 11235, Tel: 212-646-7996; Empl.: 15; *Sls. Mgr.:* Alan Marks

COUNTIS INDS., 2670 Lockheed Way, Carson City, NV 89701, Tel: 702-882-6123; Empl.: 12; *Sls. Mgr.:* T. J. Countis; *Dist. Mgr.:* T. J. Countis

CPS INC., 110 Wolfe Rd., Sunnyvale, CA 94086, Tel: 408-738-0530, Telex: 35-7450; FSC No.: 31640; Empl.: 80; *Sls. Mgr.:* Rick Ross .... 3•1540

Local Sales Offices & Reps

MA	Burlington, Intersell	617-273-3844
NY	Great Neck, Industron Assocs.	516-487-2620

CRAIG SYS., 360 Merrimack St., Lawrence, MA 01842, Tel: 617-688-6961, TWX: 710-342-0765; FSC No.: 81902; Empl.: 300; *Sls. Mgr.:* Edwin C. Simas; *Dist. Mgr.:* Edwin C. Simas

CRAMER INC., 625 Adams St., Kansas City, KS 66105, Tel: 913-621-6700, TWX: 910-743-6856; Empl.: 200; *Sls. Mgr.:* Thomas R. Hyland

CRAMER COIL & TRANSFORMER CO., INC., 1121 15th Ave., Grafton, WI 53024, Tel: 414-377-7040; Empl.: 65; *Sls. Mgr.:* Philia G. Hayes

CRAMER DIVISION, Conrac Corporation, Mill Rock Rd., Old Saybrook, CT 06475, Tel: 203-388-3574, Telex: 966-453; Empl.: 250; *Sls. Mgr.:* Mktg. Mgr. J. H. Moor; *Dist. Mgr.:* E. Latourette

Local Sales Offices & Reps

CA	Anaheim, Spectrum Assocs.	714-630-6977
CA	Palo Alto, Mollard Mktg.	415-961-0456
CA	Placentia, Spectrum Assocs.	714-996-9400
CA	San Carlos, Electronic Engrg. Assoc., Inc.	415-593-2189
CA	Santa Clara, Held & Mollard	408-727-2050
IL	Elk Grove, Martec Assocs.	312-956-8090
IL	Glen Ellyn, Cramer Sls. Office	312-858-5166
IN	Indianapolis, Tech Sls. & Mktg., Inc.	317-849-6612
MI	Detroit, J.C. Hofstetter Co.	313-533-7788
MI	Farmington Hills, Anderson Elctrns., Inc.	313-553-7600
MN	St. Paul, Skor Inc.	612-426-1160
NM	Albuquerque, Vic Myers Assocs., Inc.	505-884-6878
NY	East Syracuse, Application Specialists Inc.	315-437-2813
NY	Rochester, Application Specialists Inc.	716-586-6226
OH	Dayton, RDP Corp.	513-253-6175
OH	Medina, J. C. Hofstetter	216-241-4880
PA	Bromall, White/Whiddett	215-353-6343
PA	Pittsburgh, Wainwright Tech. Sls.	412-487-5055
PA	Willow Grove, Jacabson-Rodger Assoc. Inc.	215-657-4300
TX	Austin, Sesco Inc.	512-892-2490
WA	Mercer Island, Andersen Assocs.	206-232-0484

CREATIVE PACKAGING CO., 1202 Kentucky Ave., Indianapolis, IN 46285

CRESTRON ELEC., 101 Broadway, Cresskill, NJ 07626, Tel: 201-894-0660

CRESTRONICS DIV., Applied Electro Technlg., Int., 2220 S. Anne St., Santa Ana, CA 92704, Tel: 714-556-6570, TWX: 910-595-1797; FSC No.: 52797; Empl.: 25; *Dist. Mgr.:* D. Dore

CROMEMCO, 280 Bernardo Ave., Mountain View, CA 94043, Tel: 415-964-7400, TWX: 910-379-6988; Empl.: 500; *Sls. Mgr.:* Tom Keating; *Dist. Mgr.:* Tom Keating

CROMPTON INSTRS., 1562 Parkway Loop, Units A & B, Tustin, CA 92680, Tel: 714-731-2333, Telex: 69-2309; FSC No.: 53498; *Sls. Mgr.:* J. Berger

CROMPTON INSTRS., 2763 Higgins Rd., Elk Grove Village, IL 60007, Tel: 312-593-1107, Telex: 28-0540; *Sls. Mgr.:* Tony A. Pitt

CROSS ELCTRNS., 100 Commonwealth Dr., Warrendale, PA 15086, Tel: 412-776-1591; Empl.: 35

CROSSPOINT
THE LIGHTED DISPLAY DIVISION
INFO-LITE CORPORATION

CROSSPOINT, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022, Tel: 201-941-4455; FSC No.: FSCM 52116; Empl.: 13; *Sls. Mgr.:* Joseph M. Cartelli; *Dist. Mgr.:* Joseph M. Cartelli .... **1B**•1574

Local Sales Offices & Reps

CA	No. Hollywood, Crown Elctrns.	213-877-3550
CA	Redwood City, Caltronic Assocs.	415-365-2545
CT	Weston, CJA Assoc.	203-226-4317
FL	St. Petersburg, R. L. Matus & Assocs.	813-896-4133
GA	Buford, R. L. Matus & Assocs.	404-945-2946
IL	Lake Zurich, L & B Assocs.	312-438-7917
MI	Brighton, Michigan Mktg. & Sls.	313-229-6218
NJ	Wayne, GT Assocs.	201-694-6040
NY	Syracuse, Lenard Co.	315-479-9191
OH	Cleveland, A.S.A.	216-662-6080
OH	Dayton, Mohawk Intronics	513-434-8873
TX	Dallas, Glidden Electro Equip.	214-341-0610
TX	Houston, Glidden Electro Equip.	713-681-1415

CROUSE HINDS/SEPCO CORP., 1200 Kennedy Rd., Windsor, CT 0695, Tel: 203-683-4300

CROUZET CONTROLS, INC., 1083 State Pkwy., Schaumburg, IL 60195, Tel: 312-843-2200, Telex: 206 297; Empl.: 14; *Sls. Mgr.:* Ben Delcourt .... **1B**•1140, 1332, 1333, 1575

Local Sales Offices & Reps

AZ	Phoenix, Motion Technology.	602-991-1782
CA	Anaheim, Motion Technology	714-777-4259
CA	Chatsworth, Motion Technology.	818-993-3762
CA	San Jose, Motion Technology	408-932-0990
CA	San Rafael, Motion Technology	415-459-2171
CO	Denver, Control Agency	303-936-6641
FL	Tamarac, Davmik Sls.	305-920-2222
GA	Stone Mountain, DTM, Inc.	404-962-2530
IL	Roselle, Michael J. Koepke Assoc.	312-980-1575
IA	Des Moines, Jack Davidson Co.	515-263-8478
MA	Wellesley, Electro Kinetics	617-235-9415
MI	Royal Oak, Dave Ray & Assocs.	313-280-0000
MN	Minneapolis, Jos-Co/Melius.	612-861-3343
MO	St. Charles, C-F Electronics, Sales	314-946-8500
NY	Fairport, Tac Sls.	716-425-1070
NY	Syosset, Motion Control Sls.	516-921-5656
NC	Tryon, Halliday & Assoc.	704-894-8205
OH	Cincinnati, Tom Mulligan & Assocs.	513-574-1932
OH	Columbus, Tom Mulligan Co.	614-457-2242
PA	Bensalem, William D. Staats Co.	215-639-5231
TX	Dallas, Automated Motion Control	214-340-4192
UT	Salt Lake City, Control Agency	801-328-4305
WA	Bellevue, Sea Inc.	206-883-4999
WA	Vancouver, Sea Inc.	206-573-5161

Local Distributors

CA	Burlingame, Elec. Control Devices	415-348-0791
CA	Los Angeles, Master Distr.	213-452-1229
FL	Pembroke Pines, Donza Intl.	305-987-1122
IL	Chicago, Excel Elec.	312-421-7220
IL	Wheeling, Hawk Elctrns.	312-459-4030
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Vonnegut Indl. Prods.	317-899-8800/8877
IN	Indianapolis, Graham Elctrns.	317-634-8202
IA	Bettendorf, Custom Controls Ltd.	319-335-4787
MA	Wellesley, Electro-Mechanical Distr.	617-235-1565
MI	Comstock Park, Mor Elec.	616-784-1121
MI	Grand Rapids, S-F Electronics	616-459-0216
MI	Royal Oak, George Instr. Co.	313-280-1111
MN	St. Paul, Powermation	612-645-0781
NE	Omaha, Lakeland Engrg.	402-734-2600
NJ	Edison, Howman Applied Control Prods.	201-797-3313
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	W. Trenton, Electronic Serv. Div. (Roller Bearing Co. of America)	609-882-7400
NY	Commack, Monarch Comps.	516-499-1770
NC	Asheville, Electric Supply Co.	704-255-8899
NC	Gastonia, J.M.T. Elctrn. Supp.	704-867-4401
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
ND	Bismarck, Border States Elec.	701-258-6060
OH	Cincinatti, Hughes-Peters.	513-351-2000
OH	Cleveland, Reserve Elec. Co.	216-771-5764
OH	Columbus, Hughes-Peters.	614-294-5351
OH	Dayton, Duellman Elctrns.	513-461-5010
OK	Tulsa, Radio.	918-587-9123
OR	Portland, Mill & Power Specialties	503-228-7621
PA	Allentown, P. A. Peters.	215-434-5237
PA	Philadelphia, Herbach & Rademan	215-426-1700
SC	Greenville, Holder Elec. Supp.	803-271-7111
TN	Chattanooga, Curle Elctrns.	615-266-4728
TX	Ft. Worth, Swieco.	817-335-6521
WA	Kent, Motors & Controls Corp.	206-872-8010
WA	Seattle, Eicher-Richards Co.	206-523-7888
WI	Waukesha, Powermation	414-542-2868

CROVEN CRYSTALS, 500 Beech St., Whitby, ON L1N 5S5, Canada, Tel: 416-668-3324, TWX: 610-384-2750; FSC No.: 00809; Empl.: 250; *Sls. Mgr.:* R. McCormick .... **1A**•1346

Local Sales Offices & Reps

AZ	Mesa, Sedco Sls.	602-835-6281
CA	San Mateo, Melvin Sls.	415-349-7444
CA	Van Nuys, R.L. Assocs.	213-782-7826
FL	Palm Bay, Spartech Assocs.	305-727-8045
GA	Smyrna, Spartech Assocs.	404-432-3644
MA	Milton, Naton Assoc.	617-698-0670
MO	Blue Springs, Chesco	816-229-1404
MO	St. Charles, Chesco	314-946-6677
NJ	Cherry Hill, Harry J. White	609-428-4544
NY	Melville, Carnes Assocs.	516-694-1600
OH	Englewood, Clayton-Ellier Co.	513-836-3556
TX	Arlington, W. Pat Fralia	817-640-9101
VA	Springfield, Tech Reps Inc.	703-569-6868
WI	Mequon, Artmor Ltd.	414-241-4040

CRYDOM DIVISION, Int'l. Rectifier, 1521 Grand Ave., El Segundo, CA 90245, Tel: 213-322-4987, Telex: 67-4660, TWX: 910-348-6283; Empl.: 100; *Sls. Mgr.:* John Deith; *Dist. Mgr.:* Bob Arnstein

CRYOMAGNETICS, INC., 795 Oak Ridge Tpk., Oak Ridge, TN 37830, Tel: 615-482-9551; *Sls. Mgr.:* R. M. Ennis, Jr.

CRYSTALOID ELCTRNS., Box 628, Hudson, OH 44236, Tel: 216-655-2429, Telex: 241-244; Empl.: 130; *Sls. Mgr.:* Sharon Werstler .... **1B**•1031

CRYSTEK CORP, P.O. Box 06135, Ft. Myers, FL 33906, Tel: 813-936-2109, TWX: 510-951-7448; FSC No.: 13454; Empl.: 2500

CSI Capacitors

CSI CAPACITORS, CSI Technlgs., 810 Rancheros Dr., San Marcos, CA 92069, Tel: 619-747-4000, Telex: 697832; FSC No.: 10026; Empl.: 50; *Sls. Mgr.:* H. R. Smith .... **1A**•1021

Local Sales Offices & Reps

AZ	Tempe, Cleveland Entprs. of AZ	602-820-1127
CA	San Jose, Silicon Valley Sls.	408-286-7510
CA	Tarzana, High Voltage Sls.	213-881-9194
FL	Orlando, Glenn Tech. Sls. Co.	305-299-8700
IL	Chicago, Esco Assocs.	312-763-0800
KY	Louisville, K. W. Electronic Sls.	512-451-1860
MA	Framingham, Sullivan Tech. Sls.	617-620-0195
NJ	Leonia, Peter E. Schmitt Co.	201-944-2806
NM	Albuquerque, Cleveland Entprs.	505-265-7893
NY	Cazenovia, S. T. Woolard	315-655-8145
OH	Dayton, K. W. Electronic Sls.	513-890-2150
PA	Washington Crossing, DVS Company	215-493-4642
TX	Dallas, Cunningham Comps. Corp.	214-233-4303
TX	Houston, Cunningham Comps. Corp.	713-461-4197

C-TEK
INCORPORATED

C-TEK INC., 4 Railroad Ave., Wakefield, MA 01880, Tel: 617-246-1720, Telex: 882485; Empl.: 15; *Sls. Mgr.:* John Vanaman .... **3**•1126, 1127

Local Sales Offices & Reps

CO	Boulder, Measurement Consits. of CO	303-499-7506
CT	Ansonia, R. H. Sturdy Co.	203-734-2186
MA	Waltham, Calibron Instrs.	617-894-6440
MA	Wellesley Hills, R. H. Sturdy Co.	617-235-2330
MI	Southfield, Fred H. Gehrke & Assocs.	313-559-5363
MN	St. Paul, Northstar Motion & Control	612-770-5311
NY	Clarence, Trott Elctrns.	716-634-8500
NY	Pittsford, Trott Elctrns.	716-586-8251
NY	Syosset, Motion Control Sls.	516-921-5656
NC	Charlotte, Jake Rudisill Assocs.	704-377-6901
NC	Charlotte, Trott Elctrns.	704-376-2237
PA	Carnegie, N. H. Andrews Co.	412-279-5335
VA	Richmond, Jake Rudisill Assocs.	804-320-0201
WA	Seattle, Eicher-Richards Co.	206-523-7888

CTI-CRYOGENICS, 266 Second Ave, Waltham, MA 02254, Tel: 617-890-9400, Telex: 92-3442; Empl.: 350; *Sls. Mgr.:* R. A. Bryce

CTS® CORPORATION*

CTS CORP., 905 North West Blvd., Elkart, IN 46514, Tel: 219-293-7511, TWX: 810-294-2167; Empl.: 6,800; *Dist. Mgr.:* J. C. Wells

Local Sales Offices & Reps

AL	Huntsville, Interep Assocs.	205-533-1730
AZ	Phoenix, Compass Mktg. & Sls.	602-266-5400

CA	Pleasanton, CTS Corp.	415-462-6635
CA	South Pasadena, CTS Corp.	213-682-1137
CO	Denver, ELCOM	303-337-2300
CT	North Haven, CompRep Assocs.	203-239-9762
FL	Altamonte Springs, Electrocomp Assocs.	305-331-0173
FL	Deerfield Beach, Electrocomp Assocs.	305-429-0802
FL	Melbourne, Electrocomp Assocs.	305-242-0621
FL	St. Petersburg, Electrocomp Assocs.	813-327-9677
GA	Norcross, Interep Assocs.	404-449-8680
IL	Addison, CTS Corp.	312-543-5021
IN	Indianapolis, Elctrn. Reps.	317-894-1414
IA	Cedar Rapids, Seltec Sls. Corp.	319-393-1114
KS	Overland Park, Advanced Tech. Sls.	913-642-6675
MD	Baltimore, Professional Reps.	301-653-3600
MA	Westwood, CompRep Assocs.	617-329-3454
MI	Grand Rapids, J. L. Montgomery Assocs.	616-774-9308
MI	Southfield, J. L. Montgomery Assocs.	313-358-2616
MN	Minneapolis, Robert W. Marshall Co.	612-929-0457
MO	St. Louis, Advanced Tech. Sls.	314-227-4448
NM	Albuquerque, Compass Mktg. & Sls.	505-292-7377
NY	E. Syracuse, Nycom	315-437-8343
NY	Jamaica, S-J Sales Assocs.	212-291-3232
NC	Raleigh, Zucker Assocs.	919-782-8433
OH	Cleveland, Baehr, Greenleaf & Assocs.	216-221-9030
OH	Columbus, Baehr, Greenleaf & Assocs.	614-486-4046
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
OK	Tulsa, Southern States Mktg.	918-665-8338
PA	Mars, Baehr, Greenleaf & Assocs.	412-776-2151
PA	Trevose, P.S.A. Inc.	215-245-0513
TN	Greeneville, Interep Assocs.	615-639-3491
TX	Austin, Southern States Mktg.	512-452-9459
TX	Houston, Southern States Mktg.	713-558-4900
TX	Richardson, Southern States Mktg.	214-238-7500
UT	Salt Lake City, ELCOM	801-532-7940
WA	Bellevue, SD-R² Prods. & Sls.	206-747-9424
EXP	Elkhart, Indiana, CTS Corp.	219-293-7511
PR	Mayaguez, CompRep de Puerto Rico	809-832-9529

CTS CORPORATION, Asheville Division, P.O. Box 100, Skyland, NC 28776, Tel: 704-684-6451, TWX: 510-935-0059; *Sls. Mgr.:* T. B. Haney

CTS CORPORATION*
BERNE DIVISION

CTS OF BERNE, 406 Parr Rd., Berne, IN 46711, Tel: 219-589-3111, TWX: 810-323-1580; Empl.: 975; *Sls. Mgr.:* James A. Long 1A•1836-1844, 2036

Local Sales Offices & Reps

AL	Huntsville, Interep Assocs.	205-533-1730
AZ	Phoenix, Compass Mktg. & Sls.	602-266-5400
CA	Pleasanton, CTS Corp.	415-462-6635
CA	South Pasadena, CTS Corp.	213-682-1137
CO	Denver, ELCOM	303-337-2300
CT	N. Haven, CompRep Assocs.	203-239-9762
FL	Ft. Lauderdale, Electrocomp Assocs.	305-491-4141
FL	Melbourne, Electrocomp Assocs.	305-242-0621
FL	St. Petersburg, Electrocomp Assocs.	813-327-9677
GA	Norcross, Interep Assocs.	404-449-8680
IL	Addison, CTS Corp.	312-543-5021
IN	Elkhart, CTS Corp.	219-293-7511
IA	Cedar Rapids, Seltec Sls. Corp.	319-393-1114
KS	Overland Park, Advanced Tech. Sls.	913-492-4333
MD	Baltimore, Professional Reps.	301-653-3600
MA	Westwood, CompRep Assocs.	617-329-3454
MI	Grand Rapids, J. L. Montgomery Assocs.	616-774-9308
MI	Southfield, J. L. Montgomery Assocs.	313-358-2616
MN	Minneapolis, Robert W. Marshall Co.	612-929-0457
MO	St. Louis, Advanced Tech. Sls.	314-227-4448
NJ	Haddonfield, Tritek Sls.	609-429-1551
NM	Albuquerque, Compass Mktg. & Sls.	505-292-7377
NY	E. Syracuse, Nycom	315-437-8343
NY	Jamaica, S-J Sales Assocs.	212-291-3232
NC	Raleigh, Zucker Assocs.	919-782-8433
OH	Cincinnati, Baehr, Greenleaf & Assocs.	513-891-3827
OH	Cleveland, Baehr, Greenleaf & Assocs.	216-221-9030
OH	Columbus, Baehr, Greenleaf & Assocs.	614-486-4046
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
OR	Beaverton, SD-R² Prods. & Sls.	503-641-7377
PA	Pittsburgh, Covert & Newman Co.	412-531-2002
TN	Knoxville, Interep Assocs.	615-584-0191
TX	Addison, Southern States Mktg.	214-248-8600
TX	Austin, Southern States Mktg.	512-452-9459
TX	Houston, Southern States Mktg.	713-988-0991
UT	Salt Lake City, ELCOM	801-532-7940
VA	Charlottesville, Professional Reps.	804-977-0031
WA	Bellevue, SD-R² Prods. & Sls.	206-747-9424
PR	Mayaguez, CompRep de Puerto Rico	809-832-9529

Local Distributors

AL	Huntsville, Hall-Mark/Huntsville	205-837-8700
AL	Huntsville, RM Electronics Co.	205-852-1550
AZ	Phoenix, R. V. Weatherford Co.	602-272-7144
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tempe, Marshall Inds.	602-968-6181
CA	Burlingame, Rose Elctrns.	415-348-2740
CA	Canoga Park, Marshall Inds.	213-999-5001
CA	Chatsworth, Arrow/Los Angeles	213-701-7500
CA	El Monte, Marshall Inds.	213-442-7204
CA	Gardena, Bell Inds.	213-515-1800
CA	Glendale, R. V. Weatherford Co.	213-849-3451
CA	Hayward, Allied Elctrns.	415-487-5250
CA	Hayward, Arrow/Primary West	415-487-4300
CA	Irvine, Marshall Inds.	714-556-6400
CA	Irvine, Ratel/Irvine	714-549-8611
CA	Los Angeles, Western Electromotive	213-820-3777
CA	Newport Beach, Arrow/Newport Beach	714-851-8961
CA	San Diego, Marshall Inds.	619-578-9600
CA	San Diego, Western Electromotive/Intercon	619-271-4511
CA	San Diego, R. V. Weatherford Co.	619-695-1700
CA	San Diego, Arrow/San Diego	619-565-4800
CA	San Jose, Ratel/San Jose	408-946-4300
CA	Santa Clara, Western Electromotive	408-985-7411
CA	Sunnyvale, Arrow/Sunnyvale	408-745-6600
CA	Sunnyvale, Bell Inds.	408-734-8570
CO	Denver, Integrated Elctrns. Co.	303-534-6121
CO	Denver, Arrow/Denver	303-758-2100
CO	Englewood, R. V. Weatherford Co.	303-428-6900
CO	Englewood, Industrial Elctrns.	303-694-9444
CO	Lakewood, Ratel/Denver	303-232-8830
CT	Wallingford, Arrow/Wallingford	203-265-7741
CT	Wallingford, Midan Elctrns.	203-265-2077
CT	Wallingford, Marshall Inds.	203-265-3822
FL	Dania, Summit Distrs.	305-920-6253
FL	Ft. Lauderdale, Arrow/Ft. Lauderdale	305-971-7160
FL	Ft. Lauderdale, Hall-Mark/Ft. Lauderdale	305-971-9280
FL	Longwood, MRP Micro Elctrns.	305-331-8787
FL	Orlando, Hall-Mark/Orlando	305-855-4020
FL	Orlando, Marshall Inds.	305-841-1878
FL	Palm Bay, Arrow/Palm Bay	305-725-1480
GA	Norcross, Arrow/Norcross	404-449-8252
GA	Norcross, Hall-Mark/Norcross	404-447-8000
IL	Bensenville, Hall-Mark/Elk Grove Vlg.	312-860-3800
IL	Chicago, Bell Inds.	312-982-9210
IL	Elgin, Allied Elctrns.	312-697-8200
IL	Lombard, RM Electronics Co.	312-932-5150
IL	Schaumburg, Arrow/Schaumburg	312-893-9420
IN	Indianapolis, RM Electronics Co.	317-247-9701
IN	Indianapolis, Arrow/Indianapolis	317-243-9353
KS	Lenexa, Hall-Mark/Kansas City	913-888-4747
MD	Baltimore, Hall-Mark/Baltimore	301-796-9300
MD	Baltimore, RESCO/Baltimore	301-823-0070
MD	Baltimore, Arrow/Baltimore	301-247-5200
MD	Beltsville, RESCO/Washington	301-937-9100
MA	Newton, Greene-Shaw Co.	617-969-8900
MA	Woburn, Time Elctrns.	617-935-8080
MA	Woburn, Arrow/Boston	617-933-8130
MI	Ann Arbor, Arrow/Ann Arbor	313-971-8220
MI	Grand Rapids, Arrow/Grand Rapids	616-233-0912
MI	Grand Rapids, RM Electronics Co.	616-531-9300
MI	Kalamazoo, RS Electronics	616-381-5470
MI	Livonia, RS Electronics	313-525-1155
MN	Bloomington, Hall-Mark/Minneapolis	612-854-3223
MN	Edina, Arrow/Edina	612-830-1800
MN	Minneapolis, Industrial Comps.	612-831-2666
MN	Plymouth, Marshall Inds.	612-559-2255
MO	Maryland Heights, Hall-Mark/St. Louis	314-291-5350
MO	St. Louis, Arrow/St. Louis	314-567-6888
MO	St. Louis, Olive Elctrns.	314-426-4500
NE	Lincoln, Scott Elctrn. Supp.	402-466-8221
NE	Omaha, Scott Elctrn. Supp.	402-734-6750
NJ	Cherry Hill, Hall-Mark/New Jersey	215-355-7300
NJ	Fairfield, Arrow/New Jersey	201-575-5300
NJ	Fairfield, Marshall Inds.	201-882-0320
NJ	Moorestown, Arrow/Moorestown	215-928-1800
NJ	Nutley, Vantage Comps.	201-667-1640
NM	Albuquerque, Arrow/Albuquerque	505-243-4566
NM	Albuquerque, Bell Inds.	505-292-2700
NY	Buffalo, Summit Distrs.	716-884-3450
NY	East Syracuse, Marshall Inds.	315-432-0644
NY	Endwell, Marshall Inds.	607-754-1570
NY	Farmingdale, Arrow Elctrns.	516-694-6800
NY	Farmingdale, Arrow Intl.	516-694-6800
NY	Hauppauge, Fairmont Elctrn. Sls.	516-231-3313
NY	Hauppauge, Arrow/Long Island	516-694-6800
NY	Jamaica, Archer Indl. Dist.	212-291-3232
NY	Liverpool, Arrow/Syracuse	315-652-1000
NY	Mount Vernon, QAR Electronics	914-699-2224
NY	Rochester, Arrow/Rochester	716-275-0300
NY	Rochester, Marshall Inds.	716-235-7620
NY	Rochester, Rochester Radio Supp.	716-454-7800
NY	Rochester, Summit of Rochester	716-334-8110
NY	Rome, Rome Elctrns.	315-337-5400
NC	Raleigh, Hall-Mark/Raleigh	919-832-4465
NC	Raleigh, Arrow/Raleigh	919-876-3132
NC	Raleigh, RESCO/Raleigh	919-781-5700
NC	Winston-Salem, Arrow/Winston-Salem	919-725-8711
OH	Centerville, Arrow/Dayton	513-435-5563
OH	Cincinnati, Arrow/Cincinnati	513-761-5432
OH	Dayton, Marshall Inds.	513-236-8088
OH	Highland Heights, Hall-Mark/Cleveland	216-473-2907
OH	Solon, Arrow/Solon	216-248-3990
OH	Westerville, Hall-Mark/Columbus	614-891-4555
OK	Tulsa, Hall-Mark/Tulsa	918-665-3200
OR	Lake Oswego, Moore Elctrns.	503-635-8823
PA	McKean, Advacom	814-476-7774
PA	Monroeville, Arrow/Pittsburgh	412-351-4000
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	Philadelphia, TRW Elctrns. Supp.	215-922-8900
TX	Addison, Captronics/Dallas	214-980-0123
TX	Austin, Arrow/Austin	512-835-4180
TX	Austin, Captronics/Austin	512-459-4328
TX	Dallas, Arrow/Dallas	214-386-7500
TX	Dallas, R. V. Weatherford Co.	214-980-1110
TX	Dallas, Hall-Mark/Dallas	214-341-1147
TX	Fort Worth, Allied Elctrns.	817-336-5401
TX	Houston, R. V. Weatherford Co.	713-688-7406
TX	Stafford, Southwest Elctrns.	713-491-4900
TX	Stafford, Arrow/Houston	713-491-4100
UT	Salt Lake City, Standard Supply Co.	801-486-3371
UT	Salt Lake City, Bell Inds.	801-972-6969
WA	Bellevue, Arrow/Seattle	206-643-4800
WA	Seattle, Zepher Elctrn. Sls. Corp.	206-241-1980
WA	Seattle, R. V. Weatherford Co.	206-575-1340
WA	Seattle, Western Electromotive	206-575-1910
WI	Oak Creek, Arrow/Wisconsin	414-764-6600
WI	Oak Creek, Hall-Mark/Oak Creek	414-761-3000

CTS ELECTRONICS CORP., PASO ROBLES DIV., Electromechanical Gp., 500 Linne Rd., Paso Robles, CA 93446, Tel: 805-238-0350, TWX: 910-351-6796; *Sls. Mgr.:* Jack Bell; *Dist. Mgr.:* Bob Tarkenton 1B•1576-1580

CTS FABRI-TEK, INC., Connector Div., 9210 Science Center Dr., Minneapolis, MN 55428, Tel: 612-533-3533, TWX: 910-576-2717; Empl.: 300; *Sls. Mgr.:* John B. McKee 2•1246-1248

Local Sales Offices & Reps

AL	Huntsville, Interep Assocs.	205-533-1730
AZ	Phoenix, Compass Mktg.	602-266-5400
CA	South Pasedena, CTS Corp.	213-682-1137
CO	Denver, ELCOM, Inc.	303-337-2300
CT	Danbury, CTS Corp.	203-743-3681
FL	Ft. Lauderdale, Electrocomp Assocs.	305-491-4141
GA	Norcross, Interep	404-449-8680
IL	Addison, CTS Corp.	312-543-5021
IN	Indianapolis, Elctrn. Rep.	317-894-1414
IA	Cedar Rapids, Seltec	319-393-1114
MD	Baltimore, Pro Representatives	301-653-3600
MI	Southfield, J. L. Montgomery	313-358-2616
MN	Minneapolis, S & R Sls.	612-559-3090
NY	Jamaica, S. J. Assocs.	212-291-3232
NY	Pittsford, Kirby Mktg.	716-248-8750
NC	Raleigh, Zucker Assocs.	919-782-8433
OH	Cleveland, Baehr, Greenleaf & Assocs.	216-221-9030
OK	Tulsa, Southern States Mktg.	918-665-8338
OR	Portland, SD-R⅜¢2 Prods.	503-297-8677
PA	Trevose, PSA, Inc.	215-245-0513
TN	Knoxville, Interep Assocs.	615-584-0191
TX	Dallas, Southern States Mktg.	214-238-7500
TX	Houston, Southern States Mktg.	713-558-4900
UT	Salt Lake City, ELCOM, Inc.	801-532-7940
VA	Charlottesville, Pro Representatives	804-977-0031
WA	Bellevue, SD-R² Prods. & Sls.	206-747-9424

CTS FABRI-TEK, INC., 6900 Shady Oak Rd., Eden Prairie, MN 55344, Tel: 612-941-9100, TWX: 910-576-2913; FSC No.: 21542; Empl.: 1400; *Sls. Mgr.:* Bruce Richardson

CTS KNIGHTS, 400 Reimann Ave., Sandwich, IL 60548, Tel: 815-786-8411, TWX: 910-642-0860; Empl.: 500; *Sls. Mgr.:* Larry Barbary; *Dist. Mgr.:* Larry Barbary 1A•1333-1345

Local Sales Offices & Reps

AL	Huntsville, Interep Assocs.	205-533-1730
AZ	Phoenix, Compass Mktg. & Sls.	602-266-5400
CA	Pleasanton, CTS Corp.	415-462-6635
CA	S. Pasadena, CTS Corp.	213-682-1137
CO	Denver, Elcom	303-337-2300
CT	North Haven, CompRep Assocs.	203-239-9762

FL	Deerfield Beach, Electrocomp Assocs.	305-429-0802
FL	Melbourne, Electrocomp Assocs.	305-242-0621
FL	St. Petersburg, Electrocomp Assocs.	813-327-9677
GA	Norcross, Interep Assocs.	404-449-8680
IL	Addison, CTS Corp.	312-543-5021
IN	Indianapolis, E.R.I.	317-894-1414
IA	Cedar Rapids, Seltec Sls. Corp.	319-393-1114
KS	Overland Park, Advanced Tech. Sls.	913-642-6674
MD	Baltimore, Pro Rep	301-653-3600
MA	Westwood, CompRep Assocs.	617-329-3454
MI	Grand Rapids, J. L. Montgomery Assocs.	616-774-9308
MI	Southfield, J. L. Montgomery Assocs.	313-358-2616
MN	Minneapolis, Robert W. Marshall Co.	612-929-0457
MO	St. Louis, Advanced Tech. Sls.	314-227-4448
NM	Albuquerque, Compass Mktg. & Sls.	505-292-7377
NY	E. Syracuse, Nycom	315-437-8343
NY	Jamaica, S-J Sales Assocs.	212-291-3232
NC	Raleigh, Zucker Assocs.	919-782-8433
OH	Cleveland, Baehr, Greenleaf & Assocs.	216-221-9030
OH	Columbus, Baehr, Greenleaf & Assocs.	614-486-4046
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
TN	Greeneville, Interep Assocs.	615-639-3491
TX	Austin, Southern States Mktg.	512-452-9459
TX	Houston, Southern States Mktg.	713-558-4900
TX	Richardson, Southern States Mktg.	214-238-7500
UT	Salt Lake City, Elcom	801-532-7940
WA	Bellevue, SD-R² Prods. & Sls.	206-747-9424

CTS MICROELECTRONICS, INC., 1201 Cumberland Ave., W. Lafayette, IN 47906, Tel: 317-463-2565, TWX: 810-342-1882; Empl.: 505; *Sls. Mgr.:* David C. Anderson .... **1A**•1646-1651

Refer to CTS Corp. for distributor & sales office information.

CTS HALEX, 1202 McGaw Ave., Irvine, CA 92714, Tel: 714-556-2850, TWX: 910-595-2648; Empl.: 70; *Sls. Mgr.:* Gene P. Markley

Refer to CTS Corp for distributor & sales office information.

CTS METAL PRODS., Jose Division, 660 Lenfest Rd., San Jose, CA 95113, Tel: 408-251-1600, Telex: 910-997-8006; Empl.: 500; *Sls. Mgr.:* Ed King; *Dist. Mgr.:* Charles Nadler

CUESTA SYSTEMS, INC., 3440 Roberta Ct., San Luis Obispo, CA 93401, Tel: 805-541-4160; *Sls. Mgr.:* David V. Dickey

CUPLEX, INC., 1500 E. Hwy. 66, Garland, TX 75040, Tel: 214-276-0333, TWX: 910-860-5098; *Sls. Mgr.:* Grady C. Young

CURRENTECHNOLOGY CORP., 135 Prestige Pk. Circle, E. Hartford, CT 06108, Tel: 203-289-6831, TWX: 710-425-6063; *Sls. Mgr.:* Bob Ramage

CURTIS ELECTRO DEVICES, INC., Box 4090, Mountain View, CA 94040, Tel: 415-964-3846; Empl.: 12; *Sls. Mgr.:* J. Curtis

CURTIS INDS., 8000 West Tower Ave., Milwaukee, WI 53223, Tel: 414-354-1500, TWX: 910-262-3035; Empl.: 160

CURTIS

CURTIS INSTRS., INC., 200 Kisco Ave., Mt. Kisco, NY 10549, Tel: 914-666-2971, TWX: 710-571-2163; FSC No.: 18530; Empl.: 95; *Sls. Mgr.:* Rhoda McDonald .... **3**•1128

Local Sales Offices & Reps

AZ	Phoenix, O'Donnell Assoc.	602-944-9542
CA	Burlingame, Polach & Bensinger	415-697-2525
CA	Seal Beach, Texel Engrg.	213-596-9411
CO	Littleton, Grifco	303-795-1989
FL	Longwood, NSL Assocs.	305-629-5226
IL	La Grange Park, Bierhaus Sls.	312-354-5100
IN	Ft. Wayne, Aktron Sls.	219-747-3650
MA	Brookline, Harman Assocs.	617-232-6687
MN	Minnetonka, S. J. Collins	612-933-7661
NY	Manhasset, WinCor Elctrn. Sls. Corp.	516-627-9474
NY	Syracuse, C & L Sales	315-451-7810
OH	Chagrin Falls, K. F. Naverz	216-338-8450
PA	Media, W. Reeves Assocs.	215-566-6709
TX	Dallas, Etron Corp.	817-430-8422
WA	Lynnwood, Blum & Assocs.	206-775-6656
WI	Milwaukee, Bierhaus Sls.	414-963-0318

CUSHMAN ELCTRNS., 2450 N. 1st St., San Jose, CA 95131, Tel: 408-263-8100, TWX: 810-338-0556; Empl.: 400; *Sls. Mgr.:* Harris Fuller

CUSTOM CABLE, 242 Butler, Westbury, NY 11590, Tel: 516-334-3600; Empl.: 13; *Sls. Mgr.:* J. Michelman; *Dist. Mgr.:* D. Pollack

CUSTOM COIL & TRANSFORMER CO., Box 2369, Zanesville, OH 43701, Tel: 614-452-6973, TWX: 810-238-2629; Empl.: 80

CUSTOM CONNECTOR, 1738 E. 30th St., Cleveland, OH 44114, Tel: 216-241-1679; Empl.: 36; *Sls. Mgr.:* Larry Weider .... **2**•1249

Local Sales Offices & Reps

CA	Mountain View, Westech Sls.	415-961-1422
CT	Glastonbury, Barton Assoc.	203-633-9417
FL	Longwood, Vic Murray & Assoc.	305-831-0877
IL	Arlington Hgts., Langdon Engrg.	312-364-0830
MD	Baltimore, Haacke Assoc.	301-889-7875
MA	Waban, Barton Assoc.	617-965-8590
NC	Charlotte, J.W.L. Assoc.	704-523-3001
WI	Shorewood, Werking Ind. Sls.	414-964-2225

CUSTOM CONTROL SYS., 21 E. Canon Perdido St., Santa Barbara, CA 93101, Tel: 805-965-7577; Empl.: 2; *Sls. Mgr.:* Fred Winter

CUSTOM ELCTRNS., Browne St., Oneonta, NY 13820, Tel: 607-432-3880, TWX: 510-241-8292; FSC No.: 23280; Empl.: 100; *Sls. Mgr.:* D. Hathaway

CUSTOM PRODS. GRP., Sys. Dev. Corp.-A Burroughs Co., P.O. Box 517, Paoli, PA 19301, Tel: 215-648-2241, Telex: 215-647-9961, TWX: 510-668-7243; *Sls. Mgr.:* Spiro Greenwood; *Dist. Mgr.:* Joseph Benn

CUSTOM SCI. INSTRS., 13 Wing Dr., Cedar Knolls, NJ 07927, Tel: 201-538-8500, Telex: 25-4328; Empl.: 20; *Sls. Mgr.:* Henry J. Bultman, Jr.

CUTLER HAMMER GRP., EATON CORP., Aerospace Controls/Systems Div., 2074 Whitfield Ave. East, Sarasota, FL 33578, Tel: 813-758-7726

CUTLER-HAMMER, INC., SHALLCROSS RESISTOR PRODS., See Shallcross, Inc.

CUTLER-HAMMER PRODS., See Eaton Corp./Cutler-Hammer Prods.

CVC PRODS., 525 Lee Rd., Rochester, NY 14603, Tel: 716-458-2550, Telex: 97-8269; Empl.: 160; *Sls. Mgr.:* Steven Rothstein

CYBERNETIC MICRO SYS., P.O. Box 3000, 3000 Hwy. 84, San Gregorio, CA 94074, Tel: 415-726-3000, Telex: 171-135 Attn: CYBERNETICS; *Sls. Mgr.:* K. Moty

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Local Distributors

CA	Los Angeles, Automation Sys. & Svcs.	213-776-2424
MA	Wellesley Hills, Electro-Mechanical Distr.	617-235-1565
MI	Royal Oak, D. T. Randall Assocs.	313-546-5707
MN	St. Paul, Power/Mation Div.	612-645-0781
OH	Cincinnati, A.T.R. Distrbg.	513-574-8500
OH	Cleveland, Adcor Engrg.	216-238-3915
WI	Waukesha, Power/Mation	414-542-2868

CYBERSYSTEMS, INC., 7540 South Memorial Pkwy., Huntsville, AL 35802, Tel: 205-883-4410; FSC No.: 66; Empl.: 25; *Sls. Mgr.:* Mike Long

CYBER SYS., INC., 2031 E. Cerritos Ave., Anaheim, CA 92806, Tel: 714-722-2051, Telex: 692-375; *Sls. Mgr.:* Charles Muhle

CYCLO-TRONICS, INC., 1345 N. Old Rand Rd., Wauconda, IL 60084, Tel: 312-526-0800; Empl.: 10

CYTEC CORP., 107 N. Washington St., E. Rochester, NY 14445, Tel: 716-381-4740; *Sls. Mgr.:* Harry Turner .... **3**•1213

Local Sales Offices & Reps

FL	Osprey, Dick Ridgewell Co.	813-966-4401
MA	Burlington, Tritek	617-272-4550
NY	Frankfort, Kapital Sls.	315-896-4225

DABURN ELCTRNS. & CABLE, 70 Oak St., Norwood, NJ 07648, Tel: 201-768-5400, TWX: 710-991-9856; FSC No.: 25706; *Sls. Mgr.:* Randy Hibshman .... **2**•2083-2093

Local Sales Offices & Reps

AR	Little Rock, Leo Barker	501-835-0978
CA	Anaheim, Galaxie Sales	714-752-1580
CA	Redwood City, Hickey Ind'l. Sls.	415-368-3840
FL	Casselberry, HA Inc.	305-695-8592
FL	Coral Springs, H A Inc.	305-752-7520
IL	Elgin, Marican Sls.	312-888-2207
IN	Indianapolis, Sukup & Cox	317-253-5501
MA	No. Scituate, W. A. Hendrickson	617-545-0652
MN	Minneapolis, RIL Sls.	612-786-5713
NY	Fairport, Paul Arness Assoc.	716-223-4923
NY	N.Y.C., Robt. Smith Assoc.	212-541-4885
NY	Plainview, R. Smith Assoc.	516-681-3155
OH	Cinn, John Olsen Co.	513-574-7711
OH	Goshen, John Olsen Co.	513-722-1497
OR	Beaverton, R & R Assocs.	503-644-8077
PA	King of Prussia, Freedman-Malta	215-337-9211
PA	Pittsburgh, John Olsen Co.	412-279-2550
TX	Richardson, Eagle Marketing	214-238-5383
VA	Arlington, Howard Golonpaul & Assoc.	703-525-5898
WA	Kent, R & R Assocs.	206-251-5396

DADEN ASSOCS., 23011 Moulton Pkwy., Ste. A12, Laguna Hills, CA 92653, Tel: 714-770-1522, TWX: 910-596-1324; FSC No.: 57032; Empl.: 21; *Sls. Mgr.:* Dennis Hook

DAICO INDUSTRIES, INC.

DAICO INDS., INC., Box 5225, Compton, CA 90224, Tel: 213-631-1143, TWX: 910-346-6741; FSC No.: 28983; Empl.: 115; *Sls. Mgr.:* James Adamson .... **1A**•1692-1703

Local Sales Offices & Reps

AZ	Phoenix, Faser Tech. Sls.	602-948-4404
CA	Los Altos, Cain-White & Co.	415-948-6533
CA	Los Angeles, Midwin & Olifson	213-838-3455
CA	San Diego, Midwin & Olifson, Inc.	619-571-0177
FL	Palm Bay, Spartech Assocs.	305-727-8045
GA	Smyrna, Spartech Assocs.	404-432-3644
IL	Mt. Prospect, Cain-Forlaw Co.	312-253-3578
ME	Ogunquit, Micronic Assocs.	617-933-2121
MD	Burtonsville, Eastern Instrmn.	301-384-8500
NY	Hartsdale, Spectrum Sls.	914-472-8600
OH	Lancaster, Cain-Forlaw Co.	614-654-4800
PA	Newtown Square, SWR Assocs.	215-353-6711
TX	Dallas, McDonald Assocs.	214-238-1858
TX	Ft. Worth, McDonald Assocs.	817-429-4272

DAI-ICHI SHOJI OF AMER., INC., 150 Fifth Ave., New York, NY 10011, Tel: 212-691-9050, Telex: 429120 DSANY; Empl.: 3; *Sls. Mgr.:* A. Takayama .... **1A**•1064; **1B**•1583; **2**•1254

DALE®

DALE ELECTRONICS, INC., Columbus Div., Box 609, 2064 12th Ave., Columbus, NE 68601, Tel: 402-564-3131, TWX: 910-626-8314; FSC No.: 91637; Empl.: 2800; *Sls. Mgr.:* Darrel Smejkal; *Dist. Mgr.:* Jerry Jilek .... **1B**•1032-1034

Local Sales Offices & Reps

AL	Huntsville, JWL Assoc.	205-536-8410
AZ	Tempe, Dale Elctrns. Sls.	602-966-0291
CA	Los Alamitos, Reed Elctrn. Mktg.	213-598-6676
CA	Redwood City, J. S. Heaton Co.	415-367-9000
CA	San Diego, Reed Elctrn. Mktg.	619-452-1456
CO	Loveland, Dale Elctrns. Sls.	303-667-7500

CT	West Hartford, Kaelber & Mack, Inc.	203-667-4514
FL	Lake Park, Graham Assocs.	305-622-4049
FL	Melbourne, Graham Assocs.	305-773-6631
FL	Winter Garden, Graham Assocs.	305-656-9369
GA	Marietta, JWL Assoc.	404-429-8010
IL	Chicago, Indl. Reps.	312-647-7755
IN	Fort Wayne, Scott Elctrns.	219-484-7865
IN	Indianapolis, Scott Elctrns.	317-897-9976
KS	Shawnee Mission, Dale Sls.	913-432-9140
MD	Millersville, Tri-Mark	301-987-9103
MA	Wakefield, Howard C. Jappe Co.	617-245-9359
MI	Plymouth, Jay Mktg. Assoc.	313-459-1200
MN	Bloomington, Merrill Franklin Co.	612-854-9446
NJ	Fairlawn, Kaelber & Mack	201-797-7782
NJ	Oakland, Kaelber & Mack, Inc.	201-337-4520
NY	Commack, Kaelber & Mack	516-499-2924
NY	Ithaca, Dale Elctrns. Sls.	607-272-6212
NC	Charlotte, JWL Assoc.	704-523-3001
NC	Raleigh, JWL Assocs.	919-787-4826
OH	Cincinnati, Scott Elctrns.	513-791-2513
OH	Cleveland, Scott Elctrns.	216-473-5050
OH	Dayton, Scott Elctrns. Inc.	513-294-0539
OH	Reynoldsburg, Scott Elctrns.	614-863-1281
OR	Beaverton, LD Elctrns:	503-649-6177
PA	Horsham, TMI	215-441-4300
PA	Pittsburgh, Scott Elctrns.	412-963-6116
TX	Dallas, E. F. Aymond Co.	214-826-7620
TX	Houston, E. F. Aymond Co.	713-880-8229
TX	San Antonio, E. F. Aymond Co.	512-366-1526
VA	Lynchburg, Tri-Mark	804-528-0681
WA	Snohomish, LD Elctrns.	206-568-0511
WA	Spokane, LD Elctrns.	509-922-4883
WI	Milwaukee, Indl. Reps.	414-259-0965

Local Distributors

AL	Huntsville, Hamilton/Avnet	205-837-7210
AZ	Tempe, Acacia Sls. Inc.	602-894-2874
AZ	Tempe, T.T.I., Inc.	602-966-1616
AZ	Tempe, Hamilton/Avnet	602-231-5100
AZ	Tempe, Shelley Elctrns.	602-894-2058
CA	Chatsworth, Avnet Elctrns.	818-700-2600
CA	Chatsworth, Shelly Elctrns.	818-998-3333
CA	Costa Mesa, Avnet Elctrns.	714-754-6111
CA	Costa Mesa, Hamilton Electro Sls.	714-641-4100
CA	Culver City, Hamilton Electro Sls.	213-558-2121
CA	Huntington beach, Inductor Supp. Inc.	714-891-4524
CA	Irvine, Acacia Sls.	213-971-2428
CA	N. Hollywood, T.T.I., West	213-982-0201
CA	Sacramento, Hamilton/Avnet	916-925-2216
CA	San Diego, Acacia Sls. Inc.	619-565-4365
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Diego, Hamilton/Avnet	619-571-7510
CA	San Jose, T.T.I., Inc.	408-943-9155
CA	San Jose, Shelley Elctrns.	408-942-9111
CA	Sunnyvale, Acacia Sls.	408-745-7200
CA	Sunnyvale, Hamilton/Avnet	408-734-3355
CO	Boulder, Shelley Elctrns.	303-442-2718
CO	Commerce City, Waco Elctrns.	303-289-4743
CO	Denver, Newark Elctrns.	303-757-3351
CO	Englewood, Hamilton/Avnet	303-779-9998
CO	Lakewood, Acacia Sls. Inc.	303-232-2882
CT	Danbury, Hamilton/Avnet	203-797-2800
CT	Stratford, Electro/Comp.	203-375-5811
FL	Ft. Lauderdale, Newark Elctrns.	305-587-2372
FL	Ft. Lauderdale, Hamilton/Avnet	305-971-2900
FL	Largo, Lodan Elctrns.	813-586-2851
FL	Orlando, T.T.I., II	305-859-1000
FL	Palm Beach Gardens, Legri S. Resistor	305-845-7101
FL	St. Petersburg, Hamilton/Avnet	813-576-3930
FL	Winter Park, Hamilton/Avnet	305-628-3888
GA	Norcross, Hamilton/Avnet	404-447-7507
IL	Bensenville, Hamilton/Avnet	312-860-7700
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Chicago, Bell Ind.	312-982-9210
IL	Crystal Lake, Sub-Sem	815-459-4139
IL	Palatine, Ohm Elctrns.	312-359-5500
IN	Carmel, Hamilton/Avnet	317-844-9333
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Graham Elec.	317-634-8202
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
KS	Overland Park, Hamilton/Avnet	913-888-8900
KS	Wichita, RSC Elec.	316-267-5213
MD	Baltimore, RESCO	301-823-0070
MD	Columbia, Hamilton/Avnet	301-995-3500
MA	Billerica, A. W. Mayer Co.	617-229-2255
MA	Waltham, Sterling Elctrns.	617-894-6200
MA	Woburn, T.T.I.	617-938-8800
MA	Woburn, Hamilton/Avnet	617-273-7500
MI	Grand Rapids, S-F Elctrn. Supp.	616-459-0216
MI	Grand Rapids, Newark Elec.	616-241-6681
MI	Grand Rapids, Hamilton/Avnet	616-243-8805
MI	Livonia, R-S Elctrns.	313-525-1155
MI	Livonia, Hamilton/Avnet	313-522-4700
MI	Livonia, Reptron Elctrns.	313-525-2700
MI	Oak Park, Newark Elec.	313-967-0600
MN	Minneapolis, Stark Elctrns.	612-332-1325
MN	Minnetonka, Hamilton/Avnet	612-932-0600
MO	Earth City, Hamilton/Avnet	314-344-1200
NJ	Cherry Hill, Hamilton/Avnet	609-424-0100
NJ	Cranford, G.S.I. Elec.	201-272-6400
NJ	Fairfield, Hamilton/Avnet	201-575-3390
NJ	Kenilworth, Federated Purchaser	201-272-0505
NJ	Springfield, Newark Elctrns.	201-376-9500
NM	Albuquerque, Hamilton/Avnet	505-765-1500
NY	Bohemia, L.I., T.T.I., New York	516-567-1500
NY	Buffalo, Summit Dist.	716-884-3450
NY	E. Syracuse, Hamilton/Avnet	315-437-2641
NY	Endwell, A.S.I. Elctrns.	607-754-3823
NY	Farmingdale, Command Elctrns.	516-293-1212
NY	Hauppauge, Fairmont	516-231-3313
NY	Melville, Hamilton/Avnet	516-454-6060
NY	Rochester, Simcona Elctrns.	716-328-3230
NY	Rochester, Hamilton/Avnet	716-475-9130
NY	Rockville Centre, Midway Indl.	516-293-6800
NY	Rome, Rome Elctrns.	315-337-5400
NY	Valley Stream, L&S Elctrns.	516-561-2474
NY	W. Hempstead, March Elctrns.	516-486-6511
NC	Raleigh, Hamilton/Avnet	919-878-0810
NC	Raleigh, RESCO	919-781-5700
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Cleveland, Pioneer Standard	216-587-3600
OH	Cleveland, Hamilton/Avnet	216-831-3500
OH	Cleveland, W. M. Pattison Supp.	216-441-3000
OH	Columbus, Camelot/Ohio	614-294-7169
OH	Dayton, Hamilton/Avnet	513-433-0610
OH	Dayton, Stotts-Friedman Co.	513-298-5555
OH	Dayton, Pioneer Standard	513-236-9900
OH	Lima, LRP Elctrns.	419-228-1220
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Beaverton, Acacia Sls.	503-646-3377
OR	Lake Oswego, Hamilton/Avnet	503-635-8831
OR	Portland, Radar Elec.	503-232-3404
PA	McKean, Advacom	814-476-7774
PA	Philadelphia, Herbach & Rademan	215-426-1700
PA	Pittsburgh, CAM/RPC	412-782-3770
PA	Reading, Barbery Elctrns.	215-376-7451
PA	York, E.C.I., Inc.	717-843-8971
TX	Austin, Hamilton/Avnet	512-837-8911
TX	Dallas, Sterling Elctrns.	214-243-1600
TX	Ft. Worth, T.T.I., Inc.	817-831-0441
TX	Houston, Hamilton/Avnet	713-780-1771
TX	Houston, Lenert Co.	713-225-1465
TX	Houston, Sterling Elctrns.	713-627-9800
TX	Irving, Hamilton/Avnet	214-659-4111
UT	Salt Lake City, Hamilton/Avnet	801-972-2800
WA	Bellevue, Hamilton/Avnet	206-453-5844
WA	Seattle, Radar Elec.	206-282-2511
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	New Berlin, Hamilton/Avnet	414-784-4510

DALE®

DALE ELECTRONICS, INC., El Paso Div., P.O. Box 26950, El Paso, TX 79926, Tel: 915-592-3253; FSC No.: 91637; Empl.: 272; *Sls. Mgr.:* Douglas Wagenknecht; *Dist. Mgr.:* Jerry Jilek ...**1A**•1846-1868

Refer to Dale Electronics, Inc., Columbus, NE for sales office and distributor information.

DALE®

DALE ELECTRONICS, INC., Norfolk Div., 2300 Riverside Blvd., Norfolk, NE 68701, Tel: 402-371-0080, TWX: 910-623-0163; FSC No.: 91637; Empl.: 1200; *Sls. Mgr.:* Jim Filips; *Dist. Mgr.:* Jerry Jilek ....**1B**•1800, 1801

Refer to Dale Electronics, Inc., Columbus, NE for sales office and distributor information.

DALE®

DALE ELECTRONICS, INC., Tempe Div., 1155 W. 23rd St., Tempe, AZ 85282, Tel: 602-967-7874, TWX: 910-950-1943; FSC No.: 22929; Empl.: 139; *Sls. Mgr.:* Mike Brown; *Dist. Mgr.:* Jerry Jilek ....**1A**•1348, 1349

Refer to Dale Electronics, Inc., Columbus, NE for sales office and distributor information.

DALE®

DALE ELECTRONICS, INC., Yankton Div., E. Hwy. 50, Box 180, Yankton, SD 57078, Tel: 605-665-9301, TWX: 910-668-3605; FSC No.: 09969; Empl.: 400; *Sls. Mgr.:* Irvin Sterner; *Dist. Mgr.:* Jerry Jilek .... **1A**•1234-1242, 2139-2150; **2**•1250-1253

Refer to Dale Electronics, Inc., Columbus, NE for sales office and distributor information.

DALE WESTERN THERMISTOR DIVISION, See Dale Norfolk Division

DAMON/ELCTRNS. DIV., 80 Wilson Way, Westwood, MA 02090, Tel: 617-449-0800, TWX: 710-348-6722; Empl.: 90; *Sls. Mgr.:* Edward J. Doherty ....**1A**•1347

Local Sales Offices & Reps

AZ	Phoenix, Sanford Sls. Assocs.	602-957-3570
CA	N. Hollywood, Jewett Co.	213-789-8103
CA	Palo Alto, Waldman Assocs.	415-961-4100
DC	Washington, Stemler Assocs.	301-944-8262
FL	Melbourne, Repcom	305-254-1877
MD	Baltimore, Stemler Assocs.	301-944-8262
MA	Waltham, Del Tech Sls.	617-890-1020
NJ	Cherry Hill, Stemler Assocs.	609-966-4070
NJ	Hackensack, T.M.A. Assoc.	201-342-4008
NY	Cazenovia, S. T. Wollard Co.	315-655-8145
TX	Ft. Worth, El-Tec Sls.	817-268-2896

D & B POWER, INC.

D & B POWER, INC., 204 N. Fehr Way, Bayshore, NY 11706, Tel: 516-586-5955; FSC No.: 54337; Empl.: 25; *Sls. Mgr.:* Peggy Brock ....**3**•1542, 1543

Local Sales Offices & Reps

CA	Los Altos, Schwerin Merrill	415-961-0913
CA	Pasadena, Electro Mecha. Instrs.	213-795-7193
NY	East Setauket, Edgerton Elctrn.	516-751-7089

D & L SALES CO. INC., 296 Preakness Ave., Paterson, NJ 07502, Tel: 201-684-8223/8224; Empl.: 10

DANIELS MFG. CORP., 6103 Anno Ave., Orlando, FL 32809, Tel: 305-855-6161, Telex: 564321; FSC No.: 5120, 5180; Empl.: 150

DAN-L INC., 229 Laurel Rd., E. Northport, NY 11731, Tel: 516-757-8000; FSC No.: 28327; Empl.: 22

DANMAR INDS., 9705 Lurline Ave., Chatsworth, CA 91311, Tel: 818-882-7979/5280; FSC No.: 31690; Empl.: 6; *Sls. Mgr.:* Mukund Patel

DANTEL, 2991 N. Argyle Ave., Fresno, CA 93727, Tel: 209-292-1111, Telex: 35-5457; FSC No.: 56960; Empl.: 110; *Sls. Mgr.:* Peter Normandin

DANTRONICS, INC., 3175 Hafner Ct., St. Paul, MN 55112, Tel: 612-484-2108; Empl.: 22

DASH, STRAUS & GOODHUE, INC., 593 Massachusetts Ave., Boxboro, MA 01719, Tel: 617-263-2662; Empl.: 7; *Sls. Mgr.:* Ira Barry

DATA, INC., 7702 Emerald Ave., Box 2071, Ft. Collins, CO 80525, Tel: 303-493-1222; Empl.: 3; *Sls. Mgr.:* Sharon Shilling; *Dist. Mgr.:* Sharon Shilling

D.A.T.A., INC., Cordura Co., P.O. Box 26875, San Diego, CA 92126, Tel: 619-578-7600, TWX: 910-322-1340; Empl.: 39

DATA CAPTURE TECHNOLOGY, 5436-F South Mingo Rd., Tulsa, OK 74146, Tel: 918-627-7521, Telex: 796355; *Sls. Mgr.:* Gary DeShazer

DATA CHECK CORP., 10070 Willow Creek Rd., San Diego, CA 92131, Tel: 619-578-0101, TWX: 910-335-1596; FSC No.: 55792; *Sls. Mgr.:* Al Agent

DATACHRON INC., 3186 J Airway Ave., Costa Mesa, CA 92626, Tel: 714-751-2211, Telex: 678401; FSC No.: 56259; Empl.: 16; *Sls. Mgr.:* Clyde Davis

DATACOM, INC., Box 278, Ft. Walton Beach, FL 32548, Tel: 904-244-6121, TWX: 510-730-7693; Empl.: 50

dataCon

DATACON, INC., 60 Blanchard Rd., Burlington, MA 01803, Tel: 617-273-5800, Telex: 951651; Empl.: 400; *Sls. Mgr.:* John A. Marshall .... **3**•1923

Local Sales Offices & Reps

CA	Chatsworth, DataCon	818-700-0600
CA	Mountain View, DataCon	415-967-5700
CA	Santa Clara, DC Electronics	408-980-1199
CO	Lakewood, Christee - Meade Co.	303-232-0287
FL	Orlando, Mackay Smith & Assoc.	305-277-1513
GA	Decatur, DataCon	404-373-1212
GA	Norcross, Mackay Smith	404-449-7444
IL	Lisle, W. G. Controls	312-963-5954
IL	Schaumburg, DataCon	312-529-7690
IN	Fort Wayne, Hoyle Assocs.	219-485-6433
MA	Burlington, DataCon	617-273-5800
MA	Newton Upper Falls, Anchor Engrg.	617-964-6205
MN	St. Paul, Countryman Assoc.	612-645-9151
MO	St. Louis, Lowell-Kangas & Assoc.	314-821-4050
NY	Bohemia, DataCon	516-589-1100
NC	Cary, Mackay Smith	919-467-5400
OH	Centerville, Micro Sls. Corp.	513-433-8171
PA	Newtown Square, Hagy Assocs.	215-459-0504
TN	Chattanooga, Mackay Smith	615-899-6951
TX	Bedford, DataCon	817-540-1479
TX	Richardson, Lear Assoc.	214-231-5388

DATA-CONTROL SYS., Commerce Dr., Box 860, Danbury, CT 06810, Tel: 203-743-9241, TWX: 710-456-0376; FSC No.: 08539; Empl.: 87

DATA CONVERSION, See Analogic Corp., Data Conversion Prods. Grp.

DATACOPY CORP., 1215 Terra Bella Ave., Mountain View, CA 94043, Tel: 415-965-7900, Telex: 701994 DATACOPY UO; *Sls. Mgr.:* Charles Joseph

data delay devices, inc.

DATA DELAY DEVICES, 385 Lakeview Ave., Clifton, NJ 07011, Tel: 201-772-1106, TWX: 710-989-7008; Empl.: 38 .... **1A**•1471-1482, 1592

Local Sales Offices & Reps

CA	El Toro, Martronix	714-855-6397
CA	Mountain View, Weseloh/Swanson	415-961-0565
TX	Dallas, West & Assocs.	214-661-9400

Local Distributors

CA	Mountain View, Target Elctrns.	415-961-1170

DATA-DESIGN LABS., P.O. Box 711, 7925 Center Ave., Cucamonga, CA 91730, Tel: 714-987-2511; Empl.: 1300; *Sls. Mgr.:* J. F. Nicholson, Exec. Vice Pres. (Operations)

DATA DEVICE CORP., See ILC Data Device Corp.

DATA DISPLAY PRODUCTS, Box 91072, Los Angeles, CA 90009, Tel: 213-674-5940, Telex: 664690; FSC No.: 15513; Empl.: 20; *Sls. Mgr.:* William F. Million

DATADYNE, Box 247, King of Prussia, PA 19406, Tel: 215-666-5751; FSC No.: 53032; Empl.: 23; *Sls. Mgr.:* James Riggs

DATA GENERAL, 4400 Computer Dr., Westboro, MA 01581, Tel: 617-366-8911, Telex: 920-329, TWX: 710-390-1217; Empl.: 14,750; *Sls. Mgr.:* Frank Keaney

DATA INSTRUMENTS INC., 4 Hartwell Pl., Lexington, MA 02173, Tel: 617-861-7450, TWX: 200081; Empl.: 250; *Sls. Mgr.:* Ernest C. Lutfy .... **1B**•1840

Local Sales Offices & Reps

AZ	Mesa, RLS	602-892-9329
CA	Riverside, Jim Mitchell	714-684-6404
CA	San Carlos, Elctrn. Engrg. Assocs.	415-593-2189
CO	Boulder, Herb Bass Assocs.	303-530-7509
HI	Honolulu, Aloha Assocs.	808-941-1574
IL	Addison, John O'Keefe	312-628-6041
MA	Swampscott, John Snow	617-592-0511
MO	Kansas City, Delltron Co.	816-436-6445
MO	St. Louis, Delltron Co.	314-869-4779
NJ	Stockholm, Jim Musumeci	201-492-9097
NM	Las Cruces, SOTA-COM	505-523-4480
NC	Charlotte, B. A. Robinson Co.	704-527-4537
OH	Olmstead Falls, Ken Schleger	216-871-9047
TX	Dallas, Griffin Sls.	214-234-5013
UT	Bountiful, Herb Bass Assocs.	801-295-7100
WA	Bellevue, S.E.A. Sls.	206-883-4999
WA	Vancouver, S.E.A. Sls.	206-573-5161

DATA I/O CORP., 10525 Willows Rd. N.E., C-46, Redmond, WA 98052, Tel: 206-881-6444, Telex: 15-2167; Empl.: 400

DATAK CORP., 65 Seventy-First St., Guttenberg, NJ 07093, Tel: 201-869-2200; *Sls. Mgr.:* Theresa Pflueger .... **2**•1090, 1759, 2095

Local Sales Offices & Reps

CA	Burlingame, Polach & Bensinger	415-697-2525
CA	West Covina, Don Forth Assocs.	213-919-2322
CO	Broomfield, Conners Co.	303-466-9628
FL	Bradenton, T. G. & Assocs.	813-753-5632
FL	Pompano, T.G. and Assocs.	305-781-8328
GA	Roswell, Henry W. Phillips Co.	404-992-3070
IL	Wheaton, Archie Joyner Assocs.	312-665-6662
IN	Indianapolis, Sukup & Cox	317-253-5501
MD	Annapolis, Pecore Assocs.	301-267-0328
MI	East Detroit, Jack M. Thorpe Co.	313-779-6363
MN	Minneapolis, Kodo Assoc.	612-881-1255
MO	Raytown, Marty Taraski Sls.	816-358-1442
NJ	Teaneck, Steve Fisher Sls.	201-837-1200
NY	Rochester, Warren Kaufman & Assoc.	716-266-2728
NC	Matthews, Henry W. Phillips Co.	704-882-2878
OH	Jamestown, Landro Edwards Sls.	513-675-2059
PA	Library, Landro Edwards Sls.	412-854-5727
RI	Coventry, Adams-McGregor	401-821-1320
RI	Lincoln, Adams-McGregor	401-726-1300
TX	Dallas, J & J Sls. Co.	214-328-9739
WA	Edmonds, McLaughlin Mktg.	206-743-1161

Local Distributors

AL	Birmingham, Forbes Distrbg.	205-251-4104
AK	Anchorage, Alaska Elecs. Sply.	907-563-3774
AZ	Phoenix, Tri-Tek	602-995-9352
AZ	Tempe, Circuit Specialists	602-966-0764
CA	Berkeley, Al Lasher's Elect.	415-843-5915
CA	Canoga Park, Sandy's Elect.	213-346-8353
CA	El Cerrito, Trumbull Co.	415-525-7242
CA	Fullerton, Orvac Elect.	714-871-1020
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	San Jose, Quement Elctrns.	408-998-5900
CO	Lakewood, D.H. Crump & Co.	303-936-4407
CT	Greenwich, Wise Comps.	203-531-4880
CT	Hartford, Hatry Elect.	203-527-1881
CT	Wallingford, Tron Town U.S.A.	203-237-5598
FL	Miami, Elctrn. Equip.	305-871-3500
FL	Orlando, Orlando Frame & Art	305-896-7191
FL	St. Petersburg, Knapp of Florida	813-392-0406
GA	Atlanta, Ack Elctrn. Supp.	404-351-6340
HI	Honolulu, Honolulu Elect.	808-949-5564
IL	Berwyn, B-B & W Inc.	312-749-1710
IL	Mt. Prospect, Tri-State Elect.	312-255-0600
IL	Niles, Joseph Elect.	312-297-4200
IL	Northbrook, Reproduction Specialists	312-564-0404
IN	Ft. Wayne, Graham Elect.	219-423-3422
IN	Indianapolis, Graham Elect.	317-634-8202
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
KS	Wichita, RSC	316-267-5213
KY	Louisville, Peerless Elect.	502-637-7674
LA	Lafayette, Ralph's	318-233-0105
LA	New Orleans, Radio Parts Inc.	504-581-5959
MD	Baltimore, A S I Elect.	301-265-5100
MD	Baltimore, RESCO Elctrns.	301-823-0070
MD	Rockville, Capitol Radio Whlsrs.	301-881-2270
MA	Hingham, Sager Electrical Sply.	617-749-6700
MA	Lynn, Land Elctrns. Supp.	617-592-2220
MA	Norwood, Gerber Elect.	617-769-6000
MI	Flint, Shand Elctrns.	313-743-8940
MI	Livonia, Norwest Elect.	313-261-4551
MN	Minneapolis, Acme Elctrns.	612-338-4754
MO	Kansas City, Elctrn. Sply.	816-931-0250
MO	St. Louis, Olive Elctrn.	314-426-4500
MO	St. Louis, Van Sickle	314-621-5000
MO	St. Louis, Gateway Elect.	314-427-6116
NE	Lincoln, Scott Elect. Sply.	402-466-8221
NV	Las Vegas, Hurley Elect.	702-384-5666
NV	Reno, Elect. Distr. Co.	702-323-2766
NH	Dover, American Radio	603-742-6800
NH	Hudson, C & H Elect.	603-882-1133
NJ	Edison, William Elctrns. Supp.	201-985-3700
NY	Buffalo, Summit Distributor	716-887-2800
NY	Hauppauge, Broadline Elctrns.	516-231-4100
NY	Long Island City, H. L. Dalis, Inc.	212-361-1100
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Cincinnati, URI Elect.	513-761-4030
OH	Columbus, Hughes-Peters	614-294-5351
OK	Oklahoma City, Trice Wholesale	405-524-4411
OR	Beaverton, Norvac Elect.	503-644-1025
OR	Portland, Portland Radio Sply.	503-228-8647
PA	Braddock, Leff Elctrns.	412-351-5000
PA	Philadelphia, A.C. Radio	215-462-9379
PA	Reading, Barbey Elctrns.	215-376-6116
PA	Willow Grove, Resco	215-659-4575
RI	Providence, W. Dandreta & Co.	401-861-2800
SC	Charleston, Wholesale Industrial Elecs.	803-722-2634
TN	Memphis, Bluff City Distr.	901-345-9500
TX	Dallas, Electrotex Elect. Corp. of TX	214-234-0433
TX	El Paso, Ideal Indl. Elec. Sply.	915-779-6647
TX	Houston, Gateway Elctrns.	713-978-6575
UT	Salt Lake City, Kimball Elect.	801-328-2075
VA	Arlington, Arlington Elect. Whlse.	703-524-2412
VA	Norfolk, Priest Elctrns.	804-855-0105
WA	Seattle, Radar Elect. Co.	206-282-2511
WV	Charleston, Elctrn. Materials Corp.	304-344-3577
WI	Milwaukee, Indl. Elctrns.	414-276-1212

DATA-MATCH CORP., 3810 Oakcliff Ind. Ct., Doraville, GA 30340, Tel: 404-441-0408; *Sls. Mgr.:* Charles L. Frazler III

DATAMETRICS CORP., Defense Products Div., 7630 Gloria Ave., Van Nuys, CA 91406, Tel: 818-989-3840, TWX: 910-495-2009; FSC No.: 19059; Empl.: 150; *Sls. Mgr.:* Jim Foti

datametrics DRESSER

DATAMETRICS • DRESSER INDS., INC., 340 Fordham Road, Wilmington, MA 01887, Tel: 617-658-5410, TWX: 710-347-7672; Empl.: 175; *Sls. Mgr.:* A. W. Siff .... **1B**•1841

Local Sales Offices & Reps

AZ	Phoenix, Motion Technology	602-991-1782
CA	Anaheim, Motion Technology	714-777-4259
CA	Chatsworth, Motion Technology	818-993-3762
CA	San Jose, Motion Technology	408-923-0990
CA	San Raphael, Motion Technlg.	415-459-2171
CO	Englewood, Integrated Motion Sys.	303-762-1817
CT	Guilford, Gem Sls.	203-453-5424
IL	Rolling Meadows, KMA Sls.	312-398-5300
MI	Lamont, Xanthus	616-677-3103
MI	Troy, Xanthus	313-528-2000
MN	Minneapolis, Trask Engrg.	612-537-2434
NH	Salem, Gem Sls.	603-893-0009
NJ	Williamstown, Precision Motion Sls.	609-629-4757
NY	Clark Mills, KLM-Garner	315-853-6126
NY	Glen Cove, Precision Motion Sls.	516-676-1645
NY	N. Syracuse, KLM-Garner	315-458-6214
NY	Pittsford, KLM-Garner	716-381-8350
NC	Charlotte, MacKay, Smith & Assocs.	704-372-1188
OH	Chagrin Falls, K. F. Nauerz	216-338-8450
OH	West Chester, Fehrco	513-777-4248
TX	Dallas, Automated Motion Control	214-340-4192
TX	Denton, Automated Motion Control	817-382-4159
WA	Bellevue, Al Smith Co.	206-746-6770
WA	Vancouver, Al Smith Co.	206-892-9912
WI	Milwaukee, KMA Sls.	414-259-177

DATA PLUS, INC., 7205E Lockport Pl., Lorton, VA 22079, Tel: 800-368-3747, Telex: 901878; Empl.: 20; *Sls. Mgr.:* George E. Pritz

DATAPOINT CORP., Peripheral Operations Division, 686 West Maude Avenue, Sunnyvale, CA 94086, Tel: 408-732-7330, TWX: 910-339-9244 Empl.: 500

DATAPOWER, INC., 3328 West First St., Santa Ana, CA 92703, Tel: 714-775-2000, Telex: 683323, TWX: 910-595-1560; *Sls. Mgr.:* William O. Fordiani

Local Sales Offices & Reps

CA	Santa Clara	408-986-8322
MA	Chelmsford	617-256-2287

DATA POWER, See Beaver Labs

DATA PRECISION CORPORATION, Electronics Ave., Danvers, MA 01923, Tel: 617-246-1600, Telex: 921819; FSC No.: 51692; Empl.: 260; *Sls. Mgr.:* John P. Kelly, William Sapankevych; *Dist. Mgr.:* John Kelly ....3•1214, 1215

Local Sales Offices & Reps

AL	Huntsville, Saber Assocs.	305-724-0920; 800-327-0853
AZ	Phoenix, Odyssey I	602-246-8846
CA	Carson, Amasco	213-516-8561
CA	Sunnyvale, Amasco	408-733-8690
CO	Castle Rock, Odyssey I	303-688-3555
FL	Melbourne, Saber Assocs.	305-724-0920; 800-327-0853
GA	Griffin, Saber Assocs.	305-724-0920; 800-327-0853
MD	Rockville, Elctrn. Mktg. Assn.	301-881-5300
MA	Danvers, John D. Seney	617-246-1600; 603-668-1096
MI	Northville, Donald C. Pickren	313-349-0233; 312-685-4544
MN	Chanhassen, Elctrn. Instr. Consit.	612-445-7056
MO	Kansas City, E.I.R. Co.	816-452-7030
MO	Leasburg, E.I.R. Co	314-895-4100
NJ	Cedar Grove, KLS Assocs.	201-785-4450
NM	Albuquerque, Odyssey I	505-265-6645
NY	Frankfort, Kapital Instr. Sls.	207-774-6266; 800-492-8011
NC	Clayton, Saber Assocs.	305-724-0920; 800-327-0853
PA	Pittsburgh, Staples Assn.	412-881-5990
PA	Plymouth Meeting, Elctrn. Mktg. Assn.	215-248-5050; 215-828-7400
SC	Columbia, Saber Assocs.	305-724-0920; 800-327-0853
TX	Georgetown, Richard Morgenstern	512-869-1507
WA	Bellevue, Sls. & Engrg. Assn.	206-883-4999
WA	Vancouver, Sls. & Engrg. Assn.	206-573-5161

Local Distributors

AL	Huntsville, Pioneer Instrs.	205-837-9300
AL	Mobile, Brownell-Instr. & Cntrl.	205-479-5404
AZ	Phoenix, Metermaster	602-437-1425
AR	Morrilton, Tri-State Instr. Lab.	501-354-1849
CA	Arcadia, Shafer Engrg. Svc.	213-445-4127
CA	Canoga Park, G.A.G. Entprs.	213-998-6500
CA	Long Beach, Meas. Assoc.	213-433-0977
CA	Los Angeles, Metermaster	213-685-4340
CA	Los Angeles, E.I.L. Instrs.	213-685-7020
CA	Palo Alto, Metermaster	415-968-0313
CA	San Diego, Instr. Engrs.	619-268-8344
CA	San Diego, Metermaster	619-560-4841
CA	Santa Clara, RGB Electro. Indl.	408-980-1300
CO	Denver, E.I.L. Instrs.	303-534-4160
CO	Englewood, BETA	303-779-4494
CT	Middletown, E.I.L. Instrs.	203-346-6646
FL	Hialeah, Kimball Elec. Labs.	305-822-5792
FL	Orlando, Brownell-Instr. & Cntrl.	305-843-6770
FL	Palm Bay, E.I.L. Instrs.	305-725-8300
GA	Atlanta, Brownell Electro	404-762-5181
IL	Bridgeview, E.I.L. Instrs.	312-430-2292
IL	Elk Grove Village, Dot-Tronics, Div. of Loren Green Assoc.	312-593-0282
IL	Elk Grove Village, Pioneer Standard	312-437-9680
IL	Elk Grove Village, Metermaster	312-593-8650
IL	Niles, Joseph Elctrns.	312-297-4200
IL	Oak Park, Pacific Indicator	312-383-0220
IN	East Chicago, Acro Elec.	219-397-8681
IN	Indianapolis, Pioneer Standard	317-849-7300
IN	Indianapolis, E.I.L. Instrs.	317-545-1373
IN	Indianapolis, Loren Green Assocs.	317-293-9827
KY	Louisville, Peerless Elec. Equip.	502-637-7674
LA	Baton Rouge, Ind. Elec. Supply	504-357-4249
LA	Kenner N.O., Breard Gardner	504-466-3401
LA	New Orleans, Ind. Instr. Works	504-733-8355
MD	Gaithersburg, Pioneer Instrs.	301-921-0660
MD	Sparks, E.I.L. Instrs.	301-771-4800
MA	Burlington, Contact East	617-272-5051
MA	Burlington, E.I.L. Instrs.	617-272-9450
MA	Woburn, Brownell Electro	617-935-7820
MI	Ferndale, Ram Meter	313-398-6767
MI	Flint, R.S. Elctrns.	313-762-5800
MI	Grand Rapids, R.S. Elctrns.	616-241-3483
MI	Kalamazoo, R.S. Elctrns.	616-381-5470
MI	Livonia, Pioneer Standard	313-525-1800
MI	Livonia, R.S. Elctrns.	313-525-1155
MI	Roseville, R.S. Elctrns.	313-779-2450
MI	Wyandotte, R.S. Elctrns.	313-282-5880
MN	Minneapolis, Loren Green Assocs.	612-571-6666
MO	St. Louis, Instr. & Control Sls.	314-535-5760
NJ	Edison, Brownell Electro	201-287-2030
NJ	Ocean, Rag Elctrns.-East	201-544-0666
NY	Clarence, Trott Elctrns.	716-634-8500
NY	Hauppauge, E.I.L. Instrs.	516-231-6333
NY	New York, Brownell Electro	212-691-1171
NY	New York, Advanced Elctrns.	212-730-7030
NY	Pittsford, Trott Elctrns.	716-586-8251
NY	Rochester, R. Baker Elctrns.	716-586-9164
NY	Rochester, E.I.L. Instrs.	716-424-5750
NC	Charlotte, Brownell Electro	704-597-1270
NC	Charlotte, Trott Elctrns.	704-376-2237
NC	Greensboro, Pioneer Instr.	919-273-4441
NC	Raleigh, Lee Assoc. of the Carolinas	800-822-8888
OH	Cleveland, Pioneer Instr.	216-587-3600
OH	Dayton, E.I.L. Instrs.	513-435-2134
OH	Dayton, Pioneer Instr.	513-236-9900
OH	Dayton, Natl. Instr.	513-435-4503
OH	Maumee, R.S. Elctrns.	419-893-0721
OK	Oklahoma City, Huston-De Pue Labs	405-235-5469
OR	Beaverton, Eicher Richards	503-221-1123
OR	Medford, Branom Instrs.	503-772-3187
OR	Portland, Branom Instrs.	503-283-2555
PA	Horsham, Pioneer Instr.	215-674-4000
PA	Philadelphia, Sunshine Sci.	215-673-5600
PA	Pittsburgh, E.I.L. Instrs.	412-731-5230
PA	Pittsburgh, Pioneer Instr.	412-782-2300
TN	Knoxville, Brownell-Electro	615-966-3441
TN	Memphis, Brownell-Electro	901-795-8483
TN	Nashville, Brownell-Electro	615-889-8230
TX	Dallas, E.I.L. Instrs.	214-931-1236
TX	Dallas, R.E. Davis Co.	214-653-1041
TX	Dallas, Pioneer Instr.	214-386-7300
TX	Garland, Metermaster	214-271-5671
TX	Houston, Quality Instrs.	713-524-0528
TX	Houston, E.I.L. Instrs.	713-271-3100
VA	Alexandria, E.I.L. Instrs.	703-354-4330
VA	Richmond, Metermetrics	804-275-1431
VA	Vienna, Elctrn. Equip. Bank	703-938-3350
VA	Virginia Beach, E.I.L. Instrs.	804-499-3746
WA	Seattle, Eicher Richards	206-523-7888
WA	Seattle, E.I.L. Instrs.	206-762-0880
WA	Seattle, Branom Instrs.	206-762-6050

DATAPROBE, 110 Palisades Blvd., Palisades Park, NJ 07650, Tel: 201-947-9500, Telex: 642-165; Empl.: 12

Local Sales Offices & Reps

AZ	Scottsdale, Western Sade	602-998-9585
CA	Los Angeles, Mark Assocs.	216-641-1840
NH	Concord, Concord Communications Inc.	603-228-8627
TX	Seabrook, Q Max Inc.	713-474-2233
VA	Falls Church, Data Comm. Sys.	703-241-7803

DATAPRODUCTS, 6200 Canoga Ave., Woodland Hills, CA 91365, Tel: 213-887-8000, Telex: 67-4734; Empl.: 4300; *Sls. Mgr.:* James B. Towell; *Dist. Mgr.:* L. Bowne

DATA PRODS. NEW ENGLAND, Barnes Park N. Caller Box 30, Wallingford, CT 06492, Tel: 203-265-7151, TWX: 710-476-3427

DATAPROFITS CORP., 2260 Distributors Dr., Indianapolis, IN 46241; Empl.: 5

DATARAM CORP., Princeton-Highstown Rd., Cranbury, NJ 08512, Tel: 609-799-0071, TWX: 510-685-2542; Empl.: 225; *Sls. Mgr.:* John F. Gilligan

Local Sales Offices & Reps

AL	Huntsville, Col-Ins Co.	800-327-6600
AZ	Phoenix, Cherry Assocs.	602-242-1922
CA	Irvine, Dataram Corp.	714-261-1622
CA	Mountain View, Thorson West	415-964-9300
CO	Denver, Westek Data Prods.	303-232-2250
FL	Orlando, Col-Ins-Co.	800-432-4480
GA	Atlanta, Col-Ins-Co.	800-327-6600
IL	Oak Brook, Dataram Corp.	312-789-3710
LA	Baton Rouge, Col-Ins-Co.	800-327-6600
MD	Rockville, Technical Sls. Assocs.	301-340-0600
MA	Waltham, Dataram Corp.	617-891-7090
MN	Eden Prairie, First Rep Co. of Minnesota	612-944-2097
NJ	Haddonfield, G. L. Williams Assocs.	609-428-6060
NM	Sante Fe, Unique Sys. Electronics Inc.	505-984-0262
NY	Rochester, RG Engrg.	716-442-5631
NC	Raleigh, Col-Ins-Co.	800-327-6600
OH	Columbus, SelTech Mktg.	614-451-3865
SC	Greenville, Col-Ins-Co.	800-327-6600
TN	Knoxville, Col-Ins-Co Inc.	800-327-6600
TX	Austin, Thorson Southwest	512-451-7527
TX	Dallas, Thorson Southwest	214-233-5744
TX	Houston, Thorson Southwest	713-771-3504

DATA RAY CORP., 8401 Baseline Rd., Boulder, CO 80303, Tel: 303-494-4444; FSC No.: 303-494-8107; *Sls. Mgr.:* Jerry Garrett

DATA RENTALS/SLS., INC, P. O. Box 3257, Culver City, CA 90230, Tel: 213-559-3822; Empl.: 51; *Sls. Mgr.:* Steven Beaver

DATAROYAL, 235 Main Dunstable Rd., Nashua, NH 03061, Tel: 603-883-4157, TWX: 710-228-1077; *Sls. Mgr.:* George Bouchard

DATA SIGNAL CORP., 149 California St., Newton, MA 02158, Tel: 617-926-5080

DATASPAN SYSTEMS INC., 120 W. Palisades Blvd., Palisades Park, NJ 07650, Tel: 201-461-3337; *Sls. Mgr.:* Sy Weiss

DATA SPECIALTIES, INC., 3455 Commercial Ave., Northbrook, IL 60062, Tel: 312-564-1800, Telex: 206230; Empl.: 110; *Sls. Mgr.:* John H. Kindsvater, Jr.

DATA TECH, DIV. OF PENRIL CORP., 3110 W. Segerstrom, Santa Ana, CA 92704, Tel: 714-546-7160, TWX: 910-595-1570; Empl.: 125; *Sls. Mgr.:* James K. Way; *Dist. Mgr.:* James K. Way

DATATEX CORP., 10935 S. Wilcrest Dr., Houston, TX 77099, Tel: 713-495-3100; Empl.: 100; *Sls. Mgr.:* Glenn Messerschmitt; *Dist. Mgr.:* K. Pelletier

DATATRAN LABS, P.O. Box 384, Sussex, NJ 07461, Tel: 914-856-4313; Empl.: 18; *Sls. Mgr.:* Richard E. Johnson

DATA TRANSLATION, 100 Locke Dr., Marlboro, MA 01752, Tel: 617-481-3700, Telex: 4430109; Empl.: 110; *Sls. Mgr.:* Andrew Davis

DATATRON, INC., 2942 Dow Ave., Tustin, CA 92680, Tel: 714-544-9970, TWX: 910-595-1589; Empl.: 125

"Refer to Shelly Assocs. Datatron Inc. for Sales Office and distributor information"

DATATRONIC SYSTEMS CORP., Computer Sciences Div., P.O. Box 44128, Panorama City, CA 91402, Tel: 818-988-5290; Empl.: 150

DATAWARE SYS. LEASE, INC., 30 Bay St., Staten Island, NY 10301, Tel: 212-447-4911, Telex: 421394, TWX: 710-588-6738; *Sls. Mgr.:* Ben Weiwart

DATAWEST, 7333 E. Helm Dr., Scottsdale, AZ 85260, Tel: 602-948-3280, TWX: 910-950-1289; Empl.: 25; *Sls. Mgr.:* Jim Buckley

DATEC, INC., 200 Eastowne Dr., Ste. 116, Chapel Hill, NC 27514, Tel: 919-929-2135; Empl.: 75; *Sls. Mgr.:* Albert J. Jenks, Jr.

DA-TECH CORP., 92 Steamwhistle Dr., Ivyland, PA 18974, Tel: 215-322-9410; *Sls. Mgr.:* Bradford W. Bentz

DATEL

DATEL, 11 Cabot Blvd., Mansfield, MA 02048, Tel: 617-339-9341, Telex: 95-1340, TWX: 710-346-1953; Empl.: 650; *Sls. Mgr.:* H. Batchelder ... 3•1076, 1105, 1150-1152, 1323, 1545

Local Sales Offices & Reps

AZ	Phoenix, Tech. Sales	602-246-1614
CA	Santa Ana, Datel	714-835-2751
CA	Sunnyvale, Datel	408-733-2424
CO	Denver, Cleveland Entprs. of Colo.	303-751-3252
CT	Hamden, JBL Assocs.	203-281-3161
FL	Coral Springs, H. A. Inc.	305-752-7520
HI	Honolulu, Adtech.	808-941-0708
IL	Elmhurst, Sector Engrg. Sls.	312-530-7850
IN	Indianapolis, Sector Engrg. Sls.	317-842-1120
IA	Davenport, Ensco-Rep, Inc.	319-386-6600
KS	Overland Park, Ensco-Rep, Inc.	913-381-7557
MA	Mansfield, Datel	617-339-9341
MI	Livonia, Electro Sls. Assoc.	313-474-7320
MN	Minneapolis, J.R. Assoc.	612-559-5673
MO	Maryland Heights, Ensco-Rep, Inc.	314-423-3935
NJ	Perth Amboy, Astrorep, Inc.	201-826-8050
NM	Albuquerque, Cleveland Entprs.	505-265-7893
NY	Babylon, Astrorep	516-422-2500
NY	Liverpool, R & D Assocs.	315-457-0100
NC	Winston-Salem, Comp. Concepts	919-765-3484
OH	Cleveland, Instrmn. Sys.	216-845-8800
OH	Dayton, Instrmn. Sys.	513-294-2838

OR	Aloha, Hood Engrg.	503-642-3591
PA	Pittsburgh, Instrmn. Sys.	412-243-1111
TX	Carrollton, Tech. Mktg.	214-387-3601
TX	Houston, Tech. Mktg.	713-777-9228
UT	Salt Lake City, Cleveland Entprs. of Colo.	801-355-8424
VA	Arlington, H. J. Heffernan	703-522-6666
WA	Bellevue, Hood Engrg. Co.	206-453-9375
WI	Milwaukee, Sector Engrg. Sls.	414-352-8280

DATOTEK, INC., 13740 Midway Rd., Dallas, TX 75234, Tel: 214-233-1030, Telex: 73-0558; Empl.: 130; *Sls. Mgr.:* T. Peddicord

DATRON INSTRS., INC., 3401 SW 42nd Ave., Stuart, FL 33497, Tel: 305-283-0935, Telex: 525724; Empl.: 120

Local Sales Offices & Reps

AL	Huntsville, Scientific Dvcs.	205-536-1969
AZ	Phoenix, Zeus Elctrns.	602-263-6022
CA	Redondo Beach, Ward Davis Assoc.	213-973-7772
CA	San Diego, Ward Davis Assoc.	714-292-1000
CA	Santa Clara, Ward Davis Assoc.	408-245-3700
CO	Denver, Zeus Elctrns.	303-321-4246
CT	North Haven, Pat Jenks Assoc.	203-239-6201
FL	Orlando, Sci. Devices	305-841-8180
IL	Rolling Meadows, Commodore-I	312-394-5441
MA	Woburn, Pat Jenks Assoc.	617-938-0488
MN	St. Paul, Dytec/North, Inc.	612-645-5816
NJ	Pennsauken, Sci. Reps.	609-662-5222
NY	Fayetteville, D B Assocs.	315-446-0220
NY	Great Neck, R T I	516-829-3770
NC	Winston-Salem, Sci. Dvcs.	919-765-5776
OH	Chesterland, EQS Sys.	216-729-2222
OR	Beaverton, Northwest Test & Meas.	503-646-9966
TX	Richardson, Spectra Sls.	214-234-3600
UT	Salt Lake City, Zeus Elctrns.	801-534-0500
VA	McLean, Creative Mktg. Assocs.	703-442-9100
WA	Redmond, Northwest Test & Meas.	206-881-8857

DATRON

DATRON SYS., 20700 Plummer St., Chatsworth, CA 91311, Tel: 818-882-9616, TWX: 910-494-2787; FSC No.: 32255; Empl.: 150

Local Sales Offices & Reps

AZ	Scottsdale, Territorial Mktg.	602-994-8665
CA	Santa Barbara, Kannard Engrg., Inc.	805-492-5678
CO	Colorado Springs, Don Rondeau	303-599-3698
MD	Beltsville, Applied Engrg. Conslts.	301-953-2808
MA	Lexington, Eugene Delfino Co.	617-862-1118
NJ	Holmdel, Douglas Conslts.	201-741-5666
NY	Manlius, Quality Comps.	315-682-8885
TX	Garland, Carey, McMahill & Zerbe	214-681-1414

DATTILO ELECTRONICS, 11621 Electron Dr., Louisville, KY 40299, Tel: 502-267-4446; Empl.: 32

DATUM, STORAGE PRODS. DIV., 1363 State College Blvd., Anaheim, CA 92806, Tel: 714-533-6333, TWX: 910-592-1289; FSC No.: 31160; Empl.: 350; *Sls. Mgr.:* Roger Evans

datum inc

DATUM INC., Timing/Aacom Divisions, 1363 S. State College Blvd., Anaheim, CA 92806, Tel: 714-533-6333, Telex: 4722045 (Intl.), TWX: 910-592-1289; FSC No.: 31160; Empl.: 280; *Sls. Mgr.:* Charles Neumann ....3•1154, 1155

Local Sales Offices & Reps

AL	Huntsville, Lee Assocs.	205-533-5896
AZ	Scottsdale, BFA Corp.	602-994-5400
CA	Anaheim, Datum	714-533-6333
CA	San Diego, M. Ficken	619-292-9392
CA	Santa Clara, Ward/Davis Assocs.	408-245-3700
CO	Denver, BFA Corp.	303-777-8070
CT	Mt. Carmel, Scientific Devices-New England	203-248-9361
FL	Fort Walton Beach, RAM-Z	904-862-2700
FL	Sarasota, RAM-Z	813-957-4900
FL	Sebastion, RAM-Z	305-388-0784
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs.	317-293-5437
IA	Cedar Rapids, Marsland Assocs.	319-396-8030
MA	Waltham, Daner-Hayes	617-894-7290, 800-225-8760
MA	Waltham, Scientific Devices-New England	617-890-2252
MI	New Berlin, Marsland	414-786-6611
MI	Plymouth, Daner-Hayes	313-464-4520
MI	Plymouth, Micro Sls. Corp.	313-459-1670
MN	Minneapolis, Marsland Assocs.	612-545-4481
MO	St. Louis, Marsland Assocs.	314-991-1399
NJ	Haddonfield, G. L. Williams Assocs.	609-428-6060
NM	Albuquerque, BFA Corp.	505-292-1212
NM	Las Cruces, BFA Corp.	505-524-9693
OH	Centerville, Micro Sls. Corp.	513-433-8171
OH	No. Olmsted, Micro Sls. Corp.	216-734-3080
OK	Tulsa, Data Mktg. Assocs.	918-496-1457
PA	Pittsburg, Microsales	412-471-0105
TX	Austin, Data Mktg. Assocs.	512-451-5174
TX	Dallas, Data Mktg. Assocs.	214-661-0300
TX	El Paso, BFA Corp.	915-542-1762
TX	Houston, Data Mktg. Assocs.	713-780-2511
TX	San Antonio, Data Mktg. Assocs.	512-342-3031
UT	Salt Lake City, BFA Corp.	801-466-6522
VA	McLean, Creative Mktg. Assocs.	703-442-9100
WA	Seattle, Comptronics	206-284-4842

DAVEN COMPONENTS GRP., See Armtec Inds., Inc., Daven Comps. Grp.

DAVIDSON ELCTRN. DEV. CO., 113 E. 13th St., Erie, PA 16512, Tel: 814-453-7547, Telex: 914-529; Empl.: 27

DAVIES, HARRY, MOLDING CO., 4920 Bloomingdale Ave., Chicago, IL 60639, Tel: 312-622-8966; FSC No.: 72512; Empl.: 140; *Sls. Mgr.:* Leo A. Sera; *Dist. Mgr.:* Leo A. Sera

Local Sales Offices & Reps

AZ	Mesa, Littrell Western Sls.	602-838-7300
AR	Little Rock, L. E. Offutt Co.	501-225-8192
CA	Belmont, Littrell Western Sls. Inc.	415-592-3346
CA	Monterey Park, Littrell Western Sls.	213-261-0164
CO	Wheat Ridge, Christensen Sls.	303-423-8833
CT	Hartford, Sturgeon Co.	203-249-7800
FL	Pinellas Park, Carpenter Assoc.	813-546-8296
IL	Chicago, Druse Corp.	312-745-9073
IN	Noblesville, McCaw Sls.	317-877-5300
IA	Cedar Rapids, Clancey Co.	319-365-7141
IA	Des Moines, Clancey Co.	515-278-1331
KS	Shawnee Mission, Clancey Co.	913-432-4550
MA	Needham Heights, P. R. Sturgeon Co.	617-444-6603
MI	Detroit, Bishop-Strek & Co.	313-538-0595
MN	Bloomington, Clague Sls. Corp.	612-944-7982
MO	St. Louis, Clancey Co.	314-225-0800
NY	Wading River, Rywel Sls.	516-929-4884
NC	Matthews, Anthom, Inc.	704-847-7363
OH	Westlake, Foley Co.	216-871-8830
OR	Lake Oswego, Tri-Rep	503-635-4760
PA	Erie, H. De Paulis	814-838-7874
PA	Paoli, W. G. Walker	215-627-8146
TN	Brentwood, L. E. Offutt Co. Inc.	615-373-2951
TN	Memphis, L. E. Offutt Co.	901-396-3320
TX	Dallas, L. T. Greenwood	214-522-8718
WI	Milwaukee, Clague Sls.	414-272-1951

DAVIS, J. W., & CO., P.O. Box 26177, Dallas, TX 75226, Tel: 214-651-7341; Empl.: 42

DAVIS ELEC. CO., Box 38, Cape Girardeau, MO 63701, Tel: 314-335-5547; Empl.: 40

DAVONG SYSTEMS, INC., 217 Humboldt Ct., Sunnyvale, CA 94089, Tel: 408-734-4900, Telex: 176386; *Sls. Mgr.:* Donna Barry; *Dist. Mgr.:* Frank Jordan

DAYCO CORP., 333 W. First St., Dayton, OH 45402, Tel: 513-226-5927, Telex: 288219, TWX: 810-459-1822; Empl.: 10000

DAY-LIGHT DISPLAY CORP., 4 Barnet Rd., P.O. Box 694, Pine Brook, NJ 07058, Tel: 201-575-1045; FSC No.: 57736; Empl.: 14; *Sls. Mgr.:* P. Schneider

DAYTRONIC CORP., 2589 Corporate Pl., Miamisburg, OH 45342, Tel: 513-866-3300, TWX: 810-473-2978; Empl.: 109; *Sls. Mgr.:* John A. Perkins

D-B-DEVELOPMENTS, 7709 Kilbourne Rd., Rome, NY 13440, Tel: 315-339-1265; Empl.: 3

D-CEMCO, INC., 3200 N. San Fernando Blvd., Burbank, CA 91504, Tel: 213-849-6341, TWX: 910-498-2228; Empl.: 30

Local Sales Offices & Reps

AL	Decatur, Tenn Tech Inc.	205-350-0630
AZ	Scottsdale, Gleason Sls. Co.	602-946-3992
CA	Los Altos, Frauman Assoc.	415-941-0660
CA	San Diego, Hill & Assoc.	619-560-6368
CO	Longmont, Piper Sls. Co.	303-651-2378
FL	Maitland, Delmac Sls.	305-423-7562
IN	Fort Wayne, Jim Finnegan & Co.	219-747-9525
MA	Marlboro, O.K. Engrg. Co.	617-481-6400
MN	Minneapolis, Bitronics Sls.	612-835-7744
NJ	Fort Lee, Necco	201-461-2789
NJ	Jenkintown, Arnold Assoc.	215-742-0600
OH	Cincinnati, Jim Finnegan & Co.	513-931-1686
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
OR	Portland, Jud LeBrun Co., Inc.	503-244-6805
PA	Jenkintown, Arnold Assoc.	215-742-0600
TX	Austin, Stevens Sls. Co.	512-250-5104
TX	Dallas, Stevens Sls.	214-350-2470
UT	Salt Lake City, Piper Sls. Co.	801-268-8707
VA	Reston, Boyle Assocs.	703-620-9558

DCI, INC., 720 E. Dennis, Olathe, KS 66061, Tel: 913-782-5672; FSC No.: 58677; Empl.: 9; *Sls. Mgr.:* William D. Cook ....3•132

Local Sales Offices & Reps

AZ	Phoenix, J. Smith & Assoc.	602-267-098
CA	San Diego, Windsor Dynamics	714-452-189
CA	Sherman Oaks, Windsor Dynamics	213-990-417
CA	Woodside, N-S Assoc.	415-854-487
CO	Colorado Springs, J. Smith & Assoc.	303-597-534
CT	Tolland, R. G. Assoc.	203-875-420
FL	Melbourne, EME³	305-259-271
GA	Stone Mountain, Zelco	404-498-218
IL	Chicago, Commodore I	312-394-544
IN	Indianapolis, Commodore I	317-636-331
KS	Shawnee Mission, Vertec	913-677-320
MA	Danvers, R. G. Assocs.	617-777-319
MI	Detroit, Michigan Valve & Fitting	313-884-941
MN	Minneapolis, Trask Engrg.	612-537-243
MO	St. Louis, Vertec	314-394-624
NJ	Wayne, Ramapo	201-839-676
NM	Albuquerque, J. Smith & Assoc.	505-265-340
NY	Latham, L-Tron	518-785-503
NC	Charlotte, Zelco	704-523-296
OH	Columbus, R. D. Cloon Assoc.	614-459-289
PA	Radnor, Roberts Engrg. Sls.	215-688-652
TX	Richardson, Meas. Sys. & Sls.	214-644-495

DEAK TECHNOLOGY, INC., Sainte Claire Plaza, 1121 Boyle Rd., Pittsburgh, PA 15241, Tel: 412-341-2245; *Sls. Mgr.:* David Thornburg ....3•121

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DEARBORN WIRE & CABLE CO., 9299 Evenhouse Ave., Rosemont, IL 60018, Tel: 312-696-1000, TWX 910-253-0343; Empl.: 80 ....2•2096-210

Local Sales Offices & Reps

CA	Chino, Dearborn West	714-591-939
CA	San Diego, OHM Spun Elctrns.	619-695-810
CO	Littleton, Advanced Technlg. Mktg.	303-979-842
FL	Orlando, Admiral Sls.	305-352-004
GA	Atlanta, Beacon Assocs.	404-256-964
IL	Chicago, LGS Sls.	312-456-961
IL	Wilmette, Joel Wasserman Assocs.	312-256-356
IN	Indianapolis, Elctrn. Reps.	317-894-141
MA	Clinton, F. J. Coleman & Co.	617-368-011
MI	Southfield, R. C. Merchant & Co.	313-354-430
MI	St. Joseph, R. C. Merchant & Co.	616-983-737
MN	Golden Valley, Ambassador Indl. Mktg.	612-542-843
MO	St. Charles, Buckman & Assocs.	314-946-620
NJ	Livingston, Accurate Wire & Cable	201-533-010
NJ	Medford, Jack McCoy, Inc.	609-953-077
NY	Fairport, Net Sls.	716-467-453
OH	Richfield, Bear Mktg.	216-659-313
PA	Downington, Jack McCoy, Inc.	215-363-035
TN	Memphis, Electronic Sls. Co.	901-682-228
VA	Lynchburg, Mechanical Assocs.	804-237-628
WA	Everett, Huntley Assocs.	206-353-183

Local Distributors

AL	Huntsville, Chase Elctrns.	205-536-0738
AL	Madison, S.E.A. Wire and Cable	205-772-9616
CA	Chatsworth, Sonic Wire	213-701-0565
CA	Inglewood, Newark Elctrns.	213-678-0441
CO	Denver, Newark Elctrns.	303-757-3351
FL	Altamonte Springs, Royce Elctrns.	305-869-4700
FL	Ft. Lauderdale, Pacer Elctrns.	305-462-0902
FL	Ft. Lauderdale, Simcona Elctrns.	305-485-4455
IL	Bloomington, K. L. Tannehill	612-881-6700
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Elk Grove Village, GBL/Goold Elctrns.	312-593-3220
IL	Northbrook, Classic Comps.	312-272-9650
IL	Palatine, Ohm Elctrns.	312-359-5500
IN	Carmel, Altex	317-848-1323
IN	Evansville, Hutch & Sons	812-425-7201
IN	Indianapolis, Genesis Elctrns.	317-637-5571
IA	Cedar Rapids, Deeco	319-365-7551
LA	New Orleans, Radio Parts	504-581-5959
MI	Grand Rapids, R. M. Electrns.	616-531-9300
MI	Grand Rapids, SF Elctrns.	616-459-0216
MI	Livonia, RS Elctrns.	313-525-1155
MI	Oak Park, Newark Elctrns.	313-967-0600
MN	Bloomington, K. L. Tannehill	612-881-6700
MN	Bloomington, Berquist Corp.	612-835-2322
MN	Bloomington, NWR Elctrns.	612-854-7329
MN	Hibbing, NWR Elctrns.	218-262-5228
MN	Minneapolis, Newark Elctrns.	612-331-6350
MO	St. Charles, Finnigan Elctrns.	314-946-6201
NJ	Dover, Electro Spec	201-361-6300
NJ	E. Brunswick, Brothers Elec.	201-238-2200
NJ	W. Collingswood Hgts., The Edge Supp.	609-456-3955
NM	Albuquerque, Walker Elctrn. Supp.	505-247-2288
NY	Binghamton, Help Elctrns.	607-729-3528
NY	Elmira, CAC Elec. Supp.	607-734-1696
NY	Fairport, Pacer Elctrns.	716-377-0462
NY	Rochester, Simcona Elctrns.	716-328-3230
NY	Troy, Trojan Elctrn. Supp.	518-274-4481
OH	Akron, Akron Elctrn. Supp.	216-762-8818
OH	Valley View, Newark Elctrns.	216-447-8860
PA	Harrisburg, Pyttronics	717-236-8001
PA	McKean, Advacom	814-476-7774
TX	Austin, R.S.I.	512-834-2015
TX	Dallas, Shearson Elec.	214-340-3094
TX	Garland, Newark Elctrns.	214-487-8144
TX	Houston, Newark Elctrns.	713-782-4800
UT	Salt Lake City, RA-ELCO	801-487-0571
VA	Charlottesville, Virginia Radio Supp.	804-296-4184
VA	Lynchburg, Components Unltd.	804-237-6286
WA	Seattle, Carlyle Tech. Sls.	206-575-6750
WI	Milwaukee, Marsh Elctrns.	414-475-6000

DECC DIV., See Helionetics, Inc., DECC Div.

DECISION DATA COMPUTER CORP., 100 Witmar Rd., Horsham, PA 19044

DECOM SYS., 340 Rancheros Dr., San Marcos, CA 92069, Tel: 619-744-1002, TWX: 910-322-1758; FSC No.: 55744; Empl.: 44; *Sls. Mgr.:* G. F. Tremain

Local Sales Offices & Reps

AL	Lake Guntersville, Kelley Sys. Corp.	205-582-8677
CA	Los Angeles, L. L. Stoakes, Inc.	213-640-2178
CA	Palo Alto, Egbert Engrg.	415-326-1387
CA	San Diego, L. L. Stoakes, Inc.	619-452-1600
CO	Boulder, Grady Moore Assocs.	303-494-3351
FL	Sarasota, S. Bass Assocs.	813-922-9538
IN	Indianapolis, Loren Green Associates	317-293-9827
KS	Shawnee Mission, Techn. Sls. Assocs.	913-888-3330
MD	Severna Park, Delmarva, Ltd.	301-647-8007
MA	Bedford, Claflin Assocs.	617-275-7428
MO	St. Louis, Techn. Sls. Assocs.	314-725-5361
NM	Albuquerque, Grady Moore Assocs.	505-262-1416
PA	Huntingdon, Rabal Assocs.	215-947-4825
EXP	CA, San Marcos, Decom Sys.	619-744-1002

DE COURSEY ENGRG. LAB., 11828 W. Jefferson, Culver City, CA 90230, Tel: 213-EX7-9668; Empl.: 7

DEGUSSA, Rte. 46 & Hollister, Teterboro, NJ 07608, Tel: 201-288-6500, Telex: 134610, TWX: 710-990-6143; FSC No.: 630673043; *Sls. Mgr.:* Paul M. Silberman

DEK, INC., 3480 Swenson Ave., St. Charles, IL 60174, Tel: 312-377-2575, Telex: 297284 DEK UR; Empl.: 115; *Sls. Mgr.:* L. R. Pappone

Local Distributors

AZ	Tempe, Waltronics Sls.	602-967-1020
CA	Riverside, Elctrn. Supp.	714-683-7300
CA	Santa Clara, Waltronic Sls.	408-727-1200
IL	Addison, L-Comp	312-628-1400
MD	Hanover, Vertex-Mid Atlantic	301-796-5000
MA	No. Wilbraham, Indl. Comps. Corp.	413-596-3854
MI	Lavonia, Camelot Elctrns.	313-427-8660
MN	St. Paul, Arden Indl. Prods.	612-483-6681
MO	Maryland Heights, L-Comp	314-291-6200
NJ	East Orange, Willgold Sls. Corp.	201-678-7700
NJ	Kenilworth, Federated	201-272-0505
NY	Farmingdale, Vertex Elctrns.	516-293-9880
OH	Columbus, Elctrn. Mktg.	614-299-4161
PA	Philadelphia, Phila. Elctrns.	215-568-7400
TN	Paris, Southern States Indl. Sls.	901-642-0885
TX	Crowley, Service Assocs.	817-297-4604
TX	Dallas, Wholesale Elctrn.	214-824-3001
TX	Ft. Worth, Ft. Worth Wire & Cable	817-332-8252
UT	Ogden, Grimes Mktg.	801-546-4029
WI	Waukeshaw, Cable Comps.	414-785-1060

DELBERT BLINN CO., Box 2007, Pomona, CA 91766, Tel: 714-629-3900; Empl.: 10 .... **1A**•2093

Local Sales Offices & Reps

CA	San Carlos, Baytronic's	415-588-0958
MD	Baltimore, Callas Elctrns.	301-744-7711
NY	Commack, Kaelber & Mack	516-499-2924
WA	Woodinville, W. J. Stulgis Co.	206-486-8539

Local Distributors

MN	Minneapolis, Stark Elctrns.	612-332-1325

DELCO WIRE & CABLE, INC., 257 Rittenhouse Cir., Bristol, PA 19007, Tel: 215-785-0511, Telex: 06-964523, TWX: 510-667-0968; *Sls. Mgr.:* T. Blick

DEL ELCTRNS. CORP., 250 E. Sandford Blvd., Mt. Vernon, NY 10550, Tel: 914-699-2000, TWX: 710-562-0130; FSC No.: 01378; Empl.: 180 .... **1A**•2151; **3**•1546, 1547

Local Sales Offices & Reps

AZ	Tempe, Trembly Assocs.	602-967-2058
CA	Pasadena, A-F Sales Engrg.	213-681-5631
CA	San Carlos, Winco Sls.	415-592-0357
CO	Lakewood, Trembly Assocs.	303-233-9544
IL	Elmhurst, Scott Assocs.	312-279-5681
MA	Burlington, TriTek	617-272-4550
MI	Dearborn, Pitcher-Poulin	313-582-5450
NV	Las Vegas, Trembly Assocs.	702-739-9770
NM	Albuquerque, Trembly Assocs.	505-266-8616
NY	Smithtown, T & K Sales	516-724-3456
OK	Tulsa, Barry Sales	918-749-7775
OR	Portland, Syscom Sls., Inc.	503-644-2505
PA	Ardmore, Martin Assoc.	215-649-6332
TX	Houston, Barry Sales	713-784-5860
TX	Richardson, Barry Sales	214-234-0255
UT	Salt Lake City, Trembly Assocs.	801-486-5292
WA	Bellevue, Syscom Sls., Inc.	206-641-5080

DELEVAN DIV., American Precision Inds. Inc., 270 Quaker Rd., E. Aurora, NY 14052, Tel: 716-652-3600, Telex: 91-293; FSC No.: 99800; Empl.: 400; *Sls. Mgr.:* R. Nareau .... **1A**•1243

Local Sales Offices & Reps

AL	Huntsville, Conley & Assocs.	205-882-0316
AZ	Phoenix, Toward Engrg.	602-955-3193
CA	Culver City, Bestronics	213-870-9191
CA	El Toro, Delevan	714-768-5522
CA	Freemont, Advanced Technlg. Sls.	415-651-0123
CA	Irvine, Bestronics	714-261-7233
CA	San Diego, Bestronics	619-452-5500
CA	Woodland Hills, Bestronics	213-704-5616
CO	Aurora, High Tech Assocs.	303-695-1990
FL	Boca Raton, Conley & Assocs.	305-395-6108
FL	Oviedo, Conley & Assocs.	305-365-3283
FL	Tampa, Conley & Assocs.	813-885-7658
GA	Doraville, Conley & Assocs.	404-447-6992
IL	Downers Grove, Momak Sls.	312-963-6400
IN	Fort Wayne, Walter W. Bieberich	219-432-2537
IN	New Albany, Walter W. Bieberich	812-945-3187
IA	Cedar Rapids, Lorenz Sls.	319-377-4666
KS	Parker, S. W. Wollard	913-898-6552
MD	Lutherville, D. A. Dougherty Sls. Co.	301-321-7890
MA	Boston, P. J. Engrg. Sls. Co.	617-924-5950
MN	Mendota Hgts., G-II Sls.	612-454-3086
NJ	Bellmawr, TAI	609-933-2600
NJ	Parlin, Martech Assocs.	201-721-2200
NY	Endicott, Tech-Mark	607-748-7473
NY	Manhassett, Martech Assocs.	516-627-1151
NY	Mendon, Tech-Mark	716-624-3840
NY	Whitesboro, Tech-Mark	716-624-3840
NC	Raleigh, Conley & Assoc.	919-876-9862
OH	Beachwood, Electronic Salesmasters	216-831-9555
TX	Irving, Kite Elctrn. Sls. Co.	214-438-9336
WI	Milwaukee, Momak Sls.	414-963-1590

Local Distributors

CA	Chatsworth, IEC	213-998-2200
CA	Glendale, R. V. Weatherford	213-849-3451
CA	Santa Clara, WDG/Santa Clara	408-727-2500
FL	West Palm Beach, Nurmi Elctrn. Supp. Co.	305-686-8553
IN	South Bend, Genesis Elctrns.	219-287-2911
MD	Sauage, Pyttronics Inds. Inc.	301-792-0780
MA	Boston, P. J. Engrg. Supp.	617-783-0510
NJ	New Brunswick, Brothers Elctrns.	201-238-2200
NY	Bohemia, Car-Lac	516-567-4200
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Farmingdale, Milgray/New York	516-420-9800
PA	Norristown, Century Elctrn. Comp.	215-631-5400
TX	Dallas, R. V. Weatherford Co.	214-931-7333
TX	Fort Worth, Patco Supply	817-429-8596
Can	Burnaby B.C., R-A-E Indl. Elctrns. Ltd.	604-291-8866
Can	Don Mills, Ontario, Saynor Elctrns. Ltd.	416-445-2347
Can	Montreal, Quebec, Prelco Elctrns. Ltd.	514-389-8051
Can	Pointe-Claire Quebec, Future Elctrn.	514-694-7710

DELTA DESIGN, 5775 Kearny Villa Rd., San Diego, CA 92123, Tel: 619-292-5000, TWX: 910-335-1215; Empl.: 150; *Sls. Mgr.:* Bob Williams

DELTA ELECTRONIC CONTROLS CORP. (DECC), See Helionetics, Inc., DECC Div.

DELTA ELECTRONIC IND. USA, Delta Elctrn. Ind. Co. Ltd., 3401 Investment Blvd., Ste. 5, Hayward, CA 94545, Tel: 415-785-5231, 415-785-5235, Telex: 4992342 DELTAITTHY; Empl.: 1000; *Sls. Mgr.:* Bruce Cheng; *Dist. Mgr.:* Bruce Cheng .... **1A**•1590, 1591

Local Sales Offices & Reps

AL	Huntsville, Technlg. Mktg. Assocs. Inc.	205-883-7893
AZ	Scottsdale, Summit Sls.	602-998-4850
CA	Mountain View, Taarcom Inc.	415-960-1550
CA	National City, Tri-Electro Sls.	619-470-1564
CA	Simi Valley, Tri-Electro Sls.	805-583-5124
CO	Aurora, Mountain View Mktg. Ltd.	303-360-9641
CT	Waterbury, Compak	203-755-5629
CT	Wethersfield, Compak	203-563-4784
FL	Atlanta, Technlg. Mktg. Assocs., Inc.	404-257-0374
FL	Melbourne, Technlg. Mktg. Assocs., Inc.	305-254-2554
FL	Orlando, Technlg. Mktg. Assocs., Inc.	305-857-3760
FL	Pompano Beach, Technlg. Mktg. Assocs., Inc.	305-942-0774
IL	Chicago, United Prods. Co.	312-631-1122
IN	Indianapolis, Electronic Sls. & Engrg., Inc.	317-849-4260
IA	Cedar Rapids, Palatine Engrg. & Sls. Inc.	319-365-8071
KS	Mission, Palatine Engrg. & Sls. Inc.	913-831-0555
KS	Wichita, Palatine Engrg. & Sls. Inc.	316-262-1020
MD	Baltimore, Burgin-Kreh Assocs. Inc.	301-265-8500
MA	Woburn, Compak	617-938-8580
MA	Woburn, Mascon Inc.	617-938-8950
MN	Edina, Monroe Hanna	612-925-5700
MO	Hazelwood, Palatine Engrg & Sls.	314-839-0800
NJ	Kenilworth, Ventronics	201-272-9262
NC	Charlotte, Robert W. Chapman & Co.	704-525-2421
NC	Greensboro, Robert W. Chapman & Co.	919-282-0740
NC	Raleigh, Robert W. Chapman & Co.	919-782-2624
OK	Tulsa, Advance Tech. Sls., Inc.	918-664-0482
OR	Portland, Jas. J. Backer & Co.	503-297-8744
OR	Salem, Jas. J. Backer & Co.	503-362-0717
SC	Greenville, Robert W. Chapman & Co.	803-288-8821
SC	W. Columbia, Robert W. Chapman & Co.	803-256-0072
TX	Austin, Advance Tech. Sls., Inc.	512-459-1351
TX	Dallas, Advance Tech. Sls., Inc.	214-340-1300
TX	Houston, Advance Tech. Sls., Inc.	713-440-3888
UT	Murray, Mountain View Mktg.	801-261-4867
VA	Lynchburg, Burgin-Kreh Assocs., Inc.	804-239-2626
WA	Seattle, Jas. J. Backer Co.	206-285-1300
PR	San Juan, Electronic Tech. Sls.	809-790-1300

Local Distributors

CA	Mountain View, Cornett Elctrns.	415-969-5420
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Torrance, Cypress Elctrns.	213-533-6005
IL	Chicago, UPCO Distrs., Ltd.	312-631-1122
IA	Cedar Rapids, Bergquist Co.	319-366-8733
MA	Wellesley Hills, Target Elctrn. Supp., Inc.	616-235-2545
MN	Minneapolis, Bergquist Co.	612-835-2322

DELTA ELCTRNS., 145 Fayette St., Winston-Salem, NC 27101, Tel: 919-725-4122; Empl.: 45; *Sls. Mgr.:* L. E. Hancock

DELTA ELECTRONICS MFG. CORP., 416 Cabot St., Beverly, MA 01915, Tel: 617-927-1060

DELTA PRODS., Box 1147, Grand Junction, CO 81501, Tel: 303-242-9000; Empl.: 35; *Sls. Mgr.:* K. D. Braa

DELTA WIRE & CABLE CO., P.O. Box 833, 1900 Marquette, North Chicago, IL 60064, Tel: 312-473-4990; Empl.: 12; *Sls. Mgr.:* Mike Golden; *Dist. Mgr.:* Matt Coleman

DELTROL CONTROLS, 2745 S. 19th St., Milwaukee, WI 53215, Tel: 414-671-6800; Empl.: 300 .... **1B**•1334, 1335, 1482, 1483

Local Sales Offices & Reps

CA	Canoga Park, Cummings & Assocs.	213-340-6035
CA	Santa Clara, Cummings & Assocs.	408-247-8656
CO	Denver, Cummings & Assocs.	303-455-6860
CT	Marion, Sands Co.	203-628-4363
FL	Lighthouse Point, J. Krutek & Assocs.	305-941-6544
HI	Honolulu, Aloha Assocs.	808-941-1574
IN	Indianapolis, Nationwide Comps.	317-872-7207
MD	Woodbine, Naudain Assocs.	301-252-5378
MI	Farmington Hills, W. R. Hummon & Assocs.	313-474-0661
MN	St. Paul, Kencotronics	612-645-7717
MO	Ellisville, Weisler & Assocs.	314-394-4543
MO	Kansas City, Weisler & Assocs.	816-421-1679
NJ	Marlton, Naudain Assocs.	609-235-1801
NY	Babylon, Astrorep.	516-422-2500
NY	Rochester, Omni Sls.	716-473-3340
NC	Charlotte, JWL Assocs.	704-364-3177
OH	Willoughby, Nationwide Comp. Reps.	216-946-3226
OR	Portland, Cummings & Assocs.	503-761-4411
PA	Philadelphia, Naudain & Assoc.	609-235-1801
TX	Garland, R. May Assocs.	214-276-5214

Local Distributors

AL	Montgomery, Southern Controls	205-277-5030
AZ	Phoenix, Elctrns. Parts Co.	602-277-7281
AR	Little Rock, Carlton-Bates Co.	501-562-9100
CA	Anaheim, Electro Comps. Distrs.	714-634-0222
CA	Buena Park, Control Design	714-521-5040
CA	Canoga Park, C & A Elctrns.	213-340-6022
CA	Los Angeles, Electric Switches	213-664-2125
CA	Los Angeles, Electro Comps. Distrs.	213-264-7100
CA	Mt. View, Corrnett Elctrns.	415-969-5420
CA	Pasadena, Dow Radio Co.	213-793-1195
CA	San Jose, Consolidated Parts	408-263-9521
CA	Tustin, Western Switches	714-731-4333
CO	Colorado Springs, Centennial Elctrns.	303-633-4666
CO	Denver, Integrated Elctrns.	303-534-6121
CO	Denver, Fistell's Elctrn. Supp.	303-629-1312
CO	Englewood, Industrial Elctrns.	303-771-2632
CO	Grand Junction, Radio & Elctrns. Supp.	303-243-3346
CT	Danbury, Pilgrim Elctrns.	203-792-7274
FL	Altamore Springs, Control Des.	305-788-3220
FL	Ft. Lauderdale, Peerless Radio Corp.	305-566-5966
FL	Ft. Lauderdale, SE Elctrns.	305-563-4131
FL	Jacksonville, Mitchell Elctrns.	904-356-8427
FL	Orlando, Hammond Elctrns.	305-849-6060
FL	Tampa, Leader Elctrns. Distrs.	813-870-3315
GA	Atlanta, Georgia Control Ctr.	404-876-8833
GA	Atlanta, A-C Equip.	404-451-2747
ID	Boise, Kimball Elctrns.	208-342-3559
ID	Pocatello, Kimball Elctrns.	208-232-2201
IL	Chicago, Otto Frankenbush	312-647-0755
IL	Elk Grove Village, GBL	312-593-3222
IL	Genoa, Control Design	815-784-6515
IL	Rosemont, Advent Elctrns.	312-295-4210
IN	Indianapolis, Advent Elctrns.	317-297-4910
IN	Indianapolis, Warren Radio Co.	317-634-5566
IN	Indianapolis, Control Design	317-788-4559
IN	Lafayette, CWY Elctrns.	317-447-4617
IA	Cedar Rapids, Iowa Radio Supp.	319-364-6154
IA	Davenport, Warren Radio	319-322-5301
IA	West Des Moines, Ramco Co.	515-225-6933
KS	Kansas City, Kornfield Thorp Elec.	913-321-7070
KS	Topeka, Carroll Radio	913-234-6677
KY	Ashland, Ashland Elec. Co.	606-324-4107
KY	Bowling Green, Randolph, Hale & Meredith	502-781-1460
KY	Louisville, Peerless Elctrn. Equip.	502-637-7677
KY	Paducah, Warren Radio Co.	502-442-4367
LA	Shreveport, Indl. Elec. Supp.	318-222-9459
MA	Brighton, Interstate Elctrns. Equip.	617-782-9000
MA	Newton Upper, Instock Prods.	617-964-6200
MA	Wakefield, Lorcor Elec.	617-246-1903
MI	Augusta, Great Lakes Elec.	616-731-4156
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Flint, Michigan Elctrns.	313-232-6550
MI	Flint, Roth Elec. Supp.	313-234-8661
MI	Kalamazoo, Warren Radio	616-381-4203
MN	Minneapolis, Control Design	612-721-6555
MO	Kansas City, Western Extralite	816-421-8404
MO	St. Louis, Van Sickle Radio Elctrns.	314-621-5000
MO	St. Louis, Control Design	314-426-3150
NJ	Edison, William Elctrns. Supp.	201-985-3700
NJ	Fairlawn, Relay Specialties	201-797-3313
NY	Farmingdale, Ramtronix	516-752-1272
NY	Hempstead, Davis Elctrns.	516-483-9200
NY	Hempstead, Elctrn. Equip. Co.	516-895-5757
NY	Jamestown, Warren Radio	716-484-1141
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Rochester, Masline Elctrns.	716-546-5373
NC	Raleigh, SE Elec.	919-828-2311
ND	Grand Forks, Border States	701-772-3477
OH	Cincinnati, United Radio	513-761-4030
OH	Columbus, McJunkin Corp.	614-294-3711
OH	Toledo, Warren Radio Supp.	419-248-3364
OH	Wickliffe, Gateway Elctrns.	216-944-8565
OK	Ardmore, Ardmore Elec. Supp.	405-223-3571
OR	Eugene, Portland Elec. & Plumbing	503-243-6885
OR	Eugene, North Coast Elec. Co.	503-343-7701
OR	Portland, Portland Elec. & Plumbing Co.	503-243-6832
OR	Portland, Dunn Elec.	503-285-0214
PA	Erie, REM Elctrns.	814-453-5626
PA	Malvern, Control Design	215-296-0150
PA	Philadelphia, Anco Elec.	215-468-5544
PA	Philadelphia, Lindley Elec.	215-329-7005
SC	Greenville, Hammond Elec.	803-233-4421
TN	Chattanooga, Curle Elctrns.	615-266-4728
TN	Memphis, Warren Radio	901-274-2460
TX	Dallas, Dallas Instrs.	214-394-1180
TX	Dallas, Watson Elec. Supp.	214-742-8441
TX	Dallas, Control Design	214-358-1441
TX	Dallas, J & S Elec.	214-681-1394
TX	El Paso, Midland Specialty	915-533-9555
TX	Lubbock, R & R Elec. Co.	806-765-7727
TX	San Antonio, Blackburn Drives Controls	512-349-2621
UT	Salt Lake City, Kimball Elctrns.	801-328-2075
VA	Ashland, Hermitage Distrs.	801-328-2075
VA	Staunton, Southern Elec.	703-886-6218
WI	Manitowac, Englewood Elec.	414-684-6653
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CA	City of Industry	213-333-5291
CA	Redwood City	415-365-6736
FL	Altamonte Springs	305-830-1549
IL	Des Plaines	312-298-8870
MI	Southfield	313-354-7440
MO	St. Louis	314-569-3050
NY	Armonk	914-273-6550
NC	Gastonia	704-867-8315
OH	Cincinnati	513-621-0865
PA	Wayne	215-687-9806
TX	Dallas	214-680-9846

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DESIGN AUTOMATION, 809 Massachusetts Ave., Lexington, MA 02173-3992, Tel: 617-862-8998, Telex: 951833 SBSB WOR; Empl.: 5

DESIGN TECHNOLOGY, 7760 Vickers St., San Diego, CA 92111-1871, Tel: 619-268-8194; *Sls. Mgr.:* Pam Hamilton; *Dist. Mgr.:* Sherry Kuzara

DESPATCH INDS., P.O. Box 1320, Minneapolis, MN 55440, Tel: 612-331-1873, Telex: 29-0704; Empl.: 475; *Sls. Mgr.:* T. Oelfke;R. Pieper;J. Paulson

DEST CORP., 2380 Bering Dr., San Jose, CA 95131, Tel: 408-946-7100; Empl.: 50; *Sls. Mgr.:* Richard Dixon

DEUTSCH CO., Deutsch Fiber Optics Div., 7001 W. Imperial Hwy., Los Angeles, CA 90045, Tel: 213-649-1400; *Sls. Mgr.:* Ken Ahmad

DEUTSCH FASTENER, 1315 East Grand Ave., El Segundo, CA 90245, Tel: 213-322-8840, Telex: 66-4453, TWX: 910-348-6676; Empl.: 300; *Sls. Mgr.:* Ian J. Skone-Rees

DEUTSCH RELAYS, INC., 65 Daly Road, East Northport, NY 11731, Tel: 516-499-6000

DEVCO ENGRG., Control Sys. Div., 36 Pier Lane West, Fairfield, NJ 07006, Tel: 201-CA8-0321, Telex: 139-340; Empl.: 36

DEVELCO, INC., 404 Tasman Dr., Sunnyvale, CA 94089-1797, Tel: 408-734-5700, TWX: 910-339-9295; Empl.: 50; *Sls. Mgr.:* W. J. Baker

Local Sales Offices & Reps

TX	Houston, DEVELCO, Inc., Mr. Larry Wysong	713-436-9600
VA	Reston, Sphere Assocs.	703-471-7887

DEXCEL, Div. of Gould, 2285C Martin Ave., Santa Clara, CA 95050, Tel: 408-727-9833, TWX: 910-338-0180; Empl.: 210; *Sls. Mgr.:* Art Kawai

DEXTER RESEARCH CTR., INC., 7300 Huron River Dr., Dexter, MI 48130, Tel: 313-426-3921, Telex: 757075 DEXTER RES UD; Empl.: 22; *Sls. Mgr.:* D. M. Szeles

DGS ASSOCS., 1353 Sarita Way, Santa Clara, CA 95051, Tel: 408-554-1469

DIALIGHT CORP., 203 Harrison Pl., Brooklyn, NY 11237-1587, Tel: 212-497-7600, TWX: 710-584-5487; Empl.: 400; *Sls. Mgr.:* J. McNamara ... **1B**•1038, 1039

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AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, Ralph Stitzer Co.	602-997-7415
CA	Anaheim, Westrep	213-404-3881
CA	Pleasanton, Moulthrop Sls.	415-463-0450
CA	San Diego, Westrep	619-276-0751
CO	Boulder, Comp. Prods. Sls.	303-530-2800
FL	Ft. Lauderdale, Cartwright & Bean	305-735-4900
FL	Orlando, Cartwright & Bean	305-422-4531
GA	Atlanta, Cartwright & Bean	404-233-2939
IL	Chicago, D. Dolin Sls.	312-286-6200
IN	Indianapolis, Elctrn. Reps.	317-894-1414
KS	Shawnee Mission, K & M Sls.	913-262-1444
LA	Kenner, Cartwright & Bean	504-466-0020
MA	Needham, Mullin Tech. Sls.	617-444-4780
MI	Ferndale, Hilltronics	313-398-5556
MN	Minneapolis, Professional Sales For Ind.	612-944-8545
MS	Jackson, Cartwright & Bean	601-981-1170
NY	Liverpool, Precision Sls.	315-451-3480
NC	Charlotte, Cartwright & Bean	704-377-5673
NC	Raleigh, Cartwright & Bean	919-781-6560
OH	Dayton, K.W. Elctrn. Sls.	513-890-2150
OH	Shaker Hgts., K.W. Elctrn. Sls.	216-491-9177
OH	Worthington, K.W. Elctrn. Sls.	614-888-0483
OR	Tigard, Elctrn. Sources	503-684-0040
PA	Allison Park, K.W. Elctrn. Sls.	412-487-4300
PA	Broomall, L.D. Lowery	215-528-5170
TN	Knoxville, Cartwright & Bean	615-693-7450
TN	Memphis, Cartwright & Bean	901-276-4442
TX	Garland, Tesco	214-681-1376
TX	Houston, Tesco	713-777-1443
UT	Salt Lake City, Comp. Prods. Sls.	801-262-0000
WA	Bellevue, Elctrn. Sources	206-451-3500
WI	Milwaukee, D. Dolin Sls.	414-482-1111

Local Distributors

AZ	Tempe, Richey Western Elctrns.	602-894-9251
CA	Alhambra, Fisher/Brownell	213-289-0255
CA	Chatsworth, Diplomat Westates Elctrns.	213-341-4411
CA	Costa Mesa, Diplomat Westates	714-549-8401
CA	Gardena, Bell Indus.	213-515-1800
CA	Inglewood, Newark Elctrns.	213-671-7387
CA	Los Angeles, Richey Western Elctrns.	213-820-3777
CA	Sacramento, Sacramento Elctrns.	916-441-4821
CA	San Diego, Richey Western Elctrns.	714-565-4444
CA	San Diego, Fisher/Brownell	714-560-8545
CA	Santa Clara, Richey Western Elctrns.	408-727-7411
CA	Santa Clara, Fisher/Brownell	408-988-6041
CA	Sun Valley, Richey Western Elctrns.	213-768-3800
CA	Sunnyvale, Bell Indus.	408-734-8570
CA	Sunnyvale, Time Elect.	408-734-9888
CO	Denver, Newark Denver Elctrns.	303-757-3351
CO	Denver, CSID Inc.	303-292-9594
CT	Wallingford, Sager Elctrl. Supply	203-265-4600
FL	Ft. Lauderdale, Peerless Radio	305-973-4141
FL	Orlando, Hammond Elctrns.	305-849-6060
GA	Atlanta, Specialty Dist.	404-873-2521
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Northbrook, Classic Comps. Supp.	312-272-9650
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Peoria, Klaus Radio & Elect.	309-691-4840
IN	Ft. Wayne, Graham Elctrn.	219-423-3422
IN	Indianapolis, Graham Elctrn.	317-634-8202
IN	South Bend, Genesis Elctrn.	219-287-2911
KY	Louisville, P.I. Burks	502-589-3960
LA	Lafayette, Ralph's of Lafayette	318-234-4507
LA	New Orleans, Southern Radio Supp.	504-524-2343
MD	Baltimore, Resco/Baltimore	301-937-9100
MD	Gaithersburg, Pioneer Wash. Elect.	301-948-0710
MD	Rockville, Capitol Radio Whlsrs.	301-881-2270
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Springfield, T.F. Cushing	413-788-7341
MA	Wilbraham, Ind'l. Comps.	413-596-3854
MI	Ann Arbor, Wedemeyer Elctrn. Supp.	313-665-8611
MI	Livonia, RS Elctrns.	313-525-1155
MI	Oak Park, Newark Elctrn.	313-967-0600
MN	St. Paul, Gopher Elctrns.	612-483-3322
MO	Kansas City, LCOMP	816-221-2400
MO	Kansas City, Walters Radio Supp.	816-531-7015
MO	Maryland Hgts., LCOMP	314-291-6200
NE	Lincoln, Scott Elctrn. Supp.	402-466-8221
NJ	Hanover, State Elctrns.	201-887-2550
NJ	Kenilworth, Federated Electronics	201-272-0505
NJ	Oakland, Gordon/Horne	201-337-5200
NJ	Pennsauken, Resco Elctrns.	609-662-4000
NY	Buffalo, Summit Dists.	716-884-3450
NY	Elmsford, Ancar Elctrns. Supp.	914-592-7100
NY	Endwell, ASI Elect.	607-754-3823
NY	Farmingdale, Arrow Elctrns.	516-694-6800
NY	Farmingdale, Harrison Radio	516-293-7990
NY	Long Island City, Dalis Indl. Elect.	212-361-1100
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Rochester, Summit Elctrns.	716-334-8110
NY	Rome, Rome Elctrns.	315-337-5400
NY	Woodbury, Pioneer/Harvey	516-921-8700
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Akron, Akron Elctrn. Supp.	216-762-8818
OH	Akron, Sun Radio	216-434-2171
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cincinnati, URI Elctrns.	513-761-4030
OH	Cleveland, Pioneer-Cleveland	216-587-3600
OH	Columbus, Hughes-Peters	614-294-5351
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Solon, REPCO Elctrn.	216-248-8900
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Beaverton, Almac Elctrns.	503-641-9070
PA	McKean, Advacom	814-476-7774
PA	Montgomeryville, Pyttronic Indus.	215-643-2850
PA	Philadelphia, Almo Elctrns.	215-698-4000
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	Pittsburgh, Cam RPC Elect.	412-782-3770
PA	Reading, Barbey Elctrns.	215-376-6116
RI	Providence, Wm. Dandreta	401-861-2800
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Kingsport, Radio Elec. Supp.	615-247-8111
TN	Nashville, Carlton-Bates Co.	615-244-3562
TX	Austin, Norvell Austin	512-458-8106
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Garland, Newark Elctrns.	214-494-5911
TX	Houston, Newark Elctrns.	713-782-4800
TX	Stafford, Harrison Equip.	713-879-2600
UT	Salt Lake City, Standard Supp.	801-486-3371
VA	Norfolk, Priest Elctrns.	804-855-0105
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Bellevue, Almac Elctrns.	206-643-9992
WA	Seattle, Zepher Elctrns.	206-241-1980
WI	Milwaukee, Marsh Elctrns.	414-475-6000
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WI	Milwaukee, Indl. Elect.	414-276-1212

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Local Sales Offices & Reps

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CA	Menlo Park, Kipp Assoc.	415-854-2856
CO	Aurora, Sage Sls.	303-750-3501
FL	Palm Bay, Spar Tech.	305-727-8045
GA	Smyrna, Spar Tech.	404-432-3644
IL	Northfield, Feller Assoc.	312-446-8065
IN	Fort Wayne, J&B Engr. Sls.	219-483-2813
IA	Cedar Rapids, Feller Assoc.	319-364-0566
KS	Overland Park, Deltron	913-649-2078
MD	Owings Mills, Neal Deoul Assoc.	301-363-4311
MA	Burlington, Microwave Mkt. Spec.	617-272-7530
MO	St. Louis, Deltron	314-869-4779
NY	Bayside, Robert Diamond, Inc.	212-423-7330
PA	Ambler, WM Assoc.	215-643-4119
TX	Dallas, Tritex Tech. Sls.	214-247-3041
UT	Salt Lake City, Sages Sls.	801-485-5111
WA	Kirkland, Manon Engr.	206-827-7449

DIETZ DESIGN, INC., 100 Electronics Pkwy., Belton, MO 64012, Tel: 816-331-4911; Empl.: 26

DIETZGEN CORP., 250 Wille Rd., Des Plaines, IL 60018, Tel: 312-635-5200; Empl.: 200

DIGELEC, INC., Affil. Wavetek Corp., 586 Weddell Drive, Suite 1, Sunnyvale, CA 94089, Tel: 408-745-0722, Telex: 821877; *Sls. Mgr.:* Dick Woods

Local Sales Offices & Reps

AL	Huntsville, W. A. Brown Instrs., Inc.	205-883-8660
AZ	Scottsdale, Barnhill Assocs., Inc.	602-947-7841
CA	Redondo Beach, Ward/Davis Assocs.	213-643-6977
CA	San Diego, Ward/Davis Assocs.	619-292-1000
CA	Santa Clara, Ward/Davis Assocs.	408-245-3700
CO	Englewood, Barnhill Assocs., Inc.	303-779-3600
CT	North Haven, Pat Jenks Assocs.	203-239-6201
FL	Orlando, W. A. Brown Instrs., Inc.	305-425-5505
GA	Norcross, W. A. Brown Instrs., Inc.	404-441-2980
HI	Honolulu, EMC Corp.	808-836-1138
IL	Arlington Heights, Dytec/Central Inc.	312-394-3380
IN	Indianapolis, Dytec/Central Inc.	317-247-1316
LA	Mandeville, W. A. Brown Instrs., Inc.	504-626-9701
MA	Woburn, Pat Jenks Assocs.	617-938-0488
MI	Madison Heights, WKM Assocs., Inc.	313-588-2300
MN	St. Paul, Dytec/North, Inc.	612-645-5816
NM	Albuquerque, Barnhill Assocs., Inc.	505-299-7658
NY	Fairport, Naco Elctrns. Corp.	716-223-4838
NY	N. Syracuse, Naco Elctrns. Corp.	315-699-2651
NY	Utica, Naco Elctrns. Corp.	315-732-1801
NC	Durham, W. A. Brown Instrs., Inc.	919-683-1580
OH	Dayton, WKM Assocs., Inc.	513-434-7500
OH	Independence, WKM Assocs., Inc.	216-524-5930
OK	Tulsa, Data Mktg. Assocs.	918-496-1457
PA	Bensalem, Eastern Instrmn. of Philadelphia	215-245-6660
PA	Pittsburgh, WKM Assocs., Inc.	412-892-2953
SC	Columbia, W. A. Brown Instrs., Inc.	803-798-8070
TN	Oak Ridge, W. A. Brown Instrs., Inc.	615-482-5761
TX	Austin, Data Marketing Assocs.	512-451-5174
TX	Dallas, Data Marketing Assocs.	214-661-0300
TX	Houston, Data Marketing Assocs.	713-780-2511
TX	San Antonio, Data Marketing Assocs.	512-342-3031
UT	Murray, Barnhill Assocs., Inc.	801-262-3000
VA	McLean, Creative Mktg. Assocs.	703-442-9100
WA	Redmond, Axiom Data Sys.	206-881-8447
WV	Pittsburgh, WKM Assocs., Inc.	412-892-2953
WI	Elm Grove, Dytec/Central, Inc.	414-784-9686

DIGIAC CORP., 175 Engineers Rd., Hauppauge, NY 11788, Tel: 516-273-8600, TWX: 510-227-9879; Empl.: 25; *Sls. Mgr.:* L. Keckeisen; *Dist. Mgr.:* S. Opperer

DIGI-DATA CORP., 8580 Dorsey Run Rd., Jessup, MD 20794, Tel: 301-498-0200, TWX: 710-867-9254; Empl.: 80; *Sls. Mgr.:* Allen Grams

DIGIMAX

DIGIMAX INSTRS. CORP., 5625 Kearny Villa Rd., San Diego, CA 92123, Tel: 619-569-6582, Telex: 697120-DATAMAX; FSC No.: 5T492; *Sls. Mgr.:* Dan Burton; *Dist. Mgr.:* Dan Burton 3-1217

DIGITAL COMMUNICATIONS ASSOCS., INC., 303 Technology Pk., Norcross, GA 30092, Tel: 404-448-1400, Telex: 261333 DCAATL

DIGITAL DATA SYS., 1551 N.W. 65 Ave., Plantation, FL 33313, Tel: 305-792-3290, Telex: 232 005 ATT DIGITAL; Empl.: 20; *Sls. Mgr.:* Floyd Simon; *Dist. Mgr.:* A. Gomez

DIGITAL DEV. CORP., 8650 Balboa Ave., San Diego, CA 92123, Tel: 619-278-9920, Telex: 69-54-30; Empl.: 430; *Sls. Mgr.:* Charles Theodore

DIGITAL DYNAMICS, INC., 123 Water St., Watertown, MA 02172, Tel: 617-923-4315, Telex: 9580076; Empl.: 21; *Sls. Mgr.:* Eric Kapust

DIGITAL ELCTRNS., 2614[illegible] Eden Landing Rd., Ste. 2, Hayward, CA 94545, Tel: 415-786-0520, Telex: 334422; *Sls. Mgr.:* Bob Christensen

DIGITAL EQUIP., One Iron Way, Marlborough, MA 01752

DIGITAL GRAPHIC SYS., 935 Industrial Ave., Palo Alto, CA 94303, Tel: 415-856-2500; *Sls. Mgr.:* Robert Pickthorn

DIGITAL LABS. INC., 600 Pleasant St., Watertown, MA 02172, Tel: 617-924-1680; Empl.: 15; *Sls. Mgr.:* William M. Kahn

DIGITAL MICROSYSTEMS, 1840 Embarcadera, Oakland, CA 94606, Tel: 415-261-1034, TWX: 910-366-7310; Empl.: 200; *Sls. Mgr.:* Jim Massey; *Dist. Mgr.:* Dennis Haynes

DIGITAL MEDIA, 3178 Gibraltar Ave., Costa Mesa, CA 92626, Tel: 714-751-1373; *Sls. Mgr.:* David Scott

DIGITAL PATHWAYS, INC., 1060 E. Meadow Cir., Palo Alto, CA 94303, Tel: 415-493-5544, TWX: 910-379-5034; *Sls. Mgr.:* Jan Legassick

DIGITAL POWER CORP., 686 East Gish Rd., San Jose, CA 95112, Tel: 408-288-5600, TWX: 910-338-0579; *Sls. Mgr.:* Claude Adkins .... 3•1549

Local Sales Offices & Reps

CA	Palo Alto, Qualtech	415-494-9060
PA	Montgomeryville, Eastern Scientific Mktg.	215-822-6503
TX	Garland, Tesco	214-681-1376
WA	Edmonds, Power Sources	206-784-3336

DIGITAL RADIO CORP., 8901 La Cienega Blvd., Inglewood, CA 90301, Tel: 213-670-8611; *Sls. Mgr.:* Arvin L. Perry

DIGITAL TRANSMISSION TECHNIQUES, INC., P.O. Box 1847, Wayne, NJ 07470, Tel: 201-831-1615; Empl.: 3; *Sls. Mgr.:* Charles Herbst

DIGITEC CORP., 918 Woodley Rd., P.O. Box 458, Dayton, OH 45401, Tel: 513-254-6251, Telex: 6874219 W.U.I.; FSC No.: 16152; Empl.: 135 .... 3•1077, 1156, 1157, 1326, 1327

Local Sales Offices & Reps

CA	Carlsbad, Elotek Sys.	714-438-4856
CA	Mountain View, IFM, Inc.	415-961-2828
CT	New Canaan, R. J. Sickles Assoc.	203-966-4630
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs.	317-924-3568
IA	Cedar Rapids, Marsland Assocs.	319-396-8030
KS	Shawnee, Marsland Assocs.	913-631-5400
MI	Southfield, Comtel-Instr.	313-358-2505
MN	Minneapolis, Marsland Assocs.	612-545-4481
MO	St. Louis, Marsland Assocs.	314-878-2402
NJ	Cherry Hill, Sci. Reps.	609-482-0059
NM	Albuquerque, Fry-Gates	505-262-1525
NY	Fayetteville, M. P. Andrews, Inc.	315-637-3144
OH	Cleveland, Comtel-Instr.	216-442-8080
OH	Dayton, Comtel-Instr.	513-298-7573
PA	Pittsburgh, Comtel-Instr.	412-922-5720
TX	Houston, Adaptive Controls	713-995-9791
UT	Salt Lake City, Meas. Conslts.	801-364-3174
VA	Fairfax, Scientific Reps.	703-385-0600

DIGITECH INDS., INC., 66 Grove St., Ridgefield, CT 06877, Tel: 203-438-3731, Telex: 969-623; Empl.: 80

DIGITEK INC., P.O. Box 468, Kenmore, WA 98028, Tel: 206-485-6571; *Sls. Mgr.:* Paul J. McManus; *Dist. Mgr.:* Paul J. McManus

DIGITRAN®

BECTON DICKINSON

DIGITRAN CO., 3100 New York Dr., Pasadena, CA 91107, Tel: 818-791-5600, Telex: 67-5485, TWX: 910-588-3794; Empl.: 520; *Sls. Mgr.:* M. H. Hankinson (Digital Switch Prods.)

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns. Assoc.	205-881-5031
AZ	Scottsdale, Arcom Sls.	602-947-5745
AR	Little Rock, Beacon Elctrn. Assoc.	501-224-5449
CA	Anaheim, Westrep	213-404-3881, 714-527-2822
CA	San Diego, Westrep	619-276-0751
CA	Santa Clara, Westrep	408-988-8833
CO	Littleton, Omega, Ltd.	303-798-7040
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Clearwater, Beacon Elec. Assoc.	813-796-2378
FL	Ft. Lauderdale, Beacon Elec. Assocs.	305-491-1054
FL	Maitland, Beacon Elec. Assocs.	305-647-3498
FL	Melbourne, Beacon Elec. Assoc.	305-724-8010
GA	Atlanta, Beacon Elctrns. Assoc.	404-256-9640
IL	Elk Grove Village, Carlson Elctrn. Sls.	312-956-8240
IN	Ft. Wayne, R. O. Whitesell & Assoc.	219-432-5591
IN	Indianapolis, R. O. Whitesell & Assoc.	317-359-9283
IN	Kokomo, R. O. Whitesell & Assoc.	317-457-9127
IA	Des Moines, The Beams Co.	515-255-1148
KS	Shawnee Mission, The Beams Co.	913-631-0300
KY	Louisville, R. O. Whitesell & Assoc.	502-426-7696
MD	Silver Spring, Marktron	301-460-6100
MD	Timonium, Marktron	301-252-7111
MA	Burlington, Kitchen & Kutchin	617-229-2660
MI	Grand Rapids, R. O. Whitesell & Assoc.	616-942-5420
MI	Southfield, R. O. Whitesell & Assoc.	313-559-5454
MI	St. Joseph, R. O. Whitesell & Assoc.	616-983-7337
MO	St. Louis, The Beams Co.	314-569-1060
NJ	Haddonfield, Sunday-O'Brien	609-429-4013
NJ	Hasbrouck Hgts., Comp-Tech Sls.	201-288-7400
NY	New York, Comp-Tech Sls.	516-593-2628
NY	Rochester, Ossmann Comp. Sls.	716-424-4460
NY	Syracuse, Ossmann Comp. Sls.	315-455-6611
NC	Greensboro, Beacon Elctrns. Assoc.	919-275-9997
NC	Raleigh, Beacon Elec. Assoc.	919-787-0330
OH	Cincinnati, R. O. Whitesell & Assoc.	513-521-2290
OH	Cleveland, R. O. Whitesell & Assoc.	216-447-9020
OH	Columbus, R. O. Whitesell & Assoc.	614-888-9396
OH	Dayton, R. O. Whitesell & Assoc.	513-298-9546
OR	Beaverton, Barrett-Squibb & Assoc.	503-642-1661
PA	Pittsburgh, R. O. Whitesell & Assoc.	412-963-6161
TX	Dallas, Allied Comps.	214-238-0408
TX	Houston, Allied Comps.	713-988-1600
TX	Hurst, Allied Comps.	817-589-0456
TX	Round Rock, Allied Comps.	512-244-1166
UT	Riverton, Omega, Ltd.	801-254-6723
VA	Charlottesville, Marktron	301-460-6100
WA	Redmond, Barrett-Squibb & Assoc.	206-885-6991
WI	Milwaukee, Carlson Elctrn. Sls.	414-476-2790

Local Distributors

AL	Huntsville, Powell Elec.	205-539-2731
AL	Huntsville, Comp. Distrs.	205-883-7501
AZ	Phoenix, BeSwitched	602-275-4805
AZ	Tempe, Powell Elctrns.	602-967-7538
AR	Little Rock, Comp. Distrs.	501-227-6278
CA	Cerritos, El-Com	213-404-2961
CA	Fullerton, Pyramid	714-773-0781, 213-691-0561
CA	San Diego, El-Com	619-578-0900
CA	San Jose, Powell Elctrns.	408-943-9020
CA	Santa Clara, Pyramid Elec.	408-727-9810
CO	Denver, CSID, Inc.	303-292-9594
CT	Hamden, Impact Elctrns.	203-281-1331
FL	Ft. Lauderdale, Comp. Distrs.	305-971-4950
FL	Ft. Lauderdale, Powell Electr./Fla.	305-972-4300
GA	Norcross, Comp. Distrs.	404-441-3320
IL	Mt. Prospect, Magnuson Elctrns.	312-956-0700
IN	Indianapolis, Graham Elec.	317-634-8202
IN	Indianapolis, Pioneer/Indiana	317-849-7300
IN	Indianapolis, Magnuson Elctrns.	317-247-5108
MD	Columbia, Powell Electr.	301-621-4070
MD	Timonium, Zebra Elec.	301-252-6576
MA	Canton, Impact Sls. Co.	617-821-1500
MA	West Borough, Powell Electrns.	617-336-6100
MI	Livonia, Pioneer/Michigan	313-525-1800
MI	St. Clair Shores, Specialties Mfg.	313-771-2700
MN	St. Paul, Magnuson Elec.	612-227-8495
NJ	Hasbrouck Hgts., Tory Sls.	201-288-5656
NJ	Pompton Plains, Zebra Elec.	201-839-9040
NY	Rochester, Modutex Corp.	716-647-9700
NC	Cary, Powell Elec.	919-467-1212
NC	Raleigh, Comp. Distrs.	919-834-9465
OH	Cleveland, Pioneer-Cleveland	216-587-3600
OH	Columbus, Elctrns. Mktg. Corp.	614-299-4161
OH	Dayton, Pioneer/Dayton	513-236-9900
OK	Tulsa, Norvell Elctrns.	918-663-1247
OR	Beaverton, Shannon, Ltd.	503-644-8077, 800-426-4615
OR	Wilsonville, Zepher Elec. Sls. Corp.	503-682-2929; 800-547-1853
PA	Philadelphia, Powell Electr.	215-365-1900
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
TX	Austin, Norvell Elctrns.	512-458-8106
TX	Dallas, Pioneer/Dallas	214-386-7300
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Houston, Norvell Elctrns.	713-777-1666
TX	Houston, Pioneer/Houston	713-988-5555
TX	Irving, Powell Elctrns.	214-258-6841
WA	Kent, Shannon, Ltd.	206-763-0545
WA	Seattle, Zepher Elec. Sls. Corp.	206-241-1980; 800-562-5057
WI	Mequon, Taylor Electrns.	414-241-4321

DILLON, W. C., & CO., 2320 Airport Blvd., Santa Rosa, CA 95401, Tel: 707-527-5555; Empl.: 99

DIMCO-GRAY, 8200 S. Suburban Rd., Dayton, OH 45459, Tel: 513-433-7600, Telex: 288-367; Empl.: 150; *Sls. Mgr.:* R. Cramer

DIONICS, 65 Rushmore St., Westbury, NY 11590, Tel: 516-997-7474, TWX: 510-222-0974; Empl.: 85; *Sls. Mgr.:* Mel Geffner

DIO-REY

THE LIGHTED DISPLAY DIVISION
INFO-LITE CORPORATION

DIO-REY, Div. of Info-Lite, 422 Cliff St., Fairview, NJ 07022, Tel: 201-941-4455; FSC No.: FSCM 52116; Empl.: 13; *Sls. Mgr.:* Joseph M. Cartelli; *Dist. Mgr.:* Joseph M. Cartelli .... 1B•1040-1047; 3•1159

Local Sales Offices & Reps

CA	No. Hollywood, Crown Elctrns.	213-877-3550
CA	Redwood City, Caltronic Assocs.	415-365-2545
CT	Weston, CJA Assoc.	203-226-4317
FL	St. Petersburg, R. L. Matus & Assocs.	813-896-4133
GA	Buford, R. L. Matus & Assocs.	404-945-2946
IL	Lake Zurich, L & B Assocs.	312-438-7917
MI	Brighton, Michigan Mktg. & Sls.	313-229-6218
NJ	Wayne, GT Assocs.	201-694-6040
NY	Syracuse, Lenard Co.	315-479-9191
OH	Cleveland, A.S.A.	216-662-6080
OH	Dayton, Mohawk Intronics	513-434-8873
TX	Dallas, Glidden Electro Equip.	214-341-0610
TX	Houston, Glidden Electro Equip.	713-681-1415

DISC INSTRS., 102 E. Baker St., Costa Mesa, CA 92626, Tel: 714-979-5300, TWX: 910-595-1987; Empl.: 175; *Sls. Mgr.:* D. Jolliff

Local Sales Offices & Reps

AZ	Phoenix, R.A. Mayes Co.	602-279-5243
CA	Costa Mesa, Disc Instrs.	714-979-5300
CA	Costa Mesa, Disc Instrs.	714-979-5300
CA	San Jose, Disc Instrs.	408-977-3019
CO	Denver, R.A. Mayes Co.	303-893-2264
FL	Casselberry, Hilco, Inc.	305-695-6208
GA	Dunwoody, Hilco, Inc.	404-393-1771
KS	De Soto, Midtec Assocs.	913-441-6565
MI	Troy, Disc Instr.	313-649-1340
MI	Troy, Disc Instrs.	313-649-1340
MN	Edina, J. H. Hanson Co.	612-893-9960
MO	Florissant, Midtec Assoc.	314-837-5200
NM	Albuquerque, R.A. Mayes Co.	505-292-2330
NC	Charlotte, Hilco, Inc.	813-422-3908
OR	Portland, Controltek Sls. Ltd.	503-641-0877
RI	Providence, Disc Instr.	401-438-6000
SC	Mount Pleasant, Hilco, Inc.	803-883-9633
TX	Richardson, Meas. Sys. & Sls. Inc.	214-644-4954

DISPLAY DEVICES, Box 667, Encinitas, CA 92024, Tel: 619-753-0113; FSC No.: 26107

DISPLAY INTERFACE CORP., 525 Boston Post Rd., P.O. Box 250, Milford, CT 06460, Tel: 203-877-7661; *Sls. Mgr.:* Leigh H. Hickcox

DISPLAYS, INC., Mifflin Countey Indl. Pk., Rte. 4, Box 6AAA, Lewistown, PA 17044, Tel: 717-242-2541, Telex: 842540; Empl.: 50

Local Sales Offices & Reps

AZ	Phoenix, Finn-Pat Co.	602-954-0301
CA	San Diego, Power Assoc.	619-275-0641
CA	Torrance, Cutlass Elctrns.	213-324-7360
MA	Weston, Bay Colony Reps.	617-899-8800

DISPLEX, INC., Alexander Place, Glen Cove, NY 11542, Tel: 516-671-4400, Telex: 640 476, TWX: (Northills Gove); Empl.: 12; *Sls. Mgr.:* Bill Adikes; *Dist. Mgr.:* Peter Reuter .... 3•1860

Local Sales Offices & Reps

CA	Gardena, Bidwell Sls.	213-532-7305
CA	Westlake Village, WEW Entprs.	213-707-1551
IL	Elmhurst, First Rep Co.	312-530-2450
MD	Wheaton, Brimberg Sls.	301-946-2670
MA	Needham, Addelco Corp.	617-444-4754
NY	Great Neck, F & F Metro	516-482-4080
OH	Cleveland Heights, Seltech	614-451-3868
OH	Columbus, Seltech	614-451-3865
OR	Portland, Belusko & Co.	503-222-4279
TN	Nashville, Computer Power Corp.	615-366-1703
PR	Casuas, Micro-Tech Sys & Controls.	809-783-0100

DISTRIBUTED COMPUTER SYS., 223 Crescent St., Waltham, MA 02154, Tel: 617-899-6619, TWX: 710-324-6476; Empl.: 32; *Sls. Mgr.:* Garry Stephens

DISTRIBUTED LOGIC CORP. (DILOG), 12800-G Garden Grove Blvd., Garden Grove, CA 92643, Tel: 714-534-8950, Telex: 681399; FSC No.: 95-3205555; Empl.: 105; *Sls. Mgr.:* Dennis Edwards; *Dist. Mgr.:* Dennis Edwards

Local Sales Offices & Reps

CA	Garden Grove	714-534-8950
NJ	Red Bank	201-530-0044

Distributor

DISTRIBUTOR SPECIALISTS, 632 Santa Monica Blvd., Santa Monica, CA 90401, Tel: 213-393-9666 .... p.700

DIVERSIFIED CASE CO., Ellis Ave., Off. 2, Whitesboro, NY 13492, Tel: 315-736-3028; *Sls. Mgr.:* John Fitzsimmons

DIVERSIFIED ELECTRONICS, INC.

DIVERSIFIED ELCTRNS., INC., Indl. Controls Div., 119 N. Morton Ave., Evansville, IN 47711, Tel: 812-426-2806; Empl.: 55; *Sls. Mgr.:* James M. Kellum .... 1B•1336

Local Sales Offices & Reps

CA	Danville, Stuart Assocs.	415-837-8197
CA	Signal Hill, California Electro Sls. Co.	213-595-7427
CO	Denver, Empire Elctrl. Sls.	303-744-1776
FL	Leesburg, Diversified Elctrns.	800-874-0619
GA	Atlanta, Grady Duckett	404-451-3529
ID	Boise, Doran Sales Assocs., Inc.	208-343-9969
IL	Des Plaines, Antek/Lincoln, Hodges & Assocs.	312-297-0885
IN	Seymour, Diversified Elctrns. Inc.	812-522-1481
IA	Bettendorf, Weisler & Assocs.	319-344-0566
MD	Fulton, S. Jefferies	301-792-7452
MA	Wayland, Gilman Assocs.	617-358-7571
MO	Ellisville, Weisler & Assocs.	314-394-4543
MO	Kansas City, Weisler & Assocs.	816-421-1679
NY	Great Neck, Frank Tylinski Co.	516-466-9070
NC	Charlotte, Sentry Power	704-535-1774
OH	Cleveland, Syntron, Inc.	216-572-2848
OH	Cleveland, Arthur Baier	216-461-6161
OH	Dayton, Arthur Baier	513-276-4128
OR	Forest Grove, Doran Sls. Assoc.	503-357-3333
PA	Narberth, S. A. Jefferies	215-664-8500
TX	Houston, Weisler & Assocs.	713-467-1847
UT	Salt Lake City, Conely Engrg. Co.	801-972-5923
WA	Green Acres, Doran Sls. Assocs., Inc.	509-922-2317
WA	Redmond, Doran Sls.	206-855-1885
WI	Janesville, Antek Mktg. Assocs.	608-754-4214

Local Distributors

AL	Birmingham, MG Elctrns. & Equip., Co., Inc.	205-328-4525
AL	Mobile, Specialty Distrg. Co.	205-344-0450
AR	Rogers, Evans Elec. Motor Centers	501-636-0721
CA	Cathedral City, Consolidated Elec.	714-328-1131
CA	Danville, Cal-West Supp.	415-837-8245
CA	Fresno, Electric Motor & Supp.	209-233-1155
CA	Long Beach, Mag-Trol/Long Beach, Inc.	213-435-3451
CA	N. Hollywood, Associated Terminals & Cont.	213-875-0344
CA	Palm Springs, Lake Service	619-328-1163
CA	Palo Alto, Elctrl. Matls., Inc.	415-494-0400
CA	Redondo Beach, Elctrl. Power & Controls, Inc.	213-772-8890
CA	South El Monte, Walton Electrical Controls, Inc.	213-442-4610
CO	Denver, Control Comps, Inc.	303-371-2727
CO	Golden, Utility Control & Equip. Co.	303-425-1990
DC	Washington, Wesco	202-833-5250
FL	Ft. Lauderdale, Graybar Elec.	305-523-1453
FL	Ft. Myers, Con. Elec. Supp. Co.	813-332-1515
FL	Jacksonville, Graybar Elec.	904-356-7611
FL	Lakeland, A-A Elec.	813-665-6941
FL	Largo, Graybar Elec.	813-535-6460
FL	New Port Richey, Pasco Elec. Sup.	813-842-8405
FL	Orlando, Consolidated Elec.	305-849-6532
FL	St. Petersburg, Graybar Elec.	813-822-3851
FL	Tallahassee, Graybar Elec.	904-222-5332
FL	W. Palm Beach, Nurmi Elctrn. Supp., Inc.	305-686-8553
GA	Albany, Specialty Distrbg. Co., Inc.	912-435-1711
GA	Athens, Specialty Distrbg. Co., Inc.	404-548-1334
GA	Atlanta, Dapco, Inc.	404-458-6341
GA	Atlanta, Specialty Distrbg. Co., Inc.	404-873-2521
GA	Augusta, Specialty Distrbg. Co., Inc.	404-722-1526
GA	Brunswick, Specialty Distrbg. Co., Inc.	912-265-1927
GA	College Park, Specialty Distrbg. Co., Inc.	404-763-3828
GA	Columbus, Specialty Distrbg. Co., Inc.	404-327-7414
GA	Macon, Specialty Distrbg. Co., Inc.	912-743-5421
GA	Marietta, Specialty Distrbg. Co., Inc.	404-422-4333
GA	Norcross, A-A Electric	404-449-8670
GA	Savannah, Specialty Distrbg. Co., Inc.	912-234-1684
GA	Savannah, Graybar Elec.	912-232-1121
GA	Valdosta, Specialty Distrbg. Co., Inc.	912-242-4910
ID	Coeur d'Alene, R. C. Worst & Co., Inc.	208-664-2133
ID	Idaho Falls, Electrical Supp.	208-523-2800
ID	Pocatello, Electrical Supp.	208-233-1362
ID	Rexburg, Electrical Supp.	208-356-7282
IL	Bloomingdale, Seversen Engrg.	312-529-0501
IL	Fairfield, Precision Elec. Co.	618-842-7000
IL	Mt. Prospect, Legend Elctrl. Sls.	312-952-0090
IN	Evansville, Hutch & Son, Inc.	812-425-7201
IN	Indianapolis, Genesis Elec.	317-637-5571
IN	Vincennes, Valley Elec.	812-882-7860
KS	Salina, American Elec.	913-823-2248
KY	Louisville, Peterson Elec. Supp. Co., Inc.	502-491-5010
KY	Louisville, Peerless Elec.	502-637-7677
KY	Louisville, E & H Elec.	502-587-0991
MD	Baltimore, Infinity Sys., Inc.	301-358-8500
MD	Baltimore, Wesco	301-327-4300
MD	Salisbury, Wesco	301-742-2193
MN	Minneapolis, Texa Minn Prods.	612-861-2900
MO	St. Louis, United Elec. Supp.	314-771-5555
NE	McCook, American Elec.	308-345-3414
NE	Omaha, West Dodge Elec.	402-393-8071
NH	Manchester, Graybar Elec.	603-624-4341
NJ	Audubon, Universal Elctrns. Supp. Co.	609-547-3430
NJ	Collingswood, Universal Supp.	609-854-2220
NJ	E. Rutherford, A-A Elec.	201-777-5477
NJ	Fairlawn, Relay Specialties	201-797-3313
NY	Long Island, Graybar Elec.	212-392-2000
NY	Maybrook, Air Power House	914-457-3113
NY	Whitestone, Power Electro Supp. Co., Inc.	212-767-1447
NC	Charlotte, Southern Elec. Svc. Co.	704-372-4832
NC	Charlotte, Wesco	704-377-3471
NC	Gastonia, J. M. T. Elec.	704-867-4401
NC	Huntersville, Scott Equip. Co.	704-875-1611
NC	Jacksonville, Rapp Prods.	919-374-1754
OH	Cincinnati, Wesco	513-542-4300
OH	Cleveland, Milner Elec.	216-361-0300
OK	Oklahoma City, Evans Elec. Motor Centers	405-631-1344
OK	Tulsa, Evans Elec. Motor Centers	918-587-1566
OK	Tulsa, Cooper Supp. Co.	918-628-1500
OR	Albany, Pepco	503-926-7755
OR	Bend, North Coast Elec. Co., Inc.	503-382-6211
OR	Coos Bay, North Coast Elec. Co., Inc.	503-267-2145
OR	Coos Bay, Pepco	503-269-5011
OR	Eugene, North Coast Elec. Co., Inc.	503-343-7701
OR	Eugene, Pepco	503-484-7309
OR	Klamath Falls, North Coast Elec. Co., Inc.	503-884-4171
OR	Medford, North Coast Elec. Co., Inc.	503-772-7131
OR	Medford, Pepco	503-779-6311
OR	Portland, North Coast Elec. Co., Inc.	503-228-5111
OR	Portland, Pepco	503-243-7820
OR	Tualatin, North Coast Elec. Co., Inc.	503-620-3910
PA	Bala-Cyn-Wyd, Wesco	215-581-9314
PA	Erie, Wesco	814-454-8191
PA	Johnstown, Wesco	814-536-8761
PA	Monroeville, Wesco	412-325-1300
PA	Philadelphia, Mechanical Specialties, Inc.	215-331-5555
PA	Philadelphia, Wesco	215-238-4500
PA	Pittsburgh, Wesco	412-255-4290
PA	York, Wesco	717-843-0891
SC	Columbia, J. W. Vaughn Co.	803-779-2690
SC	Greenville, Shealy Elctrl. Whlsrs.	803-242-6880
TN	Chattanooga, Specialty Distrbg. Co., Inc.	615-267-9531
TX	Ft. Worth, Swieco, Inc.	817-335-6521
TX	Houston, Commercial Equip.	713-237-8682
TX	Huntsville, Hedco	713-224-4771
TX	Midland, Energy Sys., Inc.	915-694-9657
TX	Waco, Smith Pump Co.	817-776-0377
TX	Wichita Falls, Evans Elec. Motor Centers	817-723-7466
UT	S. Salt Lake, Engineered Control Sys., Inc.	801-487-6226
VT	White River Jct., Arrow Elctrns., Inc.	802-295-3193
VA	Alexandria, Calvert-Jones Co., Inc.	703-370-5850
VA	Chantilly, Engineered Svcs., Inc.	703-471-6310
VA	Danville, Wesco	804-826-6730
VA	Hampton, Wesco	804-826-6730
VA	Lynchburg, Wesco	804-845-0948
VA	Norfolk, Wesco	804-625-7451
VA	Petersburg, Wesco	804-732-1222
VA	Richmond, Wesco	804-353-7353
VA	Roanoke, Wesco	703-344-3271
WA	Kennewick, Pepco	509-586-3168
WA	Longview, North Coast Elec. Co., Inc.	206-423-1550
WA	Moses Lake, Inland Elctrl. Supp. Co.	509-765-1251
WA	Renton, Pepco	206-251-5055
WA	Richland, Wesco	509-783-1397
WA	Spokane, North Coast Elec. Co., Inc.	509-922-1317
WA	Spokane, Power Pump & Elec. Supp.	509-534-5616
WV	Beckley, Wesco	304-252-8633
WV	Bluefield, Wesco	304-325-6151
WV	Bridgeport, Wesco	304-624-6311
WV	Charleston, Wesco	304-768-1293
WV	Parkersburg, Wesco	304-485-6541
WI	Cedarburg, A-A Elec.	414-377-7500
WI	Green Bay, Climatic Control Co., Inc.	414-336-4060
WI	Madison, Climatic Control Co., Inc.	608-273-1717
WI	Milwaukee, Climatic Control Co., Inc.	414-259-9070
WI	Monroe, Precision Drive & Control, Inc.	608-328-5600
WY	Casper, Wesco	307-266-3740
WY	Gillette, Wesco	307-687-0014
Intl	St. Thomas, Power Sys., Inc.	809-776-0217
PR	Bayamon, Jenson Protective Devices	809-798-3264

DIVERSIFIED TECHNLG., P.O. Box 748, Ridgeland, MS 39157, Tel: 601-856-4121, Telex: 585326, TWX: 810-966-2626; Empl.: 65; *Sls. Mgr.:* Bill Long; *Dist. Mgr.:* Bill Long

DIXON INDS., 386 Metacom Ave., Bristol, RI 02809, Tel: 401-253-2000, Telex: 927706

DIXSON INSTRUMENTS

DIXSON, INC., INSTRUMENT DIV., Box 1449, Grand Junction, CO 81502, Tel: 303-242-8863, TWX: 910-929-6991; Empl.: 250; *Sls. Mgr.:* Ray Carlson .... 3•1325

Local Sales Offices & Reps

AL	Birmingham, Sesco-Birmingham	205-988-8304
AZ	Phoenix, Finn-Pat Co. Inc.	602-954-0301
CA	El Segundo, Varigon Assocs.	213-322-1120
CA	Santa Clara, Ross Mktg.	408-988-811
CO	Grand Junction, Dixson Instrs.	303-242-8863
CT	Hamden, Pond Technical Sales	203-281-0005
FL	North Palm Beach, Sesco-Miami	305-832-0770
GA	Atlanta, Sesco-Atlanta	404-458-6423
IL	Bartlett, JJS Mktg. Svcs.	312-830-1670
LA	Baton Rouge, Sesco-Baton Rouge	504-928-4951
ME	W. Buxton, Pond Tech. Sls.	207-637-2200
MA	Waltham, Pond Tech. Sls.	617-890-5535
MI	Swartz Creek, JJS Mktg. Svcs.	313-635-7305
MN	Chanhassen, Elctrn. Instr. Cnslts.	612-445-7056
NY	Mt. Vernon, Sonkin Assocs.	914-668-9809
NY	North Syracuse, Naco Electronics	315-699-2651
NC	Cary, Sesco-Raleigh	918-467-7482
NC	Charlotte, Sesco-Charlotte	704-535-4920
OH	Dayton, Instrmn. Sys. Inc.	513-294-2838
OK	Tulsa, Sesco-Tulsa	918-622-3868
OR	Portland, Instr. Representatives Assoc.	503-245-6103
PA	King of Prussia, FLW of PA, Inc.	215-337-4343
PA	Pittsburgh, Instrmn. Sys. Inc.	412-243-1111
TX	Austin, Sesco-Austin	512-892-2490
TX	Dallas, Sesco-Dallas	214-231-9364
TX	Houston, Sesco-Houston	713-999-3510
WA	Seattle, Instr. Representatives Assoc.	206-762-0707

DMA SYS., 601 Pine St., Goleta, CA 93117, Tel: 805-683-3811; *Sls. Mgr.:* Don M. Minami

DOCUMATION, Box 1240, Melbourne, FL 32901, Tel: 305-725-5500, TWX: 510-959-6286; Empl.: 2800; *Sls. Mgr.:* K. Nelson; *Dist. Mgr.:* D. Carson

D. O. INDUSTRIES, 317 E. Chestnut St., E. Rochester, NY 14445, Tel: 716-385-4920, Telex: 200802; FSC No.: 716-381-7032; *Sls. Mgr.:* Gerard Morio

DOLAN-JENNER INDS., Box 1020, Woburn, MA 01801, Tel: 617-935-7444, Telex: 95-5439, TWX: 710-350-7544; Empl.: 120; *Sls. Mgr.:* S. Futran; *Dist. Mgr.:* S. Futran

DOLCH LOGIC INSTRS., 3052 Orchard Dr., San Jose, CA 95134, Tel: 408-998-5730, TWX: 910-338-2023; *Sls. Mgr.:* Ken Pine

DOLPH, JOHN C., CO., New Rd., Monmouth Junction, NJ 08852, Tel: 201-329-2333; *Sls. Mgr.:* J. E. Rooze

DONGAN ELECTRIC MFG. CO., 2987 Franklin St., Detroit, MI 48207, Tel: 313-964-3500

DONTECH INC., 601-606 Airport Indl. Blvd., Doylestown, PA 18901, Tel: 215-348-5010, Telex: 685 1155 DONTK; *Sls. Mgr.:* John Kinard

DORAN MFG. CO., 2851 Massachusetts Ave., Cincinnati, OH 45225, Tel: 513-681-5424; Empl.: 40; *Sls. Mgr.:* Russ DeMar

DORMAN BOGDONOFF CORP., Corp. Center, Willow Pond, Andover, MA 01810, Tel: 617-470-0001, Telex: 710-347-0333; *Sls. Mgr.:* Charles P. Centore

DORMEYER INDS., 3418 N. Milwaukee, Chicago, IL 60641, Tel: 312-283-4000, TWX: 910-221-3831; Empl.: 900; *Sls. Mgr.:* Larry D. Harney; *Dist. Mgr.:* Lynn Masukevich

DOTRONIX, 160 First St. SE, New Brighton, MN 55112, Tel: 612-633-1742, TWX: 910-563-3541; Empl.: 80; *Sls. Mgr.:* L. R. Lemke

Local Sales Offices & Reps

CA	Gilroy, Dotronix	408-848-2499
CA	Upland, Vidtek	714-985-6030
IL	Arlington Hts., Dotronix	312-577-6105
MA	Burlington, Conti-Younger Assoc.	617-273-1582
MN	New Brighton, Dotronix	612-633-1742
TX	Dallas, MGR	214-238-5246

DOUGLAS ELCTRNS., 718 Marina Blvd., San Leandro, CA 94577, Tel: 415-483-8770

DOUGLAS RANDALL, 6 Pawcatuck Ave., Pawcatuck, CT 02891, Tel: 203-599-2075, Telex: 6814060; Empl.: 125; *Sls. Mgr.:* N. Paulson .... **1B**•1337-1345

Local Sales Offices & Reps

AZ	Tempe, Trembly Assoc.	602-967-2058
CA	Anaheim, Galaxie Sls. Int'l.	714-752-1580
CA	Oakland, Powermatic Assoc.	415-635-6825
CA	San Diego, Qualtronics	619-560-8955
CO	Lakewood, Trembly Assoc.	303-233-9544
CT	Mystic, JMG Inc.	203-572-9448
FL	Maitland, Ellis & Assoc.	305-645-1101
GA	Lilburn, W. A. Stancil	404-923-2416
IL	Chicago, Ropek-Cahill-Vogt	312-631-0070
MD	Oxon Hill, Schoeplein & Co.	301-292-1701
MA	Norwood, JMG, Inc.	617-762-5333
MI	Southfield, Fred H. Gehrke & Assoc.	313-559-5363
MN	Osseo, Gaffney Sls. Co.	612-425-5484
MO	Kansas City, Delltron Co. Inc.	816-436-6445
MO	St. Louis, Delltron Co.	314-869-4779
NV	Las Vegas, Trembly Assoc.	702-739-9770
NJ	Morristown, Andrews & Andrews	201-569-8800
NM	Albuquerque, Trembly Assoc.	505-266-8616
NY	Huntington, Andrews & Andrews	516-692-8686
NY	Rochester, J. G. Welch Assoc.	716-244-1100
NY	Syracuse, C. W. Floring & Assoc.	315-478-2149
NC	Raleigh, Leigh Sls.	919-872-1484
OH	Cleveland, Geotronix Mktg. Assoc.	216-526-2535
OH	Columbus, Geotronix Mktg. Assoc.	614-457-8472
OH	Trotwood, Geotronix, Inc.	513-854-5939
OR	Beaverton, Caruso & Northcutt	503-646-4973
PA	Glenside, Elcom	215-885-1715
TX	Dallas, Paramount Controls	214-341-4561
UT	Salt Lake City, Trembly Assoc.	801-486-5292
WA	Bellevue, Caruso & Northcutt	206-454-9699

Local Distributors

CA	Chatsworth, Mil-Comm Dist.	213-998-3111
CA	S. San Francisco, Steven Engrg.	415-588-9200
MA	Middleboro, Glynn Elect.	617-947-4262
OH	Cleveland, Alpha Corp.	216-526-3716
TX	Houston, Butler & Land	713-464-4662
EXP	Jerusalem, Efraim Ben Yakir	
Intl	London, England, Kynmore Eng.	01-839-2371

DOW CHEMICAL CO., 2020 Dow Center, Midland, MI 48640, Tel: 517-636-1000, Telex: 227455, TWX: 810-266-9490; Empl.: 53,300

DOW CORNING

DOW CORNING CORP., Box 1767, Midland, MI 48640-0994, Tel: 517-496-4000, Telex: 227450, TWX: 810-266-9006; Empl.: 5800 .... **2**•1080, 1081

Local Sales Offices & Reps

CA	Irvine	714-261-0800
CA	Santa Clara	408-988-1177
GA	Atlanta	404-256-2626
IL	Chicago	312-671-3100
MA	Boston	617-965-1010
MI	Detroit	313-553-0400
NJ	Parsippany	201-267-0440
NC	Greensboro	919-275-9708
OH	Beachwood	216-464-2330
TX	Dallas	214-661-0702

Local Distributors

AL	Birmingham, Brownell Electro	205-322-3374
AL	Mobile, Brownell Electro	205-479-5405
AZ	Tempe, K. R. Anderson	602-829-1898; 800-538-8712
CA	Santa Ana, K. R. Anderson Co.	714-549-1343; 800-672-1858
CA	Sunnyvale, K. R. Anderson Co.	408-736-6730; 800-538-8712
CO	Commerce City, Waco Elctrns.	303-289-4743; 800-525-0811
CT	Hartford, Brownell Electro	203-278-9000
FL	Miami, Brownell Electro	305-592-2636
FL	Orlando, Brownell Electro	305-843-6776
GA	Atlanta, Prehler Inc.	404-447-5540
IL	Chicago, Prehler Inc.	312-384-6100; 800-621-4177
MD	Linthicum, Brownell Electro	301-636-3626; 800-492-1734
MA	Woburn, Brownell Electro	617-935-7820
MN	Bloomington, Prehler Inc.	800-621-4177
MO	Bridgeton, Crown Distrbg.	314-731-3001; 816-373-6604
MO	Independence, Crown Distrbg.	816-373-6604; 314-731-3001
NJ	Livingston, Robert McKeown Co.	201-992-0700; 800-631-1125
NM	Albuquerque, Waco Elctrns.	505-268-2409; 800-525-0811
NY	New York, Brownell Electro	212-924-6000
NY	Rochester, Wolcott-Park	716-342-3120
NC	Charlotte, Brownell Electro	704-597-1270
NC	Raleigh, Brownell Electro	919-876-6524
OH	Middleburg Hgts., Prehler Electrical Insul. Co.	216-243-5510
PA	Bridgeville, Brownell Electro	412-221-0074
PA	Trevose, Brownell Electro	215-364-1400
TN	Knoxville, Brownell Electro	615-966-3441
TN	Memphis, Brownell Electro	901-795-8483
TN	Nashville, Brownell Electro	615-885-1302
TX	Dallas, Specialized Prods. Co.	214-358-4663
TX	Houston, Specialized Prod. Co.	713-789-6610
UT	Salt Lake City, Waco Elctrns.	801-485-6511; 800-525-0811
VA	Norfolk, Brownell Electro	804-582-8121
WV	Princeton, Brownell Electro	304-487-1477
WI	Milwaukee, Ellsworth Corp.	414-352-1230

DowKey®
Division of Kilovac Corporation

DOW KEY DIV., KILOVAC CORP., Box 4422-EM, Santa Barbara, CA 93103, Tel: 805-684-4560, TWX: 910-336-1141; FSC No.: 00471; Empl.: 130; *Dist. Mgr.:* Jack Dysart .... **1B**•1346, 1347

Local Sales Offices & Reps

AZ	Tempe, Gassner & Clark	602-968-9037
CA	Mountain View, Peninsula Tech. Sls.	415-965-3636
CA	West Lake Village, Hy-Tech Sls.	213-991-7491
FL	Melbourne, Saber Assocs., Inc.	305-724-0920
IL	Schaumburg, Gassner & Clark	312-882-8608
IA	Cedar Rapids, H. R. Brown Sls. Co.	319-366-0635
MD	Beltsville, Applied Engrg. Conslts.	301-792-2211
MA	Lowell, Matrix Sls., Inc.	617-458-2096
MN	St. Paul, De Beck	612-635-4649
MO	Kansas City, EIR Co.	816-452-7030
MO	Kansas City, EIR Co.	816-452-7030
MO	Leasburg, EIR Co.	314-895-4100
NM	Albuquerque, Data Handling	505-884-0284
NY	Cazenovia, S. T. Woolard Co.	315-655-8145
NY	Melville, Metro-Mics	516-433-3333
NY	Rochester, Lamb	716-323-1250
NC	Clayton, Saber Assocs.	305-724-0920
OH	Cincinnati, Delta Sls.	513-271-5444
OK	Tulsa, Norcom, Inc.	918-832-7747
OR	Portland, Components West	503-643-5588
PA	Paoli, Tyler Griffin	215-647-1550
TX	Austin, Norcom, Inc.	512-451-2757
TX	Dallas, Norcom, Inc.	214-386-4888
TX	Houston, Norcom, Inc.	713-778-0392
WA	Redmond, Components West	206-885-5880

Local Distributors

CA	Los Angeles, Henry Radio	213-820-1234
CA	Sacramento, Zackit	916-446-3131
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	San Jose, Quement	408-998-5900
CA	Santa Monica, Distr. Specialists	213-393-9666
IN	Indianapolis, Graham Elctrns.	317-634-8202
LA	New Orleans, Southern Radio Supp.	504-524-2343
MD	Rockville, Capitol Radio Wholesalers	301-792-2827; 301-881-2270
MA	Plainville, Teknis, Inc.	617-695-3591
NM	Albuquerque, Walker Radio	505-247-2288
TX	Ft. Worth, Allied Elctrns.	817-336-5401
WI	Milwaukee, Amateur Elctrn. Radio Supp.	414-442-4200

DRACON DIV., See Harris Corp., Dracon Div.

DRAKE, R. L., CO., 540 Richard St., Miamisburg, OH 45342, Tel: 513-866-2421, Telex: 28-8017; *Sls. Mgr.:* M. Brubaker

DRANETZ TECHNOLOGIES, INC., 1000 New Durham Rd., CN-91, Edison, NJ 08818, Tel: 201-287-3680, Telex: 499-7808, TWX: 710-997-9553; FSC No.: 23207; Empl.: 230; *Sls. Mgr.:* A. Orlacchio .... **3**•1218

Local Sales Offices & Reps

AL	Huntsville, Kemp Instrs.	205-837-4304
AZ	Scottsdale, Barnhill Assoc.	602-947-7841
CA	Pasadena, Jim Robins & Associates	213-795-9118
CA	Redondo Beach, Ward/Davis Assocs.	213-643-6977
CA	San Diego, Wheelock Associates	619-454-3473
CA	San Diego, Ward/Davis Assocs.	619-292-1000
CA	Santa Clara, Ward/Davis Associates, Inc.	408-245-3700
CO	Englewood, Barnhill Assoc.	303-779-3600
CT	Mount Carmel, Sci. Devices	203-248-9361
FL	Orlando, Datarep	305-843-5224
GA	Atlanta, Kemp Instrs.	404-452-8050
IL	Chicago, Memeco Sls. & Svc. Corp.	312-228-9555
IL	Elk Grove Village, Loren Green Assocs.	312-593-0282
IN	Indianapolis, Memeco Sls. & Svc. Corp.	317-356-8098
IN	Indianapolis, Loren Green Assocs.	317-293-9827
KS	Shawnee, Atech	913-268-9644
LA	Baton Rouge, Barnhill Assoc.	504-924-6826
LA	Lafayette, Kemp Instrs.	318-269-9452
MD	Rockville, Elctrn. Mktg. Assocs.	301-881-5300
MA	Waltham, Sci. Devices	617-890-2252
MI	Brighton, Stress Analysis Svcs.	313-632-6110
MI	Farmington, Carter, McCormic & Peirce	313-477-7700
MN	Edina, Carvel Engrg. & Sls. Co.	612-835-7929
MN	Minneapolis, Loren Green Assoc.	612-571-6666
MN	Minneapolis, Arjay Sls.	612-854-4972
MO	Raytown, Power Specialties	816-353-6550
MO	St. Louis, Atech	314-576-2884
NE	Lincoln, Harry Ferris Co.	402-464-6148
NJ	Lodi, SDM Rep.	201-368-0123
NM	Albuquerque, Barnhill Assoc.	505-299-7658
NY	Rochester, SDM Rep.	716-247-8770
NC	Charlotte, Baesel & Assocs.	704-375-1044
OH	Cleveland, Carter, McCormic & Peirce	216-779-5100
OH	Dayton, Stress Analysis Svcs.	513-263-8036
OH	Englewood, Carter, McCormic & Peirce	513-836-0951
OH	Medina, Stress Analysis Svcs.	216-725-7733
OR	Portland, Topp Engrg. Sls.	503-244-7265
PA	Monroeville, Carter, McCormic & Peirce	412-372-4415
PA	Pittsburgh, Russell F. Clark Co.	412-242-9500
PA	Plymouth Meeting, Elctrn. Mktg. Assoc.	215-828-7400
TX	Austin, Barnhill Assoc.	512-451-0217
TX	Houston, Barnhill Assoc.	713-688-9971
TX	Richardson, Barnhill Assoc.	214-231-2573
UT	Murray, Barnhill Assoc.	801-262-3000
WA	Bellevue, Topp Engrg. Sls.	206-747-5400

DRAWN METAL PRODUCTS, 6143 W. Howard St., Niles, IL 60648, Tel: 312-647-8941; Empl.: 60; *Sls. Mgr.:* Tom Amundson

DREEFS SWITCH INC., 3782 Hawthorn Ct., Waukegan, IL 60085, Tel: 312-662-7667, 800-323-9605, Telex: 703784; Empl.: .45; *Sls. Mgr.:* E. L. Magiera; *Dist. Mgr.:* E. L. Magiera .... **1B**•1585-1587

Local Sales Offices & Reps

CA	Costa Mesa, Electro Mech Sls.	714-642-2390
CA	San Diego, Electro Mech Sls.	714-642-2390
CA	Sunnyvale, Schwerin Merrill	408-735-7900
IL	Oak Brook, MSL & Assocs.	312-655-8977
IL	Waukegan, Dreefs Switch Inc.	800-323-9605
MN	Minneapolis, Robert W. Marshall Co.	612-929-0457
MO	Bridgeton, Centech Inc.	314-291-4230
MO	Raytown, Centech Inc.	816-358-8100
NY	Fulton, P. Saftler Assocs.	315-592-7184
NY	Lynbrook, P. Saftler Assocs.	516-593-7880
OH	Cincinnati, Jim Finnegan Co.	513-931-1686
OH	Cleveland, Jim Finnegan Co.	216-238-5905
OH	Toledo, Jim Finnegan Co.	419-865-5306
OR	Portland, Controltek, Sls.	503-641-0877

TX	Austin, Precision Technlg.	512-250-0201
TX	Richardson, Precision Technlg.	214-234-8071
WI	Milwaukee, Badgerep Inc.	414-258-6630

Local Distributors

CA	San Jose, Cypress Elctrns.	408-945-8400; 800-538-5112
CA	Torrance, Cypress Elctrns.	213-530-1900
IL	Wheeling, Hawk Elctrns.	312-459-4030
TX	McKinney, Sun Belt Elctrns.	214-542-1432
Can	Concord, Ontario, Astec Comp.	416-669-4022

DRESSEN-BARNES ELCTRNS., 1600 E. Valencia Dr., Fullerton, CA 92631, Tel: 714-871-3020, TWX: 910-592-1256; FSC No.: 89321; Empl.: 220; *Sls. Mgr.:* B. Guy

DRESSER INDS., 1505 Elm St., Dallas, TX 75201, Tel: 214-746-6000, Telex: 73-2489, TWX: 910-861-4136; Empl.: 55,000

DUKANE CORP., Communications Sys. Div., 2900 Dukane Dr., St. Charles, IL 60174, Tel: 312-584-2300, Telex: 720426; Empl.: 700; *Sls. Mgr.:* Jack Hollis; *Dist. Mgr.:* Jack Hollis

DUMONT ELCTRNS., See Thomson-CSF Comps. Corp., DuMont Div.

DUMONT INSTRUMENTATION, INC., 75 Mall Dr., Commack, NY 11725, Tel: 516-864-8500, TWX: 510-226-3739; Empl.: 15,000; *Sls. Mgr.:* H. Poschmann

DUMONT OSCILLOSCOPE LABS., 40 Fairfield Pl., W. Caldwell, NJ 07006, Tel: 201-575-8666, Telex: 219236 DOLI-UR; FSC No.: 30669; Empl.: 30; *Sls. Mgr.:* John Carter, Jr.

DUNCAN ELECTRONICS, INC., 2865 Fairview Rd., Costa Mesa, CA 92626, Tel: 714-545-8261, TWX: 910-595-1128; FSC No.: 5905; Empl.: 160; *Sls. Mgr.:* J. Colligan; *Dist. Mgr.:* J. Colligan

DUNEGAN/ENDEVCO, Rancho Viejo Rd., San Juan Capistrano, CA 92675, Tel: 714-831-9131, Telex: 68-3430; Empl.: 80; *Sls. Mgr.:* B. Toffelmier

DUOTONE, 6875 S.W. 81st St., S. Miami, FL 33143, Tel: 305-665-1121; Empl.: 20; *Sls. Mgr.:* S. Nester; *Dist. Mgr.:* S. G. Nester

DUPONT DE NEMOURS, E. I., & CO., 1007 Market St., Wilmington, DE 19898, Tel: 302-773-3218; Empl.: 130,000

DUPREE, INC., 9835 Dupree St., So. El Monte, CA 91733, Tel: 818-442-4700; Empl.: 60; *Sls. Mgr.:* Beverly Bowdry

DURACELL INTL., S. Broadway, Tarrytown, NY 10591, Tel: 914-591-7000, Telex: 131548, TWX: 710-564-0810; Empl.: 4000

DURAKOOL, 1010 N. Main St., Elkhart, IN 46514, Tel: 219-264-1116, Telex: 25-8482; Empl.: 200; *Sls. Mgr.:* Darrell Wilk; *Dist. Mgr.:* F. Aitchison

DURALITH, 525 Orange St., Millville, NJ 08332, Tel: 609-825-6900, TWX: 510-687-7520; Empl.: 370

DURGIN & BROWNE, 80 Allen Rd., So. Burlington, VT 05401, Tel: 802-863-6873; Empl.: 35; *Sls. Mgr.:* Chris Riggs

DY-4 SYSTEMS INC., 888 Lady Ellen Pl., Ottawa, ON K1Z 5M1, Canada, Tel: 613-728-3711, Telex: 053-4969; *Sls. Mgr.:* Terry Black

DYLON DATA CORP., 9561 Ridgehaven Ct., San Diego, CA 92123, Tel: 619-292-5584, TWX: 910-335-1524; Empl.: 20; *Sls. Mgr.:* R. A. Comstock; *Dist. Mgr.:* Steve Komarek

DYMA ENGRG., Box 1535, Los Lunas, NM 87031, Tel: 505-865-6700; Empl.: 14

DYNACIRCUITS INC., 11230 W. Addison, Franklin Park, IL 60131, Tel: 312-451-1700; *Sls. Mgr.:* Fred Stein

DYNAGE, INC., CONTROL PRODS GRP., 135 Prestige Park Circle, E. Hartford, CT 06108, Tel: 203-289-6831, TWX: 710-425-6063; Empl.: 40; *Sls. Mgr.:* Sidney C. Oakleaf

DYNAGE, POWER SUPP. GRP., 135 Prestige Park Circle, E. Hartford, CT 06108, Tel: 203-289-6831, TWX: 710-425-6063; Empl.: 40; *Sls. Mgr.:* Sidney C. Oakleaf

DYNALOY, INC., 7 Great Meadow La., Hanover, NJ 07936, Tel: 201-887-9270, Telex: 642-033; FSC No.: 27908; Empl.: 19

Local Sales Offices & Reps

CA	Westminster, Contronic Devices	714-897-2266
FL	Ft. Lauderdale, Etchomatic	305-563-5060
MA	Manchester, Lee Thomas Assoc.	617-525-3028
MA	Waltham, Etchomatic	617-893-2020
MN	Minneapolis, International Sls.	612-831-8423

DYNAMIC MEASUREMENTS, 8 Lowell Ave., Winchester, MA 01890, Tel: 617-729-7870, TWX: 710-348-6596; Empl.: 61; *Sls. Mgr.:* Bill Schromm

DYNAMICS, Div. of Waugh Controls Corp., 9001 Fullbright Ave., Chatsworth, CA 91311, Tel: 818-998-8281, Telex: 69-6171; Empl.: 100; *Sls. Mgr.:* Jim Moore

DYNAPAR, 1675 Delany Rd., Gurnee, IL 60031, Tel: 312-662-2666, TWX: 910-235-1865; Empl.: 130

DYNAPLEX INC., Interplex, 120-12 28th Ave., Flushing, NY 11354, Tel: 212-961-6750, TWX: 710-582-3048; *Sls. Mgr.:* Lester Zimmerman; *Dist. Mgr.:* Lester Zimmerman

DYNATECH CORP., 1225 E. Wakeham Ave., P.O. Box 1019, Dept. E, Santa Ana, CA 92702, Tel: 714-558-8755, TWX: 910-595-1951; Empl.: 340; *Sls. Mgr.:* Rick Burbank

DYNATEC INTERNATIONAL, 3594 West 1820 South, Salt Lake City, UT 84104, Tel: 801-973-9500, 800-722-7425; *Sls. Mgr.:* Robert Checketts; *Dist. Mgr.:* Robert Checketts

DYNATRONIX, INC., 105 Power St., Amery, WI 54001, Tel: 715-268-8118, 800-826-7172, TWX: 297861 DYTX UR; *Sls. Mgr.:* R. W. Kappler; *Dist. Mgr.:* R. W. Kappler, Natl. Sls. Mgr.

DYNISCO, 10 Oceana Way, Norwood, MA 02062, Tel: 617-769-6600, Telex: 092-4347; Empl.: 108

DYSAN CORP., 5201 Patrick Henry Dr., Santa Clara, CA 95050, Tel: 408-988-3472, Telex: 171551 DYSAN SNTA, TWX: 910-338-2144

DZUS FASTENER, 425 Union Blvd., W. Islip, NY 11795, Tel: 516-669-6000, Telex: 96-1454; FSC No.: 72794; Empl.: 100; *Sls. Mgr.:* George R. Davis

EAGLE ELECTRIC MFG. CO., INC., 45-31 Court Sq., L.I.C., NY 11101, Tel: 212-937-8000, Telex: ITTEAGLE 426774; *Sls. Mgr.:* Joseph Mannarino; *Dist. Mgr.:* John Chambers

EAGLE MAGNETIC COMPANY, INC., 7417 Crawfordsville Rd., P.O. Box 24283, Indianapolis, IN 46224, Tel: 317-297-1030, TWX: 810-341-3386; Empl.: 37; *Sls. Mgr.:* Dane Love ....**2•1905**

EAGLE-PICHER INDS., INC., Elctrns. Div., Box 47, Joplin, MO 64801, Tel: 417-623-8000, TWX: 910-774-4508; Empl.: 700

EAGLE SIGNAL CONTROLS, Mfg. Div. Gulf & Western Inds., Box 16100, Austin, TX 78761, Tel: 512-837-8401; Empl.: 600; *Sls. Mgr.:* Don Benice

Local Sales Offices & Reps

CA	La Fayette	415-283-0380
CA	Studio City	213-572-8000
GA	Atlanta	404-996-4511
IL	Downers Grove	312-969-9000
NJ	Saddle Brook	201-368-2270
TX	Arlington	817-265-7790

EALING OPTICS CO., Ealing Corp., 22 Pleasant St., S. Natick, MA 01760, Tel: 617-655-7000, Telex: 948339; *Sls. Mgr.:* Peter Andreas

E & L INSTRUMENTS, INC., 61 First St., Derby, CT 06418, Tel: 203-735-8774, Telex: 963536; Empl.: 46

EAO SWITCH CORP., 198 Pepe's Farm Rd., P.O. Box 552 MO, Milford, CT 06460, Tel: 203-877-4577, Telex: 96-4347; Empl.: 19; *Sls. Mgr.:* George T. Bracci ....**1B•1589**

Local Sales Offices & Reps

AL	Huntsville, Conley and Assocs.	205-882-0316
AZ	Scottsdale, Luscombe Engrg.	602-949-9333
AR	Little Rock, Beacon Elctrn. Assocs.	501-224-5449
CA	Campbell, Luscombe Engrg.	408-370-2020
CA	Pasadena, Luscombe Engrg.	213-684-2000
CA	San Diego, Luscombe Engrg.	619-295-4300
CO	Denver, Cleveland Entprs. of Colo.	303-751-3252
CT	Farmington, Ray Perron & Co.	203-673-4825
CT	New Milford, Ray Perron and Co.	203-354-2569
FL	Boca Raton, Conley and Assocs.	305-395-6108
FL	Oviedo, Conley and Assocs.	305-365-3283
GA	Atlanta, Conley and Assocs.	404-447-6992
GA	Tampa, Conley and Assocs.	813-885-7658
IL	Arlington Hgts., Brainard-Wilson Mktg.	312-437-2700
IN	Carmel, Brainard-Wilson Mktg.	317-844-2800
KS	Mission, Mertens Co.	918-432-9323
MD	Columbia, Delta 111 Assocs.	301-730-4700
MA	Needham, Ray Perron & Co.	800-225-4280; 617-449-6162
MI	Plymouth, Jay Mktg. Assocs.	313-459-1200
MN	Minneapolis, OEM Elctrical Sls. Co.	612-559-2448
MO	Clayton, Mertens Co.	314-993-6600
NH	Dover, Ray Perron & Co	603-742-2321
NJ	Englewood, Sprung/Nussbaum	201-569-5666
NM	Albuquerque, Cleveland Entprs.	505-265-7893
NY	Rochester, Apex Assocs., Inc.	716-254-6050
NC	Raleigh, Conley and Assocs.	919-876-9862
OH	Mentor, Jay Mktg. Assocs.	216-257-5244
PA	Hatboro, Jacobsen Assoc.	215-674-2937
PA	Pittsburgh, R. W. Kneip	412-823-0169
TN	Johnson City, Beacon Elctrn. Assocs.	615-282-2421
TX	Dallas, Glidden Electro Equip.	214-341-0610
TX	Houston, Glidden Electro Equip.	713-681-1415
UT	Salt Lake City, Cleveland Entprs. of Colo.	801-355-8424
WA	Lynnwood, Blum & Assocs.	206-775-6656
WI	Milwaukee, Badgerep	414-258-6630

Local Distributors

AL	Huntsville, R.M. Alabama	205-852-1550
AZ	Phoenix, Minarik Electric	602-233-3000
AZ	Tempe, Fisher Brownell	602-967-1464
CA	Alhambra, Fisher Brownell	714-739-2201
CA	Burlingame, Electronic Control Devices	415-348-0791
CA	Gardena, California Switch and Signal	213-770-2330
CA	Los Angeles, Minarik Elec. Co.	213-624-3161
CA	San Diego, Minarik Elec. Co.	619-560-8545
CA	San Diego, Fisher Brownell	619-560-6632
CA	Santa Clara, Minarik Elec. Co.	408-727-0575
CA	Santa Clara, Fisher Brownell	408-988-6041
CA	Van Nuys, Patane Avionics	213-988-4455
CO	Denver, CSID	800-525-3532
CT	Hamden, Impact Sls.	203-281-1331
CT	Shelton, Century Elec. Supp.	203-736-2684
FL	Oviedo, Dixie Sales	305-365-5211
GA	Norcross, Wilshire Elctrns.	404-923-5750
IL	Arlington Hgts., Martec Assoc.	312-956-8090
IL	Lombard, R.M. Illinois	312-932-5150
IL	Rosemont, Advent Elctrns.	312-297-6200
IN	Indianapolis, R.M. Indiana	317-247-9701
KY	Louisville, Peerless Elctrns.	502-637-7674
LA	Baton Rouge, Menard Elctrns.	504-355-0323
LA	Jefferson, Gulfside Company	504-733-4481
MA	Canton, Impact Sls. Co.	617-821-1500
MI	Grand Rapids, R.M. Elctrns.	616-531-9300
MI	St. Claire Shores, SPEMCO Switches	313-771-2700
MN	Minneapolis, Electronic Ctr.	612-371-5200
NJ	Cranford, Garden State Elctrns.	201-272-6400
NJ	Roseland, Walker Engrg.	201-226-0855
NY	Buffalo, Summit Distrs.	716-887-2800
NY	New York, Martin Audio/Video	212-541-5900
NY	Rochester, Summit Elctrns.	716-334-8110
NY	Rochester, Modutex Corp.	716-424-1620
NY	Woodside, Switches Unlimited	212-478-5000
NC	Charlotte, Elctrns. Mktg. Corp.	704-394-6195
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Columbus, Electronics Mktg.	614-299-4161
OH	Highland Hgts., Electronic Mktg. Corp.	216-442-3441
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Portland, Minarik Elc. Co.	503-253-3402
PA	Harrisburg, Advacom	717-545-5674
PA	McKean, Advacom	814-476-7774
PA	Norristown, Kimberly-James Co.	215-666-7286
PA	Pittsburgh, Grant Industrial Controls	412-787-9770
TX	Dallas, R.M. Dallas	214-235-3100
TX	Garland, Indl. Equip. Co. of Dallas	214-271-5494
TX	Richardson, Fisher Brownell	214-235-3177
TX	San Antonio, Minarik Elec. Co.	512-822-7097
WA	Bellevue, Integrated Elctrns.	206-455[illegible]727
WI	Milwaukee, Marsh Elctrns.	414-475-6000

E-A-R DIV., Cabot Corp., 7911 Zionsville Rd., Indianapolis, IN 46268, Tel: 317-872-1111, TWX: 810-341-3412; *Sls. Mgr.:* Richard W. Holub ....**2•1867**

EASCO/K-D TOOLS, 3575 Hempland Rd., Lancaster, PA 17604, Tel: 717-665-4557, Telex: 848429; *Sls. Mgr.:* Mark Lax

EASTERN AIR DEVICES MOTOR DIV., 1 Progress Dr., Dover, NH 03820, Tel: 603-742-3330, TWX: 510-297-4454; Empl.: 200; *Sls. Mgr.:* D. Cooper ....**1B•1141**

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
CA	Buena Park, Sales Engrs. Ltd.	213-921-0681

CA	Los Altos, Servo Data	415-964-1325
CO	Boulder, R. G. Entprs.	303-447-9211
FL	Orlando, Perrott Assoc.	305-275-1132
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Chicago, Berndt Assocs.	312-283-0713
IN	Carmel, Berndt Assocs.	317-844-0114
MA	Framingham, Gerald Rosen Co.	617-879-5505
MN	St. Paul, REPCO	612-488-0201
NJ	Ridgefield, Rical Assocs.	201-945-5250
NY	Rochester, Elcom Sls.	716-385-1400
NY	Syracuse, ELCOM Sls.	315-685-8245
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
PA	Paoli, ETC Sales	215-296-3527
TX	Austin, Mech-Tron Mktg.	512-835-0980
TX	Dallas, MECH-TRON Mktg.	214-343-3786
WA	Seattle, Eltech	206-767-4330
WI	Milwaukee, Berndt Assocs.	414-545-8400

EASTERN DELTA CORP., 29-09 S. Broadway, Fair Lawn, NJ 07410, Tel: 201-797-4200; FSC No.: 18105; Empl.: 35

EASTERN ELECTRONICS MFG. CORP., 180 Roberts St., East Hartford, CT 06108, Tel: 203-528-9821; Empl.: 100; *Sls. Mgr.:* T. P. Dunn

EASTERN MARKING MACHINES, 422 S Franklin St., Hempstead, NY 11550, Tel: 516-483-7070, Telex: 968095; Empl.: 8; *Sls. Mgr.:* P. Coburn; *Dist. Mgr.:* L. Sherman

EASTERN MICROWAVE, 4 Gill St., Woburn, MA 01801, Tel: 617-935-8600; FSC No.: 30616; Empl.: 45; *Sls. Mgr.:* S. C. Lowe

EASTERN SMELTING & REFINING CORP., 37-39 Bubier St., Lynn, MA 01901, Tel: 617-599-9000, Telex: 940108; *Sls. Mgr.:* Donald Decareau

EASY HEAT-WIREKRAFT, 555 North Michigan St., Lakeville, IN 46536, Tel: 219-784-3011, Telex: 233159; *Sls. Mgr.:* Russell W. Riddle

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EATON CORP., Aerospace Controls/Systems Div., 2074 Whitfield Ave., East, Sarasota, FL 33578, Tel: 813-758-7726

EATON CORP., Microwave Components Div., 680 W. Maude Ave., Sunnyvale, CA 94086, Tel: 408-733-3883, TWX: 910-339-9252; FSC No.: 54987; Empl.: 30

Local Sales Offices & Reps

AZ	Tempe, Sierra Technl. Grp.	602-894-2335
CA	Costa Mesa, EBA Microwave	714-857-6079
CA	Sunnyvale, Loeswicks	408-745-6751
FL	Winter Park, Microwave Mktg.	305-678-2141
IA	Cedar Rapids, S & O Sls.	319-393-1845
KS	Merriam, Midwest Tech. Sls.	913-236-8555
ME	Ogunquit, Micronic Assocs.	617-933-2121
MD	Silver Spring, Youth-Nelson Assocs.	301-598-5740
NY	Fayetteville, R. D. Sherman & Co.	315-637-9861
PA	Huntingdon Valley, Rabal Assoc., Inc.	215-947-4825
TX	Dallas, Stevens Sls. Co.	214-350-2476
WA	Seattle, Ecco Mktg.	206-364-0200

EATON CORP., A.I.L. Div., Comac Rd., Deer Park, NY 11729, Tel: 516-595-3094, TWX: 510-227-6073; FSC No.: 00752; Empl.: 2250; *Sls. Mgr.:* H. N. Kreisberg

EATON CORP., Microwave Comps. Div., 783 Palomar Ave., Sunnyvale, CA 94086, Tel: 408-245-6810, TWX: 910-339-9230; Empl.: 120; *Sls. Mgr.:* J. R. Campbell

Local Sales Offices & Reps

AZ	Tempe, Sierra Tech. Grp.	602-894-2335
CA	Sherman Oaks, Midwin & Olifson	213-996-9093
CA	Sunnyvale, Loeswick	408-745-6751
FL	Winter Park, Microwave Mktg.	305-678-2141
KS	Merriam, Midwest Tech. Sls.	913-236-8557
MD	Silver Spring, Youth-Nelson Assocs.	301-598-5740
MA	Needham Heights, O'Sullivan & Murphy	617-449-4141
NY	Fayetteville, R. D. Sherman & Co.	315-637-9861
NY	Melville, Metro Mics	516-271-6677
OH	Dayton, Ashby Assocs.	513-252-5627
PA	Huntingdon Valley, Rabal Assoc.	215-947-4825
TX	Dallas, Stevens Sls. Co.	214-350-2476

EATON CORP., Durant Digital Instrs., 901 S. 12th St., Watertown, WI 53094, Tel: 414-261-4070, TWX: 910-260-3713; Empl.: 400; *Sls. Mgr.:* H. L. Sisson; *Dist. Mgr.:* Dennis G. Walz

EATON CORP., Elctrn. Instrmn. Div., 2070 Fifth Ave., Ronkonkoma, NY 11779, Tel: 516-588-3600, TWX: 510-228-6507; Empl.: 400

EATON CORP., Printer Prods Oper., Techn. Resch. Pk., Riverton, WY 82501, Tel: 307-856-4821, Telex: 910 949 4864; Empl.: 185; *Sls. Mgr.:* Roger Rayburn

EATON CORP., TEST SYS. DIV., Discrete Test, Precision Rd., Danbury, CT 06810, Tel: 203-744-0096, TWX: 710-456-5030; *Sls. Mgr.:* Chuck Winick

EATON CORP., TEST SYS. DIV., Memory Test Sys., 21135 Erwin St., Woodland Hills, CA 91365, Tel: 213-887-5550, Telex: 69-8489; Empl.: 200; *Sls. Mgr.:* Chuck Winick

EATON CORP, Yig-Tek Prods., 785 Palomar Ave., Sunnyvale, CA 94086, Tel: 408-737-7300, TWX: 910-339-9395; Empl.: 100

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EATON CORP./CUTLER-HAMMER PRODS., Aerospace/Commercial Controls Div., 4201 N. 27th St., Milwaukee, WI 53216, Tel: 414-449-7487, Telex: 26-716; FSC No.: 81640; *Sls. Mgr.:* W. L. Reinke; *Dist. Mgr.:* J. R. McDonough ..**1B**•1590-1611

Local Sales Offices & Reps

CA	Los Angeles	714-776-1910
CA	San Francisco	415-967-0606
FL	Tampa	813-985-5777
GA	Atlanta	404-939-3023
IL	Chicago	312-530-7980
KS	Kansas City	913-384-0080
MD	Baltimore	301-296-9640
MA	Boston	617-863-5427
MI	Detroit	313-354-7513
MN	Minneapolis	612-831-8668
NY	Melville	516-595-4424
OH	Cleveland	216-835-4554
OH	Dayton	513-294-1877
PA	Philadelphia	215-692-9126
PA	Pittsburgh	412-221-4420
TX	Dallas	214-386-4121
WA	Seattle	206-643-2717
WI	Milwaukee	414-327-7300

Local Distributors

AL	Huntsville, Hamilton-Avnet Elctrns.	800-633-2992
AZ	Phoenix, Dalis Elctrn. Supp.	602-254-8471
AZ	Tempe, Fisher/Brownell	206-967-1464
AZ	Tempe, Hamilton/Avnet	602-894-9600
CA	Campbell, Centrex Elctrns.	408-379-0800
CA	Costa Mesa, Avnet Elctrns.	213-558-2345
CA	Covina, Selecta Switch	213-967-4123
CA	Fountain Valley, Comp. Center	714-979-0433
CA	Glendale, Western Elctrn. Supp.	213-246-4861
CA	Los Angeles, Electric Switch	213-660-1310
CA	Los Angeles, California Switch & Signal	213-770-2330
CA	Los Angeles, Fisher/Brownell	213-289-0255
CA	Los Angeles, Western Electromotive/Shephard	213-820-3777
CA	San Diego, Fisher/Brownell	619-560-8545
CA	San Diego, Hamilton/Avnet	619-571-7500
CA	San Jose, Consolidated Parts	408-263-9521
CA	Santa Ana, Norstan Elctrns. Inc.	714-540-4165
CA	Santa Clara, Western Electromotive	408-727-7411
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Santa Clara, Fisher/Brownell	408-988-6041
CA	Santa Fe Springs, Eurton Elec. Co.	213-946-4477
CA	Sunnyvale, Hamilton-Avnet Elctrns.	408-743-3355
CO	Denver, C.S.I.D. Inc.	303-893-9594
CO	Denver, Con. Parts	303-623-5313
CO	Denver, Newark Elctrns. Corp.	303-757-3351
CO	Englewood, Hamilton/Avnet	303-740-1000
CT	Danbury, Hamilton-Avnet Elctrns.	203-762-0361
CT	New Haven, Hatry Elec.	203-787-5921
CT	Wallingford, Sager Elctrl. Supp. Co.	203-265-4600
CT	West Hartford, Gal Elec. Co.	203-232-9880
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Ft. Lauderdale, Hamilton-Avnet Elctrns.	305-971-2900
FL	Ft. Lauderdale, Peerless	303-973-4141
FL	Miami, Elctrn. Equip.	305-871-3500
FL	Orlando, Hammond	305-849-6060
FL	St. Petersburg, Hamilton-Avnet Elctrns.	813-576-3930
GA	Atlanta, Electro Air Corp.	404-351-3545
GA	Atlanta, Brownell Electro	404-762-5181
GA	Norcross, Hamilton-Avnet Elctrns.	404-447-7500
IL	Addison, LCOMP Chicago	312-628-1400
IL	Chicago, Revere Elec. Supp. Co.	312-738-3636
IL	Chicago, Advent Elctrns.	312-297-6200
IL	Chicago, Steiner	312-685-7000
IL	Chicago, Complete-Reading	312-547-5400
IL	Chicago, Hamilton/Avnet	312-678-6310
IL	Chicago, Ohm	312-359-5500
IL	Chicago, Newark	312-638-4411
IN	Ft. Wayne, Graham Elctrn. Supp.	219-423-3422
IN	Indianapolis, Graham Elctrn. Supp.	317-634-8202
IA	Davenport, Crescent Elec. Supp. Co.	319-323-1811
IA	West Des Moines, Ramco Co.	515-225-6933
KS	Kansas City, Hamilton/Avnet	913-888-8900
KS	Wichita, LCOMP	316-265-8501
KS	Wichita, Airtechnics	316-267-2849
KY	Louisville, Peerless Elctrn. Equip.	502-637-7674
LA	Lafayette, Ralph's of Lafayette	318-233-0105
LA	New Orleans, Long Elctrl. Supp. Co.	504-524-8383
MD	Beltsville, Treeko Sls.	301-792-0112
MD	Gaithersburg, Pioneer-Wash	301-948-0710
MD	Kensington, Marine Air	301-949-9560
MA	Boston, Hamilton-Avnet Elctrns.	617-273-7500
MA	Boston, Controller Svc.	617-269-1300
MA	Boston, Sager	617-749-6700
MA	Canton, Impact Sls. Co.	617-821-1500
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Waltham, Sterling Elctrns.	617-894-6200
MI	Detroit, Hamilton-Avnet Elctrns.	313-522-4700
MI	Detroit, R S Elctrns.	313-525-1155
MI	Detroit, Don Blackburn & Co.	313-261-9100
MI	Detroit, Spemco Switches	313-771-2700
MI	Grand Rapids, S-F Elctrns. Supp.	616-459-0216
MN	Minneapolis, H. A. Holden	612-333-5353
MN	Minneapolis, Hamilton/Avnet	612-932-0600
MN	Minneapolis, Boustead	612-544-9131
MN	Minneapolis, Newark	612-331-6350
MN	St. Paul, Ragon Elctrns.	612-642-2852
MS	Jackson, Ellington Elctrn. Supp.	601-355-0561
MO	Kansas City, LCOMP	816-221-2400
MO	St. Louis, Hamilton-Avnet Elctrns.	314-340-1200
MO	St. Louis, LCOMP	314-291-6200
NH	Hudson, C & H Elctrns.	603-882-1133
NJ	Hackensack, Nassor Elctrl. Supp. Co.	201-641-3737
NJ	Jersey City, Cuny & Guerber	201-653-0222
NJ	Manasquan, Kulka Smith	201-223-9400
NJ	Paterson, Hamilton-Avnet Elctrns.	201-575-3390
NM	Albuquerque, Walker Elctrns. Supp. Co.	505-247-2288

NM	Albuquerque, Hamilton/Avnet	505-765-1500
NY	Bohemia, Key Comps.	516-567-7500
NY	Buffalo, Summit	716-884-3450
NY	Hauppauge, Hamilton-Avnet Elctrns.	516-231-9800
NY	Hempstead, Elctrn. Equip.	516-538-5510
NY	Lynnbrook, Peerless	516-593-2121
NY	New York, Brownell Electro	212-924-6000
NY	Rochester, Modutex	716-647-9700
NY	Rochester, Hamilton-Avnet Elctrns.	716-475-9130
NY	Rochester, Simcona	716-328-3230
NY	Syracuse, Hamilton-Avnet Elctrns.	206-437-2641
NY	Woodside, Switches Unltd.	212-478-5000
NC	Charlotte, Brownell Electro	704-597-1270
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, Hamilton/Avnet	919-829-8030
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cincinnati, Schuster	513-489-1400
OH	Cleveland, Pioneer-Cleveland	216-587-3600
OH	Cleveland, Hamilton-Avnet Elctrns.	216-831-3500
OH	Cleveland, Complete-Reading	216-267-1000
OH	Cleveland, Roland	216-351-2050
OH	Dayton, Pioneer Standard Elctrns.	513-236-9900
OH	Dayton, Stotts-Friedman Co.	513-298-5555
OH	Dayton, Related Comps.	513-253-6116
OH	Dayton, Hamilton/Avnet	513-433-0610
OH	Warren, REM Elctrns. Supp. Co.	216-373-1300
OK	Oklahoma City, Electro Entprs.	405-427-6591
OK	Oklahoma City, John H. Cole Co.	405-235-1761
OK	Tulsa, Radio Inc.	918-587-9123
OR	Beaverton, Almac/Stroum	503-641-9070
PA	Altoona, Allegheny Elctrns.	814-946-0871
PA	Braddock, M. Leff Radio Parts Co.	412-351-5000
PA	Erie, Erie Indl.	814-455-8051
PA	Harrisburg, Dauphin Elec.	717-232-4201
PA	McKean, Advacom	814-476-7774
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	Philadelphia, Powell Elctrns.	215-365-1900
PA	Philadelphia, Peak	215-293-9000
PA	Pittsburgh, Cam/R.P.C.	412-782-3770
PA	Reading, Barbey	215-376-7451
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Chattanooga, Techni-Tronics	615-875-5449
TN	Memphis, Brownell Electro	901-795-8487
TN	Nashville, Electra Distrbg. Co.	615-329-3971
TX	Addison, Computer Comps. Corp.	214-239-0271
TX	Austin, Southwest Elctrns.	512-837-8971
TX	Austin, Hamilton-Avnet Elctrns.	512-837-8911
TX	Dallas, Fisher/Brownell	214-235-3177
TX	Dallas, Associated Aircraft	214-331-4381
TX	Dallas, Southwest Elctrns.	713-234-3050
TX	Dallas, Complete-Reading	214-827-8891
TX	El Paso, Ideal Indl. Elctrns. Sys.	915-779-6647
TX	Ft. Worth, Swieco	817-429-1107
TX	Ft. Worth, Allied	817-336-5401
TX	Houston, Southwest	713-491-4900
TX	Houston, Hamilton/Avnet	713-780-1771
TX	Irving, Hamilton-Avnet Elctrns.	214-659-4100
UT	Salt Lake City, Stuart	801-466-8605
UT	Salt Lake City, Hamilton/Avnet	801-972-2800
VA	Charlottesville, Virginia Radio Supp.	804-296-4184
VA	Richmond, Sterling Elctrns.	804-266-2190
WA	Seattle, Hamilton-Avnet Elctrns.	206-453-5844
WA	Seattle, Almac Elctrns. Corp.	206-643-9992
WI	Milwaukee, Elctrn. Expeditors	414-228-8100
WI	Milwaukee, Standard Elec.	414-272-8100

EBERHARD MFG. CO., DIV., Eastern Co., 21944 Drake Rd., Strongsville, OH 44136, Tel: 216-238-9720, Telex: 98-5301; FSC No.: 19220; *Sls. Mgr.:* Edward Hongosh

EBM INDS., INC., 525 New Britain Ave., Unionville, CT 06085, Tel: 203-674-1515, TWX: 710-423-8723; FSC No.: 62292; *Sls. Mgr.:* Edward A. Cyr ....2•1255, 1806, 1807

Local Sales Offices & Reps

AL	Huntsville, Raycom	205-859-2017
AZ	Tempe, Argus Sls.	602-968-7791
CA	Los Angeles, Wiley Co.	213-666-1611
CA	San Diego, Wiley Co.	619-571-2881
CA	Santa Clara, Ross Mktg. Assocs.	408-988-8111
CO	Littleton, Simpson Assocs.	303-794-8381
CT	Cheshire, Selmark Assocs.	203-573-9088
FL	Orlando, Trimark Assocs.	305-859-5504
GA	Fayetteville, Raycom	404-461-4026
IL	Elk Grove, Carlson Elctrn. Sls.	312-956-8240
IN	Indianapolis, J & W Sales	317-842-3740
IA	Cedar Rapids, Carlson Elctrn. Sls.	319-377-6341
KS	Overland Park, Web Elctrns.	913-381-2225
MD	Millersville, Tri-Mark	301-987-9103
MA	Millis, Selmark Assocs.	617-376-2914
MI	Detroit, Burcaw Co.	313-533-7700
MN	St. Paul, Arkco Sls.	612-777-7454
MO	Florissant, Web Elctrns.	314-921-5720
NH	Hopkinton, Selmark Assocs.	603-746-3299
NJ	Marlton, b.g.r. Assocs.	609-983-1020
NJ	Oakland, Robert Horne Assocs.	201-337-5200
NY	Buffalo, Rudell-Merrifield Assocs.	716-634-4300
NC	Raleigh, Raycom	919-847-8276
OH	Chesterland, Depco	216-729-3588
OK	Tulsa, Bonser-Philhower Sls.	918-496-3236
OR	Portland, Earl & Brown Co.	503-245-2283
PA	Harrison City, Rudell-Merrifield Assocs.	412-327-0858
TX	Austin, Bonser-Philhower Sls.	512-346-9186
TX	Dallas, Bonser-Philhower Sls.	214-234-8438
TX	Houston, Bonser-Philhower Sls.	713-531-4144
UT	Midvale, Simpson Assocs.	801-566-3691
WA	Seattle, Earl & Brown Co.	206-284-1121
WI	Milwaukee, Carlson Elctrn. Sls. Co.	414-476-2790

Local Distributors

AZ	Tempe, GRQ Ltd.	602-968-5932
CA	Fullerton, Pyramid/Fullerton	714-773-0781
CA	Fullerton, Young Sls. Co.	714-871-5355
CA	Hollywood, Yale Elctrns.	213-465-3186
CA	San Diego, Deco Elctrns.	619-693-1595
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Englewood, Indl. Elctrns.	303-694-9444
CT	Danbury, Pilgrim Elctrns.	203-792-7274
CT	Hamden, Impact Sls. Co.	203-281-1331
FL	Melbourne, Frankland	305-259-7988
GA	Fayetteville, Frankland	404-461-4026
IL	Rosemont, Advent Elctrns.	312-297-6200
IN	Indianapolis, Advent Elctrns.	317-872-4910
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
MD	Baltimore, Resco/Baltimore	301-823-0070
MD	Beltsville, Resco/D.C.	301-937-9100
MA	Canton, Impact Sls. Co.	617-821-1500
MA	Middleboro, Glynn Elctrns.	617-947-4262
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Grand Rapids, S.F. Elctrns.	616-459-0216
MN	Minneapolis, Bergquist	612-835-2322
NJ	Berlin, General Comps.	609-768-6767
NJ	Oakland, Gordon/Horne	201-337-5200
NY	Rochester, Simcona	716-328-3230
NY	Suffern, Nobel Elctrns.	914-357-4500
OH	Akron, Akron Elctrns.	216-762-8818
OH	Dayton, Related Comps.	513-253-6116
PA	Norristown, Century Elctrn. Comp. Co.	215-631-5400
TN	Chattanooga, Techni-Tronics	615-875-5449
TX	Addison, ACT Corp.	214-980-1888
UT	North Salt Lake, Integrated Elctrns.	801-298-1868
WA	Bellevue, Integrated Elctrns./Jaco	206-455-2727
WI	Mequon, Taylor Elec. Co.	414-241-4321

EBY CO., 2751 Southampton Rd., Philadelphia, PA 19154, Tel: 215-969-4200, TWX: 710-670-0452; FSC No.: 72825; Empl.: 150; *Sls. Mgr.:* C. R. Dedera ....2•1256, 1257

Local Sales Offices & Reps

AL	Huntsville, Hollingsworth & Still	800-241-5712
AZ	Tempe, Gassner & Clark	602-968-9037
CA	Anaheim, Galaxie Sls. Intl.	714-752-1580
CA	Los Altos, J. W. Wilhoit Co.	415-961-3660
CO	Boulder, R. F. Mayo Assocs.	303-499-2155
GA	Norcross, Hollingsworth & Still	404-447-1700
IL	Chicago, Rendell Sls. Co.	312-528-9025
IN	Ft. Wayne, Given Corp.	219-432-5585
IA	Cedar Rapids, Gassner & Clark	319-393-5763
MD	Glen Burnie, Macrotech Assocs.	301-437-5588
MA	Newton Upper Falls, Anchor Engrg.	617-964-6205
MI	Brighton, Electronic Sources, Inc.	313-227-3598
MN	Edina, Grayden & Flemmer	612-941-1120
MO	Ellisville, Larco Sls., Inc.	314-394-7141
NY	Fairport, Bastian Sls. Agency, Inc.	716-223-0237
NY	Melville, Comtronic Assoc.	516-249-0505
NY	Syracuse, Bastian Sls. Agency, Inc.	325-437-1482
NC	Kernersville, Hollingsworth & Still	800-241-5712
OH	Dayton, J. N. Bailey & Assoc.	513-226-0512
OR	Beaverton, Caruso & Northcutt, Inc.	503-646-4973
PA	Philadelphia, Omni Sls.	215-233-4600
SC	Columbia, Hollingsworth & Still	800-241-5712
TX	Austin, Stevens Sls. Co.	512-250-5104
TX	Dallas, Stevens Sls. Co.	214-350-2476
VA	Gladys, Ralley Entprs., Inc.	804-283-5656
WA	Bellevue, Caruso & Northcutt, Inc.	206-454-9699

Local Distributors

AL	Birmingham, American Elec. Supp. Co.	205-254-3280
AL	Huntsville, Contact Elctrns.	205-881-9321
AL	Mobile, Electronic Supp. Co.	205-478-0455
AZ	Phoenix, Lion Elctrn. Distrs.	602-869-9611
AZ	Tucson, Kachina Elec. Dist. Inc.	602-792-2223
CA	Canoga Park, Afcom	213-703-6161
CA	City of Industry, Ital Elctrn. Sls.	213-968-8515
CA	Irvine, AMC Milliken	714-549-9811
CA	San Carlos, Logan Elctrns.	415-594-0700
CA	San Jose, Afcom	408-263-0660
CA	Santa Ana, Amcotec Elec. Comp. Sales	714-957-3003
DE	Wilmington, A.M. Elctrns.	302-654-9233
FL	Casselberry, Afcom	305-831-6630
FL	W. Palm Beach, Nurmi Elctrn. Supp.	305-686-8553
GA	Atlanta, Specialty Dist. Co. Inc.	404-873-2521
GA	Atlanta, ACK Radio Supp.	404-351-6340
IL	Elk Grove, Afcom	312-228-0760
KY	Bowling Green, Randolph, Hale & Meredith	502-781-1460
KY	Hopkinsville, Randolph & Hale	502-885-5357
KY	Louisville, P.I. Burkes Co.	502-589-3960
MD	Columbia, Aztech Elctrns. Inc.	301-995-1760
MA	Woburn, Afcom	617-935-3200
MI	Grand Rapids, S-F Elctrn. Supp. Co.	616-459-0216
NJ	Clifton, Afcom	201-365-2700
NY	Albany, E.E. Taylor	518-438-7811
NY	Buffalo, Summit Elctrns.	716-887-2833
NY	Jamaica, Eby Sls. Co. of NY	212-291-3232
NY	Long Island City, Hardware Specialty Co.	212-361-9393
NY	Rochester, Summit Elctrns.	716-334-8110
NY	Rome, Rome Elctrns.	315-337-5400
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Dayton, Televox, Inc.	513-294-4499
PA	Philadelphia, Spectrum Elctrns. Inc.	215-748-3010
PA	York, Electronic Comps. for Ind.	717-843-8971
SC	Columbia, Dixie Elec.	803-779-5332
TN	Chattanooga, Indl. Elec. Dist. Inc.	615-698-3413
TN	Clarksville, Randolph, Hale & Matthews	615-647-2325
TN	Cookville, Randolph & Parks	615-526-6184
TN	Memphis, Bluff City Distrs.	901-345-9500
TN	Nashville, Randolph & Rice	615-255-5602
TN	Tullahoma, Randolph, Rice & Williams	615-455-4531
TX	Dallas, Afcom	214-238-7845
TX	El Paso, Midland Specialty Co.	915-533-9555
VA	Roanoke, Peoples Elctrn. Supp.	703-342-8933

ECD CORP., 196 Broadway, Cambridge, MA 02139, Tel: 617-661-4400, TWX: 710-320-6965; Empl.: 40

ECI COMPANY, Box 1565, Terra Haute, IN 47808, Tel: 812-232-4442; Empl.: 3

ECO INSTRS. DIV., Sea Data Corp., 1 Bridge St., Newton, MA 02158, Tel: 617-964-8360, Telex: 951107; Empl.: 40; *Sls. Mgr.:* Jill Shipman

Local Sales Offices & Reps

CA	Burlingame, BHL Assocs.	415-342-7850
CA	Yorba Linda, Western Analytical Prods.	714-558-7300
CO	Littleton, Hiltech	303-741-2536
GA	Lilburn/Atlanta, Spectrum Sci.	404-921-5235
HI	Honolulu, Aloha Assocs.	808-941-1574
IL	Des Plaines, Byron Ellis Assocs.	312-298-7626
MD	Gaithersburg, Renwar Tech.	301-949-9808
MI	W. Bloomfield, Scientific, Pittsburgh	313-851-2390
MS	Vicksburg, Sea Data Corp.	601-634-1110
NM	Albuquerque, Hiltech	505-268-1733
NY	Westbury, Kramer Assocs.	516-334-7181
OH	Cincinnati, Scientific, Pittsburgh	513-825-6994
PA	Paoli, Engleman Engrg.	215-644-8181
PA	Pittsburgh, Scientific, Pittsburgh	412-921-7700
TX	Houston, Sales Tech. Assocs.	713-723-3228
WA	Kirkland, Pelco Sci.	206-823-2290

ECONOMY FUSE, Reliance Electric, 2070 Maple St., Des Plaines, IL 60016, Tel: 312-299-2211, Telex: 726-453; FSC No.: 72076; Empl.: 200

Refer to Federal Pacific Electric Co. for sales office information.

Ectron
CORPORATION®

ECTRON CORP., 8159 Engineer Rd., San Diego, CA 92111, Tel: 619-278-0600, TWX: 910-335-1259; FSC No.: 24856; Empl.: 50; *Sls. Mgr.:* W. W. Hanford ....3•1007

Local Sales Offices & Reps

AL	Huntsville, Saber Assocs.	800-327-0853
AZ	Phoenix, Aztec Entprs.	602-944-9185

CA	Costa Mesa, FLW Inc.	714-751-7512
CA	Hayward, FLW Inc.	415-487-2222
CA	San Diego, FLW Inc.	619-277-0993
CA	Van Nuys, FLW Inc.	818-989-5238
CO	Littleton, Aztec Entprs.	303-795-0250
FL	Melbourne, Saber Assocs.	305-724-0920
GA	Griffin, Saber Assoc. Inc.	800-327-0853
IL	Elmhurst, Sector Engrg. Sls.	312-530-7850
IN	Indianapolis, Sector Engrg. Sls.	317-842-1120
KS	Overland Park, Ramsey Assocs.	913-649-6996
LA	Baton Rouge, Sesco	504-928-4951
MD	Rockville, Elctrn. Mktg. Assoc.	301-744-7700
MA	Needham, Addelco Corp.	617-444-4754
MI	Royal Oak, Satullo	313-549-3910
MN	Bloomington, Sector Eng. Sls. Inc.	612-888-6920
MO	Maryland Hgts., Ramsey Assocs.	314-878-5042
NM	Albuquerque, Aztec Entprs.	505-262-1688
NY	East Syracuse, Ossmann Instrs.	315-437-7052
NY	Plainview, Eastern-Metro Assoc.	516-931-1414
NY	Rochester, Ossmann Instrs.	716-442-6990
NY	Saratoga Springs, Ossmann Instrs.	518-377-8604
NC	Clayton, Saber Assocs.	800-327-0853
OH	Cleveland, Instrmn. Sys.	216-845-8800
OH	Dayton, Instrmn. Sys.	513-294-2838
OK	Tulsa, Sesco	918-622-3868
PA	Pittsburgh, Instrmn. Sys.	412-243-1111
PA	Plymouth Meeting, Elctrn. Mktg. Assoc.	215-828-7400
SC	Columbia, Saber Assoc. Inc.	800-327-0853
TX	Houston, Sesco	713-999-3510
TX	Richardson, Sesco	214-231-9364
UT	Ogden, Aztec Entprs.	801-621-1655
VA	Chesapeake, Elctrn. Mktg. Assoc.	804-482-3318
WA	Seattle, Datacom Assoc. Inc.	206-285-2525
WI	Milwaukee, Sector Eng. Sls. Inc.	414-352-8280

EDAC

EDAC INC., 20 Railside Rd., Toronto, ON M3A 1A4, Canada, Tel: 416-445-2292, TWX: 610-492-1398; FSC No.: 31781; Empl.: 120; *Sls. Mgr.:* Alan Little; *Dist. Mgr.:* Alan Little .... 2•1258-1263

Local Sales Offices & Reps

AL	Huntsville, Elctrn. Mktg. Assocs.	205-837-7363
AZ	Tempe, Cleveland Entprs. of Ariz.	602-802-1127
AR	Dallas, Allied Comps.	214-238-0408
CA	Los Angeles, Universal Comps. Co.	213-641-4255
CA	Santa Clara, Engrg. Assocs. Corp.	408-988-5001
CO	Aurora, Sage Sls.	303-750-3501
CT	Bloomfield, S.I.R. Assocs.	203-243-9343
FL	Altamonte Springs, Semtronic Assocs.	305-831-8233
FL	Clearwater, Semtronic Assocs.	813-461-4675
FL	Ft. Lauderdale, Semtronic Assocs.	305-731-2484
GA	Atlanta, Elctrn. Mktg. Assocs.	404-448-1215
HI	Honolulu, Aloha Assocs.	
ID	Portland, Earl & Brown Co.	503-245-2283
IL	Elk Grove Village, Control Sls.	312-595-2110
IA	West Des Moines, Nevco	515-225-9866
KS	North Kansas City, Nevco	816-421-1751
ME	Bedford, S.I.R. Assocs.	617-275-5550
MD	Woodbine, Naudain Assocs. Southern	301-442-2270
MA	Bedford, S.I.R. Assocs.	617-275-5550
MI	Birmingham, Favco	313-644-0173
MN	Spring Lake Park, Holmgren Assocs.	612-786-7641
MO	North Kansas City, Nevco	816-421-1751
MO	St. Louis, Nevco	314-843-7406
NV	Santa Clara, Engrg. Assocs. Corp.	408-988-5001
NM	Albuquerque, Cleveland Entprs.	505-265-7893
NY	Manhasset, Win-Cor Elctrn. Sls. Corp.	516-627-9474
NC	Raleigh, Elctrn. Mktg. Assocs.	919-847-8800
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OR	Portland, Earl & Brown Co.	503-245-2283
PA	Parkland, Rayco Sls.	215-757-1899
SC	Greenville, Elctrn. Mktg. Assocs.	803-233-4637
TX	Dallas, Allied Comps.	214-238-0408
TX	Houston, Allied Comps.	713-988-1600
TX	Hurst, Allied Comps.	817-589-0456
TX	Round Rock, Allied Comps.	512-244-1166
UT	Salt Lake City, Sage Sls.	801-467-5451
WA	Seattle, Earl & Brown Co.	206-284-1121
WI	Thiensville, Control Sls.	414-242-4580
PR	Puerto Rico, Distributronics	809-843-3321

Local Distributors

AL	Huntsville, Pioneer Elctrns.	205-837-9300
AZ	Phoenix, Heilind Elctrns.	602-243-7171
AZ	Phoenix, Second Source	602-861-1141
AZ	Tempe, Fisher-Brownell	602-967-1464
CA	Alhambra, Fisher-Brownell	213-289-0255
CA	Cerritos, El-Com	213-404-2961
CA	Sacramento, Dunlap Elctrns.	916-444-8070
CA	San Diego, Fisher-Brownell	619-560-8545
CA	San Diego, El-Com	619-578-0900
CA	Santa Clara, Fisher-Brownell	408-988-6041
CA	Santa Clara, El-Com	408-496-0880
CA	Sunnyvale, Time Elctrns.	408-734-9888
CO	Arvada, Denver Wintronics	303-431-7161
CO	Denver, Integrated Elctrns.	303-292-6121
CT	Bethel, Heilind Elctrns.	203-797-8600
CT	Hamden, Connector Co.	203-288-0044
CT	Wallingford, Midan Elctrns.	203-265-2077
FL	Altamonte Springs, Pioneer Orlando	305-834-9090
FL	Ft. Lauderdale, Pioneer	305-771-7520
GA	Atlanta, Prehler	404-447-5540
IL	Addison, Lectro Comps.	312-543-1680
IL	Chicago, Prehler	312-384-6100
IL	Northbrook, Classic Comps. Supp.	312-272-9650
MD	Beltsville, Treeko Sls.	301-937-8260
MD	Gaithersburg, Pioneer Elctrns.	301-921-0660
MD	Savage, Pyttronic Inds.	301-792-0780
MA	Burlington, Heilind Elctrns.	617-272-5610
MA	Waltham, Sterling Elctrns.	617-894-6200
MI	Farmington Hills, Prehler Elctrns.	313-473-7200
MI	Roseville, Madison Elctrns.	313-778-7640
MN	Edina, Inds. Comps.	612-831-2666
MO	Kansas City, L Comp	816-221-2400
MO	Maryland Heights, L Comp	314-291-6200
MO	St. Louis, Time Elctrns./Mid-west	314-391-6444
NH	Hudson, Heilind Elctrns.	603-883-9536
NJ	Dover, Electrospec	201-361-6300
NJ	Old Bridge, BTC Elctrn. Comps.	201-536-8000
NJ	Pennsauken, Resco Elctrns.	609-662-4000
NM	Albuquerque, Intl. Elctrns.	505-345-8127
NY	Mount Vernon, Q.A.R. Inds. Elctrn. Sls.	914-699-2224
NY	New York, Peerless Radio Corp.	516-593-2121
NC	Charlotte, Pioneer/Carolina Elctrns.	704-527-8188
OH	Cincinnati, Schuster Elec. Co.	513-984-1600
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Twinsburg, Schuster Elec. Co.	216-425-8134
OR	Beaverton, Almac Elctrns. Corp.	503-641-9070
OR	Salem, Zepher Elctrn. Sls.	503-399-8503
PA	Allentown, P. A. Peters	215-434-5237
PA	Harrisburg, Cumberland Elctrns.	717-232-5999
PA	Harrisburg, Pyttronic Inds.	717-236-8001
PA	Horsham, Pioneer Elctrns.	215-674-4000
PA	Montgomeryville, Pyttronic Inds.	215-643-2850
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	Willow Grove, Resco Elctrns.	215-659-4440
TX	Austin, Southwest Elctrns.	512-837-8971
TX	Dallas, Heilind Elctrns.	214-351-2050
TX	El Paso, International Elctrns.	915-598-3406
TX	Houston, Sterling Elctrns.	713-627-9800
TX	Houston, Elctrn. Packaging Comps.	713-447-5800
TX	Richardson, Southwest Elctrns.	214-234-3050
TX	Richardson, Fisher-Brownell	214-235-3177
TX	Stafford, Southwest Elctrns.	713-491-4900
UT	Salt Lake City, Diplomat Elctrns.	801-486-7227
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Bellevue, Almac Elctrns. Corp.	206-643-9992
WA	Seattle, Zepher Elctrn. Sls.	206-241-1980
WI	New Berlin, R. M. Wisconsin	414-784-4420
WI	New Berlin, Classic Comps. Supp.	414-786-5300

EDL INC., 385 Oser Ave., Hauppauge, NY 11787, Tel: 516-435-2808, 800-DIAL EDL, 800 342-5335; Empl.: 50; *Sls. Mgr.:* Don Polsky

EDMAC CORP., 7500 Main St., P.O. Box 750, Fishers, NY 14453-0750, Tel: 716-924-4000, TWX: 510-254-2896; Empl.: 170; *Sls. Mgr.:* Shera Banbury

EDO CORP./ELINCO DIV., 272 Main Ave., Norwalk, CT 06851, Tel: 203-847-5861, Telex: 96-5945; FSC No.: 73693; Empl.: 87

Local Sales Offices & Reps

CA	Buena Park, Rock Assocs.	714-521-6980
CA	Campbell, R & D Assocs.	408-866-6358
CO	Denver, High Plains Mktg.	303-751-7150
FL	Sarasota, H.G.L. Assocs.	813-923-2484
MA	Lexington, John E. Boeing Co.	617-862-2500
MO	St. Louis, Schutz Assocs.	314-962-2622
NY	Liverpool, Jones/Sudders	315-598-3838
NC	Charlotte, Robert W. Chapman & Co.	704-525-2421
OH	Chagrin Falls, K. F. Nauerz Co.	216-338-8450
PA	Birchrunville, Jadelectronic Assocs.	215-296-3800
TX	Lewisville, Jim Hughes Co.	214-221-1536
TX	Stafford, Jim Hughes Co.	713-343-0673

EDO WESTERN CORP., EDO Corp., 2645 South 300 W., Salt Lake City, UT 84115, Tel: 801-486-7481/7481/3846, Telex: 388-315; Empl.: 360; *Sls. Mgr.:* Doug Moore

EDWARDS CO., Signaling Prods. Div., P.O. Box 1188, Farmington, CT 06032, Tel: 203-678-0410; *Sls. Mgr.:* Al Canevari; *Dist. Mgr.:* Al Canevari

EECO INCORPORATED, 1601 E. Chestnut Ave., P.O. Box 659, Santa Ana, CA 92702-0659, Tel: 714-835-6000, Telex: 67-8420, TWX: 910-595-1550; Empl.: 625; *Sls. Mgr.:* Frank Bruder; *Dist. Mgr.:* Ken Plount .... 1B•1612-1615

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Scottsdale, Thom Luke Sls.	602-941-1901
AR	Fort Smith, Electra Reps.	501-452-4030
CA	Fountain Valley, Bager Elctrns.	714-957-3367
CA	Los Altos, Recht Assocs.	415-964-6321
CA	San Diego, Harvey King Inc.	619-566-5252
CO	Denver, Delltron Co.	303-373-0300
CT	Farmington, Ray Perron & Co.	203-673-4825
CT	New Milford, Ray Perron & Co.	203-354-2569
FL	Pompano Beach, Ema, Inc.	305-943-3732
FL	Winter Park, EMA, Inc.	305-671-6800
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Elk Grove Village, John G. Twist Co.	312-593-0200
IN	Fort Wayne, M/S Sls. & Assoc.	219-484-1904
IA	Cedar Rapids, Palatine Sls.	319-365-8071
KS	Mission, Palatine Sls.	913-831-0555
MD	Rockville, EMA (Elctrn. Mktg. Assts.)	301-881-5300
MA	Needham, Ray Perron & Co.	617-449-6162
MI	Livonia, Lowell Wendt Mktg.	313-464-2722
MN	Bloomington, Elctrn. Sls. Agecy.	612-884-8291
MO	Hazelwood, Palatine Sls.	314-839-0800
NH	Dover, Ray Perron & Co.	603-742-2321
NJ	Englewood, Tecnimat	201-569-4200
NY	Endicott, Tech-Mark, Inc.	607-748-7473
NY	Mendon, Techmark, Inc.	716-624-3840
NY	Utica, Techmark, Inc.	315-733-0575
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Aurora, EMA, Inc.	216-562-6104
OH	Centerville, EMA, Inc. (Engr. Mktg. Assts.)	513-433-2800
OR	Beaverton, Blair Hirsh Co.	503-641-1875
PA	Plymouth Meeting, EMA (Elctrn. Mktg. Assts.)	215-248-5050
TX	Dallas, Electra Reps. Inc.	214-387-3594
TX	Houston, Electra Reps. Inc.	713-530-2208
UT	Salt Lake City, Delltron Co.	801-268-4574
WA	Lynnwood, Blair Hirsh Co.	206-774-8151
WI	Brookfield, John G. Twist Co.	414-782-2670

Local Distributors

AL	Huntsville, Hallmark Elctrn.	205-837-8700
AZ	Tempe, Fisher-Brownell	602-967-1464
AZ	Tempe, Marshall Ind.	602-968-6181
AZ	Tucson, Marshall Inds.	602-790-5687
CA	Alhambra, Fisher Brownell	213-289-0255
CA	Canoga Park, Marshall Ind.	213-999-5001
CA	El Monte, Marshall Ind.	213-442-7204
CA	Irvine, Marshall Ind.	714-556-6400
CA	San Diego, Fisher Brownell	714-560-8545
CA	San Diego, Marshall Ind.	619-578-9600
CA	Santa Clara, Fisher Brownell	408-988-6041
CA	Sunnyvale, Time Electronics	408-734-9888
CA	Sunnyvale, Marshall Ind.	408-732-1100
CO	Denver, Marshall Ind.	303-427-1818
CO	Englewood, Hallmark Electronics	303-694-1662
CT	Wallingford, Sager Electrical Supply Co.	203-265-4600
CT	Wallingford, Marshall Ind.	203-265-3822
FL	Ft. Lauderdale, Hall-Mark	305-971-9280
FL	Orlando, Marshall Ind.	305-841-1878
FL	Orlando, Hall-Mark	305-855-4020
GA	Atlanta, Marshall Inds.	404-923-5750
GA	Norcross, Hallmark Electronics	404-447-8000
IL	Bensenville, Hall-Mark	312-860-3800
IL	Schaumburg, Marshall Ind.	312-490-0155
KS	Lenexa, Hall-Mark	913-888-4747
MD	Baltimore, Hall-Mark	301-796-9300
MD	Gaithersburg, G.S. Marshall	301-840-9450
MA	Burlington, Marshall Ind.	617-272-8200
MA	Hingham, Sager Supply	617-749-6700
MI	Livonia, LWC Distributors	313-464-7700
MN	Bloomington, Hall-Mark Elctrn.	612-854-3223
MN	Plymouth, Marshall Ind.	612-559-2211
MO	Maryland Heights, Hall-Mark Elctrn.	314-291-5350
NJ	Cherry Hill, Hall-Mark Elctrn.	609-424-7300
NJ	Fairfield, Marshall Inds.	201-882-0320
NJ	Mount Laurel, Marshall Inds.	215-627-1920
NM	Albuquerque, Int'l Elctrns.	505-345-8127
NY	Buffalo, Summit Distributors, Inc.	716-887-2800
NY	Endwell, Marshall Ind.	607-754-1570
NY	Hauppauge, Marshall Ind.	516-273-2424
NY	Lynbrook, L.I., Peerless Radio Corp.	516-593-2121
NY	Rochester, Marshall Ind.	716-235-7620
NC	Raleigh, Hall-Mark Elctrn.	919-872-0712
OH	Dayton, Marshall Ind.	513-236-8088
OH	Solon, Hall-Mark Elctrns.	216-473-2907
OH	Westerville, Hallmark Electronics	614-891-4555

OK	Tulsa, Hall-Mark Elctrn.	918-665-3200
OR	Beaverton, Almac/Electronics Corp.	503-641-9070
TX	Austin, Hall-Mark Ind.	512-258-8848
TX	Dallas, Hall-Mark Ind.	214-341-1147
TX	Dallas, Marshall Ind.	214-233-5200
TX	El Paso, Int'l Elctrns.	915-598-3406
TX	Houston, Hall-Mark Ind.	713-781-6100
TX	Houston, Marshall Ind.	713-789-6600
TX	Richardson, Fisher Brownell	214-235-3177
WA	Bellevue, Almac/Stroum	206-643-9992
WA	Bellevue, Marshall Ind.	206-747-9100
WA	Spokane, Almac/Stróum	509-838-5714
WI	Oak Creek, Hall-Mark Ind.	414-761-3000

EEMCO DIV., 4585 Electronics Pl., Los Angeles, CA 90039, Tel: 213-247-7060, TWX: 910-497-2269; FSC No.: 72121; Empl.: 350; *Sls. Mgr.:* D. Haymond; *Dist. Mgr.:* D. Haymond

EEV INC., 7 Westchester Plaza, Elmsford, NY 10523, Tel: 914-592-6050, Telex: 6818096; Empl.: 36; *Sls. Mgr.:* Tom Soldano

EFRATOM, a division of Ball Corp., 18851 Bardeen Ave, Irvine, CA 92715, Tel: 714-752-2891, Telex: 68-5635; Empl.: 105 .... **1A•1350**

Local Sales Offices & Reps

CA	Los Altos, Kolm Mktg. Assoc.	415-948-2635
CA	Los Angeles, Cain Technlg.	213-477-9054
FL	Sarasota, Bass Assocs.	813-922-9538
MA	Natick, Wayland Engrg. Sls.	617-655-6080
NJ	Pennsauken, Sci. Reps.	609-662-5222
NY	Huntington, CDB Entprs.	516-692-5200
TX	Houston, Sci. Devices	713-864-1711
TX	Richardson, Sci. Devices	214-231-8106
VA	Fairfax, Sci. Assoc.	703-385-0600

EG&G, INC., Electro-Optics Div., 35 Congress St., Salem, MA 01970, Tel: 617-745-3200, TWX: 710-347-6741; FSC No.: 25506; Empl.: 500; *Sls. Mgr.:* J. Murachver

EG & G ALMOND INSTRUMENTS, 1330 E. Cypress St., Covina, CA 91724, Tel: 818-967-9521, TWX: 910-584-1320; Empl.: 200; *Sls. Mgr.:* J. D. Cardall .... **3•1550, 1551**

Local Sales Offices & Reps

FL	Orlando, Truex Assocs.	305-859-2160
TX	Garland, Tesco	214-681-1376

EG&G GAMMA SCIENTIFIC, Div. of EG&G Inc., 3777 Ruffin Rd., San Diego, CA 92123, Tel: 619-279-8034, Telex: 697938; *Sls. Mgr.:* George Unangst

EG&G GEOMETRICS, Div. of EG&G Inc., 395 Java Dr., Sunnyvale, CA 94086, Tel: 408-734-4616, Telex: 357435; FSC No.: 34314; *Sls. Mgr.:* Ross Johnson; *Dist. Mgr.:* Fritz Faber

EG&G RETICON, Div. of EG&G, 345 Potrero Ave., Sunnyvale, CA 94086-9930, Tel: 408-738-4266, Telex: 910-339-9343; *Sls. Mgr.:* Alex Findlay

EG&G ROTRON

EG & G ROTRON, Commercial Div., Shokan, NY 12481, Tel: 914-657-6661, TWX: 510-247-9033; *Sls. Mgr.:* Michael Keating; *Dist. Mgr.:* Ralph Stevens .... **2•1800, 1808-1813**

Local Sales Offices & Reps

AL	Huntsville, Over & Over	205-837-7105
CA	Anaheim, Westrep	213-404-3881
CA	Chatsworth, Rotron Sls.	213-709-2133
CA	San Diego, Hadden Assoc.	619-565-9444
CA	Santa Clara, Westrep	408-988-8833
CO	Littleton, Lange Sls.	303-795-3600
FL	Apopka, G. Bohman	305-886-1882
HI	Honolulu, R. Clark	808-531-5897
IL	Elk Grove Village, EG&G Rotron	312-364-7050
IL	Rolling Meadows, Sumer	312-991-8500
IA	Cedar Rapids, S & O Sls.	319-393-1845
KS	Raytown, CenTech	816-358-8100
MD	Columbia, L. D. Lowery	215-356-5300
MA	Lexington, Circuit Sls.	617-861-0567
MI	Farmington, W. R. Hummon & Assoc.	313-474-0661
MN	Mendota Heights, G-11 Sales	612-454-3086
MO	Earth City, CenTech	314-291-4230
MO	Raytown, CenTech	816-358-8100
NJ	Springfield, F. Sylvester	201-376-3324
NY	Woodstock, Rotron (Commercial Div.)	914-679-2401
NC	Charlotte, Over & Over	704-527-3070
OH	Cincinnati, F. J. Campisano	513-574-7111
OH	Cleveland, Comp., Inc.	216-243-9200
OK	Oklahoma City, Ammon & Rizos	405-942-2552
PA	Columbia, L. D. Lowery	215-356-5300
TX	Dallas, Ammon & Rizos	214-233-5591
TX	Houston, Ammon & Rizos	713-781-6240
UT	Salt Lake City, Lange Sls.	801-487-0843
WA	Lynnwood, Blum & Assocs.	206-775-6656
EXP	NY, Great Neck, A. Auriema	516-487-0700

Local Distributors

AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AZ	Phoenix, Cetec Elctrns.	602-272-7951
AZ	Phoenix, R. V. Weatherford	602-272-7144
CA	Anaheim, R. V. Weatherford	714-547-0891
CA	El Segundo, Hall Mark Elctrns.	213-643-9101
CA	Glendale, R. V. Weatherford	213-849-3451
CA	Pomona, R. V. Weatherford	714-623-1261
CA	San Diego, Cetec Elctrns.	714-278-5020
CA	San Diego, R. V. Weatherford	714-695-1700
CA	San Jose, Cetec Elctrns.	408-263-7373
CA	Southgate, Cetec Elctrns.	213-773-6521
CA	Sunnyvale, R. V. Weatherford	408-738-8694
CA	Tustin, Hall Mark Elctrns.	714-669-0681
CO	Denver, Arrow Elctrns.	303-758-2100
CO	Denver, R. V. Weatherford	303-428-6900
CT	Norwalk, Pioneer	203-853-1515
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Ft. Lauderdale, Hall-Mark Elctrns.	305-971-9280
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Orlando, Hall-Mark Elctrns.	305-855-4020
FL	Palm Bay, Arrow Elctrns.	305-725-1480
GA	Norcross, Arrow Elctrns.	404-449-8252
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
IL	Bensenville, Hall-Mark Elctrns.	312-860-3800
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, Pioneer/Indiana	317-849-7300
KS	Lenexa, Hall-Mark Elctrns.	913-888-4747
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Columbia, Hall-Mark Elctrns.	301-988-9800
MD	Gaithersburg, Pioneer/Washington	301-921-0660
MA	Lexington, Pioneer	617-861-9200
MA	Woburn, Hall Mark Elctrns.	617-935-9777
MA	Woburn, Arrow Elctrns.	617-933-8130
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Livonia, Pioneer/Michigan	313-525-1800
MI	Livonia, RS Elctrns.	313-525-1155
MN	Bloomington, Hall-Mark Elctrns.	612-854-3223
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minneapolis, I.C.I.	612-831-2666
MO	Maryland Hts., Hall-Mark Elctrns.	314-291-5350
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Marlton, Arrow Elctrns.	609-596-8000
NJ	Pennsauken, Resco Elctrns.	609-662-4000
NJ	Pinebrook, Pioneer	201-227-1267
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	Buffalo, Summit Elctrns.	716-884-3450
NY	Fairport, Pioneer	716-381-7070
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Ronkonkoma, Hall Mark Elctrns.	516-737-0600
NY	Vestal, Pioneer	607-748-8211
NY	Woodbury, Pioneer	516-921-8700
NC	Raleigh, Hall-Mark Elctrns.	919-872-0712
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Solon, Arrow Elctrns.	216-248-3990
OK	Tulsa, Hall-Mark Elctrns.	918-665-3200
PA	Marlton, Arrow Elctrns.	609-596-8000
PA	Pennsauken, Resco Elctrns.	609-662-4000
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
TX	Dallas, Pioneer/Dallas	214-386-7300
TX	Dallas, Hall-Mark Elctrns.	214-343-5000
TX	Houston, Pioneer/Houston	713-988-5555
TX	Houston, Hall-Mark Elctrns.	713-781-6100
WA	Bellevue, Almac Elctrns.	206-643-9992
WA	Bellevue, Arrow Elctrns.	206-643-4800
WA	Seattle, R. V. Weatherford	206-575-1340
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Oak Creek, Hall-Mark Elctrns.	414-761-3000
WI	Oak Creek, Arrow Elctrns.	414-764-6600

EG & G ROTRON, Custom Div., Hasbrouck La., Woodstock, NY 12498, Tel: 914-679-5201, TWX: 510-247-9033; FSC No.: 82877; *Sls. Mgr.:* Mike Lyon; *Dist. Mgr.:* Andy Kozak .... **2•1814, 1815**

Local Sales Offices & Reps

AL	Huntsville, Over & Over, Inc.	205-837-7105
AZ	Tucson, Morrow & Assocs.	602-296-4719
CA	Garden Grove, Custom Div. Dist. Sls. Off.	714-898-5649
CA	San Diego, Hadden Assocs.	619-565-9444
CO	Littleton, Lange Sls., Inc.	303-795-3600
DE	Ft. Lauderdale, G. F. Bohman & Assocs.	305-979-0008
FL	Apopka, G. F. Bohman & Assocs.	305-886-1882
FL	St. Petersburg, G. F. Bohman & Assocs.	813-522-6120
GA	Norcross, Over & Over, Inc.	404-449-6205
HI	Honolulu, Roger Clark Co.	808-531-5897
IL	Rolling Meadows, Sumer, Inc.	312-991-8500
IN	Ft. Wayne, Frank J. Campisano Co.	219-747-2633
IN	Indianapolis, Frank J. Campisano Co.	317-253-7651
IA	Cedar Rapids, S & O Sales Co.	319-393-1845
MD	Towson, Custom Div. Dist. Sls. Off.	301-377-5195
MA	Lexington, Circuit Sls. Co.	617-861-0567
MI	Farmington Hills, W. R. Hummon & Assocs., Inc.	313-474-0661
MN	Mendota Heights, G-II Sales, Inc.	612-454-3086
MO	Bridgeton, Centech, Inc.	314-291-4230
MO	Raytown, Centech, Inc.	816-358-8100
NJ	Neshanic Stat, Dustom Div. Dist. Sls. Off.	201-369-5354
NY	Corona, Dustom Div. Dist. Sls. Off.	212-271-5287
NC	Charlotte, Over & Over, Inc.	704-527-3070
NC	Raleigh, Over & Over, Inc.	919-872-2262
OH	Cincinnati, Frank J. Campisano Co.	513-574-7111
OH	Cleveland, Components, Inc.	216-243-9200
OH	Cleveland, Frank J. Campisano Co.	216-749-5550
OH	Columbus, Frank J. Campisano Co.	614-876-5405
OK	Oklahoma City, Ammon & Rizos Co.	405-942-2552
PA	Coraopolis, Frank J. Campisano Co.	412-264-5151
PA	Pittsburgh, Comps., Inc.	412-824-1600
TX	Austin, Ammon & Rizos Co.	512-454-5131
TX	Dallas, Ammon & Rizos Co.	214-233-5591
TX	Houston, Ammon & Rizos Co.	713-781-6240
UT	Salt Lake City, Lange Sls., Inc.	801-487-0843
WA	Lynnwood, Blum & Assocs.	206-775-6656
WI	Brookfield, Sumer, Inc.	414-784-6641

EG & G TORQUE SYSTEMS, 36 Arlington St., Watertown, MA 02172, Tel: 617-924-6000, Telex: 95-1736; Empl.: 200; *Sls. Mgr.:* W. F. O'Leary; *Dist. Mgr.:* H. D. Waddell

EG & G VACTEC, 10900 Page Blvd., St. Louis, MO 63132, Tel: 314-423-4900, TWX: 910-764-0811; Empl.: 250; *Sls. Mgr.:* D. Hartley; *Dist. Mgr.:* D. Hartley .... **1B•1253**

EG&G WAKEFIELD ENGRG., 60 Audubon Rd., Wakefield, MA 01880, Tel: 617-245-5900, TWX: 710-348-6713; Empl.: 240; *Sls. Mgr.:* Ray A. Radford; *Dist. Mgr.:* Carl Swanson

Local Sales Offices & Reps

AL	Huntsville, Over & Over, Inc.	205-882-9182
AZ	Tempe, Piper Sls. Co.	602-949-0048
CA	Anaheim, West Rep	213-404-3881
CA	Los Altos, Recht Assocs.	415-964-6321
CA	San Diego, Mesa Elctrns.	714-278-8021
CO	Longmont, Piper Sls. Co.	303-443-5337
CT	Stamford, Circuit Sls.	203-322-0240
FL	Orlando, Over & Over Inc.	305-857-4057
GA	Norcross, Over & Over, Inc.	404-449-6205
IL	Rolling Meadows, Sumer, Inc.	312-991-8500
IA	Cedar Rapids, S & O Sls. Co.	319-393-1845
MD	Columbia, Bresson Assocs.	215-664-6460
MA	Lexington, Circuit Sls.	617-861-0567
MI	Livonia, Luebbe Sls.	313-477-3130
MN	Mendota Heights, G-II Sls.	612-454-3086
MO	Raytown, Cen Tech, Inc.	816-358-8100
NY	Commack, ERA, Inc.	516-543-0510
NY	E. Rochester, Tri Tech Elctrns.	716-385-6500
NY	Fayetteville, Tri Tech Elctrns.	315-446-2881
NC	Charlotte, Over & Over, Inc.	704-527-3070
OH	Cincinnati, Luebbe Sls. Co.	513-891-5770
OH	Cleveland, Luebbe Sls. Co.	215-333-0426
OK	Oklahoma City, Ammon & Rizos Co.	405-942-2552
OR	Portland, SDR^2 Prods. & Sls.	503-641-7377
PA	Narbeth, Bresson Assocs.	215-664-6460
TN	Johnson City, Over & Over, Inc.	615-477-7700
TX	Houston, Ammon & Rizos Co.	713-781-6240
TX	Richardson, Ammon & Rizos Co.	214-644-5591
UT	Salt Lake City, Piper Sls. Co.	801-268-8707
VA	Lynchburg, Bresson, Assocs.	215-664-6460
WA	Bellevue, SDR^2 Prods. & Sls.	206-624-2621
WI	Brookfield, Sumer, Inc.	414-784-6641

E-H ELECTRONICS, Sub. E-H Intl., Inc., 7303 Edgewater Dr., Oakland, CA 94621, Tel: 415-638-5656, TWX: 910-366-7258; FSC No.: 13488; Empl.: 99; *Sls. Mgr.:* Nicholai T. Zavadsky

EHRHORN TECHNOLOGICAL OPERS., INC., P.O. Box 888, Canon City, CO 81212, Tel: 303-275-1613; *Sls. Mgr.:* Ray Heaton

EIGEN VIDEO, P.O. Box 848, Nevada City, CA 95959, Tel: 916-272-3461, Telex: 298788 EIG UR; FSC No.: 59535; Empl.: 50

EIKONIX CORP., 23 Crosby Dr., Bedford, MA 01730, Tel: 617-275-5070

Local Sales Offices & Reps

CA	Sunnyvale, Hap Baldwin	408-737-9172
FL	Singer Island, Robert Hanright	305-845-7252
NJ	Trenton, Lester Stine	609-883-4860
NY	Brooklyn, John Milby	212-284-8588
PA	Morristown, George Striker	215-539-5411
TX	Richardson, George Tallman	214-680-2728

EIP MICROWAVE INC., 2731 North First St., San Jose, CA 95134, Tel: 408-946-5700, TWX: 910-338-0155; FSC No.: 34257; Empl.: 250; *Sls. Mgr.:* Robert Loft, West Reg. Mgr.;Bill Dentinger, East Reg. Mgr.

EITEL MFG., 2835 Laguna Canyon Rd., Laguna Beach, CA 92652, Tel: 714-494-2012; Empl.: 6; *Sls. Mgr.:* H. Mengel

ELANTEC, INC., 1996 Tarob Ct., Milpitas, CA 95035, Tel: 408-945-1323, TWX: 910-997-0649; *Sls. Mgr.:* Jerry Zis .... **1A**•1653

Local Sales Offices & Reps

AZ	Scottsdale, Tusar	602-998-3688
CA	Los Altos, Elrepco, Inc.	415-962-0660
CA	Woodland Hills, Interstate Mktg.	213-883-7606
CO	Englewood, Thorson Rocky Mountain	303-779-0666
CT	Wallingford, Com-Sale	203-269-7964
IL	Arlington Heights, Micro Sales, Inc.	312-956-1000
IN	Fort Wayne, Giesting & Assoc.	219-486-1912
IN	Indianapolis, Giesting & Assoc.	317-271-5183
IA	Hiawatha, Gassner & Clark	319-393-5763
MD	Baltimore, Stemler Assocs.	301-944-8262
MA	Needham, Com-Sale	617-444-8071
MI	Coloma, Giesting & Assocs.	616-468-4200
MI	Novi, Giesting & Assocs.	313-348-3811
MN	Bloomington, High Tech Sls.	612-888-8088
MO	Grandview, R. R. Burton & Assoc.	816-763-5385
MO	Maryland Heights, R. R. Burton & Assoc.	314-434-1678
NH	Exeter, Com-Sale	603-772-3300
NJ	Cherry Hill, Stemler Assocs.	609-966-4070
NJ	Parsippany, HLM Assocs.	201-263-1535
NM	Albuquerque, Tusar	505-293-1399
NY	Northport, HLM Assocs.	516-757-1606
OH	Cincinnati, Giesting & Assocs.	513-521-8800
OH	Dayton, Giesting & Assocs.	513-293-4044
OH	Mentor, Giesting & Assocs.	216-942-3407
OR	Oloha, Micro Sales, Inc.	503-642-1818
PA	Bensalem, Stemler Assocs.	215-638-4850
PA	Pittsburgh, Giesting & Assocs.	412-963-0727
TX	Austin, Sundance Sls.	512-250-0320
TX	Houston, Sundance Sls.	713-772-4988
TX	Plano, Sundance Sls.	214-867-0592
UT	West Valley City, Thorson Rocky Mountain	801-973-7969
WA	Bellevue, Micro Sales, Inc.	206-451-0568
WI	Brookfield, Micro Sales, Inc.	414-782-1171

ELCO CORP., Electronic Connector Div., Huntingdon Ind'l. Park, Huntingdon, PA 16652, Tel: 814-643-0700, TWX: 510-691-3117; Empl.: 500; *Sls. Mgr.:* J. J. Smith; *Dist. Mgr.:* John J. Galiney, Jr.

ELCO CORP., Interconnect Systems Div., 2250 Park Pl., El Segundo, CA 90245, Tel: 213-675-3311; *Sls. Mgr.:* T. Tuttle

ELCOM INDUSTRIES, INC., 10268 Bach Blvd., St. Louis, MO 63132, Tel: 314-429-3100

Local Sales Offices & Reps

CA	Anaheim, Magna-Code, Inc.	714-821-7500
MA	Newton Highlands, Butler Assocs., Inc.	617-965-1080

ELCOM SYSTEMS, INC., 4032 Clint Moore Rd., Boca Raton, FL 33431, Tel: 305-994-1774; FSC No.: 32424; Empl.: 5; *Sls. Mgr.:* D. Pollachek

ELDEC CORP., Monitor & Control Div., 16700 13th Ave. W., P.O. Box 100, Lynnwood, WA 98036, Tel: 206-743-1313, Telex: 32-8959, TWX: 910-449-2855

ELDEC CORP., Power Conversion Div., 16700 13th Ave. W., P.O. Box 100, Lynnwood, WA 98036, Tel: 206-743-1313, Telex: 32-8959, TWX: 910-449-2855

ELDEC CORP., Sensing Systems Div., 18009 Hwy. 99, P.O. Box 5110, Lynnwood, WA 98036, Tel: 206-771-7350, Telex: 32-8959, TWX: 910-449-0873

ELDORADO INSTRS., 7303 Edgewater Dr., Oakland, CA 94621, Tel: 415-638-5656, TWX: 910-366-7258; FSC No.: 54495; *Sls. Mgr.:* Paul Magnusson

ELDRE COMPS., 1500 Jefferson Rd., Rochester, NY 14623, Tel: 716-244-2570, TWX: 510-253-4347; FSC No.: 19648; Empl.: 220; *Sls. Mgr.:* Harvey Erdle

ELECTRAC, INC., 1614 Orangethrope Way, Anaheim, CA 92801, Tel: 714-879-6021, Telex: 692433; FSC No.: 016154; Empl.: 21

ELECTRICAL INDS., 691 Central Ave., Murray Hill, NJ 07974, Tel: 201-464-3200, TWX: 701-984-7979; FSC No.: 20093; *Sls. Mgr.:* D.V. Wilson

ELECTRICAL INSTR. SVC., 25 Dock St., Mt. Vernon, NY 10550, Tel: 914-699-9717; FSC No.: 32590; Empl.: 35 .... **3**•1296-1298

Local Sales Offices & Reps

AZ	Scottsdale, Williams Assocs.	602-947-4297
CO	Commerce City, Williams Assocs.	303-289-5647
DC	Washington, Whitcomb Assocs.	202-737-0763
IL	Lincolnwood, Saffro & Assocs.	312-677-9720
KS	Shawnee Mission, Comtel - Midwest	913-722-1030
MD	Baltimore, Whitcomb Assocs.	301-889-1245
MA	Lexington, Zieco	617-861-8300
MI	Southfield, Comtel Instrs. Co.	313-358-2505
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
MO	St. Louis, Comtel - Midwest	314-991-5363
NM	Albuquerque, Williams Assocs.	505-255-1638
NY	Mount Vernon, Elctrl. Instr. Svc.	914-699-9717
OH	Cleveland, Comtel Instrs. Co.	216-442-8080
OH	Dayton, Comtel Instrs. Co.	513-298-7573
OH	Hilliard, Comtel Instrs. Co.	614-876-8305
OK	Tulsa, Data Mktg. Assocs.	918-496-1457
PA	Pittsburgh, Comtel Instrs. Co.	412-922-5720
TX	Austin, Data Mktg. Assocs.	512-451-5174
TX	Dallas, Data Mktg. Assocs.	214-661-0300
TX	Houston, Data Mktg. Assocs.	713-780-2511
TX	San Antonio, Data Mktg. Assocs.	512-342-3031
UT	Salt Lake City, Williams-Assocs.	801-532-7701
WI	Lake Mills, Saffro & Assocs.	414-648-2605

ELECTRICAL PLASTICS CORP., 500 Long Branch Ave., Long Branch, NJ 07740, Tel: 201-870-9500; Empl.: 50

ELECTRICAL STANDARDS DIV., E.S.R.S., Inc., 7337 Greenbush, N. Hollywood, CA 91605, Tel: 818-765-4224; Empl.: 6

ELECTRIC DEVICE, PO Box 337, Canfield, OH 44406, Tel: 216-533-3060

ELECTRIC FIELD MEASUREMENTS, Box 326, W. Stockbridge, MA 01266, Tel: 413-637-1929; Empl.: 3; *Sls. Mgr.:* L. Hegl

Distributor

ELECTRIC SWITCHES, INC., 2478 Fletcher Dr., Los Angeles, CA 90039, Tel: 213-660-1310, TWX: 910-321-2971; Empl.: 42; *Sls. Mgr.:* Louis Lim .... **1B**•1616, 1617; pgs. 605, 616, 630, 634, 638, 652, 658, 667, 679, 681, 683, 703, 716, 717, 727, 734, 741, 756, 773, 778

ELECTRIC TACHOMETER, 68th & Upland Sts., Philadelphia, PA 19142, Tel: 215-SA6-7723, Telex: 83-1475; FSC No.: 20049; Empl.: 50; *Sls. Mgr.:* F. M. Porter

ELECTROCHEM INDS., Wilson Greatbatch Ltd., 10000 Wehrle, Clarence, NY 14031, Tel: 716-759-6901, Telex: 91-386; FSC No.: 6U589; *Sls. Mgr.:* R. Carey; *Dist. Mgr.:* L. Hanitz, M. Brookman

ELECTROCOM INDS., 1105 N. Ironwood Dr., S. Bend, IN 46615, Tel: 219-232-2743; FSC No.: 27114; *Sls. Mgr.:* B. Jaffe

EC

ELECTRO-CRAFT CORPORATION

ELECTRO-CRAFT, 1600 2nd St. So., Hopkins, MN 55343, Tel: 612-931-2700, TWX: 910-576-3132; Empl.: 500; *Sls. Mgr.:* Don Larson .... **1B**•1143-1145

Local Sales Offices & Reps

CA	Long Beach, Matzinger-Keegan	213-434-5794
CA	Westlake Village, Electro-Craft	213-889-3631
CO	Boulder, Electro-Craft	303-447-2754
FL	Altamonte Springs, WMM Assocs.	305-831-4530
FL	Clearwater, WMM Assocs.	813-442-3913
FL	Ft. Lauderdale, WMM Assocs.	305-772-9850
GA	Atlanta, Electro-Craft	404-452-7253
IL	Chicago, Electro-Craft Corp.	312-298-0687
IN	Indianapolis, Electro-Craft	317-872-0013
MA	Salem, Electro-Craft	603-893-5552
MN	Minneapolis, Electro-Craft	612-931-2700
NJ	Cherry Hill, Electro-Craft	609-662-0555
NJ	Monmouth Junction, Electro-Craft	201-329-6233
NY	Rochester, Ross Equip.	716-271-5660
OH	Cleveland, Electro-Craft	216-526-3995
TX	Dallas, Electro-Craft	214-980-1948
WA	Bellevue, Sweo Engrg.	206-451-0558

Local Distributors

CA	San Jose, Republic Supp.	408-279-2202
CA	San Leandro, Republic Supply, Power Transmission Div.	415-357-2211
IN	Indianapolis, B&B Motor & Control	317-248-0396
MA	Medford, Empire Electrical Co.	617-395-5000
NY	New York, B & B Motor & Control	212-966-5777
NY	Rochester, B&B Motor & Control	716-473-6640
Can	Ottawa, Ont., Electrodesign Ltd.	613-745-0541
Can	Toronto, Ont., Electrodesign Ltd.	416-787-0991
Can	LaSalle, Electrodesign Ltd.	514-636-4838
Intl.	England, Cricklewood, London, Unimatic Engineers Ltd.	01-455-0012
Intl.	Finland, Helsinki, Stig Wahlstrom OY	90-5577 x51
Intl.	France, E.R.N.	956.00.11
Intl.	Holland, Rotterdam, Van Gelder Compagnie B.V.	010-156622
Intl.	India, Hyderabad, Kashinath & Co.	36942
Intl.	Israel, Yizreel, Elex Control Sys.	065-94036
Intl.	Italy, Milano, Pamoco S.r.l.	02-800982-804615
Intl.	Japan, Tokyo 104, Midoriya Electric Co.	03-561-8851
Intl.	Spain, Barcelona, Robbins & Myers Espana S.A.	34-38934200
Intl.	Sweden, Johanneshov, L. Ostergren El.	08-815013
Intl.	W. Germany, Darmstadt, Eduard Bautz G.m.b.H.	06151/82973

ELECTROCUBE, 1710 So. Del Mar Ave., San Gabriel, CA 91776, Tel: 818-573-3300, TWX: 910-589-1609; FSC No.: 14752; Empl.: 175; *Sls. Mgr.:* E. F. Bryant; *Dist. Mgr.:* E. F. Bryant

Local Distributors

CA	Chatsworth, Mil-Comm Distrs.	213-998-3111
CA	San Diego, Mock III Sls.	619-560-0515
CA	Sunnyvale, Acacia Sls.	408-745-7200
CO	Lakewood, Acacia Sls.	303-232-2882
IL	Elk Grove Village, Nu-Way Elctrns.	312-437-7120
OH	Englewood, Argent Inds.	513-836-8633
OH	Solon, Repco, Inc.	216-248-8900
PA	Pittsburgh, CAM/RPC Elctrns.	412-782-3770
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, Altair Co.	214-231-5166

ELECTRO DESIGN SYS., 100 W. 35th St., Ste. S, National City, CA 92050, Tel: 619-420-2351, Telex: 182827; Empl.: 35

ELECTRODYNAMICS

ELECTRODYNAMICS, INC., A Talley Inds. Co., 1200 Hicks Rd., Rolling Meadows, IL 60008, Tel: 312-259-0740, Telex: 28-1070; FSC No.: 10236; Empl.: 250; *Sls. Mgr.:* Frank Rafferty .... **3**•1129

Local Sales Offices & Reps

CA	Alhambra, M. W. Riedel & Co.	213-283-7694
CA	Hayward, Avionics Liaison	415-783-1131

CO	Denver, West, Inc.	303-692-0131
FL	Clearwater, Delmac Sls.	813-447-5192
FL	Orlando, Delmac Sls.	305-898-4688
FL	Tamarac, Delmac Sls.	305-726-1330
IA	Cedar Rapids, J.R. Sales Engrg.	319-393-2232
MD	Severna, Delmarva Engrg. Assocs., Ltd.	301-647-8007
MA	Winchester, FJS Assocs.	617-729-3135
MN	New Brighton, TWC Sls.	612-636-1770
MO	Maryland Hgts., Midwest Meridian Corp.	314-878-4441
NY	Binghamton, Noeth Honsinger Assocs.	607-724-4865
NY	Pittsford, Noeth Honsinger Assocs.	716-586-9002
OR	Portland, Caruso & Northcutt	503-646-4973
PA	King of Prussia, Rivco January Inc.	215-265-5211
TX	Hurst, Midwest Meridian	817-654-2132
UT	Salt Lake City, Meridian West	801-968-4177
WA	Bothwell, Caruso & Northcutt	206-454-9699

ELECTRO-DYNAMICS DEV. CO., 475 Mt. Hood Dr. S.W., Issaquah, WA 98027, Tel: 206-392-2493; *Sls. Mgr.:* W. A. Pommer

ELECTROFILM, 27727 Avenue Scott, Valencia, CA 91355, Tel: 805-257-2240, Telex: 65-1438; FSC No.: 85932; Empl.: 250; *Sls. Mgr.:* George Hulett

ELECTRO-FILMS, INC., 111 Gilbane St., Warwick Central Indl. Pk., Warwick, RI 02886, Tel: 401-738-9150, TWX: 710-382-0405; Empl.: 72; *Sls. Mgr.:* Frank Urricc .... **1A**•1870, 1871

Local Sales Offices & Reps

AL	Huntsville, BCI, Inc.	205-539-4411
CA	Santa Ana, Weatherman Assocs.	714-544-1304
CA	Sunnyvale, NES Assocs.	408-738-3259
FL	W. Melbourne, Great Southern Rep. Co.	305-724-4510
GA	Doraville, BCI, Inc.	404-455-0405
IL	Hinsdale, Willtech Corp.	312-655-4850
IN	Indianapolis, CC Electronics	317-255-1508
MA	Allston, Vector Sls.	617-787-2790
MI	Livonia, Electro Sls. Assocs.	313-474-7320
MN	Minneapolis, Comprehensive Tech. Sls.	612-888-7011
NM	Albuquerque, Grady Moore Assocs.	505-262-1416
NY	Kew Gardens, Robert Smith Assocs.	212-780-0097
NY	New York, Robert Smith Assocs.	212-541-4885
NY	Plainview, Robert Smith Assocs.	516-681-3155
NY	Syracuse, Labtronics	315-455-7314
NC	Charlotte, BCI, Inc.	704-567-0473
NC	Raleigh, BCI, Inc.	919-781-9426
OH	Cleveland, Electro Sls. Assocs.	216-261-5440
OH	Dayton, Electro Sls. Assocs.	513-426-5551
PA	Allison Park, Electro Sls. Assocs.	412-487-3801
PA	Oreland, EFW Tech. Sls.	215-887-5300
TX	Austin, J. Clay Co.	512-346-7340
TX	Dallas, J. Clay Co.	214-350-1281
TX	Houston, Elctrn. Mktg. Assocs.	713-498-8120
WA	Seattle, MARS	206-747-3292
EXP	MA, Plainville, Teknis, Inc.	617-695-3591

ELECTRO IMPULSE, Box 870, Red Bank, NJ 07701-0870, Tel: 201-741-0404, TWX: 710-722-5717; FSC No.: 91161; Empl.: 99; *Sls. Mgr.:* Mark Rubin .... **2**•1817; **3**•1220

Local Sales Offices & Reps

CA	Los Angeles, RDH Assocs.	213-396-4100
MA	Reading, Geder Assocs.	617-944-3105
NY	Greenvale, B. D. Aaron & Co.	516-621-0630
TX	Richardson, Spectra Sls. Corp.	214-234-3600
EXP	NJ, Oradell, Sylvan Ginsbury Ltd.	201-261-3200

Local Distributors

CA	Los Angeles, RDH Assocs.	213-396-4100
MA	Reading, Geder Assocs.	617-944-3105
NJ	Oradell, Sylvan Ginsbury	201-261-3200
NY	Greenvale, Bertram D. Aaron & Co.	516-621-0630
TX	Richardson, Spectra Sls.	214-234-3600

ELECTRO INDUSTRIES, Div. E.I. Elctrns. Inc., 316 Westbury Ave., Carle Place, NY 11514, Tel: 516-334-0870; Empl.: 20; *Sls. Mgr.:* S. Kagan .... **3**•1328, 1329

For further information call toll free: 800-645-6342

ELECTRO KINETICS CO., Sub. HTL Inds., Inc., 402 E. Gutierrez St., Santa Barbara, CA 93102, Tel: 805-963-2055, TWX: 910-334-1177; FSC No.: 02101; Empl.: 260; *Sls. Mgr.:* N.G. Otis

ELECTROL

ELEC-TROL, INC., 26477 N. Golden Valley Rd., Saugus, CA 91350, Tel: 805-252-8330, Telex: 18-1151; FSC No.: 15636; Empl.: 650; *Sls. Mgr.:* Frank Cooper; *Dist. Mgr.:* Barbara J. Owens .... **1B**•1352-1362

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrn. Assocs.	205-881-5031
AZ	Scottsdale, TC Electronics	602-944-5153
AR	Little Rock, Beacon Elctrn. Assocs.	501-224-5449
CA	Garden Grove, Elsco	714-891-4621
CA	San Jose, Jeff Mallman	408-972-9072
CO	Denver, Elcom	303-337-2300
FL	Clearwater, Beacon Elctrn. Assocs.	813-796-2378
FL	Ft. Lauderdale, Beacon Elctrn. Assocs.	305-491-1054
FL	Maitland, Beacon Elctrn. Assocs.	305-647-3498
FL	Melbourne, Beacon Elctrn. Assocs.	305-724-8010
GA	Atlanta, Beacon Elctrn. Assocs.	404-256-9640
IL	Des Plaines, Lincoln, Hodges & Assocs.	312-297-3810
IN	Granger, Gregory Sls.	219-272-9626
MA	Framingham, Stone Comps.	617-875-3266
MN	Minneapolis, Westlund & Assoc.	612-866-5002
NY	Clark Mills, KLM-Garner Co.	315-853-6126
NY	Mt. Vernon, Sonkin Assocs.	914-668-9809
NY	North Syracuse, KLM-Garner Co.	315-458-6214
NY	Pittsford, KLM-Garner Co.	716-381-8350
NC	Greensboro, Beacon Elctrn. Assocs.	919-275-9997
OH	Columbus, Mulligan & Assoc.	614-457-2242
OR	Portland, Earl & Brown Co.	503-245-2283
PA	Birchrunville, Jadelectronics	215-296-3800
TN	Johnson City, Beacon Elctrn. Assocs.	615-282-2421
TX	Houston, Aid Elctrns.	713-955-6204
TX	Irving, Aid Elctrns.	214-259-4761
UT	Salt Lake City, Elcom	801-532-7940
WA	Seattle, Earl & Brown Co.	206-284-1121
WI	Waukesha, Lincoln, Hodges & Assocs.	414-542-3087

Local Distributors

AL	Huntsville, Component Distrs.	205-883-7501
AZ	Tempe, Acacia Sls.	602-894-2874
CA	Anaheim, Arrow Elctrns.	714-774-5290
CA	Chatsworth, Arrow Elctrns.	213-701-7500
CA	Irvine, Acacia Sls.	714-549-0954
CA	San Carlos, Control Design	415-592-4806
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, Acacia Sls.	619-565-4365
CA	Santa Clara, Patane/Selectronics	408-496-6151
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Acacia Sls.	408-745-7200
CA	Van Nuys, Patane Avionics	213-988-4455
CO	Denver, Arrow Elctrns.	303-758-2100
CO	Lakewood, Acacia Sls.	303-232-2882
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Clearwater, Diplomat Elctrns.	813-443-4514
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Ft. Lauderdale, Component Distrs.	305-971-4950
FL	Palm Bay, Arrow Elctrns.	305-725-1480
IL	Bensenville, Diplomat Elctrns.	312-595-1000
IL	Itasca, Voyager Elctrns.	312-773-4900
IN	Indianapolis, Arrow Elctrns.	317-243-9353
MA	Framingham, Jaks Elctrns.	617-875-3266
MA	Holliston, Diplomat Elctrns.	617-429-4121
MA	Woburn, Arrow Elctrns.	617-933-8130
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Fridley, Voyager Elctrns.	612-571-7766
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	East Brunswick, Brothers Elctrns.	201-238-2200
NJ	Fairlawn, Relay Specialties	201-797-3313
NJ	Moorestown, Arrow Elctrns.	609-235-1900
NJ	Saddle Brook, Arrow Elctrns.	201-797-5800
NY	Farmingdale, Arrow Elctrns.	516-293-6363
NY	Farmingdale, Arrow Elctrns.	516-694-6800
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Mount Vernon, Kin-Tronics	914-668-9885
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Rochester, Simcona Elctrns. Corp.	716-328-3230
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Winston Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Solon, Repco	216-248-8900
OR	Beaverton, Acacia Sls.	503-646-3377
OR	Portland, Radar Elec. Co.	503-232-3404
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Philadelphia, Shap Elctrns.	215-969-3300
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Houston, Solid State Elctrns. Co. of Tex.	713-772-8510
TX	Irving, Solid State Elctrns. Co. of Tex.	214-438-5700
TX	Stafford, Arrow Elctrns.	713-491-4100
UT	Salt Lake City, Diplomat Elctrns.	801-486-4134
WA	Bellevue, Arrow Elctrns.	206-643-4800
WA	Seattle, Radar Elec. Co.	206-282-2511
WI	Oak Creek, Arrow Elctrns.	414-764-6600

ELECTROL CO., 321 Dewey St., P.O. Box 29, York, PA 17405, Tel: 717-848-1722; Empl.: 38; *Sls. Mgr.:* Debra Dudley; *Dist. Mgr.:* Debra Dudley

ELECTROMAGNETIC INDUSTRIES, INC., Box 6440, Clearwater, FL 33518, Tel: 813-447-2511

ELECTRO-MAGNETIC PROCESSES, INC., 9616 Owensmouth Ave., Chatsworth, CA 91311, Tel: 818-882-6333, Telex: 499 2240 EMP UI; FSC No.: 51290; Empl.: 35; *Sls. Mgr.:* Arthur Sullivan

ELECTRO MATERIALS CORP. AMER., See EMCA, Sub. Rohm & Haas Advanced Matls. Co.

ELECTROMATIC COMPS. LTD., 1531 Burgundy Pkwy., Streamwood, IL 60103, Tel: 312-837-4600, TWX: 910-222-3452; FSC No.: 75203; Empl.: 280; *Sls. Mgr.:* Robert Martin

ELECTROMECH, INC., 528 Elm Street, Kearney, NJ 07032, Tel: 201-997-0950; Empl.: 40; *Sls. Mgr.:* Solomon Ezraseneh

ELECTRO MECHANICAL DESIGN SERVICES, INC., 16698 Oakmont Ave., Gaithersburg, MD 20877, Tel: 301-840-5710; *Sls. Mgr.:* Patrick E. Roney .... **3**•1221

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ELECTRO-MECHANISMS, 2745 E. Huntington Dr., Duarte, CA 91010, Tel: 818-359-2535; FSC No.: 52592; Empl.: 27 ....**1B**•1486, 1487

Local Sales Offices & Reps

CA	Arcadia, Van Gott & Assoc.	818-445-9729
CA	Redwood City, Hickey Indl. Sls.	415-368-3849
CA	San Diego, Van Gott & Assocs.	619-286-3633
CO	Lakewood, Cristee-Meade Co.	303-232-0287
FL	Ft. Meyers, Rainbow Sls., Inc.	813-332-2210
IL	Addison, Engrd. Sls. Co.	312-832-8425
MD	Baltimore, R. P. Luce	301-752-8200
MN	St. Paul, Vikeland Sls., Inc.	612-645-4647
NJ	Piscataway, R. P. Luce	201-752-8750
NY	Buffalo, Good Comps.	716-634-4400
NY	New Hyde Park, R. P. Luce	516-437-4550
NC	Raleigh, G. P. O'Malley & Assoc., Ltd.	919-848-9865
OH	Dayton, Harvey Teplitz	513-898-4330
PA	Philadelphia, R. P. Luce & Co.	215-233-0999
TX	Dallas, Marcom	214-351-4532
WA	Vancouver, Ray Over Sls.	206-695-6179

ELECTRO-MECH COMPS., 1826 N. Floradale Ave., So. El Monte, CA 91733, Tel: 818-442-7180; FSC No.: 07150; Empl.: 75; *Sls. Mgr.:* Walter H. Trumbull; *Dist. Mgr.:* Margaret W. Ambrose ....**1B**•1618, 1619

Local Sales Offices & Reps

CA	Los Angeles, Universal Comps. Co.	213-641-4255
CA	San Diego, Qualtronics	619-560-8955
CA	Santa Clara, Engrg. Assocs.	408-988-5001
CO	Englewood, Franklin Sls.	303-789-2526
CT	Milford, Todino Engrg.	203-874-6643
FL	Orlando, Publicover	305-898-9361
ID	Boise, Doran Sls. Assocs.	208-343-9969
IL	Chicago, Indl. Rep.	312-647-7755
IN	Fort Wayne, Scott Elctrns.	219-484-7865
IN	Indianapolis, Scott Elctrns.	317-897-9976
MA	Needham Hgts., Todino Engrg.	617-444-7925
MI	Southfield, Component Assocs.	313-557-3232
MN	Bloomington, D. A. Case Associates	612-888-8666
NJ	Medford, Comp. Consits.	609-654-5300
NY	Mamaroneck, Bassin Tech.	914-698-9332
NY	Vestal, SHR	717-967-2607
OH	Cincinnati, Scott Elctrns.	513-791-2513
OH	Cleveland, Scott Elctrns.	216-473-5050
OH	Dayton, Scott Elctrns.	513-294-0539
OH	Reynoldsburg, Scott Elctrns.	614-863-1281
OR	Forest Grove, Doran Sls.	503-357-3333
PA	Pittsburgh, Scott Elctrns.	412-963-6116
TX	Richardson, McCoy Assocs.	214-238-1017
WA	Redmond, Doran Sls.	206-885-1885
WI	Milwaukee, Indl. Rep.	414-259-0965

Local Distributors

AZ	Phoenix, Parts Elctrn.	602-258-6476
CA	Los Angeles, Master Distrs.	213-452-1229
CA	Los Angeles, Elec. Distr.	213-660-1310
CA	Pomona, Western Intl.	714-629-3315
CA	Tustin, Western Stitches & Controls	714-731-4333
FL	Ft. Lauderdale, Powell Elctrns.	305-972-4300
FL	Pompano Beach, Components South	305-971-0350
NY	Buffalo, Genesee Radio & Parts	716-873-9661
NY	Mamaroneck, Logi Comp Elctrns.	914-698-9332
Intl	England, Kensington, London, G.E. Elctrns.	01-727 0711/3
Intl	Israel, Holon, M.S.R. Engrg. & Dev.	847686
Intl	Switzerland, Oberengstringen, G & P Elctrns.	(01)643231/644555

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ELECTRO NATL., Matthews Ave., Canton, MS 39046, Tel: 601-859-5511, TWX: 810-990-0938; FSC No.: M-54208; Empl.: 40

ELECTRON, INC., P.O. Box 28640, San Diego, CA 92128, Tel: 216-681-4700, Telex: 98-0240; Empl.: 85

ELECTRONIC ARRAYS, 550 E. Middlefield Rd., Mtn. View, CA 94043, Tel: 415-964-4321, TWX: 910-379-6985; Empl.: 450; *Sls. Mgr.:* Ed Neubauer

ELECTRONIC COIL CORP., 347 New Britain Ave., Plainville, CT 06062, Tel: 203-747-1213; Empl.: 85

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Local Sales Offices & Reps

AZ	Phoenix, Eltron	602-266-2164
CA	Brea, Masco	714-529-0867
CA	Cupertino, F & F Assoc.	408-446-2349
CA	Los Angeles, Masco	213-295-7781
CO	Aurora, Mountain View Mktg.	303-699-1665
FL	Ft. Lauderdale, Beacon Elec.	305-491-1054
IL	Downers Grove, Richmar Elec.	312-968-0118
IN	Indianapolis, Insul-Reps	317-842-5203
MA	Newton Upper Falls, A & M Elect.	617-444-8170
MI	Brighton, A. P. Assoc.	313-229-6550
MN	Minneapolis, Comps. Representative Groupe	612-894-8055
MO	Kansas City, Delltron Co.	816-436-6445
MO	St. Louis, Delltron Co. Inc.	314-869-4779
NY	Great Neck, MOS	516-487-3966
OH	Dublin, AP Assoc.	614-766-1855
OH	Fairview Park, A. P. Assoc.	216-356-2424
OK	Tulsa, Southern States Mktg.	918-665-8338
OR	Aloha, Electronic Comp. Sls.	503-245-2342
PA	Ambler, Dalbrook Corp.	215-441-8380
TX	Austin, Southern States Mktg.	512-473-2741
TX	Houston, Southern States Mktg.	713-558-4900
TX	Richardson, Southern States Mktg.	214-238-7500
UT	Salt Lake City, Mountain View Mktg.	801-264-8488
VA	Falls Church, Beacon Elec.	703-534-7200
WA	Mercer Island, Electronic Comp. Sls.	206-232-9301
WI	Milwaukee, Richmar Elec.	312-968-0118

Local Distributors

CA	Hollywood, Yale Radio	213-465-3186
CA	Manhattan Beach, Prime Electro	213-379-3642
CA	Riverside, Electronic Supp.	714-683-7300
CA	San Carlos, Logan Elect.	415-594-0700
FL	Ft. Laud., KSM Elect.	305-971-5900
IL	Chicago, UPCO Dist.	312-631-1122
MD	Beltsville, PSI	301-937-4960
MD	Columbia, D. K. Electronics	301-995-1950
MN	Mpls., Glenmark, Inc.	612-941-4825
WA	Seattle, Radar Elect.	509-747-3053

ELECTRONIC CONCEPTS, INC., Box 627 E, Eatontown, NJ 07724, Tel: 201-542-7880, Telex: 7107226661; Empl.: 215; *Sls. Mgr.:* Philip N. Lepore ....**1A**•1065-1068

Local Sales Offices & Reps

CA	Colton, Elctrn. Concepts, Inc.	714-824-2525
CA	La Mirada, Select Elctrns.	714-739-8891
CA	Los Gatos, Elctrn. Concepts, Inc.	408-395-4224
CO	Aurora, Sage Sls.	303-750-3501
IL	Wheaton, Elctrn. Concepts, Inc.	312-668-8747
MA	Methuen, Elctrn. Concepts, Inc.	617-689-8318
MN	Minneapolis, Components Grp.	612-374-1250
NJ	Englewood Cliffs, Ed Glass Assocs.	201-592-0200, 212-586-8440
OR	Portland, Components West	503-643-5588
OR	St. Louis, Harris-Hanson Co.	816-763-6200
TX	Austin, Milred Assocs., Inc.	512-258-2828
TX	Houston, Milred Assocs., Inc.	713-937-0127
TX	Richardson, Milred Assocs., Inc.	214-644-6731
VT	Salt Lake City, Sage Sls.	801-467-5451
WA	Seattle, Components West	206-885-5880

Local Distributors

IL	Chicago, Nep Elctrns.	312-625-8400
NJ	Teterboro, Elcon Sls.	201-288-8170
TX	Dallas, R. V. Weatherford	214-931-7333
TX	Houston, R. V. Weatherford	713-688-7406
WI	New Berlin, Nep Elctrns.	414-785-9100

ELECTRONIC CONTROLS, INC., 561 Tamarack Ave., Brea, CA 92621, Tel: 714-990-0850; Empl.: 9

ELECTRONIC CONTROLS DESIGN, 13626 S. Freeman Rd., Mulino, OR 97042, Tel: 503-829-9108, Telex: 70-3874 ECDINC; *Sls. Mgr.:* Rex Breunsbach

ELECTRONIC CONVENTIONS, INC., P.O. Box 92275, Worldway Postal Ctr., Los Angeles, CA 90009, Tel: 213-772-2965; *Sls. Mgr.:* William C. Weber, Gen. Mgr.

ELECTRONIC DEV. CORP., 11 Hamlin St., Boston, MA 02127-4198, Tel: 617-268-9696, Telex: 951596 (ELECDEVCO BSN); FSC No.: 12619; *Sls. Mgr.:* Robert B. Ross ....**3**•1223-1225

Local Sales Offices & Reps

AL	Huntsville, MOCO	205-881-5968
AZ	Phoenix, R. A. Mayes Co.	602-279-5243
CA	Costa Mesa, Feeger, Lucas, Wolf	714-751-7512
CA	Hayward, Feeger, Lucas, Wolf	415-487-2222
CA	San Diego, Feeger, Lucas, Wolf	619-277-0993
CA	Van Nuys, Feeger, Lucas, Wolf	213-989-5237
CO	Englewood, R. A. Mayes Co.	303-761-9447
FL	Winter Haven, Lee Assocs.	813-294-5815
IL	Hoffman Estates, Carvel Engrg.	312-885-8800
IN	Carmel, Berndt Assocs.	317-844-0114
KS	Overland Park, Ramsey Assts.	913-649-6996
MD	Bethesda, Powell-Pendergraph	301-656-4535
MA	Hudson, Datarep	617-481-0333
MI	Hazel Park, Tiby Co.	313-547-3550
MN	Edina, Carvel Engrg. & Sls.	612-835-7929
MO	St. Louis, Ramsey Assocs.	314-878-5042
NM	Albuquerque, R. A. Mayes Co.	505-292-2330
NY	E. Syracuse, Ossmann Instrs.	315-437-7052
NY	Rochester, Ossmann Instrs.	716-442-6990
NY	Saratoga Springs, Ossmann Instrs.	518-377-8604
NY	White Plains, Cane Techn. Sls.	914-694-9240
NC	Raleigh, Lee Assocs.	919-848-8818
OH	Cleveland, Tiby Co.	216-371-5335
OH	Dayton, Tiby Co.	513-277-3822
OR	Portland, Topp Engrg. Sls.	503-244-7265
PA	Willow Grove, Powell-Pendergraph	215-657-0330
TX	Dallas, Tech Rep Mktg.	214-241-2434
TX	El Paso, R. A. Mayes Co.	Enterprise 750
TX	Kemah, Hi Tech Systems	713-783-3856
UT	West Jordan, R. A. Mayes Co.	801-292-6781
VT	Burlington, Data Reps.	802-864-0933
VA	Richmond, Powell-Pendergraph	804-270-1400
WA	Bellevue, Topp Engrg. Sls.	206-747-5400
WI	New Berlin, Carvel Engrg.	414-784-7007

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ELCTRN. DEVICES, 21 Gray Oaks Ave., Yonkers, NY 10710, Tel: 914-965-4400, TWX: 710-560-0021; Empl.: 200; *Sls. Mgr.:* Dennis Dean; *Dist. Mgr.:* Dennis Dean

ELECTRONIC ENCLOSURES, Div. Wyle Labs, 225 South Aviation Blvd., El Segundo, CA 90245, Tel: 213-643-8181, TWX: 910-348-6699; FSC No.: 09097; Empl.: 400; *Sls. Mgr.:* Richard W. Bow

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ELECTRONIC HARDWARE, 320 Broad Hollow Rd., Farmingdale, NY 11735, Tel: 516-752-1950; Empl.: 100

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ELECTRONIC INSTR. & SPECIALTY CORP., 42 Pleasant St., Stoneham, MA 02180, Tel: 617-438-5300, Telex: 948-025; FSC No.: 14908; Empl.: 180 ....1B•1364, 1365

Local Sales Offices & Reps

AL	Huntsville, REMCO (Raken Engr. of Mktg. Corp.)	205-533-3763
AL	Huntsville, JWL Assocs.	205-881-0413
AZ	Phoenix, Anderson Co.	602-266-2070
CA	Escondido, Cirolia Elctrn. Sls. Inc.	619-489-2452
CA	Granada Hills, C & W Comps.	213-368-4032
CA	San Diego, Cirolia Elctrn. Sls.	619-743-3015
CA	San Jose, G. R. McKnight Co.	408-942-0880
CO	Golden, J. F. Hurlbut Co.	303-279-7796
FL	Lighthouse Point, Jack Krutek & Assocs.	305-941-6544
GA	Atlanta, REMCO (Raker Engr. of Mktg. Corp.)	404-447-6937
IL	Arlington Hgts., Brainard-Wilson Mktg.	312-437-2700
IN	Carmel, Brainard-Wilson Mktg.	317-844-2800
MD	Woodbine, Naudain Assocs.-Southern	301-442-2270
MA	Stoneham, E I & S	617-438-5300
MI	Oak Park, A. Blumenberg Assocs., Inc.	313-968-3230
MN	Minneapolis, Peterson Sls. & Assocs.	612-944-0030
NJ	Perth Amboy, Astrorep	201-826-8050/51
NY	Babylon, Astrorep	516-422-2500
NY	Fairport, NET Sales	716-467-4538
NC	Charlotte, JWL Assocs.	704-523-3001
OH	Rocky River, Norm Case Assocs.	216-333-0400
OR	Portland, SPS Elctrns.	503-297-6919
PA	King of Prussia, R J I, Inc.	215-265-5211
PA	Norristown, Rivco-January Inc.	215-631-1414
TX	Dallas, P. J. Scanlon Co. Inc.	214-231-4661
UT	Salt Lake City, J. F. Hurlbut Co.	801-973-4443
WA	Redmond, SPS Elctrns.	206-323-4140
WA	Seattle, SPS Elctrns.	206-323-4140
WI	Waukesha, Brainard-Wilson Mktg.	414-547-2285

Local Distributors

CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Santa Clara, Cypress Elctrns.	408-727-7080
CA	Torrance, Cypress Elctrns.	215-530-1900
CT	New Haven, The Greene-Shaw Co.	203-397-0710
MD	Columbia, DK Elctrns.	301-995-1950
MA	Billerica, A. W. Mayer Co.	617-229-2255
MA	Newton, The Greene-Shaw Co.	617-969-8900
MN	Minneapolis, The Joel Co.	612-545-5669
NJ	Fairlawn, Relay Specialties	201-797-3313
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Troy, Trojan Elctrn. Supp. Co.	518-274-4481
OK	Tulsa, Radio, Inc.	918-587-9123
TX	Houston, Gaumer Co.	713-460-5200

ELCTRN. INSTR. & SPEC. CORP., MC DIV., See Millen Comps.

ELECTRONIC KITS INTL., INC., 791 Redrock Rd., St. George, UT 84770, Tel: 801-628-3627; *Sls. Mgr.:* Gary Gibson; *Dist. Mgr.:* Charles Meinkey

ELECTRONIC MEASUREMENTS, 405 Essex Rd., Neptune, NJ 07753, Tel: 201-922-9300, Telex: 132-424; Empl.: 250; *Sls. Mgr.:* C. Roney ... 3•1552, 1553

Local Sales Offices & Reps

AL	Huntsville, Sci. Devices	205-536-1969
AZ	Phoenix, Sci. Devices	602-957-0401
CA	Los Alamitos, Sci. Devices	213-598-7678
CA	San Diego, Sci. Devices	619-279-6642
CA	San Jose, Sci. Devices	408-554-0455
CO	Boulder, Sci. Devices	303-449-9466
FL	Orlando, Sci. Devices	305-841-8180
GA	Marietta, Sci. Devices	404-427-8660
IL	Chicago, Comtel	312-539-4838
IN	Indianapolis, Comtel	317-253-1681
IA	Cedar Rapids, Comtel	319-377-9434
KS	Mission, Palatine Engrg. & Sls.	913-831-0555
MD	Pikesville, Imagitron Sls. Co.	301-521-2020
MA	Winchester, FJS Assoc.	617-729-3135
MI	Southfield, Comtel	313-358-2510
MN	Wayzata, Comtel	612-476-1551
MO	Hazelwood, Palatine Engrg. & Sls.	314-839-0800
NJ	Englewood Cliffs, Scientific Dvcs.	201-871-3916
NM	Albuquerque, Sci. Devices	505-883-3668
NY	East Syracuse, Ossmann Insts.	315-437-7052
NY	Englewood Cliffs N.J., Scientific Dvcs.	201-871-3916
NC	Winston-Salem, Sci. Devices	919-765-5776
OH	Dayton, WKM Assoc.	513-434-7500
PA	Pittsburgh, WKM Assoc.	412-892-2953
TX	Austin, Alphatech	512-458-9179
WA	Bellevue, Al Smith Co.	206-746-6770
WA	Vancouver, Al Smith Co.	206-892-9912
WI	New Berlin, Comtel	414-544-6042

ELCTRN. MOLDING CORP., 96 Mill St., Woonsocket, RI 02895, Tel: 401-769-3800, TWX: 710-387-1350; FSC No.: 17117; Empl.: 300; *Sls. Mgr.:* Murry Roth; *Dist. Mgr.:* Robert Dactrechy ......2•1268-1270, 1872, 1880-1886

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean of GA	205-830-1540
AZ	Phoenix, Mercury Engrg. Sales	602-244-0123
CA	Cupertino, Thresum Assocs.	408-996-9889
CA	Mountain View, West Mark Assocs.	415-969-1700
CA	Pasadena, Luscombe Engrg.	213-684-2000
CA	San Diego, Luscombe Engrg.	619-295-4300
CO	Lakewood, Christee-Meade Co.	303-232-0287
CO	Wheat Ridge, Cristee-Meade Co.	303-232-0287
FL	Ft. Lauderdale, Cartwright & Bean of FL	305-735-4900
FL	Orlando, Cartwright & Bean of FL	305-422-4531
GA	Atlanta, Cartwright & Bean of GA	404-233-2939
IL	Lisle, W.G. Controls	312-963-5954
IL	Oak Brook, Winner Co.	312-655-3545
IN	Ft. Wayne, Denton Mktg.	219-627-5525
KS	De Soto, Midtec Assocs.	913-441-6565
KS	Shawnee Mission, Lowell-Kangas & Assoc.	913-631-3515
LA	Kenner, Cartwright & Bean of TN	504-466-0020
MD	Glen Burnie, Macrotech Assocs.	301-437-5588
MD	Pasadena, Macrotech Assocs.	301-437-5588
MI	Bloomfield Hills, Enco Marketing, Inc.	313-642-0203
MI	Farmington, Amtech	313-474-8300
MN	Hopkins, Kits Co.	612-933-1888
MS	Jackson, Cartwright & Bean of TN	601-981-1170
MO	Florissant, Midtec Assocs.	314-837-5200
MO	St. Louis, Lowell-Kangas & Assoc.	314-821-4050
NJ	Haddonfield, Mills-Brown Assocs.	609-429-1005
NJ	Wayne, G.T. Assocs.	201-694-6040
NY	Binghamton, Empire Tech. Assoc.	607-772-0651
NC	Charlotte, Cartwright & Bean of GA	704-377-5673
NC	Greensboro, Blair Engrg.	919-292-8200
NC	Raleigh, Cartwright & Bean of GA	919-781-6560
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-725-4477
OK	Tulsa, Blair Engrg.	918-747-3100
OR	Portland, Jas. J. Backer Co.	503-297-8744
OR	Salem, Jas. J. Backer Co.	503-362-0717
PA	Hickory, J.C. Hofstetter Co.	412-356-2305
PA	Pittsburgh, J. C. Hofstetter Co.	412-327-1410
TN	Knoxville, Cartwright & Bean of TN	615-693-7450
TN	Memphis, Cartwright & Bean of TN	901-276-4442
TX	Austin, Blair Engrg.	512-458-3107
TX	Dallas, Blair Engrg.	214-241-5655
TX	Houston, Blair Engrg.	713-776-0011
WA	Seattle, Jas. J. Backer Co.	206-285-1300

Local Distributors

AZ	Phoenix, Kachina Elctrn.	602-269-6201
AZ	Phoenix, Heilind Elctrns.	602-243-7171
CA	Inglewood, Force Elctrn.	213-776-1324
CA	San Jose, Force Elctrn.	408-943-1324
CO	Denver, C.S.I.D.	303-292-9594
CO	Wheat Ridge, ACT	303-422-9229
CT	Bethel, Heilind Elctrns.	203-797-8600
FL	Ft. Lauderdale, Peerless Radio Corp.	305-973-4141
FL	Largo, Graham Elctrn.	813-541-4434
FL	Orlando, Aztech Elctrn.	305-291-1681
FL	Palm Bay, Action Elctrns.	305-725-4920
IL	Elk Grove Village, Nu Way Elctrns.	312-437-7120
IN	Ft. Wayne, Graham Electrn.	219-423-3422
IN	Indianapolis, Graham Electrn.	317-634-8202
IN	Lafayette, Graham Electrn.	317-423-5564
IA	Cedar Rapids, Bergquist	
MD	Columbia, Aztech Elctrn.	301-995-1760
MA	Burlington, Heilind Elctrn.	617-272-5610
MI	Grand Rapids, Calder Elctrn.	616-949-2900
MN	Minneapolis, Bergquist	612-835-2322
MN	Minneapolis, Bergquist Co.	612-835-2322
NH	Hudson, Heilind Elctrn.	603-883-9536
NJ	Pennsauken, Resco Elctrn.	609-662-4000
NM	Albuquerque, Intl. Elctrn.	505-345-8127
NY	Bohemia, Car-Lac Elctrn.	516-567-4200
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Millbrook, Villarreal Elctrn.	914-677-3447
NY	Rochester, Masline Elctrn.	716-546-5373
NY	Suffern, Nobel Elctrn.	914-357-4500
OH	Cincinnati, Graham Elctrn.	513-772-1661
OH	Cincinnati, Schuster Elctrn.	513-489-1400
OH	Columbus, Graham Elctrn.	614-895-1590
OH	Twinsburg, Schuster Elctrn.	216-425-8134
OK	Tulsa, Altair Co.	918-252-5781
TN	Nashville, Graham Elctrn.	615-242-2682
TX	Austin, Altair Co.	512-837-4970
TX	Dallas, Heilind Elctrn.	214-351-2050
TX	Houston, Heilind Elctrn.	713-988-2711
TX	Houston, Altair Co.	713-462-3029
TX	Houston, Lenert Co.	713-225-1465
TX	Richardson, Altair Co.	214-231-5166

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Local Sales Offices & Reps

AL	Huntsville, Brown Instrs.	205-883-8660
AZ	Phoenix, Sci. Devices West	602-957-0401
CA	Los Angeles, McDougall/McLaughlin Co.	213-477-8556
CA	Menlo Park, Kipp Assocs.	415-854-2855
CO	Boulder, Sci. Devices West	303-449-9466
FL	Ft. Lauderdale, Brown Instrs.	305-776-4800
FL	Melbourne, Brown Instrs.	305-723-0766
FL	Orlando, Brown Instrs.	305-425-5505
GA	Atlanta, Brown Instrs.	404-455-1035
IL	Elmhurst, Sector	312-530-7850
IN	Indianapolis, Sector	317-842-1120
KS	Overland Park, Ramsey Assocs.	913-649-6996
LA	Mandeville, Brown Instrs.	504-626-9701
MD	Silver Spring, Gawler Knoop Co.	301-589-4406
MI	Madison Heights, WKM Assocs.	313-588-2300
MN	Bloomington, Sector	612-888-6920
MO	Maryland Hgts., Ramsey Assocs.	314-878-5042
NH	Nashua, JPR Elctrn. Sls.	603-889-8285
NM	Albuquerque, Sci. Devices West	505-293-3494
NY	Great Neck, RTI, Inc.	516-829-3770
NC	Durham, Brown Instrs.	919-683-1580
OH	Dayton, WKM Assocs.	513-434-7500
OH	Independence, WKM Assocs.	216-524-5930
OR	Portland, Sci. Devices Northwest	503-292-6934
PA	Mechanicsville, John Bell Assoc.	215-794-7075
PA	Pittsburgh, WKM Assocs.	412-892-2953
SC	Columbia, Brown Instrs.	803-798-8070
TX	Houston, Sci. Devices-Texas	713-864-1711
TX	Richardson, Sci. Devices-Texas	214-231-8106
TX	San Antonio, Sci. Devices-Texas	512-736-3164
WA	Bellevue, Sci. Devices Northwest	206-454-0900
WI	Milwaukee, Sector	414-352-8280

epc

ELCTRN. PRECISION COMPS., 11 W. Sandford Blvd., Mt. Vernon, NY 10550, Tel: 914-664-2333; FSC No.: 75898; Empl.: 8 .... 1A•1593, 1869; 3•1226, 1227

Local Sales Offices & Reps

CA	Granada Hills, W.H. Industries Inc.	213-363-3910
CO	Denver, Midwest Meridian Corp.	303-341-7550

IL Elk Grove Village, Midwest Meridian Corp. 312-640-9540
IA Cedar Rapids, Midwest Meridian Corp. 319-365-6561
MA Andover, William Crawford Assocs. 617-470-2122
MN Prior Lake, Midwest Meridian Corp. 612-447-8222
MO Marylan Heights, Midwest Meridian Corp. 314-878-4441
OH Fairborn, Midwest Meridian Corp. 513-879-7100
TX Fort Worth, Midwest Meridian Corp. 817-654-2132
WA Kirkland, W.H. Industries 206-827-1024

ELECTRONIC PRODS. CORP., Interstate Indl. Plaza, R. D. #5, York, PA 17402, Tel: 717-767-6517; Empl.: 16; *Sls. Mgr.:* M. E. Lehman; *Dist. Mgr.:* M. E. Lehman

Local Sales Offices & Reps

IL Downers Grove, T. E. Moore Co. 312-969-7792
MD Greenbelt, Potomac Triad Corp. 301-441-2275
NY Pittsford, Mill Valley 716-248-2653
PA York, Tillotson & Tillotson 717-767-6517

ELECTRONIC RELAYS, 30 Plaza Dr., Westmont, IL 60559, Tel: 312-789-8166, TWX: 910-991-3903; FSC No.: 53087; Empl.: 29; *Sls. Mgr.:* Barbara Breibach; *Dist. Mgr.:* Barbara Breibach

erc

ELECTRONIC RESEARCH CO., 7618 Wedd St., Overland Park, KS 66204, Tel: 913-631-6700, TWX: 910-749-6477; FSC No.: 13571; Empl.: 60; *Sls. Mgr.:* Charles Ditzler ....**1A**•1351

Local Sales Offices & Reps

Frequency Product
NJ Riverdale, Comp-Tech Sls. 201-935-5454
NJ Union, Comp-Tech Sls. 201-687-2484
NY New Hyde Park, Comp-Tech Sls. 516-593-2628

Electronic Solutions

ELECTRONIC SOLUTIONS, 9255 Chesapeake Drive, San Diego, CA 92123, Tel: 619-292-0242, TWX: 910-335-1169; Empl.: 50; *Sls. Mgr.:* Charles H. Henry ....**3**•1106-1109

Local Sales Offices & Reps

AL Huntsville, Remco 205-533-3763
AZ Tempe, Mar Tech 602-968-4944
CA Anaheim, Qualtech South 714-639-9820
CA Brentwood, Qualtech South 415-634-9060
CA Los Angeles, Qualtech South 213-765-1419
CA San Diego, Mesa Engrg. 619-278-8021
CA Sunnyvale, Qualtech 408-732-4800
CO Littleton, Radco 303-794-4279
CT Canton, Bell Controls 203-693-8926
FL Melbourne, Southeastern First Rep 305-259-6373
GA Atlanta, Remco 404-447-6937
IL Chicago, Marcon 312-675-6450
IA Des Moines, The Beams Co. 515-255-1148
KS Shawnee Mission, The Beams Co. 913-631-0300
MD Rockville, Spectro 301-279-2010
MA Nashua, Bell Controls 603-882-6984
MI Livonia, Lowell Wendt 313-464-2722
MN Minneapolis, Micro Resources 612-830-1454
MO St. Louis, The Beams Co. 314-434-8448
NH Nashua, Bell Controls 603-882-6984
NJ Springfield, Gebhardt Mktg. 201-376-4415
NM Albuquerque, Mar Tech 505-821-2775
NY New Hartford, PDQ 315-768-8167
NC Raleigh, Remco 919-847-5079
OH Cleveland, Geotronix 216-526-2535
OH Trotwood, Geotronix 513-854-5939
OR Portland, NW Mkt 503-297-2581
PA Jenkintown, Monument Tech. Assocs. 215-884-3737
TX Austin, Acudatix 512-346-4033
TX Dallas, Acudata 214-424-3567
TX Houston, Acudata 713-580-2451
WA Bellevue, NW Mkt 206-455-5846
WI Waukesha, Computer & System Sales 414-544-1141

Local Distributors

CT Danbury, Pilgrim Elctrns. 203-792-7274

ELECTRONIC SPACE SYS. CORP., Old Powder Mill Rd., Concord, MA 01742, Tel: 617-369-7200, Telex: 923480 ESSCO WCRD; FSC No.: 15175; Empl.: 82; *Sls. Mgr.:* Susan M. Cuevas

ELECTRONIC SPECIALISTS, 171 South Main St., Natick, MA 01760, Tel: 617-655-1532, 800-225-4876, Telex: 955-329 ATTN: ESP; Empl.: 35; *Sls. Mgr.:* David Monahan

ES

ELECTRONIC SPECIALTY DIV., ElecSpec Corp., 18900 N.E. Sandy Blvd., Portland, OR 97230, Tel: 503-665-0121, Telex: 360-453, TWX: 910-469-8782; FSC No.: 98927; Empl.: 250; *Sls. Mgr.:* R. Lisdero ....**1B**•1348-1350

Local Sales Offices & Reps

CA Costa Mesa, Gabriel & Assoc. 714-957-1981
FL Ft. Meyers, Rainbow Sls. 813-939-9150
FL Melbourne, Rainbow Sls. 305-727-3305
KS Wichita, Baka Corp. 316-262-0179
MI Brighton, A.P. Assoc. 313-229-6550
NY Glen Head, Livera-Polk Assoc. 516-759-9300
TX Dallas, Blackburn Assoc. 214-692-8885

ELECTRONICS STAMPING CORP., Sub. of Buckbee-Mears Co., 19920 S. Alameda St., Rancho Dominguez, CA 90220, Tel: 213-639-2120, Telex: 678401; FSC No.: 57297; Empl.: 70; *Sls. Mgr.:* Robert J. Ferm

ELECTRONIC SYS. & PROGRAMMING, See Augat/ES•P, Inc.

ELECTRONIC TRANSFORMER CORP., P.O. Box 188, Totowa, NJ 07511, Tel: 201-942-2222; FSC No.: 72149; Empl.: 130; *Sls. Mgr.:* Dan Rovine

ELECTRONIC TRANSISTORS, 112-15 Northern Blvd., Flushing, NY 11368, Tel: 212-651-7200, Telex: 96-0173; FSC No.: 12045; Empl.: 45; *Sls. Mgr.:* Mike Byrnes; *Dist. Mgr.:* Mike Byrnes

ELECTRONIC TREND PRODS., 10080 N. Wolfe Rd., Ste. 372, Cupertino, CA 95014, Tel: 408-996-7401, Telex: 345516; Empl.: 3; *Dist. Mgr.:* Gene Selven

ELECTRONIC WATTMETER CO., 2275 Sixth St., Sarasota, FL 33577, Tel: 813-953-5355; Empl.: 6

ELECTRONIZED CHEMICALS CO., Div. of High Voltage Engrg., 23 Industrial Way, Wilmington, MA 01887, Tel: 617-657-8030, Telex: 68-17284

ELECTRON-MACHINE CORP., Box M, Umatilla, FL 32784, Tel: 904-669-3101, Telex: 56-4300; Empl.: 55; *Sls. Mgr.:* S. K. Kemp V.P. Mktg

ELECTRON PRODUCTS, 2084 Central Ave., Duarte, CA 91010, Tel: 818-359-8281; FSC No.: 99515; *Sls. Mgr.:* Ann Meunier; *Dist. Mgr.:* Ann Meunier

ELECTRO-NUMERICS, 1811 Reynolds, Irvine, CA 92714, Tel: 714-549-8821, Telex: 68-5612; FSC No.: 51666; Empl.: 24

Local Sales Offices & Reps

AZ Phoenix, Shefler-Kahn Co. 602-257-9015
AR El Dorado, Kemp Engrg. 501-862-5869
CA Fremont, William Parks Assocs. 415-490-2011
CA Santa Ana, Brooks-Moore & Assocs. 714-544-8900
CO Boulder, Herb Bass Assocs. 303-530-7509
FL Melbourne, Beacon Elctrn. Assocs. 305-724-8010
GA Atlanta, Beacon Elctrn. Assocs. 404-256-9640
IL La Grange, PVA Co. 312-579-9300
LA Lafayette, Kemp Engrg. 318-269-9452
MD Randallstown, Beacon North 703-591-1300
MA West Newbury, Di-Ana Sales 617-363-5420
MI Royal Oak, Satullo Co. 313-549-3910
MN Hopkins, Kits Co. 612-933-1888
MO Bridgeton, Electro-Mechanical Assoc. 314-291-8661
NM Albuquerque, Shefler-Kahn Co. 505-296-0749
NY Plainview, Eastern Metro Assocs. 516-931-1414
NC Raleigh, Beacon Electrn. Assocs. 919-787-0330
OH Aurora, EMA, Inc. 216-562-6104
OH Centerville, EMA, Inc. 513-433-2800
OK Tulsa, Kemp Engrg. 918-663-4501
TX Addison, Kemp Engrg. 214-931-7100
TX Houston, Kemp Engrg. 713-466-1465
VA Fairfax, Beacon North 703-591-1300
WA Redmond, Westenn Sales 206-885-2054
WI Glendale, Stapleman Corp. 414-352-5777

ELECTRO-OPTICAL INDS., Box 3770, Santa Barbara, CA 93105, Tel: 805-964-6701, Telex: 65-8427; Empl.: 100

ELECTRO-PACIFIC, 5782 Thornwood Dr., Goleta, CA 93017, Tel: 805-964-0751; FSC No.: 29853; Empl.: 60; *Sls. Mgr.:* Kay Mahone

Local Sales Offices & Reps

CA Del Mar, Electro-Pacific Inc. 619-481-5201

ELECTRO PHYSICS, 1910 West Birchwood Ave., Chicago, IL 60626, Tel: 312-274-9669; Empl.: 6; *Sls. Mgr.:* Abe Siegelman

ELECTROPHYSICS CORP., 48 Spruce St., Nutley, NJ 07110, Tel: 201-667-2262, Telex: 642277

ELECTRO-PREP, 30 Cayuga Ave., E. Falmouth, MA 02536, Tel: 617-477-1791; *Sls. Mgr.:* J. Anderson

ELECTRO-RACK PRODUCTS CO., 1742 S. Clementine St., Anaheim, CA 92802, Tel: 714-776-5420; FSC No.: 26073; Empl.: 25; *Sls. Mgr.:* Allen Benson

ELECTRO-RENT CORP., 4131 Van Owen Place, Burbank, CA 91505, Tel: 213-843-3131, TWX: 910-498-2238; Empl.: 100; *Sls. Mgr.:* R. Tarullo

ELECTRO SCIENTIFIC INDS., 13900 N.W. Science Pk. Dr., Portland, OR 97229, Tel: 503-641-4141, Telex: 15-1246; FSC No.: 11837; Empl.: 750; *Sls. Mgr.:* Dick Donaca;Don Hofmann

ESF
Electro-Space Fabricators, Inc.

ELECTRO SPACE FABRICATORS, 300 W. High St., P.O. BOX 67, Topton, PA 19562-0067, Tel: 215-682-7181; Empl.: 205; *Sls. Mgr.:* T. Roth ....**2**•1028, 1029

Local Sales Offices & Reps

AL Huntsville, Mackan, Smith & Assocs. 205-539-8000
CA Irvine, Vale Assocs. 714-551-4004, 4821
CA San Jose, Silicon Valley Sls. 408-286-7510
CT Bridgeport, Betronic Assocs. 203-374-6404
FL Lighthouse Point, Jack Krutek & Assocs. 305-941-6544
FL Madeira Beach, MacKay, Smith & Assocs. 813-393-7144
FL Orlando, MacKay, Smith & Assocs. 305-277-1513
GA Norcross, MacKay, Smith & Assocs. 404-449-7444
IL Northbrook, Raines & Assocs. 312-498-0890
MD Pikesville, Imagitron Sls. Co. 800-638-3592
MD Pikesville, Imagitron Sls. 301-521-2020
MA Waltham, Betronic Assocs. 617-894-8400
MN Minneapolis, Electro-Tech Assocs. 612-927-5878
NJ Boonton, Winter Assocs. 201-334-3434
NY Binghamton, Miles & Burke Assoc. 607-723-8397
NY Kirkwood, Miles M. Burke & Assocs. 315-822-5916
NY Morrisville, Promark-Electrns. 315-662-3310
NC Charlotte, MacKay, Smith & Assocs. 704-372-1188
OH Galion, James R. Bright 419-468-3787
OK Tulsa, Advance Techn. Sls. 918-664-0482
PA Doylestown, Monteiro Assocs. 215-345-5855
PA McKean, ECCO 814-476-1376
TN Chattanooga, MacKay, Smith & Assocs. 615-899-6951
TX Austin, Advance Techn. Sls. 512-459-1351
TX Dallas, Advance Techn. Sls. 214-340-1300
TX Houston, Advance Techn. Sls. 713-440-3888
WA Auburn, Elctrn. Sls. Northwest 206-839-5808
WA Maple Valley, Electrn. Sls. Northwest 206-432-1002

ELECTROSPACE SYS., INC., Box 1359, Richardson, TX 75080, Tel: 214-783-2004, TWX: 910-867-4768; FSC No.: 33875; Empl.: 902

ELECTRO STANDARDS LAB., INC., P.O. Box 9144, Providence, RI 02940, Tel: 401-943-1164, Telex: 697-2057 ESLAB; Empl.: 20; *Sls. Mgr.:* R. B. Sepe; *Dist. Mgr.:* R. B. Sepe

ELECTROSTATIC CONSLTG. ASSOCS., 556 Lowell Rd., Groton, MA 01450, Tel: 617-448-5485; Empl.: 5; *Sls. Mgr.:* Paul Malinaric

ELECTROSTATICS, 7718 Clairemont Mesa Blvd., San Diego, CA 92111, Tel: 619-279-1414; FSC No.: 34538; Empl.: 17

ELECTRO STYLUS, 31 Cheyenne Blvd., Colorado Springs, CO 80906, Tel: 303-633-5969; Empl.: 10; *Sls. Mgr.:* L. F. Murray; *Dist. Mgr.:* M. L. Murray

ELECTRO SWITCH, King Ave., Weymouth, MA 02188, Tel: 617-335-5200, TWX: 710-388-0377; FSC No.: 82121; Empl.: 260; *Sls. Mgr.:* H. F. Peters ....**1B**•1010, 1622, 1623

Local Sales Offices & Reps

AZ Phoenix, Howe & Howe Sls. 602-264-7971
CA Los Angeles, Wiley 213-666-1611

CA	Moraga, W. Nott & Co.	415-376-1922
CA	San Diego, Wiley Co.	619-571-2881
CO	Boulder, Comp. Prods. Sls.	303-530-2800
FL	Winter Park, Floritronics	305-886-4818
GA	Atlanta, Holman-Lobsinger	404-256-9120
IL	Elk Grove Village, Electro Switch	312-593-2225
IA	Bettendorf, H.J. Weisler & Assoc.	319-344-0566
MD	Woodbine, Naudain Assocs.	301-442-2270
MI	Ferndale, Hilltronics	313-398-5556
MN	St. Paul, Kencotronics	612-645-7717
MO	Ellisville, H.J. Weisler & Assoc.	314-394-4543
MO	No. Kansas City, H.J. Weisler & Assocs.	816-421-1679
NJ	Fairfield, Electro Switch	201-227-6559
NJ	Marlton, Naudain Assocs.	609-983-5300
NY	Rochester, Sweetco Assoc.	716-225-2383
NY	Utica, Sweetco Assoc.	315-797-6721
NC	Winston-Salem, L.G. White Southern	919-725-3612
OH	Columbus, Rockford Controls	614-868-5577
OH	Dayton, Rockford Controls	513-898-5452
OH	Euclid, Rockford Controls	216-731-5250
PA	Pittsburgh, R. F. Clark	412-242-9500
SC	Greenville, L.G. White Southern	803-271-0630
TX	Bellaire, Brice Co.	713-666-1788
TX	Dallas, Brice Co.	214-233-9808
UT	Salt Lake City, Comp. Prods. Sls.	801-262-0000
VA	Richmond, L.G. White Southern	804-740-7093
WA	Seattle, C.B. Parsons & Co.	206-762-7373
WI	Wauwatosa, Larsen Assoc.	414-258-0529

Local Distributors

CA	Los Angeles, Electric Switches	213-660-1310
CA	Moraga, Willard Nott & Co.	415-376-1922
FL	Ft. Lauderdale, Peerless Radio Corp. of Florida	305-973-4141
GA	Atlanta, Georgia Control Ctr.	404-876-8833
IL	Bridgeview, Midco Comp. Sls.	312-599-7777
MD	Baltimore, Automation Indl. Control	301-747-0044
MD	Kensington, Marine Air Supply	301-949-9560
MA	Sharon, Adcour	617-784-8123
MI	Grand Rapids, S-F Electronic Supply	616-459-0216
MN	St. Paul, K. D. I.	612-645-7717
NE	Omaha, West Dodge Elec. Supp.	800-228-2314
NY	Hempstead, Electronic Equip. Co.	516-538-5510
NC	Winston-Salem, General Prods. Co.	919-725-3612
OH	Euclid, Rockford Controls Ohio	216-731-5250
PA	Conshohocken, I/O Elec. Supp. Corp.	215-825-4610
PA	Pittsburgh, Clayton Engrg. Co.	412-288-0643
TX	Bellaire, Barclay Wholesale	713-666-1788
WA	Seattle, C.B. Parsons Co.	206-762-7373
WI	Milwaukee, I/O Elec. Supp. Corp.	414-963-9050

ELECTRO-TECH SYS., INC., 35 E. Glenside Ave., Glenside, PA 19038, Tel: 215-887-2196; *Sls. Mgr.:* Sharon Sandy; *Dist. Mgr.:* Stanley Weitz

ELECTRO VECTOR, INC., 6555 Covey Rd., Forestville, CA 95436, Tel: 707-887-2292, TWX: 510-746-6024; *Sls. Mgr.:* Wayne Brigden

ELECTROVERT INC., 399 Executive Blvd., Elmsford, NY 10523, Tel: 914-592-7322, Telex: 646186; *Sls. Mgr.:* Steve Vineis .... **2**•1266, 1267

Local Sales Offices & Reps

CA	Santa Ana	714-835-2033
GA	Norcross	404-441-3644
IL	Rosemont	312-678-5557
TX	Dallas	214-353-9950

ELECTROVERT USA CORP., 10969 Shady Trail, #101, Dallas, TX 75220, Tel: 214-353-9950, Telex: 4630186; Empl.: 150; *Sls. Mgr.:* Tom Gill

Local Sales Offices & Reps

CA	Santa Ana	714-835-2033
CA	Santa Clara	408-739-6015
CO	Denver	303-423-5598
GA	Norcross	404-441-3644
IL	Rosemont	312-678-5557
NH	Manchester	603-625-5877
NY	Elmsford	914-592-7322
TX	Dallas	214-353-9950

ELECTRO WEAVE, 38 Harlow St., Worcester, MA 01605, Tel: 617-752-8932, TWX: 710-340-0635; FSC No.: 54207; Empl.: 18; *Sls. Mgr.:* C. J. Nowasacki

ELFAB CORP., P.O. Box 810555, Dallas, TX 75381-0555, Tel: 214-233-3033, 800-527-0753, TWX: 910-860-5460; Empl.: 299; *Sls. Mgr.:* Kermit Dye .... **2**•1271-1274

Local Sales Offices & Reps

AL	Huntsville, Raycom	205-859-2017
AZ	Tempe, Delta Elect.	602-966-9903
CA	Escondido, Cirolia Elctrn. Sls.	619-743-3015
CA	Santa Clara, Elfab Corp.	408-988-1716
CA	Tustin, Elfab Corp.	714-731-2515
CO	Littleton, Lange Sls., Inc.	303-795-3600
FL	Orlando, Tri Mark Assocs.	305-859-5504
GA	Fayettsville, Raycom, Inc.	404-461-4026
IL	Crystal Lake, E. S. Healy & Assocs.	815-459-4386
MD	Pikesville, Imagitron Sls.	301-521-2020
MA	Hopkinton, Marathon Sls., Ltd.	617-435-6984
MI	Grand Rapids, R. P. Urban Assoc.	616-245-0511
MN	Stillwater, Tech Mktg.	612-330-3699
MO	St. Charles, C.F. Elctrns.	314-946-8500
NJ	Cherry Hill, Elfab Corp.	609-795-6262
NJ	Springfield, F. F. Sylvester Assoc.	201-376-3324
NY	N. Syracuse, Advanced Comps.	315-699-2671
NC	Raleigh, Rick Burns Assoc., Inc.	919-876-2224
OH	Beachwood, Duane Thompson & Assoc.	216-831-6277
OH	Dayton, Duane Thompson & Assocs.	513-237-9422
OK	Oklahoma City, Ammon & Rizos Co.	405-942-2552
TX	Austin, Ammon & Rizos Co.	512-454-5131
TX	Dallas, Ammon & Rizos Co.	214-233-5591
TX	Houston, Ammon & Rizos Co.	713-781-6240
UT	Salt Lake City, Lange Sls., Inc.	910-925-4006
WA	Seattle, Blum & Assocs.	206-285-2590

ELGAR

An Onan/McGraw-Edison Company

ELGAR CORP., 8225 Mercury Ct., San Diego, CA 92111, Tel: 619-565-1155, TWX: 910-335-1246; FSC No.: 25965; Empl.: 375 .... **3**•1854-1859

Local Sales Offices & Reps

AL	Huntsville, Pen-Tech Assocs.	205-881-9298
AZ	Tempe, Trembly Assoc.	602-967-2058
CA	Redondo Beach, Ward/Davis Assocs.	213-973-7772
CA	San Diego, Ward/Davis Assocs.	619-292-1000
CA	San Jose, D.P. Assocs.	408-296-1492
CO	Lakewood, Trembly Assocs.	303-233-9544
CT	North Haven, P. Jenks Assocs.	203-239-6201
FL	Casselberry, Pen-Tech Assocs.	305-645-3444
FL	Deerfield Beach, Pen-Tech Assocs.	305-421-4989
GA	Marietta, Pen-Tech Assocs.	404-424-1931
HI	Honolulu, Elctrn. Sls. Procurement	808-847-4300
IL	Arlington Heights, Dytec/Central	312-394-3380
IN	Indianapolis, Dytec/Central	317-247-1316
KS	Lenexa, Dytec/South	913-888-0215
MD	Rockville, Elctrn. Mktg. Assocs.	301-881-5300
MA	Woburn, P. Jenks Assocs.	617-938-0488
MI	Madison Heights, WKM Assocs.	313-588-2300
MN	Minneapolis, Berndt Assocs.	612-546-2021
MO	Maryland Hgts., Dytec/South	314-569-2990
NV	Las Vegas, Trembly Assocs.	702-739-9770
NJ	Hackensack, TMA	201-646-9222
NM	Albuquerque, Trembly Assoc.	505-266-8616
NY	Fairport, NACO Elctrns. Corp.	716-223-4490
NY	Great Neck, RTI	516-829-3770
NY	North Syracuse, NACO Elctrns. Corp.	315-699-2651
NY	Utica, NACO Elctrns. Corp.	315-732-1801
NC	High Point, Pen-Tech Assocs.	919-883-9125
OH	Cleveland, WKM Assocs.	216-267-0445
OH	Dayton, WKM Assocs.	513-434-7500
OR	Beaverton, Northwest Test & Meas.	503-646-9966
OR	Portland, Topp Engrg.	503-244-7265
PA	Pittsburgh, WKM Assocs.	412-892-2953
PA	Plymouth Meeting, Elctrn. Mktg. Assocs.	215-828-7400
TX	Austin, Data Aids Assocs.	512-327-8600
TX	Dallas, Data Aids Assocs.	214-620-1551
TX	Spring, Data Aids Assocs.	713-353-7728
UT	Salt Lake City, Trembly Assocs.	801-486-5292
WA	Bellevue, Topp Engrg.	206-747-5400
WA	Redmond, Northwest Test & Meas.	206-881-8857
WI	Elm Grove, Dytec Central Inc.	414-784-9686
EXP	CA, San Diego, Elgar Intl. Corp.	619-565-1155

Local Distributors

CA	Berkeley, Northern Lights	415-540-6162
CA	Inglewood, Cal. Micro	213-671-6075
IL	Arlington Heights, Peak Distrs., Inc.	312-394-3380
MN	St. Paul, Dytec North, Inc.	612-645-5816
MO	Maryland Heights, Dytec Distrs.	314-569-2990
NJ	Hackensack, Logon, Inc.	201-646-9222
NY	North Syracuse, Naco Elctrns. Corp.	315-699-2651
NC	Greensboro, Pen-Tech Sls.	919-852-6000
OH	Centerville, National Instrs. Distrs., Inc.	513-434-7500
PA	Penllyn, Promark Distrs., Inc.	215-643-3400
TX	Springs, Data Aids Assocs.	713-353-7728
WA	Bellevue, Topp Engrg. Sls. Corp.	206-747-5400

ELGENCO, INC., Box 460, Hurricane, UT 84737, Tel: 801-635-4954; FSC No.: 15455; *Sls. Mgr.:* Duane Beecher .... **3**•1228-1233

Local Sales Offices & Reps

CA	Sherman Oaks, Windsor Dynamics	213-990-4173
CA	Woodside, N-S Assocs.	415-854-4870
CT	Hamden, Polytek Assoc.	203-288-5246
MA	Waban, Polytek Assoc.	617-881-4741
NJ	Marmore, Holdsworth & Co.	609-398-4340
NM	Albuquerque, Technology Mktg. Assoc.	505-345-8921
PA	Newtown Square, Holdsworth & Co.	215-356-8550

ELIN DIV., California Instrs. Co., Div. of Norlin Ind., 5150 Convoy St., San Diego, CA 92111, Tel: 619-279-8620, Telex: 695-047; FSC No.: 16067; Empl.: 90; *Sls. Mgr.:* W.W. Hanford

ELMA ENGRG., 1066 E. Meadow Circle, Palo Alto, CA 94303, Tel: 415-494-7303, Telex: 345-560; Empl.: 50; *Sls. Mgr.:* Karl W. Widl

ELMAG, 54 Clark St., Newark, NJ 07104, Tel: 201-481-1600; FSC No.: 23160; Empl.: 25

Local Sales Offices & Reps

OH	Dayton, Irving Atkind Assoc.	513-278-4160

ELM SYSTEMS, 1101 Brown St., Wauconda, IL 60084, Tel: 312-526-5003; *Sls. Mgr.:* T. A. McCollum

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ELMWOOD SENSORS, 500 Narragansett Park Drive, Pawtucket, RI 02861, Tel: 401-727-1300, Telex: 6814066 ELMWOOD, TWX: 710-381-6413; Empl.: 700; *Sls. Mgr.:* Gary Polkow .... **1B**•1802

Local Sales Offices & Reps

AL	Decatur, Tenn. Tech. Sls.	205-350-0630
AZ	Phoenix, O'Donnell SW	602-944-9542

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CO	Boulder, Front Range Mktg.	303-443-4780
FL	Coral Springs, CBC Electronics	305-755-1111
GA	Atlanta, Tenn. Tech. Sls.	404-622-5784
IL	Arlington Heights, Thermek	312-577-6900
IN	Fort Wayne, O. Bromberg	219-456-6010
KY	Louisville, O. Bromberg	502-245-8916
MA	Danvers, C. H. Burnham Assoc.	617-774-0111
MI	Brooklyn, Engineered Comps.	517-592-3236
MN	Minneapolis, C. Listug Sls.	612-537-6740
MO	Creve Coeur, Hill & Co.	314-432-1136
NH	Durham, C. H. Burnham Assoc.	603-868-2282
NY	Fairport, Bastian Sls.	716-223-0237
NY	Larchmont, G. M. Moch Co.	914-834-3530
NY	Latham, L-Tron Corp.	518-785-5032
NY	Syracuse, Canavan-Scanlon	315-437-1271
NC	Charlotte, Tenn-Tech Sls.	704-525-6295
OH	Cincinnati, O. Bromberg	513-771-9333
OH	Cleveland, Allied Entprs.	216-779-0080
OK	Tulsa, Ion Assoc.	918-664-0186
PA	Murrysville, Allied Entprs.	412-325-3200
RI	Johnston, C. H. Burnham Assoc.	401-231-7475
TX	Austin, Ion Assocs.	512-346-7160
TX	Grand Prairie, Ion Assocs.	214-647-8225
TX	Houston, Ion Assocs.	713-977-4354
UT	Salt Lake City, Front Range Mktg.	801-364-6481
VA	Midlothian, Daniel E. Boehling Assocs.	804-794-5879
WA	Bellevue, Lehr Assoc.	206-453-9993
WA	Bothell, Temco Northwest	206-488-1254
WI	Milwaukee, R. Zingler	414-351-5005

ELNA AMERICA, INC., 153 E. Savarona Way, Carson, CA 90746, Tel: 213-327-6090, Telex: 68-6427, TWX: 910-346-6730; *Sls. Mgr.:* Don L. Bilsing; *Dist. Mgr.:* Isao Kikuchi

ELNETIC ELCTRNS., 1730 21st St., Santa Monica, CA 90404, Tel: 213-828-9541; FSC No.: 98460; Empl.: 25; *Sls. Mgr.:* Ernest H. Carlson, Jr.

ELNIK INSTRS., 410 Garibaldi Ave., Lodi, NJ 07644, Tel: 201-779-7388, Telex: 133429; Empl.: 8; *Sls. Mgr.:* Claus J. Joens

ELPAC COMPS., 3131 S. Standard Ave., Santa Ana, CA 92705, Tel: 714-979-4440, TWX: 910-595-1513; Empl.: 130; *Sls. Mgr.:* Rod Bolton ......1A•1070, 1071

Local Sales Offices & Reps

AZ	Tempe, Sunwest Mktg. Assocs.	602-838-7586
CA	Loomis, Sacremento Office	916-652-9702
CA	San Diego, Wes-K Assocs.	619-578-2040
CA	Santa Clara, I Squared.	408-988-3400
CA	Van Nuys, Wes-K Assocs.	213-989-3070
CO	Arvada, Wescom Mktg.	303-422-7619
CT	Milford, Todino Engr. Sls.	203-874-6643
FL	Orlando, OEM Mktg. Corp.	305-299-1000
IL	Highland Park, Bransky Sls.	312-433-2375
IA	Cedar Rapids, Palatine Engr. & Sls.	319-365-8071
KS	Mission, Palatine Engr. & Sls.	913-831-0555
KS	Rose Hill, Palatine Engr. & Sls.	316-776-0065
MD	Timonium, Wakefield Grp.	301-561-3221
MA	Needham Heights, Todino Engr. Sls.	617-444-7925
MI	Farmington Hills, W. R. Hummon & Assocs.	313-474-0661
MN	Bloomington, Smiley-Scott Assocs.	612-888-5551
MO	Hazelwood, Palatine Engr. & Sls.	314-839-0800
NJ	Englewood, Harold Gray Assocs.	201-894-0894
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OR	Beaverton, Caruso & Northcutt.	503-646-4973
PA	Hickord, J. C. Hofstetter Co.	412-356-2305
TX	Dallas, Reese & Assocs.	214-638-6575
UT	Salt Lake City, Wescom Mktg.	801-466-9594
WA	Bellevue, Caruso & Northcutt.	206-454-9699
WI	Cedarburg, Bransky Sls.	414-377-6837

Local Distributors

AL	Huntsville, Powell Elctrns.	205-539-2731
AZ	Phoenix, T.T.I.	602-861-0222
AZ	Tempe, Powell Elctrns.	602-438-1505
CA	Chatsworth, Mil-Comm	213-998-3111
CA	Costa Mesa, Powell Elctrns.	714-754-1717
CA	Garden Grove, Megacap	714-891-5176
CA	Irvine, Kelex	714-863-1230
CA	San Jose, T.T.I.	408-943-9155
CA	San Jose, Powell Elctrns.	408-943-9020
CA	San Jose, Capacitors Unltd.	408-946-7676
FL	Ft. Lauderdale, Powell Elctrns.	305-979-5000
FL	Orlando, T.T.I. Florida	305-979-5000
IL	Northbrook, Classic Components	312-272-9650
IL	Skokie, Kellner Elctrns.	312-677-1120
MD	Columbia, Powell Elctrns.	301-995-0410
MA	Westborough, Powell Elctrns.	617-366-6100
MA	Wilmington, Aved Elctrns.	617-657-8311
MA	Woburn, T.T.I., Inc. NE	617-938-8800
MN	Minneapolis, C. Tennant & Sons	612-475-7300
MO	Maryland Heights, Ensco Distribg., Inc.	314-423-3935
NJ	Englewood, Powell Elctrns.	201-894-0800
NY	Bohemia, T.T.I.	516-567-1500
NC	Cary, Powell Elctrns.	919-467-1212
OK	Tulsa, Altair Co.	918-252-5781
PA	Philadelphia, Powell Elctrns.	215-365-1900
TX	Austin, Captronics	512-459-4328
TX	Dallas, Captronics	214-340-3592
TX	Ft. Worth, T.T.I.	817-429-1440
TX	Houston, Altair Co.	713-462-3029
TX	Irving, Powell Elctrns.	214-258-6841
WA	Bellevue, Powell Elctrns.	206-641-4446
WI	Mequon, Taylor Elec. Dists.	800-558-8921
WI	New Berlin, Classic Comps.	414-786-5300
WI	Racine, Badger Elctrns.	414-637-1256; 414-933-6685

ELPAC POWER SYS., 3131 S. Standard Ave., Santa Ana, CA 92705, Tel: 714-979-4440, TWX: 910-595-1513; Empl.: 270; *Sls. Mgr.:* Patrick D'Acre; *Dist. Mgr.:* Randy Bilsley ......3•1554-1559

Local Sales Offices & Reps

AL	Huntsville, K&E Assoc.	205-883-9720
AZ	Phoenix, Westrep	602-997-8899
CA	Anaheim, Westrep	714-527-2822
CA	San Diego, Westrep	619-276-0751
CA	Santa Clara, Westrep	408-988-8833
CO	Parker, A-5 Co.	303-841-3651
CT	Yalesville, The Newscott Co.	203-269-2654
FL	Clearwater, Gallagher & Assoc.	813-726-3187
FL	Plantation, Gallagher & Assoc.	305-473-2101
GA	Doraville, K&E Assoc.	404-448-7025
IL	Highland Park, Bransky Sls.	312-433-2375
IN	Ft. Wayne, F. J. Campisano	219-747-2633
IN	Indianapolis, F. J. Campisano	317-253-7651
IA	Cedar Rapids, Electromec	319-362-6413
MD	Pikesville, Imagitron Sls.	301-521-2020
MA	Needham Hgts., Newscott Co.	617-444-1923
MN	Burnsville, Electromec Sls.	612-894-8200
NJ	Fairfield, TAM	201-575-4390
NY	S. Hauppauge, TAM	516-348-0800
OH	Cincinnati, F. J. Campisano	513-574-7111
OH	Cleveland, F. J. Campisano	216-749-5550
OK	Tulsa, ION Assoc	918-664-0186
OR	Beaverton, Caruso & Northcutt	503-646-4973
PA	Coraopolis, F. J. Campisano	412-264-5151
TX	Austin, Ion Assoc.	512-346-7160
TX	Grand Prairie, ION Assoc	214-647-8225
TX	Houston, Ion Assoc.	713-977-4354
WA	Bellevue, Caruso & Northcutt	206-454-9699
WI	Cedarburg, Bransky Sls.	414-377-6837

Local Distributors

BS	Huntsville, Marshall Industries	205-881-9235
AL	Birmingham, ACK Radio Supp.	205-322-0588
AL	Huntsville, RM Elctrns.	205-852-1550
AZ	Tempe, Marshall Inds.	602-968-6181
CA	Canoga Park, Marshall Inds.	213-999-5001
CA	El Monte, Marshall Industries	213-442-7204
CA	Inglewood, Newark Elctrns.	213-678-0441
CA	Irvine, Marshall Inds.	714-556-6400
CA	San Diego, Marshall Inds.	619-578-9600
CA	Sunnyvale, Marshall Inds.	408-732-1100
CO	Denver, Marshall Inds.	303-427-1818
CT	Wallingford, Sager Elctrns.	203-265-4600
CT	Wallingford, Marshall Inds.	203-265-3822
FL	Orlando, Marshall Inds.	305-841-1878
GA	Atlanta, ACK Radio Supply	404-351-6340
GA	Norcross, Marshall Inds.	404-923-5750
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Northbrook, Classic Components	312-272-9650
IL	Schaumburg, Marshall Inds.	312-490-0155
IN	Indianapolis, RM Elctrns.	317-247-9701
MD	Gaithersburg, Marshall Inds.	301-840-9450
MA	Burlington, Marshall Inds.	617-272-8200
MA	Burlington, QPL Elctrns.	617-229-2424
MA	Hingham, Sager Elctrns.	617-749-6700
MI	Grand Rapids, RM Elect.	616-531-9300
MI	Livonia, Marshall Industries	313-525-5850
MN	Plymouth, Marshall Inds.	612-559-2211
MO	St. Charles, Finnigan Elect.	314-946-6201
NJ	Cranford, Garden State Indl.	201-272-6400
NJ	Fairfield, Marshall Industries	201-882-0320
NJ	Mt. Laurel, Marshall Inds.	215-627-1920
NJ	Nutley, Vantage Comps.	201-667-1840
NY	Commack, Vantage Comps.	516-543-2000
NY	Endwell, Marshall Industries	607-754-1570
NY	Hauppauge, Marshall Inds.	516-273-2424
NY	Hauppauge, Broadline Elctrns.	212-895-6232
NY	Melville, Diplomat	516-454-6400
NY	Rochester, Marshall Inds.	716-235-7620
NC	Greensboro, Hammond	919-275-6391
OH	Dayton, Marshall Industries	513-236-8088
PA	Philadelphia, Shap Elctrns.	215-969-3300
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Austin, Marshall Industries	512-458-5654
TX	Dallas, RM Elctrns.	214-235-3100
TX	Dallas, Marshall Inds.	214-233-5200
TX	Houston, Marshall Inds.	713-789-6600
TX	Houston, Newark Elctrns.	713-782-4800
WA	Bellevue, Marshall Inds.	206-747-9100
WI	New Berlin, RM Elctrns.	414-784-4420
WI	New Berlin, Classic Comps.	414-786-5300

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Local Sales Offices & Reps

AZ	Phoenix, Shefter-Kahn	602-257-9015
CA	Mountain View, Gene C. Woempner Co.	715-964-5454
CO	Denver, Moss Mktg.	303-455-7205
CT	Milford, Todino Engrg. Sls. Co.	203-874-6643
GA	Norcross, Hollingsworth & Still	404-447-1700
IL	Chicago, G. McI. Cole Co.	312-774-3535
IN	Indianapolis, Elctrn. Mktg. Consits.	317-253-1668
KS	Overland Park, Thomas L. Dowell & Assoc.	913-648-7373
MD	Baltimore, Component Sales	301-484-3647
MA	Needham Heights, Todino Engrg.	617-444-7925
MI	Coopersville, Electronic Salesmasters	800-321-1848
MN	Edina, Restronics	612-941-9135
MO	St. Louis, Thomas L. Dowell & Assoc.	314-849-4234
NJ	Englewood Cliffs, Masin Esco	201-569-8868
NJ	Marlton, Twin Sales	609-966-4070
NY	Chappaqua, Masin Esco	914-238-8337
NY	Syosset, Masin Esco	516-364-0310
OH	Beachwood, Electronic Salesmasters	216-831-9555
PA	Bensalem, Twin Sales	215-638-4850
TX	Dallas, R. E. Nesbitt Co.	214-357-4601
WA	Seattle, Northmar	206-524-5170

Local Distributors

AL	Huntsville, Components Distrs.	205-883-7501
CA	Cerritos, El Com	213-404-2961
CA	Fremont, Terminal Sls.	415-656-7722
CA	Gardena, Culver Elctrn. Sls.	213-538-2811
CA	Mountain View, Energy Sales	415-969-0800
CO	Denver, Hensley Battery	303-455-3643
FL	Del Rey Beach, Chapman Security Sys.	305-737-6776
GA	Atlanta, Custom Alarm Prods.	404-458-0990
IL	Downers Grove, Telecommunication Dvcs.	312-971-3460
IL	Palatine, Ohm Elctrns.	312-359-5500
IN	Indianapolis, Graham Elctrns.	317-634-8202
LA	Shreveport, Industrial Elctrn. Supp.	318-222-9459
MD	Savage, Pyttronic	301-792-0780
MA	Newtonville, Security Supp. Svc.	617-965-3400
MI	Livonia, Alarm Supp. Co.	313-591-9100
MN	Burnsville, Power Trust Grp.	612-890-1360
MO	St. Louis, Van Sickle Radio	314-621-5000
NE	Lincoln, Scott Elctrns.	402-466-8221
NY	Centereach, Air Ways Distrs.	516-698-7447
NY	Jackson Hgts., A-1 Alarmatic	212-639-8300
OR	Portland, Radar Elec.	503-232-3404
PA	Allentown, A. A. Peters	215-434-5237

UT	Salt Lake City, Standard Supply	801-486-3371
VA	Richmond, AVCC Elctrns.	804-359-6071
WA	Seattle, Radar Elec.	206-282-2511

EL-RAD MFG., 4300 N. California, Chicago, IL 60618, Tel: 312-478-7300, TWX: 910-221-0104; FSC No.: 11253; Empl.: 225; *Sls. Mgr.:* Marvin S. Christ

Local Sales Offices & Reps

AZ	Scottsdale, Memco Sales	602-241-2254
AR	Little Rock, Jard Electro Sales	214-231-6654
CA	Huntington Beach, J. J. Riley Assoc.	714-841-1411
CA	Mountain View, Westech Sls.	415-961-1422
FL	Pompano Beach, Cole-Tek	305-781-8110
IL	Elk Grove Village, I R O Co.	312-593-0644
MD	Glen Burnie, Faion Lott & Co.	301-744-4611
MD	St. Louis, Abrams & Assoc.	314-569-0447
MI	Benton Harbor, Mc Nabb & Assocs.	616-925-2166
NJ	Baltimore, Faion Lott & Co.	301-744-4611
NM	Phoenix, Memco Sls.	602-952-2254
TX	Richardson, Jaro Electro Sls.	214-231-6654

ELTEC INSTRS., P.O. Box 9610, Daytona Bch., FL 32020, Tel: 904-252-0411, TWX: 810-832-6294; Empl.: 120; *Sls. Mgr.:* Douglas S. Armstrong

EMCA, Sub. Rohm and Haas Advanced Matls. Co., 605 Center Ave., Mamaroneck, NY 10543, Tel: 914-698-8434, TWX: 710-566-1128; Empl.: 70; *Sls. Mgr.:* Dennis Hanley

Local Sales Offices & Reps

CA	Pleasant Hill, EMCA	408-998-1540
CA	Santa Clara, Mead Assocs.	408-748-1991
CA	Tustin, EMCA	714-731-4373
FL	Largo, Michael Nadreau	813-581-9113
NY	Chappaqua, Micrel Assocs.	914-238-4961
TX	Dallas, EMCA	214-321-5498

EMCO HIGH VOLTAGE CO., 556 Weddell Dr., Sunnyvale, CA 94089, Tel: 408-734-9123; Empl.: 38 .... **3**•1560

EMCON INC., Sub. of Kyocera Intl., 11620 Sorrento Valley Rd., San Diego, CA 92138, Tel: 619-459-4355, TWX: 910-322-1130; Empl.: 500; *Sls. Mgr.:* Bob Goodman; *Dist. Mgr.:* George Maines

Emcor Products

EMCOR PRODUCTS, Crenlo, Inc., 1600 Fourth Ave. NW, Rochester, MN 55901, Tel: 507-289-3371, TWX: 910-565-2374; *Sls. Mgr.:* John Horton .... **2**•1030

Local Sales Offices & Reps

AL	Huntsville, W. A. Brown Instrs.	205-883-8660
AZ	Phoenix, Aztec Enterprises	602-944-9185
CA	Cupertino, T. Louis Snitzer Co.	408-257-8333
CA	Del Mar, T. Louis Snitzer Co.	714-226-0305
CA	Los Angeles, T. Louis Snitzer Co.	213-836-6170
CO	Denver, Delltron Co.	303-373-0300
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Ft. Lauderdale, W. A. Brown Instrs.	305-776-4800
FL	Melbourne, W. A. Brown Instrs.	305-723-0766
FL	Orlando, W. A. Brown Instrs.	305-425-5505
GA	Norcross, W. A. Brown Instrs.	404-441-2980
ID	Boise, N. R. Schultz Co.	208-377-8686
IL	Des Plaines, Marsland Assocs.	312-694-2262
IN	Indianapolis, Marsland Assocs.	317-293-5437
IA	Cedar Rapids, Marsland Assocs.	319-396-8030
LA	Mandeville, W. A. Brown Instrs.	504-626-9701
MA	Burlington, Kitchen & Kutchin	617-229-2660
MI	Southfield, Comtel Instrs.	313-358-2505
MN	Minneapolis, Marsland Assocs.	612-545-4481
MO	Grandview, Harris-Hanson Co.	816-763-6200
MO	St. Louis, Harris-Hanson Co.	314-432-3611
NJ	Cedar Grove, KLS Associates	201-785-4450
NM	Albuquerque, Aztec Entps.	505-262-1688
NY	Albany, Reagan/Compar Albany	518-489-4777
NY	Endwell, Reagan/Compar Albany	607-723-8743
NY	Fairport, Reagan/Compar Albany	716-271-2230
NY	New Hartford, Reagan/Compar Albany	315-732-3775
NY	New York, KLS Assocs.	201-785-4450
NC	Durham, W. A. Brown Instrs.	919-683-1580
OH	Cleveland, Comtel Instrs.	216-442-8080
OH	Dayton, Comtel Instrs.	513-298-7573
OH	Hilliard (Columbus), Comtel Instrs.	614-876-8305
OR	Beaverton, N. R. Schultz Co.	503-643-1644
PA	Hatboro, Jacobsen Assocs.	215-674-2937
PA	Huntingdon Valley, Jacobsen Assocs.	215-674-2937
PA	Pittsburgh, Comtel Instrs.	412-922-5720
SC	Columbia, W. A. Brown Instrs.	803-798-8070
TN	Oak Ridge, W. A. Brown Instrs.	615-482-5761
TX	Dallas, J. A. Green Co.	214-631-7450
TX	Houston, J. A. Green Co.	713-526-2959
UT	Salt Lake City, Delltron Co.	800-692-2069
VA	Alexandria, Dyna Rep Co.	703-354-1222
WA	Bellevue, N. R. Schultz Co.	206-454-0300

EMC TECHNOLOGY INC, 1971 Old Cuthbert Rd., Cherry Hill, NJ 08034, Tel: 609-429-7800, Telex: 710 896 0193; FSC No.: 24602; Empl.: 75; *Sls. Mgr.:* Peter Semitschew

EMERGENCY BEACON CORP., 15 River St., New Rochelle, NY 10801, Tel: 914-235-9400; Empl.: 25; *Sls. Mgr.:* T. E. Ziegler

EMERSON, INDL. CONTROLS DIV., 3300 Standard St., Santa Ana, CA 92702, Tel: 714-545-5581, Telex: 67-8460; Empl.: 800; *Sls. Mgr.:* R. L. Calvin

EMERSON & CUMING, W. R. Grace & Co., 59 Walpole St., Canton, MA 02021, Tel: 617-828-3300, TWX: 710-348-1324; Empl.: 500

Local Distributors

CA	Culver City, E. V. Roberts & Assoc.	213-870-9561
FL	Stuart, Southeast Resin	305-286-8955
IL	Chicago, Prehler, Inc.	312-384-6100
MD	Baltimore, Sosco Corp.	301-574-7555
MA	Burlington, Schaal Associates, Inc.	617-272-7940
MA	Peabody, Adhesive Packaging Specialists	617-531-3300
MN	Bloomington, T.C. Services, Inc.	612-881-4536
MO	Maryland Heights, Thomas B. Moore, Inc.	314-434-6844
NJ	Plainfield, Pro-Pac	201-755-4940
NY	Ronkonkoma, Plastic Products & Tooling	516-467-0960
NC	Greensboro, Whitaker Metals, Inc.	919-294-3825
OH	Westerville, John W. Blair Co.	614-882-6431
TN	Memphis, Accrabond, Inc.	601-895-4480
TX	Dallas, Roy E. Davis & Co.	214-688-0652
TX	Garland, Ipscot, Inc.	214-272-5952

EMICO INC., Box 368, Dublin, PA 18917, Tel: 215-249-9330, TWX: 510-665-9583; FSC No.: 85925; Empl.: 170; *Sls. Mgr.:* R. Jones .... **3**•1330, 1331

Local Sales Offices & Reps

AZ	Scottsdale, Luscombe	602-949-9333
CA	Campbell, Luscombe Engrg.	408-370-2020
CA	Pasadena, Luscombe	213-684-2000
CO	Arvada, Arrowhead Sls. Co.	303-423-5556
FL	Pinellas Park, Chaco Sls.	813-546-6658
IL	Chicago, Ropek & Cahill	312-631-0070
IN	Carmel, S T B & Assocs.	317-844-9227
KS	Shawnee Mission, Robinson & Assocs.	913-262-1374
MD	Silver Spring, H.R. Sieber Co.	301-589-9110
MA	Braintree, Anderson Sls. Co.	617-848-9194
MN	Minneapolis, H.M.R., Inc.	612-831-7400
NJ	Marlton, B.G.R. Assocs.	609-428-2440
NY	Mt. Vernon, Sonkin Assoc.	914-MO8-9809
NY	Syracuse, Nycom, Inc.	315-437-8343
NC	Charlotte, Electro-Rep. Assocs.	704-527-2530
OH	Rocky River, Loesch Assocs.	216-333-0077
TX	Richardson, Campion Sls.	214-238-8145
WA	Redmond, Barrett-Squibb	206-885-6991
WI	Colgate, Rep I and Assocs.	414-628-4016

EMI GENCOM INC., See THORN EMI Gencom Inc.

EMI TECHNOLOGY INC., See THORN EMI Technology Inc.

E/M LUBRICANTS, INC., Div. of Great Lakes Chemical Corp., Highway 52 NW, W. Lafayette, IN 47906, Tel: 317-463-2511, Telex: 27-9428; FSC No.: 11770

Local Sales Offices & Reps

CA	Mountain View	415-961-5865
CA	North Hollywood	213-875-0101
CO	Denver	303-371-6771
CT	New Britain	203-224-9148
GA	Atlanta	404-361-2550
IL	Lombard	312-620-6808
MA	Auburn	617-792-6919
MI	Roseville	313-779-6460
MN	New Brighton	612-780-3202
OH	Dayton	513-254-8481
PA	Sharon Hill	215-461-1015
TX	Ft. Worth	817-834-8817

EMM SEMI, SUB OF EM & M, See GTE Microcircuits

EMM/SESCO, 20630 Plummer St., Chatsworth, CA 91311, Tel: 213-998-9090, Telex: 691404, TWX: 910-494-4990; *Sls. Mgr.:* Russ Summers

Empro
SHUNTS ®

EMPRO MFG. CO., INC., P.O. Box 26060, Indianapolis, IN 46226, Tel: 317-823-4478; Empl.: 25 .... **3**•1234

Local Sales Offices & Reps

CA	La Canada, Lew Brooks Co.	213-790-8358
CA	Santa Ana, Lew Brooks Co.	714-544-8900
GA	Atlanta, Brownell Electro Inc.	404-762-5181
MA	Burlington, E.I.L. Instr.-Mancib Div.	617-272-9450
NJ	Belleville, D. F. Tobias & Co.	201-751-8680
OH	Cleveland, Weschler Elec. Corp.	216-238-2550
PA	Philadelphia, Sunshine Sci. Instr. Inc.	215-673-5600
TX	Houston, Ev Smith Sls.	713-649-5756

EMR DATA SYSTEMS, DIV. SANGAMO-WESTON, Box 3041, Sarasota, FL 33578, Tel: 813-371-0811, Telex: 052-890, TWX: 810-864-0406; Empl.: 1100; *Sls. Mgr.:* F. V. Hinkel

E M S DEVELOPMENT CORP., 200 Allen Blvd., Farmingdale, NY 11735, Tel: 516-694-2886, TWX: 510-224-6480; FSC No.: 51435; Empl.: 95; *Sls. Mgr.:* Ed Simkovich

EMULOGIC, 3 Technology Way, Norwood, MA 02062, Tel: 617-329-1031; *Sls. Mgr.:* Robert Smith

ENCLOSURE CORP., 4529 Adams Circle, Cornwells Hts., PA 19020, Tel: 215-638-9550; FSC No.: 32360; *Sls. Mgr.:* Gene Goldner

ENCODER DIV., LITTON SYSTEMS, INC., See Litton Encoder Div.

ENCODER PRODS., 1601B Dover Rd., Sandpoint, ID 83864, Tel: 208-263-8541, TWX: 510-776-1595; Empl.: 70; *Sls. Mgr.:* Vance Conner

ENDEVCO, 30700 Rancho Viejo Rd., San Juan Capistrano, CA 92675, Tel: 714-493-8181, Telex: 68-5608, TWX: 910-596-1415; FSC No.: 95411; Empl.: 400; *Sls. Mgr.:* B. Toffelmier

Local Sales Offices & Reps

AL	Huntsville	205-536-4454
CA	Anaheim	714-831-9200
CA	Mountain View	415-969-3212
CA	San Francisco	415-552-1763
CT	West Mystic	203-572-0571
DC	Washington	391-261-1760
FL	Orlando	305-855-4535
IL	Chicago	312-754-3888
MD	Annapolis	301-269-8800
MA	Boston	617-969-8063
MI	Charlotte	313-471-0685
NJ	Lambertville	609-397-0883
OH	Cleveland	216-659-3138
OH	Dayton	513-253-6175
TX	Houston	713-462-1971

ENDICOTT COIL, 22 E. Charlotte St., Binghamton, NY 13905, Tel: 607-797-1263, Telex: 932411; Empl.: 180; *Sls. Mgr.:* Raymond Taylor .... **1A**•1244, 2152

Endicott Research Group.Inc.

ENDICOTT RESCH. GRP., INC., 2601 Wayne St., P.O. Box 269, Endicott, NY 13760, Tel: 607-754-9187, TWX: 510-252-0155; FSC No.: 63312; Empl.: 100; *Sls. Mgr.:* Robert S. Rakowski .... **1B**•1049-1051; **3**•1561

Local Sales Offices & Reps

CA	Lomita, Component Mktg. Assoc.	213-326-1460
CA	Saratoga, Testco	408-253-1900

CO	Denver, West Incorporated	303-692-0131
CT	Bloomfield, SIR Assocs.	203-243-9343
FL	Pompano Beach, Cole-Tek Assocs.	305-781-8110
GA	Atlanta, Wallace Electronics	404-752-6611
IL	Elk Grove Village, Carlson Elctrn. Sls.	312-956-8240
IN	Indianapolis, Carlson Elctrn. Sls.	317-842-3740
IA	Cedar Rapids, Carlson Elctrn. Sls.	319-377-6341
KS	Wichita, PMR, Inc.	316-684-4141
MA	Bedford, SIR Assocs.	617-275-5550
MN	Minneapolis, Jos-Col Melius	612-861-3343
MO	Maryland Hts., PMR, Inc.	314-569-1220
NE	Overland Park, PMR, Inc.	913-381-0004
NJ	Livingston, Eagle Sls. Co.	201-992-2030
NY	Albany, H. C. Johnson Agencies	518-459-1239
NY	Buffalo, H. C. Johnson Agencies	716-632-7880
NY	Rochester, H. C. Johnson Agencies	716-482-3000
NY	Wadin & River, Rywel Sales Inc.	516-929-4884
NC	Kernersville, Wallace Electronics	919-996-2742
OH	Dayton, Dynel Co.	513-434-6467
PA	Glenshaw, H. C. Johnson Agencies	412-961-0414
PA	King of Prussia, Freedman-Malta Assocs.	215-279-5767
TX	Austin, Mil-Rep Associates	512-258-2828
TX	Houston, Mil-Rep Associates	713-937-0127
TX	Richardson, Mil-Rep Associates	214-644-6731
UT	Salt Lake City, West Inc.	801-466-5739
WA	Bellevue, Testco	206-454-7422
WI	Milwaukee, Carlson Elctrn. Sls.	414-476-2790

ENERCO, INC., 9615 W. Marginal Way S., Seattle, WA 98108, Tel: 206-762-1422; Empl.: 5; *Sls. Mgr.:* Lee Rabie

ENERGY CONCEPTS, PO Box 128, Carlsbad, CA 92008, Tel: 619-942-3144; FSC No.: 01830; Empl.: 6; *Sls. Mgr.:* Marilyn Decarlo

Local Sales Offices & Reps

CA	Mill Valley, Roy Colen Sls.	415-383-8700
CA	Sante Fe Springs, Wallace & Wallace	213-945-2908
CO	Denver, KC Marketers	303-733-5561
GA	Atlanta, Harvey Minsk and Assoc.	404-934-3272
IL	Schaumburg, Resha/Assoc.	312-397-9010
KS	Wichita, Maury Bettis Co.	316-265-8250
MA	N. Scituate, Montague & Murray	617-545-5505
OH	Aurora, GTEC	216-562-9872
TX	Dallas, The Assoc.	214-241-7190
WA	Everett, Fordco	206-258-1515

ENGELHARD CORP., 70 Wood Ave. S., Iselin, NJ 08830, Tel: 201-321-5900, Telex: 83-3147; Empl.: 8500

ENGELMANN MICROWAVE CO., KDI Pyrofilm, 60 S. Jefferson Rd., Whippany, NJ 07981, Tel: 201-887-5700, TWX: 710-986-8220; *Sls. Mgr.:* Carl Schraufnagl

EC²
engineered components company

ENGINEERED COMPS. CO., P.O. Box Y, San Luis Obispo, CA 93406, Tel: 805-544-3800; FSC No.: 32440; Empl.:160 .... **1A**•1444,1484-1508; **2**•1870,1887

ENGD. PROD., Div. of Acme Elec. Corp., 40 Water St., Cuba, NY 14727, Tel: 716-968-2400, Telex: 91-6451, TWX: 510-245-2700; Empl.: 850; *Sls. Mgr.:* Dick Milne

ENGINEERING & ELCTRN. DEVICES, 1024 N. McCadden Pl., Los Angeles, CA 90038, Tel: 213-463-4175; Empl.: 4; *Sls. Mgr.:* John H. Aulbach, Jr.; *Dist. Mgr.:* Henry C. Lerner

ENGINEERING DESIGN & SLS., Rt. 2, Box 305, Danville, VA 24540, Tel: 804-685-7073; Empl.: 50; *Sls. Mgr.:* Mark Gignac

ENGLER INSTRS., Sangamo Weston, Inc., 250 Culver Ave., Jersey City, NJ 07305, Tel: 201-332-5353, TWX: 710-730-5236; FSC No.: 07446; *Sls. Mgr.:* Vic Stuart; *Dist. Mgr.:* Al Brunelli

ENI, INC., See Electronic Navigation Inds., Inc.

ENI POWER SYS., 3000 Winton Rd. S., Rochester, NY 14623, Tel: 716-473-7330, Telex: 97-8283; FSC No.: 10226; Empl.: 200; *Sls. Mgr.:* L. A. Benedict

Local Sales Offices & Reps

CA	Santa Ana, Micro-Tec West	714-547-5941
MA	Needham, NGS Associates	617-449-6777

ENTECH SYSTEMS, INC., 15 Herman Dr., Simsbury, CT 06070, Tel: 203-651-9557; *Sls. Mgr.:* A. D. Jorczak

ENTERPRISE SYS. CORP., P.O. Box 698, Dover, NH 03820, Tel: 603-742-7363; Empl.: 20; *Sls. Mgr.:* G. E. Perrine

Entran

ENTRAN DEVICES, 10 Washington Ave., Fairfield, NJ 07006, Tel: 201-227-1002, Telex: 130-361; *Sls. Mgr.:* John W. G. Budd .... **1B**•1842, 1843

Advertisement

Manufacturer of Miniature Accelerometers, Pressure Transducers/Meters/Transmitters, Load Cells and Semiconductor Strain Gages for measuring static and dynamic pressures and accelerations. Full scale ranges from 5g to 10,000g, 2 psi to 30,000 psi, and 1 lb to 2500 lb. Direct output in mV/g, mV/psi, mV/lb, and 4 or 4 1/2 digit LED display. Available in sizes as small as .050″ dia. weighing as little as 1/4 gram 0.7 cr damping available. Up to .05% accuracy. Entran means Miniature.

Local Sales Offices & Reps

AZ	Phoenix, J. Smith & Assocs.	602-267-0981
CA	Long Beach, Saber Entprs.	213-595-5646
CA	San Diego, Saber Entprs.	619-271-1523
CA	Walnut Creek, Secco	415-937-1094
CO	Colorado Springs, J. Smith & Assoc.	303-597-5343
GA	Atlanta, Quantum Meas.	404-351-3531
IL	Lombard, The G.B. Hall Co.	312-858-1700
IN	Plainfield, Stress Analysis Svcs.	317-839-8235
MI	Brighton, Stress Analysis Svcs.	313-632-6110
NJ	Hopatcong, Measurements, Inc.	201-770-1281
NM	Albuquerque, J. Smith & Assocs.	505-265-3406
NC	Chapel Hill, Quantum Meas.	919-933-7408
OH	Dayton, Stress Analysis Svcs.	513-263-8036
OH	Medina, Stress Analysis Svc.	216-725-7733
OR	Portland, Topp Engrg. Sls.	503-244-7265
PA	Frazer, Measurements, Inc.	215-644-7142
TX	Dallas, Technical Prods.	214-357-9603
TX	Houston, Technical Prods.	713-493-6520
VA	Fredericksburg, Measurements, Inc.	703-373-5520

ENTRELEC DIV., See Cogenel, Inc./Entrelec Div.

ENVIRONMENTAL COMM., 3150 Pullman St., Costa Mesa, CA 92627, Tel: 714-557-7800, TWX: 910-595-1781; FSC No.: 16450; Empl.: 65; *Sls. Mgr.:* Glen Underwood

ENVIRONMENTAL CONTAINER SYS., INC., 3560 Rogue River Hwy., Box 188, Grants Pass, OR 97526, Tel: 503-476-8871, TWX: 510-755-0777; FSC No.: 24995; Empl.: 135

EOTEC CORP., 200 Frontage Rd., W. Haven, CT 06516, Tel: 203-934-7961; Empl.: 24; *Sls. Mgr.:* James W. Campbell

E.P.E. CORP., P.O. Box 5238, Manchester, NH 03108, Tel: 603-669-9181, Telex: 943536; Empl.: 65; *Sls. Mgr.:* James D. Bell; *Dist. Mgr.:* Thomas S. Bell

EPIC, INC., 150 Nassau St., New York, NY 10038, Tel: 212-349-2470, Telex: 12-6531; Empl.: 8; *Sls. Mgr.:* Peter Letica

ERIE TECHNOLOGICAL PRODUCTS, 645 West 11th St., Erie, PA 16512, Tel: 814-453-5611

EPOCH ENTPR., 3541 N. Olive Rd., Tucson, AZ 85719, Tel: 602-887-1970

EPOXYLITE CORP., 1265 N. Kraemer Blvd., Anaheim, CA 92806, Tel: 714-630-7910; Empl.: 60

EPOXY TECHNOLOGY, INC., 14 Fortune Dr., P.O. Box 567, Billerica, MA 01821, Tel: 617-667-3805, Telex: 94-7140; FSC No.: 33246

Local Sales Offices & Reps

AZ	Phoenix, Wadsworth/Bryant	602-275-7366
CA	Atherton, Wadsworth/Bryant	415-321-3619
CA	Hacienda Heights, Wadsworth/Bryant	213-330-5592
CO	Boulder, Specialty Sales Co.	303-444-0954
CT	Colchester, Normell Assoc.	203-537-5555
FL	Fort Pierce, Hyber-Sem	305-464-0461
IL	Chicago, E. Przechera Sls. Co.	312-725-1933
MA	Newton, Normell Assoc.	617-969-5478
MI	Royal Oak, Murray A. Perciuau Co.	313-548-1971
NJ	Clinton, Price-Tech Inc.	201-735-9797
NY	Fair Haven, Feikert Assoc.	315-652-5577
OH	Dayton, Berberich Assoc.	513-433-0342
OR	Beaverton, Demarest Assoc.	503-643-0141
UT	West Jordan, Specialty Sales Co.	801-561-0222
WA	Seattle, Demarest Assoc.	206-523-3210

EPSCO, 920 Westwood Ave., Addison, IL 60101, Tel: 312-543-0410; FSC No.: 53003; Empl.: 8 .... **3**•1563

Local Distributors

AR	Little Rock, Carlton-Bates Co.	501-562-9100
CA	Garden Grove, Allied Elctrns.	714-554-0731
CA	San Francisco, VWR Scientific Inc.	415-469-0100
CO	Denver, Newark Elctrns.	303-757-3351
FL	Marathon, Marathon Wholesale Electric Supply	305-743-2262
GA	Atlanta, Spec. Distr. Co.	404-873-2521
HI	Honolulu, Honolulu Elctrn.	808-949-5564
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Elgin, Allied Elctrns.	312-697-8200
IL	Elmhurst, McMaster-Carr Supp.	312-834-9600
IL	Skokie, Sargent-Welch Sci.	312-677-0600
IN	Indianapolis, Graham Elctrns.	317-634-8202
LA	New Orleans, Radio Parts	504-581-5959
MA	Lynn, Land Elctrns.	617-592-2220
MI	Flint, Shand Elctrns.	313-743-8940
MI	Lansing, Fulton Radio	517-394-5020
MO	Kansas City, Walters Radio Supp.	816-531-7015
MO	St. Louis, Olive Elctrn.	314-426-4500
NJ	Bridgeport, VWR Scientific Corp.	609-467-2600
NM	Albuquerque, Walker Radio	505-247-2288
NY	Buffalo, Summit Distr.	716-884-3450
OH	Dayton, Stotts-Friedman	513-298-5555
OK	Oklahoma City, Trice Whlsr.	405-524-4411
PA	Pittsburgh, Fischer Scientific Co.	412-562-8300
SC	Columbia, Dixie Radio Supp.	803-253-5333
TN	Nashville, Electra Distr. Co.	615-329-3971
TX	Dallas, Wholesale Elctrns.	214-824-3001
TX	Ft. Worth, Allied Elctrns.	817-336-5401
UT	Salt Lake City, Newark Elctrns.	801-486-1048
VA	Norfolk, Avec Elctrns.	804-627-3502
WI	Milwaukee, Industrial Elctrns. Supp.	414-276-1212

EPSCO MICROWAVE, 411 Providence Hwy., Westwood, MA 02090, Tel: 617-329-1500, TWX: 710-348-0484; FSC No.: 15894; Empl.: 185; *Sls. Mgr.:* John M. Shalhoub

EPSILON-LAMBDA ELCTRNS. CORP., 427 Stevens St., Geneva, IL 60134, Tel: 312-232-9611, TWX: 910-237-1684; Empl.: 30; *Sls. Mgr.:* Robert Knox

EQUIPTO, 225 S. Highland Ave., Aurora, IL 60507, Tel: 312-859-1000; Empl.: 300; *Sls. Mgr.:* Ralph Zettinger

EQUIPTO ELCTRNS. CORP., 351 Woodlawn Ave., Aurora, IL 60507, Tel: 312-897-4691; FSC No.: 14002; *Sls. Mgr.:* Larry Suggett .... **2**•1031

Local Sales Offices & Reps

AL	Huntsville, Hollingsworth & Still	800-241-5712
AZ	Tempe, Burland Assoc.	602-894-5564
CA	Anaheim, Spectrum Assocs.	714-630-6977
CA	Sunnyvale, Ward Elctrn. Packaging Sls.	408-730-4494
CO	Littleton, Grifco	303-795-1989
CT	Stratford, Technical Instrs.	203-368-4582
FL	Orlando, Hollingsworth & Still	800-241-5712
GA	Norcross, Hollingsworth & Still	404-447-1700
IL	Palatine, Joseph Clark Co.	312-358-5095
IN	Ft. Wayne, Scott Elctrns.	219-484-7865
MD	Silver Spring, Sel-Tronics	301-589-3391
MA	Wilmington, Technical Instrs.	617-944-3930
MI	Troy, Scott Elctrns.	313-585-7690
MO	Blue Springs, Cairns & Hayes Elctrn. Sls.	816-229-1404
MO	St. Charles, Cairns & Hayes Elctrn. Sls.	314-946-6677
NJ	Englewood, Tecnimat	201-569-4200
NM	Albuquerque, R.L.S. Instr.	505-265-4187
NY	Syracuse, Labtronics	315-455-7314
OH	Cincinnati, Scott Elctrns.	513-791-2513
OH	Cleveland, Scott Elctrns.	216-473-5050
OH	Dayton, Scott Elctrns.	513-294-0539
PA	Valley Forge, J. E. Cuesta & Co.	215-265-5800

C	Columbia, Hollingsworth & Still	800-241-5712
X	Dallas, Kruvand Assocs.	214-691-4592
X	Houston, Kruvand Assocs.	713-780-9710
WA	Seattle, S.J.I. Corp.	206-763-8981

ERA POLY-PLANAR DIV., 311 E. Park St., Moonachie, NJ 07074, Tel: 201-641-3650, TWX: 710-990-5064; Empl.: 100; *Sls. Mgr.:* John Apelian

ERA TRANSPAC DIV., Sub. Elctrn. Research Assocs., 311 B East Park St., Dept. 1202, Moonachie, NJ 07074, Tel: 201-641-3650, TWX: 710-990-5064; FSC No.: 96762; Empl.: 100; *Sls. Mgr.:* John Apelian

ERC, See Electronic Research Co.

ERICSON MFG. CO., 4215 Hamann Pkwy., Willoughby, OH 44094, Tel: 216-951-8000, Telex: 98-5390; *Sls. Mgr.:* J. E. (Jay) Ericson, Jr.

ERIE TECHN. PRODS., See Murata Erie No. Amer., Inc.

ERM, 27 Water St., Wakefield, MA 01880, Tel: 617-246-3550

ERNI COMPS. CORP., Erni Elektroapparate GMBH, 1235 E. Davis St., Arlington Heights, IL 60005, Tel: 312-577-8620, TWX: 910-687-0260; *Sls. Mgr.:* J. Garratt; *Dist. Mgr.:* G. F. Zib

Local Sales Offices & Reps

CA	Burbank, Mod-Co.	213-848-2215
CO	Littleton, Protronics Group	303-973-3096
FL	Melbourne Beach, Jack McGirr Assoc.	305-723-6678
GA	Jonesboro, Wallace Elctrn. Sls.	404-471-6297
IL	Mt. Prospect, Dombrow Co.	312-253-3326
IN	Indianapolis, Sukup & Cox	317-253-5501
MA	Dover, George Urban Assoc.	617-329-4068
MN	Bloomington, D. A. Case Assoc.	612-888-8666
MO	Lees Summit, MYA Midwest	816-865-3370
NC	Kernersville, Wallace Elctrn. Sls.	800-672-4290
PA	Southampton, Campbell Assoc.	215-322-6630
TN	Hixson, Wallace Elctrn. Sls.	615-870-2080
TX	Dallas, D & K Sales	214-247-0138
WA	Auburn, Elctrn. Sls. Northwest	206-432-1002

Local Distributors

CA	Inglewood, Force Elctrns.	213-776-1324
CA	Santa Clara, Force Elctrns.	408-739-1324
CT	Hamden, Impact Sls.	203-281-1331
GA	Atlanta, Prehler, Inc.	404-447-5540
IL	Chicago, Prehler, Inc.	312-384-6100
MA	Canton, Impact Sls.	617-821-1500
MN	Bloomington, Prehler, Inc.	612-854-6670
MN	St. Paul, Northern Automatic Assembly	612-481-0022
NH	Salem, Astrum Elctrns.	603-329-5656
NJ	Englewood Cliffs, M.G. Assoc., Co.	201-567-4900
NY	Port Washington, Connector Concepts Corp.	513-883-3800
OH	Middleburgh Heights, Prehler, Inc.	216-826-0110

ESC

ESC ELCTRNS. CORP., 534 Bergen Blvd., Palisades Pk., NJ 07650, Tel: 201-947-0400, TWX: 710-991-9780; Empl.: 120 .... **1A**•1510-1520, 1594

Local Sales Offices & Reps

AL	Huntsville, Interep Assocs.	205-533-1730
AZ	Mesa, Sedco Sales	602-835-6281
CA	Culver City, Westaironics	213-641-4122
CA	Santa Clara, Rodgers Assoc.	408-984-8110
CO	Westminster, D/Z Assocs.	303-429-9369
CT	Bridgeport, Betronic Assocs.	203-374-6404
FL	St. Petersburg, QXI, Inc.	813-821-2281
FL	Tamarac, QXI, Inc.	305-485-6030
IL	Elk Grove, Carlson Elctrn. Sls. Co.	312-956-8240
IN	Indianapolis, J & W Sales	317-842-3740
IA	Cedar Rapids, Carlson Elctrn. Sls. Co.	319-377-6341
KS	Merriam, Midwest Tech. Sls.	913-236-8555
MA	Waltham, Betronic Assocs.	617-894-8400
MN	Minneapolis, R-J, Inc.	612-866-3661
NY	New York City, Robert Smith Assocs.	212-541-4885
NY	Plainview, Robert Smith Assocs.	516-681-3155
NC	Raleigh, Interep Assoc.	919-872-1401
NC	Raleigh, Interep Assocs.	919-872-1401
OH	Cincinnati, Makin Assocs.	513-871-2424
OR	Beaverton, Ravencraft	503-646-9261
PA	Marlton, BGR Assocs.	609-983-1020
TX	Plano, Zeus Engrg.	214-423-2027
UT	Salt Lake City, D/Z Assocs.	801-268-2876
VA	Reston, Tytronics Tech. Sls.	703-471-0440
WI	Milwaukee, Carlson Elctrn. Sls. Co.	414-476-2790
EXP	NJ, Palisades Pk., ESC Elctrns. Corp.	201-947-0400

ESE, 142 Sierra St., El Segundo, CA 90245, Tel: 213-322-2136; FSC No.: 58525; Empl.: 25; *Sls. Mgr.:* R. Mayers; *Dist. Mgr.:* R. Mayers

ESNA DIV., 2330 Vauxhall Rd., Union, NJ 07083, Tel: 201-686-6000, Telex: 1-38243, TWX: 710-985-4677; Empl.: 700

ESNA DIV., Amerace Corp., 2330 Vauxhall Rd., Union, NJ 07083, Tel: 201-686-6000, Telex: 1-38243, TWX: 710-985-4677; Empl.: 600; *Sls. Mgr.:* W. H. Riley; *Dist. Mgr.:* A. H. Wighton

ESPEY MFG. & ELECTRONICS CORP., 223-239 Ballston Ave., Saratoga Springs, NY 12866, Tel: 518-584-4100

E² TECHNOLOGY CORP., 1545 Morse Ave., Ventura, CA 93003, Tel: 805-644-9544, Telex: 658-480

ESSCO INDS., P.O. Box 515, Sierra Madre, CA 91024-0515, Tel: 818-355-8315; Empl.: 33

ESSEX CONTROLS, See Stancor Products

ESSEX CONTROLS DIV., ESSEX GRP., See Essex Controls, United Technologies

ESSEX GROUP, 9933 13th St., Ft. Wayne, IN. 46809, Tel: 219-478-1521; Empl.: 300-500; *Sls. Mgr.:* J. Scott

ESSEX GRP., ESSEX TERMINALS/TERMINALS/CONNECTORS, See United Technologies, Comps. Div. Terminals

ESSEX GRP., Power Conductor Div., 2601 S. Adams, Marion, IN 46953, Tel: 317-664-6211, TWX: 317-667-6972; Empl.: 700; *Sls. Mgr.:* J. Burdick

ESTES ENGRG. CO., 930 Marine Dr., Port Angeles, WA 98362, Tel: 206-457-0904; FSC No.: 22590; Empl.: 28

E-SYSTEMS, Garland Div., Box 226118, Dallas, TX 75266, Tel: 214-272-0515, TWX: 910-860-5187; Empl.: 1927

E-SYSTEMS, Greenville Div., P.O. Box 1056, Greenville, TX 75401, Tel: 214-457-4694, Telex: 73-2392; *Sls. Mgr.:* C. L. Byrom

E-SYSTEMS, Melpar Div., 7700 Arlington Blvd., Falls Church, VA 22046

E-SYSTEMS, Memcor Div., 1320 Flaxmill Rd., Huntington, IN 46750, Tel: 219-356-4300, TWX: 810-333-1530; Empl.: 1100; *Sls. Mgr.:* Ray Vanderspool .... **1A**•1872, 2037

Local Sales Offices & Reps

AL	Huntsville, Murcota	205-539-8476
CA	Santa Ana, Cal-Tronic Sls.	714-979-4863
CA	Santa Clara, D.H. Ross	408-988-8111
CO	Denver, West, Inc.	303-692-0131
FL	Indialantic, Raycom	305-727-8860
GA	Atlanta, Murcota	404-875-2525
IL	Chicago, D. Dolin Sls.	312-286-6200
IN	Ft. Wayne, Menze Sls.	219-747-5616
MI	St. Clair Shores, J.M. Thorpe	313-779-6363
MN	Eden Praise, Bohlig & Associates	612-698-6921
MO	Blue Springs, Chesco	816-229-1404
MO	St. Charles, Chesco	314-946-6677
NH	Atkinson, Mark Rep Assoc.	603-362-4526
NJ	Englewood Cliffs, Masin Esco	201-569-8868
NY	Hauppauge, Masin Esco	516-273-3500
NY	Pittsford, Noeth-Honsinger	315-586-9002
NC	Burlington, Murcota	919-585-1577
NC	Winston-Salem. Murcota	919-723-1001
OH	Cleveland, Glover Sls.	216-842-4520
PA	Newtown Square, G.M. Conneen	215-353-2241
TX	Dallas, SW Elctrn. Ind.	214-233-9816
TX	Houston, SW Elctrn. Ind.	713-729-1670
UT	Salt Lake City, West, Inc.	801-966-0171
WA	Redmond, Barrett-Squibb	206-885-6991

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Local Sales Offices & Reps

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CA	Tustin, Sierra-Pacific Eng.	714-731-3411
CO	Denver, Challenge Sls.	303-450-2402
CT	East Haven, Eagle Assocs.	203-467-6542
FL	Orlando, EAB Inc.	305-898-7444
IL	Arlington Heights, Thermek	312-577-6900
IN	Ft. Wayne, Needler Sls. Co.	219-447-2123
IN	Indianapolis, Needler Sls. Co.	317-255-8056
KY	Louisville, Needler Sls. Co.	502-241-4046
MA	Boston, Eagle Assocs.	617-444-3446
MI	Detroit, Hilltronics	313-398-5556
MN	Minneapolis, Chris & Assocs.	612-432-1823
MO	Kansas City, Delltron Co.	816-436-6445
MO	St. Louis, Delltron Co.	314-869-4779
NY	New York, Schmitt Indl. Mktg. Corp.	516-486-3510
NY	Rochester, Robert F. Lamb Co.	716-323-1250
NY	Syracuse, Robert F. Lamb Co.	315-455-2469
OH	Cincinnati, J. O. Olsen Co.	513-574-7711
OH	Cleveland, J. O. Olsen Co.	216-662-3454
OR	Portland, Temco Northwest	503-648-8171
PA	Philadelphia, Techparts	215-628-3200
PA	Pittsburgh, J. O. Olsen Co.	412-279-2550
TN	Hendersonville, Stark & Assoc.	615-822-1667
TX	Austin, Delta Comps.	512-458-4288
TX	Dallas, Delta Comps.	214-287-6333
UT	Salt Lake City, Frank Merchant	801-277-3775
WA	Seattle, Temco Northwest	206-488-1254
WI	Milwaukee, Star Engineering	414-645-3680

ETI ELECTRONICS, 5751 Miami Lakes Dr., Miami Lakes, FL 33014, Tel: 305-556-4000, Telex: 80-3347; *Sls. Mgr.:* R. Grossman; *Dist. Mgr.:* S. Zucker

ETI SYSTEMS

ETI SYSTEMS, Polaris Indl. Entprs., 215 Via Del Norte, Oceanside, CA 92054, Tel: 619-757-7770, TWX: 910-322-1396; FSC No.: 952 762672; *Sls. Mgr.:* Bill Tice; *Dist. Mgr.:* Bill Tice .... **1A**•2038; **1B**•1146-1149

ETM ELECTROMATIC, 470 San Antonio Ave., Palo Alto, CA 94306, Tel: 415-494-1505; *Sls. Mgr.:* Kenneth F. Lillis

ETRI

ETRI, 608 Broome St., P.O. Box 568, Monroe, NC 28110, Tel: 704-289-5423, TWX: 810-649-1352; *Sls. Mgr.:* G. Wolf .... **2**•1818-1820

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Scottsdale, Luscombe Engrg.	602-949-9333
CA	Los Gatos, Nor-West	408-395-1190
CA	Pasadena, Luscombe Engrg.	213-684-2000
CA	San Diego, Bestronics	619-452-5500
CO	Boulder, Comp. Prods. Sls.	303-530-2800
CT	N. Haven, John E. Boeing Co.	203-239-5369; 800-343-4331
FL	Altamonte Springs, Semtronics Assoc.	305-831-8233
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Des Plaines, Lincoln, Hodges & Assocs.	312-297-3810
IN	Ft. Wayne, Advanced Comp. Sls.	219-484-0722
IN	Indianapolis, Advanced Comp. Sls.	317-545-6441
IA	Cedar Rapids, PMR, Inc.	319-362-9177
KS	Overland Park, PMR, Inc.	913-381-0004
KS	Wichita, PMR, Inc.	316-684-4141
MA	Lexington, J. E. Boeing	617-862-2500
MI	Birmingham, Favco Techn. Reps.	313-644-0173
MN	Minneapolis, Milt Westlund	612-866-5002
MO	Maryland Heights, PMR, Inc.	314-569-1220
NJ	Cherry Hill, Trinkle Sls.	609-795-4200
NY	Manhasset, Win-Cor Elctrns.	516-627-9474
NY	Syracuse, C. W. Floring Assocs.	315-478-2149
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Akron, Imtech, Inc.	216-666-1185
OH	Dayton, Imtech, Inc.	513-278-6507
OK	OK, Tulsa, Nova Mktg.	918-743-6202
OR	Wilsonville, RTS, Inc.	503-638-5670
TX	Dallas, Nova Mktg.	214-750-6082
TX	Houston, Nova Mktg.	713-988-6082
UT	Salt Lake City, Comp. Prods. Sls.	801-262-0000
WA	Vancouver, RTS, Inc.	206-892-0141
WA	Vashon, RTS, Inc.	206-285-1363
WI	Waukesha, Lincoln, Hodges & Assocs.	414-542-3087

Local Distributors

AZ	Tempe, Fisher-Brownell	602-967-1464
AZ	Tempe, Acacia Sls.	602-894-2874
CA	Alhambra, Fisher-Brownell	213-289-0255
CA	Fountain Valley, Comps. Ctr.	714-979-0433
CA	Irvine, Acacia Sls.	714-549-0954
CA	San Diego, Fisher-Brownell	619-560-8545
CA	San Diego, Acacia Sls.	619-565-4365
CA	Santa Clara, Fisher-Brownell	408-988-6041
CA	Sunnyvale, Acacia Sls.	408-745-7200
CO	Lakewood, Acacia Sls.	303-232-2882
CT	Orange, Milgray Elctrns.	203-795-0711
FL	Altamonte Springs, Pioneer	305-834-9090
FL	Ft. Lauderdale, Pioneer	305-771-7520

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IL	Addison, L-Comp	312-628-1400
IN	Indianapolis, RM Elctrns.	317-247-9701
IN	Indianapolis, Advent Elctrns.	317-872-4910
KS	Overland Park, Milgray Elctrns.	913-236-8800
KS	Wichita, L-Comp	316-265-5100
MD	Rockville, MS Elctrns.	301-340-6400
MD	Rockville, Milgray Elctrns.	301-468-6400
MA	Burlington, Milgray Elctrns.	617-272-6800
MA	Wilmington, R C Comps. Inc.	617-273-1860
MI	Grand Rapids, RM Elctrns.	616-531-9300
MI	Livonia, LWC Distrs.	313-464-7700
MN	Minneapolis, Stark Elctrns.	612-332-1325
MO	Kansas City, L-Comp	816-221-2400
MO	Maryland Heights, L-Comp	314-291-6200
NH	Hudson, C & H Elctrns.	603-882-1133
NJ	Marlton, Milgray Elctrns.	609-983-5010
NY	Bohemia, Key Comps.	516-567-7500
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Pittsford, Milgray Elctrns.	716-385-9330
NY	Rochester, Summit Elctrns.	716-334-8110
NC	Greensboro, Hammond Elctrns.	919-275-6391
OH	Cleveland, Milgray Elctrns.	216-447-1520
OK	Tulsa, Norvell Elctrns.	918-663-1247
OR	Beaverton, Acacia Sls.	503-646-3377
PA	Montgomeryville, Pyttronics Inds.	215-643-2850
SC	Greenville, Hammond Elctrns.	803-233-4121
TX	Austin, Norvell Elctrns.	512-458-8106
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Fort Worth, Allied Elctrns.	817-336-5401
TX	Houston, Norvell Elctrns.	713-777-1666
TX	Richardson, Fisher-Brownell	214-235-3177
UT	Salt Lake City, Bell Indus.	801-972-6969
VA	Charlottesville, Virginia Radio Supp.	804-296-4184
WI	Milwaukee, Indl. Elctrns.	414-276-1212
WI	New Berlin, RM Elctrns.	414-784-4420

EUBANKS ENGRG., 1307 So. Myrtle Ave., Monrovia, CA 91016, Tel: 213-357-7011, Telex: 675403; Empl.: 90; *Sls. Mgr.:* J. Reed

EVANS ASSOCS., Box 5055, Berkeley, CA 94705, Tel: 415-653-3083

EVAPORATED COATINGS, 798 Welsh Rd., Huntingdon Valley, PA 19006, Tel: 215-947-1465; Empl.: 24; *Sls. Mgr.:* Stephen L. Schaffer

EVEREADY-ENERGIZER, See Union Carbide Battery Prods. Div.

EVEREST INTERSCIENCE, P.O. Box 345, Tustin, CA 92680, Tel: 714-992-4461, 714-730-0747; Empl.: 11; *Sls. Mgr.:* Marilyn M. Everest

Local Sales Offices & Reps

CA	Woodland Hills, R. Friedman Assocs.	213-702-0665
CO	Littleton, Radco Elctrns.	303-794-4279
IL	Decatur, Mueller Sls.	217-442-6379
IA	Cedar Rapids, Mueller Sls.	319-365-1196
LA	Baton Rouge, Allesco	504-928-1571
MA	Peabody, J S R Assocs.	617-532-0348
MN	Golden Valley, Mueller Sls.	612-544-8888
NE	Omaha, Mueller Sls.	402-571-3033
NM	Albuquerque, R L S Instrs. Co.	505-293-7931
NY	Buffalo, Seelbach & Schmitt Inc.	716-839-2300
NY	Plainview, Eastern Metro Assocs. Inc.	516-931-1414
OH	Cincinnati, Pro-Con Analytical	513-272-3300
OR	Portland, Fairman B. Lee Co.	503-283-9442
PA	Havertown, Shelby Jones	215-446-6600
TX	Dallas, Allesco	817-261-3966
TX	Houston, Allesco	713-771-0115
WA	Seattle, Fairman B. Lee Co.	
WI	Brookfield, Mueller Sls.	414-781-5310

EVERETT/CHARLES CONTACT PRODS. INC., 700 E. Harrison Ave., Pomona, CA 91767, Tel: 714-625-5551, Telex: 67-55-78, TWX: 910-581-1210; *Sls. Mgr.:* Bud Fabian

EVERETT/CHARLES TEST EQUIP. INC., 2887 N. Towne Ave., Pomona, CA 91767, Tel: 714-621-9511, TWX: 910-581-3838; Empl.: 200; *Sls. Mgr.:* Jim Malloy

EVERSHED & VIGNOLES LTD., Acton Lane, Chiswick, London, W4 5HJ, England, Tel: 01-994-3670, Telex: 22583; Empl.: 300; *Sls. Mgr.:* J. Gilpin

Local Sales Offices & Reps

NY	Copiague, Intl. Precision Mech., Inc.	516-842-6332

EV-GAME INC., See EVG, Inc.

EWALD INSTRS., Rte. 7R, Kent, CT 06757, Tel: 203-927-3278

EWC INC.

EWC, INC., 725 Federal Ave., Kenilworth, NJ 07033, Tel: 201-245-3200, 800-526-4048, TWX: 710-996-5993; FSC No.: 15387; Empl.: 185; *Sls. Mgr.:* C. G. Hiotis; *Dist. Mgr.:* C. G. Hiotis ....1A•2154-2163

Local Sales Offices & Reps

AZ	Mesa, Cummings & Assoc.	602-994-9027
CA	Canoga Park, Cummings & Assocs.	213-340-6035
CA	San Diego, Cummings & Assoc.	714-297-6035
CA	Santa Clara, Cummings & Assocs.	408-247-8656
CO	Denver, Cummings & Assocs.	303-455-6860
CT	Ridgefield, Phoenix Sales	203-438-9644
FL	Greenacres City, Tech-Rep. Assoc.	305-968-7792
FL	Melbourne Beach, Tech. Rep. Assoc.	305-725-4655
FL	St. Petersberg, Tech-Rep. Assoc.	813-577-2779
IL	Chicago, Electro-Tech Mktg.	312-588-4535
ME	Chelmsford, Dynamic Engrg. Corp.	617-250-0200
MD	Glen Burnie, Stinson Assoc.	301-760-8878
MA	Chelmsford, Dynamic Engrg. Corp.	617-250-0200
MN	St. Paul, Proud Inds.	612-646-9428
NJ	E. Brunswick, Winch Assoc.	201-828-4615
NY	De Ruyter, Net Sls. Co.	315-662-7996
NY	Pittsford, Net Sls. Co.	716-467-4538
NY	Roslyn Heights, Winch Assoc.	516-621-6378
NY	Troy, Net Sls. Co.	518-274-4758
OR	Portland, Cummings & Assoc.	503-761-4411
PA	Bensalem, Stemler Assoc.	215-639-9298
PA	Greensberg, Pro-Mark	412-832-3800
RI	Greensberg, Pro-Mark	412-832-3800
TX	Dallas, Associated Entprs.	214-630-7623
TX	Houston, Associated Entprs.	713-495-9767
UT	Salt Lake City, Cummings & Assoc.	801-263-8131
VT	Chelmsford, Dynamic Engrg. Corp.	617-250-0200
VA	Reston, Stinson Assoc.	703-471-0723
WI	Brookfield, Electro-Tech Mktg.	414-785-9554

Local Distributors

CA	Mountain View, Abacus Elctrns.	415-961-1500
CA	San Diego, Park-West Inc.	619-277-8433
CA	Woodland Hills, C & A Elctrns.	213-340-6036
CT	Norwalk, Park Dist.	203-853-2010
FL	West Palm Beach, Nurmi Elctrn. Supp.	305-686-8553
IL	Arlington Heights, Reptron Elctrns.	312-593-7070
MD	Baltimore, Whitney Dist.	301-944-8080
OR	Portland, Dunn Elctrns.	503-285-0214
OR	Portland, Radar Elec.	503-233-3691
PA	McKean, Advocom Elctrns.	814-476-7774
WA	Seattle, Radar Elec.	206-282-2511

EXACT ELECTRONICS, Div. of Dynatech Nevada Inc., Box 1925, 2000 Arrowhead Dr., Carson City, NV 89701, Tel: 702-883-3400, 800-648-7952, Telex: 170054; FSC No.: 34511; Empl.: 60; *Sls. Mgr.:* Joe Foster

EXAR INTEGRATED SYS., P.O.B. 62229, Sunnyvale, CA 94088, Tel: 408-732-7970, TWX: 910-339-9233; Empl.: 450; *Dist. Mgr.:* Jack Hanoka

Local Distributors

AL	Huntsville, Pioneer Elctrns.	205-837-9300
AL	Huntsville, Resisticap.	205-883-4270
AZ	Phoenix, Sterling Electronics	602-258-4531
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Chatsworth, Jaco	213-998-2200
CA	Sunnyvale, Bell Indus.	408-734-8570
CA	Tustin, A.V.E.D.	213-770-0871
CO	Denver, Diplomat Elctrns.	303-740-8300
CO	Wheatridge, Bell Inds.	303-424-1985
CT	Danbury, Diplomat Elctrns.	203-797-9674
CT	East Haven, J.V. Elctrns.	203-469-2321
GA	Comming, Pan American	404-889-0066
IL	Bensenville, Diplomat Elctrns.	312-595-1000
IL	Lombard, R.M. Elctrns.	312-932-5150
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, R.M. Elctrns.	317-247-9701
IA	Cedar Rapids, Deeco	319-377-5795
MD	Columbia, Diplomat Elctrns.	301-995-1226
MD	Gaithersburg, Pioneer Elctrns.	301-948-0710
MA	Canton, Almo Elctrns.	617-329-8810
MA	Norwood, Gerber Elctrns.	617-329-2400
MA	Wilmington, RC Comps.	617-657-4310
MA	Woburn, Diplomat Elctrns.	617-935-6611
MI	Farmington, Diplomat Elctrns.	313-477-3200
MI	Grand Rapids, R.M. Elctrns.	616-531-9300
MN	Minneapolis, Merit Elctrns.	612-546-5583
MO	St. Louis, Olive Industrial Elctrns.	314-426-4500
NJ	Totowa, Diplomat Elctrns.	201-785-1830
NJ	Totowa, Diplomat Elctrns.	201-785-1830

NM	Albuquerque, Betatron	505-344-2381
NM	Albuquerque, Bell Indus.	505-292-2700
NY	E. Syracuse, Diplomat Elctrns.	315-437-9900
NY	Farmingdale, S.A.I.	516-293-2710
NY	Hauppauge, JACO	516-273-5500
NY	Melville, Diplomat Elctrns.	516-454-6400
NY	Port Chester, Zeus Comps.	914-937-7400
OH	Cincinnati, Graham Elctrns.	513-772-1661
OK	Tulsa, Radio.	918-587-9123
OR	Portland, Radar Elec.	503-233-3691
PA	Horsham, Pioneer Elctrns.	215-674-4000
PA	McKean, Advacom	814-476-7774
PA	Philadelphia, Almo Elctrns.	215-698-4000
TX	Austin, Quality Comps.	512-838-0551
TX	Dallas, Quality Comps.	214-387-4949
TX	Houston, Quality Comp.	713-772-7100
UT	Salt Lake City, Diplomat Indus.	801-486-4134
UT	Salt Lake City, Bell Elctrns.	801-972-6969
WA	Redmond, Western Microtechnology	206-881-6737
WI	Mequon, Taylor Elec.	414-241-4321

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Local Sales Offices & Reps

AZ	Mesa, RLS Instrs.	602-892-9329
CA	Covina, Romar Intl.	213-332-8548
CA	Sunnyvale, C.C.L.M.	408-578-6119
CO	Westminster, Alphatek	303-428-5348
FL	Melbourne, E.M.S.	305-724-1027
IL	Chicago, Solid State Elctrns. of Illinois	312-889-8033
MA	Woburn, Programmable Devices	617-935-9530
MN	Edina, P.E.C./Levi	612-944-8540
NJ	Vincentown, JRM Elctrns.	609-859-2106
NM	Albuquerque, RLS Instrs.	505-293-7931
OH	Hudson, Technical Sales	216-656-3978
OR	Beaverton, Northwest Test & Meas.	503-646-9966
TX	Dallas, Elctrn. Production Spec.	214-985-1932
WA	Redmond, Northwest Test & Meas.	206-881-8857

EXCEL SPECIALTY CORP., 6335 N. Broadway, Chicago, IL 60660, Tel: 312-262-4781; Empl.: 50

EXCEL TECHNOLOGY INTL. CORP., 4-5 Stryker La., Hillsborough Indl. Pk., Belle Mead, NJ 08502, Tel: 201-874-4747, TWX: 710-480-5401; *Sls. Mgr.:* K. Thomas Shih .... **1B**•1053-1055

Local Sales Offices & Reps

AR	N. Little Rock, Leo Barker Co.	501-834-2537
CA	San Diego, Uni-Rep	619-746-5131
CA	San Jose, Cerco	401-298-1918
CT	Washington, Tri-Com Assocs.	203-563-2241
FL	Coral Springs, HAI Elctrns.	305-752-7520
GA	Stone Mountain, Dixie Tech. Mktg.	404-962-2530
IL	Chicago, ESCO Assocs.	312-763-0800
MO	Independence, Engrg. Svcs. Co.	816-254-3600
MO	St. Louis, Engrg. Svcs. Co.	314-997-1515
NJ	E. Brunswick, Kong Sys.	201-828-8514
NC	Charlotte, Mackay, Smith and Assoc.	704-372-1188
OR	Portland, Frank Jackson, Assoc.	503-292-2638
TX	Dallas, Southwest Elctrn. Inds.	214-690-9881

EXIDE ELCTRNS., P.O. Box 58189, Raleigh, NC 27658, Tel: 919-872-3020, TWX: 510-928-0598; FSC No.: 31795; Empl.: 900; *Sls. Mgr.:* Richard King

EXTECH INTERNATIONAL CORP., 150 Bear Hill Rd., Waltham, MA 02154, Tel: 617-890-7440, Telex: 940913; *Sls. Mgr.:* Neal DeWitt

E-Z-HOOK, Div. Tektest Inc., Box 450 - 225 N. Second Ave., Arcadia, CA 91006, Tel: 818-446-6175, TWX: 910-582-1614; FSC No.: 08505; Empl.: 23; *Sls. Mgr.:* C. Haskin; *Dist. Mgr.:* P. Wood

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FABRICAST, 2517 Seaman Ave., P.O. Box 3176, S. El Monte, CA 91733, Tel: 818-443-3247; FSC No.: 13345; Empl.: 8 .... **1B**•1150-1155

FAB-TEK INC., 68 Morgan Ave., Danbury, CT 06810, Tel: 203-743-3312; Empl.: 5

FACET ENTERPRISES, INC., Elmira, NY 14903, Tel: 607-737-8011, Telex: 93-2490, TWX: 510-252-1594; Empl.: 400; *Sls. Mgr.:* Gary Packard

Local Sales Offices & Reps

AL	Birmingham, Wilcox & Allen	205-254-8051
CA	Millbrae, Schriver Indl. Sls.	415-692-6836
CA	Tustin, Morgan Johnson	714-832-7282
CO	Englewood, Techna-Quip	303-779-5399
CT	Hamden, Aid Engrg. Sls.	203-434-1673
FL	Cocoa, Reynolds & Assocs.	305-784-4700
FL	Ft. Lauderdale, Reynolds & Assocs.	305-581-6611
FL	St. Petersburg, Reynolds & Assocs.	813-360-1484
GA	Atlanta, Reynolds & Assocs.	404-451-9558
IL	Northfield, Lenhart Assoc.	312-446-9320
MA	Bedford, Aid Engrg. Sls.	617-663-2225
MA	Westboro, Aid Engrg. Sls.	617-890-8181
MI	Madison Hgts., Pine Sls.	313-589-0350
MO	Kansas City, Terry & Hodges	913-722-1024
MO	St. Louis, Terry & Hodges	314-965-0746
NY	Alexander, B. H. Tollefson Assoc.	716-591-1219
NY	Auburn, B. H. Tollefson Assoc.	315-253-4109
NY	Rochester, B. H. Tollefson Assoc.	716-271-4141
NC	Charlotte, M. R. Snyder	704-527-6752
OH	Chagrin Falls, Pine Sls.	216-247-6198
OH	Cincinnati, Fremont & Lewis	513-851-1500
OR	Portland, N. Rupp	503-231-7701
PA	Bridgeville, Foster-McClinton	412-941-4800
PA	Devon, Goodall Industrial Equpt. Co.	215-964-1070
TN	Chattanooga, Willcox & Allen	615-698-7125
TX	Richardson, D. E. Harman	214-234-2021
TX	Woodlands, MJM Intl. Sls.	713-273-3126
WA	Bellevue, N. Rupp	206-455-2130
WV	Hurricane, Foster-McClinton	304-757-6645
WI	Wauwatosa, Gille Engrg. Sls.	414-258-4100

FAIRCHILD CAMERA & INSTR. CORP., 464 Ellis St., MS15-1035, Mountain View, CA 94042, Tel: 415-962-5011, TWX: 910-379-6435; Empl.: 17 405; *Sls. Mgr.:* Hal Mumma

FAIRCHILD MICROPROCESSOR DIV., Fairchild Camera & Instr. Corp., 450 National Ave., Mountain View, CA 94042, Tel: 415-962-3838, TWX: 910-379-5091

FAIRCHILD TEST SYS. GRP., Testline Instrs., 1400 White Dr., Titusville, FL 32780, Tel: 305-267-7212, TWX: 510-950-3043; Empl.: 103; *Sls. Mgr.:* Bill Wirth

FAIRCHILD WESTON, DATA RECORDERS, P.O. Box 3041, Sarasota, FL 33578, Tel: 813-371-0811, Telex: 4991610, TWX: 810-864-0406; FSC No.: GS-00K-8301-S0078; Empl.: 750; *Sls. Mgr.:* Steve Hoff .... **3**•1235

Local Sales Offices & Reps

AZ	Mesa, Vic Myers Assocs.	602-897-7378
CA	Cupertino, Fairchild Weston	408-257-1813
CA	Laguna Hills, Elotek Sys.	714-830-4856
CA	Westlake, Fairchild Weston	213-889-1057
CO	Fort Collins, Vic Myers Assocs.	303-223-8907
CT	Higganum, Intersell	203-528-5357
FL	Fort Walton Beach, RAM-Z Assocs.	904-862-2700
FL	Maitland, Wade H. Boggs	305-647-2226
ID	Rathdrum, Hood Engrg. Sls., Inc.	208-772-7235
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs.	317-293-5437
IA	Cedar Rapids, Marsland Assocs.	319-396-8030
MD	Silver Spring, Sel-Tronics	301-589-3391
MA	Burlington, Intersell	617-273-3844
MI	Madison Heights, WKM Assocs.	313-588-2300
MN	Minneapolis, Marsland Assocs.	612-545-4481
MO	St. Lovis, Marsland Assocs.	314-991-1399
NJ	Cedar Grove, KLS Assocs.	201-785-4450
NM	Albuquerque, Vic Myers Assocs.	505-884-6878
NY	Rochester, Scientific Dvcs. NY	716-334-2445
OH	Dayton, WKM Assocs.	513-434-7500
OH	Independence, WKM Assocs.	216-524-5930
PA	Devon, Fairchild Weston	215-687-3220
TX	Conroe, Fairchild Weston	713-539-1315
WA	Bellevue, Hood Engrg. Sls., Inc.	206-453-9375
WI	New Berlin, Marsland Assocs.	414-786-6611

FAIRCHILD WESTON, See Weston Controls, Div. Fairchild

FAIR-RITE PRODS., PO Box J, Wallkill, NY 12589, Tel: 914-895-2055, TWX: 510-249-4819; FSC No.: 34899; Empl.: 170; *Sls. Mgr.:* B. G. Tolen .... **2**•1907

Local Sales Offices & Reps

AL	Huntsville, Macro-Mktg. Assocs.	205-883-9630
CA	Anaheim, Micrometals	714-630-7420
CA	Sunnyvale, Schwerin & Merrill Assocs.	408-735-7900
CO	Englewood, A-G Elctrns.	303-850-0657
CT	W. Hartford, R. S. Pettigrew & Assoc.	203-233-8533
FL	New Smyrna Beach, J. Wetzel	904-423-5707
IL	Marshall, Fair-Rite Prod.	618-584-2944
IN	Indianapolis, Frank J. Campisano Co.	317-253-7651
MI	Southfield, J. L. Montgomery Assoc.	313-358-2616
MN	Bloomington, Holmes & Ladky Assocs. of Minn.	612-884-2125
NY	Hempstead, Kahgan Sales	516-538-2300
OH	Cincinnati, F. J. Campisano & Assoc.	513-574-7111
OR	Portland, Freed Assocs.	503-289-5320
PA	Easton, Kendon Co.	215-253-3100
TX	Dallas, S.E.I. Inc.	214-690-9881
VA	Roanoke, A. B. Kreger & Co.	703-989-4738
WI	Milwaukee, Frank W. Ladky Assocs.	414-351-2112

F & M SYSTEMS CO., See Texas Controls

FAN-S CORP., 7158 Industrial Pk. Blvd., Mentor, OH 44060, Tel: 216-951-3300, Telex: 985319; Empl.: 75; *Sls. Mgr.:* John Hallums; *Dist. Mgr.:* William Forkins

FARIA, THOMAS G., CORP., 19 Faria Lane, Uncasville, CT 06382, Tel: 203-848-9271; Empl.: 225; *Sls. Mgr.:* A. Knupp

FARINON DIV., Harris Corp., 1691 Bayport, San Carlos, CA 94070, Tel: 415-594-3000, Telex: 34-8491; *Sls. Mgr.:* John Stockford

FASCO INDUSTRIES, INC., Div. of Hawker Siddeley Group, 601 North Federal Highway, Boca Raton, FL 33432, Tel: 305-368-0600, Telex: 51-5612; *Sls. Mgr.:* Clarence A. Button; *Dist. Mgr.:* Paul R. Reid

FCM PLASTICS, Plastics Technologies Inc., 2555 Oak Industrial Dr. NE, Grand Rapids, MI 49505, Tel: 616-451-4502, TWX: 810-273-6038; *Sls. Mgr.:* Patrick K. Parsons

FEMA ELCTRNS. CORP., 12-6 Edgeboro Rd., E. Brunswick, NJ 08816, Tel: 201-238-1223, Telex: 299425 FEMA UR; Empl.: 10 to 20; *Sls. Mgr.:* Bob Cheng

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FENWAL, INC., 400 Main St., Ashland, MA 01721; Empl.: 1000; *Sls. Mgr.:* John W. Rice

FENWAL ELCTRNS., 63 Fountain St., Framingham, MA 01701, Tel: 617-872-8841, TWX: 710-346-0678; Empl.: 500; *Sls. Mgr.:* W. M. Minnucci; *Dist. Mgr.:* Tom Colacchio .... **1B**•1803

Local Sales Offices & Reps

AL	Huntsville, Conley & Assocs.	205-882-0316
AZ	Phoenix, Dorton Entprs.	602-944-2957
CA	Cupertino, Codella Mktg. Grp.	408-257-2561
CA	Los Angeles, Landa/Minyard, Inc.	213-879-0770
CO	Denver, Elcom	303-337-2300
CT	Southington, Andrews Airtronics	203-621-6158
FL	Boca Raton, Conley & Assocs.	305-395-6108
FL	Oviedo, Conley & Assocs.	305-365-3283
FL	Tampa, Conley & Assocs.	813-885-7658
GA	Doraville, Conley & Assocs.	404-447-6992
IL	Chicago, Century Elctrns. Corp.	312-777-9700
IN	Noblesville, Century Elctrns. Corp.	317-849-2026
IA	Cedar Rapids, Palatine Engrg. & Sls.	319-365-8071
KS	Mission, Palatine Engrg. & Sls.	913-831-0555
MD	Woodbine, Naudain Assoc. So.	301-442-2270
MA	Danvers, Andrews Airtronics	617-246-2450
MI	Ferndale, Hilltronics	313-398-5556
MN	Bloomington, Northport Engrg.	612-854-5556
MO	Hazelwood, Palatine Engrg. & Sls.	314-839-0800
NY	Huntington, CDB Entprs.	516-692-5200
NY	Kingston, R. P. Kennedy Co.	914-876-2700
NY	Rochester, R. P. Kennedy Co.	716-271-6326
NY	Rochester, R. P. Kennedy Co.	716-271-6322
NC	Raleigh, Conley & Assocs.	919-876-9862
OH	Cleveland, Arthur H. Baier Co.	216-461-6161
OH	Dayton, Arthur H. Baier Co.	513-276-4128
OR	Portland, Jas. J. Backer Co.	503-297-8744
OR	Salem, Jas. J. Backer Co.	503-362-0717
PA	Pittsburgh, Covert & Newman Co.	412-531-2002
PA	Wynnewood, Metz-Benham Assoc.	215-896-7300
TX	Arlington, W. Pat Fralia Co.	817-640-9101
TX	Austin, W. Pat Fralia Co.	512-835-7911
TX	Houston, W. Pat Fralia Co.	713-772-1572
UT	Salt Lake City, Elcom	801-532-7940
WA	Seattle, Jas. J. Backer Co.	206-285-1300
WI	Milwaukee, Century Elctrns. Corp.	414-645-3680
EXP	MA, Framingham, Fenwal Elctrns.	617-872-8841

Local Distributors

CA	Burlingame, Rose Elctrn. Distr.	415-348-2740
CA	Chatsworth, Mil-Comm Distr.	213-998-3111
CO	Denver, Newark-Denver Elctrn. Supp.	303-757-3351
CO	Englewood, Indl. Elctrns. Corp.	303-694-9444
FL	Ft. Lauderdale, Newark Elctrns.	305-587-2372
GA	Norcross, Newark Elctrns.	404-321-0413
IL	Chicago, Newark Elctrns. Corp.	312-638-4411
IL	Elgin, Allied Elctrns.	312-697-8200
IN	Indianapolis, Graham Elctrns. Supp.	317-634-8202
MD	Beltsville, Newark Elctrns.	301-937-5085
MA	Woburn, Newark Elctrns.	617-935-8350
MI	Grand Rapids, Newark Elctrns.	616-241-6681
MI	Oak Park, Newark Elctrns.	313-967-0600
MN	Minneapolis, Stark Elec.	612-332-1325
MO	St. Louis, Olive Indl. Elec.	314-426-4500
NJ	Springfield, Newark Elctrns.	201-376-9500
NY	Buffalo, Summit Dists.	716-887-2800
NY	Huntington, CDB Dev.	516-692-5200
NY	Rochester, Summit Elctrns.	716-334-8110
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Warrensville Heights, Newark Elctrns.	216-587-1700
OK	Tulsa, Radio, Inc.	918-587-9123
PA	Wynnewood, Metz-Benham Assoc.	215-896-7300
TX	Fort Worth, Allied Elec.	817-336-5401
TX	Fort Worth, Patco Supply	817-429-8596
UT	Salt Lake City, Standard Supp.	801-486-3371

FERRANTI ELEC., 87 Modula Ave., Commack, NY 11725, Tel: 516-543-0200, TWX: 510-226-1490; *Sls. Mgr.:* Mike Kennett

FERRETEC INC., 1701A Fortune Dr., San Jose, CA 95131, Tel: 408-263-1216, TWX: 910-338-2353; *Sls. Mgr.:* Allen E. Rosenzweig

Local Sales Offices & Reps

CA	Los Altos, Jay Stone & Assocs.	415-948-4563
CA	Torrance, DeTomasi & Grupp Inc.	213-327-1775
FL	Mebourne Beach, Millett Assocs.	305-725-5055
IL	Wauconda, Cudahy Sls. Co.	312-526-2484
MD	Severna Park, Delmarva Engrg. Assocs.	301-647-8007
MA	Chelmsford, BBC	617-452-7211
MO	Leasburg, EIR Co.	314-245-6860
NY	Great Neck, Phase Four Inc.	516-482-1790
NY	Utica, B. D. Hummel Co.	315-736-7821
PA	Elkins Park, Snow Assocs.	215-379-4700
TX	Dallas, Tritex Technical Sls., Inc.	214-247-3041

FERRO CORP., Composites Div., 34 Smith St., Norwalk, CT 06852, Tel: 203-853-2123

FERRO CORP., Ottawa Chem. Div., 700 N. Wheeling St., Toledo, OH 43605, Tel: 419-691-3507

FERRO, Thick Film Sys. Div., 25 Castilian Dr., Santa Barbara, CA 93117, Tel: 805-968-5000, Telex: 98-0165; Empl.: 26; *Sls. Mgr.:* William Faix, Jr.

FERRO CERAMIC GRINDING, INC., 247 Water St., Wakefield, MA 01880, Tel: 617-245-1833; Empl.: 14; *Sls. Mgr.:* Philip Strasnick

FERRONICS, 66 N. Main St., Fairport, NY 14450, Tel: 716-223-1010, TWX: 510-254-2893; Empl.: 90; *Sls. Mgr.:* M. Northrup

Local Sales Offices & Reps

AL	Huntsville, L & D	205-837-1469
AZ	Tempe, Gassner & Clark	602-968-9037
CA	Seal Beach, Texel	213-596-9411
FL	Ft. Lauderdale, Electrocomp	305-491-4141
GA	Atlanta, L & D	404-455-3473
IL	Rolling Meadows, Sumer, Inc.	312-991-8500
IN	Columbus, Chambers Mktg.	812-362-0272
MD	Baltimore, Bernard White	301-484-5400
MA	Canton, New England Elctrn. Sls.	617-828-4835
MI	Birmingham, Forand Sls.	313-644-0087
MN	St. Paul, Countryman Assoc.	612-645-9151
MO	Blue Springs, Cairns & Hayes Co.	816-229-1404
NJ	Upper Saddle River, B. Cameron	201-825-1304
NY	Syracuse, J Rudy Co.	315-487-6951
NC	Raleigh, L & D	919-876-5301
PA	Hatboro, Joe Oberlies Co.	215-675-4226
TX	El Paso, Alexander Entprs.	915-591-3142
TX	Richardson, Jaro Elec. Sls.	214-231-6654
WA	Seattle, General Elctrns.	206-575-4030

FERROTRAN ELCTRNS. CO., INC., 11 W. 25th St., New York, NY 10010, Tel: 212-691-3610; *Sls. Mgr.:* H. King .... **3**•1564, 1565

FERROXCUBE CORP., See Amperex Elctrns., Ferroxcube Div.

FG ENGRG., Box 476, Fredonia, AZ 86022, Tel: 602-643-7375; Empl.: 6; *Sls. Mgr.:* F. Griswold

FIBERGUIDE INDUSTRIES INC., 33 Poplar Dr., Stirling, NJ 07980, Tel: 201-647-6601

FIBEROPTIC FABRICATIONS, INC., 70 Pullman St., Worcester, MA 01606, Tel: 617-853-6449, Telex: 951838; *Sls. Mgr.:* A. John Cunningham

FIBEROPTICS TECHNLG., INC., Quassett Rd., Pomfret, CT 06258, Tel: 203-928-0443; *Sls. Mgr.:* J. H. Castonguay

FIBRONICS INTL. INC., 325 Stevens St., Hyannis, MA 02601, Tel: 617-778-0700, Telex: 951297; *Sls. Mgr.:* Kenneth Bowes

FIC CORP., 12216 Parklawn Dr., Rockville, MD 20852, Tel: 301-881-8124, 800-638-6594, TWX: 710-828-9809; FSC No.: 3613; Empl.: 46; *Sls. Mgr.:* Robert E. Frye; *Dist. Mgr.:* Robert E. Frye .... **1B**•1265

FIDELITY CHEM. PRODS. CORP., 472 Frelinghuysen Ave., Newark, NJ 07114, Tel: 201-242-4110; Empl.: 35

FIELD ELECTRONICS, 1416 Commerce St., Chatham, NJ 07928, Tel: 201-635-6566

FIELD-FAB, 43 School St., N. Springfield, VT 05150, Tel: 802-886-8278; *Sls. Mgr.:* Harold Lombard

FIFTH DIMENSION, INC., 801 New York Ave., Trenton, NJ 08638, Tel: 609-393-8350, TWX: 510-681-8412; Empl.: 50; *Sls. Mgr.:* William D. Kinney .... **1B**•1366, 1624

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NJ	West Long Branch, Eastern Elctrn. Sls. Co.	201-544-0600

FIL-COIL CO., INC., 800 Axinn Ave., Garden City, NY 11530, Tel: 516-294-5445, Telex: 965-957; FSC No.: 56528; Empl.: 70; *Sls. Mgr.:* William Goldman

FIL-COIL ECONOMY INTL., INC., 800 Axinn Ave., Garden City, NY 11530, Tel: 516-294-5445, Telex: 965-957; FSC No.: 56528; Empl.: 85; *Sls. Mgr.:* William Goldman .... **1A**•1595

Local Sales Offices & Reps

AZ	Phoenix, Thor Engrg.	602-867-1843
CA	Goleta, Thorson Co.	805-964-8751
CA	Los Angeles, High Voltage Sales	213-881-9194
CA	Walnut Creek, W. A. Borden Co.	415-937-5196
FL	Clearwater, Brennan Assoc.	813-446-5006
GA	Atlanta, Remco	404-447-6937
IL	Skokie, Esco Assocs.	312-674-2376
MD	Beltsville, Applied Engrg.	301-953-2808
MA	Wakefield, Nerem Co.	617-245-5767
MN	Chanhassen, Barnes Sls. Assoc.	612-474-2907
NJ	Fairfield, Addem Sls. Co.	201-882-0993
NM	Albuquerque, IMEC	505-883-9010
OH	Avon, J. D. Babb Assoc.	216-934-6113
OH	Dayton, O. Penrod	513-228-4555
OR	Forest Grove, Doran Sls. Assoc.	503-357-3333
PA	Bridgeport, R. D. Freedman/Malta	215-279-5767
PA	Southampton, Campbell Assocs.	215-322-6630
PA	Thomasville, Lou Weaver	717-792-1305
TX	Richardson, Eagle Mktg.	214-238-5383

FILM CAPACITORS, 100 8th St., Passaic, NJ 07055, Tel: 201-779-2240; Empl.: 55

FILM MICROELECTRONICS, 17 A St., Burlington, MA 01803, Tel: 617-272-5650, TWX: 710-332-1124; Empl.: 130; *Sls. Mgr.:* Denise Laplante

FILTER CONCEPTS INC., 2624 S. Rousselle, Santa Ana, CA 92707, Tel: 714-545-7003; *Sls. Mgr.:* Stan Jones .... **1A**•1596, 1597

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AZ	Tucson, WJM Sls.	602-887-4847
CA	Granada Hills, C & W Comp. Sls.	213-368-4032
CA	Sunnyvale, Esco Assoc.	408-745-1410
CO	Boulder, A. Bissell Co.	303-444-1173
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MD	Baltimore, Bernard White & Co.	301-484-5400
MA	Westwood, O. E. M. New England	617-769-4976
MN	Bloomington, Merrill Franklin Co.	612-854-9446
NY	Melville, Carnes Assoc.	516-694-1600
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FL	Clearwater, WMM Assocs.	813-442-3913
FL	Ft. Lauderdale, WMM Assocs.	305-772-9850
MI	Centerline, Dietrich & Assoc.	313-754-6450
MN	Minneapolis, Scott Elctrn. Sls.	612-929-2985
NJ	Cinnaminson, Scott Sls. Co.	609-829-2991
NY	Huntington, C. R. Mayer Co.	516-WA 1-7876
OH	Cleveland, Dietrich & Assoc.	216-781-1855
OH	Dayton, Dietrich & Assoc.	513-223-6042
PA	Pittsburgh, Dietrich & Assoc.	412-892-2992
TX	Garland, Tesco	214-681-1376
WA	Seattle, Eicher-Richards Co.	206-LA 3-7888

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FISCHER-AMERICA INC., 13756 Glenoaks Blvd., Sylmar, CA 91342, Tel: 818-362-9393, Telex: 499-4182; *Sls. Mgr.:* Ron Fuller .... 2•1275

FITCHBURG COATED PRODS., P.O. Box 1106, Scranton, PA 18501, Tel: 717-347-2035; Empl.: 300

FKC ENGINEERING CO., 161 Rand Street, Central Falls, RI 02863, Tel: 401-724-1760

FLEXCO MICROWAVE, INC., P.O. Box 174, Karrville Rd., Port Murray, NJ 07865, Tel: 201-689-3020, Telex: 467439; FSC No.: 52214; *Sls. Mgr.:* Robert C. Tappen; *Dist. Mgr.:* Robert C. Tappen

FLEX-CORE DIV., Morlan & Assocs., Inc., 6625 McVey Blvd., Worthington, OH 43085, Tel: 614-889-6152; *Sls. Mgr.:* D. Morlan .... 1A•2165

FLEX-KEY CORP., 18 Sargent St., Gloucester, MA 01930, Tel: 617-281-2040, Telex: 94-0333; FSC No.: 51163; Empl.: 50; *Sls. Mgr.:* Philip P. Bodoni .... 1B•1770, 1771

FLEXPRINT DIV, Sanders Assocs., Inc., Grenier Field, Manchester, NH 03103, Tel: 603-669-4615, TWX: 710-220-1845; Empl.: 700

FLIGHT CONNECTOR CORP., Dubilier America, 233 E. Manville St., Rancho Dominguez, CA 90220, Tel: 213-631-1133, Telex: 664734; FSC No.: 28680; *Sls. Mgr.:* Ken Tillery; *Dist. Mgr.:* Ken Tillery

FLIGHT SYSTEMS, INC., Tracor, Inc., 1091 Dove St., Newport Beach, CA 92660, Tel: 714-833-9661, Telex: 183542 FSI NPBH; *Sls. Mgr.:* William J. Weiss

FLITE-TRONICS COMPANY, INC., See Marathon Flite-Tronics Company

FLOATING POINT SYSTEMS, INC., P.O. Box 23489, Portland, OR 97223, Tel: 503-641-3151, Telex: 4742018 FLPT UI; *Sls. Mgr.:* Paul Shapiro

FLORIDA DATA, 600D John Rodes Blvd., Melbourne, FL 32935, Tel: 305-259-4700, Telex: 56-210 FDC MELB; Empl.: 200; *Sls. Mgr.:* B. Winkelspecht

FLOW TECHN., Box 21346, Phoenix, AZ 85036, Tel: 602-437-1315, Telex: 668-344; Empl.: 85; *Sls. Mgr.:* Art Marshall

FLUKE, JOHN, MFG. CO., Box C9090, MS 250C, Everett, WA 98206, Tel: 206-356-5400, Telex: 152662, TWX: 910-445-2943; Empl.: 2645; *Sls. Mgr.:* W. Hoffman; *Dist. Mgr.:* T. Rockney

FMC CORP., Ind'l. Chemical Grp., 2000 Market St., Philadelphia, PA 19103, Tel: 215-299-6000; Empl.: 800

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IL	Downers Grove	312-971-8600
NC	Charlotte	704-554-1551
OH	Cincinnati	513-563-2100
PA	King of Prussia	215-337-9475
TX	Dallas	214-783-0877

FOGG SYS., 15592 E. Batavia Dr., Aurora, CO 80011, Tel: 303-344-1883; Empl.: 7

FOREDOM ELEC. CO., Blackstone Inds., Route 6, Bethel, CT 06470, Tel: 203-792-8622, Telex: 643438; Empl.: 100; *Sls. Mgr.:* Kent Kristensen; *Dist. Mgr.:* Kent Kristensen

FORK STANDARDS, INC., 666 Western Ave., Lombard, IL 60148, Tel: 312-932-9380; Empl.: 14

FORMA SCIENTIFIC, Div. of Mallinckrodt Inc., Box 649, Marietta, OH 45750, Tel: 614-373-4763, Telex: 29-8205; Empl.: 290; *Sls. Mgr.:* Ned Urschel

FORMULATED RESINS INC., Box 508, Greenville, RI 02828, Tel: 401-949-2060; Empl.: 15; *Sls. Mgr.:* H. R. Oldham

FOUNDATION INSTRUMENTS INC., 24 Colonnade Rd., Nepean, ON K2E 7J6, Canada, Tel: 613-226-4000, Telex: 053-4153; *Sls. Mgr.:* Jean Paul Clermont

FOURJAY INDUSTRIES, Box 1465 Northridge Br., Dayton, OH 45414, Tel: 513-278-9416; Empl.: 20; *Sls. Mgr.:* M. W. Frawley

FOXBORO CO., 28020 Stanford Ave., Valencia, CA 91355, Tel: 805-257-4200, Telex: 67-4389

FOX ELCTRNS., P.O. Box 1078, Cape Coral, FL 33910, Tel: 813-482-7212, TWX: 510-951-7386; FSC No.: 61429; *Sls. Mgr.:* Mark Stearns (East Reg.), Lynn Stacey (West Reg.), Vivian Lee (Exp.) .1A•1352-1355

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AL	Huntsville, Beacon	205-881-5031
AZ	Glendale, Adtek	602-931-9289
CA	Aqoura, Cal Rep	213-991-1940
CA	Mountain View, Brooks Tech. Grp.	415-960-3880
CA	Riverside, Cal Rep Branch	714-682-6762
CA	San Diego, DePierre & Assocs.	619-578-2555
CA	Tarzana, Cal Rep Branch	213-996-6745
CO	Parker, Technology Mktg. Assoc. of CO	303-841-3435
CT	Waterbury, HLM CT	203-753-9894
FL	Clearwater, Beacon	813-796-2378
FL	Ft. Lauderdale, Beacon	305-491-1054
FL	Maitland, Beacon	305-647-3498
FL	Melbourne, Beacon	305-724-8010
GA	Atlanta, Beacon	404-256-9640
IL	Rolling Meadows, Sumer	312-991-8500
LA	Mandeville, Design Mktg.	713-273-2319
MD	Woodbine, Naudain Assocs. Southern	301-442-2270
MI	Fenton Lake, McNab & Assoc.	616-925-2166
MN	Bloomington, 2 M Sales	612-890-7774
NH	Nashua, Comptech	617-649-3030
NJ	Parsippany, HLM NJ	201-263-1535
NY	Northport, HLM NY	516-757-1606
NY	Syracuse, Pitronics	315-455-7346
NC	Raleigh, Beacon	919-787-0330
OH	Akron, B.J. Davis	216-645-0517
OK	Tulsa, Design Mktg.	918-622-7387
OR	Portland, Earl & Brown Co.	503-245-2283
PA	Southampton, Vista Sls. Assoc.	215-322-7420
TX	Dallas, Design Mktg.	214-680-9767
TX	Hurst, Design Mktg.	817-268-2004
TX	Round Rock, Design Mktg.	512-255-9896
UT	Salt Lake City, Technology Mktg. Assoc.	801-364-3296
WA	Seattle, Earl & Brown	206-284-1121
WI	Brookfield, Sumer	414-784-6641

Local Distributors

AL	Huntsville, Contact Elctrns.	205-881-9321
AZ	Phoenix, Kachina Elctrn. Dist.	602-269-6201
CA	Belmont, Arndt	415-592-8097
CA	Chatsworth, Integrated Elctrns.	213-998-2200
CA	Irvine, Integrated Elctrns.	714-660-1055
CA	Sacramento, Integrated Elctrns.	916-424-5297
CA	San Jose, Integrated Elctrns.	408-287-6488
CA	Santa Clara, Cypress	408-727-7080
CA	Santa Clara, California Capacitor	408-980-8495
CO	Denver, Integrated Elctrns.	303-292-6121
CT	Wallingford, Cronin Elctrns.	203-265-3134
FL	Orlando, Hammond Elec.	305-849-6060
IL	Hoffman Estates, Integrated Elctrns.	312-843-2040
IL	Palatine, Technology Sls.	312-991-6600
IN	Carmel, Altex	317-848-1323
LA	Harvey, AFG Elctrn. Supp.	504-368-9696
MA	Needham, Cronin Elctrns. Inc.	617-449-5000
MA	Wilmington, R C Components	617-273-1860
MI	Walled Lake, Ambur Elctrns.	313-659-3710
MN	Edina, Northern Elctrns. Supp.	612-944-1167
NJ	Bellmawr, Mid Atlantic Elect. Corp.	609-931-5303
NY	Rochester, Cam/RPC Ind. Elec.	716-865-2080
NY	Syracuse, Add	315-437-0300
OH	Cleveland, CAM/Ohio Ind. Elec.	216-461-4700
OR	Beaverton, Almac Elctrns.	503-641-9070
PA	Lancaster, Cam/RPC Ind. Elec.	717-392-8141
PA	Pittsburgh, Cam/RPC Ind. Elec.	412-782-3770
TX	Austin, Tinkertronics	512-926-4420
TX	Channel View, Henry Radio	713-452-4451
TX	Dallas, Heilind Elctrns.	713-988-2711
TX	Houston, Essential Elctrns.	713-493-5028
TX	McKinney, Sunbelt Elect.	214-235-0587
UT	North Salt Lake, Integrated Elctrns.	801-298-1868
WA	Bellevue, Integrated Elctrns.	206-455-2727
WA	Bellevue, Almac Elctrns.	206-643-9992
WV	Charleston, Cam/WVA Ind. Elec.	304-344-8029

FRAMAR METAL PRODS., 124 W. Main St., Dept. 1201, High Bridge, NJ 08829, Tel: 201-638-6688; Empl.: 6; *Sls. Mgr.:* J. W. Moore

JOHN FRANEK

FRANEK, JOHN, CO., INC., P.O. Box 11752, Santa Ana, CA 92711-1752, Tel: 714-832-0290, 800-854-9420; Empl.: 7; *Sls. Mgr.:* John D. Franek; *Dist. Mgr.:* Tom A. Goreth .... 3•1394, 1395, 1570, 1571, 1862-1877

FRANK, B.H., CO., 3733 W. 139th St., Hawthorne, CA 90250, Tel: 213-675-9182, Telex: 674432; *Sls. Mgr.:* Andrew Hilbert

FRAZIER, 1930 Valley View La., Dallas, TX 75234, Tel: 214-241-3441; Empl.: 20; *Sls. Mgr.:* W. A. Wadkins

FREDERICK CABLE PRODS., Digital Systems Corp., 406 Sagner Ave., Frederick, MD 21701, Tel: 301-694-9355; *Sls. Mgr.:* Robert Pennington; *Dist. Mgr.:* Robert Pennington

Local Sales Offices & Reps

MD	Annapolis, Electromate	301-262-2702
PA	Collegeville, Linton Assoc.	215-489-2447

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FREDERICK COMPONENTS INTL., 20806 Plummer St., Chatsworth, CA 91311, Tel: 818-882-0868, 800-354-0660 .... **2**•1821; **3**•1572, 1573

FREDERICK ELCTRNS. CORP., 7630 Hayward Rd., P.O. Box 502, Frederick, MD 21701-0502, Tel: 301-662-5901, Telex: 893438; FSC No.: 15230; Empl.: 350; *Sls. Mgr.:* Marty Bandler

FREDERICKS CO., Philmont & Anne Sts., Huntingdon Valley, PA 19006, Tel: 215-947-2500; Empl.: 150

FREED TRANSFORMER, 1718 Weirfield St., Ridgewood, NY 11385, Tel: 212-386-1300; FSC No.: 73386; Empl.: 200; *Sls. Mgr.:* M. Salzberg .... **1A**•2166-2169; **3**•1236

Local Sales Offices & Reps

CA	San Gabriel, R. G. Moye Co.	213-283-1669
CO	Denver, Nelson Co.	303-573-1516
CT	Marlborough, Precision Sls.	203-295-0580
GA	Smyrna, B-C. Elctrn. Sls.	404-436-5169
MD	Baltimore, B. White & Co.	301-484-5400
NY	Pittsford, Noeth-Honsinger Assoc.	716-586-9002
NY	White Plains, QED Elctrns.	914-946-3424
OH	Cleveland, Scott Elctrns.	216-291-2600
OH	Trotwood, I. Atkind & Assoc.	513-837-4750
PA	King of Prussia, Freedman-Malta Assoc.	215-279-5767
EXP	NY, Plainview, Morhan Exp.	516-293-5582

FREQUENCY AND TIME SYSTEMS, INC., 34 Tozer Rd., Beverly, MA 01915, Tel: 617-927-8220, Telex: 94-0518 FTS BVLY; FSC No.: 56219; Empl.: 126 .... **3**•1154

Local Sales Offices & Reps

CA	Anaheim, Datum Timing	714-533-6333
CA	Santa Clara, Ward-Davis Assocs.	408-245-3700
FL	Sarasota, Ram-Z Assocs.	813-921-5561
MD	Ashton, Blackwood Assocs., Inc.	301-924-2858
NJ	Haddonfield, G. L. Williams Assocs.	609-428-6060
TX	Richardson, Lear Assocs., Inc.	910-867-4718

FREQUENCY CONTROL PRODS., INC., American Time Prods. Div., 61-20 Woodside Ave., Woodside, NY 11377, Tel: 212-458-5811, TWX: 710-582-2637; FSC No.: 59559; *Sls. Mgr.:* Sanford Cohen - Crystals, Ed Cohen - Oscillators Servo, John Murray - Electro Optic .... **1A**•1356, 1357; **3**•1010

Local Sales Offices & Reps

AL	Huntsville, Murcota Corp.	205-539-8476
AZ	Tempe, Foley, Tallent & Lee	602-894-2345
CA	Auburn, Straube Assocs.	916-885-0632
CA	Mountain View, Straube Assocs.	415-969-6060
CA	Palo Alto, Alfred Barauck	415-327-7711
CA	San Luis Obispo, Johnson Assocs.	805-544-7770
CO	Westminster, Straube Assocs.	303-426-0890
FL	Melbourne, Raycom	305-259-7988
IL	Chicago, Probe Elctrns.	312-698-2044
IN	Ft. Wayne, J & B Sls. Co.	219-483-2813
IN	Ossian, Science Sls.	219-622-7383
IA	Cedar Rapids, J.R. Sls. Engrg.	319-393-2232
MA	Lowell, Underwood Sls. Corp.	617-256-8191
MI	Grand Rapids, A. Blumenberg	616-456-7320
MI	Oak Park, A. Blumenberg	313-968-3230
MN	Minneapolis, Bohlig & Assocs.	612-922-7011
NJ	Carlstadt, Com-Tech Sls.	201-935-5454
NM	Albuquerque, Straube Assocs.	505-292-0428
NY	Albany, H. C. Johnson Agencies	518-459-1239
NY	Buffalo, H. C. Johnson Agencies	716-632-7880
NY	Centerport, Carnes Diamond Assoc.	516-261-8100
NY	Rochester, H. C. Johnson Agencies	716-586-0777
NY	White Plains, Cane Technical Sls.	914-694-9240
NC	Winston-Salem, Murcota Corp.	919-722-9445
PA	Broomall, Sapinosa Assoc.	215-353-7267
PA	Glenshaw, H. C. Johnson Agencies	412-961-0414
TX	Richardson, Carl Tinch Sls.	214-231-1322
UT	Salt Lake City, Straube Assocs.	801-263-2640

FREQUENCY DEVICES, INC., 25 Locust St., Haverhill, MA 01830, Tel: 617-374-0761, TWX: 710-347-0314; Empl.: 60 .... **1A**•1624; **3**•1237

FREQUENCY ELCTRNS., 55 Charles Lindbergh Blvd., Mitchel Field, NY 11553, Tel: 516-794-4500, TWX: 510-223-0418; Empl.: 350; *Sls. Mgr.:* A. Lazar .... **1A**•1358, 1359

Local Sales Offices & Reps

CA	Mountainview, Pacific Techn. Mktg.	415-969-3010
FL	Orlando, Truex Assoc.	305-859-2160
MD	Silver Spring, Marktron	301-460-6100
MD	Timonium, Marktron	301-252-7111
MA	Wayland, High-Tech Sls.	617-653-3838
NJ	East Windsor, Micro Lambda	609-443-3113
NJ	W. Orange, E-F Techn. Sls.	201-731-7203
NY	Huntington Sta., E-F Techn. Sls.	516-549-1818
OH	Cleveland, Tiby Co.	216-371-5335
TX	Houston, Spectra Sls. Corp.	713-783-8333
TX	Richardson, Spectra Sls. Corp.	214-234-3600
VA	Charlottesville, Marktron	804-973-5874
EXP	NY, New York, Henley Elctrns.	212-986-5544

FSN

FREQUENCY SELECTIVE NETWORKS, INC., 69-20 Garfield Ave., Woodside, NY 11377, Tel: 212-424-7500; FSC No.: 56662; Empl.: 30; *Sls. Mgr.:* Michael L. Izzolo .... **1A**•1361

Local Sales Offices & Reps

AZ	Scottsdale, Thorson Desert States	602-998-2444
CA	Santa Clara, F.M. Assocs.	408-733-9143
FL	Ft. Lauderdale, Donato Assoc.	305-733-3450
KS	Shawnee Mission, Elctrn. Comp. Sls.	913-764-2611
MA	Andover, B. E. E. Assocs	617-475-2124
MN	Bloomington, 2M Sls.	612-888-7414
NJ	Paramus, Carnes Diamond Assocs	201-967-1309
NY	Centerport, Carnes Diamond Assocs	516-261-8100
NY	Rochester, H.C. Johnson Agencies	716-482-3000
NC	Winston-Salem, Murcoto	919-722-9445
OH	Akron, Augnat Assocs	216-725-6087
PA	Glenshaw, H. C. Johnson Assocs	412-961-0444
PA	Glenside, Koebert Assoc.	215-887-2310

FREQUENCY SOURCES, KSW Semiconductor Div., 16 Maple Rd., Chelmsford, MA 01824, Tel: 617-256-8101, TWX: 710-343-0404; FSC No.: 50101; Empl.: 80

FREQUENCY WEST, INC., 3140 Alfred St., Santa Clara, CA 95050, Tel: 408-727-8500, TWX: 910-338-0163; FSC No.: 8F150; Empl.: 158; *Sls. Mgr.:* James K. McGuinness

FRESNEL OPTICS, Div. of Alliance Tool Corp., 1300 Mt. Read Blvd., Rochester, NY 14606, Tel. 716-647-1140, Telex: 97-8322; *Sls. Mgr.:* Helmut Walter;Adolph Guide

FRONT PANEL DEVICES, INC., 530 Burnside Ave., Inwood, NY 11696, Tel: 212-471-9800, Telex: 645-580; Empl.: 20; *Sls. Mgr.:* Michael Geller

FSI/FORK STANDARDS INC., 666 Western Ave., Lombard, IL 60148, Tel: 312-231-3511, 312-932-9380; FSC No.: 14986; Empl.: 20; *Sls. Mgr.:* A. E. Toht; *Dist. Mgr.:* A. E. Toht

FTS SYS., POB 158, Stone Ridge, NY 12484, Tel: 914-687-7664, TWX: 510-247-0547; Empl.: 45; *Sls. Mgr.:* T. N. Thompson, Jr.

FUJI-SVEA, P. O. Box 3375, Torrance, CA 90510, Tel: 213-533-1221, Telex: 182-392; *Sls. Mgr.:* Chris Moore

FUJITSU

FUJITSU AMERICA, INC., 918 Sherwood Dr., Lake Bluff, IL 60044, Tel: 312-295-2610, Telex: 206196, TWX: 910-651-2259; Empl.: 30 .... **1B**•1367-1385; **2**•1276-1292

Local Sales Offices & Reps

AL	Huntsville, Dixie Tech. Mktg.	205-536-5938
AZ	Phoenix, Sanford Sls.	602-957-3570
CA	San Diego, Earle Assocs., Inc.	619-278-5441
CA	San Jose, Applied Elctrn. Mktg.	408-225-6144
CA	Thousand Oaks, SC Cubed	805-496-7307
CA	Tustin, SC Cubed	714-731-9206
CO	Denver, Donohue Sls.	303-455-1719
FL	Altamonte Springs, 'C' Assocs.	305-831-1717
FL	Pompano Beach, 'C' Assocs.	305-972-9200
GA	Lawrenceville, Tek-Rep Mktg.	404-963-1600
GA	Stone Mtn., Dixie Tech. Mktg.	404-962-2530
IL	Elk Grove Vl., John G. Twist	312-593-0200
IL	Highland Park, Bransky Sls.	312-433-2375
IN	Noblesville, McFadden Sls.	317-877-5070
KS	Prairie Village, R. W. Kunz & Assocs., Inc.	913-648-3535
ME	E. Sabago, Electrical Comps. Inc.	207-787-3145
MD	Baltimore, Component Sls.	301-484-3647
MA	Fall River, Elec. Comps.	617-674-0064
MA	Longmeadow, Elec. Comps.	413-567-0153
MA	Natick, Elec. Comps.	617-655-2225
MI	Brighton, A. P. Assocs.	313-229-6550
MI	Warren, DEM Elctrn. Sls.	313-575-9444
MN	Bloomington, John G. Twist	612-835-2120
MN	Minneapolis, Milt Westlund & Assoc.	612-866-5002
MO	St. Louis, R. W. Kunz & Assocs., Inc.	314-966-4977
NJ	Bellmawr, TAI Corp.	609-933-2600
NJ	Parlin, JMR Sls.	201-727-5335
NY	E. Setauket, JMR Sls.	516-689-8871
NY	Rochester, Lake Bluff Sls. Div., Elec. Comps.	716-385-9303
NC	Charlotte, Robert W. Chapman Co.	704-525-2421
NC	Greensboro, Robert W. Chapman	919-282-0740
NC	Raleigh, Robert W. Chapman	919-782-2624
OH	Columbus, McFadden Sls.	614-459-1280
PA	Greensburg, Pro-Mark	412-832-3800
TX	Dallas, United Comps.	214-475-0051
UT	Bountiful, Anderson Assocs.	801-292-8991
VA	Charlottesville, Component Sls., Inc.	804-979-1681
WA	Bellevue, Whisler Sls. Co.	206-643-1463
WI	Brookfield, John G. Twist	414-782-2670
WI	Cedarburg, Bransky Sls.	414-377-6837

Local Distributors

CA	Brisbane, Automated Process Controls	415-467-6162
CA	Buena Park, Control Design Supp.	213-802-2429
CA	San Carlos, Control Design Supp.	415-592-4808
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Santa Ana, Pacesetter Elctrns.	714-557-7131; 213-233-5800
CA	Santa Monica, Distr. Specialists	213-393-9666
CA	Torrance, Cypress Elctrns.	213-533-6005; 714-761-3366
CO	Denver, CSID	303-292-9594
CT	Orange, Milgray Elctrns.	203-795-0711
FL	Altamonte Springs, Control Design Supp.	305-788-3220
FL	Lakeland, A-A Elec.	813-665-6941
FL	Winter Park, Milgray Elctrns.	305-647-5747
GA	Atlanta, Prehler Elctrns., Inc.	404-447-5540
GA	Atlanta, Milgray Elctrns.	404-393-9666
GA	Atlanta, Electrical Control Prods.	404-455-1216
GA	Norcross, A-A Elec.	404-449-8670
GA	Stone Mountain, Control Design Supp.	404-979-3500
IL	Addison, Lectro Comps.	312-543-1680
IL	Chicago, Prehler Elctrns., Inc.	312-384-6100
IL	Chicago, NEP Elctrns.	312-625-8400
IL	Genoa, Control Design Supp.	815-784-6519
IL	Joliet, Mainline Supp. Co.	815-436-3900
IL	Northbrook, Classic Comp. Supp.	312-272-9650
IL	Wheeling, Hawk Elctrns.	312-459-4030
IN	Indianapolis, Control Design Supp.	317-788-0551
IA	Marian, Control Design Supply, Inc.	319-373-2923
KS	Overland Park, Milgray Elctrns.	913-236-8800
ME	Portland, Rockingham Elec. Supp.	207-772-4614
MD	Rockville, Milgray Elctrns.	301-468-6400
MA	Burlington, Milgray Elctrns.	617-272-6800
MA	Middleboro, Glynn Electronics	617-947-4262
MA	Natick, Tec-Con Elctrns.	617-655-9333
MA	Somerville, Electro Sls.	617-666-0500
MI	Farmington Hills, Prehler Elctrns., Inc.	313-473-7200
MN	Burnsville, Custom Connections	612-894-4090
MN	Minneapolis, Control Design Supp.	612-721-1628
MN	Minneapolis, Bergquist	612-835-2322
MO	St. Louis, Control Design Supp.	314-426-3160
MO	St. Louis, Interstate Industrial Elctrns.	314-423-4322
NE	Omaha, Radio Equip.	402-341-7700
NJ	Berlin, General Comps. Inc.	609-768-6767
NJ	Fairlawn, Relay Specialties	201-797-3313
NJ	Marlton, Milgray Elctrns.	609-983-5010
NJ	Nutley, Vantage Comps.	201-667-1840
NJ	Whippany, Tonar Inds.	201-884-1400
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	N. Babylon, E.I.M. Intl. Mktg.	516-643-5700
NY	Pittsford, Milgray Elctrns.	716-385-9330
NC	Charlotte, Control Design Supp.	704-588-4410
OH	Cleveland, Milgray Elctrns.	216-447-1520
OH	Middleburg Heights, Prehler Elctrns., Inc.	216-243-5510
OH	Solon, Repco	216-248-8900
OK	Tulsa, Altair Co.	918-252-5781
PA	Harrisburg, Cumberland Elctrns.	717-232-5999
PA	Malvern, Control Design Supp.	215-296-0150
PA	McKean, Advacom, Inc.	814-476-7774
TX	Austin, Altair Co.	512-837-4490
TX	Dallas, Control Design Supp.	214-358-1441
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, Altair Co.	214-231-5166
UT	Salt Lake City, Active Comp Technlg.	801-487-8131
WA	Bellevue, Integrated Elctrns./Jaco	206-455-2727
WI	Cedarburg, A-A Elec.	414-377-7500
WI	Mequon, Taylor Elec.	414-241-4321
WI	Milwaukee, Indl. Elctrns.	414-276-1212
WI	New Berlin, Control Design Supp.	414-784-1016
WI	New Berlin, NEP Elctrns.	414-785-9100
WI	New Berlin, Classic Comp. Supp.	414-786-5300
WI	Racine, Badger Elctrn. Parts Co.	414-637-1256

FURMAN SOUND, INC., 30 Rich St., Greenbrae, CA 94904, Tel: 415-927-1225, Telex: 172029 SPXSRFL; *Sls. Mgr.:* Diane Poole; *Dist. Mgr.:* Diane Poole

FURNAS ELEC., 1197 McKee St., Batavia, IL 60510, Tel: 312-879-6000, Telex: 72-0458; Empl.: 1360; *Sls. Mgr.:* T. W. Thornton; *Dist. Mgr.:* R. Lanser

FUSECOM, 14864 NE 95th St., Redmond, WA 98052, Tel: 206-881-2442; *Sls. Mgr.:* Bruce Barndt

GABRIEL ELCTRNS., Box 70, Scarborough Indl. Pk., Scarborough, ME 04074, Tel: 207-883-5161, Telex: 95-0113; Empl.: 135; *Sls. Mgr.:* D. B. Crisman

Local Sales Offices & Reps

MO	St. Louis, Gabriel Elctrns.	314-878-2982

GALITE, 2 Tower Dr., Wallingford, CT 06492, Tel: 203-265-7126, TWX: 710-476-0764; FSC No.: 56447; *Sls. Mgr.:* James W. Campbell, Jr.

GAMBLE, CHARLES T., INDS., 605 Perkins La., Delanco, NJ 08075, Tel: 609-461-1900; Empl.: 150; *Sls. Mgr.:* W. Snyder

GAMMA HIGH VOLTAGE RESCH. INC., 152 S. MacQuesten Pkwy., Mt. Vernon, NY 10550, Tel: 914-667-5050 .... 3•1574, 1575

Local Sales Offices & Reps

IL	Chicago, Ropek, Cahill & Vogt	312-631-0070
NM	Albuquerque, Cleveland Entprs.	505-265-7893

GAMMA SCIENTIFIC INC., 3777 Ruffin Rd., San Diego, CA 92123, Tel: 619-279-8034, Telex: 69-7938; Empl.: 65; *Sls. Mgr.:* G.C. Unangst

GANDALF DATA, INC., 1019 S. Noel Ave., Wheeling, IL 60090, Tel: 312-541-6060, TWX: 910-651-4951; Empl.: 350; *Sls. Mgr.:* Ken Charbauski

Local Sales Offices & Reps

CA	El Monte	213-571-6644
CA	San Francisco	415-363-0848
CO	Denver	303-321-4246
GA	Atlanta	404-451-2293
MD	Silver Spring	301-622-5400
MA	Dedham	617-329-7630
TX	Bellaire	713-665-6546
TX	Richardson	214-669-3643

GAP INSTR., 110 Marcus Blvd., Hauppauge, NY 11787, Tel: 516-273-0909, TWX: 510-227-6237; FSC No.: 00607; Empl.: 50

GARDINER ELCTRNS., 4729 North 7th Ave., Phoenix, AZ 85013, Tel: 602-274-9681

GARDINER SOLDER CO., Div. of Gardiner Metal Co., 4820 S. Campbell Ave., Chicago, IL 60632, Tel: 312-847-0100, TWX: 910-221-2510; Empl.: 100; *Sls. Mgr.:* M. Boyle .... 2•1927

Local Sales Offices & Reps

AZ	Phoenix, Astro Prods.	602-268-2948
CA	La Mirada, Gardiner Solder	714-994-6350
FL	Merritt Island, James A. Kennedy	305-452-9821
GA	Tucker, Elctrl. Concepts, Inc.	404-491-3154
IA	Princeton, Johnson Mfg.	319-289-5123
MA	Woburn, Yankee Tech Sls.	617-935-6278
MO	St. Charles, Phillips & Assocs.	314-441-0148
NJ	Englewood, Wilson Industries	201-871-4658
NJ	Scotch Plains, Gardiner Solder Co.	201-232-1965
NY	Sidney, Wingate & Assocs.	607-563-2113
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
TX	Dallas, The Mello Co.	214-241-9196
TX	Dallas, Elctrn. Production Specialists	214-422-5476
VA	Falls Church, Hyka, Inc.	703-560-6115
WA	Bellevue, Doland	206-454-4952

Local Distributors

AL	Birmingham, E.I.S., Inc.	205-252-9046
AZ	Phoenix, Lion Elctrns. Distrs.	602-869-9611
AZ	Phoenix, Elctrl. Specialty Co.	602-275-5736
CA	Anaheim, Elctrl. Specialty Co.	714-630-7050
CA	Anaheim, Advance Electrical Sls., Inc.	714-870-0300
CA	Belmont, Advance Elctrl. Sls.	415-592-4550
CA	Chino, Tracy Elctrn. Sls.	714-591-4736
CA	Glendale, Mac Donald & Co.	800-423-2453
CA	Los Angeles, Elctrl. Specialty Co.	213-724-9600
CA	Los Angeles, John Cameron Supply Co.	213-870-7403
CA	San Diego, Hi-Tech Metals Co.	619-270-8081
CA	San Diego, Elctrl. Specialty Co.	619-560-1800
CA	San Diego, Casco	619-560-9319
CA	San Francisco, Elctrl. Specialty Co.	415-589-9611
CA	Santa Clara, RGB Electro Ind. Tool	408-980-1300
CA	Simi Valley, Cal-Pacific Suppliers	213-998-4982
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Denver, Elctrl. Specialty Co.	303-321-0226
CT	Wallingford, Tech. Assocs.	203-265-4241
FL	Boca Raton, Kimco	305-994-0590
FL	Clearwater, Your Production Cupboard	813-447-2581
FL	Orlando, E.I.S., Inc.	305-855-7100
FL	Orlando, Mavidon Entprs.	305-298-7324
GA	Atlanta, E.I.S., Inc.	404-355-1651
IL	Addison, International Soldering Supplies	312-628-8083
IL	Hillside, Complete-Reading Electric Co.	312-547-5400
IN	Indianapolis, Complete-Reading Electric Co.	317-872-3710
KY	Louisville, E.I.S., Inc.	502-636-0384
LA	New Orleans, Complete-Reading Elec. Co.	504-944-5561
MD	Baltimore, Complete-Reading Elec. Co.	301-646-1330
MA	Woburn, Pacer Electronics	617-935-8330
MI	Warren, Complete-Reading Elec. Co.	313-755-6020
MN	Eden Prairie, Cassidy Elctrns.	612-944-0100
MN	Edina, Complete-Reading Elec. Co.	612-831-8145
MN	Minneapolis, W. D. Forbes Co., Inc.	612-378-1917
MO	Kansas City, Complete-Reading Elec. Co.	816-471-5966
MO	Maryland Heights, Complete-Reading Elec. Co.	314-569-1611
MO	St. Charles, Finnigan Wire & Cable	314-946-6201
NV	Carson City, Gibson Tool Co.	702-883-3566
NJ	Stirling, Janel	201-647-5600
NY	Fairport, Pacer Elctrns. of NY	716-377-0462
NY	Farmingdale, S.A.I.	516-293-2710
NY	Liverpool, Complete-Reading Elec. Co.	315-457-1350
NY	Sidney, Wingate & Assoc.	607-563-2113
NC	Charlotte, E.I.S., Inc.	704-392-7366
NC	Raleigh, E.I.S., Inc.	919-781-4750
OH	Cincinnati, E.I.S., Inc.	513-771-4073
OH	Cleveland, Complete-Reading Elec. Co.	216-267-1000
OH	Mentor, Kimco	216-255-1992
OK	Tulsa, Complete-Reading Elec. Co.	918-664-4000
OR	Portland, Elctrl. Specialty Co.	503-227-3601
PA	Pittsburgh, Complete-Reading Elec. Co.	412-788-1580
TN	Memphis, E.I.S., Inc.	901-947-4176
TN	Nashville, E.I.S., Inc.	612-883-0862
TX	Beaumont, Complete-Reading Elec. Co.	713-842-2117
TX	Dallas, Complete-Reading Elec. Co.	214-827-8891
TX	El Paso, Elctrl. Specialty Co.	915-594-8251
TX	Houston, Complete-Reading Elec. Co.	713-691-0080
UT	Salt Lake City, Electrical Specialty Co.	801-972-4184
VA	Bluefield, Complete-Reading Elec. Co.	703-322-5424
VA	Richmond, E.I.S., Inc.	804-649-9221
WA	Tukwila, Electrical Specialty Co.	206-241-1010
WI	Mequon, Complete-Reading Elec. Co.	414-241-3880
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GAR ENTERPRISES, 2029 N. Lincoln Ave., Pasadena, CA 91103, Tel: 818-798-0785; Empl.: 25

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GATES ENERGY PRODS., 1050 S. Broadway, Denver, CO 80217, Tel: 303-744-4806, Telex: 045-511, TWX: 910-931-2658; Empl.: 500; *Sls. Mgr.:* R. O. Hammel; *Dist. Mgr.:* M. R. Harrison

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CA	Chatsworth, Porter Co.	818-700-0808
CT	Madison, United Comps.	203-562-4002
IL	Elk Grove Village, Control Sls.	312-595-2110
MA	Norwood, United Comps.	617-226-0556
MN	St. Louis, Lestronix	612-926-8466
NJ	Mountain Lakes, Browning-Naughton Co., Inc.	201-335-2029
OH	Cleveland, Jubell Assoc.	216-662-2884
OH	Mentor, Appliance Elctrns.	216-257-6019
WI	Thiensville, Control Sls.	414-242-4580

G B INSTRUMENTS INC., 2030 Coolidge St., Hollywood, FL 33020, Tel: 305-920-0225, TWX: 510-954-9813; FSC No.: 31601; Empl.: 30; *Sls. Mgr.:* B. J. Weiss

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GCI, INC., 14520 Lima Rd., Fort Wayne, IN 46808, Tel: 219-637-5520; Empl.: 108; *Sls. Mgr.:* C. Ward

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CA	Granada Hills, C&W Component Sls.	213-368-4032
FL	Orlando, B&M Sales	305-855-2455
IL	Chicago, L-Tec, Inc.	312-593-7200
IN	Columbus, J. Weaver Co.	812-372-3625
IA	Cedar Rapids, J. R. Sales Engrg., Inc.	319-393-2232
KY	Ft. Wayne, Kylar, Inc.	219-432-7716
MA	Norwood, JMG, Inc.	617-762-5333
MI	Grand Rapids, R. P. Urban & Assocs.	616-245-0511
MN	Minneapolis, Electro-Mark	612-881-3306
MO	St. Louis, Buckman & Assocs.	314-946-6201
NJ	Sewell, Parker Assocs.	609-589-5503
NC	Kannapolis, Bass Assocs.	704-433-1672
OH	Galion, Retronics	419-468-3253
TX	Dallas, Dynamark Tech. Sls.	214-340-1800

GEC TECHNOLOGY CORP., 4430 Forest Lane, Garland, TX 75042, Tel: 214-276-1164

GECO, 145 Penn St., Millheim, PA 16854, Tel: 814-349-5555; Empl.: 11

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CA	San Diego, Qualtronics	619-560-8955
CA	Santa Ana, Spaulding Sls.	714-542-3991
CO	Arvada, Delconec, Inc.	303-422-7023
FL	Key Largo, Jerrold Helbein & Assocs.	305-367-3025
GA	Atlanta, L & D Inc.	404-455-3483
IL	Palatine, JRS Assocs.	312-991-6626
IN	Noblesville, Century Elctrns. Corp.	317-849-2026
IA	Cedar Rapids, Dick Taylor	319-364-2282
LA	Vidalia, Leo Barker Co.	318-336-9565
MA	Brookline, Harman Assocs.	617-232-6687
MI	Plymouth, Jay Mktg. Assocs.	313-459-1200
MO	St. Louis, Harris Hanson Co.	816-763-6200
NY	New York, Reuse Packaging	212-939-6080
NY	Rochester, Leonard D. Allen, Inc.	716-377-3530
NY	Syracuse, Leonard D. Allen, Inc.	315-437-8387
NC	Thomasville, Jerrold Helbein & Assocs.	919-476-2365
OH	Akron, B. J. Davis Sls. Corp.	216-753-8555
OR	Beaverton, Underwood-Hanify	503-641-4463
PA	King of Prussia, Freedman-Malta Assocs.	215-337-9211
TX	Austin, J. Clay Co.	512-346-7340
TX	Dallas, J. Clay Co.	214-350-1281
UT	Salt Lake City, Medax	801-266-4545
WA	Bellevue, Underwood-Hanify	206-451-8223
WI	Wauwatosa, Larsen Assocs.	414-258-0529

GEN/COMP INC., 6 Algonquin Rd., Canton, MA 02021, Tel: 617-828-2008; *Sls. Mgr.:* G. Nutter

GENERAL ATRONICS CORP., 1200 E. Mermaid Lane, Philadelphia, PA 19118, Tel: 215-233-4100

GENERAL AUTOMATIC CORP., 70 Liberty St., Metuchen, NJ 08840, Tel: 201-494-9300; Empl.: 59; *Sls. Mgr.:* M. Barron

GENERAL CABLE CO., Cornish Products Div., 160 Water Street, Williamstown, MA 01267, Tel: 413-458-8171

GENERAL CABLE CO., Fiber Optics Div., 160 Fieldcrest Ave., Raritan Ctr., Edison, NJ 08817, Tel: 201-225-4780, Telex: 642892; *Sls. Mgr.:* Allen B. Kasiewicz

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GENERAL CONNECTOR CORP., 80 Bridge St., Newton, MA 02158, Tel: 617-244-5706

GENERAL CONTROL CO., 1200 Soldiers Field Rd., Boston, MA 02134, Tel: 617-782-7440; Empl.: 25

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AZ	Phoenix, Snyder Engrg.	602-279-2010
CA	Fullerton, Groh Assoc.	714-738-7105
CA	Mountain View, G. Woempner Co.	415-964-5454
CO	Boulder, R. F. Mayo Assoc.	303-499-2155
CT	North Haven, Coakley, Boyd & Abbett	203-481-2828
FL	Maitland, J. Krutek	305-628-4837
FL	North Miami, J. Krutek & Assoc.	305-941-6544
IL	Glencoe, Howard Benjamin	312-835-0150
IN	Noblesville, Century Elctrns.	317-849-2026
KS	Shawnee Mission, Lowell & Kangas	913-631-3515
MA	Needham, Coakley, Boyd & Abbett	617-444-5470
MI	Plymouth, J. Plass Assoc.	313-455-8262
MN	Bloomington, Northport Engrg.	612-854-5556
MO	St. Louis, Lowell & Kangas	314-821-4050
NH	Plaistow, Coakley, Boyd & Abbett	617-444-5470
NJ	Mountainside, Henry G. Richter	201-233-4615
NY	Fayetteville, H.G. Richter	315-637-6713
OH	Cincinnati, Components	513-866-0661
OH	Cleveland, Components	216-243-9200
OK	Tulsa, Advance Tech. Sls.	918-664-0482
PA	Doylestown, Monteiro Assoc.	215-345-5855
TX	Austin, Advance Tech. Sls.	512-459-1351
TX	Dallas, Advance Tech. Sls.	214-340-1300
TX	Houston, Advance Tech. Sls.	713-440-3888
WA	Olympia, Bergford & Assocs.	206-866-2001

GENERAL DIGITAL, 700 Burnside Ave., E. Hartford, CT 06108, Tel: 203-528-9041; Empl.: 32; *Sls. Mgr.:* Stuart H. Hoffer; *Dist. Mgr.:* Stuart H. Hoffer

GENERAL ELECTRIC CO., 333 W. Seymour Ave., Cincinnati, OH 45216, Tel: 513-948-5000

GENERAL ELECTRIC CO., Battery Business Dept., P.O. Box 992, Gainesville, FL 32602, Tel: 904-462-4480, TWX: 810-836-8500; *Sls. Mgr.:* K. Edwards

GENERAL ELEC. CO., Carboloy Systems Dept., Box 237, Detroit, MI 48232, Tel: 313-536-9100, TWX: 810-226-9617; Empl.: 1800; *Sls. Mgr.:* R. A. Alukonis

GENERAL ELEC. CO., Electromaterials Bus. Dep., Coshocton, OH 43812, Tel: 614-622-5310, Telex: 810-255-2921; Empl.: 1100; *Sls. Mgr.:* R.L. Morris; *Dist. Mgr.:* J. L. Schreiber

GENERAL ELECTRIC CO., Instrument Prods. Section, 40 Federal St., Lynn, MA 01910, Tel: 617-594-7011, Telex: 6817036; Empl.: 200; *Sls. Mgr.:* J. D. Rhea; *Dist. Mgr.:* S. M. Brandijen

GENERAL ELECTRIC CO., Lamp Comps. & Technical Prods. Div. Sls. Oper., 21800 Tungsten Rd., Cleveland, OH 44117, Tel: 216-266-2451, Telex: 985569; *Sls. Mgr.:* P. A. Wrobleski

GENERAL ELECTRIC CO., Liquid Xtal Displays Oper., 24000 Mercantile Rd., Beachwood, OH 44122, Tel: 216-831-8100, Telex: 98-5442; *Sls. Mgr.:* John B. Burnette

GENERAL ELECTRIC CO., Microwave Tube Operation, 1 River Road, Schenectady, NY 12345, Tel: 518-385-2211 (main NBR)

GENERAL ELECTRIC CO., OEM Marketing Dept., Nela Park, Clevland, OH 44112, Tel: 216-266-2121; *Sls. Mgr.:* W. D. Wells

GENERAL ELECTRIC CO., Power Elctrns. Semiconductor Dept., W. Genesee St., Auburn, NY 13021, Tel: 315-253-7321; Empl.: 4000; *Sls. Mgr.:* George H. Oliver; *Dist. Mgr.:* Richard Levitre .... **1A**•2094, 2095

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CA	Palo Alto	415-493-2600
CA	San Diego	714-565-4114
CA	Santa Monica	213-450-0353
CO	Denver	303-320-3031
CT	Meriden	203-238-6895
FL	Palm Beach Gardens	404-458-8401
FL	Winter Park	404-458-8401
GA	Atlanta	404-458-8401
IL	Des Plaines	312-827-9100
IN	Ft. Wayne	219-422-8551
IN	Indianapolis	317-298-5317
IA	Bettendorf	319-359-1661
KS	Overland Park	913-967-6254
MD	Columbia	301-992-1299
MA	West Lynn	617-594-7270
MI	Southfield	313-355-3554
MN	Minneapolis	612-835-2550
MO	St. Louis	314-997-8437
NJ	Fairfield	201-227-6050
NY	Albany	518-454-2576
NY	Jericho	516-681-0900
NY	Rochester	716-422-3230
NY	Syracuse	315-456-3421
NC	Charlotte	704-376-2136
NC	Greensboro	919-379-8474
OH	Cleveland	216-266-2900
OH	Dayton	513-297-3287
OK	Oklahoma City	405-943-9015
PA	Erie	814-875-3891
PA	Philadelphia	215-964-2991
PA	Pittsburgh	412-921-4134
TN	Nashville	615-254-0342
TX	Dallas	214-661-8582
TX	Houston	713-978-4347
VA	Waynesboro	703-943-1151
WA	Seattle	206-575-2865
WI	Milwaukee	414-226-1625
PR	Catano	809-788-1515

Local Distributors

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AL	Mobile, Forbes Distg. Co.	205-479-4535
AZ	Tempe, Hamilton/Avnet Elctrns.	602-275-7851
CA	Canoga Park, Marshall Inds.	213-999-5001
CA	Canoga Park, Schweber Elctrns.	213-999-4702
CA	Costa Mesa, Hamilton Electro Sls.	714-641-4108
CA	Costa Mesa, Avnet Elctrns.	714-754-6111
CA	El Monte, Marshall Inds.	213-686-0141
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CT	Wallingford, Marshall Inds.	203-265-3822
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FL	St. Petersburg, Hamilton/Avnet Elctrns.	813-576-3930
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GA	Norcross, Hamilton/Avnet Elctrns.	404-447-7504
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IN	Evansville, Hutch and Son, Inc.	812-425-7201
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IN	Indianapolis, Pioneer-Standard	317-849-7300
IN	Indianapolis, Graham Elctrns.	317-634-8202
IA	Cedar Rapids, Schweber Elctrns.	319-373-1417
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
KS	Overland Park, Hamilton/Avnet Elctrns.	913-888-8900
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MI	Livonia, Pioneer-Standard	313-525-1800
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MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minnetonka, Hamilton/Avnet Elctrns.	612-932-0600
MN	St. Paul, Gopher Elctrns.	612-483-3322

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OH	Beachwood, Schweber Elctrns.	216-464-2970
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OH	Dayton, Schweber Elctrns.	513-439-1800
OH	Dayton, Hamilton/Avnet Elctrns.	513-433-0610
OH	Dayton, Pioneer-Standard	513-236-9900
OH	Warren, REM Elctrns.	216-373-1300
OH	Warrensville Hts., Hamilton/Avnet Elctrns.	216-831-3500
OK	Tulsa, Sterling Elctrns.	918-663-2410
OK	Tulsa, Oil Capitol Elctrns.	918-622-8520
OK	Tulsa, Schweber Elctrns.	918-622-8000
OK	Tulsa, Norvell Elctrns.	918-663-1247
OK	Tulsa, Arrow Elctrns.	918-665-7700
OR	Beaverton, Almac Elctrns. Corp.	503-641-9070
OR	Lake Oswego, Hamilton/Avnet Elctrns.	503-635-8157
PA	Horsham, Schweber Elctrns.	215-441-0600
PA	Philadelphia, Almo Elctrns.	215-689-4021
PA	Pittsburgh, Schweber Elctrns.	412-782-1600
PA	Pittsburgh, Pioneer-Standard	412-782-2300
SC	Columbia, Dixie Elctrns.	803-779-5332
TN	Knoxville, Industrial Elctrns.	615-573-7135
TX	Austin, Hamilton Electro Corp.	512-837-8911
TX	Austin, Sterling Elctrns.	512-836-1341
TX	Austin, Norvell Elctrns.	512-458-8106
TX	Austin, Schweber Elctrns.	512-458-8253
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Dallas, Schweber Elctrns.	214-661-5010
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Houston, Schweber Elctrns.	713-784-3600
TX	Houston, Hamilton/Avnet Elctrns.	713-780-1771
TX	Houston, Norvell Elctrns.	713-777-1666
TX	Irving, Hamilton/Avnet Elctrns.	214-659-4111
TX	Stafford, Arrow Elctrns.	713-491-4100
UT	Salt Lake City, Kierulff Elctrns. Inc.	801-973-6913
UT	Salt Lake City, Hamilton/Avnet Elctrns.	801-972-2800
VA	Charlottesville, Virginia Radio Supp.	804-296-4184
WA	Bellevue, Almac Elctrns. Corp.	206-643-9992
WV	Charleston, McJunkin Corp.	304-348-5268
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	New Berlin, Hamilton/Avnet Elctrns.	414-784-4510

GENERAL ELECTRIC CO., RELAY OPERATION, See Genicom Corp.

GENERAL ELECTRIC CO., Wire & Cable, 1285 Boston Ave., Bridgeport, CT 06602, Tel: 203-382-2000, Telex: 96-4209; Empl.: 2000; *Sls. Mgr.:* D. A. Pritchard; *Dist. Mgr.:* M. Peterson

GENERAL ELECTRO-MECHANICAL CORP., 785 Hertel Ave., Buffalo, NY 14207, Tel: 716-876-9685, Telex: 91-222; Empl.: 100; *Sls. Mgr.:* Tom Speller, Jr.

GENERAL FIBER OPTICS, INC., P.O. Box 82, Caldwell, NJ 07006, Tel: 201-228-4400, Telex: 130-224; *Sls. Mgr.:* Herb Berkowitz

GENERAL HARDWARE MFG., 80 White St., New York, NY 10013, Tel: 212-431-6100, Telex: 126394 Aegis; *Sls. Mgr.:* Tom McGannon

GENERAL INDS., Taylor & Olive St., Elyria, OH 44035, Tel: 216-323-3136, TWX: 810-424-2109; Empl.: 1100

GENERAL INSTR., Discrete Semiconductor Div., 600 West John St., Hicksville, NY 11802, Tel: 516-733-3333, TWX: 510-221-1865; *Sls. Mgr.:* Tom Hurley; *Dist. Mgr.:* R. Graziano

GENERAL INSTR., Govt. Sys., 600 W. John St., Hicksville, NY 11802, Tel: 516-733-3000, Telex: 510221-1865; Empl.: 500

GENERAL INSTR., Lamp Div., 4433 N. Ravenswood Ave., Chicago, IL 60640, Tel: 312-784-1020, TWX: 910-221-5445; FSC No.: 71744; Empl.: 390; *Sls. Mgr.:* Jim Flanagan .... 1B•1056

Local Sales Offices & Reps

AL	Huntsville, Electro-Mech.	205-533-2100
AZ	Phoenix, Howe & Howe Sls.	602-264-7971
AR	Fort Smith, Electra Reps.	501-452-4030
CA	Fremont, General Instr. Lamp Div.	415-796-8210
CA	Los Angeles, Wiley Co.	213-666-1611
CA	San Diego, Wiley Co.	619-571-2881
CA	Santa Clara, Ross Mktg.	408-988-8111
CO	Denver, Moss Mktg.	303-455-7205
CT	Middletown, Gerber Sls.	203-347-3000
FL	Altamonte Springs, "C" Assocs.	305-831-1717
FL	Pompano Beach, "C" Assocs.	305-972-9200
GA	Norcross, Electro-Mech Sls. Engrg. Co.	404-447-6478
IL	Des Plaines, Elctrn. Mktg.	312-298-2330
IN	Indianapolis, M. Gottlieb Assocs.	317-846-5788
IN	Kokomo, M. Gottlieb Assocs.	317-455-0444
IA	Cedar Rapids, Dy-Tronix	319-377-8275
MA	Ludlow, Gerber Sls. Corp.	413-589-9837
MA	Newton Upper Falls, Gerber Sls. Corp.	617-969-2620
MI	Detroit, Rathsburg Assoc.	313-882-1717
MN	Bloomington, Northport Engrg.	612-854-5556
MO	Bridgeton, Dy-Tronix	314-731-5799
MO	Independence, Dy-Tronix	816-373-6600
NJ	Cherry Hill, Trinkle Sls.	609-795-4200
NJ	Manasquan, General Instr. Lamp Div.	201-528-5495
NM	Albuquerque, Moss Mktg.	505-292-7505
NY	Buffalo, L. D. Allen	716-837-1955
NY	Commack, Kaelber & Mack	516-499-2924
NY	Fairport, L. D. Allen	716-377-3530
NY	Syracuse, L. D. Allen	315-437-8387
NC	Raleigh, Electro-Mech	919-851-8165
OH	St. Marys, T. Shelby & Co.	419-394-3377
OR	Portland, J. J. Backer Co.	503-297-8744
OR	Salem, J. J. Backer Co.	503-362-0717
TN	Nashville, Electro-Mech. Sls. Engrg. Co.	615-883-0073
TX	Dallas, Electra Reps.	214-387-3594
TX	Houston, Electra Reps.	713-530-2208
UT	Bountiful, Moss Mktg.	801-292-8660
WA	Seattle, J. J. Backer Co.	206-285-1300
EXP	Rio Piedras, Elctrn. Sls. Assocs.	809-769-2911

Local Distributors

AZ	Phoenix, Dalis Radio	602-254-8471
AZ	Tucson, Inland Elctrn. Supp.	602-294-2628
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Buena Park, RPS Elect.	714-521-5230
CA	Gardena, Bell Ind.	213-515-1800
CA	Mountain View, Abacus Elctrn.	408-961-1500
CA	Sun Valley, Richey Elctrn.	213-875-2862
CA	Sunnyvale, Bell Ind.	408-734-8570
CO	Denver, Electronic Parts	303-744-1992
CT	Middletown, Mid-State	203-347-5638
FL	Orlando, Hammond Elctrn.	305-849-6060
GA	Atlanta, E. Sam Jones	404-351-3250
IL	Chicago, Steiner Elec.	312-685-7000
IL	Chicago, Newark Elect.	312-638-4411
IL	Palatine, Ohm Elctrn.	312-359-5500
IL	Peoria, Klaus Radio	309-691-4840
IN	Indianapolis, Genesis (Radisco)	317-637-5571
IA	Cedar Rapids, Deeco	319-365-7551
KY	Louisville, Peerless Elctrn.	502-636-3336
LA	Lafayette, Ralph's Elctrn.	318-234-4507
MD	Rockville, Capitol Radio	301-881-2270
MA	Hingham, Sager Elec.	617-749-6700
MI	Flint, Michigan Elctrn.	313-232-6550
MN	St. Paul, Gopher Elctrn.	612-483-3322
MO	Kansas City, Walters Radio	816-531-7015
MO	St. Louis, Olive Indl.	314-426-4500
NJ	Camden, General Radio	609-964-8560
NJ	Cranford, Garden State	201-272-6400
NY	Buffalo, Summitt Dist.	716-884-3450
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Rochester, Rochester Radio	716-454-7800
NY	Rochester, Masline Elect.	716-546-5373
NC	Raleigh, Southeastern Elctrn.	919-828-2311
OH	Akron, Akron Elect.	216-762-8818
OH	Cincinnati, Hughes-Peters	513-591-2000
OH	Columbus, Hughes-Peters	614-294-5351
OK	Oklahoma City, Trice Elctrn.	405-524-4411

OK	Tulsa, Oil Capitol Elctrn.	918-622-8520
OR	Portland, United Radio	503-233-5346
SC	Columbia, Dixie Elctrn.	803-779-5332
TN	Memphis, Bluff City	901-345-9500
TX	Dallas, Pioneer/Dallas	214-386-7300
TX	Fort Worth, Allied Elctrn.	817-336-5401
TX	Fort Worth, Swieco	817-335-6521
TX	Houston, Harrison Equip.	713-652-4700
UT	Salt Lake City, Standard Supp.	801-486-3371
WA	Seattle, Robert E. Priebe Co.	206-682-8242
WI	Milwaukee, Marsh Elctrn.	414-475-6000

GENERAL INSTRUMENT CORP., Microelectronics Div., 600 W. John St., Hicksville, NY 11802, Tel: 516-733-3107, TWX: 510-221-1866; *Sls. Mgr.:* A. Lindgren; *Dist. Mgr.:* J. Johnson

GENERAL INSTR., Optoelctrns. Div., 3400 Hillview Ave., Palo Alto, CA 94304, Tel: 415-493-0400, Telex: 348430, TWX: 910-373-1767; FSC No.: 58361; Empl.: 500; *Sls. Mgr.:* J. Beach; *Dist. Mgr.:* W. Clark

GENERAL MAGNETICS, 211 Grove St., Bloomfield, NJ 07003, Tel: 201-743-2700; FSC No.: 99165; Empl.: 60

GENERAL MFG., 724 Ruberta Ave., Glendale, CA 91201, Tel: 818-243-2069; FSC No.: 10454

GENERAL MICROWAVE CORP., 155 Marine St., Farmingdale, NY 11735, Tel: 516-694-3600, TWX: 510-224-6406; FSC No.: 11332; Empl.: 185; *Sls. Mgr.:* M. Wind .... 1A•1704; 3•1238

Local Sales Offices & Reps

AL	Huntsville, Saber Assocs.	800-327-0853
AZ	Phoenix, Odyssey One	602-246-8846
CA	Los Angeles, RF Assocs.	213-478-1586
CA	Palo Alto, RF Assocs.	415-494-3331
CO	Castle Park, Odyssey One	303-688-3555
FL	Apopka, Saber Assocs.	800-432-6288

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GA	Griffin, Saber Assocs.	800-327-0853
IL	Mt. Prospect, Cain Forlaw	312-253-3578
MA	Burlington, Microwave Mktg. Specialists	617-272-7530
NJ	West Orange, EF Tech. Sls.	201-731-7203
NM	Albuquerque, Odyssey One	505-265-6645
NY	Huntington Sta., EF Tech. Sls.	516-549-1818
NC	Clayton, Saber Assocs.	800-327-0853
OH	Lancaster, Cain Forlaw	614-654-4800
PA	Andalusia, Les Associates	215-245-5250
SC	Columbia, Saber Assocs.	800-327-0853
TX	Dallas, Cain & Co.	214-233-6809
VA	McLean, Creative Mktg. Assoc., Ltd.	703-442-9100

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GENERAL POWER SYS., 1400 N. Baxter St., Anaheim, CA 92806, Tel: 714-956-9321, Telex: 182283; FSC No.: 04801; Empl.: 340; *Sls. Mgr.:* M. E. Heyman; *Dist. Mgr.:* M. E. Heyman

GENERAL PRODUCTS CORP., 9030 Carroll Way, San Diego, CA 92121, Tel: 619-578-9690

GENERAL RESISTANCE, INC., A Prime Technology Company, Twin Lakes Rd., P.O. Box 185, N. Branford, CT 06471, Tel: 203-481-5721, TWX: 710-452-3092; FSC No.: 05591; Empl.: 60; *Sls. Mgr.:* J. L. Jamieson ....**1A**•1873; **3**•1239

Local Sales Offices & Reps

Instruments

AL	Birmingham, SESCO	205-988-8304
AZ	Phoenix, Qualtech	602-967-4655
CA	Long Beach, Saber Entprs.	213-595-5646
CA	Palo Alto, Gado Instr. Sls.	415-961-2222
CA	San Diego, Saber Entrps.	619-271-1523
CO	Littleton, Radco	303-794-4279
CT	Cheshire, MECO, Inc.	203-271-0026
FL	St. Petersburg, SESCO	813-576-6991
GA	Altanta, SESCO	404-458-6423
IL	Des Plaines, Marsland Assocs.	312-694-2262
IA	Cedar Rapids, Marsland Assocs.	319-396-8030
LA	Baton Rouge, SESCO	504-928-4951
MA	Reading, MECO, Inc.	617-944-6660
MI	Mt. Clemens, R. J. O'Hara Assocs.	313-791-7140
MN	Minneapolis, Marsland Assocs.	612-545-4481
MO	St. Louis, Marsland Assocs.	314-991-1399
NJ	Hillsdale, CB Associates	201-664-6230
NJ	Pennsauken, Scientific Reps	609-662-5222
NM	Albuquerque, Qualtech	505-243-5605
NY	Binghamton, TAE-REP	607-772-6952
NY	Fishkill, TAE-REP	914-896-6966
NY	Rochester, TAE-REP	716-586-8710
NC	Charlotte, SESCO	704-535-4920
OH	Dayton, RIXAN Assocs.	513-278-4216
OK	Tulsa, SESCO	918-622-3868
TX	Austin, SESCO	512-892-2490
TX	Dallas, SESCO	214-231-9364
TX	El Paso, Waltech Inc.	915-592-2415
TX	Houston, SESCO	713-999-3510
VA	Fairfax, Scientific Assocs.	703-385-0600
WA	Seattle, Datacom Assocs.	206-285-2525

Components

CA	Saratoga, TESTCO	408-253-1900
CO	Golden, J. F. Hurlbut Co.	303-279-7796
MI	Farmington, W. R. Hummon & Assoc.	313-474-0661
OH	Dayton, RIXAN Assocs.	513-278-4216
PA	Havertown, Quarracino	215-449-7500
TX	Dallas, Blackburn Assocs.	214-692-8885
TX	Houston, Blackburn Assocs.	713-463-1354
UT	Salt Lake City, J. F. Hurlbut Co.	801-973-4443
VA	Fairfax, Beacon North Inc.	703-591-1300
VA	Forest, Beacon North Inc.	804-239-8486

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OH	Dayton, RIXAN Assocs.	513-278-4216

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GENERAL SEMICONDUCTOR INDS., INC., 2001 W. 10 Pl., Tempe, AZ 85281, Tel: 602-968-3101, TWX: 910-950-1942; FSC No.: 24444; Empl.: 425; *Sls. Mgr.:* Jim Williams; *Dist. Mgr.:* Howard Israel

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GENICOM CORP., General Electric Dr., Waynesboro, VA 22980, Tel: 703-949-1000; FSC No.: 01526; Empl.: 2300; *Sls. Mgr.:* W. J. Vanco ....**1B**•1386, 1387

Local Sales Offices & Reps

CA	Los Angeles	213-701-0353
CA	San Francisco	408-925-6648
CT	Meriden	203-238-6800
DC	Washington	301-770-4434
GA	Atlanta	404-256-1966
IL	Chicago	312-577-1100
MA	Boston	617-657-4800

Local Distributors

AL	Huntsville, Arrow Elctrns.	205-882-2730
CA	Chatsworth, Arrow Elctrns.	213-701-7500
CA	Newport Beach, Arrow Elctrns.	714 851-8961
CA	San Diego, Arrow Elctrns	619-565-4800
CA	Santa Ana, Norstan	714-540-4165
CA	Sunnyvale, Arrow	408-745-6600
CO	Thornton, Arrow	303 451-5934
CT	Wallingford, Arrow	203-265-7741
FL	Fort Lauderdale, Arrow	305-776-7790
FL	Palm Bay, Arrow	305-725-1480
GA	Norcross, Schweber	404-449-9170
IL	Schaumburg, Arrow	312-397-3440
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IA	Cedar Rapids, Arrow Electrns.	319-395-7230
MD	Baltimore, Arrow	301-247-5200
MD	Towson, Electronic Comp. Sls.	301-296-6282
MA	Woburn, Arrow	617-933-8130
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Grand Rapids, Arrow Elctrns.	612-830-1800
MN	Edina, Arrow	612-830-1800
MO	St. Louis, Arrow	314-567-6888
NH	Manchester, Arrow	603-668-6968
NJ	Fairfield, Arrow	201-575-5300
NJ	Moorestown, Arrow	609-235-1900
NM	Albuquerque, Arrow	505-243-4566
NY	Hauppauge, Arrow	516-231-1000
NY	Liverpool, Arrow	315-652-1000
NY	Rochester, Arrow	716-275-0300
NC	Charlotte, Electronics Mktg. Corp.	704-394-6195
NC	Raleigh, Arrow Elctrns.	919 876-3132
NC	Winston-Salem, Arrow	919-725-8711
OH	Centerville, Arrow Electrns.	513-435-5563
OH	Cleveland, Electronics Mktg. Corp.	216-442-3441
OH	Columbus, Electronics Mktg. Corp.	614-299-4161
OH	Dayton, Elctrns Mktg. Corp.	513-278-5745
PA	Monroeville, Arrow Elctrns.	412-856-7000
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Dallas, Arrow	214-386-7500
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UT	Salt Lake City, Arrow Elctrns.	801-539-1135
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GENISCO MEMORY PRODS. CORP., 10874 Hope St., Cypress, CA 90630, Tel: 213-537-4750, 714-220-0720, TWX: 910-347-6773; FSC No.: 96682; Empl.: 175; *Sls. Mgr.:* Harry Watt

GENISCO TECHNOLOGY CORP., Eldema Div., 18435 Susana Rd., Rancho Dominguez, CA 90221, Tel: 213-537-4750, TWX: 910-346-6773; FSC No.: 03797; Empl.: 450; *Sls. Mgr.:* W. R. Esser

GENISCO TECHNLG. CORP., Filters Div., 18435 Susana Rd., Rancho Dominguez, CA 90221, Tel: 213-537-4750, TWX: 910-346-6773; FSC No.: 07294; Empl.: 450; *Sls. Mgr.:* B. Hanna

GENISCO TECHNLG. CORP., Rotating Test Div., 18435 Susana Rd., Rancho Dominguez, CA 90221, Tel: 213-537-4750, TWX: 910-346-6773; FSC No.: 13946; Empl.: 450; *Sls. Mgr.:* F. Schodlbauer

GENISCO TECHNLG. CORP., Transducers Prods. Div., 650 Easy St., Simi Valley, CA 93065, Tel: 805-581-3985, TWX: 910-346-6773; FSC No.: 13946; Empl.: 450; *Sls. Mgr.:* J. Becker

GENRAD, INC., 300 Baker Ave., Concord, MA 01742, Tel: 617-369-4400

GENSTAR RENTAL ELCTRNS., 2445 Faber Pl., Palo Alto, CA 94303, Tel: 415-856-7600, Telex: 348368

GENTEX, Box 315, Carbondale, PA 18407, Tel: 603-434-0311, Telex: 831-883; FSC No.: 97427; *Sls. Mgr.:* Ture Heline

GENTRON CORP., 6667 N. Sydney Pl., Milwaukee, WI 53209, Tel: 414-351-1660, Telex: 26881; Empl.: 90; *Sls. Mgr.:* Ron Ragland

Local Sales Offices & Reps

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CA	Mountain View, Energy Comp.	415-969-0330
FL	Sunrise, Arnold Milrot & Assocs.	305-748-6446
IN	Greenwood, Valentine & Assoc.	317-888-2260
KS	Overland Park, WEB Elctrns.	913-381-2225
MA	Millis, Selmark Assocs.	617-376-2914
MI	Brighton, SAI Mktg. Corp.	313-227-1786
MN	Minneapolis, Furber Sls.	612-881-3620
MO	Florissant, WEB Elctrns.	314-921-5794
NH	Hopkinton, Selmark Assocs.	603-623-5774
NJ	Teaneck, R. T. Reid Assocs.	201-692-0200
NY	Rochester, Ossmann Comp. Sls.	716-424-4460
NY	Syracuse, Ossmann Comp. Sls.	315-455-6611
OR	Portland, SPS Elctrns.	503-285-0214
PA	Philadelphia, Fite Eltech	215-248-3171
TX	Lewisville, Jim Hughes Co.	214-434-2566
TX	Stafford, Jim Hughes Co.	713-343-0673
WA	Seattle, SPS Elctrns.	206-323-4140
WI	Mequon, Stumm Sls.	414-241-8414
WI	Milwaukee, Speaker Electronics	414-878-3727

Local Distributors

CA	Santa Ana, AMCOTEC	714-957-3003
NY	Ronkonkoma, Trace Elctrns.	516-645-6111
NC	Gastonia, JMT Elctrn. Supply Co.	704-867-4401
TX	Fort Worth, Allied Elctrns.	817-336-5401

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GFC/HAMMOND ELCTRNS., INC., 1690 Walden Ave., Buffalo, NY 14225, Tel: 716-894-5710, Telex: 91-6452; *Sls. Mgr.:* Ray Shatzel .... 3•1583

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CT	Guilford, Elctrn. Mktg. Assoc.	203-453-5424
FL	Clearwater, Brennan Assocs.	813-446-5006
GA	Atlanta, Millar Elctrns.	919-787-9564
MA	Marblehead, Elctrn. Mktg. Assoc.	617-536-8206
MI	Southfield, Component Assocs.	313-557-3232
MS	Jackson, Welch & Doby Mktg.	601-932-5534
NH	Salem, Elctrn. Mktg. Assoc.	603-893-5378
NJ	Middlesex, Comtec Cornell Assocs.	201-469-1303
TX	Dallas, S. W. Marketing	214-341-8631
UT	Salt Lake City, Control Agencies	801-328-4305
WA	Seattle, Fleehart & Sullivan	206-522-1533

GGB INDUSTRIES, INC., Picoprobe Division, P.O. Box 125, Gillette, NJ 07933, Tel: 201-464-1749; *Sls. Mgr.:* Greg Boll

GIANNINI PETRO MARINE, 9474 Chesapeake Dr., San Diego, CA 92123, Tel: 619-569-1668, Telex: 181754; FSC No.: 24727; Empl.: 12

GIBSON/EGAN, 2666 East Huntington Dr., Duarte, CA 91010, Tel: 818-358-0191; Empl.: 40

GIC SYSTEMS, 2324 A Ridgepoint Dr., Austin, TX 78754, Tel: 512-926-8840; *Sls. Mgr.:* Ed Barry; *Dist. Mgr.:* Bob Lynch .... 3•1078-1081

Refer to Gordos Corporation, Bloomfield, New Jersey for Representatives and Authorized Distributor information.

GIC THERMODYNAMICS, 2611 Parmenter, Royal Oak, MI 48073, Tel: 313-280-1648, Telex: 23-5714; Empl.: 7

GIDDINGS & LEWIS ELCTRNS., A Unit of AMCA Intl., 666 S. Military Rd., P.O. Box 1658, Fond du Lac, WI 54935, Tel: 414-921-7100, Telex: 26-2722, TWX: 910-275-1100; Empl.: 200; *Sls. Mgr.:* Tom Bullock

GILTRONIX, 3780 Fabian Way, Palo Alto, CA 94303, Tel: 415-493-1300, Telex: 345542; *Sls. Mgr.:* Eddie Poplawski

GILWAY TECHNICAL LAMP, 165M New Boston St., Woburn, MA 01801, Tel: 617-935-4442, Telex: 949-329; Empl.: 11; *Sls. Mgr.:* Clark Benjamin III; *Dist. Mgr.:* Cathy A. DiCroce .... 1B•1057

GIMIX, INC., 1337 W. 37th Place, Chicago, IL 60609, Tel: 312-927-5510, TWX: 910-221-4055; Empl.: 14; *Sls. Mgr.:* Richard Don

GLAR-BAN DIV. OF MARK IV INDS., INC., 2937 Alt Blvd., Grand Island, NY 14072, Tel: 716-773-2871, Telex: 91578; Empl.: 85; *Sls. Mgr.:* Scott Simons

GLASGAL COMMUNICATIONS, INC., 207 Washington St., Northvale, NJ 07647, Tel: 201-768-8082, TWX: 710-991-8585; *Sls. Mgr.:* Ralph Glasgal; *Dist. Mgr.:* Al Harnisch

GLASSMAN HIGH VOLTAGE INC.

GLASSMAN HIGH VOLTAGE INC., P.O. Box 551, Salem Indl. Pk., Whitehouse Sta., NJ 08889, Tel: 201-534-9007, TWX: 710-480-2839; Empl.: 45; *Sls. Mgr.:* John R. Belden .... 3•1578-1581

Local Sales Offices & Reps

AZ	Scottsdale, Power Specialists	602-996-4100
CA	Los Alamitos, Power Specialists	213-594-9418
CA	Los Altos, Jay Stone & Assocs.	415-948-4563
CA	San Diego, Power Specialists	619-560-4061

GLATZER INDUSTRY CORP., 15 River St., New Rochelle, NY 10801, Tel: 914-576-2700; Empl.: 15

GLENAIR, 1211 Air Way, Glendale, CA 91201, Tel: 213-247-6000, Telex: 67-3485, TWX: 910-497-2066; FSC No.: 06324; Empl.: 485; *Sls. Mgr.:* Fred J. Hans

GLENMARC MFG., 330 Melvin Dr., Northbrook, IL 60062, Tel: 312-272-9030, Telex: 28-3499; Empl.: 13; *Sls. Mgr.:* Kevin L. Bagaline, David Greenwood

GLOBAL SPECIALTIES CORP., 70 Fulton Terrace, P.O. Box 1942, New Haven, CT 06509, Tel: 203-624-3103, TWX: 710-465-1227; Empl.: 107

GLOBE BATTERY DIV., See Johnson Controls, Globe Battery Div.

GLOBE PLASTICS, 1342 S. Signal Dr., Pomona, CA 91766, Tel: 714-623-2747; Empl.: 15

GLOBE UNION, See Johnson Controls, Globe Battery Div.

GM NAMEPLATE, INC., 2040 15th Ave. West, Seattle, WA 98119, Tel: 206-284-2200, TWX: 910-444-2053; *Sls. Mgr.:* Ed Westfall

GMR INC., Computer Elctrns., 1048 E. Burgrove St., Carson, CA 90746, Tel: 213-639-4663; *Sls. Mgr.:* Harvey Mushman

GNB BATTERIES INC., Ind'l. Battery Div., 2010 Cabot Blvd. W., Langhorne, PA 19047, Tel: 215-752-0555, TWX: 510-667-2056

GNT AUTOMATIC, 1560 Trapelo Rd., Waltham, MA 02154, Tel: 617-890-3305; Empl.: 14; *Sls. Mgr.:* K. P. Olson

GOLDEN PACIFIC ELCTRNS., INC., 1020 N. Batavia St., Ste. Q, Orange, CA 92667, Tel: 714-538-9752/9753, TWX: 910-593-1620 .... 1B•1058; 3•1029, 1582

GOLDWELL COMPS., 1815 W. 205th St. Ste. 201, Torrance, CA 90501, Tel: 213-533-1228, Telex: 182-392; *Sls. Mgr.:* S. Komori

GORDON, CLAUD S., CO., 5710 Kenosha St., Richmond, IL 60071, Tel: 815-678-2211, Telex: 72-2427; Empl.: 260

GORDON, L., PACKAGING, 1050 S. Paca St., Baltimore, MD 21230, Tel: 301-539-6537

GORDON PRODS., 67 Del Mar Dr., Brookfield, CT 06804, Tel: 203-775-4501; Empl.: 20; *Sls. Mgr.:* Leon Najman; *Dist. Mgr.:* Leon Najman

GORDOS CORPORATION

GORDOS CORP., 250 Glenwood Ave., Bloomfield, NJ 07003, Tel: 201-743-6800, TWX: 710-994-4787; Empl.: 800; *Sls. Mgr.:* Bill McDermott; *Dist. Mgr.:* Bob Lynch .... 1B•1396-1399, 1401-1403, 1625-1627; 2•1888, 1889

Local Sales Offices & Reps

AZ	Phoenix, Cleveland Entprs.	602-944-4679
CA	Santa Clara, Maxim Elctrn. Sls.	408-727-0694
CO	Wheatridge, Waugaman Assocs.	303-423-1020
CT	Orange, R. F. Duffy Assocs.	203-795-3678
MA	Braintree, R. F. Duffy Assocs.	617-848-3550
NM	Albuquerque, Cleveland Entprs.	505-265-7893
NY	Pittsford, Noeth-Honsinger Assoc.	716-586-9002
OR	Portland, Micro Sls.	503-297-4726
UT	S. Jordan, Waugaman Assocs.	801-254-0570
WA	Bellevue, Micro Sls.	206-451-0568

Local Distributors

AL	Birmingham, Regal Controls	205-991-6340
AL	Huntsville, RM	205-852-1550
AL	Huntsville, Pioneer	205-837-9300
AZ	Phoenix, Newark	602-957-0085
AZ	Phoenix, Arizona Comps.	602-279-9446
AZ	Phoenix, Be Switched	602-275-4805
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tempe, Time	602-967-2000
AR	Little Rock, Newark	501-225-8130
CA	Buena Park, Control Design	714-521-5040
CA	Chatsworth, IEC	213-998-2200
CA	Foster City, Newark	415-572-8300
CA	Inglewood, Newark	213-671-7066
CA	Los Angeles, Elec. Switches	213-660-1310
CA	Riverside, Elctrn. Supp.	714-683-7300
CA	San Carlos, Control Design	415-592-4808
CA	San Diego, Elctrn. Supp.	619-693-8222
CA	Sunnyvale, Time	408-734-9888
CA	Torrance, Time Elctrns.	213-320-0880
CO	Denver, Integrated Elctrns.	303-534-6121
CO	Denver, Newark	303-757-3351
CO	Wheatridge, Bell Inds.	303-424-1985
CT	Cheshire, Future Elctrns.	203-272-1852
CT	Danbury, Future	203-743-9594
FL	Ft. Lauderdale, Power Comps.	305-565-1614
FL	Ft. Lauderdale, Pioneer	305-771-7520
FL	Ft. Lauderdale, Newark	305-587-2372
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Orlando, Hammond Elctrns.	305-849-6060
FL	Orlando, Pioneer	305-834-9090
GA	Atlanta, Control Design	404-979-3500
GA	Norcross, Newark	404-448-1300
GA	Norcross, Pioneer	404-448-1711
GA	Stone Mountain, Control Design	404-979-3500
HI	Pearl City, Newark	808-456-5933
ID	Boise, Newark	208-342-4311
IL	Addison, L Comp	312-628-1400
IL	Chicago, Newark	312-638-4411
IL	Elk Grove Village, Pioneer	312-437-9680
IL	Genoa, Control Design	815-784-6515
IL	Lombard, RM	312-932-5150
IN	Carmel, Altex Elctrns.	317-848-1323
IN	Indianapolis, Control Design	317-788-4559
IN	Indianapolis, RM	317-247-9701
IN	Indianapolis, Pioneer	317-849-7300
IA	West Des Moines, Ramco	515-225-6933
KS	Wichita, L Comp	316-265-8501
LA	New Orleans, Currier P Roser	504-734-1147
MD	Beltsville, Newark	301-937-5085
MD	Columbia, Time	301-964-3090
MD	Gaithersburg, Pioneer	301-921-0600
MA	Westboro, Future Elctrns.	617-366-2400
MA	Woburn, Newark	617-935-8350

GORDOS

AUTHORIZED DISTRIBUTOR

E S I

ELECTRIC SWITCHES

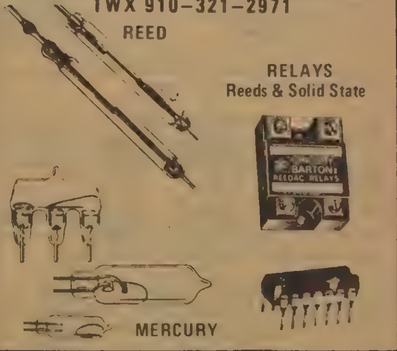
INCORPORATED

2478 Fletcher Drive, Los Angeles, Calif. 90039

(213) 660-1310

TOLL FREE WATS
NATIONAL: 800-421-8855
CALIFORNIA: 800-252-4640

TWX 910-321-2971



See complete product line under
SWITCHES — section 5100
FREE linecard and catalog on request

MA	Woburn, Time	617-935-8080
MI	Grand Rapids, RM Elctrns.	616-531-9300
MI	Livonia, Pioneer	313-525-1800
MI	Oak Park, Newark	313-967-0600
MN	Minneapolis, Newark	612-331-6350
MN	Minneapolis, Control Design	612-721-1628
MN	Minnetonka, Pioneer	612-935-5444
MO	Kansas City, L Comp	816-221-2400
MO	St. Louis, L Comp	314-291-6200
MO	St. Louis, Control Design	314-426-3150
NE	Omaha, L Comp	402-895-5517
NE	Omaha, Newark	402-392-1221
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	Pennsauken, Resco	609-662-4000
NJ	Springfield, Newark	201-376-9500; 212-349-7087
NM	Albuquerque, Bell Inds.	505-292-2700
NM	Albuquerque, Elctrn. Dvcs.	505-884-2950
NY	Buffalo, Summit	716-884-3450
NY	Hauppauge, JACO	516-273-5500
NY	New York, Time	516-273-0100
NY	Rochester, Summit	716-334-8110
NY	Rochester, Simcona Elctrns.	716-328-3230
NC	Charlotte, Electronics Mktg. Corp.	704-394-6195
NC	Charlotte, Pioneer/Carolina	704-527-8188
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Pineville, Control Design	704-588-4410
NC	Shelby, Dixie Indl. Supply	704-482-5641
OH	Cleveland, Pioneer	216-587-3600
OH	Columbus, Elctrns. Mktg. Corp.	614-299-4161
OH	Dayton, Pioneer	513-236-9900
OH	Kettering, Elctrns. Mktg. Corp.	513-439-4711
OH	Solon, REH Elctrns.	216-248-1636
OH	Valley View, Newark	216-447-1050
OK	Tulsa, Newark	918-832-7004
OR	Lake Oswego, Bell Inds.	503-241-4115
PA	Broomall, Time Elctrns.	215-359-1200
PA	Horsham, Pioneer	215-674-4000
PA	Malvern, Control Design	215-296-0150
PA	Pittsburgh, Pioneer	412-782-2300
PA	Willow Grove, Resco Elctrns.	215-659-4575
SC	Greenville, Hammond	803-233-4121
TX	Austin, Pioneer	512-835-4000
TX	Dallas, Control Design	214-358-1441
TX	Dallas, Pioneer	214-386-7300
TX	Dallas, RM Elctrns.	214-263-8361
TX	Houston, Newark	713-782-4800
TX	Houston, Pioneer	713-988-5555
TX	Richardson, JACO	214-235-9575
UT	Salt Lake City, Bell Inds.	801-972-6969
UT	Salt Lake City, Ballard Supp. Corp.	801-972-2435
VA	Chester, Virginia Control Equip. Co.	804-796-3001
WA	Bellevue, Newark	206-641-9800
WA	Bellevue, IEC	206-455-2727
WA	Bellevue, Bell Inds.	206-747-1515
WI	Milwaukee, Indl. Elctrns.	414-276-1212
WI	New Berlin, RM Elctrns.	414-784-4420
WI	New Berlin, Control Design	414-784-1015
PR	Carolina, Newark	809-762-4490

GORDOS ARKANSAS, INC., 1000 N. Second St., Rogers, AR 72756, Tel: 501-636-5000, TWX: 910-720-7998; *Sls. Mgr.:* Paul Bachman; *Dist. Mgr.:* Bob Lynch .... **1A**•1654-1657; **1B**•1388-1395, 1400

Local Sales Offices & Reps

AZ	Phoenix, Cleveland Entprs.	602-944-4679
CA	Santa Clara, Maxim Elctrn. Sls.	408-727-0694
CO	Wheatridge, Waugaman Assocs.	303-423-1020
CT	Orange, R. F. Duffy Assocs.	203-795-3678
MA	Braintree, R. F. Duffy Assocs.	617-848-3550
NM	Albuquerque, Cleveland Entprs.	505-256-7893
NY	Pittsford, Noeth-Honsinger Assoc.	716-586-9002
OR	Portland, Micro Sls.	503-297-4726
UT	S. Jordan, Waugaman Assocs.	801-254-0570
WA	Bellevue, Micro Sls.	206-451-0568

Refer to Gordos Corporation, Bloomfield, New Jersey for Authorized Distributor information.

GORE, W. L., & ASSOCS., INC., 1505 N. Fourth St., P.O. Box 1389, Flagstaff, AZ 86002, Tel: 602-526-1290, TWX: 910-972-0969; FSC No.: 60622; *Sls. Mgr.:* Burt Chase (Intl.)

GORE, W. L., & ASSOCS., 555 Paper Mill Rd., Newark, DE 19714, Tel: 302-738-4880, TWX: 510-666-0825; Empl.: 2000; *Sls. Mgr.:* A. B. Chase

GORMAN MACHINE CORP., 7 Burke Dr., Brockton, MA 02401, Tel: 617-588-2900, TWX: 710-345-0679; *Sls. Mgr.:* Kenneth P. Gorman

GORMAN-REDLICH MFG. CO., 6 Curtis St., Athens, OH 45701, Tel: 614-593-3150; Empl.: 4; *Sls. Mgr.:* Jim Gorman

GOULD
Electronics

GOULD INC., Corporate Headquarters, 10 Gould Center, Rolling Meadows, IL 60008; Empl.: 20,650 ....**1B**•1404-1413; **3**•1380, 1384

GOULD-AMI, Sub. Gould Inc., 3800 Homestead Rd., Santa Clara, CA 95051, Tel: 408-554-2150, TWX: 910-338-0018; *Dist. Mgr.:* Judi MacGregor

Local Sales Offices & Reps

CA	Newport Beach, AMI	714-851-5931
CA	Santa Clara, AMI	408-738-4151
FL	Altamonte Springs, AMI	305-830-8889
IL	Elk Grove Village, AMI	312-437-6496
NY	Monsey, AMI	914-352-5333
PA	Ambler, AMI	215-643-0217

GOULD INC., Circuit Protection Div., 374 Merrimac St., Newburyport, MA 01950, Tel: 617-462-6662/3131, Telex: 94-7427, TWX: 710-347-0264; *Sls. Mgr.:* Richard Gray

Local Sales Offices & Reps

AK	Palmer, North Star Agencies	907-745-5436/5446
AZ	Scottsdale, Mahaffey & Assocs.	602-991-9790
CA	Concord, G & R Sales	415-827-1727
CA	Costa Mesa, Dennis Don & Assocs.	213-638-0427
CO	Evergreen, Jim Hammond & Assocs.	303-674-6906
FL	Miami, Glenn Assoc. of Florida	305-592-7335
FL	Orlando, Glenn Assoc. of Florida	305-293-7482
GA	Atlanta, Berry-Elsberry Co.	404-355-9296
HI	Honolulu, Pacific Factors	808-533-7135
ID	Boise, C & J Enterprises	208-375-3116
IL	Addison, McBud, Inc.	312-628-8570
IN	Indianapolis, ESI, Inc.	317-638-4439
IA	Des Moines, Jerry L. Shumway & Assoc.	515-285-0704
KS	Prairie Village, George H. Pearson Co.	913-341-6210
KY	Louisville, Henry Thompson Sls. Co.	502-583-3636
LA	Mandeville, Service Electrical Sls.	504-467-0775
MD	Owings Mills, Specialty Electrical Sls. Co.	301-356-7700, 800-638-6146
MI	Highland, Holley & Upleger	313-887-0064
MN	Minneapolis, LESCO, Inc.	612-542-8242
MS	Brandon, Service Electrical Sls.	601-992-9122
MO	St. Louis, George H. Pearson Co.	314-822-4080
MT	Big Fork, B. L. Peck & Assoc.	406-837-5092
NH	Meredith, Raymon Gerard Assocs.	603-524-6005, 800-343-0574
NJ	Kenilworth, Tri-Tech Assoc.	201-851-0370/0371, 212-567-2610
NY	No. Syracuse, Lachut Electrical Sls.	315-422-2575
NC	Greensboro, Electra-Tek Carolinas	919-272-8254
OH	Cleveland, Electro-Specialities	216-447-3048
OH	Milford, Alexander Equip. Co.	513-248-0901
OK	Oklahoma City, P. & C. Sales Co.	405-745-3431
OR	Portland, Robert A. Amey Co.	503-646-7196
PA	Pittsburgh, Robert W. Colley & Assoc.	412-331-3121
TN	Germantown, Talley & Talley Assocs.	901-755-3130
TX	Houston, Hodges, Kinney & Clark	713-748-8235
TX	Plano, Tubbesing Sls. Corp.	214-985-1079
UT	Salt Lake City, Electrical Systems	801-487-8811
WA	Seattle, Shaffer & Nelson	206-453-5575
WI	Milwaukee, D. S. Berry Co.	414-224-0680
PR	Carolina, Glenn Intl.	809-769-1851

GOULD COMPION, 1101 E. University, Urbana, IL 61081, Tel: 217-384-8500

GOULD INC., Computer Sys. Div., 6901 W. Sunrise Blvd., Ft. Lauderdale, FL 33313, Tel: 305-587-2900, TWX: 510-955-9843; FSC No.: 59-0913135; Empl.: 2376; *Sls. Mgr.:* Howard Kossak; *Dist. Mgr.:* Lionel Agar (Intl.)

GOULD INC., Design & Test Sys. Div., 4600 Old Ironsides Dr., Santa Clara, CA 95050, Tel: 408-988-6800, TWX: 910-338-0509; *Sls. Mgr.:* Dan Cockcroft

GOULD INC., Foil Div., 35129 Curtis Blvd., Eastlake, OH 44094, Tel: 216-953-5000, TWX: 810-427-2506; *Sls. Mgr.:* Tim Quigley

GOULD INC., Imaging & Graphics Div., 1870 Lundy Ave., San Jose, CA 95131, Tel: 408-263-7155, TWX: 910-338-7656; Empl.: 200; *Sls. Mgr.:* Mike Battaglia; *Dist. Mgr.:* Ernie Ohrenstein

GOULD INC., Industrial Controls Div., 901 Baltimore Blvd., Westminster, MD 21157, Tel: 301-876-2214, TWX: 710-862-0846; Empl.: 325; *Sls. Mgr.:* M. Freyermuth ....**1B**•1404-1413

Local Sales Offices & Reps

AZ	Tempe, Delta Elctrn. Sls.	602-966-9903
CA	Cerritos, El-Com	213-404-2961
CA	Fremont, Wm. Parks Assocs.	415-490-2011
CO	Denver, Electronic Sls.	303-771-6300
CT	Cheshire, Selmark Assocs.	203-573-9088
FL	Melbourne, Raycom	305-259-7988
GA	Atlanta, Electro-Rep. Assocs.	404-320-1134
ID	Boise, Huntley Assocs.	208-343-3753
IL	Chicago, Industrial Reps.	312-647-7755
IN	Indianapolis, M & L Elctrn. Sls.	317-359-4742
IA	Marion, Design Solutions	319-377-1129
KS	Wichita, Design Solutions	316-529-0114
MD	Columbia, Delta III Assocs.	301-730-4700
MA	Millis, Selmark Assocs.	617-376-2914
MI	Livonia, Elctrn. Salesmasters	800-321-1848
MN	Minneapolis, Giefer Sls.	612-884-2395
MO	Brentwood, Design Solutions	314-961-7170
NH	Hopkinton, Selmark Assocs.	603-623-5774
NJ	Medford, Component Conslts.	609-654-5300
NJ	Oakland, Peter C. Gordon Assoc.	201-337-5200
NY	Endicott, Noeth Honsinger Assoc.	607-724-4865
NY	Pittsford, Noeth Honsinger Assoc.	716-586-9002
NC	Charlotte, Electro-Rep Assocs.	704-527-2530
OH	Beachwood, Elctrns. Salesmasters	216-831-9555
OR	Beaverton, Huntley Assocs.	503-649-5388
PA	Pittsburgh, Process Engrg. Co.	412-561-5050
TX	El Paso, Alexander Entprs.	915-591-3142
TX	Seagoville, Delta Comps.	214-287-6333
WA	Everett, Huntley Assocs.	206-353-1833
WI	Milwaukee, Industrial Reps.	414-259-0965

Local Distributors

CA	Cerritos, El-Com	213-404-2961
CA	Hayward, KEA Distr.	415-887-2900
CA	Los Angeles, Master Distrs.	213-452-1229
CO	Englewood, Elctrn. Sls.	303-771-6300
CT	East Haven, JV Elctrns.	203-469-2321
CT	Stamford, Bond Elctrns.	203-348-2663
FL	Altamonte Springs, Control Design	305-788-3220
FL	Ft. Lauderdale, Peerless Radio	305-973-4141
ID	Spirit Lake, A-I Elctrns.	208-623-3111
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Genoa, Control Design	815-784-6515
IN	Fort Wayne, Graham Elctrns.	219-423-3422
KS	Wichita, R.S.C., Inc.	316-267-5213
MA	Newton, Greene-Shaw	617-969-8900
MN	Minneapolis, Control Design	612-721-1628
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	Kenilworth, Federated Purchaser	201-272-0505
NJ	Oakland, Gordon/Horne	201-337-5200
NM	Albuquerque, Intl. Elctrns.	505-262-2011
NY	Amherst, Standard Elctrns.	716-691-3801
NY	Buffalo, Summit Distributing	716-884-3450
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Rome, Rome Elctrns.	315-337-5400
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Akron, Akron Elctrns.	216-762-8818
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Wickliffe, Gateway-Megatech	216-944-8565
OK	Oklahoma City, Electro Entprs.	405-427-6591
PA	Philadelphia, Shap Elctrns.	215-969-3300
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
TN	Nashville, Electra Distrs.	615-329-3971
TX	Dallas, Sterling Elctrns.	214-243-1600
TX	Houston, Geophysical Supp.	713-666-4100
UT	Salt Lake City, Kimball Elctrns.	801-328-2075
WA	Seattle, Carlyle Tech. Sls.	206-575-6750

GOULD INC., Meas. Sys. Div., 2230 Statham Blvd., Oxnard, CA 93030, Tel: 805-487-8511, Telex: 65-9223; Empl.: 500

GOULD INC., Medical Prods. Div., 1900 Williams Dr., Oxnard, CA 93030, Tel: 805-983-1300, Telex: 182-204

GOULD INC., Micro Power Prods. Div., 2777 Eagandale Blvd., Eagan, MN 55121, Tel: 612-681-4200, Telex: 297-486; Empl.: 100; *Sls. Mgr.:* H. T. Ross; *Dist. Mgr.:* Mary Weber

GOULD INC., Motion Control Div., 2701 N. Green Bay Rd., Racine, WI 53404, Tel: 414-637-6591, Telex: 201-309

GOULD INC., POWER CONVERSION DIV., See RTE DELTEC CORPORATION

GOULD INC., Programmable Control Div., Box 83, S.V.S., Andover, MA 01810, Tel: 617-475-4700, Telex: 947-402, TWX: 710-347-6610; *Sls. Mgr.:* George Dannecker; *Dist. Mgr.:* Richard Bell

GOULD INC., Recording Systems Div., 3631 Perkins Ave., Cleveland, OH 44114, Tel: 216-361-3315; FSC No.: 96795; Empl.: 550; *Sls. Mgr.:* George Trudeau .... 3•1380, 1384

Local Sales Offices & Reps

AZ	Mesa, Gould Inc., Recording Sys. Div.	602-833-1602
CA	Cerritos, Gould Inc., Recording Sys. Div.	213-404-1919
CA	Hayward, Gould Inc., Recording Sys. Div.	415-782-0852
CO	Englewood, Gould Inc., Recording Sys. Div.	303-781-4473
FL	Altamonte Springs, Gould Inc., Recording Sys. Div.	305-830-0695
GA	Atlanta, Gould Inc., Recording Sys. Div.	404-441-5556
HI	Honolulu, EMC Corp.	808-836-1138
IL	Elk Grove Village, Gould Inc., Recording Sys. Div.	312-640-4135
IN	Indianapolis, Gould Inc., Recording Sys. Div.	317-842-4484
MD	Greenbelt, Gould Inc., Recording Sys. Div.	301-345-0050
MA	Burlington, Gould Inc., Recording Sys. Div.	617-272-0750
MI	Madison Heights, Gould Inc., Recording Sys. Div.	313-588-4020
MN	Minneapolis, Gould Inc., Recording Sys. Div.	612-544-5253
MO	Florissant, Gould Inc., Recording Sys. Div.	314-921-3444
NJ	Saddle Brook, Gould Inc., Recording Sys. Div.	201-845-0220
NM	Albuquerque, Gould Inc., Recording Sys. Div.	505-292-4063
NY	Albany, Gould Inc., Recording Sys. Div.	518-584-7999
NY	Rochester, Gould Inc., Recording Sys. Div.	716-235-4980
NC	Greensboro, Gould Inc., Recording Sys. Div.	919-275-1978
OH	Centerville, Gould Inc., Recording Sys. Div.	513-433-9586
OH	Cleveland, Gould Inc., Recording Sys. Div.	216-361-3315
PA	Malvern, Gould Inc., Recording Sys. Div.	215-647-2214
PA	Pittsburgh, Gould Inc., Recording Sys. Div.	412-923-2970
TN	Hermitage, Gould Inc., Recording Sys. Div.	615-754-7100
TX	Dallas, Gould Inc., Recording Sys. Div.	214-634-2131
TX	Houston, Gould Inc., Recording Sys. Div.	713-680-1121
VA	Richmond, Gould Inc., Recording Sys. Div.	804-282-5533
WA	Bellevue, Gould Inc., Recording Sys. Div.	206-453-2461

GOULD DATAMETRICS, See Datametrics Inc.

GOWANDA ELCTRNS., 1 Industrial Pl., Gowanda, NY 14070, Tel: 716-532-2234, TWX: 710-529-1211; FSC No.: 24226; Empl.: 200; *Sls. Mgr.:* K. Strohmeyer

GOW-MAC INSTR. CO., P.O. Box 32, Bound Brook, NJ 08805, Tel: 201-560-0600, Telex: 833-174; Empl.: 40; *Sls. Mgr.:* R. J. Mathieu

Local Sales Offices & Reps

CA	Anaheim, Applied Instr. Corp.	714-535-6551
CA	Danville, Western Scientific Assoc.	415-837-4622
MD	Edgewater, Gow-Mac Instr. Co.	301-956-5641
MO	St. Louis, P.J. Cobert Assocs.	314-423-8388
NM	Albuquerque, Hiltech	505-268-1733
NC	Pinehurst, Tri Sci. Co.	919-295-6112
OR	Portland, Extech Ltd.	503-292-9219
TX	Houston, Indl. Sci. Corp.	713-528-1258
UT	Salt Lake City, Instrmn. Sls.	801-277-2044

GRADO LABS., 4614 Seventh Ave., Brooklyn, NY 11220, Tel: 212-435-5340

GRALEX INDS., 155 Marine St., Farmingdale, NY 11735, Tel: 516-694-3600, TWX: 510-224-6406; FSC No.: 11332; Empl.: 25; *Sls. Mgr.:* Moe Wind

GRA-MAR INC., 3165 McCrory Pl., Ste. 265, Orlando, FL 32803, Tel: 305-894-3351, TWX: 810-850-0125; FSC No.: 58-12-31006-40

GRAND TRANSFORMERS, Box 188, Grand Haven, MI 49417, Tel: 616-842-5430; Empl.: 125; *Sls. Mgr.:* G. V. Retzlaff

GRANGER ASSOCS., 3101 Scott Blvd., Santa Clara, CA 95051, Tel: 408-727-3101, Telex: 34-8380; Empl.: 750; *Sls. Mgr.:* Rick Green

GRANITE STATE CIRCUITS, Power Elctrns. Corp., P.O. Box 2208, 96 Milton Rd., Rochester, NH 03867, Tel: 603-332-3334, TWX: 510-297-4462; *Sls. Mgr.:* Robert S. Karstedt

GRANT HARDWARE CO., Div. of Grant Inds. Inc., 7 Hoover Ave, Haverstraw, NY 10927-1092, Tel: 914-EL8-4400, TWX: 914-358-3541; FSC No.: 83508; Empl.: 490; *Sls. Mgr.:* F. Centrillo

Local Sales Offices & Reps

CA	Canoga Park, Catlin Inds.	213-347-0444
CA	City of Industry, Grant Hardware Co.	213-686-2110
CA	Santa Clara, Nova-Tronix	408-243-9530
CO	Arvada, Challege Sls.	303-427-3149
FL	Ft. Lauderdale, Electro-Comp Assocs.	305-491-4141
IL	Des Plaines, Lincoln, Hodges & Assocs.	312-297-3810
KS	Overland Park, J. Singer Indl. Sls. Corp.	913-381-3684
MA	Lexington, E.F. Del Fino Co.	617-938-1217
MI	Farmington Hills, Carter, McCormic & Peirce	313-477-7700
MN	St. Paul, Repco	612-642-2828
NJ	Fort Lee, Necco	201-461-2789
NJ	Ridgefield, M - D Inds.	201-941-3113
NY	Binghamton, Precision Sls.	607-648-3686
NY	Liverpool, Precision Sls.	315-451-3480
NC	Charlotte, J. Corn Assocs.	704-552-0991
OH	Cincinnati, Tri State Mktg.	513-761-7993
OH	Cleveland, Carter McCormic & Peirce	216-779-5100
OH	Englewood, Carter McCormic & Peirce	513-836-0951
TX	Dallas, Blackburn Assocs.	214-692-8885
WA	Seattle, Norwest Co.	206-282-3707
WI	Waukesha, Lincoln, Hodges & Assoc.	414-542-3087

GRANT TECHNOLOGY SYS. CORP., 11 Summer St., Chelmsford, MA 01824, Tel: 617-256-8881; Empl.: 15; *Sls. Mgr.:* V.P.T. McLeod

GRAPHITE METALLIZING CORP., 1036 Nepperhan Ave., P.O. Box 110, Yonkers, NY 10702, Tel: 914-968-8400, Telex: 13-1571; Empl.: 178; *Sls. Mgr.:* W. W. Walker .... **1B**•1156

GRAPHTEC SERVICES, INC., 1600 N.W. Madrid Way, Boca Raton, FL 33432, Tel: 305-392-3373; Empl.: 12; *Sls. Mgr.:* Ralph D. Pistor

GRASSLIN CONTROLS CORP., Dieter Grasslin Feinwerktechnik, 45 Spear Rd., Ramsey, NJ 07446, Tel: 201-825-9696, Telex: 135038; Empl.: 5

GRAYHILL INC., 569 Hillgrove Ave., La Grange, IL 60525, Tel: 312-354-1040, Telex: 6871375 GHLG UW, TWX: 910-683-1850; FSC No.: 5930; Empl.: 1000; *Sls. Mgr.:* John A. Udisches; *Dist. Mgr.:* Robert J. Ferrel .... **1B**•1414, 1415, 1629-1645, 1772-1779; **2**•1294

Local Sales Offices & Reps

AL	Huntsville, Rep, Inc.	205-881-9270
AZ	Phoenix, Mercury Engrg. Sls.	602-244-0123
CA	Anaheim, Impact Elctrns.	714-533-1351
CA	Los Altos, Nickerson-Gray Assoc.	415-941-5777
CA	San Diego, Earle Assocs.	619-278-5441
CO	Denver, Lindberg Co.	303-758-9033
FL	Ft. Lauderdale, Newell-Hynes	305-761-1113
GA	Tucker, Rep, Inc.	404-938-4358
IL	La Grange, Grayhill Inc.	312-354-1040
IN	Ft. Wayne, Menze Sls.	219-747-5616
IA	Cedar Rapids, Lorenz Sls.	319-377-4666
KS	Overland Park, PMR Inc.	913-381-0004
KS	Wichita, PMR Inc.	316-684-4141
MD	Woodbine, Naudain Assocs. Southern	301-442-2270
MA	Wellesley Hills, Newscott Co.	617-444-1923
MI	Troy, C. B. Jensen & Assoc.	313-643-0506
MN	Bloomington, Northport Engrg.	612-854-5556
MO	Maryland Hgts., PMR Corp.	314-569-1220
NJ	Marlton, Naudain Assoc.	609-983-5300
NM	Albuquerque, Lindberg Co.	505-881-1006
NY	Great Neck, Tylinski Assocs.	516-466-9070
NY	Ithaca, B. Dean Inc.	607-257-1111
NC	Charlotte, R. W. Chapman & Co.	704-525-2421
NC	Greensboro, R. W. Chapman	919-282-0740
NC	Raleigh, R. W. Chapman	919-782-2624
OH	Cleveland, A. H. Baier Co. & Assoc.	216-461-6161
OH	Dayton, A. H. Baier Co. & Assoc.	513-276-4128
PA	Pittsburgh, Covert & Newman Co.	412-531-2002
TN	Jefferson City, Rep, Inc.	615-475-4105
TX	Arlington, W. Pat Fralia Co.	817-640-9101
TX	Austin, W. Pat Fralia Co.	512-835-7911
TX	Houston, W. Pat Fralia Co.	713-772-1572
UT	Salt Lake City, Lindberg Co.	801-467-1794
WA	Bellevue, Eltech, Inc.	206-643-4330
WI	Milwaukee, Badgerep	414-258-6630

Local Distributors

AL	Huntsville, Powell Elctrns.	205-539-2731
AZ	Phoenix, Fisher/Brownell	602-967-1464
AZ	Phoenix, Kachina Elctrns.	602-269-6201
AZ	Tempe, Richey/Western Electrns.	602-894-9251
AR	Little Rock, Carlton-Bates Co.	501-562-9100
CA	Alhambra, Fisher/Brownell	213-289-0255
CA	Anaheim, R. V. Weatherford Co.	714-634-9600
CA	Glendale, R. V. Weatherford Co.	213-849-3451
CA	Los Angeles, Electric Switches	213-660-1310
CA	Riverside, Electronic Supp.	714-683-7300
CA	San Diego, Fisher/Brownell	619-560-8545
CA	San Diego, Richey/Western Electrns.	619-271-4511
CA	San Jose, Powell Elctrns.	408-943-9020
CA	Santa Clara, Fisher/Brownell	408-988-6041
CA	Sun Valley, Richey/Western Electrns.	213-875-2862
CA	Sunnyvale, R. V. Weatherford Co.	408-738-8694
CO	Denver, Ragon Elctrns.	303-777-9430
CO	Denver, Newark Elctrns.	303-757-3351
CO	Denver, CSID Inc.	303-292-9594
CT	Bethel, Heilind Elctrns.	203-797-8600
CT	Wallingford, Midan Elctrns.	203-265-2077
FL	Ft. Lauderdale, Powell Elctrns.	305-972-4300
FL	Ft. Lauderdale, Peerless Radio	305-973-4141
FL	Orlando, Hammond Elctrns.	305-849-6060
GA	Norcross, A-A Elec.	404-449-8670
HI	Honolulu, Precision Radio	808-537-5291
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Northbrook, Classic Comp. Supp.	312-272-9650
IL	Palatine, Ohm Elctrn.	312-359-5500
IL	Peoria, Klaus Radio	309-691-4840
IN	Evansville, Hutch & Son	812-425-7201
IN	Fort Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Genesis Elctrns.	317-637-5571
IN	Indianapolis, Graham Elctrns.	317-634-8202
IA	Cedar Rapids, Deeco Inc.	319-365-7551
KS	Wichita, LComp, Inc.	316-265-5100
MD	Baltimore, Resco	301-823-0070
MD	Columbia, Powell Elctrns.	301-621-4070
MD	Gaithersburg, Pioneer/Wash.	301-921-0660
MD	Kensington, Marine Air Supp.	301-949-9560
MA	Burlington, Heilind Elctrns.	617-272-5610
MA	Hingham, Sager Elctrns.	617-749-6700
MA	North Adams, Elctrn. Supp. Ctr.	413-663-6828
MA	Norwood, Gerber Elctrns.	617-329-2400
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MI	Livonia, R.S. Elctrns.	313-525-1155

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MN	Minneapolis, Stark Elctrns.	612-332-1325
MN	St. Paul, Gopher Elctrns.	612-483-3322
MS	Jackson, Ellington Elctrn. Supp.	601-355-0561
MO	Kansas City, LComp, Inc.	816-221-2400
MO	Maryland Hgts., LComp, Inc.	314-291-6200
MO	St. Louis, Olive Indl. Elctrns.	314-426-4500
NE	Lincoln, Scott Elctrns.	402-466-8221
NH	Hudson, Heilind Elctrns.	603-883-9536
NJ	East Hanover, State Elec.	201-887-2550
NJ	Mt. Laurel, Jerseyswitch, Inc.	609-778-8190
NM	Albuquerque, Walker Elctrn. Supp.	505-247-2288
NM	Albuquerque, Intl. Elctrns.	505-345-8127
NY	Bohemia, Car-Lac Elctrns.	516-567-4200
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Endwell, A.S.I. Elctrns.	607-754-3823
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Rochester, Simcona Elctrns.	716-328-3230
NY	Rome, Rome Elctrns.	315-337-5400
NC	Charlotte, Pioneer/Carolina	704-527-8188
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Cincinnati, URI Elctrns.	513-761-4030
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Columbus, Hughes-Peters	614-294-5351
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Dayton, Stotts-Friedman	513-298-5555
OK	Oklahoma City, Electro Entprs.	405-427-6591
OK	Tulsa, Oil Capitol Elctrns.	918-622-8520
OR	Beaverton, Component Resources	503-641-8488
OR	Portland, United Radio	503-233-5346
PA	Erie, REM Elctrns.	814-453-5626
PA	Harrisburg, Cumberland Elctrns.	717-232-5999
PA	Philadelphia, Herbach & Rademan	215-426-1700
PA	Philadelphia, Almo Elctrns.	215-698-4000
PA	Philadelphia, Powell Elctrns.	215-365-1900
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
PA	Pittsburgh, CAM/RPC	412-782-3770
PA	Reading, George D. Barbey Co.	215-376-7451
RI	Pawtucket, Major Edwards Elctrns.	401-781-8000
SC	Columbia, Dixie Elctrns.	803-779-5332
SC	Greenville, Hammond Elctrns.	803-233-4121
TX	Dallas, Harrison Equip. Co.	214-239-2750
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	El Paso, Intl. Elctrns.	915-598-3406
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TX	Houston, Kent Elctrns.	713-780-7770
TX	Stafford, Harrison Equip.	713-879-2600
TX	Stafford, Southwest Elctrns.	713-491-4900
UT	Salt Lake City, Standard Supp.	801-486-3371
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Seattle, R. V. Weatherford Co.	206-575-1340
WI	Milwaukee, Marsh Elctrns.	414-475-6000

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GREENRAY INDS., INC., 840 W. Church Rd., Mechanicsburg, PA 17055, Tel: 717-766-0223, TWX: 510-650-4939; FSC No.: 16681; Empl.: 65; *Sls. Mgr.:* D. R. Widener

Local Sales Offices & Reps

AZ	Scottsdale, Faser Technical Sls.	602-948-4404
CA	Inglewood, L&M Engrg. So.	213-674-6850
CA	Los Altos Hills, HB Mktg.	415-941-4080
FL	Clearwater, Electrocraft Inc.	813-576-5404
IL	Wauconda, Cudahy Sls.	312-526-2484
MD	Wheaton, Brimberg Sls. Inc.	301-946-2670
MA	Reading, Geder Assoc.	617-944-3105
NY	Huntington, Andrews & Andrews, Inc.	516-692-8686
NY	Skaneateles, Robtron Inc.	315-685-5731
NC	Burlington, P. J. Nahser Co. Inc.	919-226-8053
OH	Columbus, Tom Mulligan & Assoc.	614-457-2242
PA	Glenside, Arby Elctrns.	215-887-2317
TX	Richardson, Southwest Microwave Elect.	214-669-1195

GREGG ELEC., 608 W. Emporia, Ontario, CA 91761, Tel: 714-983-1794; FSC No.: 53014; Empl.: 8

GREIBACH INSTRS. DIV., 25 Dock St., Mt. Vernon, NY 10550, Tel: 914-699-9717; FSC No.: 32590; Empl.: 35

G. R. ELECTRONICS, 1640 5th St., Suite 224, Santa Monica, CA 90401, Tel: 213-395-4774, Telex: 65-2337 (BT Smedley SNM); *Sls. Mgr.:* Jillian I. Girard; *Dist. Mgr.:* Christopher E. Thomson

GRIES/DYNACAST, Div. Coats & Clark Inc., 162 Beechwood Ave., New Rochelle, NY 10801, Tel: 914-633-8600, TWX: 914-235-2188; Empl.: 600

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GROVER PATENT PRODUCTS, 339 W. Arden Ave., Glendale, CA 91203, Tel: 213-245-4400; Empl.: 4

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GSE, 23640 Research Dr., Farmington Hills, MI 48024, Tel: 313-476-7875, Telex: 23-0738; Empl.: 105; *Sls. Mgr.:* Harold G. Munn

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GSI CORP., 1917 Greenspring Dr., Timonium, MD 21093, Tel: 301-252-1768; FSC No.: 60990; Empl.: 28; *Sls. Mgr.:* L. B. Morgan .... **2•2102**

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MD	Timonium, Roy N. Cook, Jr. & Assocs.	301-252-1161
NC	Raleigh, Barker Assocs.	919-876-0282

GTE AUTOMATIC ELEC., 400 N. Wolf Rd., Northlake, IL 60164, Tel: 312-681-7071, Telex: 72-8477, TWX: 910-226-1975; Empl.: 8,000; *Sls. Mgr.:* J. E. Murphy

GTE CORP., Sylvania Emissive Prods./Process Heat, Portsmouth Ave., Exeter, NH 03833, Tel: 603-772-4331, TWX: 510-294-4471; Empl.: 200000

GTE METAL LAMINATES, 1704 Barnes St., Reidsville, NC 27320, Tel: 918-342-2381; Empl.: 260; *Sls. Mgr.:* J. W. Leone

GTE MICROCIRCUITS, 2000 West 14th St., Tempe, AZ 85281, Tel: 602-968-4431, TWX: 910-951-1383; FSC No.: 16766; Empl.: 432; *Sls. Mgr.:* David Thompson

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GTE SYLVANIA LIGHTING PRODS., Sylvania Lighting Ctr., 100 Endicott St., Danvers, MA 01923, Tel: 617-777-1900

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GTE SYLVANIA, INC., CONNECTOR PRODS. OPER., See Sylvania Connector Prods. Oper.

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GTE WESGO TECHNICAL CERAMICS & METALS, 477 Harbor Blvd., Belmont, CA 94002, Tel: 415-592-9440; Empl.: 500; *Sls. Mgr.:* W. S. Smith

GTI/CIRCUITS DIV., Box 217, Leesburg, IN 46538, Tel: 219-453-3261, Telex: 023-2653; Empl.: 150; *Sls. Mgr.:* Hugh M. Walker

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Local Sales Offices & Reps

AL	Huntsville, Electro-Mech Sls. Engr. Co.	205-883-9624
AZ	Phoenix, O'Donnell Assocs. SO W	602-274-6072
CA	San Jose, O'Donnell Assocs.	408-263-6500
CA	Torrance, O'Donnell Assocs.	213-539-9664
CO	Denver, Comp. Technlgy.	303-758-5750
FL	Coral Springs, CBC Elctrns.	305-755-1111
GA	Atlanta, Electro-Mech Sls. Engr. Co.	404-447-6478
IL	Chicago, Frank Nitti Sls.	312-243-1100
IN	Fort Wayne, Needler Sls.	219-447-2123
MD	Glen Burnie, Faion Lott & Co.	301-744-4611
MI	Farmington, Miltimore Sls.	313-476-2446
MN	St. Paul, Arkco Sls.	612-777-7454
MO	St. Louis, KKB & Co.	314-647-2400
NH	Salem, Sls. Engrg.	603-893-5521
NJ	Manville, DynoRep	201-685-0135
NY	Rochester, Elcom Sales	716-385-1400
OH	Mentor, K-T/Depco	216-729-3588
PA	Doylestown, T.O.E. Sls.	215-348-5333
TX	Dallas, Ion Assocs.	817-640-8282
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GUARDIAN ELEC. MFG. CO., 1550 W. Carroll Ave., Chicago, IL 60607, Tel: 312-243-1100, TWX: 910-221-5073 .... **1B•1417-1431**

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GULTON INDS., INC., Graphic Instruments Div., Gulton Ind'l. Pk., E. Greenwich, RI 02818, Tel: 401-884-6800, TWX: 710-387-1500; Empl.: 400; *Sls. Mgr.:* Dave Snyder; *Dist. Mgr.:* Ed Cunnie

GULTON INDS., INC., Piezo Prods. Div., Box 4300, Fullerton, CA 92634, Tel: 714-871-2150, TWX: 910-592-1247; Empl.: 120; *Sls. Mgr.:* J. Sloane

GULTON INDS., INC., Servonic Div., 1644 Whittier Ave., Costa Mesa, CA 92627, Tel: 714-642-2400, 800-854-4066, Telex: 183-532, TWX: 910-596-1352; FSC No.: 99564; Empl.: 320; *Sls. Mgr.:* Tom Perrin, Jr.

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HADES MFG. CORP., 151-A Verdi St., Farmingdale, NY 11735, Tel: 516-249-4244; FSC No.: 51578; Empl.: 18; *Sls. Mgr.:* K. Norris

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HALLMARK METALS INC., 610 W. Foothill Blvd., Glendora, CA 91740, Tel: 213-335-1263; Empl.: 20; *Sls. Mgr.:* Robert Schoenick

HALMAR ELECTRONICS, INC., 900 N. Hague Ave., Columbus, OH 43204, Tel: 614-276-0131, TWX: 810-482-1654; Empl.: 80

HALLMARK NAMEPLATE, INC./ELECTROPANEL CO., 1855 New Highway, Farmingdale, NY 11735, Tel: 516-454-0700, Telex: 510-222-0884; *Sls. Mgr.:* Florence Finkle

HAMAMATSU PHOTONICS K.K., 1126 Ichino-Cho, Hamamatsu City, Shizuoka Pref, Japan, Tel: 0534-34-3311, Telex: 4225-185; Empl.: 890; *Sls. Mgr.:* M. Ito

HAMEG, INC., 88-90 Harbor Rd., Port Washington, NY 11050, Tel: 516-883-3837, TWX: 510-223-0889; *Sls. Mgr.:* John F. King

HAMILTON METALCRAFT, 848 N. Fair Oaks Ave., Pasadena, CA 91103, Tel: 818-795-4811; *Sls. Mgr.:* Mel Stahler

HAMILTON STANDARD CONTROLS/STANCOR, See Stancor/Hamilton Standard Controls

HAMILTON STD. CONTROLS, United Technologies, 9100 Airport Dr., P.O. Box 11648, Fort Wayne, IN 46859, Tel: 219-747-6142, TWX: 810-295-0699; Empl.: 3,700; *Sls. Mgr.:* C. Michalski .... 1B•1474

Local Sales Offices & Reps

CA	Santa Fe Springs	213-946-4807
FL	Orlando, A.P. Assocs.	305-298-2816
IN	Logansport	219-753-7521
NY	New York, Roburn Agencies	212-989-5939
PA	E. Stroudsburg	717-421-1025

HAMILTON STANDARD DIV., United Technologies Corp., Windsor Locks, CT 06096, Tel: 203-623-1621

HAMLIN INC

HAMLIN, Lake & Grove Sts., Lake Mills, WI 53551, Tel: 414-648-2361, TWX: 910-260-3740; Empl.: 1800; *Sls. Mgr.:* Ken Deans .... 1B•1063, 1433, 1646, 1844

Local Sales Offices & Reps

AZ	Phoenix, Shefler-Kahn Co.	602-257-9015
CA	Anaheim, Westrep	213-404-3881
CA	San Diego, Westrep	619-276-0751
CA	Santa Clara, Westrep	408-988-8833
CO	Boulder, R-G Entprs.	303-447-9211
CT	North Haven, Coakley, Boyd & Abbett, Inc.	203-239-6217
FL	Casselberry, Southern Elctrn. Mktg.	305-695-3334
FL	Ft. Lauderdale, Southern Electrn. Mktg.	305-475-3686
GA	Jonesboro, Wallace Elctrn. Sls.	404-471-6297
IL	Chicago, Indl. Rep.	312-647-7755
IN	Carmel, Rich Elctrn. Mktg.	317-844-8462
IN	Fort Wayne, Rich Elctrn. Mktg.	219-432-5553
IA	Cedar Rapids, Palatine Sls.	319-365-8071
KS	Mission, Palatine Sls.	913-831-0555
KY	Louisville, Rich Elctrn. Mktg.	502-499-7808
MD	Churchville, Atlantic Technical Sls.	301-879-2236
MA	Needham Heights, Coakley, Boyd & Abbett, Inc.	617-444-5470
MI	Brighton, A.P. Assocs.	313-229-6550
MN	Minneapolis, R-J, Inc.	612-866-3661
MO	Hazelwood, Palatine Sls.	314-839-0800
NH	Plaistow, Coakley, Boyd & Abbett, Inc.	617-444-5470
NJ	Marlton, Naudain Assoc.	609-983-5300
NJ	West Caldwell, Grimm Siegel	201-575-9300
NM	Albuquerque, Shefler-Kahn	505-296-0749
NY	Great Neck, Tylinski Assocs.	516-466-9070
NY	Ithaca, Bob Dean, Inc.	607-257-1111
NY	Wappingers Falls, Bob Dean, Inc.	914-297-6406
NC	Kernersville, Wallace Elctrn. Sls.	919-996-2742
OH	Richfield, Bear Mktg.	216-659-3131
OR	Portland, Syscom	503-644-2505
TX	Dallas, Allied Comps.	214-238-0408
TX	Houston, Allied Comps.	713-988-1600
TX	Hurst, Allied Comps.	817-589-0456
TX	Round Rock, Allied Comps.	512-244-1166
WA	Bellevue, Testco, Inc.	206-454-7422
WI	Milwaukee, Indl. Rep.	414-259-0965

Local Distributors

AL	Huntsville, Mock Elctrns.	205-539-2401
AZ	Tempe, Circuit Specialties	602-966-0764
CA	Fullerton, Pyramid Elctrns.	714-773-0781
CA	San Jose, Cypress Elctrns. Inc.	408-945-8400
CA	Santa Clara, Pyramid Elctrns.	408-727-9018
CA	Torrence, Cypress Elctrns. Inc.	213-533-6005
CA	Van Nuys, Patane Avionics	213-988-4455
CO	Englewood, Ind. Elctrns.	303-694-9444
CT	Bethel, Heilind Elctrns.	203-797-8600
CT	Hartford, Hatry Elctrns.	203-527-1881
CT	New Haven, Hatry Elctrns.	203-787-5921
CT	Stratford, Hatry Elctrns.	203-375-5866
CT	Wallingford, Sager Elect. Supp.	203-265-4600
CT	Waterbury, Hatry Elctrns.	203-755-1181
FL	Lakeland, AA Elec.	813-665-6941
FL	Longwood, Intertec Inc.	305-834-7777
FL	Miami, Elctrn. Equip. Co.	305-871-3500
FL	Orlando, Hammond Elctrn.	305-849-6060
FL	Tampa, Leader Elctrns.	813-870-3315
GA	Norcross, AA Elec.	404-449-8670
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Lombard, RM Illinois	312-932-5150
IL	Palatine, Ohm Elctrns.	312-359-5500
IN	Carmel, Altex Elctrns.	317-848-1323
IN	Ft. Wayne, Graham Elctrns.	219-424-3422
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, RM Elctrns. Co.	317-247-9701
IA	Cedar Rapids, Iowa Radio Supp. Co.	319-393-4510
MD	Gaithersburg, Pioneer/Wash.	301-921-0660
MA	Burlington, Heilind Elctrns.	617-272-5610
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Norwood, Gerber Elctrns.	617-769-6000
MI	Wyoming, R-M Elctrn. Co.	616-531-9300
MN	Fridley, Voyager Electronics	612-571-7766
MO	St. Louis, Olive Indl. Elctrns.	314-426-4500
NH	Hudson, Heilind Elctrns.	603-883-9536
NJ	Fairlawn, Relay Spec.	201-797-3313
NJ	Pennsauken, Resco Elctrns.	609-662-4000
NM	Albuquerque, Bell Inds.	505-292-2700
NY	Buffalo, Summit Distr.	716-884-3450
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Rome, Rome Elctrns.	315-337-5400
NC	Charlotte, United Elctrn. Supp.	704-372-2650
NC	Gastonia, JMT Elctrns.	704-867-4401
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Greenville, Pair Elctrns.	919-756-2291
NC	Greenville, Hammond Elctrns.	803-232-5357
NC	Shelby, Dixie Indl. Supp.	704-482-5641
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Cincinnati, Graham Elctrns.	513-772-1661
OH	Solon, Repco	216-248-8900
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Portland, Radar Elec.	503-233-3691
PA	McKeesport, Barno Radio	412-751-5966
RI	Providence, Wm. Dandreta & Co.	401-861-2800
SC	Columbia, Dixie Elctrns.	803-779-5332
TN	Gray, Dixie Elctrns.	615-477-3838
TN	Nashville, Eddie Warner Inc.	615-254-1224
TX	Austin, Harrison Equip. Co.	512-458-3555
TX	Dallas, Harrison Equip. Co.	214-239-2750
TX	Fort Worth, Allied Elctrns.	214-265-9341
TX	Houston, Harrison Equip.	713-879-2771
WA	Kent, Interface Elctrns.	206-872-5800
WA	Seattle, Radar Elec. Co.	206-282-2511
WA	Spokane, Radar Elec. Co.	509-747-3053
WI	Cedarburg, AA Elec.	414-377-7500
WI	Mequon, Taylor Elec.	414-241-4321

HAMMOND MANUFACTURING

HAMMOND MFG. CO., 1690 Walden Ave., Buffalo, NY 14225, Tel: 716-894-5710, Telex: 91-6452; Empl.: 850; *Sls. Mgr.:* Ray Shatzel ... 1A•2171; 2•1036, 1037

Local Sales Offices & Reps

AZ	Scottsdale, Mahaffey & Assoc.	602-991-9790
CA	N. Hollywood, Burt Moore & Assocs.	213-877-5955
CA	Redwood City, Hickey Indl. Sls.	415-368-3849
GA	Atlanta, Millar Elctrns.	404-261-6160
IL	Highland Park, Bransky Sls.	312-433-2375
IN	Indianapolis, Wilson Tech. Sls.	317-298-3345
MD	Silver Spring, Mid Atlantic Sls.	301-593-7749
MA	N. Scituate, W. A. Hendrickson Co.	617-545-0652
MI	Hazel Park, Component Assocs.	313-557-3232
MO	St. Louis, Kathrinus, Kelly & Baumhauer (K.K.B.)	314-647-2400
NY	Bellmore, Selectra Sls.	516-221-7865
NY	Syracuse, Paston-Hunter Co. Inc.	315-437-2992
NC	Raleigh, Millar Elctrns.	919-787-9564
OH	Dayton, Shamrock Elctrn. Sls.	513-258-1227
OR	Portland, Dussault & Assoc. Inc.	503-641-8780
PA	Springfield, George M. Conneen	215-544-5884
TX	Dallas, J. Y. Schoonmaker Co. Inc.	214-349-1650
WA	Seattle, Dussault & Assoc. Inc.	206-527-5454

Local Distributors

AL	Birmingham, Ack Radio	205-322-0588
AL	Montgomery, Handey's Elec. Ctr.	205-262-4885
AL	Muscle Shoals, Jones Elctrns.	205-383-1241
AZ	Phoenix, Tri Tek	602-995-9352
AZ	Phoenix, Electronic Parts Co.	602-277-7281
AZ	Tempe, Circuit Specialists	602-966-2878
AR	Ft. Smith, Carlton Bates	501-646-8201
AR	Little Rock, Carlton Bates	501-562-9100
CA	Burbank, Electronic City	213-842-5275
CA	Burlingame, Logan Elctrns.	415-697-6481
CA	Canoga Park, Sandy's Elec.	213-346-8353
CA	Chatsworth, Poco Sls.	213-700-8727
CA	Costa Mesa, Marvac Elec.	714-540-3280
CA	El Toro, R-Vac Elec.	714-586-1210
CA	Glendale, Eagle Elctrns.	213-245-2338
CA	Hollywood, Yale Radio Elec.	213-465-3186
CA	Hollywood, Pacific Radio	213-462-1392
CA	Irvine, Graymark Intl.	714-540-5480
CA	Los Angeles, I. T. C.	213-388-0621
CA	Manhattan Beach, Prime Electro	213-379-3642
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Pasadena, Dow Radio	213-681-3416
CA	Redwood City, H.D.B.	415-368-1388
CA	San Diego, Western Radio Elec.	714-239-0361
CA	San Jose, Con. Parts Inc.	408-263-9521
CA	San Jose, Quement Elctrns.	408-998-5900
CA	San Rafael, Elctrns. Plus	415-457-0466
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Santee, Mouser Elec.	619-449-2300
CO	Denver, Fistell Elctrns.	303-629-1312
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Denver, Con. Parts Inc.	303-458-0978
CT	Danbury, Pilgrim Elec.	203-792-7274
CT	Hartford, Hatry Elec.	203-527-1881
CT	Hartford, Signal Elec. Center	203-233-8551
CT	Middletown, Midstate Elec.	203-347-5638
CT	New London, Aikins Elec. Supp.	203-442-4406
CT	Norwalk, Park Distrbg.	203-853-2011
CT	Norwalk, Cobra	203-853-8228
CT	Stratford, Hatry Elec.	203-375-5866
FL	Dania, Summit Elec.	305-920-6253
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Longwood, Intertec	305-834-7777
FL	Orlando, Hammond Elctrns.	305-849-6060
GA	Atlanta, Ack Radio	404-351-6340
GA	Atlanta, Wholesale Dist.	404-447-8431
HI	Honolulu, Elctrn. Equip. Co.	808-533-3884
HI	Honolulu, Honolulu Elec.	808-949-5564
IL	Chicago, Newark Elec.	312-638-4911
IL	Joliet, Mainline Elec.	815-436-3900
IL	Niles, Joseph Elec.	312-459-4030
IL	Northbrook, Classic Comps.	312-272-9650
IL	Wheeling, Hawk Elec.	312-459-4030
IN	Indianapolis, Advent Elec.	317-872-4910
IN	Indianapolis, Mar Elec.	317-875-4510
IN	Lafayette, C.W.Y. Elec.	317-448-1611
KY	Louisville, Peerless Elctrns.	502-637-7677
LA	Harvey, A.F.G. Elec.	504-368-9696
LA	New Orleans, Wm. B. Allen Supp.	504-525-8222
LA	Shreveport, Industrial Elec. Supp.	318-222-9459
MD	Beltsville, Mark Elctrns.	301-595-5040

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MA	Lynn, Land Elec. Supp.	617-592-2220
MA	Needham, Y.D.I. Elec.	617-449-1005
MA	Woburn, Abbott Elec.	617-935-2040
MA	Woburn, Brownell Electro.	617-935-7820
MI	Farmington Hills, Advent Elec.	313-477-1650
MI	Grand Rapids, S. F. Electrns.	616-459-0216
MI	Lansing, Demco	517-321-1700
MN	Edina, Northern Elec.	612-944-1167
MN	Minneapolis, Acme Elec.	612-338-4754
MO	Kansas City, Electronic Supp.	816-931-0250
MT	Billings, Electronic Supp. Co.	406-252-2197
NH	Dover, American Radio Corp.	603-742-6800
NH	Mason, Radio Kit	603-878-1033
NJ	Fairlawn, Relay Specialties	201-797-3313
NY	Albany, E. E. Taylor Co.	518-438-7811
NY	Buffalo, Summit Dist.	716-884-3450
NY	Buffalo, Goldcrest Elec.	716-885-5878
NY	Buffalo, Genesee Radio	716-873-9661
NY	Commack, Spartan Elec.	516-499-9500
NY	Cortland, Central Elec.	607-756-2523
NY	Deer Park, BVG Elec.	516-586-8668
NY	Glenn Falls, Ray Supp.	518-792-5848
NY	Hempstead, Davis Elctrns.	516-483-9200
NY	Johnson City, Goldcrest Elec.	607-797-2389
NY	Johnson City, Unicorn	607-798-0260
NY	Kingston, Greylock Elec.	914-338-5300
NY	Levittown, Edlie Elec.	516-735-3330
NY	Middletown, Greylock Elec.	914-343-7900
NY	N.Y.C., Martin Audio Video	212-541-5900
NY	N.Y.C., Advance Elec.	212-730-7030
NY	Port Washington, Corrector Concepts	516-883-3800
NY	Poughkeepsie, Greylock Elec.	914-452-0550
NY	Rochester, Rochester Radio	716-454-7800
NY	Rochester, Goldcrest Elec.	716-546-8464
NY	Rochester, Masline Elec.	716-546-5373
NY	Rome, Rome Elec.	315-337-5400
NY	Schenectady, Grimmers Elec.	518-374-8480
NY	Schenectady, Goldcrest Elec.	518-377-6424
NY	Syracuse, Goldcrest Elec.	315-471-7115
NY	Syracuse, Saling Elec.	315-422-2336
NY	Troy, Trojan Elec.	518-272-4481
NY	Utica, Central Elec.	315-735-6474
NY	Woodside, Switches Unltd.	212-478-5000
NC	Greensboro, Hammond Elec.	919-275-6391
OH	Cleveland, Roberts Elec.	216-238-1711
OH	Cleveland, Winteradio	216-621-9383
OH	Columbus, Thompson Elec. Supp.	614-228-6191
OH	Dayton, Stott Friedman	513-251-3633
OH	Parma Heights, Phil Reddish Supp.	216-885-1222
OH	Toledo, Warren Radio	419-248-3364
OH	Wintersville, D & R Elec.	614-264-1611
OK	Oklahoma City, Radio Inc.	405-528-2391
OK	Tulsa, Radio Inc.	918-587-9123
OK	Tulsa, Combined Tech.	918-582-8242
OK	Tulsa, Genesis Elec.	918-622-8520
PA	Drexel Hill, Kass Elec.	215-449-2300
PA	Erie, Warren Radio	814-454-5285
PA	Erie, J. V. Duncombe Elec.	814-454-5278
PA	McKean, Advacom	814-476-7774
PA	McKeesport, Barno Radio	412-751-5966
PA	Wayne, Peak Elec.	215-293-9000
RI	Cranston, OEM Supp.	401-781-3904
RI	Newport, J & S Elec. Supp.	401-847-2977
RI	Pawtucket, Major Elec. Supp.	401-725-7400
RI	Providence, Hope Elctrns.	401-521-5600
SC	Greensville, Hammond Elec.	803-242-6880
TN	Memphis, Bluff City Elec.	901-345-9500
TX	Austin, Austin Elec.	512-836-9677
TX	Corpus Christi, Douglas Elec.	512-883-5103
TX	Dallas, Wholesale Elec.	214-824-3001
TX	Dallas, Electrotex	214-234-0433
TX	El Paso, Midland Specialties	915-533-9555
TX	Ft. Worth, Wholesale Elec.	817-336-0461
TX	Ft. Worth, Allied Elec.	817-336-5401
TX	Houston, City Elec. Supp.	713-621-1060
TX	Houston, Ace Elec.	713-688-8114
TX	Houston, Electrotex	713-526-3456
TX	Long View, Vidco	214-757-4911
TX	San Antonio, Electrotex	512-735-9271
TX	San Antonio, Sherman Elec.	512-224-1001
TX	San Antonio, Altex	512-828-0503
UT	Salt Lake City, Standard Elec. Supp.	801-486-3371
UT	Salt Lake City, Western Cont.	801-328-4302
VT	Burlington, Greylock Elec.	802-658-5700
VA	Alexandria, Certified Elec.	703-548-5115
WA	Bellevue, Integrated Elec.	206-455-2727
WA	Bellevue, Nidi Northwest	206-746-7970
WI	Mequon, Lakeview Elec.	414-377-8250
WI	Mequon, Taylor Elec.	414-241-4321
WI	New Berlin, R. M. Wisconsin	414-784-4420

HAMPTON PRODS., 2995 Eastrock Dr., Rockford, IL 61109, Tel: 815-398-2770, TWX: 910-631-3432; *Sls. Mgr.:* Gary Gohlinghorst; *Dist. Mgr.:* Steve Schweitzer

H&T COMPONENTS INC., H&T Components Ltd., 87 Sand Pit Rd., Danbury, CT 06810, Tel: 203-794-1798, Telex: 643011; *Sls. Mgr.:* K. Pulasky; *Dist. Mgr.:* Janet Rapoza .... 2•1318-1328

Local Sales Offices & Reps

AL	Huntsville, D.H.R. Mktg.	205-533-5165
AZ	Phoenix, Adtek Inc.	602-931-9289
CA	Sunnyvale, Schwerin Merrill Inc.	408-735-7900
CO	Littleton, Elctrn. Comp. Sys.	303-797-2772
CT	Milford, Todino Engineering Sales	203-874-6643
FL	Casselberry, Sls. Engrg. Concepts	305-678-1035
GA	Atlanta, D.H.R. Mktg.	404-451-9848
IL	Chicago, Esco Assocs.	312-763-0800
KS	DeSoto, Midtec Assocs.	913-441-6565
MD	Columbia, Delta III Assocs.	301-730-4700
MA	Needham Heights, Todino Engrg. Sls.	617-444-7925
MI	Birmingham, Favco	313-644-0173
MN	Bloomington, D. A. Case Assocs.	612-888-8666
MO	Florissant, Midtec Assocs.	314-837-5200
NJ	Haddonfield, Mills Brown Assocs.	609-429-1005
NY	Endicott, Noeth-Honsinger Assocs.	607-754-3214
NY	Hackensack, Meg Elctrns.	201-489-7700
NY	Pittsford, Noeth-Honsinger Assocs.	716-586-9002
NC	Raleigh, McGee Assocs.	919-781-9579
OH	Akron, Augnat Assocs.	216-273-1211
OR	Portland, Barrett Squibb & Assocs.	503-644-2550
TX	Plano, Richmar Elctrns.	214-867-8224
UT	Salt Lake City, Charles Fields & Assocs.	801-277-4859
VA	Richmond, Delta III Assocs.	804-771-9204
WA	Redmond, Barrett Squibb & Assocs.	206-885-6991

Local Distributors

AZ	Phoenix, Dalis Elctrns.	602-275-2626
AZ	Tucson, Inland Elctrn. Supp.	602-294-2628
CA	Mountain View, Bell Inds.	415-960-1440
CA	S. San Francisco, Peters deLaet	415-873-9595
CA	Santa Ana, C. R. Electronics	714-556-2040
CT	Bridgeport, Accurate Elctrns.	203-366-0214
FL	Ft. Lauderdale, Simcona	305-485-4455
GA	Norcross, Whitehead Elctrns.	404-923-6667
IL	Lisle, Components Inc.	312-852-7707
IL	Rosemont, Advent Elctrns.	312-297-6200
IN	Indianapolis, Advent Elctrns.	317-872-4910
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
LA	Lafayette, Ralphs Indl. Elctrn. Supp.	318-234-4507
MD	Baltimore, Pyttronic Inds.	301-792-0780
MA	Hopkinton, Interface Elctrns.	617-435-6858
MA	Lowell, Colonial Wire & Cable	617-459-6400
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MN	North Chatsworth, Northern Automatic	612-481-0022
NJ	Oakland, Gordon/Horne	201-337-5200
NY	Buffalo, Summit Distrs.	800-462-1880
NY	Hauppauge, Broadline Elctrns.	516-231-4100
OH	Cleveland, Roberts Elctrns.	216-238-1711
OH	Columbus, Whitehead Elctrns.	614-224-1186
OH	Dayton, Televok Inc.	513-294-4499
PA	Montgomeryville, Pyttronic Inds.	215-242-6700
TX	Dallas, Computer Components	214-239-0271
TX	Houston, Ralphs Indl. Elctrn. Supp.	713-748-4902
UT	Salt Lake City, Pen-Tec Entprs.	801-972-4817
WA	Redmond, Murphy Elctrns.	206-881-1234

HANDY & HARMAN, 850 Third Ave., New York, NY 10022, Tel: 212-752-3400; Empl.: 800; *Sls. Mgr.:* C. P. Zitzmann

HANDY & HARMAN ELCTRN. MATLS. CORP., 72 Elm St. N., Atteboro, MA 02760, Tel: 617-695-1401; Empl.: 450

HANKSCRAFT MOTORS, Div. of Gerber Prods. Co., P.O. Box 120, Reedsburg, WI 53959, Tel: 608-524-4341; Empl.: 550

HANSCOM, H. F., CO., INC., 225 Chapman St., Providence, RI 02905, Tel: 401-941-1455, Telex: 952107; Empl.: 50; *Sls. Mgr.:* William E. Taplin

HAPCO, Box 1205, Boulder, CO 80302, Tel: 303-447-0441; Empl.: 10; *Sls. Mgr.:* B. Ewing

HARBISON INDL. PRODS., Sub. of Polymer Corp., 7205 Hibbs La., Levittown, PA 19057, Tel: 215-943-9000, TWX: 510-667-0167; Empl.: 50; *Sls. Mgr.:* R. S. Spangler

HARDIGG INDS., INC., North Main St., South Deerfield, MA 01373, Tel: 413-665-2163, Telex: 955431; FSC No.: 11214; *Dist. Mgr.:* Warren H. Bickford

HARDMAN INC., 600 Cortlandt St., Belleville, NJ 07109, Tel: 201-751-3000, TWX: 710-995-4940; Empl.: 95; *Sls. Mgr.:* Carl T. Sanford

HAROWE SERVO CONTROLS, Westtown Rd. at West Chester Pike, W. Chester, PA 19380, Tel: 215-692-2700, Telex: 83-5486, TWX: 510-663-0335; FSC No.: 06989; Empl.: 450; *Sls. Mgr.:* Dennis B. Daisy

HARREL, INC., 16 Fitch St., E. Norwalk, CT 06855, Tel: 203-866-2573; *Sls. Mgr.:* W. Becker .... 3•1131

Local Sales Offices & Reps

CA	Sherman Oaks, Windsor Dynamics	213-989-3631
CA	Walnut Creek, Viking Instr.	415-933-1221
NY	Cazenovia, P. M. Decew, Inc.	315-065-8602
NC	Charlotte, Beck Sls.	704-366-5366
OH	North Olmstead, Odessa Instr. Co.	216-734-6777
PA	Elkins Park, Edwin F. Gregg	215 CA4-0248
TN	Knoxville, Robert Olsen Co.	615-688-4038

HARRIS CIRCUITS MFG., 2706 Colley Ave., Norfolk, VA. 23517, Tel: 804-467-1116; Empl.: 15

HARRIS CORP., Computer Systems Div., 2101 W. Cypress Creek Rd., Ft. Lauderdale, FL 33309, Tel: 305-974-1700, TWX: 510-956-3096; FSC No.: 29436; Empl.: 1000; *Sls. Mgr.:* Jeff Oromaner

HARRIS CORP., Dracon Div., 809 Calle Plano, Camarillo, CA 93010, Tel: 805-987-9511, Telex: 182327; Empl.: 360; *Sls. Mgr.:* Tom Sadowski; *Dist. Mgr.:* Keith Boutillier

HARRIS CORP., PRD Elctrns. Div., 6801 Jericho Tpke., Syosset, NY 11791, Tel: 516-364-0400, TWX: 510-222-4494; FSC No.: 77327; Empl.: 1,850; *Sls. Mgr.:* R. A. Lebowitz

HARRIS MICROWAVE SEMICONDUCTOR, 1530 McCarthy Blvd., Milpitas, CA 95035, Tel: 408-262-2222, TWX: 910-338-2247

HARRIS SEMICONDUCTOR, Box 883, Melbourne, FL 32901, Tel: 305-724-7400, TWX: 510-959-6259; FSC No.: 34371; Empl.: 2300; *Sls. Mgr.:* Dan McCranie; *Dist. Mgr.:* Charles H. Beaty

HARSHAW FILTROL PARTNERSHIP, 1945 E. 97th St., Cleveland, OH 44106, Tel: 216-721-8300; *Sls. Mgr.:* Robert Anfang

HARTLEY PRODS., 620 Island Rd., Ramsey, NJ 07446, Tel: 201-327-4443; *Sls. Mgr.:* R. Schmetterer

HARTMAN SYSTEMS, Figgie Intl., 360 Wolf Hill Rd., Huntington Sta., NY 11746, Tel: 516-427-7500, TWX: 510-226-6982; FSC No.: 92220; Empl.: 310; *Sls. Mgr.:* Robert Griffith

HARTWELL CORP., 900 S. Richfield Rd., Placentia, CA 92670, Tel: 714-993-4200, Telex: 683-485, TWX: 910-596-1294; FSC No.: 83014; Empl.: 425

HARWIL, 1548 17th St., Santa Monica, CA 90404, Tel: 213-829-2310; Empl.: 7

HASCO COMPS., INC., 214-22 Waters Edge Dr., Bayside, NY 11360, Tel: 212-428-5155, TWX: 710-582-5750; Empl.: 6; *Sls. Mgr.:* Tab Hauser .... **1B**•1436-1442, 1647

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HEAT SYSTEMS-ULTRASONICS, INC., 1938 New Highway, Farmingdale, NY 11735, Tel: 516-694-9555, Telex: 14-3101; *Sls. Mgr.:* Lyle E. Cady

HECON CORP., 31 Park Rd., Tinton Falls, NJ 07724, Tel: 201-542-9200, Telex: 13-2457; Empl.: 200; *Sls. Mgr.:* P. Shine; *Dist. Mgr.:* R. Drum

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CA	Mountain View, Leddy Assocs.	415-969-6313
CO	Aurora, Ausco Sls.	303-750-3846
FL	Coral Springs, CBC Elctrns.	305-755-1111
FL	Longwood, CBC Elctrns.	305-831-5380
GA	Tucker, REP, Inc.	404-938-4358
IL	Schaumburg, Micro-Tex	312-885-1131
KS	De Soto, Midtec Assocs.	913-441-6565
MI	Novi, Miltimore Sls.	313-349-0260
NH	Salem, Sls. Engrg.	603-893-5521
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NY	Massapequa, Coughlin Assoc.	516-799-7743
NY	Rochester, D. L. Eiss Assocs.	716-328-3000
NC	Raleigh, REP, Inc.	919-851-3007
OH	Rocky River, Norm Case Assocs.	216-333-0400
TN	Jefferson City, REP, Inc.	615-475-9012
TX	Dallas, Quad State Mktg.	214-680-9588
WA	Bellevue, Comtec	206-453-1188

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CA	San Diego, Porter Co.	619-275-0641
CA	San Jose, O'Donnell Assocs. No.	408-263-6500
CO	Englewood, Computech Mktg.	303-773-3981
FL	Boca Raton, Conley & Assoc.	305-395-6108
FL	Oviedo, Conley & Assocs.	305-365-3283
FL	Tampa, Conley & Assocs.	813-885-7658
GA	Atlanta, Austin Brown Assocs. Inc.	404-457-6381
IL	Chicago, D. Dolin Sls.	312-286-6200
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MD	Pikesville, Imagitron Sls. Co.	301-521-2020
MA	Framingham, Sullivan Tech. Sls.	617-620-0195
MI	Southfield, L. H. Dickelman Co.	313-353-8210
MN	Minneapolis, Furber/Smith Assoc.	612-881-3620
MO	Creve Coeur, Hill & Co.	314-432-1136
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NY	Syracuse, Canavan-Scanlon	315-437-1271
NC	Charlotte, J. Rudisill Assocs.	704-377-6901
OH	Cincinnati, O.H. Bromberg & Assocs.	513-771-9333
OH	Cleveland, Brown Elect. Prod.	216-331-2072
OH	Dayton, KW Elctrn. Sls.	513-890-2150
PA	Allison Park, KW Electrn. Sls.	412-487-4300
PA	Washington Crossing, DVS Co.	215-493-4642
TN	Brentwood, Austin Brown Assocs. Inc.	615-373-2068
TX	Dallas, Glidden Electro Equip.	214-341-0610
TX	Houston, Glidden Electro Equip.	713-681-1415
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CT	Hartford, L. E. Whelan Co.	203-246-5694
CT	New Haven, Green Shaw Co.	203-397-0710
FL	Oviedo, Dixie Sls.	305-365-5211
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Chicago, Nedco Elctrns.	312-286-5565
IL	Northbrook, Classic Comps. Supp.	312-272-9650
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MN	Minneapolis, Northland Elec. Supp.	612-341-6100
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NY	Whitestone, Power Electro Supp. Co.	212-767-1447
NC	Charlotte, Joyce Sls. Co.	704-377-1555
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OH	Solon, REPCO Elctrns.	216-248-8900
OH	Valley View, Newark Elctrns.	216-447-8860
OR	Portland, Platt Elec. Supp.	503-228-6121
OR	Tualatin, North Coast Elec. Co.	503-684-2570
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PA	West Chester, West Chester Elec. & Electrn.	215-696-7500
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HELICAL PRODS. CO., INC., Box 1069, Santa Maria, CA 93456, Tel: 805-928-3851, TWX: 910-351-5856; FSC No.: 13201; Empl.: 41

HELIONETICS, INC., DECC Div., 17312 Eastman St., Irvine, CA 92714, Tel: 714-546-4731, 800-421-7915, TWX: 910-595-2829; *Sls. Mgr.:* R. S. Tullock

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HERAEUS-VOLKERT INC., 222-34 96th Ave., Queens Village, NY 11429, Tel: 212-464-8400, Telex: 142338; Empl.: 250; *Sls. Mgr.:* Len Lattanzi

HERBERT PRODS. INC., 180 Linden Ave., Westbury, NY 11590-0384, Tel: 516-334-6500, TWX: 510-222-5963; Empl.: 98; *Sls. Mgr.:* L. C. Peshkin

HERMETIC SEAL, 4232 Temple City Blvd., Rosemead, CA 91770, Tel: 818-283-0411, TWX: 910-587-3352; FSC No.: 04820; Empl.: 220

HERMETIC SWITCH, Box 1325, Hwy. 92, Chickasha, OK 73018, Tel: 405-224-4046, Telex: 796125 Hermetic CKSA; Empl.: 150; *Sls. Mgr.:* E. R. Andrus 1B•1648

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CA	Orange, Qualtech	714-639-9820
CA	Palo Alto, Qualtech	415-494-9060
CA	San Diego, Mesa Engrg.	619-278-8021
CO	Denver, PAR Assocs.	303-371-4140
GA	Atlanta, Magaro & Assocs.	404-451-8862
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MD	Rockville, Spectro Assocs.	301-279-2010
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MN	Minneapolis, Micro Resources	612-830-1454
NY	Brewster, Daner-Hayes	800-225-8760
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CA	Lawndale	213-970-7500
CA	North Hollywood	213-877-1282
CA	Palo Alto	415-857-8000
CA	Sacramento	916-929-7222
CA	San Diego	714-279-3200
CA	Santa Ana	714-641-0977
CA	Santa Clara	408-988-7000
CO	Englewood	303-771-3455
CT	Wallingford	203-265-7801
FL	Ft. Lauderdale	305-973-2600
FL	Orlando	305-859-2900
GA	Atlanta	404-955-1500
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IL	Bloomington	309-663-0383
IL	Downers Grove	312-960-5760
IL	Rolling Meadows	312-255-9800
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FL	Merritt Island, J. A. Kennedy Co.	305-452-9821
IL	Elk Grove Village, Bradley Reps.	312-228-8450
IN	Indianapolis, Harvey Guenther	317-251-8143
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MN	Fridley, Teskey & Assocs.	612-571-0876
NJ	Jersey City, Dunn & Bryan	201-963-4478
NY	New Hartford, V. Clair	315-735-8122
OH	Solon, KDF Co.	216-248-8010
OR	Gladstone, Northcoast Mfrs. Agency II	503-657-9427
PA	West Chester, B&W Mktg.	215-692-7155
TX	Dallas, P. J. Scanlon	214-231-4661
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Intl	Mexico, Mexico City, Retenes y Refacciones Ind.	5-754-0503
Intl	Netherlands, Diemen, Onkenhout & Onkenhout B.V.	020-90-40-40
Intl	Norway, Oslo, United Shoe Mach.	02-21-86-50
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CA	San Diego, Westrep	619-276-0751
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CO	Littleton, Omega	303-798-7040
FL	Clearwater, Hallmark Elctrns.	305-530-4543
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IN	Fort Wayne, Given Corp.	219-432-5585
IA	Cedar Rapids, Lorenz Sls.	319-377-4666
KS	Overland Park, Advanced Tech. Sls.	913-642-6675
MD	Pikesville, Imagitron Sls. Co.	301-521-2020
MA	Bloomfield, Astrorep New England	203-967-4848
MI	Ann Arbor, Elliott Sls. Co.	313-662-4087
MN	St. Paul, Repco	612-642-2828
MO	St. Louis, Advanced Tech. Sls.	314-227-4448
NE	Lincoln, Lorenz Sls.	402-475-4660
NJ	Perth Amboy, Astrorep	201-826-8050
NY	Babylon, Astrorep	516-422-2500
NY	Fayetteville, Tri-Tech Elctrns.	315-446-2881
NY	Ronkonkoma, Hallmark Elctrns.	516-737-0600
NC	Greensboro, L & D Inc.	919-292-3201
OH	Cleveland, Comps.	216-243-9200
OH	Miamisburg, Comps.	513-866-0661
OK	Tulsa, Bonser-Philhower Sls.	918-496-3236
OR	Wilsonville, RTS	503-638-5670
PA	Pittsburgh, Comps.	412-824-1600
TX	Richardson, Bonser - Philhower Sls.	214-234-8438
WA	Vashon, RTS	206-285-1363
WI	Cedarburg, Bransky Sls.	414-377-6837

Local Distributors

AL	Huntsville, Hallmark Elctrns.	205-837-8700
AZ	Phoenix, Hallmark Elctrns.	602-243-6601
AR	Little Rock, Electro Entprs.	501-664-9207
CA	Chatsworth, Arrow Elctrns.	213-701-7500
CA	Chatsworth, IEC/Jaco	213-998-2200
CA	Newport Beach, Arrow Elctrns.	714-851-8961
CA	San Diego, Hallmark Elctrns.	714-268-1201
CA	San Diego, Arrow Elctrns.	714-565-4800
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Santa Ana, Norstan Elctrns.	714-540-4165
CA	Sunnyvale, Hallmark Elctrns.	408-773-9990
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Torrance, Cypress Elctrns.	213-533-6005
CO	Denver, Arrow Elctrns.	303-758-2100
CO	Englewood, Hallmark Elctrns.	303-790-1662
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Clearwater, Hallmark Elctrns.	305-530-4543
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Ft. Lauderdale, Hallmark Elctrns.	305-971-9280
FL	Orlando, Hallmark Elctrns.	305-855-4020
FL	Palm Bay, Arrow Elctrns.	305-725-1480

GA	Norcross, Hallmark Elctrns.	404-447-8000
GA	Norcross, Arrow Elctrns.	404-449-8252
IL	Bensenville, Hallmark Elctrns.	312-860-3800
IL	Northbrook, Classic Comps.	312-272-9650
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Indianapolis, Arrow Elctrns.	317-243-9353
KS	Lenexa, Hallmark Elctrns.	913-888-4747
KS	Wichita, Lee Prods.	316-264-2172
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Columbia, Hallmark Elctrns.	301-988-9800
MA	Waltham, QPL Elctrn. Distrs.	617-229-2424
MA	Woburn, Arrow Elctrns.	617-933-8130
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MN	Bloomington, Hallmark Elctrns.	612-884-9056
MN	Edina, Arrow Elctrns.	612-830-1800
MN	St. Paul, Ragon Elctrns.	612-642-2828
MO	Maryland Heights, Hallmark Elctrns.	314-291-5350
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	Cherry Hill, Hallmark Elctrns.	609-424-7300
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Fairfield, Hallmark Elctrns.	201-575-4415
NJ	Moorestown, Arrow Elctrns.	609-235-1900
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NM	Albuquerque, Bell Inds.	505-292-2700
NY	Binghampton, Pioneer/Harvey Elect.	607-748-8211
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Melville, Arrow Elctrns.	516-391-1505
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Ron Kon Koma, Hallmark Elctrns.	516-737-0600
NC	Raleigh, Hallmark Elctrns.	919-832-4465
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Solon, Arrow Elctrns.	216-248-3990
OH	Solon, Hallmark Elctrns.	216-349-4632
OH	Wosterville, Hallmark Elctrns.	614-891-4555
OK	Oklahoma City, Electro Entprs.	405-478-1752
OK	Tulsa, Hallmark Elctrns.	918-835-8458
PA	Monroeville, Arrow Elctrns.	412-856-7000
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Austin, Hallmark Elctrns.	512-837-2814
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Dallas, Hallmark Elctrns.	214-341-1147
TX	Houston, Hallmark Elctrns.	713-781-6100
TX	Stafford, Arrow Elctrns.	713-491-4100
UT	Salt Lake City, Bell Inds.	801-972-6969
WA	Bellevue, Arrow Elctrns.	206-643-4800
WI	New Berlin, Classic Comps.	414-786-5300
WI	Oak Creek, Arrow Elctrns.	414-764-6600
WI	Oak Creek, Hallmark Elctrns.	414-761-3000

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HIGHTEMP RESINS, INC., 225 Greenwich Ave., Stamford, CT 06902, Tel: 203-357-7401; Empl.: 5

HIGH VOLTAGE ENGRG. CORP., S. Bedford St., Burlington, MA 01803, Tel: 617-272-1313, TWX: 710-332-0245; Empl.: 750

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Local Sales Offices & Reps

CA	Los Altos, Landia Sls. Grp.	415-490-5651
CA	Los Angeles, Corcoran Assocs.	213-823-2425
CO	Parker, Parker-Webster	303-841-4888
FL	Orlando, EAB, Inc.	305-898-7444
IL	Steamwood, Al Holte & Assocs.	312-837-4066
KS	Shawnee Mission, Florence & Meyer, Inc.	913-722-5210
MA	Topsfield, RFC Assocs.	617-887-8545
MN	Minneapolis, Wendell E. Lee & Assocs.	612-831-5056
NY	Great Neck, Cooper & Simon & Co., Inc.	516-487-1142
NY	Rochester, BKT Assocs., Inc.	716-586-5814
OH	Cleveland, Baehr, Greenleaf & Assocs.	216-221-9030
PA	W. Conshohocken, Eastern Comps. Sls. Corp.	215-825-8610
TX	Plano, B & R Elctrn Sls. Corp.	214-985-0028

Local Distributors

CA	Santa Ana, Projections Unltd.	714-641-4172
FL	Longwood, Intertec Comps., Inc.	305-834-7777
IL	Des Plaines, Edmar Elctrn. Co.	312-298-8580
IL	Elmhurst, Schuten Elctrns.	312-941-9033
IL	Melrose Park, Belford Elctrns.	312-965-2400
NJ	Clifton, J-Mar Elctrns.	201-772-6400
NY	Plainview, A.C.I. Elctrns.	516-293-6630
PA	McKean, ADVACOM	814-476-7774
PA	York, E.C.I., Inc.	717-843-8971
WA	Kent, Shannon Ltd.	206-763-0545

HILTRONICS CORP., 111 S. Liberty Dr., Stony Pt., NY 10980, Tel: 914-942-1222

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Local Sales Offices & Reps

AL	Birmingham, E. J. Ruth Assocs.	205-979-0880
CA	Pasadena, RDX Corp.	213-681-3451
CA	San Diego, RDX Corp.	619-278-6863
CA	Sunnyvale, RDX Corp.	408-734-4500
CO	Denver, E. C. Rudy Co.	303-433-1066
CT	Meriden, Abbott Allison Co.	203-481-0405
FL	Ft. Lauderdale, Powercom Engrg. Corp.	305-463-6059
HI	Honolulu, Aloha Assocs.	808-879-5296
IL	Hawthorne Woods, Ryan & Assocs.	312-438-2905
IN	Ossian, Science Sales	219-622-7383
KS	St. Louis, Fitzgerald Sales Co.	314-862-1660
MN	Edina, Ainslie Co.	612-920-2996
NJ	East Orange, Friedman Assocs.	201-694-6200
NM	Albuquerque, Hewitt & Assocs.	505-229-7746
NY	Cazenovia, Peter De Cew Agency	315-655-8602
PA	Downingtown, Kenn Ebert-Hipotronics	215-269-5898
TX	Richardson, Hipotronics-Dusty Arnold	214-644-7607
WA	Bellevue, Topp Engrg. Sls. Corp.	206-747-5400

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Local Sales Offices & Reps

TX	Paris, Packard Assocs.	214-785-4544
EXP	MN, Minneapolis, C. Tennant, Sons & Co. of New York	612-475-7321

Local Distributors

TX	Houston, Lenert Co.	713-225-1465
TX	Paris, Electro Hardware Co.	214-785-4544

HISONIC, INC., 249 N. Troost, P.O. Box 1130, Olathe, KS 66061-1130, Tel: 913-782-0012, Telex: 4-2562; FSC No.: 11402; Empl.: 98; *Sls. Mgr.:* W. S. Bonebright .... **1A**•1599, 2175

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AL	Huntsville, MacKay, Smith & Assocs.	205-539-8000
FL	Ft. Lauderdale, MacKay, Smith & Assocs.	305-467-3888
FL	Madeira Beach, MacKay, Smith & Assocs.	813-393-7144
FL	Orlando, MacKay, Smith & Assocs.	305-277-1513
FL	St. Petersburg, MacKay, Smith & Assocs.	813-393-7144
GA	Atlanta, MacKay, Smith & Assocs.	404-449-7444
KS	Shawnee Mission, Florence & Meyer	913-722-5210
MO	St. Louis, Florence & Meyer	314-965-5117
NC	Cary, MacKay, Smith & Assocs.	919-467-5400
NC	Charlotte, MacKay, Smith & Assocs.	704-372-1188
NC	Raleigh, MacKay, Smith & Assocs.	919-851-5000
TX	Houston, AID Elctrns.	713-777-3882
TX	Irving, AID Elctrns.	214-259-4761

HITACHI AMERICA, 1800 Bering Dr., San Jose, CA 95112, Tel: 408-292-6404, Telex: 17-1581, TWX: 910-338-2103; *Sls. Mgr.:* Jack Ordway; *Dist. Mgr.:* Michael Barthman

HITACHI AMERICA, LTD., 59 Route 17 South, Allendale, NJ 07401, Tel: 201-825-8000, Telex: (WU) 642734; *Sls. Mgr.:* William J. Pearson

HITACHI DENSHI AMERICA LTD., Test & Meas. Div., 175 Crossways Pkwy. W., Woodbury, NY 11797, Tel: 516-921-7200, TWX: 510-221-1899; Empl.: 110

Local Sales Offices & Reps

CA	Carson, Hitachi Denshi Amer. Ltd.	213-538-4880
CO	Broomfield, Connors Inc.	303-466-9628
GA	Doraville, Hitachi Denshi Amer. Ltd.	404-451-9453
GA	Smyrna, BC Elctrns.	404-436-5169
IL	Itasca, L-Tec	312-775-2900
IL	Melrose Park, Hitachi Denshi Amer. Ltd.	312-344-4020
IN	Indianapolis, Loren Green Assocs.	317-293-9827
MA	Burton, Forrester	617-848-7234
MI	Lathrup Village, R. C. Nordstrom & Co.	313-559-7373
MN	Eden Prairie, Electronics Instr. Consits.	612-937-9701
NY	Auburn, ADN Enterprises	315-255-2701
OH	Westlake, KRW Sls.	216-871-7521
TX	Dallas, Hitachi Denshi Amer. Ltd.	214-233-7623
TX	Dallas, SW Mktg. Assocs.	214-341-8631
WA	Tumwater, Weeks & Assocs.	206-943-1079

Local Distributors

CA	Canoga Park, RAG Entprs.	213-998-6500
CA	Chatsworth, Priority I Elctrns.	213-709-5464
CA	Palo Alto, Metermaster	415-968-0313
CA	Sacramento, Zackit Corp.	916-446-3131
CA	San Diego, Instrument Engrs.	619-278-8037
CA	Van Nuys, Testek Corp.	213-786-6890
CO	Boulder, Instr. Repair Labs	303-449-2721
CO	Denver, CW Elctrns. Sls.	303-832-1111
CT	Norwalk, Park Distrs.	203-853-2011
CT	West Hartford, Signal Elctrn. Center	203-233-8551
FL	Ft. Lauderdale, Southeastern	305-563-4131
FL	Miami, Walder Elctrns.	305-379-4794
FL	Tampa, Hammond Elctrns.	813-253-0104
GA	Decatur, EME II	404-325-0165
HI	Honolulu, R. W. Tully Co.	808-836-0838
IL	Niles, Joseph Elctrns.	313-297-4200
IL	S. Holland, Union Elctrns.	312-333-4100
IA	Davenport, Waren Radio Co.	319-322-5301
KS	Wichita, Radio Supp.	316-267-5213
LA	Metairie, Pelican Elctrn. Supp.	504-888-4720
LA	Shreveport, Whls. Elctrn. Supp.	318-222-2063
MD	Savage, Pyttronic Inds.	301-792-0780
MA	N. Billerica, AST/Servo System	617-667-8541
MA	N. Wilbraham, Industrial Comps.	413-596-3854
MA	Waltham, Calibron Instrs.	617-894-6440
MI	Clawson, Radio Supp. & Engrg.	313-435-5660

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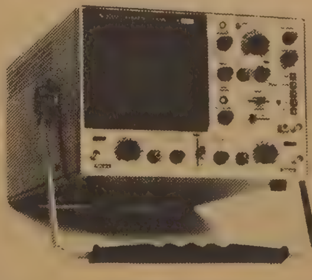

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NJ	Pinebrook, Parts Masters Inc.	201-227-7797
NM	Santa Fe, A-1 Comms. Supp.	505-982-4488
NY	Great Neck, Instr. Mart	516-487-7430
NY	New York, Advance Elctrns.	212-730-7030
NY	Rochester, R. Baker Elctrns.	716-586-9164
NY	Rochester, Goldcrest Elctrns.	716-546-8464
NY	Rockville Center, Midway Indl. Elctrns.	516-764-2400
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NC	Greenville, Pair Elctrns.	919-756-2291
OK	Oklahoma City, Whls. Elctrns. Supp.	405-528-2391
OK	Tulsa, Whls. Elctrn. Supp.	918-587-5516
PA	Allentown, A. A. Peters	215-434-5237
PA	Melrose Park, Robert Meyers Assoc.	215-224-1663
PA	Philadelphia, Sunshine Sci. Inst.	215-673-5600
RI	Providence, Hope Elctrns. Supp.	401-521-5600
TN	Nashville, Eddie Warners	615-254-1224
TX	Austin, Whls. Elctrn. Supp.	512-478-9568
TX	Austin, Electrotex	512-476-7644
TX	Beaumont, Electrotex	713-838-6421
TX	Corpus Christi, Electrotex	512-854-5306
TX	Dallas, Electrotex	214-234-0433
TX	Dallas, SJB Distrs.	214-343-1328
TX	Dallas, Whls. Elctrn. Supp.	214-824-3001
TX	Dallas, M. Hutton & Co.	214-661-9800
TX	Ft. Worth, Whls. Elctrns. Supp.	718-429-3956
TX	Houston, Electrotex	713-941-7016
TX	Houston, Electrotex	713-526-3456
TX	Houston, Electrotex	713-695-6851
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TX	Wichita Falls, Whls. Elctrn. Supp.	817-723-8106
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VA	Richmond, I.T.R.	804-275-1431
VA	Vienna, Elctrn. Equip. Bank	703-938-3350
WA	Seattle, Radar Elec. Co.	206-282-2511
WA	Tumwater, JW Elctrns.	206-943-1079
WI	Madison, Schrenk Sls.	608-255-7400
WI	Mequon, Taylor Elec.	414-241-4321
WY	Casper, Hathaway Elctrns.	307-234-1821

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AR	Fort Smith, Electro-Related Prods.	501-452-4030
CA	Woodland Hills, Glenn M. Stevenson Co.	213-348-5506
CT	South Windsor, Maher Assocs.	203-644-2481
FL	Orlando, Alcott Prods. Co.	305-295-5457
IL	Wood Dale, Power Prods.	312-595-1142
MA	Lynn, Maher Assocs.	617-581-3244
MI	Sheridan, MacDougall and Assocs.	517-291-3334
MN	Minneapolis, Elec. Comp. Sls.	612-933-2594
NJ	River Edge, Maher Assocs.	201-261-2225
OH	Seven Hills, Nenaoal Entprs.	216-524-4293
OR	Lake Oswego, Baxter Air Engrg.	503-635-3915
TN	Chattanooga, Wade Prods. Co.	615-266-2262
TX	Fort Worth, Terrell J. Small Co.	817-332-6352
WA	Bellevue, Baxter Air Engrg.	206-641-6118

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Local Sales Offices & Reps

AL	Huntsville, MacKay, Smith & Assoc.	205-539-8000
CA	Los Angeles, RF Assocs.	213-478-1586
CA	Palo Alto, RF Assocs.	415-494-3331
CT	Ridgefield, Manning & Assoc. Inc.	203-438-5027
CT	West Haven, Northeast Power Sys.	203-933-8222
FL	Ft. Lauderdale, MacKay, Smith & Assocs.	305-467-3888
FL	Orlando, MacKay, Smith & Assocs.	305-277-1513
FL	St. Petersburg, MacKay, Smith & Assocs.	813-393-7144
GA	Atlanta, MacKay, Smith & Assocs.	404-449-7444
HI	Honolulu, Aloha Assocs.	808-941-1574
ID	Boise, Calvert Controls	208-343-3964
MD	Elkton, Electro-Mek Sls.	301-398-8148
MT	Billings, Calvert Controls	406-252-0064
NJ	Wayne, G & A Sales	201-256-8500
NJ	Woodbury, Electro-Mek Sls.	609-423-5611
NY	Manlius, Electrotech Sys.	315-682-5346
NY	Moravia, Electrotech Sys.	315-497-1598
NY	Roslyn Hgts., G & A Sales	516-621-3223
NC	Charlotte, MacKay, Smith & Assocs.	704-372-1188
NC	Raleigh, MacKay, Smith & Assocs.	919-851-5000
OH	Dayton, Mohawk Intronics	513-434-8873
OR	Eugene, Calvert Controls	503-683-2018
OR	Portland, Calvert Controls	503-222-6473
PA	Harrisburg, Electro-Mek Sls.	717-589-7222
PA	Pittsburgh, Greye Glass Assocs.	412-366-6664
UT	Salt Lake City, Calvert Controls	801-531-8129
VA	Charlottesville, Marktron	804-973-5874
WA	Seattle, Calvert Controls	206-447-9375
WA	Spokane, Calvert Controls	509-244-3601
WA	Tri-Cities, Calvert Controls	509-545-4506

Local Distributors

FL	Winter Park, Elctrn. Technlg.	305-678-5876

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IN	Indianapolis, Specialty Mfrs.	317-635-2723
NY	Buffalo, R. W. Mitscher Co.	716-633-7970
NC	Raleigh, R. W. Mitscher Co.	919-848-0941
WA	Bothell, Temco Northwest	206-488-1254

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HOFFMAN INDUSTRIAL PRODS., 170 Allen Blvd., Farmingdale, NY 11735, Tel: 516-293-5244, Telex: 14-4578; Empl.: 30; *Sls. Mgr.:* Sy Friedman; *Dist. Mgr.:* J. Dunnells

HOKE, 1 Tenakill Pk., Cresskill, NJ 07626, Tel: 201-568-9100, Telex: 135428; *Sls. Mgr.:* David Grim; *Dist. Mgr.:* Len Bruscia

HOLADAY INDUSTRIES, INC., 14825 Martin Drive, Eden Prairie, MN 55344, Tel: 612-934-4920, Telex: 290922; *Sls. Mgr.:* Burton Gran

HOLLEX, INC., 81 W. Wyoming Ave., Melrose, MA 02176, Tel: 617-665-2413; Empl.: 28; *Sls. Mgr.:* H. E. Holley; *Dist. Mgr.:* H. E. Holley

HOLLINGSWORTH SOLDERLESS TERMINAL CO., 700 N.W. 57th Pl., Ft. Lauderdale, FL 33309, Tel: 305-772-7660, Telex: 846143; Empl.: 750; *Sls. Mgr.:* Terry Rodenhaver

HOLLIS ENGRG., INC., Charron Ave., Box 1189, Nashua, NH 03061, Tel: 603-889-1121, TWX: 710-228-1881; Empl.: 121; *Sls. Mgr.:* R. Abercrombie

HOLLIS ENGRG./WIRE-WRAP, 15 Charron Ave., Nashua, NH 03061, Tel: 603-889-1121, Telex: 710-2281881; Empl.: 250; *Sls. Mgr.:* Gary Barrett

™ HOLMBERG
ELECTRONICS

HOLMBERG ELCTRNS., Asheville Hwy., Inman, SC 29349, Tel: 803-472-4141, TWX: 810-690-2302; *Sls. Mgr.:* John Galli; *Dist. Mgr.:* Frank Pellatt .... **2**•1295-1310

Local Sales Offices & Reps

AZ	Phoenix, M. R. Engrg.	602-956-4670
AZ	Scottsdale, Fred Board & Assoc.	602-994-9388
CA	San Diego, Hadden Assoc., Inc.	619-565-9444
CO	Aurora, Electrodyne	303-695-8903
FL	Boca Raton, Lawrence Assoc.	305-368-7373
FL	Clearwater, Lawrence Assoc.	813-443-2698
GA	Lawrenceville, B.T.F. Inc.	404-963-9495
IL	Downers Grove, Momak Sls.	312-963-6400
IN	Indianapolis, Elctrn. Mktg. Consul. (EMCI)	317-253-1668
MA	Lexington, Circuit Sls.	617-861-0567
MN	Edina, Monroe Hanna	612-925-5700
NJ	Livingston, Varrellman-Gorman Co.	201-992-2505
NM	Alburquerque, Fred Board & Assoc.	505-293-1399
NY	Binghamton, Empire Technical Assoc.	607-772-0651
NC	Henderson, B.T.F., Inc.	919-438-7570
NC	Raleigh, B.T.F. Inc.	919-782-3493
OH	Dayton, Del Steffen & Assoc.	513-293-3145
OR	Portland, Barrett-Squibb	503-644-2550
TX	Dallas, Erickson Sls.	214-739-5833
UT	Salt Lake City, Electrodyne	801-486-3801
WA	Redmond, Barrett- Squibb	206-885-6991
WI	Milwaukee, Momak Sls.	414-962-9576
EXP	SC, Inman, Holmberg Elctrns.	803-472-2821
PR	Hato Rey, Karden Corp.	809-765-7355

Local Distributors

AZ	Mesa, Bergquist Co.	602-986-4271
AZ	Phoenix, Arizona Comps.	602-279-9446
AZ	Tempe, Bell Inds., Elctrn.	602-966-7800
CA	Belmont, Lodan, Inc.	415-592-4600
CA	Cerritos, El-Com Sls.	714-739-5656
CA	Fountain Valley, Component Center	714-979-0433
CA	Irvine, Product Supply	714-641-8736
CA	Riverside, Electronic Supply	714-683-7300
CA	Sacramento, Integrated Elctrns.	916-424-5297
CA	San Diego, El-Com Sls.	619-578-0900
CA	San Francisco, Peters-De Laet	415-873-9595
CA	San Jose, Cypress Elctrns.	408-945-8400
CO	Denver, CSID Elctrns.	303-893-9594
CT	Yalesville, Schaal Assoc.	203-269-3779
FL	Ft. Lauderdale, KSM Elctrns.	305-971-5900
FL	Longwood, Intertec Comps.	305-834-7777
FL	Orlando, Deanco	305-671-5100
GA	Atlanta, K.S.M.	404-458-2013
GA	Cumming, Pan American	800-554-9796
GA	Marietta, Deanco	404-429-0126
IL	Addison, K.S.M.	312-953-9473
IL	Arlington Hgts., Lodan Elctrns.	312-398-5311
IL	Lisle, Comps., Inc.	312-852-7707
IN	Indianapolis, RM Indiana	800-792-3445
IA	Cedar Rapids, Bergquist Co.	319-366-8733
MD	Baltimore, Whitney Distr.	301-944-8080
MD	Baltimore, Resco-Baltimore	301-823-0070
MD	Beltsville, Resco/Washington	301-937-9100
MD	Gaithersburg, Deanco	301-948-5444
MA	Burlington, Deanco	617-272-1506
MA	Burlington, Schaal Assocs.	617-272-7940
MA	Natick, Tec-Con	617-655-9333
MI	Grand Rapids, S&F Elec.	616-459-0216
MN	Minneapolis, Cassidy Elctrns.	612-835-7746
MN	Minneapolis, Bergquist Co.	612-835-2322
MO	Kansas City, Finnigan Elctrns.	816-421-4277
NJ	Fairfield, Deanco	201-575-7960
NJ	Whippany, Tonar Inds.	201-884-1400
NY	Hauppauge, Schaal Assocs.	516-234-4600
NY	Ithaca, Deanco	607-257-4444
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Rome, Rome Elctrns.	315-476-2033
NC	Raleigh, Century	919-872-2203
NC	Raleigh, Deanco	919-851-2065
OH	Dayton, Televox, Inc.	513-294-4499
OR	Lake Oswego, Bell Inds.	503-241-4115
OR	Lake Oswego, Rose Elctrn. Distr. Co.	503-635-8823
PA	Montgomeryville, Pytronic Ind., Inc.	215-643-2850
PA	Norristown, Century Elctrn. Comps.	215-631-5400
TN	Memphis, Nealco Dist.	901-353-1241
TX	Corpus Christi, Douglas Elctrns.	512-883-5103
TX	Ft. Worth, Texas Connector	817-246-0109
UT	Salt Lake City, Diplomat	800-453-5503
VA	Virginia Beach, Deanco	804-460-3558
WA	Bellevue, Bell Inds.	206-747-1515
WA	Redmond, Murphy Elctrns.	206-881-1234

HOLT INC., 8 Chrysler Ave., Irvine, CA 92714, Tel: 714-859-8800, Telex: 753307; Empl.: 102; *Sls. Mgr.:* Mark Ellsberry

HOLT LLOYD CORP., LPS Chem. Prods., 4647 Hugh Howell Rd., Tucker, GA 30084, Tel: 404-934-7800, TWX: 810-766-4920; *Sls. Mgr.:* Les Gable

HOLUB INDUSTRIES, 1701 W. Bethany Rd., Sycamore, IL 60178, Tel: 815-895-6501, Telex: 25-7359; Empl.: 90; *Sls. Mgr.:* R. J. Morrison

HONEYWELL INC., Aerospace & Defense Grp., Honeywell Plaza, Minneapolis, MN 55408, Tel: 612-870-5186, TWX: 910-576-2692; Empl.: 15,000

HONEYWELL INC., Commercial Div., MN 27-7246, Honeywell Plaza, Minneapolis, MN 55408, Tel: 612-870-5346

HONEYWELL INFO. SYS., 200 Smith St., MS 440, Waltham, MA 02154, Tel: 617-895-6000

HONEYWELL MICRO SWITCH DIV., See Micro Switch, a Honeywell Division

Honeywell

HONEYWELL OPTOELECTRONICS, 830 E. Arapaho Dr., Richardson, TX 75080, Tel: 214-234-4271, Telex: 73-0890; Empl.: 300; *Sls. Mgr.:* Joe Tucker; *Dist. Mgr.:* Joe Tucker ....**1B**•1112, 1113, 1220-1230

Local Sales Offices & Reps

AL	Huntsville, RM Alabama	205-852-1550
AZ	Phoenix, Cetec Elctrns.	602-272-7951
CA	Anaheim, Honeywell Optoelectronics	714-956-4410
CA	Cupertino, Western Micro	408-725-1660
CA	Glendale, Orion Sales, Inc.	213-240-3151
CA	Inglewood, Force Elctrns.	213-776-1324
CA	Irving, Cetec Elctrns.	714-250-4141
CA	San Diego, Force Elctrns.	619-569-9661
CA	San Diego, Cetec Elctrns.	619-278-5020
CA	San Jose, Cetec Elctrns.	408-263-7373
CA	Santa Clara, Force Elctrns.	408-739-1324
CA	Santa Clara, I⅜¢2 Inc.	408-988-3400
CA	South Gate, Cetec Elctrns.	213-773-6521
CO	Denver, Integrated Elctrns.	303-534-6121
CO	Englewood, Delta Sls. Assocs.	303-741-0646
CO	Englewood, Honeywell Optoelctrns.	303-779-6541
CT	Glastonbury, Honeywell Optoelctrns.	203-659-4011
CT	Stanford, Bond	203-348-2663
DE	Huntington Valey, Knowles Assocs.	215-947-5641
FL	Coral Springs, E.P.M.	305-752-0054
FL	Ft. Lauderdale, Hammond	305-973-7103
FL	Orlando, Hammond	305-849-6060
GA	Atlanta, E.M.A. Inc.	404-448-1215
IL	Bensenville, Honeywell Optoelctrns.	312-860-3984
IL	Chicago, NEP Elctrns.	312-625-8400
IL	Elk Grove Village, Oasis Sales	312-640-1850
IL	Lombard, RM Illinois	312-932-5150
IL	Rosemont, Advent	312-297-6200
IN	Indianapolis, Advent	317-872-4910
IN	Indianapolis, Elctrn. Sls. and Engrg.	317-849-4260
IN	Indianapolis, Advent	317-247-9701
IA	Cedar Rapids, Dy-Tronix, Inc.	319-377-8275
IA	Cedar Rapids, Advent	319-363-0221
KS	Wichita, LCOMP, Inc.	316-265-8501
KS	Wichita, LComp	316-265-8501
MD	Baltimore, Whitney	301-944-8080
MD	Baltimore, Whitney	301-944-8080
MD	Glen Burnie, Stinson Assocs.	301-760-8878
MA	Burlington, Lionex	617-272-9400
MA	Newton, Gerber Sls.	617-969-2620
MA	Newton Lower Falls, Honeywell Optoelctrns.	617-923-7675
MA	W. Newton, A. W. Mayer	617-965-1111
MI	Grand Rapids, RM Michigan	616-531-9300
MI	Novi, Action Comps.	313-349-3940
MN	Bloomington, Com-Tek Sls.	612-888-7011
MN	Minneapolis, Industrial Comp.	612-831-2666
MO	Bridgeton, Dy-Tronix, Inc.	314-731-5799
MO	Independence, Dy-Tronix, Inc.	816-373-6600
MO	Kansas City, LComp	816-221-2400
MO	Maryland Heights, LComp	314-291-6200
NH	Hudson, C&H Elctrns.	603-882-1133
NJ	Bellmawr, Mid Atlantic	609-931-5303
NJ	Fairfield, Lionex Corp.	201-227-7960
NJ	Fairfield, Lionex	201-227-7960
NM	Albuquerque, B.F.A. Corp.	505-292-1212
NM	Albuquerque, Elctrn. Devices	505-884-2950
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Endwell, Noeth Honsinger Assocs.	607-754-3214
NY	Hauppauge, Lionex	516-273-1660
NY	Ilion, Noeth Honsinger Assocs.	315-894-9943
NY	Pittsford, Noeth Honsinger Assocs.	716-586-9002
NY	Port Chester, Zeus Comps.	914-937-7400
NY	Rochester, Honeywell Optoelctrns.	716-424-2700
NC	Greensboro, Hammond	919-275-6391
NC	Raleigh, E.M.A. Inc.	919-847-8800
OH	Akron, B.J. David Corp.	216-645-0517
OH	Cincinnati, Schuster Elec.	513-489-1400
OH	Columbus, Hughes-Peters	614-294-5351
OH	Twinsburg, Schuster Elec.	216-425-8134
OR	Portland, Jas. J. Backer Co.	503-297-8744
PA	Feasterville, Knowles Assocs.	215-322-7100
PA	Horsham, Lionex	215-443-5150
SC	Greenville, E.M.A. Inc.	803-233-4637
SC	Greenville, Hammond	803-233-4121
TX	Austin, Harrison Equip. Co. Inc.	512-458-3555
TX	Dallas, Harrison Equip. Co. Inc.	214-239-2750
TX	Houston, Harrison Equip. Co. Inc.	713-879-2727
TX	Houston, Force Elctrns.	713-772-8483
TX	Irving, Force Elctrns.	214-438-5700
TX	Richardson, Honeywell Optoelctrns.	214-234-4271
UT	Salt Lake City, Integrated Elctrns.	801-298-1869
VA	Charlottesville, Stinson Assocs.	804-973-2678
VA	Cloverdale, Stinson Assocs.	703-992-5459
VA	Rustin, Stinson Assocs.	703-471-0723
WA	Kent, Shannon Ltd.	206-763-0540
WA	Seattle, Jas. J. Backer Co.	206-285-1300
WI	Brookfield, Oasis Sales	414-782-6660
WI	Mequon, Taylor Elec. Co.	414-241-4321

HONEYWELL, Process Control Div., 1100 Virginia Dr., Ft. Washington, PA 19034, Tel: 800-321-5111, Ext. 596, TWX: 510-661-0328; Empl.: 2500

Local Sales Offices & Reps

AL	Birmingham	205-945-3500
AZ	Phoenix	602-861-4402
AR	Little Rock	501-664-0070
CA	Los Angeles	213-726-6000
CA	San Francisco	415-957-2500
CO	Englewood	303-779-6200
CT	Hartford	203-549-3800
FL	Orlando	305-894-3131
GA	Atlanta	404-982-2000
IL	Lansing	312-474-9300
IL	Park Ridge	312-296-0710
IN	Indianapolis	317-243-0831
IA	Davenport	319-359-3441
KS	Wichita	316-522-3431
KY	Louisville	502-459-5970
LA	Baton Rouge	504-924-8601
ME	Portland	207-775-3501
MD	Baltimore	301-667-4020
MA	Newton	617-969-0250
MI	Farmington Hills	313-478-1600
MI	Grand Rapids	616-247-4811
MN	Minneapolis	612-830-3500
MS	Jackson	601-957-1025
MO	St. Louis	314-576-2500
NE	Omaha	402-331-3200
NJ	Westfield	201-233-9200
NM	Albuquerque	505-884-1070
NY	Albany	518-456-7000
NY	Syracuse	315-451-4000
NC	Charlotte	704-364-4770
OH	Cleveland	216-459-6000
OK	Oklahoma City	405-848-2811
OR	Portland	503-245-0721
PA	Philadelphia	215-666-8200
SC	Columbia	803-779-3280
TN	Memphis	901-345-6222
TX	Houston	713-780-6500
UT	Salt Lake City	801-487-0681
VA	Richmond	804-285-8211
WA	Seattle	206-233-2000
WV	Charleston	304-766-8000
WI	Milwaukee	414-784-6260

HONEYWELL, Test Instrs. Div., P.O. Box 5227, Denver, CO 80217, Tel: 303-773-4700, Telex: 45793 DVR; Empl.: 850; *Sls. Mgr.:* Frank Doherty

HOPKINS ENGRG., 12900 Foothill Blvd., San Fernando, CA 91342, Tel: 213-361-8691, TWX: 910-496-1531; FSC No.: 02777; Empl.: 10; *Sls. Mgr.:* Gary M. Smith; *Dist. Mgr.:* Clyde M. Salisbury

HOPT, KARL, CO., 118 First Ave., Atlantic Highlands, NJ 07716, Tel: 201-291-0633; Telex: 132496; Empl.: 400; *Sls. Mgr.:* G.C. Ellis

HOTPACK CORP., Heinicke Instrs., 10940 Dutton Rd., Philadelphia, PA 19154, Tel: 215-824-1700, 800-523-3608, TWX: 710-670-1694; FSC No.: 66; Empl.: 100; *Sls. Mgr.:* Ed Hammer

Hotpack is a manufacturer and is sold direct. To contact the salesman in your area call 800-523-3608 or 215-824-1700.

HOTTINGER BALDWIN MEASUREMENTS, 139 Newberry St., Framingham, MA 01701, Tel: 617-875-8282, Telex: 94-8499; Empl.: 179; *Sls. Mgr.:* Robert Haggerson

HOUSE OF METAL ENCLOSURES, Box 225, Hermann, MO 65041, Tel: 314-486-3111; Empl.: 55; *Sls. Mgr.:* Richard L. Kastel

HOUSTON INSTRUMENT, Div. Bausch & Lomb, P.O. Box 15720, Austin, TX 78761, Tel: 512-835-0900, TWX: 910-874-2022; Empl.: 450; *Dist. Mgr.:* Rod Schaffner

HOWARD INDS., Box 287, Milford, IL 60953, Tel: 815-889-4105, TWX: 910-642-2950; FSC No.: 815-889-4105; Empl.: 500; *Sls. Mgr.:* Ralph Young; *Dist. Mgr.:* Al Mancuso

HOWELL INSTRS., 3479 W. Vickery Blvd., Ft. Worth, TX 76107, Tel: 817-336-7411, Telex: 75-8233; FSC No.: 98869; Empl.: 180; *Sls. Mgr.:* Bruce Pike

HTL ELECTRO KINETICS, 402 E. Gutierrez St., Santa Barbara, CA 93101, Tel: 805-963-2055, TWX: 910-334-1177; Empl.: 180; *Sls. Mgr.:* Robert E. Lynch

HUDSON TOOL & DIE CO., INC., 18 Malvern St., Newark, NJ 07105, Tel: 201-589-1800, TWX: 710-995-4445; FSC No.: 02875; Empl.: 300; *Sls. Mgr.:* William Miller

HUGHES AIRCRAFT CO., 6155 El Camino Real, Carlsbad, CA 92008, Tel: 619-438-9191, TWX: 910-322-1393; Empl.: 1000

HUGHES AIRCRAFT CO, Aerospace Grps./Support Sys., P.O. Box 90515, Los Angeles, CA 90009, Tel: 213-670-1515, Telex: 67222, TWX: 213-871-5210; *Sls. Mgr.:* W. L. Pemberton

HUGHES AIRCRAFT CO., Connecting Devices Div., 17150 Von Karman Ave., Irvine, CA 92714, Tel: 714-660-5701, TWX: 910-595-2523; FSC No.: 53669; Empl.: 700; *Sls. Mgr.:* Phil Larson

HUGHES AIRCRAFT CO., Electron Dynamics Div., 3100 W. Lomita Blvd., P.O. Box 2999, Torrance, CA 90509, Tel: 213-517-6000, Telex: 67-7064, TWX: 910-347-7321; Empl.: 2,748; *Sls. Mgr.:* Robert L. Woods

Local Sales Offices & Reps

AZ	Phoenix, Odyssey 1	602-246-8846
CA	Anaheim, Blair Assocs.	714-635-1350
CA	San Jose, MCH Assocs.	408-246-7330
CO	Littleton, FG Mktg.	303-795-9176
FL	Orlando, E. G. Holmes & Assocs.	305-894-8901
GA	Chamblee, E. G. Holmes & Assocs.	404-451-6161
IL	Mt. Prospect, Cain-Forlaw Co.	312-253-3578
MD	Columbia, M. Lader Co.	202-296-2497
MO	Kansas City, EIR Co.	816-452-7030
MO	Leasburg, EIR Co.	314-895-4100
NH	Nashua, JPR Electronic Sls.	603-889-8285
NM	Albuquerque, Odyssey 1	505-265-6645
NY	Fayetteville, R.D. Sherman	315-637-9861
NY	New Rochelle, Ascor Elctrns.	914-235-8838
OH	Lancaster, Cain-Forlaw	614-654-4800
PA	Lafayette Hill, M. Lader Co.	215-825-3177
WA	Bellevue, Arva-Hudson, Inc.	206-455-0773

HUGHES AIRCRAFT CO., Indl. Prods. Div. FACT Sys., 6155 El Camino Real, Carlsbad, CA 92008, Tel: 619-438-9191, Telex: 672222, TWX: 910-322-1393; *Sls. Mgr.:* R. L. Giusti

HUGHES AIRCRAFT CO., Microelctrn. Sys. Div., 2601 Campus Dr., Irvine, CA 92715, Tel: 714-752-3800, TWX: 910-595-2435; *Sls. Mgr.:* J. L. Waters

HUGHES

HUGHES AIRCRAFT COMPANY

HUGHES SOLID STATE PRODUCTS, 500 Superior Ave., Dept. E8, Newport Bch., CA 92663, Tel: 714-759-2411, TWX: 910-596-1374 ....**1A**•1362-1365

Local Sales Offices & Reps

AL	Huntsville, L & D Inc.	205-837-1469
AZ	Phoenix, Toward Engrg. Assocs.	602-955-3193

CA	Mountain View, Weseloh/Swanson	415-961-0565
CA	San Diego, Wes-K Assocs.	619-295-3501
CA	Van Nuys, Wes-K Assocs.	213-989-3070
CT	Ansonia, R. H. Sturdy Co.	203-734-2186
CT	Rocky Hill, R. H. Sturdy Co.	203-563-8455
FL	Clearwater, Delmac Sls.	813-447-5192
FL	Orlando, Delmac Sls.	305-898-4688
FL	Tamarac, Delmac Sls.	305-726-1330
GA	Atlanta, L & D Inc.	404-455-3483
IL	Elk Grove Village, Carlson Elctrn. Sls.	312-956-8240
IN	Indianapolis, J & W Sales	317-842-3740
IA	Cedar Rapids, Carlson Elctrn. Sls.	319-377-6341
KS	Shawnee Mission, Technical Sls. Assocs.	913-888-3330
MD	Glen Burnie, Faion Lott & Co.	301-744-4611
MA	Salisbury, R. H. Sturdy Co.	617-465-1505
MA	Wellesley Hills, R. H. Sturdy Co.	617-235-2330
MI	Livonia, Luebbe Sls.	313-477-3131
MN	Minneapolis, Deming (Bill) & Assocs.	612-888-5000
MO	Ferguson, Technical Sls. Assocs.	314-725-5361
NY	Endwell, Tri-Tech Elctrns.	607-754-1094
NY	Fairport, Tri-Tech Elctrns.	716-223-5720
NY	Fayetteville, Tri-Tech Elctrns.	315-446-2881
NY	Great Neck, Cooper-Simon & Co.	516-487-1142
NY	Poughkeepsie, Tri-Tech Elctrns.	914-473-3880
NC	Greensboro, L & D Inc.	919-292-3201
NC	Raleigh, L & D Inc.	919-876-5301
OH	Cincinnati, Luebbe Sls.	513-891-5770
OH	Cleveland, Luebbe Sls.	216-333-0425
OH	Columbus, Luebbe Sls.	614-431-0474
OH	Dayton, Luebbe Sls.	513-294-0426
PA	Bala Cynwyd, Electro-Comp Sls.	215-667-9360
PA	Pittsburgh, Luebbe Sls.	412-931-0414
TX	Dallas, Southern States Mktg.	214-248-8600
TX	Houston, Southern States Mktg.	713-988-0991
WI	Milwaukee, Carlson Elctrn. Sls.	414-476-2790

HUGHEY & PHILLIPS, INC., 3050 N. California St., Burbank, CA 91504, Tel: 818-849-1104, TWX: 910-498-2252; FSC No.: 94295; Empl.: 38; *Sls. Mgr.:* C.L. Phillis; *Dist. Mgr.:* C.L. Phillis

HUGIN INDS. INC., 745 Distel Dr., Los Altos, CA 94022, Tel: 415-961-2950, Telex: 348 399; Empl.: 4; *Sls. Mgr.:* Peter Hugin

Local Sales Offices & Reps

IL	Chicago, Patton Sls.	312-325-2170
NJ	Tenafly, D&D Engrg.	201-568-5032
NY	Rochester, Irondequoit Inds.	716-544-6257
NC	Fayetteville, Zim-Tek	919-485-2222
OH	Dover, AJ Assocs.	216-343-2224

HULL CORP., Davisville Rd., Hatboro, PA 19040, Tel: 215-672-7800, TWX: 510-665-6822; Empl.: 200; *Sls. Mgr.:* Ken Haywood

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HUMISEAL DIV., 26-60 Bklyn. - Queens Expwy., Woodside, NY 11377, Tel: 212-932-0800, TWX: 710-582-2141; FSC No.: 99109; Empl.: 150 .... **2**•1083

Local Sales Offices & Reps

AL	Huntsville, BJR Mfg. Reps.	205-881-3569
AZ	Phoenix, Coker & Assocs.	602-277-7148
CA	Alhambra, M. W. Riedel & Co.	213-283-7694
CA	Mountain View, Target Elctrns.	415-961-1170
CO	Arvada, Arrowhead Sls.	303-423-5556
CT	Bridgeport, Betronic Assocs.	203-374-6404
FL	Casselberry, Barrett Assocs.	305-699-0311
IL	Hillside, Miltex Sales Corp.	312-449-0420
KS	Kansas City, L. E. Bruns Co.	913-287-5242
MD	Baltimore, Advanced Tech. Sls.	301-583-8252
MA	Waltham, Betronic Assocs.	617-894-8400
MI	Birmingham, W. R. Cline	313-642-2526
MN	Bloomington, Smiley-Scott Assoc.	612-888-5551
NJ	Florham Park, H. Thaw Sls.	201-992-2711
NY	Rochester, Gislason Sls.	716-454-4741
NC	Charlotte, Reynolds Cowardin Assocs.	704-596-6898
OH	Cleveland, Marlow Assocs.	216-991-6500
PA	Pittsburgh, Marlow Assocs.	412-367-8886
TX	Dallas, R. D. Spooner Co.	214-357-6636
VA	Richmond, Reynolds Cowardin Assocs.	804-266-3457
WA	Kirkland, R. R. Chase & Assocs.	206-823-6500

Local Distributors

CA	Alhambra, ULTEX	213-283-7694
CA	Mountain View, Target Elctrns.	415-961-1170
TX	Dallas, R. D. Spooner Co.	214-357-6636
WA	Kirkland, R. R. Chase & Assocs.	206-823-6500
WI	Milwaukee, Ellsworth Sys.	414-352-1230
Intl	England, Surrey, Woking, Concoat Ltd.	(04862) 6944/14
Intl	France, Paris, Spetelec	686-56-65, 25801
Intl	Japan, Tokyo, Bokusui Brown	572-8851, J22491
Can	Scarborough, Ont., Paisley Prods.	416-755-2216

HUMPHREY, INC., 9212 Balboa Ave., San Diego, CA 92123, Tel: 619-565-6631, TWX: 910-335-2001; Empl.: 220

Local Sales Offices & Reps

CA	Los Angeles, L.L. Stoakes Inc.	213-640-2178
CA	Palo Alto, Harris Assocs.	415-328-3370
CA	San Diego, L.L. Stoakes Inc.	714-452-1600
FL	Orlando, Gra-Mar, Inc.	305-894-3351
IN	Carmel, Carter, McCormic & Peirce	317-844-4175
KS	Wichita, Humphrey, Inc.	316-685-7563
MA	Cochituate, High Tech Sls. Inc.	617-653-3838
MI	Farmington, Carter, McCormick & Peirce	313-477-7700
NY	Plainview, Eastern Metro Assocs.	516-931-1414
OH	Cleveland, Carter, McCormick & Peirce	216-779-5100
OH	Englewood, Carter, McCormick & Peirce	513-836-0951
PA	Philadelphia, Humphrey, Inc., Eastern Div.	215-632-6040
PA	Pittsburgh, Carter, McCormick & Peirce	412-824-3760
TX	Dallas, W.N. Rider Co.	214-357-2246
TX	El Paso, Nokomis of El Paso	915-778-2801
TX	Houston, Humphrey, Inc.	713-774-2004
WA	Nine Mile Falls, H. R. Davis Tech. Sls.	509-466-1532

HUNTER STANLEY ELEC., 208 Russell St., Nashville, TN 37213, Tel: 615-254-6532; FSC No.: 21675; Empl.: 10; *Sls. Mgr.:* W. D. Stanley

HUNTER TOOLS, 6721 Baymeadow Dr., Glen Burnie, MD 21061, Tel: 301-760-2200; Empl.: 450

HUNTINGTON ELECTRIC INC., P.O. Box 366, Dept. EEM 80-81, Huntington, IN 46750, Tel: 219-356-0778; *Sls. Mgr.:* Robert Smith

HUNTRON INSTRS., INC., 15123 Highway 99, Lynnwood, WA 98036, Tel: 206-743-3171, 800-426-9265, Telex: 152951 Hunt Inst, TWX: Lywd; FSC No.: 57705; *Sls. Mgr.:* Jim Crosson; *Dist. Mgr.:* Jim Crosson

HURST MFG. CORP., Box 326, Princeton, IN 47670, Tel: 812-385-2564; Empl.: 200; *Sls. Mgr.:* W. W. Taylor

Local Sales Offices & Reps

AZ	Phoenix, Sierra Ind. Eng.	602-272-0084
CA	Los Angeles, Sierra Ind'l. Engrg. Co.	213-624-3123
CA	San Jose, Sierra Ind'l. Engr. Co.	408-274-7041
CO	Denver, Comp. Sls.	303-759-1666
FL	St. Petersburg, Tech-Rep Assoc.	813-577-2779
IL	Chicago, Jerry Golten Co.	312-792-1991
IN	Indianapolis, Pacer Sls. & Engrg. Co.	317-849-1481
MD	Glen Arm, Hodgins Assoc.	301-592-7047
MA	Lexington, Hathaway Elctrns.	617-861-7010
MI	Grand Rapids, R. Van Riper Sls.	616-452-0464
MN	Minneapolis, Giefer Sls. Co.	612-884-2395
MO	Ferguson, Kinrick Co.	314-521-4877
NJ	Little Falls, D. Carbone	201-256-9191
NM	Phoenix, Sierra Ind. Eng.	602-272-0084
NY	Rochester, W.H. Zimmerman Co.	716-586-4450
NY	Syracuse, W.H. Zimmerman Co.	315-474-4889
NC	Garner, Candor Co.	919-876-4999
OH	Chagrin Falls, Kilroy Sls. Co.	216-247-8997
SC	Myrtle Beach, Candor Co.	803-448-8361
TX	Houston, C.R. Colvin Assoc.	713-961-1262
TX	Richardson, Campion Sales Co.	214-238-8145
UT	Salt Lake City, Comp. Sls.	801-466-8623
WA	Seattle, Rep-West	206-283-8351
WI	Milwaukee, Badgerep Inc.	414-258-6630
EXP	NY, Freeport, Minthorne Int'l.	516-546-4700

HUTSON INDS., 1000 Hutson Cir., Frisco, TX 75034, Tel: 214-377-3557, TWX: 910-860-5051; *Sls. Mgr.:* Bill Giles

HYBRICON CORP., 410 Great Rd., Littleton, MA 01460, Tel: 617-486-3174, TWX: 710-347-0654; Empl.: 62; *Sls. Mgr.:* Richard W. Palmer

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Phoenix, Cristee-Meade Co.	602-267-7197
AR	Little Rock, Beacon Elctrns.	501-224-5449
CA	Inglewood, Basic Sys. Corp.	213-673-4300
CA	San Diego, Basic Sys. Corp.	619-268-8000
CA	Santa Clara, Basic Sys. Corp.	408-727-1800
CO	Lakewood, Cristee-Meade Co.	303-232-0287
FL	Ft. Lauderdale, Beacon Elctrns.	305-491-1054
GA	Atlanta, Beacon Elctrns.	404-256-9640
KS	Wichita, DLE Elctrns.	316-744-2126
MD	Churchville, Atlantic Tech. Sls.	301-879-2236
NH	Salem, OEM Mktg. & Sls.	603-893-0009
NY	Jericho, J-Square Mktg.	516-935-3200
NC	Raleigh, Beacon Elctrns.	919-787-0330
OH	Cincinnati, Applied Data Mgmt.	513-579-8108
OR	Beaverton, Elctrns. Tech. Sls. Assoc.	503-641-5780
PA	Huntingdon Valley, Lynbar Grp. Inc.	215-947-3554
TX	Dallas, Jim D. Gray & Assocs.	214-341-7190
WA	Kirkland, Elctrns. Tech. Sls. Assoc.	206-827-8086

HYBRID ELCTRNS., 142 Adams St., Newton, MA 02158, Tel: 617-527-2711; Empl.: 28; *Sls. Mgr.:* D. Kates

HYBRID SVCS. INC., 38 Main St., North Reading, MA 01864, Tel: 617-664-5500; Empl.: 45; *Sls. Mgr.:* Richard A. Vogel

HYBRID SYSTEMS CORP., 22 Linnell Circle, Billerica, MA 01821, Tel: 617-667-8700, TWX: 710-347-1575; Empl.: 250; *Sls. Mgr.:* H. Diamond

HY-CAL ENGRG., 9650 Telstar Ave., El Monte, CA 91731, Tel: 213-444-4000, Telex: 67-5548; FSC No.: 12199; Empl.: 120

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HYCOMP INC., 75 Union Ave., Box 377, Sudbury, MA 01776, Tel: 617-443-4631, TWX: 710-347-0385; FSC No.: 34707; Empl.: 30; *Sls. Mgr.:* James Chacharone .... **1A**•1658, 1874, 1875

Local Sales Offices & Reps

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AZ	Mesa, SEDCO Sls.	602-835-6281
CA	Mountain View, Leddy Assocs.	415-969-6313
CA	Santa Ana, Calif. Elctrn. Mktg.	714-835-2701
CT	Collinsville, Dynamic Sls. of New Eng.	203-693-6567
FL	Clearwater, Cherith Sls.	813-797-3004
GA	Atlanta, Magaro & Assocs.	404-451-8862
IL	Palatine, T-Squared Assocs.	312-991-2144
IN	Ft. Wayne, Scott Elctrns.	219-484-7865
IN	Indianapolis, Scott Elctrns.	317-897-9976
KS	Kansas City, BC Elctrns.	913-342-1211
KS	Wichita, BC Elctrns.	316-942-9840
KY	Louisville, Scott Elctrns.	502-964-0640
MD	Lutherville, Walker-Houck Assocs.	301-296-6021
MA	Burlington, Dynamic Sls. of New Eng.	617-272-5676
MI	Brighton, Michigan Marketing & Sales	313-229-6218
MN	Minnetonka, S.A.I. Mktg. Corp.	612-935-0777
MO	Bridgeton, BC Elctrns.	314-291-1101
NY	Lynbrook, HLJ Comp-Tech	516-599-2999
NY	Rochester, Murcan Sls. Corp.	716-586-4450
NY	Syracuse, Murcan Sls. Corp.	315-437-0734
NC	Greensboro, Magaro & Assocs.	919-294-4783
OH	Cincinnati, Scott Elctrns.	513-791-2513
OH	Cleveland, Scott Elctrns.	216-473-5050
OH	Kettering, Scott Elctrns.	513-294-0539
OH	Reynoldsburg, Scott Elctrns.	614-863-1281
PA	Norristown, Rivco January	215-631-1414
PA	Pittsburgh, Scott Elctrns.	412-963-6116
TX	Austin, Dyna Mktg.	512-454-3114
TX	Dallas, Dyna Mktg.	214-438-6528
TX	Houston, Dyna Mktg.	713-460-0314
VT	S. Burlington, Dynamic Sls. of New Eng.	802-863-6665
VA	Moneta, Walker-Houck Assocs.	703-297-4496
WI	Racine, T-Squared Assocs.	414-633-9456

HYDRA-ELECTRIC CO., 3151 Kenwood St. Burbank, CA 91503, Tel: 213-843-6211

HYDROCAP CORP., 975 N.W. 95 St., Miami, Fl 33150, Tel: 305-696-2504; Empl.: 5

HYLETRONICS, Newtown Rd., Littleton, MA 01460 Tel: 617-486-8911, TWX: 710-347-0656; FSC No. 22534; Empl.: 82; *Sls. Mgr.:* Norman Hill

HYPERTRONICS CORP., 16 Brent Dr., Hudson, M 01749, Tel: 617-568-0451, 800-225-9228, Telex: 95 1152; FSC No.: 50541; Empl.: 100; *Sls. Mgr.:* E Dalrymple .... **2**•1311-131

Local Sales Offices & Reps

AL	Brownsboro, JHU Assoc.	205-536-745
AZ	Scottsdale, Western Tech. Sls.	602-991-730
CA	Mountain View, Leddy Assocs.	415-969-631
CA	N. Hollywood, Jewett Co.	213-789-810
CO	Commerce City, Williams Assocs.	303-289-564

CT	Bethany, Reps. Corp.	203-393-0024
DC	Washington, Tyler Griffin Co.	
FL	Orlando, Design Mktg.	305-291-8208
GA	Atlanta, Design Mktg.	404-457-5621
IN	Indianapolis, CC Elctrns.	317-255-1508
KS	Merrlam, Midwest Tech. Sls.	913-236-8557
MD	Baltimore, Tyler Griffin Co.	
MA	Wellesley, Reps. Corp.	617-237-6476
MN	St. Paul, Murnco, Inc.	612-484-8200
NJ	Wayne, G.T. Assocs.	201-694-6040
NM	Albuquerque, Williams Assocs.	505-255-0622
NY	Fayetteville, R. D. Sherman	315-637-9861
NC	Greensboro, JHU Assoc.	919-852-9097
OH	Centerville, Dolfuss-Root & Co.	513-433-6776
OK	Tulsa, Cunningham Comps.	918-492-0390
PA	Paoli, Tyler Griffin Co.	215-647-1550
TN	Talbot, JHU Assoc.	615-581-4141
TX	Dallas, Cunningham Comps.	214-233-4303
UT	Salt Lake City, Williams Assocs.	801-532-7701
WA	Bellevue, A.I.E. Inc.	206-455-4697

HYSOL, 15051 E. Don Julian, City of Industry, CA 91749, Tel: 818-968-6511, TWX: 910-584-1342; *Sls. Mgr.:* Mike Johnson

HY-TEC INDUSTRIES, Div. of Topo Industries, Inc., P.O. Box 91, Shoreham, NY 11786, Tel: 516-744-5062; *Sls. Mgr.:* Tom Poole

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HYTEK MICROSYSTEMS, 980 University Ave., Los Gatos, CA 95030, Tel: 408-395-2300, TWX: 910-597-5393; FSC No.: 57474; Empl.: 220; *Sls. Mgr.:* Richard Fryhoff; *Dist. Mgr.:* Richard Fryhoff ....**1A**•1522-1527, 1659

Local Sales Offices & Reps

AZ	Phoenix, Compass Mktg. & Sls.	602-266-5400
AZ	Tempe, Cantec Sls.	602-829-0191
CA	Del Mar, Chapman & Chapman	619-453-0771
CA	Los Angeles, Astralonics	213-991-3602
CA	Los Gatos, Pro Assocs.	408-358-3861
CA	Tarzana, Power Comps. Sls.	213-881-9111
CO	Englewood, Dynatech, Inc.	303-773-2830
FL	Melbourne, Reynolds & Assocs.	305-259-7000
L	Des Plaines, Electron Mktg. Corp.	312-298-2330
L	Elk Grove Village, Micro Sls.	312-956-1000
MD	Glen Burnie, New Era Sls.	301-768-6666
MD	Towson, DGR	301-583-1360
MA	Randolph, Bengal Assocs.	617-961-4120
MA	Tyngsboro, Comptech, Inc.	617-649-3030
MN	Minneapolis, Comps. Grp.	612-374-1250
MN	Roseville, Components Grp.	612-636-5060
NV	Carson City, Hytek Microsystems	702-883-0820
NM	Albuquerque, Power Entprs.	505-298-1918
NM	Albuquerque, Reptronix	505-881-8001
NY	Cazenovia, Naylor Elctrns.	315-655-8174
NY	Rochester, L-Mar Assocs., Inc.	716-323-1000
NY	Wantagh, Tri-Tek	516-221-7600
NC	Kernersville, Naylor Assocs.	919-996-4641
OH	Bricksville, W.R.R. Assocs.	216-526-2023
TX	Austin, Sundance Sls.	512-250-0320
TX	Dallas, Sundance Sls.	214-699-0451
TX	El Paso, Power Entprs.	915-533-9902
TX	Grapevine, Elctrns. Mktg. Assoc.	817-481-7502
TX	Houston, Electronics Mktg.	713-498-8120
WA	Bellevue, Olson, Ferre & Assocs.	206-454-2110
WI	Elm Grove, Key Entprs.	414-784-3390

HY-TEMP TRANSDUCERS, Box 1084, Cranford, NJ 07016, Tel: 201-276-1170; *Sls. Mgr.:* Joe Savare

CCI, 196 Broadway, Cambridge, MA 02139, Tel: 617-864-3270, Telex: 95-1106; *Sls. Mgr.:* Jeremiah Snow

.C. INDS., Box 104, Altamonte Springs, FL 32701, Tel: 305-339-8298, Telex: 56-4303; *Sls. Mgr.:* William S. Hodges

CON, 156 Sixth St., Cambridge, MA 02142, Tel: 617-868-5400, TWX: 710-321-1883; Empl.: 81; *Sls. Mgr.:* Irvin L. McKittrick

CO-RALLY, 2575 E. Bayshore Rd., Palo Alto, CA 94303, Tel: 415-856-9900, Telex: 34-8335; FSC No.: 51705; Empl.: 45; *Dist. Mgr.:* Don Steiner

ICS ELECTRONICS CORP., 2185 Old Oakland Rd., San Jose, CA 95131, Tel: 408-263-4844, TWX: 910-338-7810; *Sls. Mgr.:* Robert H. Prosin; *Dist. Mgr.:* Robert H. Prosin

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IDEAL INDUSTRIES, 4450 Becker Pl., Sycamore, IL 60178, Tel: 815-895-5181, TWX: 910-639-0613; Empl.: 700; *Dist. Mgr.:* Roger Hamilton

IDEAL PRECISION METER, 214 Franklin St., Brooklyn, NY 11222, Tel: 212-383-6904, TWX: 710-584-2160; FSC No.: 11707; Empl.: 150; *Sls. Mgr.:* T. Bell

IDEC SYSTEMS & CONTROLS CORP., 3050 Tasman Dr., Santa Clara, CA 95050, Tel: 408-988-7500, Telex: 34-0601, TWX: 910-339-9383; Empl.: 60; *Sls. Mgr.:* D.J. Synnott; *Dist. Mgr.:* James Young

IEC CORPORATION, 3100 Longhorn Blvd., Austin, TX 78759, Tel: 512-836-0547, Telex: 757025; FSC No.: 16071; Empl.: 23; *Sls. Mgr.:* Florencio Canizales, Jr.

IEC ELCTRNS., 105 Norton St., Newark, NY 14513, Tel: 315-331-7742, TWX: 510-250-2515; Empl.: 550; *Sls. Mgr.:* Russ Stingel; *Dist. Mgr.:* Steve Hotchkiss

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IERC, 135 W. Magnolia Blvd., Burbank, CA 91502, Tel: 818-849-2481, TWX: 910-498-2206; *Sls. Mgr.:* Richard Schuckman

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IET LABS, INC., 534 Main St., Westbury, NY 11590, Tel: 516-334-5959 .... **3**•1244, 1245

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ILC DATA DEVICE CORP., 105 Wilbur Pl., Bohemia, NY 11716, Tel: 516-567-5600, TWX: 510-228-7324; FSC No.: 19645; Empl.: 720; *Sls. Mgr.:* J.P. Sheahan .... **3**•1160, 1161

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Scottsdale, Fred Board Assocs.	602-994-9388
CA	North Hollywood, ILC Data Device Corp.	818-982-6454
CO	Englewood, WesTenn Sls.	303-798-0945
CT	Canton Center, Dynamic Sls. of New Eng.	203-693-6567
FL	Clearwater Beach, Perrott Assocs.	813-443-5214
FL	Orlando, Perrott Assocs.	305-298-7748
FL	Sunrise, Perrott Assocs.	305-792-2211
GA	Norcross, Montgomery Mktg. Inc.	404-447-6124
IL	Des Plaines, Elctrn. Mktg.	312-298-2330
IN	Fort Wayne, Giesting & Assocs.	219-486-1912
IN	Indianapolis, Giesting & Assocs.	317-271-5183
KS	Lenexa, Dytec/South	913-888-0215
MA	Burlington, Dynamic Sls. of New Eng.	617-272-5676
MI	Coloma, Giesting & Assocs.	616-468-4200
MI	Novi, Giesting & Assocs.	313-348-3811
MN	Minneapolis, Comprehensive Techn.	612-888-7011
MO	Maryland Hgts., Dytec/South	314-569-2990
NJ	Haddonfield, G.L. Williams Assocs.	609-428-6060
NM	Albuquerque, Vermillion Co.	505-883-3668
NM	Albuquerque, Trembly Assocs.	505-266-8616
NY	E. Rochester, Tri Tech Elcttrns.	716-385-6500
NY	Endwell, Tri Tech Elctrns.	607-754-1094
NY	Fayetteville, Tri Tech Elctrns.	315-446-2881
NY	Fishkill, Tri Tech Elctrns.	914-897-5611
NC	Cary, Montgomery Mktg. Inc.	919-467-6319
OH	Cincinnati, Giesting & Assocs.	513-521-8800
OH	Dayton, Giesting & Assocs.	513-293-4044
OH	Montor, Giesting & Assocs.	216-942-3407
OK	Tulsa, Bonser-Philhower Sls.	918-496-3236
OR	Aloha, Venture Elect.	503-642-9090
PA	Pittsburgh, Giesting & Assocs.	412-963-0727
TX	Austin, Bonser-Philhower Sls.	512-346-9186
TX	Houston, Bonser-Philhower Sls.	713-531-4144
TX	Richardson, Bonser-Philhower Sls.	214-234-8438
UT	Salt Lake City, Trembly Assocs.	801-486-5292
VT	Burlington, Dynamic Sls. of New Eng.	802-863-6665
WA	Bellevue, Venture Elctrns.	206-454-4594
WI	Milwaukee, JM Sls.	414-546-0040

ICL TECHNOLOGY, 399 Java Dr., Sunnyvale, CA 94089, Tel: 408-745-7900, TWX: 910-339-9389; *Sls. Mgr.:* Robert Turner;Lynn Reiter

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ILLINOIS CAPACITOR, INC., 3757 W. Touhy Ave., Lincolnwood, IL 60645, Tel: 312-675-1760, Telex: 72-4361; Empl.: 44; *Sls. Mgr.:* C. Kurland .... **1A**•1072, 1073

Local Sales Offices & Reps

AZ	Tempe, Jarko Assocs.	602-243-4387
CA	El Cajon, KCE Corp.	619-588-1198
CA	Palo Alto, Mollard Mktg.	415-961-0456
CA	Woodland Hills, Illinois Capacitor, Inc.	800-323-3652
CO	Denver, Elcom	303-337-2300
CT	Bristol, Technology Prods. Grp.	617-731-0858
FL	N. Miami Beach, Ben Goldner	305-932-2782
IN	Indianapolis, Fred Dorsey Assoc.	317-842-0060
KY	Louisville, Fred Dorsey Assoc.	502-426-3540
MA	Brookline, Technology Prods. Grp.	617-731-0858
MI	Warren, Dem Elctrns. Sls.	313-575-9444
MN	Golden Valley, Highland Elctrn. Sls. Co.	612-545-4028
MS	Jackson, Welch & Doby, Inc.	601-932-5534
MO	Blue Springs, Kathrinus-Kelly & Co.	816-229-0001
MO	St. Louis, Kathrinus-Kelly	314-647-2400
NJ	Wayne, Richman Sls. Co.	201-694-1115
NY	Commack, Richman Sls. Co.	516-543-5532
NY	De Ruyter, Net Sales, Inc.	315-662-7996
NY	Fairport, Net Sls.	716-467-4538
NY	Troy, Net Sales, Inc.	518-274-4758
NY	Webster, Net Sales, Inc.	716-671-0022
NC	Raleigh, J & B Sls.	919-878-8600
OR	Tigard, Elctrn. Comp. Sls.	503-245-2342
PA	Narberth, J. Bresson Assocs.	215-664-6460
TN	Tullahoma, J & B Sls., Inc.	615-455-7487
TX	Houston, Barry Sls., Inc.	713-784-5860
TX	Richardson, Barry Sls., Inc.	214-234-0255
UT	Salt Lake City, Elcom	801-532-7940
WA	Mercer Island, Elctrn. Comp. Sls.	206-232-9301
WI	Milwaukee, Erdman Sls. Co.	414-281-1330

Local Distributors

CA	Anaheim, A to Z Elctrns.	714-634-3620
CA	Canoga Pk., Myco/Vickers Elctrn. Supp.	213-340-2025
CA	Santa Ana, Projections Unltd.	714-641-1472
CO	Englewood, Industrial Elctrns.	303-694-9444
IN	Carmel, Altex Elctrns.	317-848-1323
IA	Cedar Rapids, Bergquist Co.	319-366-8733

LA	Harvey, AFG Electrn. Supp.	504-368-9696
MA	Wakefield, Lorcor	617-246-1903
MA	Woburn, Semtex	617-935-2150
MI	Grand Rapids, R M Elctrns.	616-531-9300
MN	Minneapolis, Bergquist Co.	612-835-2322
MO	St. Charles, Finnigan Elctrns.	314-946-6201
NJ	Camden, General Radio Supp. Co.	609-964-8560
NJ	Roselle, Lectron Ind.	201-245-5859
NY	Buffalo, Genesee Radio & Parts Co.	716-873-9661
NY	Freeport, Semtex Ind. Corp.	800-645-3960
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Troy, Trojan Elctrn. Supp.	518-274-4481
NC	Greensboro, Hammond Elctrns.	919-275-6391
OH	Dayton, Semtex Ind. Corp.	513-435-6600
SC	Greenville, Hammond Elctrns.	803-233-4121
TX	Channelview, Henry Elctrns.	713-452-4451
WA	Redmond, Murphy Elctrns.	206-881-1234
WI	Milwaukee, Badger Capacitor Sls.	414-281-1330
EXP	Rexdale, ON, Electrn. Supp., Inc.	416-741-4000
Can	Rexdale, Ont., Frank Eakin Ltd.	416-245-3600

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AZ	Tempe, Desert-West Technical Sls.	602-244-0735
CA	Los Angeles, Universal Comps.	213-641-4255
CA	San Rafael, Wright Assoc.	415-457-9940
IN	Carmel, TMC	317-844-8462
IN	Fort Wayne, TMC	219-432-5553
KY	Louisville, TMC	502-499-7808
MA	Woborn, Boston Electronics Assocs.	617-938-3727
MN	Minneapolis, Jos. Co/Melius	612-861-3343

Local Distributors

CA	Gardena, California Switch & Signal	213-770-2330
CA	San Leandro, Electro-Components	415-352-5210
NJ	N. Arlington, Northeast Lock Co.	201-998-6767

IMAGE GRAPHICS, INC., 107 Ardmore Street, Fairfield, CT 06430, Tel: 203-259-1394; FSC No.: 5M867; Empl.: 35; *Sls. Mgr.:* J. P. Whitley

IMAGE MAKERS OF PITTSFORD, 6 Wood Gate, Pittsford, NY 14534, Tel: 716-385-4567; *Sls. Mgr.:* Richard H. Roberts; *Dist. Mgr.:* Richard H. Roberts

IMAGE TECHNOLOGY METHODS CORP., 103 Moody St., Waltham, MA 02154, Tel: 617-894-1720

imc

IMC MAGNETICS CORP., Exec. Off., 100 Jericho Quadrangle, Ste. 221, Jericho, NY 11753, Tel: 516-938-0800, TWX: 510-221-2126; *Dist. Mgr.:* E. Egan ....**1B**•1157; **2**•1823

IMC MAGNETICS CORP., Arizona Div., 1900 East Fifth St., Tempe, AZ 85281, Tel: 602-968-4441, Telex: 667451 IMC MAG TMPE; *Sls. Mgr.:* Alex Lazutin

IMC MAGNETICS CORP., Eastern Div., 570 Main St., Westbury, NY 11590, Tel: 516-334-7070, TWX: 510-222-4469; *Sls. Mgr.:* K. Barthal ....**1B**•1157; **2**•1823

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Tempe, Gassner & Clark	602-968-9037
CA	Cerritos, El Com Inc.	213-404-2961
CA	Los Altos, Recht Assocs.	415-964-6321
CO	Englewood, Thorson Rocky Mountain	303-779-0666
CT	Middletown, Gerber Sls. Corp.	203-347-3000
FL	Coral Springs, Heller Assocs.	305-752-7520
GA	Atlanta, Beacon Elctrns.	404-256-3640
IL	Chicago, D. Dolin Sls. Co.	312-286-6200
MA	Newton Upper Falls, Gerber Sls. Corp.	617-969-2620
MO	Grandview, Harris-Hanson	816-763-6200
MO	St. Louis, Harris-Hanson	314-432-3611
NJ	Haddonfield, Mesa Tech. Assoc.	609-429-9531
NY	Fairport, Net Sales Co.	716-467-4538
NY	Great Neck, Trionics Assocs.	516-466-2300
NC	Greensboro, Beacon Elctrns.	919-275-9997
OH	Dayton, Electrical Systems Co.	513-434-9822
OR	Lake Oswego, Huntley Assocs.	503-636-7558
TN	Oak Ridge, Beacon Elctrns.	615-482-2409
TX	Dallas, Kruvand Assocs.	214-691-4592
VA	Falls Church, Beacon North	703-534-7200
WA	Everett, Huntley Assocs.	206-353-1833

IMC/HANSEN, Box 23, Princeton, IN 47670, Tel: 812-385-3415, Telex: 27-8458; *Sls. Mgr.:* George A. Gilbert

Local Sales Offices & Reps

CA	Los Altos, Recht Assoc.	415-964-6321
CA	Van Nuys, Viking Sls.	818-997-3933
CO	Englewood, Thorson Rocky Mountain	303-779-0666
CT	Essex, Winslow Elec.	203-767-8229
FL	Coral Springs, Heller Assoc.	305-752-7520
IL	Oakbrook Terrace, Fromm	312-627-9595
MA	Newton, Gerber Sls.	617-969-2620
NJ	Haddonfield, Mesa Tech.	609-429-9531
NY	Great Neck, Trionic Assoc.	516-466-2300
NY	Rochester, H. C. Johnson Agcy.	716-586-0777
NY	Williamsville, H. C. Johnson Agcy.	716-632-7880
PA	Exton, Kiley Elec.	215-363-8550
PA	Glenshaw, H. C. Johnson Agcy.	412-961-0414
TX	Dallas, Mark Kruvano Assoc.	214-691-4592
VA	Falls Church, Beacon North	703-534-7200
WA	Everett, Huntley Assoc.	206-353-1833
EXP	Ottawa, ON, Graham Dewar & Assoc.	613-235-0970

IMC MAGNETICS CORP., New Hampshire Div., Rte. 16B, Rochester, NH 03867, Tel: 603-332-5300, TWX: 510-297-4466; *Sls. Mgr.:* Robert Kintner; *Dist. Mgr.:* William L. Beaulieu

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Tempe, Gassner & Clark	602-968-9037
CA	Cerritos, El Com Inc.	213-404-2961
CA	Los Altos, Recht Assocs.	415-964-6321
CO	Englewood, Thorson Rocky Mountain	303-779-0666
CT	Middletown, Gerber Sls. Corp.	203-347-3000
FL	Coral Springs, Heller Assocs.	305-752-7520
GA	Atlanta, Beacon Elctrns.	404-256-3640
IL	Chicago, D. Dolin Sls. Co.	312-286-6200
MA	Newton Upper Falls, Gerber Sls. Corp.	617-969-2620
MO	Grandview, Harris-Hanson	816-763-6200
MO	St. Louis, Harris-Hanson	314-432-3611
NJ	Haddonfield, Mesa Tech. Assoc.	609-429-9531
NY	Fairport, Net Sales Co.	716-467-4538
NY	Great Neck, Trionics Assocs.	516-466-2300
NC	Greensboro, Beacon Elctrns.	919-275-9997
OH	Dayton, Electrical Systems Co.	513-434-9822
OR	Lake Oswego, Huntley Assocs.	503-636-7558
TN	Oak Ridge, Beacon Elctrns.	615-482-2409
TX	Dallas, Kruvand Assocs.	214-691-4592
VA	Falls Church, Beacon North	703-534-7200
WA	Everett, Huntley Assocs.	206-353-1833

Local Distributors

AL	Huntsville, C.D.I.	205-883-7501
AZ	Phoenix, Sterling Elctrns.	602-268-2121
AZ	Tempe, Bell Industries	602-966-7800
AZ	Tucson, Southwest Sales	602-325-4087
AR	Little Rock, Comp. Distr., Inc.	501-227-6278
CA	Cerritos, El-Com	213-404-2961
CA	Garden Grove, Bell Industries	714-220-0681
CA	Gardena, Bell Industries	213-515-1800
CA	Inglewood, Newark Elctrns.	213-671-7387
CA	San Diego, Bell Inds.	619-268-1277
CA	San Diego, El-Com	619-578-0900
CA	Santa Clara, El-Com, Santa Clara Div.	408-496-0880
CA	Sunnyvale, Bell Industries	408-734-8570
CA	Thousand Oaks, Bell Industries	805-499-6821
CO	Denver, Newark Denver Elctrns.	303-757-3351
CO	Ravada, Denver Wintronics	303-431-7161
CO	Wheatridge, Bell Inds.	303-424-1985
CT	East Haven, J. V. Elctrns.	203-469-2321
CT	Wallingford, Sterling Electronics	203-265-9535
CT	Wallingford, Sager Elctrl. Supp. Co.	203-265-4600
FL	Ft. Lauderdale, C.D.I.	305-971-4950
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Orlando, Hammond Elctrns.	305-849-6060
GA	Norcross, C.D.I.	404-441-3320
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Chicago, Bell Industries	312-982-9210
IL	Northbrook, Classic Comps.	312-272-9650
IN	Carmel, Altex Elctrns. Inc.	317-848-1323
KS	Wichita, RSC Elctrns.	316-267-5213
LA	Metairie, Sterling Electronics	504-887-7610
MD	Savage, Pyttronic Industries	301-792-0780
MA	Burlington, Lionex Corporation	617-272-9400
MA	Hingham, Sager Elctrl. Supp. Co.	617-749-6700
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Somerville, Electro Sales	617-666-0500
MA	Waltham, Sterling Elctrns.	617-894-6200
MI	Adrian, Wedemeyer Elctrn. Supp. Co.	517-263-2925
MI	Ann Arbor, Wedemeyer Elctrn. Supp. Co.	313-665-8611
MI	Lansing, Wedemeyer Elctrn. Supp. Co.	517-484-9009
MN	Minneapolis, Aero-Space Computer Supplies Inc.	612-884-4725
MO	St. Louis, Olive Elctrns. Inc.	314-426-4500
NJ	Bellmawr, Mid-Atlantic Interstate Industrial Park	609-931-5303
NJ	Fairfield, Lionex Corp.	201-227-7960
NJ	Perth Amboy, Sterling Elctrns.	201-442-8000
NM	Albuquerque, Intl. Elctrns.	505-345-8127
NM	Albuquerque, Sterling Elctrns.	505-884-1900
NM	Albuquerque, Bell Industries	505-292-2700
NY	Buffalo, Summit	716-884-3450
NY	Endwell, A.S.I. Elctrns.	607-754-3823
NY	Hauppauge, Lionex Corp.	516-273-1660
NY	Mt. Vernon, Q.A.R. Indl. Sls.	914-699-2224
NY	Plainview, Progress Elctrns.	516-433-1700
NY	Rochester, Summit	716-334-8110
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, C.D.I.	919-834-9465
OH	Columbus, Wedemeyer Elctrn. Supp. Co.	614-436-9600
OH	Dayton, Bell Industries Micro-Mil Div.	513-434-8231
OH	Dayton, Esco Elctrns.	513-226-1133
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Youngstown, Newark Elctrns.	216-793-6134
OK	Tulsa, Sterling Elctrns.	918-663-2410
OR	Lake Oswego, Bell Industries	503-241-4115
PA	Braddock, Leff Elctrns.	412-351-5000
PA	Horsham, Lionex Corp.	215-443-5150
PA	McKean, Advacom Inc.	814-476-7774
PA	Montgomeryville, Pyttronic Industries	215-643-2850
PA	Reading, Barbey Elctrns.	215-376-6116
RI	Providence, Wm. Dandreta & Co.	401-861-2800
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Nashville, Electra Distrbg. Co.	615-329-3971
TX	Austin, Sterling Elctrns.	512-863-1341
TX	Dallas, Sterling Elctrns.	214-243-1600
TX	Dallas, Heilind Elctrns.	214-351-2050
TX	El Paso, Intl. Elctrns.	915-598-3406
TX	Houston, Sterling Elctrns.	713-623-6600
UT	Salt Lake City, Standard Supp.	801-486-3371
UT	Salt Lake City, Bell Industries	801-972-6969
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Bellevue, Bell Industries	206-747-1515
WI	New Berlin, Classic Comps.	414-786-5300
WI	Waukesha, Bell Industries	414-547-8879

IMC MAGNETICS CORP., Thermal Prods. Grp., 100 Jericho Quad., Ste. 221, Jericho, NY 11753, Tel: 516-938-0800, TWX: 510-221-2126

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Tempe, Gassner & Clark	602-968-9037
CA	Cerritos, El Com Inc.	213-404-2961
CO	Englewood, Thorson Rocky Mountain	303-779-0666
CT	Middletown, Gerber Sls. Corp.	203-347-3000
FL	Coral Springs, Heller Assocs.	305-752-7520
GA	Atlanta, Beacon Elctrns.	404-256-3640
IL	Chicago, D. Dolin Sls. Co.	312-286-6200
MA	Newton Upper Falls, Gerber Sls. Corp.	617-969-2620
MO	Grandview, Harris-Hanson	816-763-6200
MO	St. Louis, Harris-Hanson	314-432-3611
NJ	Haddonfield, Mesa Tech Assoc.	609-429-9531
NY	Fairport, Net Sales Co.	716-467-4538
NY	Great Neck, Trionics Assocs.	516-466-2300
NC	Greensboro, Beacon Elctrns.	919-275-9997
OH	Dayton, Electrical Systems Co.	513-434-9822
OR	Lake Oswego, Huntley Assocs.	503-636-7558
TN	Oak Ridge, Beacon Elctrns.	615-482-2409
TX	Dallas, Kruvand	214-691-4592
VA	Falls Church, Beacon North	703-534-7200
WA	Everett, Huntley Assocs.	206-353-1833

IMC MAGNETICS CORP., Western Div., 12627 Hiddencreek Way, Cerritos, CA 90701, Tel: 213-926-0927, TWX: 910-583-1355; FSC No.: 99743; *Sls. Mgr.:* Joe Gute

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Tempe, Gassner & Clark	602-968-9037
CA	Cerritos, El Com Inc.	213-404-2961
CA	Los Altos, Recht Assocs.	415-964-6321
CO	Englewood, Thorson Rocky Mountain	303-779-0666
CT	Middletown, Gerber Sls. Corp.	203-347-3000
FL	Coral Springs, Heller Assocs.	305-752-7520
GA	Atlanta, Beacon Elctrns.	404-256-3640
IL	Chicago, D. Dolin Sls. Co.	312-286-6200
MA	Newton Upper Falls, Gerber Sls. Corp.	617-969-2620
MO	Grandview, Harris-Hanson	816-763-6200
MO	St. Louis, Harris-Hanson	314-432-3611
NJ	Haddonfield, Mesa Tech. Assoc.	609-429-953
NY	Fairport, Net Sales Co.	716-467-4538
NY	Great Neck, Trionics Assocs.	516-466-2300
NC	Greensboro, Beacon Elctrns.	919-275-9997
OH	Dayton, Electrical Systems Co.	513-434-9822
OR	Lake Oswego, Huntley Assocs.	503-636-7558
TN	Oak Ridge, Beacon Elctrns.	615-482-2409
TX	Dallas, Kruvand Assocs.	214-691-4592
VA	Falls Church, Beacon North	703-534-7200
WA	Everett, Huntley Assocs.	206-353-1833

IMEC CORP., 2434 Southport Way, National City, CA 92050, Tel: 619-474-8991

IMPANDEX, INC., 203 Brookdale St., Maywood, NJ 07607, Tel: 201-845-4664, Telex: 134 656; Empl.: 11; *Sls. Mgr.:* Stanley I. Goldberg; *Dist. Mgr.:* Rober F. Carlson

I.M.S. EQUIPMENT, INC., P.O. Box 16909, Irvine, CA 92713, Tel: 714-559-6901, Telex: 678317; *Sls. Mgr.:* W. Charles Davison

IMTRONICS INDS., 11930 31st Ct., Clearwater, FL 33520, Tel: 813-577-9010, Telex: 566027 IMTRON CWTR UD; Empl.: 10; *Sls. Mgr.:* Steven B. Cohen

INCOM, INC., 205 Chapin St., P.O. Drawer G, Southbridge, MA 01550, Tel: 617-765-9151, TWX: 710-347-1604; *Sls. Mgr.:* David MacGrath

INCONIX CORP., 10 Tech Circle, Natick, MA 01760, Tel: 617-655-1170, TWX: 710-386-1997; Empl.: 60; *Sls. Mgr.:* Al Vitale

INDEPENDENT CABLE, INC., 43 Broad St., Hudson, MA 01749, Tel: 617-562-9913

INDIANA GENERAL/DIV. EMM CORP., Magnet Prods., 405 Elm St., Valparaiso, IN 46383, Tel: 219-462-3131, Telex: 25-8489, TWX: 910-690-4891; Empl.: 1200; *Sls. Mgr.:* Royce D. Wright

INDUCTIVE PRODS. INC., 11733 Markon Dr., Garden Grove, CA 92641, Tel: 714-891-2572; Empl.: 10; *Sls. Mgr.:* Cary Rosen

Industrial Computer Designs

INDUSTRIAL COMPUTER DESIGNS, INC., 31121 Via Colinas 1005, Westlake Village, CA 91362, Tel: 818-889-3179; *Sls. Mgr.:* David J. Knight .... **3**•1110, 1111

Local Distributors

CA	Chatsworth, Priority One Elctrns.	818-709-5111
CA	Irvine, Priority One Elctrns.	714-660-1411; 800-423-5922 (outside CA)

INDUSTRIAL CONDENSER CORP., See Industrial Midwec Capacitors

INDUSTRIAL CONTROL CO., 3100 Pineda Ave., Rockledge, FL 32955, Tel: 305-259-7105; Empl.: 15; *Sls. Mgr.:* I. Nobilio .... **3**•1932

INDUSTRIAL DEVICES, INC., Edgewater, NJ 07020, Tel: 201-224-4700, Telex: 12-7459; FSC No.: 91802; Empl.: 200; *Sls. Mgr.:* Michael Diceglie .... **1B**•1020, 1064-1083

Local Sales Offices & Reps

AL	Huntsville, E.M.A., Inc.	205-837-7363
AZ	Phoenix, Bill Earl Assoc.	602-994-3813
CA	Los Angeles, Universal Comps.	213-641-4255
CA	Mountain View, Westech Sls.	415-961-1422
CO	Aurora, Sage Sls.	303-750-3501
FL	Casselberry, Southern Elctrn. Mktg.	305-695-3334
FL	Clearwater, Southern Elctrn. Mktg.	813-441-3902
FL	Ft. Lauderdale, Southern Elctrn. Mktg.	305-475-3686
GA	Atlanta, E.M.A., Inc.	404-448-1215
L	Chicago, K. D. Engle	312-539-1820
N	Indianapolis, Elctrn. Mktg. Conslts.	317-253-1668
MD	Towson, Ernie Stefkovic Assocs.	301-321-6008
MA	Newton Upper Falls, Anchor Engrg.	617-964-6205
MI	Oak Pk., W. Spenser	313-967-0808
MN	Minneapolis, Elec. Comp. Sls.	612-933-2594
NJ	Cherry Hill, Ernie Stefkovic Assocs.	609-667-4066
NJ	Manville, Dyno Rep	201-685-0135
NY	New York, Drake America Corp.	212-758-5400
NY	Rochester, Apex Assocs.	716-254-6050
NC	Raleigh, E.M.A., Inc.	919-847-8800
OH	Cleveland, Marlow Assocs.	216-991-6500
OH	Columbus, Marlow Assocs.	800-362-2265
OR	Portland, Earl & Brown	503-245-2283
PA	Pittsburgh, Marlow Assocs.	412-367-8886
SC	Greenville, E.M.A., Inc.	803-233-4637
TX	Austin, R. F. Kimball Co.	512-443-5284
TX	Houston, R. F. Kimball Co.	713-840-0590
TX	Richardson, R. F. Kimball Co.	214-231-3447
UT	Salt Lake City, Sage Sls.	801-467-5451
WA	Seattle, Earl & Brown	206-284-1121

Local Distributors

AZ	Phoenix, Dalis Elctrn. Supp.	602-275-2885
CA	Gardena, Calif. Switch & Signal	213-770-2330
CA	Los Angeles, Elec. Switches	213-664-1141
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Pasadena, Empire Elctrn. Distr.	213-681-2711
CA	S. San Francisco, Steven Engrg.	415-588-9200
CA	San Diego, Sigma Elctrns.	714-565-2000
CA	San Diego, Shanks & Wright	619-239-0176
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	San Jose, Cypress Elctrns.	408-727-7080
CA	San Jose, Quement Elctrns.	408-998-5900
CA	Santa Monica, Master Distrs.	213-452-1229
CA	Santa Rosa, Steven Engrg.	707-578-0666
CO	Arvada, Denver Wintronics	303-431-7161
CT	Norwalk, Park Distrs.	800-243-5006
CT	Wallingford, Sager Electrical Supp.	203-265-4600
FL	Longwood, Inter Tec	800-432-1654
FL	Miami, Electro Standard Lab (ESL)	305-633-6973
FL	Tampa, Leader Elctrns.	813-870-3315
GA	Atlanta, Wholesale Indl. Elec.	800-282-1857
HI	Honolulu, Precision Radio	808-537-5291
IL	Bridgeview, Midco Comps.	312-599-7777
IL	Villa Park, Melvin Elctrns.	312-279-5015
IL	Wood Dale, Electro-Kinetics	312-595-6700
IN	East Chicago, ACRO Elctrns.	312-375-1269
IN	Evansville, Hutch & Son	812-425-7201
IN	Fort Wayne, Graham Elctrs.	219-423-3422
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	South Bend, Genesis Elctrns.	219-287-2911
IA	Cedar Rapids, Bergquist Co.	319-366-8733
IA	Cedar Rapids, Iowa Radio Supp.	319-393-4510
KY	Bowling Green, Crescent Elctrns.	502-842-2444
LA	Lafayette, Ralph's	318-234-4507
LA	New Orleans, Wm. B. Allen Supp. Co.	800-462-9520
MD	Rockville, Capitol Radio Whlsrs.	301-881-2270
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	N. Wilbraham, Indl. Comps.	413-596-3854
MA	Norwood, Gerber Elctrns.	617-329-2400
MA	Worcester, RM Elctrns.	617-756-8311
MI	Flint, Shand Elctrns.	313-743-8940
MN	Minneapolis, Bergquist Co.	612-835-2322
MN	Minneapolis, Elctrn. Center	612-371-5200
MN	Minneapolis, Stark Elctrns.	612-332-1325
MO	Kansas City, Olive Indl. Elect.	816-842-8556
MO	St. Louis, Van Sickle Radio-Elec.	314-621-5000
MO	St. Louis, Olive Indl. Elctrns.	314-426-4500
NE	Lincoln, Scott Elctrn. Supp.	402-466-8221
NE	Omaha, Scott Elctrn. Supp.	402-734-6750
NV	Las Vegas, Kiesub Elctrns.	702-733-3888
NJ	Fair Lawn, Relay Spec.	201-797-3313
NJ	Hanover, State Elctrns. Parts	201-887-2550
NJ	Springfield, Route Elctrns.	201-379-7710
NY	Albany, E. E. Taylor Co.	518-438-7811
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Hauppauge, Broadline Elctrns.	516-231-4100
NY	Hempstead, Elctrn. Equip.	800-645-1605
NY	Mt. Vernon, Q.A.R. Indl. Elctrn. Sls.	914-699-2224
NY	New York, Drake America Corp.	212-758-5400
NY	Rochester, Summit Elctrns.	716-334-8110
NY	Rochester, Simcona Elctrns.	716-328-3230
NC	Raleigh, Southeastern Radio Supp.	919-828-2311
OH	Cincinatti, Hughes-Peters	513-351-2000
OH	Cincinnati, United Radio	513-761-4030
OH	Cleveland, REPCO Inc.	216-248-8900
OH	Columbus, Hughes Peters	614-294-5351
OH	Dayton, Stotts-Friedman Co.	513-298-5555
OH	Toledo, Warren Radio	419-248-3364
OK	Oklahoma City, Trice Whls. Elctrns.	405-524-4411
OK	Tulsa, Oil Capitol Elctrns.	918-622-8520
OR	Portland, United Radio Supp.	503-233-7151
PA	Erie, Rem/Mace Elctrns.	814-453-5626
PA	Harrisburg, Cumberland Elctrns.	717-233-5883
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
SC	Columbia, Dixie Radio Supp.	803-779-5332
TN	Knoxville, Roden Elctrl. Supp.	615-546-8755
TN	Memphis, Bluff City Elctrns.	901-345-9500
TN	Nashville, Randolph & Rice	615-255-5601
TX	Fort Worth, Swieco	817-335-6521
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, Altair Co.	214-231-5166
TX	San Antonio, Sherman Elctrns. Supp.	512-224-1004
UT	Salt Lake City, Standard Supp.	801-486-3371
VA	Arlington, Arlington Elctrn. Whlsrs.	703-524-6256
VA	Glenn Allen, Hermitage Distrs.	804-798-3830
WA	Seattle, United Radio Supp.	206-284-0200
WI	Milwaukee, Marsh Elctrns.	414-475-6000

IEE THE DISPLAY MAKERS

INDUSTRIAL ELECTRONIC ENGINEERS

INDUSTRIAL ELCTRN. ENGRS., INC., 7740 Lemona Ave., Van Nuys, CA 91405, Tel: 818-787-0311, TWX: 910-495-1707; Empl.: 400; *Sls. Mgr.:* C. Doria, J. Hart, I. Minarik; *Dist. Mgr.:* J. Hart .... **1B**•1084, 1085, 1781

Local Sales Offices & Reps

AL	Huntsville, TMA Technology Mktg. Assoc.	205-883-7893
AZ	Phoenix, Gramer & Co.	602-995-9455; 602-942-1415
CA	Brea, Masco Elctrns., Inc.	714-529-0866
CA	Campbell, LCO Tech. Sls.	408-378-9900
CA	Los Angeles, Masco Elctrns. Inc.	714-529-0866
CA	Vista, Masco Elctrns., Inc.	619-758-5562
CO	Denver, Lindberg Co.	303-758-9033,34,35,36
CT	North Haven, Kitchen & Kutchin, Inc.	203-239-0212
FL	Melbourne, TMA Technlg. Mktg. Assoc.	305-676-3776
FL	Orlando, TMA Technlg. Mktg. Assoc.	305-857-3760
FL	Pompano Beach, TMA Technlg. Mktg. Assoc.	305-942-0774
GA	Atlanta, TMA Technlg. Mktg. Assoc.	404-257-0374
ID	Boise, Huntley Assocs.	208-343-7588
IL	Highland Park, Bransky Sls.	312-433-2375
IN	Carmel, TMC Techng. Mktg. Corp.	317-844-8462
IN	Ft. Wayne, TMC Techng. Mktg. Corp.	219-432-5553
IA	Cedar Rapids, PMR Penzner/Mankus Reps., Inc.	319-362-9177
KS	Overland Park, PMR Penzner/Mankus Reps., Inc.	913-381-0004
KS	Wichita, PMR Penzner/Mankus Reps., Inc.	316-684-4141
KY	Louisville, TMC Technlg. Mktg. Corp.	502-499-7808
MD	Hunt Valley, Marktron, Inc.	301-628-1111
MD	Rockville, Marktron, Inc.	301-251-8990

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OH	Cleveland, Geotronix, Inc.	216-526-2535
OH	Trotwood, Geotronix, Inc.	513-854-5939
OR	Beaverton, Huntley Assocs.	503-649-5388
PA	Norristown, RJI	215-631-1414
SC	Greenville, DHR Mktg., Inc.	803-235-3594
TX	Dallas, MGR Electronics, Inc.	214-238-5246; 713-759-0187;817-338-1493
UT	Salt Lake City, Lindberg Co.	801-467-1794,95
VA	Charlottesville, Marktron, Inc.	804-973-5874
WA	Everett, Huntley Assocs.	206-353-1833
WI	Cedarburg, Bransky Sls.	414-377-6837

Local Distributors

AL	Huntsville, C.D.I.	205-883-7501
AZ	Phoenix, Tri-Tek, Inc.	602-995-9352
AZ	Tempe, Circuit Specialists Co.	602-966-0764
AR	Little Rock, C.D.I.	501-227-6278
CA	Cerritos, El-Com, Inc.	213-404-2961
CA	Gardena, California Switch & Signal Co.	213-538-9830
CA	Industry, Ital Elctrn. Sls. Inc.	818-968-8515; 714-990-0922
CA	Lakeside, Mouser Elctrn. Corp.	619-449-2229
CA	San Diego, Richey/Western Elctrns.	619-565-4444
CA	San Diego, El-Com, Inc.	619-578-0900
CA	San Jose, Richey/Western Elctrns.	408-946-6611
CA	Santa Clara, Waltronic Sls.	408-727-1200
CA	Sun Valley, Richey/Western Elctrns.	818-768-3800
CO	Denver, Integrated Elctrns.	303-292-6121
CT	East Haven, U.V. Elctrns.	203-469-2321
FL	Alamonte Springs, Pioneer/Orlando	305-834-9090; 800-432-6094
FL	Ft. Lauderdale, C.D.I.	305-971-4950
FL	Miami, Elctrn. Equip. Co. Inc.	305-871-3500
GA	Norcross, C.D.I.	404-441-3320
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Chicago, Bell Inds.	312-982-9210
IL	Elgin, Allied Elctrns.	312-697-8200
IL	Elmhurst, Semiconductor Specialists, Inc.	312-279-1005
IL	Northbrook, Classic Comps.	312-272-9650
IN	Carmel, Altex Elctrns., Inc.	317-848-1323; 800-692-6039
KS	Wichita, R.S.C.	316-267-5213
MD	Beltsville, Treeko Sls.	301-937-8260
MD	Gaithersburg, Pioneer/Washington	301-948-0710
MA	Billerica, A. W. Mayer Co., Inc.	617-667-6900
MA	Danvers, Criterion Elctrns.	617-777-4725
MA	Needham, Cronin Elctrns., Inc.	617-449-5000
MI	Grand Rapids, S-F Elctrn. Supp. Inc.	616-459-0216
MI	Southfield, Michigan Lectrols Corp.	313-353-1350
MN	Minneapolis, Stark Elctrns.	612-332-1325
MO	Kansas City, Semiconductor Specialists, Inc.	816-452-3900
MO	St. Louis, Olive Indl. Elctrns.	314-426-4500
NM	Albuquerque, Beatron Elctrns.	505-344-2381
NM	Albuquerque, Intl. Elctrns.	505-345-8127
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Farmingdale, S.A.I.	516-293-2710
NY	Mamaroneck, Logicomp Elctrns.	914-698-9332
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Rochester, Modutex Corp.	716-424-1620
NC	Greensboro, Hammond Elec.	919-275-6391
NC	Raleigh, So. Eastern. Elctrns.	919-828-2311
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Cleveland, Alpha Distr. Corp.	216-526-3716
OH	Dayton, The Stotts-Friedman Co.	513-298-5555
OK	Oklahoma City, Electro Entrs., Inc.	405-427-6591
PA	Philadelphia, Philadelphia Elctrns. Inc.	215-568-7400
PA	Philadelphia, Herbach & Rademan, Inc.	215-426-1700
SC	Taylors, Cantrell Wholesalers	803-268-1194
TX	Austin, The Altair Co.	512-837-4490
TX	Austin, Southwest Elctrns.	512-837-8971
TX	Fort Worth, Allied Elctrns.	817-336-5401
TX	Houston, Solid State Elctrns.	713-772-8483
TX	Houston, The Altair Co.	713-462-3029
TX	Irving, Solid State Elctrns.	214-438-5700
TX	Richardson, The Altair Co.	214-231-5166
TX	Richardson, Southwest Elctrns.	214-234-3050
TX	Richardson, The Altair Co.	214-231-5166
TX	Stafford, Southwest Elctrns.	713-491-4900
WA	Kent, Shannon Ltd.	206-763-0545
WI	Mequon, Taylor Elec. Co.	414-241-4321
WI	Milwaukee, Marsh Elctrns.	414-475-6000

INDUSTRIAL ELCTRN. HARDWARE CORP., 109 Prince St., New York, NY 10012, Tel: 212-677-1881, TWX: 710-581-4338; FSC No.: 97913; Empl.: 430; *Sls. Mgr.:* Louis Roberts; *Dist. Mgr.:* Louis Roberts .... **2**•1329

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Phoenix, Knight Co.	602-582-8506
CA	Los Angeles, Knight Co	213-670-2833
CA	San Diego, Knight Co.	619-693-1806
CA	Sunnyvale, M2 Mktg. Grp.	408-733-1361
CT	Wethersfield, Underwood Sls. Corp.	203-563-3046
FL	St. Petersburg, Tech. Rep. Assoc.	813-577-2779
GA	Atlanta, Beacon Elctrns.	404-256-9640
KS	Wichita, Thunderbird Tech. Sls.	316-684-3941
MD	Ellicot City, Techn. Sls.	301-461-2400
MA	Lowell, Underwood Sls.	617-256-8191
MN	St. Paul, Countryman	612-645-9151
MO	St. Louis, Thunderbird Tech. Sls.	314-567-6488
NJ	Fort Lee, FJK Assocs. Inc.	201-592-1002
NJ	Haddonfield, Mills-Brown Assoc	609-429-1005
NY	Buffalo, Franklin Sls.	716-248-8251
NY	Pittsford, Franklin Sls.	716-248-8251
NY	Ronkonkoma, PMR	516-467-8200
NC	Raleigh, Beacon Elctrns.	919-787-0330
OH	Beachwood, Elctrn. Salesmasters Inc.	216-831-9555
OR	Beaverton, Barrett-Squibb	503-642-1661
RI	Warwick, Monette Eng. & Assoc.	401-885-2205
TX	Dallas, Pro-Mark	214-644-0497
VA	Portsmouth, F.B.D. Sls.	804-484-3162
WA	Redmond, Barrett-Squibb	206-885-6991

INDUSTRIAL FABRICATING CO., 820 Woodend Ave., Stratford, CT 06497, Tel: 203-375-5853; Empl.: 30; *Sls. Mgr.:* Ray Peterson

INDUSTRIAL MIDWEC CAPACITORS, 4902 Tollview Dr., Rolling Meadows, IL 60008, Tel: 312-577-0120, TWX: 910-687-3375; Empl.: 800; *Sls. Mgr.:* Andy Kaluski

Powertron

INDUSTRIAL TEST EQUIP., 21 Yennicock Ave., Port Washington, NY 11050, Tel: 516-883-1700; FSC No.: 99074; *Sls. Mgr.:* Robert Loiacono .... **3**•1886-1888

INERTIAL MOTORS, 280 N. Broad St., Doylestown, PA 18901, Tel: 215-345-1010, Telex: 83-1633; Empl.: 49; *Sls. Mgr.:* Lori Clarkin

INFICON LEYBOLD-HERAEUS, INC., 6500 Fly Rd, E. Syracuse, NY 13057, Tel: 315-437-0377, TWX: 710-541-0594; Empl.: 150; *Sls. Mgr.:* D. A. Di Renzo

InfoCap

INFOCAP, INC., 31119 Via Colinas 502, Westlake Village, CA 91362, Tel: 818-991-1410; *Sls. Mgr.:* David Knight .... **3**•1085

INFODEX, INC., 395 W. Main St., Waterbury, CT 06702, Tel: 203-757-9291, Telex: 178702 IFDX; FSC No.: 09087; Empl.: 42; *Sls. Mgr.:* E. H. Ulm .... **1B**•1086, 1087

Local Sales Offices & Reps

CA	Pasadena, A-F Sales Engrg.	818-681-5631
MA	Boston, Nortech Engrg. Sls.	617-359-6063
MA	Concord, Nortech Engrg. Sls.	617-259-0032

INFO-LITE CORP., See Dio-Rey and Crosspoint

INFORMATION CONTROL, Dept. EM7 9610 Bellanca Ave., Los Angeles, CA 90045, Tel: 213-641-8520, TWX: 910-328-7234; Empl.: 55; *Sls. Mgr.:* Carol J. Smith

INFORMATION CONTROL CORP., Abacus Div. Dept. EM7, 9610 Bellanca Ave., Los Angeles, CA 90045, Tel: 213-641-8520, TWX: 910-328-7234; Empl.: 50

INFORMATION CONTROL CORP., Light Pen Div., Dept. EM7, 9610 Bellanca Ave., Los Angeles, CA 90045, Tel: 213-641-8520, TWX: 910-328-7234; Empl.: 50

INFORMATION TERMINALS, See Verbatim Corp.

iti THE SWITCHING COMPANY

INFORMATION TRANSFER INDL., Box 357, Holcomb, NY 14469, Tel: 716-657-7074; FSC No.: 55137; Empl.: 40; *Sls. Mgr.:* J. E. Wiseman .... **3**•1162, 1163, 1246

Local Sales Offices & Reps

AZ	Scottsdale, Luscombe Engrg.	602-949-9333
CA	Campbell, Luscombe Engrg.	408-370-2020
CA	Pasadena, Luscombe Engrg.	213-684-2000
CA	San Diego, Luscombe Engrg.	714-295-4300
CT	Hamden, Polytek Assocs.	203-288-5246
IL	Schaumburg, Kenneth W. Meyers Co.	312-882-4808
IN	Indianapolis, Kenneth W. Meyers Co.	317-243-6681
IA	Cedar Rapids, Kenneth W. Meyers Co.	319-363-8987
MD	Greenbelt, Riffe Assocs.	301-474-8600
MA	Ashland, Polytek Assocs.	617-881-4741
MN	Minneapolis, Kenneth W. Meyers Co.	612-920-7080
NJ	Oxford, Malin Assocs.	201-689-7398
NY	Albany, R. F. Lamb Co.	518-869-3355
NY	Buffalo, R. F. Lamb Co.	716-874-4900
NY	Rochester, R. F. Lamb Co.	716-323-1250
NY	Syracuse, R. F. Lamb Co.	315-454-2469
OR	Portland, Tasco	503-245-8168
PA	Melrose Park, Robert Meyers Assocs.	215-224-1663
TX	Houston, Sci. Sls. Co.	713-460-9170
TX	Richardson, Sci. Sls. Co.	214-231-6541
WA	Bellevue, Tasco	206-453-1414
WI	Brookfield, Kenneth W. Meyers Co.	414-784-3790

INFOSPHERE, INC., 4730 S.W. Macadam Ave., Portland, OR 97201, Tel: 503-226-3515, Telex: 360312; *Sls. Mgr.:* Wm. David Sharon; *Dist. Mgr.:* Wm. David Sharon

Local Sales Offices & Reps

AZ	Scottsdale, A.S.R.	602-949-8293
CA	Sacramento, Manco	916-985-037
CA	Santa Clara, Manco	408-496-6611
NM	Albuquerque, A.S.R.	505-243-845
OH	Cleveland, Dolfuss-Root and Co.	216-238-030
OH	Columbus, Dolfuss-Root and Co.	513-433-677
OR	Portland, Cascade Data Mktg.	503-641-926
PA	Pittsburgh, Dolfuss-Root and Co.	412-221-442
TX	Houston, Abcor, Inc.	713-486-925
WA	Seattle, Cascade Data Mktg.	206-747-619

INFRARED INDS., INC., P.O. Box 14200, Orlando FL 32857, Tel: 305-282-7700, Telex: 568908; Empl. 80; *Sls. Mgr.:* Thomas Chisholm

INJECTORALL ELCTRNS., 98-100 Glen St., Glen Cove, NY 11542, Tel: 516-671-6010 .... **2**•109

Local Sales Offices & Reps

AL	Birmingham, John F. Russell Co.	205-822-219
CA	Burlingame, Carelli-Ema	415-342-451
CA	Long Beach, Ross Sls.	213-424-981
FL	Miami Beach, Everett Wollman Sls.	305-932-179
MA	Northboro, W. B. Pray Co.	617-393-343
MI	Livonia, Harvey Sales Co.	313-476-197
NY	Brooklyn, Moet Maltz & Co.	212-252-113
OH	Jamestown, Landro-Edwards Sls.	513-675-205
PA	Library, Landro & Edwards Sls. Co.	412-854-572
WA	Edmonds, McLaughlin Mktg. Inc.	206-743-116

Local Distributors

AL	Huntsville, Mock	205-539-240
AZ	Tucson, Electronic City	
CA	Los Angeles, ITC	213-388-062
CA	San Jose, Quement	408-998-590
CA	San Rafael, Elctrns. Plus	415-457-046
CA	Sunnyvale, Halted Specialties	408-732-157
FL	Pensacola, Pensacola Elctrns.	904-478-377
GA	Atlanta, Delta	404-458-469
IL	Chicago, Tron	
IN	East Chicago, Acro	219-397-868
KY	Louisville, P.I. Burkes	
MA	Needham, Y.D.I.	617-449-100
MI	Bay City, KDC	517-892-159
MI	Port Huron, Main	313-985-510
NJ	Vineland, Laraco	609-691-290
NY	Elmsford, Ancar	914-592-710
NY	Levittown, Edlies Elctrns.	516-735-333
NY	New York City, Taft	212-575-519
NY	Richmond Hill, Anchor	212-846-242
OR	Beaverton, Norvac	503-644-102
PA	Norristown, Philadelphia Elctrns.	215-275-555
TX	Dallas, Nanney	

TX	Fort Worth, Sweico	817-335-6521
WA	Seattle, Elctrn. Supermart	206-575-1093
WA	Seattle, Radar	206-282-2511

INLAND MOTOR DIV. KOLLMORGEN, INDL. DRIVES GRP., See Kollmorgen Corp.

INLAND MOTOR, SPECIALTY PRODS. DIV., Kollmorgen Corp., 4020 E. Inland Rd., Sierra Vista, AZ 85635, Tel: 602-459-1150, Telex: 62858, TWX: 910-973-9869; *Sls. Mgr.:* Ken Irvin

INLAND MOTOR SPECIALTY PRODS. DIV., Kollmorgen Corp., 501 First St., Radford, VA 24141, Tel: 703-639-9045, TWX: 710-875-3740; FSC No.: 11384; Empl.: 450

Local Sales Offices & Reps

Specialty/Instrument/Industrial Drive Group

AL	Huntsville, Technology Mktg. Assoc.	205-883-7893
AZ	Phoenix, Thor Engrg. Mfg.	602-437-1463
AZ	Sierra Vista, Inland Motor - SPD	602-459-1150
CA	Alhambra, Thorson Co.	213-281-2280
CA	Goleta, Thorson Co.	805-964-8751
CA	Mountain View, Thorson Co.	415-964-9300
CA	San Diego, Thorson Co.	619-292-8525
CA	Signal Hill, Thorson Co.	213-595-0361
CO	Englewood, Thorson Co.	303-779-0666
CT	Wolcott, Vanguard Elctrns.	203-879-9310
FL	Melbourne, Technology Mktg. Assoc.	305-676-3776
FL	Orlando, Technology Mktg. Assoc.	305-857-3760
FL	Pompano Beach, Technology Mktg. Assoc.	305-942-0774
FL	Winter Park, Magna Engrg. Sls.	305-671-8716
GA	Atlanta, Technology Mktg. Assoc.	404-257-0374
IL	Collinsville, Magna Engrg. Sls.	618-345-5583
IL	Elk Grove, Carlson Elctrn. Sls.	312-956-8240
IN	Indianapolis, Carlson Elctrn. Sls.	317-842-3740
IA	Cedar Rapids, Carlson Elctrn. Sls.	319-377-6341
KS	Wichita, Magna Engrg. Sls.	316-744-0851
MD	Baltimore, Rep-Tron	301-621-1313
MA	Needham Heights, Vanguard Elctrns.	617-449-5578
MI	Detroit, R. P. Urban Assoc.	313-535-2355
MI	Grand Rapids, R. P. Urban Assoc.	616-245-0511
MN	St. Paul, J. J. Exon co.	612-636-5533
NJ	Wayne, S. Howard Lagerveld & Assoc.	201-790-1714
NY	E. Rochester, A & D Devices	716-385-2778
OH	Chagrin Falls, Jerry Kilroy Corp.	216-543-3370
OR	Beaverton, Thorson Co.	503-644-5900
PA	Media, Homer Smith Co.	215-543-2434
TX	Dallas, Magna Engrg. Sls.	214-349-6171
UT	West Valley City, Thorson Co	801-973-7969
WA	Bellevue, Thorson Co.	206-455-9180
WI	Milwaukee, Carlson Elctrn. Sls.	414-476-2790

INMAC, 2465 Augustine Dr., Santa Clara, CA 95051, Tel: 408-727-1970, TWX: 910-338-2091; Empl.: 500

INMARK CORP., 147 West Cedar St., Norwalk, CT 06854, Tel: 203-866-8474, Telex: 99-6419; *Sls. Mgr.:* Lars Giers

INMOS CORP., P.O. Box 16000, Colorado Springs, CO 80935, Tel: 303-630-4000 Ext. 4454, TWX: 910-920-4904; Empl.: 1500; *Sls. Mgr.:* Peter Fowler; *Dist. Mgr.:* Jim O'Sullivan

NNOTRONICS, Brooks Rd., Lincoln, MA 01773, Tel: 617-678-8720; *Sls. Mgr.:* Julio DeCastro; *Dist. Mgr.:* Stephen Scheuer

NNOVATEK MICROSYSTEMS, INC., Smithfield Rd., Millerton, NY 12546, Tel: 914-373-9003, Telex: 750120; Empl.: 8; *Sls. Mgr.:* Paul F. Fitts

NNOVATIVE ELECTRONICS, INC., 4714 N.W. 165th St., Miami, FL 33014, Tel: 305-624-1644, Telex: 80-7121; Empl.: 28; *Sls. Mgr.:* Diane Ruggiero; *Dist. Mgr.:* Diane Ruggiero

NRECO, See Ransco Industries

NRESCO/INSTR. RESISTOR, 2106 Bridge Ave., Pt. Pleasant, NJ 08742, Tel: 201-892-5881; Empl.: 16; *Sls. Mgr.:* G. L. Martin

NSERVCO, INC., Box 106, La Grange, OH 44050

NSTRON CORP., 100 Royall St., Canton, MA 02021, Tel: 617-828-2500, Telex: 924434; Empl.: 1000; *Sls. Mgr.:* S. J. Vinciguerra; *Dist. Mgr.:* Lawrence Frost

NSTRULAB, P.O. B. 98, Dayton, OH 45404, Tel: 513-223-2241; Empl.: 22; *Sls. Mgr.:* Philip C. Alderton

Local Sales Offices & Reps

AZ	Scottsdale, Williams Assocs.	303-289-5647
CA	Los Angeles, Crown Elctrns.	213-877-3550
CA	San Francisco, Paul Rosen Co.	415-526-8286
CO	Denver, Williams Assoc.	303-289-5647
GA	Atlanta, E. G. Holmes & Assoc.	404-451-6161
IL	Chicago, Data Elctrn.	312-283-0300
IN	Indianapolis, Data Elctrns.	317-359-5368
KS	Overland Park, Ramsey Assocs.	913-649-6996
MD	Baltimore, Easter Instr.	301-384-8500
MA	Boston, Addelco Corp.	617-444-4754
MI	Detroit, E.Q.S. Sys.	313-961-3042
MN	Minneapolis, Loren Green Assoc.	612-571-6666
MO	St. Louis, Ramsey Assoc.	314-878-5042
NJ	Cresskill, Eastern Inst. of N Y	201-567-9505
NM	Albuquerque, Williams Assocs.	505-255-1638
NY	Syracuse, DB Assocs.	315-446-0220
NC	Raleigh, E. G. Holmes	919-469-8850
OH	Chesterland, E. Q. S. Sys.	216-729-2222
OH	Dayton, E.Q.S. Systems	513-294-2476
PA	Philadelphia, Sci. Devices	215-825-9515
TX	Lewisville, Milstek Inc.	214-436-1597
UT	Salt Lake City, Williams Assocs.	801-485-6511
WA	Seattle, Hood Engrg.	206-453-9375

INSTRU-LEC, 520 Homestead Ave., Mt. Vernon, NY 10550, Tel: 914-668-3754; FSC No.: 13782; Empl.: 10

INSTRUMENTATION & CONTROL SYS., 520 Interstate Rd, Addison, IL 60101, Tel: 312-543-6200, TWX: 910-991-5945; Empl.: 50; *Sls. Mgr.:* Andrew Hart;Ken Horning

INSTRUMENTATION MEASUREMENTS LAB., Div. of Lockheed Electronics Co. Inc., 1501 Rt. 22, Plainfield, NJ 07061, Tel: 201-757-3730; *Sls. Mgr.:* P. Murray Grinnell

INSTRUMENTATION PRODS., 3M Co., 300 S. Lewis Rd., Camarillo, CA 93010, Tel: 805-482-1911, TWX: 910-336-1676; Empl.: 500

INSTRUMENT ENCLOSURES, 9767 Glenoaks Blvd., Sun Valley, CA 91352, Tel: 213-768-4622, Telex: 66-2442; FSC No.: 62012; Empl.: 20; *Sls. Mgr.:* William B. Taylor

INSTRUMENT RESEARCH CO., Box 40207, Santa Barbara, CA 93103, Tel: 805-962-8336; Empl.: 6

INSTRUMENT RESISTOR CO., See INRESCO/INRESCO/Instr. Resistor

INSTRUMENTS, INC., 7263 Engineer Rd., San Diego, CA 92111, Tel: 619-571-1111, Telex: 695073, TWX: 910-335-1607; FSC No.: 34563; Empl.: 28; *Sls. Mgr.:* Ken Kalbfell

INSTRUMENTS AND CONTROLS DIV., Technology Inc., P.O. Box 3036, Overlook Branch, Dayton, OH 45431, Tel: 513-426-2405, TWX: 810-450-2620; FSC No.: 23978; Empl.: 100

INSTRUMENTS FOR INDUSTRY

INSTRUMENTS FOR INDUSTRY, INC., 151 Toledo St., Farmingdale, NY 11735, Tel: 516-694-1414, TWX: 510-222-0876; Empl.: 25; *Sls. Mgr.:* Ron Richards .... **3**•1011

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Phoenix, R. A. Mayes Co.	602-279-5243
CA	Los Altos, DJM Elctrns.	415-966-1680
CA	Valencia, DJM Elctrns.	213-367-9482
CO	Lakewood, Westek Data Prods.	303-989-1900
FL	Clearwater, Beacon Elctrns.	813-796-2378
GA	Atlanta, Beacon Elctrns.	404-256-9640.
MD	Laurel, CSDS, Inc.	301-490-3800
MN	Minneapolis, Deerland Distrs.	612-331-6433
MO	Kansas City, EIR Co.	816-452-7030
MO	Leasburg, EIR Co.	314-895-4100
NJ	N. Plainfield, Brady Co.	201-753-7988
NM	Albuquerque, R. A. Mayes Co.	505-292-2330
NY	Guilderland, Electro Modular Sys.	518-456-2665
NC	Greensboro, Beacon Elctrns.	919-275-9997
OH	Bedford Hgts., Bill Teplitz Assocs.	216-439-3265
OH	Dayton, Bill Teplitz Assocs.	513-277-6531
TN	Johnson City, Beacon Elctrns.	615-282-2421
UT	Salt Lake City, Westek Data Prods.	801-582-1200
WI	Milwaukee, Deerland Distrs.	414-784-1414

INSTRUMENT SPECIALTIES CO., P.O. Box A, Delaware Water Gap, PA 18327, Tel: 717-424-8510, TWX: 510-671-4526; Empl.: 350; *Sls. Mgr.:* James P. May .... **2**•1908, 1909

Local Sales Offices & Reps

AZ	Phoenix, O'Donnell Assocs.	602-274-6072
CA	San Diego, O'Donnell Assocs.	619-578-1645
CA	Sunnyvale, O'Donnell Assocs.	408-745-7043
CA	Torrance, O'Donnell Assocs.	213-328-9710
SC	Greenville, B & B Sls.	803-297-1200
TX	Dallas, J. M. Spell	214-620-0040
WA	Bothell, Temco Northwest	206-488-1254

INTECH, Instruments Div., 282 Brokaw Rd., Santa Clara, CA 95050, Tel: 408-727-0500, TWX: 910-338-0254; Empl.: 120; *Sls. Mgr.:* Howard Randall; *Dist. Mgr.:* Howard Randall

INTECH, Microcircuits Div., 2270 Martin Ave., Santa Clara, CA 95050, Tel: 408-988-4930, TWX: 910-338-2213; FSC No.: 33967; Empl.: 150; *Sls. Mgr.:* D. Arnold

INTEGRA, INC., 2368 Walsh Ave., Santa Clara, CA 95051, Tel: 408-727-9601, TWX: 910-338-0585; FSC No.: 51162

INTEGRAL DATA SYS., INC., Rte. 13 S, Milford, NH 03055, Tel: 603-673-9100, Telex: 95-3032; *Dist. Mgr.:* M. Dude

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Local Sales Offices & Reps

CA	El Toro, Martronix	714-855-6397
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FL	Melbourne, EMS Inc.	305-724-1027
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PA	Newtown, Yax Assocs.	215-860-2540
TX	Irving, Kite Elctrn. Sls.	214-438-9336

INTEGRATED COMPUTER SYSTEMS, 6305 Arizona Pl., P.O. Box 45405, Los Angeles, CA 90045, Tel: 213-417-8888, Telex: 4995168 ICS LA; Empl.: 80; *Sls. Mgr.:* Ruth Dordick

INTEGRATED DEVICE TECHNLG., INC., 3236 Scott Blvd., Santa Clara, CA 95051, Tel: 408-727-6116, TWX: 910-338-2070; FSC No.: 61772; Empl.: 240; *Sls. Mgr.:* Lanny Flessas

INTEGRATED MICROWAVE, 11526 Sorrento Valley Rd., San Diego, CA 92121, Tel: 619-457-0277, TWX: 910-335-2037; FSC No.: 60656; *Sls. Mgr.:* Art Brand

INTEL MEMORY SYSTEMS, 1302 N. Mathilda, Sunnyvale, CA 94086, Tel: 408-734-8102, TWX: 910-339-9361; FSC No.: 34649; Empl.: 600; *Sls. Mgr.:* G. Andersen, Mktg. Mgr.

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AL	Huntsville, 20th Century Mktg.	205-533-9281
CA	Sunnyvale, Industrial Modules	408-737-7727
CA	Van Nuys, Momjian & Associates	213-764-4891
CO	Aurora, Garrett Sls. Co.	303-695-3720
GA	Stone Mountain, 20th Century Mktg.	404-292-7088
MA	Waltham, Benchmark Associates	617-899-3390
NY	Staten Island, Budd-Tronics Sales	212-494-7894
TN	Knoxville, 20th Century Mktg.	615-690-1618
UT	Salt Lake City, Garrett Sls. Co.	801-350-7406

INTERACTIVE MICRO SYS., INC., 644 Davisville Rd., Willow Grove, PA 19090

INTERCONICS, BMC Industries, Inc., 610 Bremer Tower, St. Paul, MN 55101, Tel: 612-228-6512, Telex: 297022; *Sls. Mgr.:* Lee Jamison

INTERCONNECT DEVICES, INC., 5101 Richland Ave., Kansas City, KS 66106, Tel: 913-342-5544, Telex: 437-262; *Sls. Mgr.:* Edward J. Schifman

Local Sales Offices & Reps

AZ	Phoenix, Piper Sls. Co.	602-949-0048
CA	Los Angeles, M.A. Stolaroff Co.	213-295-7781
CA	Santa Clara, Electro Venture	408-727-1553
CO	Denver, Piper Sls. Co.	303-443-5337
CT	Canton, Bell Controls	203-693-8926
FL	Orlando/Ft. Lauderdale, Equipment Sales	305-339-2972
GA	Atlanta, Equipment Sales	404-992-7180
MN	Minneapolis, Mil-Com Marketing	612-944-8030
NH	Nashua, Bell Controls	603-882-6984
NY	New York, Sprung-Nussbaum	201-569-5666
TX	Dallas, R. F. Kimball	214-231-3447

INTERCONNECTION TECHNOLOGY, INC., 5542 Buckingham Drive, Huntington Beach, CA 92649, Tel: 714-891-5305, TWX: 910-596-1879; *Sls. Mgr.:* Ken Rhines ....**2**•1890

Local Sales Offices & Reps

AZ	Scottsdale, Semi-sys. Arizona, Inc.	602-991-1151
CA	El Segundo, Varigon Assocs.	213-322-1120
CA	El Toro, Varigon Assocs.	714-855-0233
CA	San Diego, Varigon Assocs.	619-576-0100
CA	Santa Clara, DC Elctrns.	408-980-1199
IL	Park Ridge, Probe Elctrns.	312-696-2828
MD	Pasadena, Macrotech Assocs.	301-437-5588
NM	Albuquerque, Syntech	505-266-7951
OH	Mansfield, Ralph Meckling Assocs.	419-756-4433
WA	Edmonds, Cunningham Sales, Inc.	206-771-4848

INTERDESIGN, INC., 1500 Green Hills Rd., Scotts Valley, CA 95066, Tel: 408-438-2900, TWX: 910-339-9374; Empl.: 230

Local Sales Offices & Reps

IL	Schaumburg, Interdesign	312-397-1990
MA	Burlington, Interdesign	617-229-5811

INTERDYNE CO., 157 Topaz St., Milpitas, CA 95035, Tel: 408-943-9133; FSC No.: 31598; Empl.: 30

INTERELECTRONICS CORP., Interelectronics Park, 550 U.S. Rte. 303, Congers, NY 10920, Tel: 914-EL8-8000; Empl.: 82; *Sls. Mgr.:* M. H. Pintell; *Dist. Mgr.:* G. Sherwood ....**3**•1598

INTERFACE, 7401 Butherus Dr., Scottsdale, AZ 85260, Tel: 602-948-5555, Telex: 668-394; FSC No.: 32311

INTERFACE ENGRG., 386 Lindelof Ave., Stoughton, MA 02072, Tel: 617-344-7383, Telex: 940-848; FSC No.: 14352; Empl.: 25; *Sls. Mgr.:* Thomas Scanlon ....**3**•1164, 1165

Local Sales Offices & Reps

NY	Great Neck, Industron Assoc.	516-487-2620
VA	Arlington, Gans & Pugh	703-527-3262

INTERFACE TECH. DYNATECH, 150 East Arrow Hill Way,, San Dimas, CA 91773, Tel: 714-592-2971

INTERGALACTIC CORP., Box 7025, Salt Lake City, UT 84107, Tel: 801-262-0094

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AR	Little Rock, J. Y. Schoonmaker	501-375-2168
CA	Anaheim, Impact Elctrns., Inc.	714-553-1351
CA	Burlingame, W. J. Purdy	415-347-7701
CO	Denver, W. J. Purdy	303-777-1411
CT	Hartford, Sturgeon	203-249-7800
IL	Elmhurst, Hill-Gray Assoc.	312-832-4101
IN	Indianapolis, Sukup & Cox	317-253-5501
IA	Marion, MSB Assocs.	319-377-6261
KS	Shawnee Mission, MSB Assocs.	913-432-2131
MD	Lisbon, S. K. MacDonald	301-442-1590
MA	Needham Hgts., P. R. Sturgeon	617-444-6603
MI	Ferndale, Hilltronics	313-398-5556
MO	Hazelwood, MSB Assocs.	314-895-4700
NJ	Englewood, Harold Gray	201-894-0894
NM	Albuquerque, W. J. Purdy	505-266-7959
NY	Syracuse, Paston-Hunter	315-437-2843
OH	Beachwood, Elctrn. Salesmasters	216-831-9555
OK	Tulsa, J. Y. Schoonmaker	918-444-0373
OR	Beaverton, William J. Purdy	503-641-9373
PA	Philadelphia, S. K. MacDonald	215-545-1205
TX	Dallas, J. Y. Schoonmaker	214-349-1650
TX	Houston, J. Y. Schoonmaker	713-738-2427
WA	Redmond, William J. Purdy	206-882-3144

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AZ	Tempe, Waltronic Sls.	602-967-1020
CA	Chatsworth, Panel Parts Co.	213-998-5991
CA	Santa Clara, Dynametron	408-727-6531
CA	Santa Clara, Waltronic Sls.	408-727-1200
CO	Lakewood, Acacia Sls.	303-232-2882
CT	Wallingford, Sager Electrical Supp. Co.	203-265-4600
IL	Villa Park, Melvin Elctrns.	312-279-5010
MA	Hingham, Sager Electrical Supp. Co.	617-749-6700
MA	Lynn, Land Elctrn. Supp. Co.	617-592-2220
MA	Waltham, Vantage Elctrns. Corp.	617-894-8690
NJ	Cranford, Garden State Elctrns., Inc.	201-272-6400
NY	Buffalo, Summit Distrs.	716-884-3450
OK	Tulsa, Radio, Inc.	918-587-9123
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
TX	Houston, Lenert Co.	713-225-1465
VA	Richmond, Instrument Tech. Rep.	804-275-1431

INTER-MARKET, 1946 Lehigh Ave., Glenview, IL 60025, Tel: 312-729-5330, TWX: 910-651-1997; FSC No.: 34165; Empl.: 10; *Sls. Mgr.:* Phil Gardanier ....**1B**•1088, 1649

Local Sales Offices & Reps

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MN	St. Paul, Kenco Tronics	612-645-7717
PA	Rydal, Espy Sls.	215-576-0780
TX	Irving, Kite Elctrn. Sls.	214-438-9336
WA	Redmond, Elctrn. Mktg.	206-882-0962

Local Distributors

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IL	Chicago, Newark Elctrns.	312-638-4411
MI	Grand Rapids, S-F Electronics	616-459-0216
MN	St. Paul, K.D.I. Inc.	612-645-5090
NH	Hudson, C & H Elctrns.	603-882-1133
NJ	Fairlawn, Relay Specialties	201-797-3313
OH	Dayton, Stotts-Friedman	513-298-5555
PA	Willow Grove, Resco Electric	215-659-4575
TX	Austin, Galtronics	512-837-7470
WI	Mequon, Lake-View Elctrn.	414-377-8250
WI	Oshkosh, Electronic Inds.	414-235-8930
Can	Montreal, Que., Braydon Electro	514-332-5650

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INTERNATIONAL COMPS. CORP., 105 Maxess Rd., Melville, NY 11747, Tel: 516-293-1500, TWX: 510-224-6409; Empl.: 100; *Sls. Mgr.:* Irwin Okin ....**1A**•1074, 1876, 2096; **2**•1338; **3**•1030

Local Sales Offices & Reps

AL	Huntsville, EMA	205-533-6640
AZ	Tempe, Electronic Dev. & Sls.	602-829-9699
CA	Anaheim, Impact Elctrns.	714-533-1351
CA	Anaheim, Impact Elctrns.	714-533-1351
CA	Redwood City, Hickey Inds.	
CT	Bethel, GM Branch	203-744-1426
CT	Vernon, G-M Assoc.	203-646-4443
FL	Casselberry, HAI	305-752-7520
FL	Coral Springs, HAI	305-752-7550
GA	Atlanta, EMA	404-329-0530
IL	Arlington Heights, MJ Petersen & Assoc.	312-577-8200
IN	Fort Wayne, Jim Finnegan & Co.	219-747-7650
IA	Cedar Rapids, IOWA Tech. Sls.	319-377-5795
MD	Baltimore, Espy Sls. Co.	301-444-6982
MA	Framingham, G-M Assoc.	617-872-4871
MA	Stroughton, GM Assocs.	617-344-0116
MN	Minneapolis, PSI	612-944-8545
NH	Exeter, GM Branch	603-778-7472
NJ	East Brunswick, Winch Sls. Assocs.	201-828-4615
NY	Jericho, Metro Tech. Sls.	516-935-3330
NY	Syracuse, Nycom	315-437-8343
NC	Pineville, EMA	704-541-2628
NC	Winston-Salem, EMA	919-784-7304
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
PA	Camp Hill, ESPY Branch	717-763-9577
PA	Rydal, Espy Sls. Co.	215-576-0780
TN	Donnelson, EMA	615-883-1414
TN	Jonesboro, EMA Branch	615-753-8861
TX	Austin, Mech-tron Mktg.	512-835-0980
TX	Dallas, Mech-tron Mktg.	214-343-3786
TX	Houston, Mech-tron Mktg.	713-462-1432
WA	Edmonds, McLaughlin Mktg. Inc.	206-743-1161

Local Distributors

AZ	Phoenix, ACC	602-269-5655
CA	Canoga Park, Myco Vickers	213-340-2025
CA	Redwood City, Hi-Cor	415-365-5087
CO	Denver, Integrated Elect.	303-623-8713
CT	Danbury, Pilgrim Elect.	203-792-7274
CT	East Haven, JV Elctrns.	203-469-2321
CT	Wallingford, Midstate Elctrns. Co.	203-265-9900
FL	Ft. Lauderdale, National Resistor Co.	305-772-4500
MD	Baltimore, Lorac Elctrns. Co.	301-247-1682
MN	Eden Prarie, Cassidy Elec. Co.	612-944-0100
MN	Minneapolis, Cassidy Elctrns.	612-835-7746
PA	Philadelphia, Mur'Tronics	215-632-4330
PA	Philadelphia, Jan Indl. Elec.	215-WA 2-1321
TX	Ft. Worth, C & W Supp. Co.	817-831-0395

INTERNATIONAL CRYSTAL MFG., 10 N. Lee, P.O. Box 26330, Oklahoma City, OK 73126, Tel: 405-236-3741, Telex: 747-147, TWX: 910-831-3177; Empl.: 165; *Sls. Mgr.:* Paul E. Denwalt ....**1A**•1367

INTERNATIONAL DATA SCIENCES, 7 Wellington Rd., Lincoln, RI 02865, Tel: 401-333-6200, TWX: 710-384-1911; Empl.: 125

INTERNATIONAL DEVICES INC., 3200 Pendleton, Santa Ana, CA 92704, Tel: 714-557-9394, 800-854-7651, Telex: 681387; FSC No.: 53763; *Sls. Mgr.:* Alan J. Vanek; *Dist. Mgr.:* Alan J. Vanek

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INTERNATIONAL ELECTRO MAGNETICS, INC., 350 N. Eric Dr., Palatine, IL 60067, Tel: 312-358-4622; Empl.: 30; *Sls. Mgr.:* T. Pretto ....**3**•1031

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INTL. ELCTRN. RESCH., 135 W. Magnolia Blvd., Burbank, CA 91502, Tel: 213-849-2481, TWX: 910-498-2206; FSC No.: 98978; Empl.: 116; *Sls. Mgr.:* J.S. Smith

INTERNATIONAL HIGH VOLTAGE ELCTRNS., INC., 98 Mill Plain Rd., Danbury, CT 06810, Tel: 203-792-7820; *Sls. Mgr.:* A. Pellegrino ..**3**•1599-1601

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NJ	Parsippany, HLM Assocs.	201-263-1535
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INTERNATIONAL INSTRUMENTS, 88 Marsh Hill Rd., Orange, CT 06477, Tel: 203-795-4711, TWX: 710-465-2897; Empl.: 150; *Dist. Mgr.:* J. Connolly

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CA	Burlingame, Engrg. Rep.	415-348-5042
CA	Los Angeles, Barnard & Assocs.	213-515-2978
CA	San Diego, Engrg. Rep.	714-565-2131
CO	Denver, Nelson	303-573-1516
FL	Deerfield Beach, Brandel-Stephens	305-427-8558
FL	Orlando, Brandel-Stephens	305-425-3202
GA	Atlanta, Brandel-Stephens	404-261-7579
IL	Chicago, Memeco Sls. & Svc.	312-774-0919
KS	Shawnee Mission, Tech. Sls. Assoc.	913-888-3330
MD	Perry Hall, Electra-Tech	301-256-2723
MA	Hingham, Northeast Reps.	617-749-8700
MN	Eden Prairie, Yukon Sls. Assocs.	612-941-8155
MO	Ferguson, Tech. Sls. Assocs.	314-725-5361
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K	Tulsa, Telstar Instr.	918-628-1011
R	Portland, Garland Affolter Engrg.	503-223-7349
A	Glenshaw, H.C. Johnson Agencies	412-487-1246
A	Paoli, Stitzer Assocs.	215-644-5500
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A	Dumfries, Electra-Tech	703-670-6962
'A	Kirkland, Garland Affolter Engrg.	206-822-2275

NTERNATIONAL LASER SYS., 3404 N. Orange Blossom Trail, Orlando, FL 32804, Tel: 305-295-4010, TWX: 810-850-0195; Empl.: 408; *Sls. Mgr.:* W. C. Hudson

NTERNATIONAL MFG. SVCS., 50 Schoolhouse La., Portsmouth, RI 02871, Tel: 401-683-9700; Empl.: 25; *Sls. Mgr.:* Jay Benson

NTERNATIONAL MICROELECTRONIC PRODS., 2830 North First Street, San Jose, CA 95134, Tel: 408-262-9100, Telex: 499-1041, TWX: 910-338-2274; *Sls. Mgr.:* Robert Kromer

NTERNATIONAL MICROSYSTEMS, 11554 C Ave., Auburn, CA 95603, Tel: 916-885-7262, TWX: 910-367-3706; Empl.: 12; *Sls. Mgr.:* Gail Jones

NTERNATIONAL MICROTRONICS CORP., 4016 E. Tennessee St., Tucson, AZ 85714, Tel: 602-748-7900, TWX: 910-952-1170; Empl.: 25; *Sls. Mgr.:* Otto Fest; *Dist. Mgr.:* Janice Dougall

NTERNATIONAL POWER MACHINES, 11534 Pagemill Rd., Dallas, TX 75243, Tel: 214-343-6076; *Sls. Mgr.:* Jack Conn

NTERNATIONAL RECTIFIER CORP., Semiconductor Div., 233 Kansas St., El Segundo, CA 90245, Tel: 213-772-2000, Telex: 472-0403, TWX: 910-348-6291; Empl.: I200; *Sls. Mgr.:* W. Lewis; *Dist. Mgr.:* D. Coppinger

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N	Edina	612-831-6400
J	Pallisades Park	201-943-4554
H	Independence	216-447-9717
A	Charlottesville	804-973-1316
I	Elm Grove	414-784-2480

NTERNATIONAL RESOURCE SVCS., 7343 N.W. 79th Terr., Miami, FL 33166, Tel: 305-884-2924, Telex: 522261 MIA DEPT 262; Empl.: 5; *Sls. Mgr.:* Richard L. Winn

NTERNATIONAL SENSOR SYSTEMS, INC., Aurora Industrial Pk., Box 345, Aurora, NE 68818, Tel: 402-694-6111; Empl.: 45 .... **1A**•1661

Local Sales Offices & Reps

Z	Tempe, Spectrum Assoc. SW	602-966-1788
A	Claremont, Gandalf Elctrns.	714-626-5481
A	Palo Alto, Tri-Rep	415-965-1822
T	Branford, LJM Assocs.	203-488-4244
	Plantation, Electro-Mechanical Standards	305-587-7146
	Chicago, Esco Assocs.	312-763-0800
A	Westboro, RJC Assocs.	617-366-0399
N	Minneapolis, R-J Inc.	612-866-3661
Y	Syracuse, Labtronics	315-455-7314
Y	Wantagh, Bytec Reps.	516-781-7400
R	Beaverton, Ravencraft	503-646-9261
A	Southampton, Campbell Assocs.	215-322-6630
(	El Paso, Nokomis Consumer Prods.	915-778-2801
(	Euless, Andy Byles Intl.	817-267-4099
A	Fairfax, Schibley Assoc.	703-591-3008

NTERNATIONAL TRANSDUCER, 93 Castilian Dr., Goleta, CA 93117, Tel: 805-685-1441, Telex: 658 495; FSC No.: ID 532; Empl.: 75; *Sls. Mgr.:* Glen E. Liddiard

NTERNATIONAL WIRE PRODUCTS CO., 500 W. Main St., Wyckoff, NJ 07481, Tel: 201-891-5800, Telex: 642580; Empl.: 700; *Sls. Mgr.:* C. D. Abbott

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INTERSIL, 10710 N. Tantau Ave., Cupertino, CA 95014, Tel: 408-996-5000, TWX: 910-338-0583; FSC No.: 32293; Empl.: 4102; *Dist. Mgr.:* Bruce Mattern

INTERSTATE ELECTRONICS CORP., Box 3117, 1001 E. Ball Rd., Anaheim, CA 92803, Tel: 714-635-7210, Telex: 655443, TWX: 910-591-1197; FSC No.: 6625, 5985; Empl.: 1500; *Sls. Mgr.:* Darryl Watanabe; *Dist. Mgr.:* R. Sorenson

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Local Sales Offices & Reps

AZ	Tempe, Foley, Tallent & Lee	602-894-2345
AR	Little Rock, J. Y. Schoonmaker	501-375-2168
CA	Burlingame, W. J. Purdy	415-347-7701
CA	Costa Mesa, Berman-Gravely Co.	714-549-2122
CO	Denver, W. J. Purdy	303-777-1411
CT	Hartford, Sturgeon	203-249-7800
IL	Elmhurst, Hill-Gray	312-832-4101
IN	Indianapolis, Sukup & Cox	317-253-5501
IA	Marion, M-S-B Assocs.	319-377-6261
KS	Shawnee Mission, M-S-B Assocs.	913-432-2131
MD	Baltimore, S. K. MacDonald	301-254-3380
MA	Needham Hgts., P. Sturgeon	617-444-6603
MI	Ferndale, Hilltronics	313-398-5556
MO	Hazelwood, M-S-B Assocs.	314-895-4700
NJ	Englewood, H. Gray	201-894-0894
NM	Albuquerque, W. J. Purdy	505-266-7959
NY	Syracuse, Paston-Hunter	315-437-2843
OH	Beachwood, Elctrn. Salesmasters	216-831-9555
OK	Tulsa, J. Y. Schoonmaker	918-583-0912
OR	Beaverton, William J. Purdy	503-641-9373
PA	Philadelphia, S. K. MacDonald	215-545-1205
TX	Dallas, J. Y. Schoonmaker	214-349-1650
TX	Houston, J. Y. Schoonmaker	713-738-2427
UT	Salt Lake City, William J. Purdy	801-486-8557
WA	Redmond, William J. Purdy	206-882-3144

Local Distributors

AZ	Tempe, Waltronic Sls.	602-967-1020
AZ	Tempe, Anjon Entprs.	602-894-1332
CA	Chatsworth, Panel Parts Co.	213-998-5991
CA	N. Hollywood, Merit Comp. Supp.	213-842-8162
CA	Santa Clara, Waltronic Sls.	408-727-1200
CO	Denver, Ragon	303-744-3601
FL	Ft. Lauderdale, Peerless Radio Corp.	305-973-4141
IL	Addison, L Comp-Chicago	312-628-1400
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
MA	Lynn, Land Elctrn. Supp. Co.	617-592-2220
MN	Minneapolis, Bergquist	612-835-2322
NJ	Englewood, Tech. Elctrn./Powell	201-894-0800
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Rochester, Summit Distrs.	716-334-8110
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Cincinnati, Hughes-Peters, Inc.	513-351-2000
OH	Columbus, Hughes-Peters, Inc.	614-294-5351
PA	Willow Grove, Resco Elctrns.	215-659-4575
TX	Houston, Harrison Equip. Co.	713-879-2600
WI	Mequon, Taylor Elec. Co.	414-241-4321

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WIMA Division

INTER-TECHNICAL GRP., Box 23, Irvington, NY 10533, Tel: 914-591-8822, TWX: 710-564-0802; Empl.: 13; *Sls. Mgr.:* T. A. Galgano .... **1A**•1075-1079

Local Sales Offices & Reps

AL	Huntsville, J. R. Assocs.	205-830-2130
AZ	Scottsdale, Semper Fi Sls. Inc.	602-991-4606
CO	Lakewood, Palmer Assocs.	303-233-9423
CT	Colchester, Normell Assocs.	203-537-5555/3758
FL	Altamonte Springs, "C" Assocs.	305-831-1717
GA	Dunwoody, J. R. Assocs.	404-399-1831
IL	Westchester, W. G. Brouilette & Assocs.	312-345-6500
MA	Newton, Normell Assocs.	617-969-5478
MN	Minneapolis, Intl. Sls.	612-831-8423
NJ	Colonia, H. B. Heft Assocs.	201-381-5193
NY	Lynbrook, H. B. Heft Assocs.	516-LY 9-3351
NY	Rochester, BKT Assocs.	716-586-5814
NC	Kennersville, Naylor Assocs.	919-996-4162
OR	Portland, Harry Levinson Co.	503-245-1902
PA	King of Prussia, R. D. Freedman Assocs.	215-279-5767
PA	W. Conshohocken, Eastern Comps. Sls. Corp.	215-825-8610
TX	Carrollton, Paulsen Elctrn. Sls.	214-386-4785
UT	Salt Lake City, Alpine Entprs.	801-278-6920
VA	Manassas, Eastern Comps. Sls.	800-223-3850
WA	Seattle, H. Levinson Co.	206-323-5100

INTEX MICRO SYSTEMS CORP., 725 S. Adams Rd., Suite L-8, Birmingham, MI 48011, Tel: 313-540-7601; Telex: 230254 WUPUBTLX; *Sls. Mgr.:* R. Thielman

INTRA-COMPUTER, 101 W. 31st St., New York, NY 10001, Tel: 212-947-5533, Telex: 64-5067; Empl.: 9; *Sls. Mgr.:* Art Yaglian

intronics

INTRONICS, INC., 57 Chapel St., Newton, MA 02158, Tel: 617-964-4000, Telex: 200095, TWX: 710-335-6835; Empl.: 130; *Sls. Mgr.:* J. Swartz .... **3**•1602, 1603

Local Sales Offices & Reps

AL	Huntsville, Elctrn. Mfrs. Agts.	205-830-4030
AZ	Tempe, Delta Elctrns.	602-966-9903
CA	Los Altos Hills, HB Marketing	415-941-4080
CA	Temple City, HMC Inc.	213-285-0485
CO	Denver, Anderson Assoc.	303-295-3342
CT	Guilford, Elctrn. Mktg. Assoc.	203-543-5424
FL	Melbourne, Reynolds & Assoc.	305-259-7000
GA	Atlanta, Elctrn. Mfrs. Agts.	404-329-0530
IL	Palatine, Kingston Comps.	312-359-7990
IN	Fort Wayne, Domino Unlimited	219-747-5621
IA	Cedar Rapids, Technical Electronics	319-362-4116
KS	De Soto, Midtec Assoc.	913-441-6565
MD	Severna Park, DelMarva Engr.	301-647-8007
MI	Southfield, Infinity Inc.	313-557-7230
MN	Minneapolis, Dan'l Engr.	612-854-7550
MO	Florissant, Midtec Assoc.	314-837-5200
NH	Salem, Elctrn. Mktg. Assoc.	603-893-5378
NJ	Vincentown, Eastern Sci. Mktg.	609-268-0250
NY	Canandaigua, Bensman/Upstate	716-396-2498
NY	Jericho, J-Square Mktg.	516-935-3200
NC	Pineville, Elctrn. Mfrs. Agts.	919-781-4139
OH	Dayton, Del Steffen & Assoc.	513-293-3145
PA	Chalfont, Eastern Sci. Mktg.	215-822-6503
TN	Jonesboro, Elctrn. Mfrs. Agts.	615-753-5844
TX	Richardson, Scientific Sls.	214-231-6541
WA	Seattle, Data Com. Assoc.	206-285-2525

ION PHYSICS CO., Div. High Voltage Engrg. Corp., P.O. Box 416, So. Bedford St., Burlington, MA 01803, Tel: 617-272-2800, Telex: 951733

IPAC GRP., 3047 Indl. Blvd., Bethel Pk., PA 15102, Tel: 412-831-9200, TWX: 510-697-3935; Empl.: 50; *Sls. Mgr.:* D. T. Cusack

IQ SYSTEMS, Applied Circuit Tech., 2931 La Jolla St., Anaheim, CA 92806, Tel: 714-630-6834; *Sls. Mgr.:* Jim Stedt

IR SCIENTIFIC, Box 110, Carlisle, MA 01741, Tel: 617-369-7118; Empl.: 10; *Sls. Mgr.:* S. J. Sommer

ISC MAGNETICS DIV., See Aeroflex Labs., Inc., Magnetic Prods. Div.

ISKRA ELECTRONICS, INC., 8 Greenfield Rd., Syosset, NY 11791, Tel: 516-364-2616 ....**1A**•1080, 1081, 1877, 2039, 2097; **1B**•1443

ISL PRODUCTS INTL. LTD., 235 P Robbins Lane, Syosset, NY 11791-6093, Tel: 516-822-9601, TWX: 510-221-2109; Empl.: 25,000; *Sls. Mgr.:* Ken Kawaller .... **1A**•1082, 1083, 2098

Local Sales Offices & Reps

IL	Lake Bluff, R & R Marketing	312-295-6660
IN	Noblesville, Newton & Assoc.	317-845-8157
MD	Pikesville, Muncy Sls.	301-484-6376
MA	Topsfield, RFC Assocs.	617-887-8545
TX	Dallas, Dick Bellew Sls.	214-373-4590
VA	Charlottesville, Electronic Sources	804-953-6315

ISOCHEM PRODS. CO., A Sub. of Rohm and Haas Adv. Matls. Co., 99 Cook St., Lincoln, RI 02865, Tel: 401-723-2100; Empl.: 26; *Sls. Mgr.:* Arthur M. Goldfarb

ISOLATION PRODUCTS, INC., 1245 Birchwood Dr., Sunnyvale, CA 94086, Tel: 408-734-4068; *Sls. Mgr.:* Joseph D. Bianco

ISOREG CORP., 410 Great Rd., P.O. Box 486, Littleton, MA 01460, Tel: 617-486-9483, TWX: 710-347-6974 ISOREG LTTN; Empl.: 65; *Sls. Mgr.:* Paul Foss; *Dist. Mgr.:* Paul Foss

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Local Sales Offices & Reps

AZ	Scottsdale, Faser Technical Sls.	602-948-4404
CA	Costa Mesa, EBA Microwave	714-857-6079
CA	Fremont, Wm. Parks & Assocs.	415-490-2011
CA	San Diego, Qualtronics	619-560-8955
CO	Denver, W. H. Howard Assoc.	303-353-7281
IL	Woodridge, Trend-Tronics	312-985-0626
IN	Fort Wayne, Given Corp.	219-432-5585
MD	Columbia, M. Lader Co.	301-730-1550
MD	Conowingo, M. Leader Co.	301-272-3449
NY	Melville, Carnes Assoc.	516-694-1600
PA	Lafayette Hill, M. Lader Co.	215-825-3177

ISOTRONICS, Industrial Park, New Bedford, MA 02745, Tel: 617-998-2000, TWX: 710-344-1961; *Sls. Mgr.:* Mike LoFrumento

ITEK MEASUREMENT SYS., Div. Litton Inds., 27 Christina St., Newton, MA 02161, Tel: 617-969-7300, TWX: 710-335-6783; Empl.: 100 .... **1B**•1845

Local Sales Offices & Reps

CA	Los Angeles, Measurement Sys. Div.	213-641-0476
FL	Orlando, K. S. Chaney	305-293-5656
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs.	317-293-5437
IA	Cedar Rapids, Marsland Assocs.	319-396-8030
MN	Minneapolis, Marsland Assocs.	612-545-4481
NJ	Metuchen, Measurement Sys. Div.	201-548-1500
NM	Las Cruces, BFA Corp.	505-524-9693

Local Distributors

FL	Orlando, Kenneth S. Chaney	305-423-9465
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs.	317-293-5437
MN	Minneapolis, Marsland Assocs.	612-545-4481
NM	Las Cruces, BFA Corp.	505-524-9693
Intl	England, Tadley, Hampshire, Hightech Comps., Ltd.	07356-3922
Intl	France, Paris, Sedeme	580.72.000
Intl	Germany, Munich, Weltronic GmbH	089-49 20 66
Intl	Holland, Rotterdam, Anru	010-137395
Intl	India, Bombay, Echbee Corp.	253489
Intl	Israel, Tel-Aviv, Airtronic Engrg. Ltd.	45 48 71
Intl	Italy, La Spezia, Motordiesel Elec. Instr. & Comp.	36.232
Intl	Japan, Tokyo, Nippon Engrg. Sys.	494-4045
Intl	Norway, Oslo, Ole A. Nordby A/S	02 55 07 50
Intl	Sweden, Bromma, Magnetic AB	08-2904-60

ITHACO, INC., Meas. & Control Instrs. Div., 735 W. Clinton St., P.O. Box 6437, Ithaca, NY 14851-6437, Tel: 607-272-7640, TWX: 510-255-9307; Empl.: 120; *Sls. Mgr.:* Allen Roth

ITOH ELECTRONICS, INC., 5301 Beethoven St., Los Angeles, CA 90066, Tel: 212-682-0420, Telex: 12-5059; Empl.: 100; *Sls. Mgr.:* F.I. Makstein, VP Mktg.

ITT CANNON, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, CA 92708, Tel: 714-964-7400, Telex: 65-5358, TWX: 910-596-2620; FSC No.: 71468; Empl.: 2500; *Sls. Mgr.:* Bruce Simpson; *Dist. Mgr.:* Frank Cosentino ....**2**•1339-1354

Local Sales Offices & Reps

AL	Huntsville, Brandel-Stephens & Co.	205-833-0445
AZ	Phoenix, ITT Cannon	602-275-4792
CA	Campbell (San Jose), ITT Cannon	408-559-1777
CA	Fountain Valley, ITT Cannon	714-964-7400
CA	San Diego, ITT Cannon	619-560-0917
CA	Santa Ana, ITT Cannon	714-557-4700
CO	Denver, ITT Cannon	303-778-1855
CO	Littleton, ITT Cannon	303-973-8766
CT	Danbury, ITT Cannon	203-748-5801
CT	Enfield, ITT Cannon	203-749-7246
FL	Deerfield Beach, Brandel-Stephens & Co.	305-427-8558
FL	Orlando, Brandel-Stephens & Co.	305-425-3202
GA	Atlanta, Brandel-Stephens & Co.	404-261-7579
IL	Des Plaines, ITT Cannon	312-297-3150
IN	Fort Wayne, ITT Cannon	219-484-6447
IA	Swisher, ITT Cannon	319-369-9107
KS	Haysville, ITT Cannon	316-529-0127
MD	Baltimore, ITT Cannon	301-254-3707
MD	Baltimore, ITT Cannon	301-882-4760
MA	Wakefield, ITT Cannon	617-246-2510
MI	Sterling Heights, ITT Cannon	313-643-4620
MN	Minneapolis, ITT Cannon	612-854-1973
MO	Bridgeton, ITT Cannon	314-739-6040
NM	Albuquerque, ITT Cannon	505-293-0457
NY	Buffalo, L-Mar Assoc.	716-675-1277
NY	East Syracuse, L-Mar Assoc.	315-437-7779
NY	Henniker, ITT Cannon	603-428-3883
NY	Holbrook, ITT Cannon	215-646-2801
NY	Ithaca, L-Mar Assoc.	607-257-5712
NY	Poughkeepsie, ITT Cannon	914-473-3314
NY	Rochester, L-Mar Assoc.	716-323-1000
NC	Greensboro, Brandel-Stephens & Co.	919-274-6952
OH	Kettering, ITT Cannon	513-434-8181
OH	Uniontown, ITT Cannon	216-494-6749
PA	Blue Bell, ITT Cannon	215-646-2801
PA	Trevose, P.S.A., Inc.	215-245-0513
TX	Dallas, ITT Cannon	214-661-0302
TX	Houston, ITT Cannon	713-777-1177
WA	Bellevue, ITT Cannon	206-454-3903
WI	Waukesha, ITT Cannon	414-544-1018

Local Distributors

AZ	Tempe, Time Elctrns.	602-967-2000
CA	San Diego, Richey/Western	619-271-4511
CA	Sun Valley, Richey Elctrns.	213-875-2862
CA	Sunnyvale, Hall-Mark Elctrns.	408-773-9990
CA	Sunnyvale, Time Elctrns.	408-734-9888
CA	Torrance, Time Elctrns.	213-320-0880
CO	Denver, Arrow Elctrns.	303-758-4585
FL	Ft. Lauderdale, Time Elctrns.	305-974-4800
GA	Atlanta, Electro Air	404-351-3545
IL	Bensenville, Hall-Mark Elctrns.	312-860-3814
IN	South Bend, Genesis Elctrns.	219-287-2911
MA	Woburn, Time Elctrns.	617-935-8080
MO	St. Louis, Time Elctrns.	314-391-6444
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Hauppauge, Time Elctrn. Sls.	516-273-0100
NY	Plainview, A.S.I./Progress	516-433-1700
PA	Broomall, Time Elctrns.	215-359-1200
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	Warminster, Henwarr	215-675-4104
TX	Dallas, Hall-Mark	214-343-5000
TX	Stafford, Harrison Equip.	713-879-2600
WA	Bellevue, Almac Elctrns.	206-643-9992

ITT CANNON ELECTRIC, 666 East Dyer Rd., Santa Ana, CA 92702, Tel: 714-557-4700

ITT COMPS. ELECTROMECHANICAL GRP., 3201 So. Standard St., Santa Ana, CA 92705, Tel 714-751-3900, Telex: 681-389, TWX: 910-595-1744 FSC No.: 61725; Empl.: 35; *Sls. Mgr.:* J Biggs; *Dist Mgr.:* C. McElroy ....**1B**•1444- 1450, 148

Local Sales Offices & Reps

AL	Huntsville, Brandel-Stephens & Co.	205-883-044
AZ	Scottsdale, Semi-Systems	602-991-115
CA	Anaheim, Spectrum	714-630-697
CA	Mountain View, Caltron Comps.	415-964-324
CA	San Diego, C.K. Assocs.	619-279-042
CO	Denver, I W Strong & Assoc	303-292-690
CT	Guilford, Data Mark	203-453-057
FL	Deerfield Beach, Brandel-Stephens & Co.	305-427-855
FL	Orlando, Brandel-Stephens & Co.	305-425-320
GA	Atlanta, Brandel-Stephens & Co.	404-261-757
IL	Rolling Meadows, Sieger Assoc.	312-991-616
IN	Fort Wayne, M/S Sls.	219-484-190
KS	Leawood, Thunderbird Tech. Sls.	913-642-722
MD	Millersville, Trimark	301-987-910
MA	Southboro, KSA of New England	617-485-943
MI	Brighton, SAI Mktg.	313-227-178
MN	Minneapolis, SAI Mktg.	612-935-077
MO	Maryland Heights, Thunderbird Tech. Sls.	314-567-648
NM	Albuquerque, Syn Tech	505-266-795
NY	Manhasset, Wincor Elctrns.	516-627-947
NY	Rochester, D. L. Eiss Assoc.	716-328-300
NC	Greensboro, Brandel-Stephens & Co.	919-274-695
OH	Beachwood, Thompson & Assoc.	216-831-627
OH	Dayton, Thompson & Assoc.	513-435-773
OR	Portland, Jas. J. Backer Co.	503-297-847
PA	Prospect Park, Elf Sls.	215-534-334
TX	Austin, Norcom	512-451-275
TX	Dallas, Norcom	214-386-488
UT	Salt Lake City, I W Strong	810-942-699
VA	Lynchburg, Trimark	804-528-068
WA	Seattle, Jas. J. Backer Co.	206-285-130

Local Distributors

AL	Huntsville, RM Elctrns.	205-852-155
AZ	Phoenix, Kachina Elctrn. Distr.	602-269-620
AZ	Tempe, Richey Western Elctrns.	602-894-925
AZ	Tempe, TIME Elctrns.	602-967-200
CA	Anaheim, TIME Elctrns.	714-937-091
CA	Chatsworth, Integrated Elctrns.	213-998-220

A	Irvine, Integrated Elctrns.	714-660-1055
A	Los Angeles, Master Distrs.	213-452-1229
A	Los Angeles, Richey Western Elctrns.	213-820-3777
A	San Diego, Richey Western Elctrns.	619-271-4511
A	Santa Clara, Richey Western Elctrns.	408-727-7411
A	Santa Monica, Distr. Specialists	213-393-9666
A	Sun Valley, Q.C. Comps.	213-768-6111
A	Sunnyvale, TIME Elctrns.	408-734-9888
A	Torrance, TIME Elctrns.	213-320-0880
O	Denver, Integrated Elctrns.	303-292-6121
O	Englewood, TIME Elctrns.	303-850-7701
T	East Haven, J.V. Elctrns.	203-469-2321
T	New Haven, Greene Shaw Co.	203-397-0710
T	Norwalk, Pioneer Elctrns.	203-853-1515
T	Stamford, Bond Elctrns.	203-348-2663
L	Davie, ARCO Distrs.	305-772-4500
L	Fort Lauderdale, NRC	305-772-4500
L	Ft. Lauderdale, TIME Elctrns.	305-974-4800
A	Atlanta, Prehler Elctrns.	404-447-5540
	Chicago, NEP Elctrns.	312-625-8400
N	Indianapolis, RM Elctrns.	317-247-9701
	Cedar Rapids, DEECO	319-365-7551
D	Baltimore, Resco	301-823-0070
D	Beltsville, TREEKO Sales	301-792-0112
D	Beltsville, RESCO-Washington	301-937-9100
D	Columbia, TIME Elctrns.	301-964-3090
A	Lexington, Pioneer Elctrns.	617-861-9200
A	Newton, Greene-Shaw Co.	617-969-8900
A	Wilmington, R.C. Components	617-273-1860
A	Woburn, TIME Elctrns.	617-935-8080
I	Farmington Hills, Prehler Elctrns.	313-473-7200
I	Grand Rapids, RM Elctrns.	616-531-9300
I	Livonia, Reptron Elctrns.	313-525-2700
N	Eden Prairie, Cassidy Elctrns.	612-944-0100
N	Minneapolis, Industrial Comps.	612-831-2666
O	St. Louis, TIME Elctrns.	314-391-6444
V	Las Vegas, Kiesub Elctrns.	702-733-3888
J	Pine Brook, Pioneer Elctrns.	201-227-1262
J	Rahway, RSR	201-381-8777
J	Whippany, Tonar Inds.	201-884-1400
M	Albuquerque, Betatron Elctrns.	505-344-2381
M	Albuquerque, International Elctrns.	505-345-8127
Y	Fairport, Pioneer Elctrns.	716-381-7070
Y	Hauppauge, TIME Elctrns.	516-273-0100
Y	Hauppauge, JACO	516-273-5500
Y	Vestal, Pioneer Elctrns.	607-748-8211
Y	Woodbury, Pioneer Elctrns.	516-921-8700
H	Columbus, Reptron	614-436-6675
H	Middleburg Hts., Prehler Elctrns.	216-243-5510
R	Wilsonville, Zepher Elctrns.	503-582-2929
A	Broomall, TIME Elctrns.	215-359-1200
A	Essington, Tri-Com	215-521-3080
A	Horsham, RM Elctrns.	215-674-1181
X	Addison, Quality Comps.	214-387-4949
X	Austin, Quality Comps.	512-835-0220
X	Dallas, RM Elctrns.	214-263-8361
X	El Paso, International Elctrns.	915-598-3406
X	El Paso, ERA Elctrns.	915-592-4126
A	Bellevue, Integrated Elctrns.	206-455-2727
A	Seattle, Richey Western Elctrns.	206-575-1910
A	Seattle, Zepher Elctrns.	206-241-1980
I	New Berlin, RM Elctrns.	414-784-4420
I	New Berlin, NEP Elctrns.	414-785-9100

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Local Sales Offices & Reps

L	Huntsville, Brandel-Stephens & Co.	205-833-0445
Z	Scottsdale, Semi-Systems Arizona	602-991-1151
A	Anaheim, Spectrum Assocs.	714-630-6977
A	Mountain View, Caltron Comp. Corp.	415-964-3244
A	San Diego, C. K. Assocs.	619-279-0420
O	Denver, T. W. Strong & Assoc.	303-292-6900
T	Guilford, Data Mark	203-453-0575
L	Deerfield Beach, Brandel-Stephens & Co.	305-427-8558
A	Atlanta, Brandel-Stephens & Co.	404-261-7579
L	Rolling Meadows, Sieger Assoc.	312-991-6161
L	Waukegan, Sieger Assoc.	312-991-6161
N	Fort Wayne, M/S Sls. & Assoc.	219-483-4520
S	Leawood, Thunderbird Tech. Sls.	913-642-7220
D	Millerville, Tri-Mark	301-987-9103
A	Southboro, KSA of New England	617-485-9432
I	Brighton, SAI Mktg.	313-227-1786
N	Minneapolis, SAT Mktg.	612-935-0777
O	Maryland Hts., Thunderbird Tech. Sls.	314-567-6488
M	Albuquerque, Syntech	505-266-7951
Y	Manhasset, Win-Cor Elctrn. Sls.	516-627-9474
Y	Rochester, D. L. Eiss Assoc.	716-328-3000
Y	Syracuse, D. L. Eiss Assoc.	315-457-0492
NC	Greensboro, Brandel-Stephens & Co.	919-274-6952
OH	Beachwood, Thompson Assoc.	216-831-6277
OH	Dayton, Thompson Assoc.	513-435-7733
OR	Portland, Jas J. Backer Co.	503-297-3777
OR	Salem, Jas J. Backer Co.	503-362-0717
PA	Prospect Park, Elf Sls.	215-534-3340
TX	Austin, Norcom	512-451-2757
TX	Dallas, Norcom	214-386-4888
UT	Salt Lake City, I. W. Strong	810-942-6998
VA	Lynchburg, Tri-Mark	804-528-0681
VA	Lynchburg, Tri-Mark	804-528-0681
WA	Seattle, Jas J. Backer Co.	206-285-1300

Local Distributors

AL	Huntsville, RM Elctrns.	205-852-1550
AZ	Phoenix, Kachina Elctrn. Distrs.	602-269-6201
AZ	Tempe, Richey Western Elctrns.	602-894-9251
AZ	Tempe, Time Elctrns.	602-967-2000
CA	Anaheim, Time Elctrns.	714-937-0911
CA	Chatsworth, Shelley Elctrns.	213-998-3333
CA	Chatsworth, Shelley Elctrns.	619-453-7133
CA	Chatsworth, Integrated Elctrns.	213-998-2200
CA	Irvine, Integrated Elctrns.	714-660-1055
CA	Los Angeles, Richey Western Elctrns.	213-820-3777
CA	San Diego, Richey Western Elctrns.	619-271-4511
CA	San Diego, Shelly Elctrns.	619-453-7133
CA	San Jose, Shelley Elctrns.	408-942-9111
CA	San Jose, Integrated	408-263-1100
CA	Santa Ana, Nesco	714-541-6181
CA	Santa Clara, Richey Western Elctrns.	408-727-7411
CA	Sun Valley, G. C. Comps.	213-768-6111
CA	Sunnyvale, Time Elctrns.	408-734-9888
CA	Sunnyvale, Capsco Sls.	408-734-3020
CA	Torrance, Time Elctrns.	213-320-0880
CA	Van Nuys, Nesco	213-781-0505
CO	Denver, Integrated Elctrns.	303-292-6121
CO	Englewood, Time Elctrns.	303-850-7701
CT	East Haven, J.V. Elctrns.	203-469-2321
CT	New Haven, Greene Shaw Co.	203-397-0710
CT	Norwalk, Pioneer Elctrns.	203-853-1515
CT	Stamford, Bond Elctrns.	203-348-2663
FL	Dania, Arco Distrs.	305-462-3370
FL	Fort Lauderdale, Time Elctrns.	305-974-4800
FL	Fort Lauderdale, NRC	305-772-4500
GA	Atlanta, Prehler Elctrns.	404-447-5540
IL	Chicago, NEP Elctrns.	312-625-8400
IL	Elmhurst, Semiconductor Specialists	312-279-1000
IN	Indianapolis, RM Elctrns.	317-247-9701
IA	Cedar Rapids, DEECO	319-365-7551
MD	Baltimore, Resco-Baltimore	301-823-0700
MD	Beltsville, Treeko Sls.	301-792-0112
MD	Beltsville, Resco, Washington	301-937-9100
MD	Columbia, Time Elctrns.	301-964-3090
MA	Burlington, TLC	617-273-0140
MA	Lexington, Pioneer Elctrns.	617-861-9200
MA	Needham, Impact Elctrns.	617-444-3977
MA	Newton, Greene-Shaw Co.	617-969-8900
MA	Wilmington, R.C. Comps.	617-273-1860
MA	Woburn, Time Elctrns.	617-935-8080
MI	Farmington Hills, Prehler elctrns.	313-473-7200
MI	Grand Rapids, RM Elctrns.	616-531-9300
MI	Livonia, Reptron Elctrns.	313-525-2700
MN	Eden Prairie, Cassidy Elctrns.	612-944-0100
MN	Edina, Cassidy Elctrns.	612-835-7747
MN	Minneapolis, Industrial Comps.	612-831-2666
MO	St. Louis, Olive Elctrns.	314-426-4500
MO	St. Louis, Time Elctrns.	314-391-6444
NV	Las Vegas, Klesub Elctrns.	702-733-3888
NJ	Pinebrook, Pioneer Elctrns.	201-227-1262
NJ	Rahway, RSR Elctrns.	201-381-8777
NJ	Whippany, TONAR Inds.	201-884-1400
NM	Albuquerque, Betatron Elctrns.	505-344-2381
NM	Albuquerque, Intl. Elctrns.	505-345-8127
NY	Central Islip, Semicap Elctrns.	516-582-4400
NY	Fairport, Pioneer Elctrns.	716-381-7070
NY	Hauppauge, Time Elctrns.	
NY	Hauppauge, Jaco	516-273-5500
NY	Vestal, Pioneer Elctrns.	607-748-8211
NY	Woodbury, Pioneer Elctrns.	516-921-8700
OH	Columbus, Reptron	614-436-6675
OH	Middleburg Hieghts, Prehler Elctrns.	216-243-5510
OK	Tulsa, The Altair Co.	918-252-5781
OR	Wilsonville, Zepher Elctrns.	503-582-2929
PA	Broomall, Time Elctrns.	215-359-1200
PA	Essington, Tri-Com	215-521-3080
PA	Horsham, RM Elctrns.	215-674-1181
TX	Addison, Quality Comps.	214-387-4949
TX	Austin, Quality Comps.	512-835-0220
TX	Dallas, RM Elctrns.	214-263-8361
TX	Dallas, Captronics	214-340-3592
TX	El Paso, International Elctrns.	915-598-3406
TX	El Paso, ERA Elctrns.	915-592-4126
TX	Ft. Worth, TTI, Inc.	817-831-0441
TX	Houston, The Altair Co.	713-462-3029
TX	Richardson, The Altair Co.	214-231-5166
WA	Bellevue, Integrated	206-455-2727
WA	Seattle, Richey Western Elctrns.	206-575-1910
WA	Seattle, Zepher Elctrns.	206-241-1980
WI	Maguon, Taylor Elec. Co.	414-241-4321
WI	New Berlin, NEP Elctrns.	414-785-9100
WI	New Berlin, RM Elctrns.	414-784-4420

ITT ELECTRON TUBE, Box 100, Easton, PA 18042, Tel: 215-252-7331, Telex: 847494; FSC No.: 20948; Empl.: 550

ITT ELECTRO-OPTICAL PRODS., 7635 Plantation Rd., Roanoke, VA 24019, Tel: 703-563-0371, Telex: 829458; Empl.: 850; *Sls. Mgr.:* R. Moore; *Dist. Mgr.:* P. Williams

ITT GENERAL CONTROLS DIV., Intl. Telephone & Telegraph Corp., 801 Allen Ave., Glendale, CA 91201, Tel: 213-842-6131, Telex: 673147, TWX: 910-498-2225; Empl.: 1545; *Sls. Mgr.:* Phillip Vaughn

Local Distributors

AL	Birmingham, Control Specialists	205-991-7274
AZ	Phoenix, Wisco Equip. Co.	602-243-4361
CO	Englewood, Davis & Davis	303-935-4694
CT	Portland, Flocon, Inc.	203-342-4840
FL	Orlando, Diller-Brown Assocs.	305-851-7830
GA	Atlanta, Automatic Controls Co.	404-266-0130
HI	Honolulu, ARVAK Inc., Machinery Prods. Div.	808-845-9386
MN	Minneapolis, Tech Sls. Co.	612-823-8238
MO	Kansas City, Economy Power & Instr.	816-523-1010
MO	St. Louis, C. M. Tilley Co.	314-878-3353
NE	Omaha, Newton Valve Svc. Div.	402-339-2443
NY	Buffalo, KOM-Lamb	716-874-3530
NC	Charlotte, Genl. Control Equip. Co.	704-588-0484
OH	Cincinnati, M. L. Johnson Co.	513-874-8445
TN	Kingsport, Tenn. Instrmn. Co.	615-247-1148
TX	Corpus Christi, ITT Snyder co.	512-884-3822
TX	Odessa, ITT Snyder Co.	915-332-9408
UT	Salt Lake City, Peterson Co.	801-972-3328
WA	Kirkland, Unit Process Co.	206-827-0433

ITT GILFILLAN, 7821 Orion Ave., Van Nuys, CA 91409, Tel: 818-988-2600, Telex: 651421, TWX: 910-495-1787; FSC No.: 24930; Empl.: 1600; *Sls. Mgr.:* Ted Sprink

ITT-HIGBIE MFG., Wagner Rd., Rochester, MI 48063, Tel: 313-651-5300, TWX: 810-232-1592; Empl.: 1500; *Sls. Mgr.:* C. J. Clemens

ITT JENNINGS, Div. ITT Corp., 970 McLaughlin Ave., San Jose, CA 95122, Tel: 408-292-4025, Telex: 34-6311, TWX: 910-338-0159; FSC No.: 73905; Empl.: 370; *Sls. Mgr.:* E. V. Valehrach .... **1A**•1090-1092; **1B**•1452-1454, 1651; **3**•1247

Local Sales Offices & Reps

AL	Huntsville, Brandel-Stephens	205-883-0445
AZ	Phoenix, Crown Systems	602-274-3180
CA	Granada Hills, C & W Comps.	213-368-4032
CA	Santa Clara, Silicon Valley Sls.	408-371-8814
CO	Denver, Lindberg Co.	303-758-9033
FL	Deerfield Beach, Brandel-Stephens	305-427-8558
FL	Orlando, Brandel-Stephens	305-425-3202
GA	Atlanta, Brandel-Stephens	404-261-7579
IL	Chicago, Berndt Assocs.	312-283-0713
IN	Carmel, Berndt Assocs.	317-844-0114
KS	Shawnee Mission, Lowell-Kangas & Assoc.	913-631-3515
MD	Silver Spring, Marktron	301-460-6100
MD	Timonium, Marktron	301-252-7111
MA	Haverhill, L. K. Harman, Inc.	617-373-1313
MN	Minneapolis, Berndt Assocs.	612-546-2021
MO	St. Louis, Lowell-Kangas & Assoc.	314-821-4050
NJ	Englewood, Cooper Assocs.	201-871-4985
NM	Albuquerque, Lindberg Co.	505-881-1006
NC	Greensboro, Brandel-Stephens	919-274-6952
OH	Westlake, Harry W. Applegate Co.	216-331-2960
PA	Huntingdon Valley, Omega Elctrns.	215-947-4135
PA	Pittsburgh, Covert & Newman & Co.	412-531-2022
TX	Houston, Barry Sales	713-784-5860
TX	Richardson, Barry Sales	214-234-0255
UT	Salt Lake City, Lindberg Co.	801-969-2400
VA	Charlottesville, Marktron	804-973-5874
WI	Milwaukee, Berndt Assocs.	414-545-8400

ITT POMONA ELECTRONICS, 1500 E. 9th St., P.O. Box 2767, Pomona, CA 91766, Tel: 714-623-3463, TWX: 910-581-3822; FSC No.: 05276; Empl.: 150; *Sls. Mgr.:* Carl Wm. Musarra; *Dist. Mgr.:* Carl Wm. Musarra .... **2**•1355- 1470

Local Sales Offices & Reps

AL	Madison, South Eastern Assocs.	205-772-9616
AZ	Phoenix, More Sls.	602-274-4558; 602-265-9201

CA	Burlingame, Carelli/EMA	415-342-4514
CA	Culver City, DeAngelo, Rothman & Co.	213-827-2202
CA	Pasadena, Paul Nurches Co.	818-681-8957; 818-796-5844
CA	Santa Clara, Engrg. Assocs. Corp.	408-988-5001
CO	Denver, A-E-S Inc.	303-777-8733
FL	Hialeah, L. Haas Co.	305-822-2300
IL	Northbrook, W. M. Linz	312-498-9600
IN	Indianapolis, Blind Elctrn. Sls. Co.	317-291-0860; 317-293-6205
IA	West Des Moines, Nevco	515-225-9866
MA	Sharon, A Appell Assoc.	617-784-3439
MI	Kentwood, C. Geer	616-534-9449; 616-243-2746
MN	Minneapolis, Hei-lite Sls.	612-861-6051
MO	Kansas City, Nevco	816-421-1751
MO	St. Louis, Nevco	314-843-7406
NJ	Belleville, D. F. Tobias & Co.	201-751-8680
OH	Dayton, Lessis Assocs.	513-294-1551
OH	Mentor, P. Lohse	216-255-1992
OR	Beaverton, Eclipse Mktg. Grp.	503-642-1661
OR	Portland, Eclipse Mktg. Grp.	503-644-2550
PA	Philadelphia, David S. Linz	215-379-0734
SC	Greenville, H. C. Norman	803-244-6254
TX	Dallas, Techno Assocs.	214-357-9212
WA	Redmond, Eclipse Mktg. Grp.	206-885-6991

ITT POWERSYSTEMS DIV., Box 688, Galion, OH 44833, Tel: 419-468-8100, Telex: 24-1401, TWX: 810-248-2907; Empl.: 800; *Dist. Mgr.:* W. E. Fox

ITT Schadow inc

ITT SCHADOW, 8081 Wallace Rd., Eden Prairie, MN 55344, Tel: 612-934-4400, Telex: 29-0556, TWX: 910-576-2469; Empl.: 175; *Sls. Mgr.:* Darrell Wilk; *Dist. Mgr.:* Darrell Wilk .... **1B**•1652-1654

Local Sales Offices & Reps

AL	Huntsville, Brandel-Stephens	205-883-0445
CA	Los Angeles, Ed Landa	213-879-0770
CA	Mountain View, Caltron Comps.	415-964-3244
CA	San Diego, Ed Landa	619-729-7267
CO	Boulder, Component Prod. Sls.	303-442-1100
CT	Farmington, R. Perron & Co.	203-673-4825
CT	Trumbull, R. Perron & Co.	203-268-9631
FL	Deerfield Beach, Brandel-Stephens	305-427-8558
FL	Orlando, Brandel-Stephens	305-425-3202
GA	Atlanta, Brandel-Stephens	404-261-7579
IL	Chicago, IRI	312-647-7755
KS	Wichita, PMR	316-684-4141
MA	Newton, R. Perron & Co.	617-969-8100
MI	Lathrup Village, R. C. Nordstrom Co.	313-559-7373
MN	Edina, Monroe Hanna	612-925-5700
MO	Maryland Heights, PMR	314-569-1220
NH	Bedford, Ray Perron & Co.	603-472-3030
NH	Dover, Ray Perron & Co.	603-742-2321
NM	Albuquerque, Thorson Desert States	505-265-5655
NY	Rochester, Ossmann Comps.	716-424-4460
NY	Syracuse, Ossmann Comps.	315-455-6611
NC	Greensboro, Brandel-Stephens	919-274-6952
OH	Columbus, K. W. Elctrns.	614-888-0483
OH	Dayton, K. W. Elctrns.	513-890-2150
PA	Philadelphia, P.S.A., Inc.	215-245-0513
RI	Mt. Penn, P.S.A., Inc.	215-245-0513
TX	Arlington, W. Pat Fralia Co.	817-640-9101
TX	Houston, W. Pat Fralia Co.	713-772-1572
UT	Salt Lake City, Comp. Prods.	801-262-0000
WA	Seattle, Jas. J. Backer Co.	206-285-1300

Local Distributors

AL	Huntsville, Hallmark	205-837-8700
CA	Los Angeles, Richey Western	213-820-3777
CA	Mountain View, Time Elctrns. Nor/Cal	415-961-1170
CO	Denver, Integrated Elctrns.	303-534-6121
FL	Miami, Hallmark	305-971-9280
FL	Orlando, Hallmark	305-855-4020
IL	Chicago, Hallmark	312-437-8800
KS	Kansas City, Hallmark	913-888-4747
KS	Wichita, Radio Supp.	316-267-5216
MD	Baltimore, Hallmark	301-796-9300
MD	Beltsville, Treeko Sls.	301-937-8260
MA	Boston, Sager Elec.	617-749-6700
MA	Waltham, Impact Sls. Co.	617-964-7740
MI	Kentwood, R.M. Elctrns.	616-531-9300
MN	Bloomington, Hallmark	612-884-9056
MN	Minneapolis, Berquist Co.	612-835-2322
MO	St. Louis, Hallmark	314-291-5350
NY	Lynbrook, Peerless Radio	516-593-2121
NC	Raleigh, Hallmark	919-832-4465
OH	Cincinnati, Schuster Elec.	513-984-1600
OH	Columbus, Hallmark	614-846-1882
OH	Medina, Schuster Elec.	216-722-5531
OK	Tulsa, Hallmark	918-835-8458
PA	Philadelphia, Phila. Elctrns.	215-568-7400
PA	Philadelphia, Hallmark	215-355-7300
TX	Austin, Hallmark	512-837-2814
TX	Dallas, Hall-Mark	214-234-7300
TX	Houston, Hall-Mark	713-781-6100
TX	Stafford, SW Elctrns.	713-494-6021
WA	Seattle, Zepher Elctrn. Sls.	206-575-0922
WI	Milwaukee, Hallmark	414-476-1270

ITT SEMICONDUCTORS, 500 Broadway, Lawrence, MA 01841, Tel: 617-688-1881, Telex: 947413, TWX: 710-342-1357; *Sls. Mgr.:* Ed Burgess; *Dist. Mgr.:* John Flannery

ITT SEMICONDUCTORS, Intl. Telephone & Telegraph, 470 Broadway, Lawrence, MA 01841, Tel: 617-688-1881, Telex: 947413, TWX: 710-342-1357; Empl.: 1600; *Sls. Mgr.:* Del Brand; *Dist. Mgr.:* Del Brand

ITT SURPRENANT DIVISION, 172 Sterling St., Clinton, MA 01510, Tel: 617-365-6331

ITT TELECOMMUNICATIONS, Apparatus Dept., Fulton Dr., Corinth, MS 38834, Tel: 601-287-3771, TWX: 510-984-0211; Empl.: 2000; *Sls. Mgr.:* Charles Yancey

ITT THERMOTECH, Div. IT & T, 1203 S. 5th St., Hopkins, MN 55343, Tel: 612-933-9400, Telex: 29-0414; Empl.: 605

Local Sales Offices & Reps

AZ	Phoenix, Toward Engrg. Assoc.	602-955-3193
AR	Little Rock, Schmidt & Assocs.	501-225-5613
CA	Glendale, Secana	818-240-7570
CA	Oakland, Richard B. Peters Co. (Brush Holder Prods.)	415-835-5135
CO	Denver, Manufacturers Mktg.	303-425-9569
CT	Newington, Interep (Brush Holder Prods.)	203-666-4233
FL	Orlando, Don Wegner (Brush Holder Prods.)	305-894-6206
FL	St. Petersburg, Florida Div.	813-347-2191
IL	Arlington Hgts., Diethert-Angel	312-593-7600
IL	Bannockburn, Heth (Brush Holder Prods.)	312-295-8440
IL	Buffalo Grove, B. Reynolds	312-775-2425
IN	Ft. Wayne, R. McCampbell	219-672-3012
IN	Indianapolis, R & D Sls.	317-842-4768
IA	Cedar Rapids, Seltec Sls.	319-393-1114
IA	Des Moines, I. L. Davidson Co. (Brush Holder Prods.)	515-265-0288
MA	Newton Upper Falls, Anchor Engrg.	617-964-6205
MI	Farmington, L. George	313-474-1505
MN	Minneapolis, W. J. Houlihan	612-544-3023
MO	Maryland Heights, Leander & Co.	314-569-3338
NJ	Union, Plastech	201-687-4810
NY	Penfield, Upstate Comp. Sls.	716-381-6070
OH	Cleveland, W. J. Williams	216-831-6220
PA	Erie, F. W. "Fritz" Schubert (Brush Holder Prods.)	814-899-3740
PA	Wayne, Midlantic Plastic Sls.	215-964-0510
SC	Fort Mill, Eagle Sls.	803-548-2222
TN	Memphis, D. Barry Temple (Brush Holder Prods.)	901-386-3651
TX	Houston, Texstar Sls., Inc.	713-367-0465
VA	Salem, George Headford (Brush Holder Prods.)	703-989-8127
WI	Milwaukee, Indl. Sls. Tech.	414-462-5024

ITW, Cortron Div., 400 W. Grand, Elmhurst, IL 60126, Tel: 312-279-9110

ITW SWITCHES, Tool Works Co., 6615 W. Irving Park Rd., Chicago, IL 60634, Tel: 312-282-4040, Telex: 4330130, TWX: 910-221-0275; *Sls. Mgr.:* A. Steiner; *Dist. Mgr.:* A. Steiner .... **1B**•1656-1667

Local Sales Offices & Reps

AL	Huntsville, Electro Mech	205-533-2100
AZ	Tempe, Spectrum Assoc. Southwest	602-966-1788
AR	Fort Smith, Electra Reps	501-452-4030
CA	Anaheim, Spectrum Assoc.	714-630-6977
CA	San Jose, McKnight	408-942-0880
CO	Denver, High Plains Mktg.	303-751-7150
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Altamonte Springs, Semtronics	305-831-8233
GA	Atlanta, Electro Mech.	404-447-6478
IL	Elk Grove Village, Parcom	312-228-6360
IA	Cedar Rapids, Comstrand	319-377-1575
KS	Kansas City, BC Elctrns.	913-342-1211
MD	Baltimore, MicroComp	301-247-0400
MA	Burlington, Kitchen & Kutchin	617-229-2660
MI	Grand Rapids, Urban & Assoc.	616-245-0511
MN	Minneapolis, Comstrand	612-788-9234
MO	Bridgeton, BC Elctrns.	314-291-1101
NJ	Livingston, Varrelman Gorman	201-992-2505
NY	Syracuse, Fountain, Young & Co.	315-437-7733
NC	Raleigh, Electro Mech	919-851-8165
OH	Dayton, Rockford Controls	513-898-5452
OH	Euclid, Rockford Controls	216-731-5250
OR	Beaverton, Barrett Squibb & Assoc.	503-642-1661
PA	Ardmore, Precision Mktg.	215-649-6301
TN	Nashville, Electro Mech	615-885-0073
TX	Dallas, Electra Reps.	214-387-3594
TX	Houston, Electra Reps.	713-530-2208
WA	Redmond, Barrett Squibb & Assoc.	206-885-6991

IVEK CORP., 43 School St., N. Springfield, VT 05150, Tel: 802-886-8278; Empl.: 4; *Sls. Mgr.:* Gene Williams

IVERON PACIFIC, 1152 Morena Blvd., San Diego, CA 92110-3899, Tel: 619-275-1500; Empl.: 16; *Sls. Mgr.:* Lee Kerl

IVO INDS., INC., P.O. Box 603, 201 Industrial Way W., Eatontown, NJ 07724, Tel: 201-542-5151, Telex: 132-414; Empl.: 20; *Sls. Mgr.:* Nat Garratano

IWATSU®

IWATSU INSTRUMENTS, INC., 430 Commerce Blvd., Carlstadt, NJ 07072, Tel: 201-935-5220, TWX: 710-989-0255 .... **3**•1366-1368

Local Sales Offices & Reps

CA	Garden Grove, Advanced Digital Grp.	213-598-9645
CA	Sunnyvale, Koosen Tech. Sls. Corp.	408-249-5858
CT	Old Saybrook, MJT Assocs.	203-388-589
FL	Sarasota, Ram-Z Assocs.	813-921-5561
IL	Rolling Meadows, Commodore 1	312-394-5441
MN	Minneapolis, Kodo Assocs.	612-881-1255
MO	St. Louis, Engrg. Svcs. Co.	314-997-1515
NH	Nashua, MJT Assocs.	603-889-5373
NJ	Parsippancy, HLM Assocs.	201-263-1536
NJ	Pennsauken, Sci-Rep Corp.	609-662-5222
NY	Northport, HLM Assocs.	516-757-160
NY	Rochester, Harmony Labs.	716-458-337
OH	North Ridgeville, TMS	216-327-352
OK	Tulsa, Spectra Sls. Corp.	918-663-718
TX	Houston, Spectra Sls. Corp.	713-747-279
VA	Fairfax, Sci-Rep Corp.	703-385-060

Local Distributors

CA	Canoga Park, Rag Elctrns.	213-998-650
CA	Freemont, Rep Inc.	415-651-413
CA	Van Nuys, Testek Corp.	213-786-689
CO	Boulder, Instr. Repair Labs	303-449-272
CT	Monroe, Connecticut Calibration	203-261-951
FL	South Daytona, Kapital Instr. Sls.	904-257-433
IL	Downers Grove, Ames Supply Co.	800-942-159
MA	Billerica, Hayes Instr. Svc.	617-663-480
MO	St. Louis, Indl. Svc. Lab. Corp.	314-535-576
NJ	North Caldwell, Hosica	201-256-772
NJ	Ocean, Rag Elctrns.	201-544-066
NJ	Wyckoff, Ames Supply Co.	201-891-956
NY	Frankfort, Kapital Instr. Sls.	315-894-424
NY	Great Neck, Instrument Mart	516-487-743
NC	Pineville, Elctrn. Measuring Instr. Svc.	704-588-462
OK	Oklahoma City, Houston De Pue Labs.	404-235-546
TX	Austin, Tinkertronics	512-926-442
TX	Dallas, Hutton Co.	214-484-058
VA	Fairfax, Scientific Trading	703-385-060
WA	Seattle, Vanguard Elctrn. Tool	206-284-618
WI	Madison, Schrenk Sls.	603-255-740

IXYS CORP., 3685 Enochs, Santa Clara, CA 9505 Tel: 408-733-4045; *Sls. Mgr.:* Samuel Kory Jr. .... **1A**•1663; **1B**•1231; **3**•160

JACO MFG. CO., 468 Geiger St., Berea, OH 4401 Tel: 216-234-4000

JAIDINGER MFG., 1921 W. Hubbard St., Chicago, 60622, Tel: 312-421-1090; Empl.: 35; *Sls. Mgr.:* Joh S. Jaidinger

JAMB INDS., Box 281, Rockaway Valley Rd Boonton, NJ 07005, Tel: 201-263-9295; Empl.: 3

JAMESBURY, 640 Lincoln St., Worcester, MA 0160 Tel: 617-852-0200, Telex: 92-0448, TWX: 710-24 1268; Empl.: 1000; *Sls. Mgr.:* C. A. Richardson

JAMES ELECTRONICS, 4050 N. Rockwell, Chicago, IL 60618, Tel: 312-463-6500, TWX: 910-221-5034; *Sls. Mgr.:* J. R. Ther; *Dist. Mgr.:* J. R. Ther

JANCO
AN ESOP CORP.

JANCO CORP., Box 3038-Glenoaks Sta., Burbank, CA 91504, Tel: 818-846-1800, TWX: 910-498-2701; FSC No.: 91812; Empl.: 205; *Sls. Mgr.:* Sam Kay, Jr. .... **1B**•1668, 1669

Local Sales Offices & Reps

AZ	Tempe, Piper Sls.	602-949-0048
AR	Dallas, M. Kruvand	214-691-4592
CA	Cupertino, Codella	408-257-2561
CA	San Diego, Qualtronics	619-560-8955
CO	Longmont, Piper Sls.	303-651-2378
FL	Orlando, MacKay, Smith & Assocs.	305-277-1513
GA	Atlanta, MacKay, Smith & Assocs.	404-449-7444
L	Addison, Engineered Sls.	312-832-8425
N	Ft. Wayne, Aktron Corp.	219-747-3650
KS	Wichita, T-Bird Tech. Sls. & Svc.	316-684-3941
MD	Silver Spring, H.R. Sieber	301-589-9110
MA	Newton, Cornwall, Caron, Fahey	617-332-2042
MN	Minneapolis, Electro-Serv	612-338-3475
MO	Maryland Heights, T-Bird Sls. & Svc.	314-567-6488
NJ	Cherry Hill, Quality Comps.	609-428-6266
NY	Albertson, C.F. Ward	516-742-5561
NC	Charlotte, MacKay, Smith & Assocs.	704-372-1188
OH	Columbus, Tom Mulligan Company	614-457-2242
TX	Dallas, Mark Kruvand	214-691-4592
WA	Seattle, Norwest	206-827-9562

Local Distributors

CA	Burbank, Merit Comp. Supp.	818-842-8162
CA	Westlake Village, Tech-Cable Prods.	818-991-4697

J & S TOOL, 70 Okner Pkwy., Livingston, NJ 07039, Tel: 201-533-0700, Telex: 139229; Empl.: 50; *Sls. Mgr.:* K.F. Swenson

JAN HARDWARE MFG. CO., 47-27 36th St., Long Island City, NY 11101, Tel: 212-361-0800; FSC No.: 99813; Empl.: 60; *Sls. Mgr.:* Irwin E. Wasserman .... **2**•1756, 1762-1779

Local Sales Offices & Reps

AZ	Phoenix, Steve Fisher Assocs.	602-247-7865
CA	Menlo Park, Long Assocs.	415-327-1300
CA	San Diego, Robert Scott Co.	619-420-6446
CA	Thousand Oaks, S.A.R.G.E.	213-991-6706
FL	Seminole, Custom Assembly	813-397-8302
L	Schaumburg, Croydon Elect.	312-980-6766
MD	Woodbine, Naudain Assocs. Southern	301-442-2270
MA	Brookline, Harman Assocs.	617-232-6687
MA	Lee, Harman Assocs. Inc.	413-243-1158
MN	Golden Valley, A.I.M.	612-542-8437
MO	Crestwood, Nevco	314-843-7406
MO	Kansas City, Nevco	816-421-1751
NJ	Englewood, H. Gray Assoc.	201-894-0894
NJ	Marlton, Naudain Assocs.	609-983-5808
OH	Dayton, F. L. Ohmer & Assocs.	513-434-1454
TX	Richardson, AGM Sls.	214-644-1475

JAPANESE PRODS. CORP., 31368 Via Colinas, Suite 103-104, West Lake Village, CA 91362, Tel: 818-991-6111, Telex: 13-1581; Empl.: 8; *Sls. Mgr.:* Don Cassalia .... **1B**•1158

Local Sales Offices & Reps

AZ	Fountain Hills, Halbar Assocs.	602-837-2464
CA	Glendale, Halbar Assocs.	213-246-8263
CA	San Mateo, Halbar Assocs.	415-349-4700
CO	Englewood, Integrated Motion Sys. Inc.	303-762-1817
FL	Casselberry, Hilco, Inc.	305-695-6208
GA	Dunwoody, Hilco, Inc.	404-393-1771
L	Rolling Meadows, Sumer Inc.	312-991-8500
MD	Columbia, Versatrol	301-730-5577
MA	Salem, Forbes Engrg	617-744-1693
MI	Brighton, A.P. Assoc.	313-229-6550
MN	Minnetonka, Gibb Electric Sls.	612-935-4600
NY	Syosset, Motion Control Sls	516-921-5656
NC	Charlotte, Hilco, Inc.	704-568-3938
PA	Exton, Kiley Elec.	215-363-8550
PA	Pittsburgh, Exonic Sys.	412-784-8400
SC	Mt. Pleasant, Hilco, Inc.	803-883-9633
TX	Dallas, Automated Motion Control	214-340-4192
WA	Redmond, Halbar Assocs.	206-882-0990
WA	Vancouver, Halbar Assocs.	206-696-0170
WI	Brookfield, Sumer, Inc.	414-784-6641

Local Distributors

CA	Mountain View, Abacus Elctrns.	415-961-1500
CA	Santa Monica, Trojan Inds.	213-829-1735
NY	New York, B&B Motor & Control	212-966-5777
TX	Fort Worth, Allied Elctrns.	817-336-5401

JARO COMPONENTS, INC., 5549 Powerline Rd., Ft. Lauderdale, FL 33309-2883, Tel: 305-771-7000, Telex: 522-334; Empl.: 30; *Sls. Mgr.:* Robert C. Flipse; *Dist. Mgr.:* Floyd Burwell

JAY CONTROL CO., 21 Sequin Dr., Glastonbury, CT 06033, Tel: 203-633-5294; Empl.: 40; *Sls. Mgr.:* Mike Colomonico

JAYCOR, P.O. Box 85154, San Diego, CA 92138, Tel: 619-453-6580, TWX: 910-322-1064; Empl.: 300; *Sls. Mgr.:* Steven Lutjens

JAY-EL PRODS., Sub. Ducommun Inc., 1859 W. 169th St., Gardena, CA 90247, Tel: 213-321-3260, TWX: 910-346-7633; FSC No.: 08719; Empl.: 270

JB ELCTRN. TRANSFORMERS, 2300 W. Armitage Ave., Chicago, IL 60647, Tel: 312-342-0080, TWX: 910-221-1283; FSC No.: 11700; Empl.: 150; *Sls. Mgr.:* F. J. Bussa

JBM ELECTRONICS, INC., 531 Front St., Manchester, NH 03102, Tel: 603-623-0222, Telex: 953134, TWX: 710-220-8978; *Sls. Mgr.:* David Crowley .... **1A**•1529-1536

J-B-T INSTRS., Box 1818, New Haven, CT 06508, Tel: 203-776-1111; Empl.: 25; *Sls. Mgr.:* Virginia Devitt .... **3**•1332

Local Sales Offices & Reps

MN	Minneapolis, Hei-Lite Sls.	612-861-6051
TX	Dallas, Forner Sls.	214-241-2166

Local Distributors

AL	Montgomery, Southern Controls	800-633-8796
CA	Glendale, Western Elctrns.	213-246-4861
CA	Los Angeles, Metermaster	213-685-4340
CA	San Francisco, Pacific Elctrns.	415-543-3104
CA	Wilmington, Wilmington Instrs.	213-834-1133
CO	Denver, E.I.L. Instrs.	303-534-4160
CT	New Haven, Hatry Elctrns.	203-787-5921
FL	Miami, Florida Precision	305-324-1731
GA	Augusta, Speciality Distributing	404-873-2521
IL	Bridgeview, E.I.L. Instrs.	312-430-2292
IL	Elk Grove Village, Metermaster	312-593-8650
LA	Lafayette, Ralph's Elctrns.	318-234-4507
MD	Sparks, E.I.L. Instrs.	301-771-4800
MA	Hingham, Sager Elec.	617-749-6700
MN	Minneapolis, Instrument Controls	612-871-2514
MS	Jackson, Ellington Elctrn. Supp.	601-355-0561
NJ	Belleville, Miscorp	201-751-8680
NJ	North Caldwell, Hosica Labs	201-256-7724
NY	Long Island City, Metermod	212-726-4850
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Maspeth, Harry Alter	212-366-0123
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
OH	Bluffton, Bluffton Prods.	419-358-7891
OH	Cleveland, Weschler Elec.	216-238-2550
OK	Oklahoma City, Trice Wholesale	405-524-4411
PA	Reading, Barbey Elctrns.	215-376-7451
RI	Providence, William Dandreta	401-861-2800
TN	Nashville, Electra Distributing	615-329-3971
TX	Ft. Worth, Swieco	817-335-6521
TX	Garland, Metermaster	214-271-5671
TX	Houston, Harrison Equip.	713-879-2600
TX	Houston, Quality Instrs.	713-524-0528
WA	Seattle, Eicher-Richards	206-523-7888
WV	St. Albans, Preiser Scientific	304-727-2902

J-B-T SWITCHES, CUTLER-HAMMER PRODS., EATON CORP., Box 1904, New Haven, CT 06509, Tel: 203-772-2220; FSC No.: 55459; Empl.: 160; *Sls. Mgr.:* C. A. Peffer

Refer to Eaton Corp./Cutler-Hammer Prods., Aerospace/Commercial Controls Div. for distributor information.

JDK CONTROLS, INC., 2630 Lavery Ct., Suite F, Newbury Park, CA 91320-1593, Tel: 805-499-7779; *Sls. Mgr.:* Reece Kendall .... **1A**•2040

JEFFERS ELCTRNS., Grand Plaza, 945 Grand Ave., Nogales, AZ 85621, Tel: 602-287-5851, TWX: 910-973-9794; FSC No.: 59474; Empl.: 400; *Sls. Mgr.:* Ken Shobert; *Dist. Mgr.:* Steve Morris

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, O'Donnell Assoc.	602-944-9542
CA	Santa Clara, I Squared	408-988-3400
CO	Boulder, R.G. Entprs.	303-447-9211
CT	Middletown, Gerber Sls.	203-347-3000
FL	Tampa, APM Assoc.	813-886-2457
GA	Atlanta, Cartwright & Bean	404-233-2939
IL	Arlington Hgts., C.L. Greenslade Sls.	312-253-9620
IN	Ft. Wayne, J.F. Kilfoil	219-436-7233
KS	Overland Park, Advanced Techn. Sls.	913-642-6675
LA	Kenner, Cartwright & Bean	504-666-0020
MA	Newton Upper Falls, Gerber Sls.	617-969-2620
MI	Lathrup Village, R. C. Nordstrom	313-559-7373
MN	Edina, Grayden & Flemmer	612-941-1120
NM	Albuquerque, Power Entprs.	505-298-1918
NY	E. Fishkill, Tri-Tech Elctrns.	914-897-5611
NY	E. Rochester, Tri-Tech Elctrns.	716-385-6500
NY	Great Neck, MOS Assoc.	516-487-3966
NC	Raleigh, Cartwright & Bean	919-781-6560
OH	Cincinnati, J.F. Kilfoil Co.	513-791-6150
OR	Beaverton, Barrett & Squibb	503-642-1661
PA	Ardmore, Wm. K. Metz	215-896-7300
TN	Memphis, Cartwright & Bean	901-276-4442
TX	Lewisville, Jim Hughes	214-221-1536
PR	Puerto Rico, Hato Rey, M. Anderson Co.	809-751-2026
WA	Redmond, Barrett & Squibb	206-885-6991

JEFFERSON ELEC., Litton Inds., 840 25th Ave., Bellwood, IL 60104, Tel: 312-626-7700, Telex: 72-8402; Empl.: 1200; *Sls. Mgr.:* Nick Shah; *Dist. Mgr.:* C. Travis

Local Sales Offices & Reps

AK	Anchorage, Alaska Elect. Agents	907-563-8699
AZ	Phoenix, Ross-Bloom & Assoc.	602-955-5024
AR	Little Rock, Southland Sls	501-753-4013
CA	Mountain View, TSR	415-961-5655
CA	Pasadena, A-F Sls. Eng'r.	213-681-5631
CO	Denver, E-O Sls.	303-778-1900
FL	Tampa, SRT Mktg.	813-884-4805
HI	Honolulu, Atlas Elec. Co.	808-524-5866
IL	Wood Dale, Power Prods. Co.	312-595-1142
IN	Indianapolis, Clyde Warble & Assoc.	317-632-1465
KY	Louisville, Bryan, Haley & Hackman	502-491-9984
LA	New Orleans, Corrigan Mktg.	504-626-5231
MA	Framingham, Gerald Rosen Co.	617-879-5505
MA	Stoughton, North Coast Sls.	617-344-1007

J-B-T
Division of CUTLER-HAMMER
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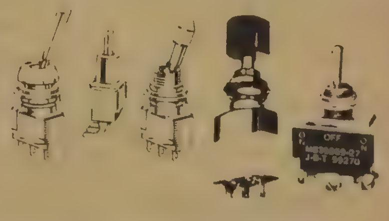
CALIFORNIA: 800-252-4640
TWX 910-321-2971



SEE COMPLETE PRODUCT LINE UNDER
SWITCHES — SECTION 5100
FREE LINECARD AND CATALOG ON REQUEST

MI	Detroit, Electrical Materials	313-541-1650
MI	Grand Rapids, Electrical Materials	313-942-0128
MN	Minneapolis, Boerger & Assoc.	612-560-3435
MS	Jackson, Welch & Doby	601-932-5534
MO	Kansas City, Forristal-Young	816-358-6771
MO	St. Louis, Schaeffer Sls.	314-647-1000
NE	Omaha, Boyle & Williamson	402-553-1666
NJ	Edison, Bizzarro Elect. Sls.	201-757-7010
NY	New Hartford, F. W. Laver & Son	315-724-2304
NC	Charlotte, W. H. Lassister Sls.	704-523-2736
NC	Raleigh, DHR Mktg.	919-876-5450
OH	Cincinnati, Bryan, Haley & Hackman	513-561-0500
OH	Cleveland, Marlow Assoc.	216-991-6500
PA	Philadelphia, Electrical Sls. Assn.	609-456-7110
PA	Pittsburgh, Robert Colley Assoc.	412-331-3121
TX	Dallas, SW Mktg.	214-341-8631
UT	Sandy, Pete Farley Agcy.	801-278-4082
WA	Seattle, Bangs Assoc.	206-262-0262
WI	Butler, J. F. Nolan & Assoc.	414-781-1140

JENSEN

JENSEN TOOLS, INC., Axia, Inc., 7815 S. 46th St., Phoenix, AZ 85040, Tel: 602-968-6241, TWX: 910-950-0115; Empl.: 100; *Sls. Mgr.:* Tom Fenzel .... **2**•1931

JEROME
INDUSTRIES
CORPORATION

JEROME INDUSTRIES CORP., Power Supply Div., B 730 Division St., Elizabeth, NJ 07201, Tel: 201-353-5700, Telex: 132001-JEROME, ELIZ; Empl.: 150; *Sls. Mgr.:* Anthony Di Girolamo .... **3**•1606, 1607

Local Sales Offices & Reps

MN	St. Paul, Countrymen Assocs.	612-645-9151

JEROME INDUSTRIES CORP., Transformer Div., 730 Division St., Elizabeth, NJ 07201, Tel: 201-353-5700, Telex: 132001-JEROME, ELIZ; *Sls. Mgr.:* Anthony Di Girolamo .... **1A**•2177

JERSEY SPECIALTY CO., See JSC Wire & Cable

Distributor

JERSEYSWITCH, INC., 129A Gaither Dr., Mt. Laurel, NJ 08054, Tel: 609-778-8190 .... **1B**•1742

JETTRON PRODS., P.O. Box 337, E. Hanover, NJ 07936, Tel: 201-887-0571; FSC No.: 04435; Empl.: 30; *Sls. Mgr.:* J. M. Schill .... **2**•1471

Local Sales Offices & Reps

CA	El Cajon, A-Tronics	619-444-1501
CA	Woodland Hills, A-Tronics	818-703-7212
NY	New York, Eltron Export Co.	212-944-7635

Local Distributors

Intl	England, Slough, Berks, LPPI	44-753-77788
Intl	France, Le Chesnay, LPPI	33 3 955 2104
Intl	Italy, Cinisello Balsamo (Milano), LPPI	2-6127821
Intl	Netherland, Krimpen a.d. Yssel, LPPI	31-1807-1 8555
Intl	Sweden, Stockholm, LPPI	46-8-132030
Intl	Switzerland, Zurich, Litton Precision Prods. Intl. Inc. (LPPI)	1 312 35 44

JEWELL ELECTRICAL INSTRS., Grenier Field, Manchester, NH 03108, Tel: 603-669-6400, Telex: 943435; Empl.: 400; *Sls. Mgr.:* W. P. Bolia .... **3**•1333

Local Sales Offices & Reps

AL	Huntsville, Currie, Peak & Frazier	205-536-1506
AZ	Phoenix, The Knight Co.	602-582-8506
AR	Little Rock, J. Y. Schoonmaker	501-375-2168
CA	Fremont, William Parks Assocs.	415-490-2011
CA	Los Angeles, Knight Co.	213-670-2833
CA	San Diego, Knight Co.	619-571-7903
CT	Middletown, Gerber Sls.	203-347-3000
FL	Orlando, Currie, Peak & Frazier	305-855-0843
GA	Duluth, Currie, Peak & Frazier	404-476-3107
GA	Norcross, Currie, Peak & Frazier Inc.	404-449-7662
IL	Chicago, Berndt Assocs.	312-283-0713
IN	Carmel, Berndt Assocs.	317-844-0114
IA	Cedar Rapids, Gassner & Clark Co.	319-393-5763
MA	Ludlow, Gerber Sls.	413-589-9837
MA	Newton Upper Falls, Gerber Sls.	617-969-2620
MI	Troy, C. B. Jensen	313-643-0506
MN	Edina, M. Foster Co.	612-941-9790
NJ	Cherry Hill, Trinkle Sls.	609-795-4200
NM	Albuquerque, C. T. Carlberg	505-888-3883
NY	Buffalo, Rudell-Merrifield Assocs.	716-634-4300
NY	Melville, Comtronics Assocs.	516-249-0505
NC	Greensboro, Currie, Peak & Frazier	919-373-0380
NC	Raleigh, Currie, Peak & Frazier Inc.	919-787-0808
OH	Cleveland, Marlow Assocs.	216-991-6500
OH	Columbus, Marlow Assocs.	614-885-7643
OK	Oklahoma City, J. Y. Schoonmaker	405-685-4477
OR	Portland, Frank Jackson	503-292-2638
TX	Austin, J. V. Schoonmaker Co., Inc.	512-480-9257
TX	Dallas, J. Y. Schoonmaker	214-349-1650
TX	Houston, J. Y. Schoonmaker	713-738-2427
WA	Redmond, F. Jackson	206-881-7277
WI	Milwaukee, Berndt Assocs.	414-545-8400

Local Distributors

AL	Birmingham, Brownell Electro Inc.	205-322-3374
AL	Mobile, Brownell Electro Inc.	205-479-8581
AZ	Phoenix, Metermaster Inc.	602-243-4111
CA	Lamirada, Stevens Instr. Co.	714-994-5111
CA	Los Angeles, Metermaster, Inc.	213-685-4340
CA	Los Angeles, E.I.L. Instrs., Inc.	213-685-7020
CA	Palo Alto, Metermaster Inc.	415-968-0313
CA	San Diego, Metermaster, Inc.	619-560-4844
CA	Santa Clara, Dynametron Inc.	408-727-6531
CA	Santa Clara, E.I.L. Instrs. Inc.	408-727-0396
CA	Santa Clara, Fisher-Brownell	408-988-6041
CO	Denver, Metermaster Instr. Inc.	303-722-5766
CO	Denver, E.I.L. Instrs., Inc.	303-534-4160
CT	Middletown, E.I.L. Instrs. Inc.	203-346-6646
FL	Miami, Brownell Electro Inc.	305-591-3215
FL	Orlando, Brownell Electro Inc.	305-843-6770
FL	Palm Bay, E.I.L. Instrs., Inc.	305-725-8300
GA	Atlanta, Brownell Electro Inc.	404-762-5181
IL	Bridgeview, E.I.L. Instrs. Inc.	312-430-2292
IL	Elk Grove Village, Metermaster Inc.	312-593-8650
IL	Oak Park, Pacific Indicator Co.	312-383-0220
IN	Evansville, Electro-Lab Svcs., Inc.	812-423-5211
IN	Indianapolis, E.I.L. Instrs., Inc.	317-545-1373
KY	Louisville, E.I.L. Instrs., Inc.	502-454-3420
LA	Kenner, Breard-Gardner	504-466-3401
MD	Baltimore, Sunshine Sci. Instr., Inc.	301-661-5900
MD	Gaithersburg, Pioneer/Instrmn.	301-921-0660
MD	Sparks, E.I.L. Instrs., Inc.	301-771-4800
MA	Burlington, E.I.L. Instrs., Inc.	617-272-9450
MA	Waltham, Calibron Corp.	617-894-6440
MA	Woburn, Brownell Electro Inc.	617-935-7820
MN	Minneapolis, Process Measurement Co.	612-544-4035
NJ	Pennsauken, E.I.L. Instrs., Inc.	609-488-0474
NC	Charlotte, Trott Electronics, Inc.	704-376-2237
NC	Raleigh, Brownell Electro Inc.	919-876-6524
OH	Dayton, E.I.L. Instrs., Inc.	513-435-2134
OH	Dayton, Pioneer Std. Elctrn.	513-236-9900
OK	Tulsa, Combined Technlg. Co.	918-665-3002
PA	Pittsburgh, E.I.L. Instrs., Inc.	412-731-5230
PA	Pittsburgh, CAM/RPC Instrmn.	412-782-3770
TN	Knoxville, Brownell Electro Inc.	615-966-3441
TN	Nashville, Brownell Electro Inc.	615-889-8230
TX	Dallas, E.I.L. Instrs., Inc.	214-931-1236
TX	Dallas, Ultra Instr. Lab, Inc.	214-357-0297
TX	El Paso, McNicol Elctrns.	915-566-2936
TX	Houston, Quality Instr. Lab	713-524-0528
TX	Houston, E.I.L. Instrs., Inc.	713-271-3100
WA	Richland, Branom Instr. Co.	509-943-6664
WA	Seattle, E.I.L. Instrs., Inc.	206-762-0880
WV	Alexandria, E.I.L. Instrs., Inc.	703-354-4330
WV	Virginia Beach, E.I.L. Instrs., Inc.	804-499-3746

JFD ELCTRNS., See Murata Erie No. Amer., Inc.

JFW INDS., INC., 2719 E. Troy Ave., Indianapolis, IN 46203, Tel: 317-783-9875; Empl.: 30; *Sls. Mgr.:* Joetta Walker; *Dist. Mgr.:* Joetta Walker .... **1A**•1705-1707

Local Distributors

CA	Sunnyvale, Electronic Resources	408-745-1420

JKL COMPS., 13343 Paxton St., Pacoima, CA 91331, Tel: 818-896-0019, Telex: 910-496-1504; FSC No.: 55335; Empl.: 14; *Sls. Mgr.:* Bob Brandt

JMJ TECHNICAL PRODS., P.O. Box 26, Kendall Park, NJ 08824, Tel: 201-589-4257; Empl.: 8; *Sls. Mgr.:* John Stefiuk .... **2**•1780

JMK

JMK, INC., 15 Caldwell Dr., Amherst, NH 03060, Tel: 603-886-4100, Telex: 955329 TLY SRVC; Empl.: 200; *Sls. Mgr.:* J. Kennedy .... **1A**•1600

Local Sales Offices & Reps

AL	Huntsville, JWL Assoc.	205-881-0413
CA	Santa Clara, Cummings & Assoc.	408-247-8656
CA	Woodland Hills, Cummings & Assoc.	213-340-6035
CO	Denver, Arkco Sls.	303-758-1151
IL	Downers Grove, Momak Sls.	312-963-6400
IN	Indianapolis, Gorny Sls.	317-271-7504
MA	Framingham, STS	617-620-0195
MI	Novi, Lektronics	313-349-3304
MN	St. Paul, Arkco Sls.	612-777-7454
NJ	Ridgewood, Ballou Assoc.	201-444-6990
NY	Rochester, Elcom Sls.	716-385-1400
NY	Syracuse, Elcom Sls.	315-685-8245
NC	Charlotte, JWL Assoc.	704-523-3001
OH	New Lebanon, J. N. Bailey	513-226-0512
OK	Tulsa, Barry Sls.	918-749-7775
OR	Portland, Cummings & Assoc.	503-761-4411
TX	Austin, Barry Sls.	512-837-3616
TX	Houston, Barry Sls.	713-784-5860
TX	Richardson, Barry Sls.	214-234-0255
WA	Edmonds, Cummings & Assoc.	206-775-1421
WI	Muskego, Momak Sls.	414-363-7744

Local Distributors

CA	Woodland Hills, C & A Elctrns.	213-340-6022
IL	Chicago, Voyager Elctrns.	312-773-4900
MN	St. Paul, Voyager Elctrns.	612-571-7766
NH	Hudson, C & H Electronics	603-882-1133

JM TRANSFORMER CO., INC., 112 Florida St., Farmingdale, NY 11735, Tel: 516-293-0475; Empl.: 13; *Sls. Mgr.:* J. Millman .... **1A**•2178-2181

JOBMASTER CORP., 9008 Liberty Rd., Randallstown, MD 21133, Tel: 301-655-1400; Empl.: 12; *Sls. Mgr.:* Robert H. Goldman .... **2**•1792

JOHANSON
DIELECTRICS

JOHANSON DIELECTRICS, 2220 Screenland Dr., Burbank, CA 91505, Tel: 213-848-4465, TWX: 910-498-2735; Empl.: 154 .... **1A**•1094

Local Sales Offices & Reps

AZ	Phoenix, Compass Mktg. & Sls.	602-266-5400
CA	Anaheim, Westrep	213-404-3381
CA	Mountain View, Straube Assocs.	415-969-6060
FL	Orlando, Delmac Sls.	305-898-4688
IL	Park Ridge, Metcom Assocs.	312-696-1490
IN	South Bend, C-S Electronic Sls	219-291-6258
MA	Wethersfield, Compac Sls.	203-563-4784
MN	Minneapolis, Bill Deming & Assocs.	612-888-5000
NC	Greensboro, L & D Inc.	919-292-3201
PA	Trevose, PSA	215-245-0513
TX	Arlington, W. Pat Fralia Co.	817-640-9101
WA	Seattle, Northmar Inc.	206-524-5170

Local Distributors

CA	Los Alamitos, SEMI DICE	213-594-4631
CA	Santa Clara, SEMI DICE	408-980-9777
NJ	Fairfield, CHPS Inc.	201-882-0997

JOHANSON MFG. CORP., 400 Rockaway Valley Rd., Boonton, NJ 07005, Tel: 201-334-2676, TWX: 710-987-8367; FSC No.: 91293; Empl.: 200 .... **1A**•1095

Local Sales Offices & Reps

AZ	Phoenix, Compass Mktg. & Sls.	602-266-5400
CA	Anaheim, Westrep	213-404-3881
CA	Mountain View, Straube Assocs.	415-969-6060
CO	Westminster, Straube Assoc., Mt. States	303-426-0890
FL	Orlando, Perrott Assocs.	305-298-7748
IL	Northfield, Johanson Mfg.	312-446-4021
IN	South Bend, Schillinger Assocs.	219-282-4570
IA	Cedar Rapids, ARD Sales Co.	319-393-6392
MA	Seekonk, J. Murphy Assocs.	617-761-7153
MN	Bloomington, Bill Deming & Assoc.	612-888-5000

J	Boonton, Johanson Mfg. Corp.	201-334-2676
Y	Mount Vernon, Friedman-Smith Elctrn. Sls.	914-664-4866
Y	Pittsford, NHA, Inc.	716-586-9002
C	Winston-Salem, Murcota Corp.	919-722-9445
H	Cleveland, Baehr, Greenleaf & Assoc.	216-221-9030
A	Trevose, P.S.A.	215-245-0513
X	Arlington, W. Pat Fralia Co.	817-640-9101
A	Seattle, Northmar	206-524-5170

Local Distributors

Z	Tempe, Shelley Elctrns.	602-894-2058
Z	Tempe, Bell Inds.	602-267-7774
A	Chatsworth, Shelley Elctrns.	213-998-3333
A	Chatsworth, Integrated Electronics	213-998-2200
A	Gardena, Bell Inds.	213-515-1800
A	Irvine, Integrated Electronics	714-660-1055
A	San Diego, Shelley Elctrns.	619-453-7133
A	San Jose, Shelley Elctrns.	408-942-9111
A	San Jose, Integrated Electronics	408-263-1100
A	Sunnyvale, Bell Inds.	408-734-8570
A	Sunnyvale, Diplomat/Westland	408-734-1900
A	Van Nuys, CW Swift & Assocs.	213-989-1133
O	Boulder, Shelley Elctrns.	303-442-2718
O	Wheatridge, Bell Inds.	303-424-1985
L	Orlando, Pelcor Co.	305-299-1541
L	Chicago, Bell Inds.	312-982-9210
L	Chicago, Newark Elctrns.	312-638-4411
MD	Baltimore, Radio Elec. Svc.	301-823-0070
MD	Beltsville, Radio Elec. Svc.	301-937-9100
MA	Medford, Blake Assocs.	617-391-7890
MA	Woburn, Diplomat Elctrns.	617-935-6611
NM	Albuquerque, Bell Inds.	505-292-2700
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Mt. Vernon, ASAP Elctrns.	914-699-2727
NY	Syracuse, Newark Elctrns.	315-437-6611
R	Lake Oswego, Bell Inds.	503-241-4115
A	Philadelphia, Philadelphia Elctrns.	215-568-7400
TX	Ft. Worth, PATCO Supplies	817-429-8596
TX	Richardson, Jaco Elctrns.	214-235-9575
T	Salt Lake City, Bell Inds.	801-972-6969
WA	Bellevue, Bell Inds.	206-747-1515
WA	Bellevue, Integrated Electronics	206-455-2727

JOHNSON, E. F., CO., 299 Johnson Ave., Waseca, MN 56093, Tel: 507-835-6222, Telex: 290470, TWX: 910-565-2161; Empl.: 1400; *Sls. Mgr.:* G. Mena

JOHNSON CONTROLS, Globe Battery Div., 5757 N. Green Bay Ave., Milwaukee, WI 53201, Tel: 414-228-1200, TWX: 910-262-3084; Empl.: 20,000

JOLO INDS., 13921 Nautilus Dr., Garden Grove, CA 92643, Tel: 714-554-6840, TWX: 910-595-1138; Empl.: 20; *Sls. Mgr.:* J.S. Giampiccolo, Jr.

JONARD INDS. CORP., 134 Marbledale Rd., Tuckahoe, NY 10707, Tel: 914-793-0700, Telex: 996570, TWX: 710-562-0107; Empl.: 65; *Sls. Mgr.:* R. Fersen

JONATHAN MFG., 1101 So. Acacia Ave., Fullerton, CA 92631, Tel: 714-526-4651, Telex: 910 592-1241; Empl.: 265

JONES, HIRAM, ELCTRNS. INC., See Hiram Jones Elctrns. Inc.

JORDAN ELEC., 2380 Camino Vida Roble, Carlsbad, CA 92008, Tel: 619-438-6876; FSC No.: 5905; Empl.: 75; *Sls. Mgr.:* B. M. Barton

JORI RESOURCES, 2128 Knoll Dr., Ventura, CA 93003, Tel: 805-642-2266; Empl.: 4

JOSLYN ELCTRN. SYS., 6868 Cortona Dr., Goleta, CA 93017, Tel: 805-968-3551, TWX: 910-334-3464; FSC No.: 23663; Empl.: 210; *Sls. Mgr.:* A. deSouza

JRW INDS., INC., 2312 N Second St., Harrisburg, PA 17110, Tel: 717-236-1418; Empl.: 4; *Sls. Mgr.:* James Thorbahn

JSC WIRE & CABLE, Box 248, Burgess Pl., Wayne, NJ 07470, Tel: 201-694-6200; Empl.: 40; *Sls. Mgr.:* R. D. Foster; *Dist. Mgr.:* J. Freeman .... **2**•2103

Local Sales Offices & Reps

CA	Van Nuys, Art Szerlip Sls. Co.	213-782-1765
CO	Denver, Mountain Reps.	303-623-0972
DE	Newark, F. S. Carmine Co.	302-731-0697
FL	Crystal River, Foster Sls.	904-795-7831
IL	Chicago, Lassers & Co.	312-539-0170
IA	Burlington, J. S. Ridge Entprs.	319-754-8745
KY	Louisville, Mid Central Sls. Co.	502-239-5614
MA	Lynn, Keene Sls. Co.	617-595-2300
MI	Livonia, Harvey Sls.	313-476-1974
NJ	Teaneck, Fisher Elctrn. Assocs.	201-837-1200

NY	Rochester, Warren Kaufman	716-266-2728
NC	Charlotte, D. Austin Co.	704-334-0174
OH	Columbus, Benchmark	614-861-2070
OR	Portland, R. M. Minthorne	503-246-4556
TX	Dallas, Crockett Sls. Co.	214-748-8209
WI	Minneapolis, John E. M. Anderson	612-823-6459
EXP	NY, New York, Roburn Agencies	212-989-5939

JUDCO MFG. INC., P.O. Box 487-E84, 24030 Frampton Ave., Harbor City, CA 90710, Tel: 213-534-0959 .... **1B**•1671

Judd Wire
DIVISION OF
HIGH VOLTAGE ENGINEERING

JUDD WIRE, High Voltage Engrg., 57 Turnpike Rd., Turners Falls, MA 01376, Tel: 413-863-4357, TWX: 510-290-2147; FSC No.: 3357; Empl.: 148; *Sls. Mgr.:* Jack Allen .... **1B**•1011; **2**•2104, 2105

Local Sales Offices & Reps

AL	Huntsville, Hughes Assocs.	205-533-9108
CA	Los Altos, Ewing Foley	415-941-4525
CO	Denver, Duffy Assocs.	303-595-4244
FL	Orlando, Donato & Assocs.	305-352-0727
GA	Norcross, Hughes Assocs.	404-449-1177
IL	Chicago, Rozner Sls. Co.	312-283-0022
MA	Marlborough, O.K. Engrg.	617-481-6400
MI	Southfield, C. H. Schmidt Co.	313-353-6000
MN	Brooklyn Center, Willman Assoc.	612-566-5010
MS	Corinth, Hughes Assocs.	601-287-2915
NJ	Haddonfield, Mesa Tech. Assocs.	609-429-9531
NY	Attica, B. H. Tollefson Assoc.	716-591-1219
NY	Auburn, B. H. Tollefson Assoc.	315-253-4109
NY	Rochester, B. H. Tollefson Assoc.	716-271-4141
NC	Research Triangle Park, Naylor Assocs.	919-836-0478
OH	Worthington, Simcox Assocs.	614-885-8995
OR	Portland, Jas. J. Backer Co.	503-297-8744
SC	Greenville, Naylor Assocs.	803-297-9969
TN	Morristown, Hughes Assocs.	615-587-2433
TX	Dallas, Stevens Sls. Co.	214-350-2476
UT	Salt Lake City, Electrodyne	801-486-3801
WA	Seattle, Jas. J. Backer Co.	206-285-1300

Local Distributors

AL	Madison, Sea Wire & Cable	205-772-9616
AZ	Tempe, Pacer Elctrns.	602-267-0299
CA	Anaheim, Innovative Sys.	714-632-8800
CA	Concord, Control Master	415-939-3600
CA	Harbor City, Falmat	213-530-3333
CA	Mountain View, Sonic Wire	415-965-4646
CA	Torrance, Blake Wire & Cable	213-515-0561
CA	Valencia, Wirenetics Co.	805-257-2400
CT	East Hartford, E. J. Stephens Co.	203-568-1927
CT	Manchester, I.M.S.	203-649-4415
FL	Ft. Lauderdale, Simcona Elctrn.	305-485-4455
FL	Ft. Lauderdale, Pacer Elctrns.	305-462-0902
GA	Clarkston, Lance Engrg.	404-292-4404
MD	Hanover, Vertex Elctrns.	301-796-5000
MA	Burlington, QPL Elctrn. Dist.	617-229-2424
MA	Woburn, Pacer Elctrns.	617-935-8330
MN	Bloomington, K. L. Tannehill	612-881-6700
NH	Amherst, North Country Wire & Cable	603-889-0063
NH	Manchester, Yankee Elctrn.	603-625-9746
NJ	Dover, Electro Spec.	201-361-5079
NJ	Fairfield, Olympic Wire & Cable	201-227-7996
NY	Fairport, Pacer Elctrns.	716-377-0462
NY	Farmingdale, Welco Elctrns.	516-293-0050
NY	Farmingdale, Vertex Elctrns.	516-293-9880
NY	Rochester, Simcona Elctrn.	716-328-3230
NY	Ronkonkoma, Zenith Wire	516-585-1444
OH	Dayton, Astro Inds.	513-429-5900
PA	Harleysville, Omega Wire & Cable	215-256-6577
PA	Montgomeryville, Pyttronic Ind.	215-242-6700
TX	Garland, Interstate Wire	214-271-0541
WA	Seattle, Anixter	206-251-5287
WI	New Berlin, Indl. Elec. Wire & Cable	414-782-2323

JUDD WIRE, High Voltage Engrg., 870 Los Vallecitos Blvd., San Marcos, CA 92069, Tel: 619-744-7720, TWX: 910-322-1149; FSC No.: 3357 .... **1B**•1011; **2**•2104, 2105

Refer to Judd Wire, Turners Falls, MA for sales office and distributor information.

JRL JULIE RESEARCH

JULIE RESCH. LABS., 211 West 61st St., New York, NY 10023, Tel: 212-245-2727, TWX: 710-581-5138; Empl.: 45; *Sls. Mgr.:* Pamela Spencer .... **1A**•1878; **3**•1248-1252

Local Sales Offices & Reps

	Instruments	
CO	Boulder, Instr. Repair Labs	303-449-2721
	Resistors	
CA	Northridge, Craig Assocs.	213-993-4060

JUNCTION DEVICES, INC., 2488-A Townsgate Rd., Westlake Village, CA 91361-2594, Tel: 213-889-4030, 805-497-4421, TWX: 910-336-1293; FSC No.: 60858; Empl.: 70; *Sls. Mgr.:* N. Pena

Local Sales Offices & Reps

CA	Burbank, MCA Repco	213-843-4096
CA	Cupertino, Allis Assoc.	408-252-2883
CA	Dana Point, MCA Repco	714-661-1300
CA	Westlake Village, MCA Repco	213-889-5553
FL	Palm Bay, Spartech Assoc.	305-727-8045
GA	Smyrna, Spartech Assoc.	404-432-3644
MA	Lowell, Matrix Sls.	617-458-2096
MO	Kansas City, E I R Company	816-452-7030
MO	Leasburg, E I R Company	314-245-6860
NY	Hartsdale, Spectrum Sls.	914-472-8600
TX	Richardson, Southwest Microwave Elctrns.	214-669-1195
VA	Fairfax, Schibley Assocs.	703-591-3008
EXP	NJ, Wayne, Expo Intl. Co.	201-956-7037

JUPITER SYSTEMS, 1100 Marina Village Parkway, Alameda, CA 94501, Tel: 415-523-9000; *Sls. Mgr.:* Richard MacElhiney

KAHGAN
Electronics Corp.

KAHGAN ELCTRNS. CORP., 556 Peninsula Blvd., Hempstead, NY 11550, Tel: 516-538-2300, TWX: 510-222-4347; Empl.: 39 .... **1A**•1119

Local Sales Offices & Reps

AL	Huntsville, BCI, Inc.	205-539-4411
AZ	Phoenix, Sanford Sls. Assocs.	602-957-3570
CA	Anaheim, Micrometals	714-630-7420
CA	Huntington Beach, Corcoran Assoc.	714-841-4759
CA	Los Angeles, Corcoran Assoc.	213-823-4589
CA	Santa Clara, Maxim Elctrn. Sls.	408-946-6001
CO	Aurora, High Tech Assocs.	303-695-1990
CO	Denver, Walter Engrg. Assocs.	303-777-5585
FL	Casselberry, Southern Elctrn. Mktg. (A/K/A Semi)	305-695-3334
FL	Ft. Lauderdale, Southern Elctrn. Mktg. (A/K/A Semi)	305-475-3686
GA	Chamblee, BCI, Inc.	404-455-0405
IL	Palatine, Technology Sls.	312-991-6600
KS	Overland Park, J. F. Guernsey Co.	913-381-2225
MA	Lexington, Del-Con Sls.	617-938-1929
MN	Minneapolis, Smiley-Scott Assoc.	612-888-5551
NM	Albuquerque, Nelco Electronix	505-293-1399
NC	Raleigh, BCI, Inc.	919-781-9426
PA	King of Prussia, Emerald Elctrns.	215-265-1360
TX	Dallas, Marcom	214-351-4532
TX	Houston, Marcom	713-271-5635
VA	Reston, Tytronics Tech. Sls.	703-471-0440
WA	Vancouver, Ray Over Sls.	206-695-6179
WI	Wauseka, Techn. Sls.	414-787-5015

KAHLE ENGRG., Div. Joule Machinery Grp., 3344 Hudson Ave., P.O. Box 877, Union City, NJ 07087, Tel: 201-867-6500, Telex: 42-7757, TWX: 710-992-8835; Empl.: 50; *Sls. Mgr.:* Carl A. Napor

KAISER ELCTRNS., Kaiser Aerospace & Elctrns., 2701 Orchard Pkwy., San Jose, CA 95134, Tel: 408-946-3000, TWX: 910-338-0196

KAISER ELECTROPRECISION, Kaiser Aerospace & Elctrns., 1700 S. Redhill Ave., Irvine, CA 92714, Tel: 714-540-6810, Telex: 678467; FSC No.: 86831; *Sls. Mgr.:* Archie M. Cardwell

KSI Kaiser Systems, Inc.

KAISER SYSTEMS, INC., 33 Cherry Hill Drive, Danvers, MA 01923, Tel: 617-777-5102 .... **3**•1608-1610

KALART VICTOR CORP., Hultenius St., Plainville, CT 06062, Tel: 203-747-1663; *Sls. Mgr.:* J. J. Costag

KALGLO ELCTRNS. CO., INC., 6584 Ruch Rd., E. Allen Twp., Bethlehem, PA 18017, Tel: 215-837-0700; *Sls. Mgr.:* Joe H. Ungerer

K&A

KALMUS & ASSOCS., INC., 2424 S. 25th Ave., Box 525, Broadview, IL 60153, Tel: 312-343-7004, TWX: 910-226-0713; Empl.: 290; *Sls. Mgr.:* D.R. Capparelli, Sr., V.P. Sls. & Mktg. .... **2**•1093

Local Sales Offices & Reps

AL	Huntsville, Alpha Mktg.	205-533-0766
CA	Pasadena, Black & White, Inc.	818-792-2133
CA	San Diego, Varigon Assocs.	619-576-0100
CA	Sunnyvale, M2 Mktg. Grp.	408-746-3630
CO	Boulder, Comp. Product Sls.	303-530-2800
FL	Plantation, Gallagher & Assocs.	305-473-2101
GA	Tucker, Alpha Mktg.	404-491-9430
IL	Arlington Heights, M. J. Petersen & Assocs.	312-577-8200
IL	Chicago, W. F. Hamilton Co.	312-867-5030
IN	Ft. Wayne, F. J. Campisano Co.	219-747-2633
IN	Indianapolis, F. J. Campisano Co.	317-253-7651
MA	Braintree, Nova Assocs.	617-848-9330
MI	Jackson, Jim Jordan Assocs.	517-750-2677
MN	Minneapolis, Northstar Components	612-553-1888
MS	Meridian, Alpha Mktg.	601-483-9306
MO	Independence, Engrg. Svcs. Co.	816-254-3600
MO	St. Louis, Engrg. Svcs. Co.	314-997-1515
NJ	Mountainside, Henry G. Richter Co.	201-233-4615
NY	Fayetteville, Henry G. Richter Co.	315-637-6713
NY	Rochester, Henry G. Richter Co.	716-436-0300
NC	Charlotte, T. C. Sales, Inc.	704-364-8996
OH	Cincinnati, F. J. Campisano Co.	513-574-7111
OH	Cleveland, F. J. Campisano Co.	216-749-5550
PA	Corapolis, F. J. Campisano Co.	412-264-5151
TN	Austin, C. R. Colvin Assocs.	512-474-8698
TN	Houston, C. R. Colvin Assocs.	713-961-1262
TN	Oak Ridge, Alpha Marketing	615-482-4681
TX	Richardson, McCoy Assocs. Co.	214-238-1017
UT	Salt Lake City, Comp. Product Sls.	801-262-0000

K&L MICROWAVE, INC., 408 Coles Circle, Salisbury, MD 21801, Tel: 301-749-2424, TWX: 710-864-9683; FSC No.: 50140; Empl.: 320; *Sls. Mgr.:* Charles J. Schaub

K & L QUARTZTEK, K & L Microwave, 20 S. 48th Ave., Phoenix, AZ 85043, Tel: 602-272-7944, TWX: 910-951-1305; FSC No.: 59492; *Sls. Mgr.:* Mark H. Story

K & M ELCTRNS., 123 Interstate Dr., W. Springfield, MA 01089, Tel: 413-781-1350, TWX: 710-350-6463; Empl.: 500; *Sls. Mgr.:* Allan Mallanik .... **1A**•1883

Local Distributors

MA	West Springfield, Moldcon	413-736-0371

KANTZ ELCTRN. IND., 1804 Wall Church Rd., Wall Township, NJ 07719, Tel: 201-974-0090; Empl.: 12; *Sls. Mgr.:* L. Herold

KAPPA NETWORKS INC

KAPPA NETWORKS, 165 Roosevelt Ave., Carteret, NJ 07008, Tel: 201-541-1600, Telex: 139408 KAPPA CRET; Empl.: 125; *Sls. Mgr.:* M. Pearl .**1A**•1538-1553

Local Sales Offices & Reps

CA	Alhambra, M. W. Riedel & Co.	213-283-7694
CA	Alhambra, Kappa Networks	213-283-2048
CA	Santa Clara, Emerging Technology Sls.	408-727-1771
CO	Englewood, White Sales Co.	303-694-9555
CT	Cheshire, Selmark Assocs.	203-573-9088
IA	Grandview, R.R. Burton & Assocs.	816-762-5285
MA	Millis, Selmark Assocs.	617-376-2914
MN	Osseo, Gaffney Sls. Co.	612-425-5484
MO	Grandview, R.R. Burton & Assocs.	816-765-5385
NH	Hopkinton, Selmark Associates	603-746-3299
NJ	Madison, Livera-Polk Assocs.	201-377-3220
NY	Glen Head, Livera-Polk Assocs.	516-759-9300
NC	Raleigh, Leigh Sls.	919-872-1484
PA	Wynnewood, Metz-Benham Assocs.	215-896-7300
TX	Dallas, Technlg. Sls.	214-380-0200
TX	Houston, Technlg. Sls.	713-266-2473
EXP	Carteret NJ, Kappa Networks	800-223-0603

Local Distributors

CA	Alhambra, Delay Line Distrs. Co.	213-283-2058

KAPPA SCIENTIFIC CORP., Box 30585, Santa Barbara, CA 93105, Tel: 805-687-9648; Empl.: 4

KARKAR ELECTRONICS, INC., 245 Eleventh St., San Francisco, CA 94103, Tel: 415-552-1247, TWX: 910-372-7754; FSC No.: 017857; *Sls. Mgr.:* A. Slikkerveer

Local Sales Offices & Reps

NJ	Ocean Township, Karkar Elctrns., Inc.	201-493-3303
TX	Richardson, Karkar Elctrns., Inc.	214-680-9854

KARL HOPT CO, See Hopt, Karl, Co.

KATES SCI. INSTRS., 142 Adam St., Newton, MA 02158, Tel: 614-527-2711; Empl.: 28; *Sls. Mgr.:* D. Kates

KAUFMAN DATA COMMS., INC., Orange Nassau Elctrns. Co., 145 E. Dana St., Mountain View, CA 94041, Tel: 415-962-8811, TWX: 910-379-5021

KAVLICO CORPORATION

KAVLICO CORP., 20869 Plummer St., Chatsworth, CA 91311-5096, Tel: 818-882-2400, FAX 818-998-2050, Telex: 65-1481; Empl.: 250; *Sls. Mgr.:* Vic Cetta; *Dist. Mgr.:* Rudi Kettler .... **1B**•1846

Local Sales Offices & Reps

CO	Lakewood, Loritz Controls	303-232-7803
FL	Winter Park, James T. Conklin, P.E.	305-629-1739
MN	Minneapolis, Industra Co.	612-835-5535
NM	Albuquerque, Indl. Prods. Corp. (IPC)	505-256-3561
NY	Thompson Ridge, Neville & Vespo Corp.	914-457-9209
PA	King of Prussia, FLW of PA	215-337-4343
SC	Greenville, E. C. Capell & Assocs.	803-297-6550
TX	Ft. Worth, UTM Engineering	817-429-2456
TX	Houston, Collinsystems Pro-Quip	713-464-9428

KAYE INSTRUMENTS, 15 De Angelo Dr., Bedford, MA 01730, Tel: 617-275-0300, Telex: 6817183, TWX: 710-326-1598; Empl.: 170 .... **3**•1166

Local Sales Offices & Reps

AL	Birmingham, Hile Controls of Alabama	205-879-2990
AL	Mobile, Hile Controls of Alabama	205-476-7258
AZ	Phoenix, Southwest Controls Inc.	602-267-1171
AZ	Tucson, Southwest Controls Inc.	602-299-8981
AR	El Dorado, Kemp Engineering Co. Inc.	501-862-5869
CA	Costa Mesa, FLW, Inc.	714-751-7512
CA	Hayward, FLW, Inc.	415-487-2222
CA	San Diego, FLW, Inc.	619-277-0993
CA	Van Nuys, FLW, Inc.	213-989-5236
CO	Lakewood, Tech. Mktg. Mfg.	303-232-1516
CT	North Haven, Pat Jenks Assoc.	203-239-6201
FL	Tampa, Lewis & Assocs.	813-988-2104
GA	Marietta, Hile Controls of Georgia	404-424-8372
IL	Chicago, Comtel Midwest	312-539-4838
IN	Indianapolis, Comtel Midwest	317-253-1681
IA	Cedar Rapids, Comtel Midwest	319-377-9434
KS	Shawnee Mission, Comtel Midwest	913-722-1030
LA	Baton Rouge, Rise Inc.	504-776-4645
ME	Brewer, Leen Co.	207-989-7363
ME	Portland, Leen Co.	207-774-6266
MD	Burtonsville, Eastern Instrmn.	301-384-8500
MA	Woburn, Pat Jenks Assoc.	617-938-0488
MI	Farmington Hills, Carter, McCormic & Peirce	313-477-7700
MI	Southfield, Comtel Midwest	313-358-2510
MN	Wayzata, Comtel Midwest	612-476-1551
MO	St. Louis, Comtel Midwest	314-991-5363
NJ	Emerson, Instrumentation Prods.	201-265-6330
NJ	Metuchen, FLW, Inc.	201-548-4343
NM	Albuquerque, Tech. Mktg. Mfg.	505-298-6893
NY	Syracuse, Labtronics	315-455-7314
NC	Matthews, W. K. Hile Co.	704-847-9125
OH	Cleveland, Fox & Dole	216-476-2625
OH	Englewood, Carter, McCormic & Peirce	513-836-0951
OK	Tulsa, Kemp Engrg. Co.	918-663-4501
PA	King of Prussia, FLW, Inc.	215-337-4343
PA	Murrysville, Data Acquisition Sys.	412-327-8979
TN	Knoxville, Hile Controls of TN	615-584-0208
TN	Memphis, Hile Controls of TN	901-372-0451
TX	Lubbock, Summit Controls	806-792-2072
TX	Plano, Summit Controls	214-867-6056
TX	Sugar Land, Pan/Tech Engrg. Corp.	713-240-1220
UT	Salt Lake City, Tech. Mktg. Mfg.	801-487-7676
WA	Issaquah, DCI/Alpha	206-392-7521
WA	Vancouver, DCI/Alpha	206-693-7447
WI	New Berlin, Comtel Midwest	414-544-6042

KAY ELEMETRICS CORP., 12 Maple Ave., Pine Brook, NJ 07058-9797, Tel: 201-227-2000, TWX: 710-734-4347; FSC No.: 80138; Empl.: 70; *Sls. Mgr.:* Stephen P. Crump .... **1A**•1708

KAY-TOWNES ANTENNA, P.O. Box 593, Rome, GA 30161, Tel: 404-291-9871, TWX: 810-764-4809; Empl.: 85; *Sls. Mgr.:* Charles S. Ford; *Dist. Mgr.:* James A. Sheffiled

KB ELCTRNS., 73 Wortman Ave., Brooklyn, NY 11207, Tel: 212-257-3300, TWX: 710 584 2308; Empl.: 125; *Sls. Mgr.:* A Bueller

KBI, A Div. of Cabot Corp., PO Box 1462. Reading, PA 19603, Tel: 215-371-3600, Telex: 902251, TWX: 510-651-0106; Empl.: 600; *Sls. Mgr.:* Robert J. Longenecker

KCK AMERICA INC., 1245 Forest Ave., Ste. 10, Des Plaines, IL 60018, Tel: 312-297-5435, Telex: 726481; *Sls. Mgr.:* Carl Bronder; *Dist. Mgr.:* Carl Bronder

KD COMPONENTS, INC., 3016 S. Orange Ave., Santa Ana, CA 92707, Tel: 714-545-7108, TWX: 910-595-2678; Empl.: 25

KDI ELECTRONICS, INC., 60 S. Jefferson Rd., Whippany, NJ 07981, Tel: 201-887-8100, TWX: 710-986-8220; Empl.: 250; *Sls. Mgr.:* William M. Dodge; *Dist. Mgr.:* William M. Dodge .... **1A**•1879

Local Sales Offices & Reps

AZ	Phoenix, Toward Engrg. Assocs.	602-955-3193
CA	Los Angeles, Elsco	714-891-4621
CA	Mountain View, Gene Woempner Co., Inc.	415-578-1581
CA	Mountain View, J.I. Tech. Sls.	415-969-5552
CA	Mountain View, Gene Woempner	415-578-1581
CO	Denver, High Plains Mktg.	303-751-7150
FL	PalmBay, Spartech Assocs., Inc.	305-727-8045
GA	Smyrna, Spartech Assocs., Inc.	404-432-3644
IL	Northfield, Imex Ltd.	312-446-8934
IL	Park Ridge, Probe Elctrns.	312-698-2044
MD	Owings Mills, Neal Deoul Assocs.	301-363-4311
MA	Ashland, John O'Donnell	617-881-1380
MA	N. Andover, Torrey Assocs.	617-687-0099
MN	New Brighton, TWC Sls.	612-636-1770
MO	Grandview, Harris - Hanson	816-763-6200
MO	St. Louis, Harris - Hanson	314-432-3611
NJ	Madison, Livera-Polk Assocs.	201-377-3220
NY	Bridgeport, Lightstone Corp.	315-699-5747
NY	Glen Head, Livera-Polk Assocs.	516-759-9300
NY	Huntington, CDB Entrps., Inc.	516-692-5200
NY	Syracuse, T-Squared Elctrns.	315-463-8592
OH	Dayton, Frederick L. Ohmer & Assoc.	513-434-1454
PA	Doylestown, Lou Adezio	215-249-9729
TX	Dallas, Texas Avionics	214-386-3566
TX	Garland, Carey, McMahill & Zerbe Co., Inc.	214-681-1414
TX	Sherman, Repmasters	214-247-6236
WA	Vancouver, Ray Over Sls.	206-695-4697

Local Distributors

CA	Chatsworth, MIL-COMM Distrs.	213-998-3111
CA	Mountain View, Target Elctrns.	415-961-1170
FL	Tampa, Impala Elctrns.	813-885-4747
NJ	Englewood, Tech. Elctrn. Distrs.	201-894-0800
NY	Farmingdale, Command Elctrns.	516-293-1212
TX	Houston, Lenert Co.	713-225-1465

KEC ELECTRONICS, INC.

KEC ELCTRNS., INC., 20817 Western Ave., Torrance, CA 90501, Tel: 213-320-3902, TWX: 910-349-6962; Empl.: 8; *Sls. Mgr.:* Frank Chase .... **3**•1613-1616

Local Sales Offices & Reps

AZ	Tempe, Quatra	602-894-2802
CA	Cupertino, Costar	408-446-9339
CA	Los Alamitos, Power Specialists	213-594-9418
CO	Fort Collins, Vic Myers Assoc.	303-223-8907
FL	Cocoa Beach, Teqspec	305-748-9292
FL	Hobe Sound, Teqspec	305-746-4987
FL	Palm Harbor, Teqspec	813-785-2276
GA	Atlanta, Teqspec	404-455-7222
IL	Elk Grove Village, Loren Green Assoc.	312-593-0282
IN	Indianapolis, Loren Green Assoc.	317-293-9827
MA	Danvers, C. H. Burnham Assocs.	617-774-0111
MI	Jenison, R. C. Nordstrom & Co.	616-457-5762
MI	Southfield, R. C. Nordstrom & Co.	313-559-7373
MN	Minnetonka, Chris-Tek	612-934-1334
NH	Durham, C. H. Burnham Assocs.	603-868-2282
NJ	Springlake, Neville & Vespo	201-974-1520
NM	Albuquerque, Vic Myers Assocs. Inc.	505-884-6878
NY	Binghamton, TAE-Rep.	607-772-6952
NY	Rochester, TAE-Rep.	716-586-8710
NY	Thompson Ridge, Neville & Vespo	914-457-9209
NC	Winston Salem, Teqspec	919-723-8102
OH	Chesterland, KT/DEPCO	216-729-3588
PA	Erdenheim, Omni Sls.	215-233-4600
PA	Pittsburg, KT/Depco	412-487-8777
RI	Johnston, C. H. Burnham Assocs.	401-231-7475
TN	Morristown, Teqspec	615-587-0980
VA	Fairfax, Nine Assocs.	703-273-1803
WA	Bellevue, Elctrn. Mktg. Grp.	206-746-5915

KEENE LAMINATES, Keene Corp., 199 Amaral St., E. Providence, RI 02914, Tel: 800-556-7683, Telex: 927524

KEDMAN CO., Box 25667, Salt Lake City, UT 84125, Tel: 801-973-9112, TWX: 910-925-4116; Empl.: 100

KEENE RAY PROOF, Keene Corp., 50 Keeler Ave., Norwalk, CT 06878, Tel: 203-838-4555, Telex: 96-5812; *Sls. Mgr.:* Robert C. Barbour; *Dist. Mgr.:* Ken Makowski

KEITHLEY INSTRS., 28775 Aurora Rd., Cleveland, OH 44139, Tel: 216-248-0400, Telex: 98-5469; Empl.: 461; *Sls. Mgr.:* Ron Ruiz; *Dist. Mgr.:* T. A. Hayden

KEL-AM, 308 E. 5th, P.O. Box 313, Eldon, MO 65026, Tel: 314-392-7174, Telex: 42-301; FSC No.: 57856; Empl.: 67; *Sls. Mgr.:* Bob Riemer; *Dist. Mgr.:* Bob Riemer .... **2**•1472-1483

Local Sales Offices & Reps

AZ	Scottsdale, BH&B Sls.	602-994-4455
CA	Placentia, Local Sls.	714-993-1800
CA	Santa Clara, Acclaim	408-745-7416
CO	Parker, Mikro Sls.	303-841-4131
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Sarasota, Phoenix Comps.	813-371-1163
GA	Atlanta, Electro Sls.	404-394-1122
IL	Arlington Heights, Diethert/Angel	312-593-7600
IN	Fort Wayne, Temple Engrg.	219-743-0362
IA	Davenport, Electro Tech.	319-386-1134
MD	Baltimore, Faion Lott, Inc.	301-744-4611
MA	Lexington, Kitchen & Kutchin	617-862-8230
MI	Ypsilanti, Tamco, Inc.	313-572-1950
MN	Minneapolis, Electro-Tech	612-927-5878
MO	N. Kansas City, Weisler & Assocs.	314-394-4543
MO	St. Louis, Weisler & Assocs.	
NJ	Clark, R. E. Breuer Co.	201-388-5045
NM	Albuquerque, Nelco Elctrns.	505-293-1399
NY	Port Washington, R. E. Breuer Co.	516-883-7810
NY	Rochester, Tech. Comps.	716-342-2406
OR	Portland, SPS Engrg.	503-297-6919
PA	Downingtown, MCCoy, Inc.	215-363-0350
PA	McKean, ECCO Sls.	814-476-1376
SC	Greer, Sunbelt Sls.	803-877-9088
TN	Chattonooga, Electro Sls.	615-267-4260
TX	Grapevine, Elctrn. Mktg. Assoc.	817-481-7502
TX	Houston, Elctrn. Mktg. Assoc.	713-498-8120
WA	Redmond, SPS Elctrns.	206-392-5264

Local Distributors

AZ	Tempe, Anjon	602-894-1332
CA	Belmont, LO-DAN Elctrns.	415-592-4600
CA	Corona, Konex Corp.	714-371-1200
CA	Glendale, Remco	714-558-3202
CA	Mountain View, Cornett Elctrns.	415-969-5420
CA	San Diego, Mann	619-578-1550
CA	San Fernando, REMCO	213-365-1176
CA	Santa Ana, Mann S.W.	714-558-3202
CA	Santa Clara, Mann Elctrns.	408-988-6061
CO	Denver, CSID Intergrated Elctrns.	303-893-9594
CT	Stratford, Utronics	203-378-4201
FL	Ft. Lauderdale, Intertec Comps.	305-975-8644
FL	Largo, Lo Dan Elctrns.	813-586-2851
FL	Longwood, Intertec Comps.	305-834-7777
IL	Arlington Hgts., Lo Dan Elctrns.	312-398-5311
IL	Hoffman Estates, Intercomp	312-843-2040
IN	Indianapolis, Graham Elctrns.	317-634-8202
KS	Shawnee, Besco Elctrns.	913-268-7633
KS	Wichita, Radio, Inc.	316-264-2798
MA	Lowell, Bay State Wire & Cable	617-454-2444
MA	Woburn, Elctrn. Packaging Comps.	617-935-0400
MI	Farmington Hills, Ambur Elctrns.	313-477-8670
MI	Southfield, LSI Mktg.	313-356-7002
MN	Farmington, Tel-Tek, Inc.	612-460-6299
MN	Minneapolis, Wilde, Inc.	612-941-4825
MO	Independence, H.F. Signalling	816-833-4448
NE	Lincoln, Scott Elctrns.	402-466-8221
NE	North Platte, Scott Elctrns.	308-532-9260
NE	Omaha, Scott Elctrns.	402-734-6750
NH	Hampstead, Astrum Elctrns.	603-329-5656
NJ	Roselle, Lectron Inds.	201-245-5858
NM	Albuquerque, Elctrn. Devices	505-293-1935
NY	Port Washington, Connector Concepts	516-883-3800
OK	Oklahoma City, Radio, Inc.	405-789-0741
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Beaverton, Zepher Elctrns.	503-643-1980
PA	McKean, Advacom	814-476-7774
PA	Montgomeryville, Pyttronics	215-643-2850
TX	Addison, Connec/Tek	214-239-7552
WA	Redmond, Mann N.W.	206-881-0440
WA	Seattle, Zepher Elctrns.	206-241-1980

KELTEC FLORIDA, P.O. Box 2917, Ft. Walton Bch., FL 32549, Tel: 904-651-1210, TWX: 510-730-7654; FSC No.: 09062; Empl.: 400 .... **3**•1617-1619

Local Sales Offices & Reps

AZ	Phoenix, J. Smith Assoc.	602-267-0981
CA	Los Angeles, Cain Technology	213-476-2251
CA	Orange, Cain Technology	714-997-7311
CA	Sunnyvale, Loeswick's	408-745-6751
CO	Colorado Springs, J. Smith Assoc.	303-597-5343
IN	Ossian, Science Sls.	219-622-7383
IA	Cedar Rapids, Palatine Sls.	319-365-8071
KS	Goddard, Palatine Engrg. & Sls.	316-788-5521
KS	Mission, Palatine Sls.	913-831-0555
MD	Ellicott City, VPI	301-461-2525
MA	Needham Hgts., O'Sullivan & Murphy	617-449-4141/4142/4144
MO	Hazelwood, Palatine Sls.	314-893-0800
NJ	Danville, Metro-MICS	201-625-5959
NJ	Westfield, Metro MICS	201-233-6116
NM	Albuquerque, J. Smith Assoc.	505-265-3406
NY	Melville, Metro MICS	516-433-3333
NY	N. Tonawanda, Labtronics	315-454-9314
NY	New York, Landseas Corp.	212-265-8323
NY	Syracuse, Labtronics	315-455-7314
OH	Brunswick, Science Sls.	216-273-4429
PA	Montgomerysville, VPI	215-474-3200
TX	Richardson, Lear Assocs.	214-231-5388
TX	Spring, Lear Assocs.	713-370-7449

KELTLON CORP., Viking Modules Div., 225 Crescent St., Waltham, MA 02154, Tel: 617-894-8700, Telex: 948197; Empl.: 75; *Sls. Mgr.:* T. Chadurjian

KELTRON CORP., 225 Crescent St., Waltham, MA 02154, Tel: 617-894-8700, Telex: 948197; Empl.: 270; *Sls. Mgr.:* E. Chown; *Dist. Mgr.:* E. Chown

KELTRON CORP., Walden Div., 225 Crescent St., Waltham, MA 02154, Tel: 617-894-8700, Telex: 948197; Empl.: 225; *Sls. Mgr.:* T. Chadurjian

KELVIN, 5919 Noble Ave., Van Nuys, CA 91411, Tel: 818-782-6662, Telex: 65-1417; FSC No.: 19587; Empl.: 250; *Sls. Mgr.:* R. A. Featherston .... **1A**•1880-1882

Local Sales Offices & Reps

AL	Huntsville, Macro Mktg.	205-883-9630
AZ	Scottsdale, D.H. Entprs.	602-990-0452
CA	Mountain View, G. C. Woempner Co.	415-964-5454
CA	Van Nuys, Wes-K Assoc.	213-989-3070
CO	Boulder, R-G Entprs.	303-447-9211
CT	Milford, Todino Engrg. Sls.	203-874-6643
FL	Ft. Lauderdale, Electro-Comp.	305-491-4141
IL	Deerfield, Walt Krueger	312-945-3720
MD	Reisterstown, Massey Assocs.	301-833-2039
MA	Needham Hgts., Todino Engrg.	617-444-7925
MI	Birmingham, Forand Sls.	313-644-0087
MN	Minneapolis, Parker Shoap	612-755-6904
NJ	Medford, Jack McCoy Inc.	609-953-0770
NY	Fayetteville, Foster & Wager	315-637-5427
NY	Great Neck, Trionic	516-466-2300
NY	Webster, Foster & Wager	716-265-2072
OH	New Lebanon, J. N. Bailey & Assoc.	513-687-1325
OR	Beaverton, General Elctrns.	503-641-5288
TX	Austin, C. R. Colvin Assoc.	512-474-8698
TX	Dallas, Stasco	214-239-4517
TX	Houston, C. R. Colvin Assoc.	713-961-1262
WA	Seattle, General Elctrns.	206-241-7990

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KEMET, UNION CARBIDE CORPORATION, ELCTRNS. DIV., Components Dept., Box 5928, Greenville, SC 29606, Tel: 803-963-6348, Telex: 57-0496, TWX: 810-287-2536; FSC No.: 31433; *Sls. Mgr.:* C. E. Volpe; *Dist. Mgr.:* J. A. Bruorton .... **1A**•1096-1118

Local Sales Offices & Reps

AL	Huntsville, Union Carbide	205-830-1090
AZ	Tempe, Union Carbide	602-831-2151
CA	Marina del Rey, Union Carbide	213-821-8824
CA	Mountain View, Union Carbide	415-969-9390
CA	San Diego, Union Carbide	619-560-0768
CO	Englewood, Union Carbide	303-773-0494
FL	Ft. Lauderdale, Union Carbide	305-731-2187
FL	Orlando, Union Carbide	305-855-8886
FL	Pompano Beach, Union Carbide	305-785-1990
FL	Tampa, Union Carbide	813-872-1861
IL	Schaumburg, Union Carbide	312-843-1030
IN	Carmel, Union Carbide	317-844-7756
IA	Ceder Rapids, Seltec Sls.	319-393-1114
MD	Columbia, Union Carbide	301-992-5600
MA	Woburn, Union Carbide	617-938-5400
MI	Livonia, Union Carbide	313-591-0555
MN	Edina, Union Carbide	612-929-4642
NY	Liverpool, Union Carbide	315-451-0720

KEITHLEY

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PA	Exton, Union Carbide	215-363-8310
SC	Greenville, Union Carbide	803-242-5789
TX	Austin, Union Carbide	512-458-3181
TX	Irving, Union Carbide	214-556-0009
WA	Kirkland, Union Carbide	206-828-4853
PR	Santurce, ISLA CARIBE Electro Sls.	809-722-5140

Local Distributors

AL	Huntsville, Schweber Elctrns.	205-882-2200
AL	Huntsville, Hamilton/Avnet Elctrns.	205-837-7210
AL	Huntsville, Hall-Mark Elctrns. Corp.	205-837-8700
AZ	Phoenix, Hall-Mark Elctrns. Corp.	602-243-6601
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tempe, Fisher-Brownell	602-967-1464
AZ	Tempe, Hamilton/Avnet Elctrns.	602-231-5100
CA	Alhambra, Fisher-Brownell	714-739-2201
CA	Canoga Park, Schweber Elctrns.	213-999-4702
CA	Chatsworth, Integrated Elctrns.	213-998-2200
CA	Costa Mesa, Avnet Elctrns.	714-754-6111
CA	Costa Mesa, Hamilton/Avnet Elctrns.	714-641-1850
CA	Culver City, Hamilton Electro Sls. (Corp. Off.)	213-558-2662
CA	Irvine, Schweber Elctrns.	714-556-3880
CA	Sacramento, Hamilton/Avnet Elctrns.	916-920-3150
CA	Sacramento, Schweber Elctrns.	916-929-9732
CA	San Diego, Fisher-Brownell	619-560-8545
CA	San Diego, Hall-Mark Elctrns. Corp.	619-268-1201
CA	San Diego, Hamilton/Avnet Elctrns.	619-571-7510
CA	Santa Clara, Fisher-Brownell	408-988-6041
CA	Santa Clara, Schweber Elctrns.	408-748-4700
CA	Sunnyvale, Hall-Mark Elctrns. Corp.	408-773-9990
CA	Sunnyvale, Hamilton/Avnet Elctrns.	408-743-3355
CA	Sunnyvale, Bell Inds. (Corp. Off.)	408-734-8570
CA	Woodland Hills, Avnet Elctrns.	213-884-3333
CO	Englewood, Hall-Mark Elctrns. Corp.	303-694-1662
CO	Englewood, Hamilton/Avnet Elctrns.	303-740-1000
CO	Wheatridge, Bell Inds.	303-424-1985
CT	Danbury, Schweber Elctrns.	203-792-3500
CT	Danbury, Hamilton/Avnet Elctrns.	203-797-2800
CT	Norwalk, Pioneer/Harvey Elctrns.	203-853-1515
FL	Altamonte Springs, Schweber Elctrns.	305-331-7555
FL	Ft. Lauderdale, Hall-Mark Elctrns. Corp.	305-971-9280
FL	Ft. Lauderdale, Hamilton/Avnet Elctrns.	305-971-2900
FL	Hollywood, Schweber Elctrns.	305-927-0511
FL	Orlando, Hall-Mark Elctrns. Corp.	305-855-4020
FL	St. Petersburg, Hamilton/Avnet Elctrns.	813-576-3930
GA	Norcross, Hall-Mark Elctrns. Corp.	404-447-8000
GA	Norcross, Schweber Elctrns.	404-449-9170
GA	Norcross, Hamilton/Avnet Elctrns.	404-447-7500
IL	Bensenville, Hamilton/Avnet Elctrns.	312-678-6310
IL	Bensenville, Hall-Mark Elctrns. Corp.	312-860-3800
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IL	Elk Grove Village, Schweber Elctrns.	312-364-3750
IN	Carmel, Hamilton/Avnet Elctrns.	317-844-9333
IN	Indianapolis, Pioneer/Indianapolis	317-849-7300
IN	Indianapolis, Graham Elctrns.	317-634-8202
IA	Cedar Rapids, Schweber Elctrns.	319-373-1417
KS	Lenexa, Hall-Mark Elctrns. Corp.	913-888-4747
KS	Overland Park, Hamilton/Avnet Elctrns.	913-888-8900
KS	Overland Pk., Schweber Elctrns.	913-492-2921
MD	Baltimore, Hall-Mark Elctrns. Corp.	301-796-9300
MD	Columbia, Hamilton/Avnet Elctrns.	301-995-3500
MD	Gaithersburg, Schweber Elctrns.	301-840-5900
MA	Bedford, Schweber Elctrns.	617-275-5100
MA	Burlington, J. V. Elctrns. of Boston	617-273-4300
MA	Framingham, Cavalier Comps.	617-875-2000
MA	Lexington, Pioneer/Harvey Elctrns.	617-861-9200
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MI	Livonia, Pioneer/Michigan Elctrns.	313-525-1800
MI	Livonia, Hamilton/Avnet Elctrns.	313-522-4700
MI	Livonia, Schweber Elctrns.	313-525-8100
MN	Bloomington, Hall-Mark Elctrns. Corp.	612-884-9056
MN	Eden Prairie, Schweber Elctrns.	612-941-5280
MN	Minneapolis, Merit Elctrns. Corp.	612-546-5383
MN	Minnetonka, Pioneer/Twin Cities Elctrns.	612-935-5444
MN	Minnetonka, Hamilton/Avnet Elctrns.	612-932-0600
MO	Earth City, Schweber Elctrns.	314-739-0526
MO	Earth City, Hamilton/Avnet Elctrns.	314-344-1200
MO	Maryland Hgts., Hall-Mark Elctrns. Corp.	314-291-5350
NJ	Cherry Hill, Hall-Mark Elctrns. Corp.	609-424-7300 (NJ), 215-355-7300 (PA)
NJ	Cherry Hill, Hamilton/Avnet Elctrns.	609-424-0100
NJ	Fairfield, Hall-Mark Elctrns. Corp.	201-575-4415
NJ	Fairfield, Schweber Elctrns.	201-227-7880
NJ	Fairfield, Hamilton/Avnet Elctrns.	201-575-3390
NJ	Pine Brook, Pioneer/Harvey Elctrns.	201-227-1262
NM	Albuquerque, Alliance Elctrns.	505-292-3360
NM	Albuquerque, Bell Inds.	505-292-2700
NM	Albuquerque, Hamilton/Avnet Elctrns.	505-765-1500
NY	Buffalo, Summit Distrs.	716-884-3450
NY	E. Syracuse, Hamilton/Avnet Elctrns.	315-437-2642
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Melville, Hamilton/Avnet Elctrns.	516-454-6010
NY	Rochester, Summit Distrs.	716-334-8110
NY	Rochester, Schweber Elctrns.	716-424-2222
NY	Rochester, Hamilton/Avnet Elctrns.	716-475-9130
NY	Westbury, Schweber Elctrns. (Corp. Off.)	516-334-7474
NY	Woodbury, Pioneer/Harvey Elctrns.	516-921-8920
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OH	Dayton, Pioneer/Dayton Elctrns.	513-236-9900
OH	Westerville, Hall-Mark Elctrns. Corp.	614-891-4555
OK	Tulsa, Schweber Elctrns.	918-622-8000
OK	Tulsa, Hall-Mark Elctrns. Corp.	918-835-8458
OR	Lake Oswego, Bell Inds.	503-241-4115
OR	Lake Oswego, Hamilton/Avnet Elctrns.	503-635-7850
PA	Horsham, Schweber Elctrns.	215-441-0600
PA	Pittsburgh, Schweber Elctrns.	412-782-1600
PA	Pittsburgh, Pioneer/Pittsburgh Elctrns.	412-782-2300
TX	Austin, Pioneer/Austin	512-835-4000
TX	Austin, Schweber Elctrns.	512-458-8253
TX	Austin, Hall-Mark Elctrns. Corp.	512-837-2814
TX	Austin, Hamilton/Avnet Elctrns.	512-837-8911
TX	Dallas, Pioneer/Dallas Elctrns.	214-386-7300
TX	Dallas, Schweber Elctrns.	214-661-5010
TX	Dallas, Hall-Mark Elctrns. Corp. (Corp. Off.)	214-343-5000
TX	Houston, Pioneer/Houston Elctrns.	713-988-5555
TX	Houston, Hamilton/Avnet Elctrns.	713-780-1771
TX	Houston, Schweber Elctrns.	713-784-3600
TX	Houston, Hall-Mark Elctrns. Corp.	713-781-6100
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TX	Richardson, Fisher-Brownell	214-235-3177
TX	Richardson, Jaco Elctrns.	214-235-9575
UT	Salt Lake City, Bell Inds.	801-972-6969
UT	Salt Lake City, Hamilton/Avnet Elctrns.	801-972-2800
WA	Bellevue, Bell Inds.	206-747-1515
WA	Bellevue, Integrated Elctrns.	206-455-2727
WA	Bellevue, Hamilton/Avnet Elctrns.	206-453-5845
WI	Brookfield, Schweber Elctrns.	414-784-9020
WI	New Berlin, Hamilton/Avnet Elctrns.	414-784-4510
WI	Oak Creek, Hall-Mark Elctrns. Corp.	414-761-3000

KEMLITE LABS., INC., 1819 W. Grand Ave., Chicago, IL 60622, Tel: 312-829-6050; Empl.: 65; *Sls. Mgr.:* J.V. Daniels

KEMTRON CIRCUITS & ELCTRNS. CORP., 48 Merrick Rd., Rockville Centre, NY 11570, Tel: 516-766-2772; Empl.: 7; *Sls. Mgr.:* Walter Carlock

KENCO INDUSTRIES, INC., Elctrn. Chemicals Div., P.O. Box 88500, Atlanta, GA 30338, Tel: 404-475-6100; Empl.: 25; *Sls. Mgr.:* J. Rothenbach

KENSOL WIRE MARKING, Kensol Olsenmark Inc., 40 Melville Park Road, Melville, NY 11747, Tel: 516-694-7773, Telex: 510-224-6418; *Sls. Mgr.:* Tony Fiorey

KEN-TRON MFG., INC., 1204 Industrial Dr., Owensboro, KY 42301, Tel: 502-684-0431, Telex: 20-4305; Empl.: 100; *Sls. Mgr.:* J. Douglas

KENYON MAGNETICS, 1040 Grand St, Hoboken, NJ 07030, Tel: 201-798-6511; FSC No.: 54194; Empl.: 47; *Sls. Mgr.:* J. R. Siegel

KEPCO, 131-38 Sanford Ave., Flushing, NY 11352, Tel: 212-461-7000, TWX: 710-582-2631; Empl.: 200; *Sls. Mgr.:* Paul Birman; *Dist. Mgr.:* Paul Birman .... 3•1621-1644

Local Sales Offices & Reps

AL	Huntsville, J. L. Highsmith Co.	205-536-6666
AZ	Tempe, J. F. Hurlbut Co.	602-968-5962
CA	Los Angeles, Windsor Dynamics	213-990-4173
CA	San Diego, Windsor Dynamics	714-452-1891
CA	San Francisco, N-S Assocs.	415-854-4870
CO	Denver, J. F. Hurlbut Co.	303-279-7796
CT	Farmington, R. Perron Co.	203-673-4825
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FL	Orlando, J. L. Highsmith Co.	305-422-5794
GA	Tucker, J. L. Highsmith Co.	404-493-1055
IL	Chicago, Century Elctrns.	312-777-9700
IN	Noblesville, Century Elctrns.	317-849-2026
IA	Cedar Rapids, Century Elctrns.	319-362-4410
KS	Shawnee, ATECH	913-268-9644
MD	Burtonsville, Eastern Instrmn.	301-384-8500
MA	Needham, R. Perron Co.	617-449-6162
MI	Detroit, Carter McCormic & Peirce	313-477-7700
MN	Minneapolis, E.C. Elctrn. Sls.	612-831-0229
MO	St. Louis, ATECH	314-576-2884
NH	Dover, R. Perron & Co.	603-742-2321
NJ	Cresskill, Eastern Instrmn.	201-567-9505
NM	Albuquerque, Techn. Mktg. Assoc.	505-345-8921
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NY	Syracuse, NACO Elctrns. Corp.	315-699-2651
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NC	Charlotte, J. L. Highsmith Co.	704-333-7743
OH	Cleveland, Carter McCormic & Peirce	216-779-5100
OH	Dayton, Carter McCormic & Peirce	513-836-0951
OR	Portland, H. Levinson	503-245-1902
PA	Bensalem, Eastern Instrmn.	215-927-7778
PA	Pittsburgh, Carter McCormic & Peirce	412-372-4415
TX	Austin, Airep Elctrns.	512-327-0778
TX	Dallas, Airep Elctrns.	214-349-4360
TX	Houston, Airep Elctrns.	713-944-2055
UT	Salt Lake City, J. F. Hurlbut Co.	801-973-4443
VA	Richmond, J. L. Highsmith Co.	804-745-5555
WA	Seattle, H. Levinson Co.	206-382-1300
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KEPRO CIRCUIT SYS., 630 Axminister Dr., Fenton, MO 63026, Tel: 314-343-1630; Empl.: 17; *Sls. Mgr.:* Jeff R. Keil; *Dist. Mgr.:* Jeff R. Keil

KEP

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AZ	Phoenix, Bob Anderson Co.	602-266-2070
AR	Little Rock, Drives and Elec.	501-568-8800
CA	Burbank, Coast Wholesale Elec.	213-843-4111
CA	Dublin, Standard Meter Lab	415-828-4837
CA	Fresno, Allied Elec. Motor Ser.	209-486-4222
CA	Irvine, Metercraft	714-979-1420
CA	Los Angeles, Metermaster	213-685-4340
CA	Los Angeles, E.I.L. Instrs.	213-685-7020
CA	Oakland, Western Electro-Mechanical	415-452-1936
CA	Palo Alto, Metermaster	415-968-0313
CA	San Diego, Metermaster	619-560-4841
CA	Santa Clara, E.I.L. Instrs.	408-727-0396
CA	Santa Monica, Master Distr.	213-452-1229
CO	Aurora, Esco Svcs.	303-360-8008
CO	Denver, E.I.L. Instrs.	303-534-4160
CT	Middletown, E.I.L. Instrs.	203-346-6646
FL	Cantonment, C.B. Metcalf	904-968-5500
FL	Clearwater, Esco Svc.	813-461-6454
FL	Ft. Lauderdale, Elctrn. Devices & Controls	305-974-2500
FL	Ft. Lauderdale, McDonald	305-563-6165
FL	Ft. Lauderdale, Power & Pumps	305-566-3261
FL	Jacksonville, Power & Pumps	904-356-5881
FL	Orlando, Power & Pumps	305-843-7400
FL	Palm Bay, E.I.L. Instrs.	305-725-8300
FL	Tampa, Power & Pumps	813-621-8071
GA	Norcross, Metermaster	404-446-0166
GA	Norcross, AA Elec.	404-449-8670
HI	Honolulu, Process Valve	808-848-0337
IL	Bridgeview, E.I.L. Instrs.	312-430-2292
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Decatur, Englewood Elec.	217-875-7300
IL	Downers Grove, Neuco	312-960-3800
IL	Peoria, Tecco Inc.	309-692-2312
IL	Woodale, Electro-Kinetics	312-595-6700
IN	Columbus, Kirby Risk Supp.	812-372-8431
IN	Evansville, Hutch & Sons	812-425-7201
IN	Indianapolis, Bryat Controls	317-784-0261
IN	Indianapolis, E.I.L. Instrs.	317-545-1373
KY	Edgewood, AC/DC	606-341-0330
KY	Louisville, E.I.L.	502-454-3432
LA	New Orleans, Indl. Instr. Works	504-733-8355
MD	Baltimore, B. R. Smith	301-945-1000
MD	Gaithersburg, Pioneer	301-921-0660
MD	Sparks, E.I.L. Instrs.	301-771-4800
MA	Burlington, E.I.L. Instrs.	617-272-9450
MA	W. Springfield, Control Engrg.	413-781-1330
MI	Cadillac, Ackerman Elctrl. Supp.	616-775-9734
MI	Clio, Control Dvcs.	313-686-2410
MI	Grand Rapids, Ackerman Elctrl. Supp.	616-459-8327
MI	Marquette, NWR	906-228-9050
MI	Southfield, ESCO Svc.	313-354-3818

MN	Bloomington, NWR	612-854-7329
MN	Hibbing, NWR	218-262-5228
MN	Minneapolis, Dot Elctrns.	612-861-3343
MO	St. Louis, Indl. Svc. Labs	314-535-5760
NJ	Green Brook, Apparatus Elctrl. Supp.	201-752-8400
NJ	Paterson, Feldman Bros.	201-742-7329
NY	Hauppauge, E.I.L. Instrs.	516-231-6333
NY	Maspeth, Babco	212-446-5120
NY	Rochester, E.I.C.	716-424-5750
NY	Rochester, E.I.L. Instrs.	716-424-5750
NY	Rockaway Park, Metropolitan Sls.	212-634-3100
NC	Asheville, Elec. Supp. Co.	704-255-8899
NC	Charlotte, Carolina Elec. Supp. Co.	704-333-7526
NC	Charlotte, Count Inc.	704-392-7496
NC	Gastonia, J.M.T. Elctrn.	704-867-4401
OH	Chagrin Falls, RPM Sales	216-247-3295
OH	Cleveland, Metermaster	216-651-4100
OH	Cleveland, Pioneer Std.	216-587-3600
OH	Dayton, Pioneer	513-236-9900
OH	Dayton, E.I.L. Instrs.	513-435-2134
OH	Tipp City, Tech. Comp. Sls.	513-667-1216
OK	Tulsa, Tri-State	918-836-0286
OR	Portland, Westcon	503-283-0132
PA	Exton, Valey Assocs.	215-363-2650
PA	Havertown, Quarracino	215-449-7500
PA	Media, W. Reeves Assocs.	215-566-6709
PA	Pittsburgh, E.I.L. Instrs.	412-731-5230
PA	Pittsburgh, CAM RPC	412-782-3770
SC	Columbia, Control Specialists	803-254-8087
TX	Dallas, Solid State	214-438-5700
TX	Dallas, E.I.L. Instrs.	214-931-1236
TX	Fort Worth, Allied Electrns.	817-336-5401
TX	Ft. Worth, Swieco Inc.	817-335-6512
TX	Garland, Metermaster	214-271-5671
TX	Houston, Quality Inst. Labs	713-524-0528
TX	Houston, E.I.L. Instrs.	713-271-3100
UT	Fillmore, Stuart	801-743-5861
UT	Salt Lake City, Stuart	801-466-8603
VA	Alexandria, E.I.L. Instrs.	703-354-4330
VA	Virginia Beach, E.I.L. Instrs.	804-499-3746
WA	Seattle, E.I.L. Instrs.	206-762-0880
WA	Seattle, C. B. Parsons	206-762-7373
WI	Fond du Lac, Englewood Elctrl.	414-922-4240
WI	Green Bay, Englewood Elctrl.	414-432-2000
WI	Oconomowoc, Atlas Instrs.	414-367-8759
WI	Schoefield, Englewood Elctrl.	715-359-0454

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CA	Anaheim	714-871-0280
NJ	Newark	201-589-0246

KEUFFEL & ESSER/KRATOS, 20 Whippany Rd., Morristown, NJ 07960, Tel: 201-285-5181, Telex: 136425; Empl.: 1800

KEVLIN MICROWAVE CORP., 26 Conn St., Woburn, MA 01801, Tel: 617-935-4800, TWX: 710-393-1239; FSC No.: 25634; *Sls. Mgr.:* James E. Riley

KEYAN INDS., INC., P.O. Box 1228, Middleboro, MA 02346, Tel: 617-947-7719; Empl.: 11; *Sls. Mgr.:* Tris Klingenberg; *Dist. Mgr.:* Herb Holt

KEYEX, J. B. Man Corp., 838 S. Main St., Hampstead, MD 21074, Tel: 301-239-6777; *Sls. Mgr.:* Karl M. Yatovitz; *Dist. Mgr.:* Karl M. Yatovitz

KEYSTONE CARBON, Thermistor Div., St. Marys, PA 15857, Tel: 814-781-1591, Telex: 91-4517; FSC No.: 75-263; Empl.: 1200; *Sls. Mgr.:* John A. Brock; *Dist. Mgr.:* John A. Brock .... 1B•1804-1807

Local Sales Offices & Reps

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CA	Sierra Madre, McCornack & Assocs.	213-355-0466
CO	Littleton, Omega Ltd.	303-798-7040
CT	Wethersfield, L.J. Labant	203-529-0048
GA	Marietta, J.J. Arnold	404-427-1062
IL	West Dundee, W. S. Heffron	312-426-6472
IN	Fort Wayne, R.O. Whitesell & Assoc.	219-432-5591
IN	Indianapolis, R.O. Whitesell & Assoc.	317-359-9283
IN	Kokomo, R.O. Whitesell & Assoc.	317-457-9127
KS	Shawnee, Benson Engrg.	913-642-4442
KY	Louisville, R.O. Whitesell & Assoc.	502-426-7696
MI	Grand Rapids, J.L. Montogomery Co.	616-774-9308
MI	Southfield, J.L. Montgomery Assoc.	313-358-2616
MN	Minneapolis, Stoss Assocs.	612-925-2757
NY	Fayetteville, S.F. Foster Co.	315-637-5427
NY	Webster, S.F. Foster Co.	716-265-2072
NC	Greensboro, DHR Mktg.	919-273-2671
NC	Raleigh, DHR Mktg.	919-876-5450
OH	Cincinnati, R.O. Whitesell & Assoc.	513-521-2290
OH	Cleveland, R.O. Whitesell & Assoc.	216-447-9020
OH	Columbus, R.O. Whitesell & Assoc.	614-888-9396
OH	Dayton, R.O. Whitesell & Assoc.	513-298-9546
PA	Pittsburgh, R.O. Whitesell & Assoc.	412-963-6161
PA	Plymouth Meeting, J. E. Shea	215-825-2046
SC	Greenville, DHR Mktg.	803-235-3594
TN	Greenville, R.O. Whitesell & Assocs.	615-639-6154
TX	Dallas, Benson Engrg.	214-352-7541
TX	Houston, Benson Engrg.	713-861-1551
WA	Seattle, Northmar Inc.	206-524-5170
WI	New Berlin, T. L. Labant	414-425-7157
EXP	NY, Freeport, Minthorne Int'l.	516-546-4700

Local Distributors

AZ	Scottsdale, Allied Elctrns.	602-990-9549
CA	Garden Grove, Allied Elctrns.	714-554-0731
CA	Inglewood, Newark Elctrns.	213-671-7066
CA	Santa Clara, Allied Elctrns.	408-727-1690
CO	Wheatridge, Allied Elctrns.	303-425-7144
FL	Ft. Lauderdale, Allied Elctrns.	305-486-0500
GA	Atlanta, Allied Elctrns.	404-237-3366
IL	Elgin, Allied Elctrns.	312-697-8200
MA	Wilmington, Allied Elctrns.	617-942-0150
MI	Westland, Allied Elctrns.	313-595-6565
MN	Minneapolis, Allied Elctrns.	612-559-9545
MO	Maryland Hgts., Newark Elctrns.	314-739-0133
MO	St. Louis, Allied Elctrns.	314-878-1229
NJ	Springfield, Newark Elctrns.	212-349-7087
NY	Mineola, Allied Elctrns.	516-248-2360
NC	Cary, Allied Elctrns.	919-467-0720
OH	Willoughby, Allied Elctrns.	216-951-0908
OK	Tulsa, Allied Elctrns.	918-663-7630
PA	Bala Cynwyd, Allied Elctrns.	215-667-6940
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Houston, Allied Elctrns.	713-445-7123
VA	Alexandria, Allied Elctrns.	703-836-5002
WA	Seattle, Allied Elctrns.	206-767-5772
WI	Brookfield, Newark Elctrns.	414-781-2450
WI	Milwaukee, Allied Elctrns.	414-463-2662

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CA	Mountain View, Del Bucchia & Assoc. (North)	415-965-8045
CA	N. Hollywood, Bassett Sls. Corp. (South)	213-877-7129; 714-539-4000
CO	Denver, William J. Purdy Co.	303-777-1411
FL	Lighthouse Point, Jack Krutek Assocs.	305-941-6544
GA	Atlanta, DHR Marketing	404-451-9848
IL	Wilmette, Joel Wasserman Assoc.	312-256-3566
IN	Carmel, Brainard-Wilson Mktg. Inc.	317-844-2800
MA	Needham Heights, The Newscott Co. Inc.	617-444-1923
MN	Minneapolis, Donald Luger & Assoc.	612-553-1122
MO	St. Louis, KKB & Co.	314-647-2400; 816-229-0001
NJ	South Orange, Sonny Simberkoff Assoc.	201-763-7900
NM	Albuquerque, William J. Purdy Co.	505-266-7959
NC	Raleigh, DHR Marketing	919-876-5450; 919-273-2671
OH	Beachwood, Elctrn. Salesmasters	216-831-9555; 800-321-1848
OR	Beaverton, William J. Purdy Co.	503-641-9373
UT	Salt Lake City, William J. Purdy Co.	801-486-8557
WA	Redmond, William J. Purdy Co.	206-882-3144

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AZ	Tempe, Cantec Sls., Inc.	601-829-0191
CA	Cupertino, Patterson Control Sys.	408-973-1050
CA	Long Beach, Measurement Assocs.	213-433-0977
CO	Englewood, F. G. Mktg. Co.	303-795-9176
CT	Mt. Carmel, Scientific Devices - CONN	203-248-9361
FL	Cocoa Beach, Teqspec, Inc.	305-783-3444
FL	Hobe Sound, Teqspec, Inc.	305-746-4987
FL	Palm Harbor, Teqspec, Inc.	813-785-2276
GA	Atlanta, Kemp Instrs.	404-452-8050
IL	LaGrange, PVA Co.	312-579-9300
KS	De Soto, Midtec Assocs., Inc.	913-441-6565
MA	Waltham, Scientific Devices N.E.	617-890-2252
MN	Minneapolis, HEI-LITE Sls.	612-861-6051
NJ	Englewood Cliffs, Scientific Devices - East	201-871-3916
NC	Winston-Salem, Radco Co.	919-722-9671
OR	Beaverton, Eicher Richards Co.	503-641-3300
PA	Blairsville, Measurement Instrs. East, Inc.	412-459-8090
PA	Oreland, Technical Instr. Sls.	215-836-2222
TX	Dallas, True Tech. Co.	214-691-7870
VA	McLean, WWB Assocs.	703-893-6516
WA	Seattle, Eicher Richards Co.	206-523-7888
WI	Glendale, Stapelman Corp.	414-352-5777

KEY TRONIC, P.O. Box 14687, Spokane, WA 99214, Tel: 509-928-8000, TWX: 510-773-1885; FSC No.: 52833; Empl.: 1350

KGS ELECTRONICS, INC., GAR Entprs., 2029 N. Lincoln Ave., Pasadena, CA 91103, Tel: 818-798-0786; Empl.: 25 .... 3•1890, 1891

Local Sales Offices & Reps

TN	Memphis, Memphis Group	901-362-8600
TX	Dallas, Foxtronics	214-358-4425
TX	Dallas, Mark Hutton	214-484-0580
TX	Hurst, McGarrah & Assocs.	817-268-3557
EXP	NJ, Rahway, REA Intl.	201-382-7100

WALTER KIDDE, Div. of Kidde, Inc., P.O. Box 1147, Wake Forest, NC 27587, Tel: 919-556-6811, Telex: 802569 WALTKIDDE; Empl.: 250; *Sls. Mgr.:* Frank Lindsey

KIKUSUI INTL. CORP., 17819 S. Figueroa St., Gardena, CA 90248, Tel: 213-515-6432, 800-421-5334, TWX: 910-346-7648; *Sls. Mgr.:* Bill White .... 3•1370, 1371, 1645

Local Sales Offices & Reps

AL	Huntsville, Morard & Co.(MOCO)	205-881-5968
AZ	Phoenix, Cherry Assoc.(Scopes Only)	602-242-1922
AZ	Scottsdale, Power Specialist	602-996-4100
CA	Carson, Amasco South	213-516-8561
CA	Sunnyvale, Amasco North	408-733-8690
CO	Aurora, R & R Instrmn.	303-340-8728
FL	Melbourne, EMS, Inc.	305-724-1027
HI	Honolulu, EMC Corp.	808-836-1138
IL	Elmhurst, Sector Engrg. Sls.	312-530-7850
IN	Indianapolis, Sector Engrg. Sls.	317-842-1120
KS	Olathe, Rush & West Assoc. (Power Supp.)	913-764-2700
KS	Overland Park, Ramsey Assocs. (Scopes Only)	913-649-6996
MD	Burtonsville, Eastern Instrmn.	301-384-8500
MD	Wheaton, Brimberg Sls. (Power Supp.)	301-946-2670
MA	Bedford, Eastronix	617-275-5775
MI	Warren, Dietrich & Assocs.	313-751-4990
MN	Minneapolis, Sector Engrg. Sls.	612-888-6920
MO	Ballwin, Rush & West Assoc. (Power Supp.)	314-394-7271
MO	Maryland Hgts., Ramsey Assocs. (Scopes Only)	314-878-5042
NJ	Englewood Cliffs, Sci. Devices East	201-871-3916
NM	Albuquerque, Cleveland Entprs.	505-265-7893
NY	Syracuse, Martindale - Paul	315-432-1141
OH	Cleveland, Dietrich & Assocs.	216-781-1855
OH	Dayton, Dietrich & Assocs.	513-223-6042
OR	Portland, Westcon	503-283-0132
PA	Pittsburgh, Dietrich & Assocs.	412-892-2992

PA	Springhouse, Sci. Devices East	215-643-3335
TX	Houston, Sci. Devices S.W.	713-864-1711
TX	Richardson, Sci. Devices S.W.	214-231-8106
VT	Shelburne, Eastronix	802-985-3743
WI	Milwaukee, Sector Engrg. Sls.	414-352-8280
PR	San Juan, David S. Ternent	809-762-2688

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Local Sales Offices & Reps

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CA	Campbell, Kottmeier Assocs.	408-866-5153
CT	Yalesville, Kanan Assocs.	203-265-2404
FL	St. Petersburg, David A. King	813-381-1893
IL	Schaumburg, Gassner & Clark	312-882-8608
IA	Cedar Rapids, H. R. Brown Sls. Co.	319-366-0635
KS	Olathe, M. E. Bettis Co.	913-649-7142
KS	Wichita, M. E. Bettis Co.	316-265-8250
MD	Columbia, Tyler Griffin Co.	301-995-1215
MA	Reading, Kanan Assocs.	617-944-8484
MN	St. Paul, De Beck	612-835-4649
NJ	Colts Neck, Trionic Assoc.	201-431-0415
NM	Albuquerque, Data Handling	505-884-0284
NY	Cazenovia, S. T. Woolard Co.	315-655-8145
NY	Great Neck, Trionic Assoc.	516-466-2300
NY	Rochester, Lamb	716-323-1250
NC	Charlotte, DGW, Inc.	704-334-7090
NC	Winston-Salem, DGW, Inc.	919-768-7166
OH	Cleveland, Components, Inc.	216-243-9200
OH	Miamisburgh, Components, Inc.	513-866-0661
OK	Tulsa, Norcom, Inc.	918-832-7747
OR	Tigard, Components West	503-684-1671
PA	Paoli, Tyler Griffin	215-647-1550
TX	Austin, Norcom, Inc.	512-451-2757
TX	Dallas, Norcom, Inc.	214-386-4888
TX	Houston, Norcom, Inc.	713-778-0392
WA	Renton, Components West	206-271-5252

KIMCO, 150 Vallecitos de Oro, San Marcos, CA 92069, Tel: 619-744-5671, TWX: 910-322-1168; Empl.: 43; *Sls. Mgr.:* W. P. Byrnes

KINEMETRICS, INC., 222 Vista Ave., Pasadena, CA 91107, Tel: 818-795-2220, Telex: 67-5402; Empl.: 110; *Sls. Mgr.:* Steve Pauly

Local Sales Offices & Reps

CA	Santa Rosa, Kinemetrics/TrueTime	707-528-1230
OK	Tulsa, Kinemetrics/Monitron	918-836-6831

KINEMETRICS TRUETIME INSTR. CO., 3243 Santa Rose Ave, Santa Rosa, CA 95401, Tel: 707-528-1230, Telex: 176687 (TRUETIME SORO); Empl.: 30; *Sls. Mgr.:* Victor Kunkel

KINETIC SYS., 11 Maryknoll Dr., Lockport, IL 60441, Tel: 815-838-0005, TWX: 910-638-2831; Empl.: 160; *Sls. Mgr.:* Pat Kirby

KINEX CORP., Sub. of the Nokia Corp. - Helsinki, 6950 Bryan Dairy Rd., Largo, FL 33543, Tel: 813-541-6404, TWX: 810-863-0362; Empl.: 100; *Sls. Mgr.:* W. L. Huston (Vice President); *Dist. Mgr.:* Steve Ridge

KINGS ELCTRNS., 40 Marbledale Rd., Tuckahoe, NY 10707, Tel: 914-793-5000, Telex: 13-7449, TWX: 710-562-0110; FSC No.: 91836; Empl.: 465; *Sls. Mgr.:* F. Pack; *Dist. Mgr.:* Fred Della Iacono

KINGSLEY MACHINE CO., 850 Cahuenga Blvd., Hollywood, CA 90038, Tel: 213-469-7243, Telex: 910-3214581; *Sls. Mgr.:* John M. Butler

KING-WAY ASSOC., 16400 Ventura Blvd., Encino, CA 91316, Tel: 213-788-4124

KING WIRE & CABLE CORP., 179-45 110 Ave., Jamaica, NY 11433, Tel: 212-657-4422, 800-221-0144, Telex: 96-8858; FSC No.: 06145; *Sls. Mgr.:* Ira M. Lash; *Dist. Mgr.:* Ira M. Lash

KIPP & ZONEN, 390 Central Ave., Bohemia, NY 11716, Tel: 516-589-2885, Telex: 0960250; Empl.: 25; *Sls. Mgr.:* Wm. Novack; *Dist. Mgr.:* Wm. Novack

KISTLER-MORSE, 10201 Willows Road NE, Redmond, WA 98052, Tel: 206-881-8000, Telex: 15-2223; *Sls. Mgr.:* Jim Beaton

KLC CORP., 2234 East Colorado, Pasadena, CA 91107, Tel: 818-796-0525; Empl.: 6; *Sls. Mgr.:* Chris Connelly

KLC/KARL LAMBRECHT CORP., 4204 N. Lincoln Ave., Chicago, IL 60618, Tel: 312-472-5442, Telex: 759819

KLM ELECTRONICS, 16890 Church St., P.O. Box 816, Morgan Hill, CA 95037, Tel: 408-779-7363, TWX: 910-590-4468; Empl.: 250; *Sls. Mgr.:* Chuck McKinney

KLOCKNER MOELLER, 4 Strathmore Rd., Natick, MA 01760, Tel: 617-655-1910, Telex: 94-8434; Empl.: 250; *Sls. Mgr.:* George Tamer

Local Sales Offices & Reps

CA	Cerritos	213-926-2355
CA	Concord	415-676-5353
GA	Marietta	404-952-0258
IL	Elk Grove	312-593-0980
NJ	Fairfield	201-227-3140
NY	New York	212-697-1184
OK	Tulsa	918-627-0676
TX	Stafford	713-491-2687

KMC SYSTEMS INC., 140 Greenwood Ave. (Bldg. 3), Midland Pk., NJ 07432, Tel: 201-447-0007, Telex: 642-374; Empl.: 120; *Sls. Mgr.:* E. Verder

Local Sales Offices & Reps

NJ	Mt. Laurel, Control Equip.	215-676-1460
UT	Bountiful, Lectrol, Inc.	801-292-7674

KNOL ENTERPRISES, 3468 Sacramento Dr., San Luis Obispo, CA 93401, Tel: 805-544-4881; Empl.: 6; *Sls. Mgr.:* Dave Bone

KNOWLES ELCTRNS., INC., 3100 N. Mannheim Rd., Franklin Park, IL 60131, Tel: 312-455-3600, Telex: 72-8397; *Sls. Mgr.:* Reginald G. Garratt, VP-Mktg.

KOA

KOA SPEER ELCTRNS., Bolivar Dr., P.O. Box 547, Bradford, PA 16701, Tel: 814-362-5536, Telex: 91-4404, TWX: 510-695-5921; Empl.: 50; *Sls. Mgr.:* L. G. Holzwarth; *Dist. Mgr.:* L. Rice .... **1A**•1885-1888

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AZ	Phoenix, O'Donnell Assocs.	602-944-9542
CA	Anaheim, Westrep	213-404-3881
CA	San Diego, Westrep	619-276-0751
CA	Santa Clara, I2 Inc.	408-988-3400
CO	Boulder, R. G. Entprs.	303-447-9211
CT	Middletown, Gerber Sls.	203-347-3000
FL	Ft. Lauderdale, APM Assocs.	305-565-0056
FL	Longwood, APM Assocs.	305-869-6831
FL	Tampa, APM Assocs.	813-886-2457
GA	Atlanta, Cartwright & Bean	404-233-2939
IL	Arlington Hgts., C. L. Greenslade Sls.	312-253-9620
IN	Fort Wayne, John F. Kilfoil	219-436-7233
KS	Overland Park, Advanced Techn. Sls.	913-642-6675
LA	Kenner, Cartwright & Bean	504-466-0020
MA	Ludlow, Gerber Sls.	413-589-9837
MA	Newton Upper Falls, Gerber Sls.	617-969-2620
MI	Troy, C. B. Jensen & Assocs.	313-643-0506
MN	Edina, Grayden & Flemmer	612-941-1120
MS	Jackson, Cartwright & Bean	601-981-1170
MO	Ellisville, Advanced Techn. Sls.	314-227-4448
NM	Albuquerque, Power Entprs.	505-298-1918
NY	East Rochester, Tri-Tech Elctrns.	716-385-6500
NY	Endwell, Tri-Tech Elctrns.	607-754-1094
NY	Fayetteville, Tri-Tech Elctrns.	315-446-2881
NY	Fishkill, Tri-Tech Elctrns.	914-897-5611
NY	Great Neck, MOS Assocs.	516-487-3966
NC	Charlotte, Cartwright & Bean	704-377-5673
NC	Raleigh, Cartwright & Bean	919-781-6560
OH	Cincinnati, John F. Kilfoil	513-791-6150
OR	Beaverton, Barrett-Squibb & Assoc.	503-642-1661
PA	Wynnewood, Metz-Benham Assocs.	215-896-7300
TN	Knoxville, Cartwright & Bean	615-693-7450
TN	Memphis, Cartwright & Bean	901-276-4442
TX	Lewisville, Jim Hughes	214-221-1536
TX	Stafford, Jim Hughes	713-343-0673
WA	Redmond, Barrett-Squibb & Assoc.	206-885-6991
PR	Hato Rey, M. Anderson	809-751-2026

Local Distributors

AZ	Phoenix, Sterling Elctrns.	602-258-4531
AZ	Phoenix, Kachina	602-269-6201
AZ	Tucson, Kachina	602-792-2223
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Chatsworth, IEC/JACO	213-998-2200
CA	Fountain Valley, Comps. Ctr.	714-979-0433
CA	Irvine, KELEX	714-957-3247
CA	Irvine, Ryno Elctrns.	714-557-5021
CA	San Diego, Ryno Elctrns.	619-292-6022
CA	San Jose, Eric Elctrns.	408-262-1111
CA	Santa Clara, Components Ctr.	408-988-3751
CA	Sun Valley, QC Comps.	213-768-6111
CO	Boulder, R. G. Entprs.	303-447-9211
CO	Denver, Integrated Elctrns.	303-534-6121
CT	Stratford, Utronics	203-378-4201
CT	Wallingford, Midstate Elctrns.	203-265-9900
FL	Orlando, TTI	305-859-1000
FL	W. Palm Beach, Nurmi Elctrn. Supp.	305-684-0320
GA	Roswell, Quality Comps.	404-993-8146
IL	Elk Grove Village, GBL/Goold Elctrns.	312-593-3220
IL	Northbrook, Classic Comp. Supp.	312-272-9650
IL	Rosemont, Advent Elctrns.	312-298-4210
IN	Indianapolis, Advent Elctrns.	317-872-4910
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
LA	Baton Rouge, Indl. Elctrn. Supp.	504-926-0513
LA	Shreveport, Indl. Elctrn. Supp.	318-222-9459
MD	Baltimore, Radio Elec. Svc. Co.	301-823-0070
MD	Beltsville, Radio Elec. Svc.	301-937-9100
MA	Billerica, Baldwin Comp. Ctr.	617-667-6710
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Waltham, Sterling Elctrns.	617-894-6200
MI	Ann Arbor, Wedemeyer	313-665-8611
MI	Farmington Hills, Prehler Elctrns.	313-476-7084
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Livonia, Reptron	313-525-2700
MN	St. Paul, Ragon Elctrns.	612-642-2828
NE	Lincoln, Scott Elctrns.	402-466-8221
NJ	Clifton, J Mar Elctrns.	201-772-6400
NJ	Mountainside, Enox Resistor Co.	201-654-7600
NJ	Pennsauken, Resco Elctrns.	609-662-4000
NY	Amherst, Standard Elctrns.	716-691-3801
NY	Bohemia, Justin Elctrns.	516-589-4000
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Farmingdale, SAI	516-293-2710
NY	Hauppauge, Prime Comps.	516-582-6258
NY	Hauppauge, Fairmont Elctrn. Sls.	516-231-3313
NY	Hauppauge, Jaco	516-273-5500
NY	Huntington Station, Sherburn Elctrns.	516-421-1940
NY	Rochester, Summit Distrs.	716-334-8110
NY	Ronkonkoma, Baldwin Comp. Ctr.	516-588-5700
NC	Raleigh, Resco Raleigh	919-781-5700
NC	Raleigh, Southeastern Radio	919-828-2311
OH	Cleveland, Repco	216-248-8900
OH	Cleveland, Roberts Elect. Corp.	216-238-1711
OH	Columbus, Reptron/Ohio	614-436-6675
OH	Dayton, Stotts-Friedman Elctrns.	513-298-5555
OH	Solon, Hart Elctrns.	216-248-8855
OK	Tulsa, Altair Co.	918-252-5781
PA	Braddock, Leff Elctrns.	412-271-2800
PA	Drexel Hill, Kass Elctrns. Dist.	215-449-2300
PA	Erie, Rem Elctrns.	814-453-5626
PA	Harrisburg, Cumberland Elctrns.	717-233-5883
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
RI	Providence, Wm. Dandreta Co.	401-861-2800
SC	Columbia, Dixie Radio Supp.	803-779-5332
TN	Kingsport, Radio Elctrn. Supp.	615-247-8111
TN	Memphis, Bluff City Elctrns.	901-345-9500
TN	Nashville, Bluff City Elctrns.	615-242-8000
TX	Ft. Worth, T.T.I. Inc.	817-429-1440
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, Altair Co.	214-231-5166
WA	Kent, Shannon Ltd.	206-763-0545
WA	Redmond, Murphy Elctrns.	206-881-1234
WI	Hartland, G W Elctrns.	414-367-6003
WI	New Berlin, RM-Wisconsin	414-784-4420

KODE, 2752 Walnut Ave., Tustin, CA 92680, Tel: 714-730-6901, TWX: 910-595-2680; FSC No.: 62767; Empl.: 65; *Sls. Mgr.:* Richard E. Miller

KOGYOSHA, 179 Riveredge Rd., Tenafly, NJ 07670, Tel: 201-569-8769; Empl.: 3; *Sls. Mgr.:* Mark Nakanishi; *Dist. Mgr.:* Mark Nakanishi

KOLE IND., 3553 N.W. 50th St., Miami, FL 33102-0152, Tel: 305-633-2556, 800-327-6085; Empl.: 45; *Sls. Mgr.:* B. J. Neelands

KOLIN INDS., Box 357, Pondfield Rd. W., Bronxville, NY 10708, Tel: 914-961-5065, Telex: 137453; Empl.: 40; *Sls. Mgr.:* J. Kolinsky

KOLLMORGEN CORP., Industrial Drives Div., 201 Rock Rd., Radford, VA 24141, Tel: 703-639-2495, TWX: 710-875-3743; FSC No.: 11384; Empl.: 250; *Sls. Mgr.:* Sandor L. Tako

KOLLSMAN INSTR., 220 Daniel Webster Hwy., Merrimack, NH 03054, Tel: 603-889-2500, Telex: 94-3537, TWX: 710-366-6883; Empl.: 2200

KONTES, Kimble Div. of Owens/IL, 1001 Spruce St., Vineland, NJ 08360, Tel: 609-692-8500, TWX: 510-687-8967; *Sls. Mgr.:* Peter Davenport

KONTRON ELCTRNS., 630 Price Ave., Redwood City, CA 94062, Tel: 415-361-1012, TWX: 910-378-5207; Empl.: 200; *Sls. Mgr.:* Jeff Shahan

KOOLTRONIC, Hamilton Ave., Hopewell, NJ 08525, Tel: 609-466-3400, Telex: 84-3345; Empl.: 150; *Sls. Mgr.:* Gerald H. Freedman

KORRY ELECTRONICS, INC., 223 8th Ave. N., Seattle, WA 98109, Tel: 206-223-5400, TWX: 910-444-2295; Empl.: 410; *Sls. Mgr.:* Woody Hertzog

KRATOS DISPLAY SYSTEMS, 101 Cooper Court, Los Gatos, CA 95030, Tel: 408-395-3700, Telex: 171946; *Sls. Mgr.:* Bill Bourke

KRECKMAN, HERB, CO., Cresco, PA 18326, Tel: 717-595-2212; Empl.: 4

KR ELECTRONICS, INC., 91 Avenel St., Avenel, NJ 07001, Tel: 201-636-1900; Empl.: 25 .... **1A•1601**

KRL ELCTRNS., 160 Bouchard St., Manchester, NH 03103, Tel: 603-668-3210, 800-257-3300, TWX: 710-220-1662; Empl.: 65

KROHN CERAMICS, INC, See Centerflex Techn.

KROHN-HITE CORP., Avon Indl. Pk., Bodwell St., Avon, MA 02322, Tel: 617-580-1660, TWX: 710-345-0831; Empl.: 120; *Sls. Mgr.:* Craig S. Dunbar .... **3•1254, 1255**

Local Sales Offices & Reps

AL	Huntsville, Gentry Assocs.	205-534-9771
AZ	Phoenix, Odyssey 1	602-246-8846
AR	Eldorado, Kemp Engrg.	501-826-5869
CA	Inglewood, L&M South	213-674-6850
CA	San Jose, L&M Engrg.	408-292-3220
CO	Castle Rock, Odyssey 1	303-688-3555
CT	New Haven, McBar Assocs.	203-865-4376
FL	Ft. Lauderdale, Gentry Assocs.	305-791-8405
FL	Orlando, Gentry Assocs.	305-859-7450
FL	Tampa, Gentry Assocs.	813-886-0720
GA	Atlanta, Gentry Assocs.	404-998-2828
IL	Chicago, Berndt Assocs.	312-283-0713
IN	Carmel, Berndt Assocs.	317-844-0114
KS	Overland Park, Ramsey Assocs.	913-649-6996
LA	Gretna, Gentry Assocs.	504-367-3975
MD	Baltimore, Sci-Rep	703-385-0600
MA	Waltham, McBar	617-890-0233
MI	Detroit, EQS Sys.	313-961-3042
MN	Minneapolis, Berndt Assocs.	612-546-2021
MO	St. Louis, Ramsey Assocs.	314-878-5042
NJ	Englewood, Sci. Devices E.	201-871-3916
NM	Albuquerque, Odyssey 1	505-265-6645
NY	Rochester, Ossmann Instrs.	716-442-6990
NY	Saratoga Springs, Ossmann Instrs.	518-584-6519
NY	Syracuse, Ossmann Instrs.	315-437-7052
NC	Burlington, Gentry Assocs.	919-227-3639
OH	Chesterland, EQS Sys.	216-729-2222
OH	Columbus, EQS Sys.	614-228-3453
OH	Dayton, EQS Sys.	513-294-2476
OK	Tulsa, Kemp Engrg.	918-663-4501
OR	Portland, McLaren	503-297-2248
PA	Pittsburgh, EQS Sys.	412-261-2604
PA	Spring House, Scientific Devices East	215-643-3335
SC	Columbia, Gentry Assocs.	803-772-6786
TN	Knoxville, Gentry Assocs.	615-584-0281
TX	Dallas, Kemp Engrg.	214-931-7100
TX	Houston, Kemp Engrg.	713-466-1465
VA	Fairfax, Sci-Rep	703-385-0600
WA	Bellevue, McLaren	206-454-3400
WI	Milwaukee, Berndt Assocs.	414-545-8400

KRYSTINEL CORP., 126 Pennsylvania Ave., Paterson, NJ 07509, Tel: 201-345-8900, TWX: 710-988-5931; Empl.: 150 .... **2•1793**

Local Sales Offices & Reps

AZ	Phoenix, Charles T. Fink & Assoc.	602-992-9884
CA	Los Alamitos, Permag Pacific Corp.	213-594-6515
CA	Sunnyvale, Permag Sierra Corp.	408-738-1080
GA	Norcross, Permag Dixie Corp.	404-448-4998
IL	Elk Grove Vl., Permag Central Corp.	312-956-1140
MA	Billerica, Permag Northeast Corp.	617-273-2890
MN	Eden Prairie, Permag Minnesota Corp.	612-934-4635
NY	Hicksville, Permag Corp.	516-822-3311
OH	Toledo, Permag Magnetics Corp.	419-385-4621
TX	Richardson, Permag S.W.	214-699-1121

Local Distributors

CA	Los Alamitos, Permag Pacific Corp.	213-594-6515, 714-952-2091
CA	Sunnyvale, Permag Sierra Corp.	408-738-1080
GA	Norcross, Permag Dixie Corp.	404-448-4998
IL	Elk Grove Vl., Permag Central Corp.	312-956-1140
MA	Billerica, Permag Northeast Corp.	617-273-2890

KSI Kaiser Systems, Inc.
The High Voltage Power Supplies That Work

KSI, 33 Cherry Hill Dr., Danvers, MA 01923, Tel: 617-777-5102, Telex: 887159; FSC No.: 617-777-3340 .... **3•1646-1648**

KSW ELCTRNS. CORP., See Frequency Sources, KSW Semicond. Div.

K-SYSTEMS, INC., 3902 Lilac, Las Cruces, NM 88005, Tel: 505-526-3209; Empl.: 2; *Sls. Mgr.:* Alice Furphy

Local Sales Offices & Reps

MD	Bethesda, Fedmark, Inc.	301-986-9277
MA	Chelmsford, Bomara Assocs.	617-452-2299
PA	Pittsburgh, Dietrich & Assocs.	412-892-2929

KS kulite

KULITE SEMICONDUCTOR PRODS. INC., 1039 Hoyt Ave., Ridgefield, NJ 07657, Tel: 201-945-3000, Telex: 13-5458; Empl.: 250 .... **1B•1847**

Local Sales Offices & Reps

AL	Huntsville, Lee Associates	205-533-5896
AZ	Scottsdale, Dave Menegey Assocs.	602-994-9519
CA	Hollywood, B. J. Wolfe Entprs.	213-877-5518
CA	Walnut Creek, Dale-Dahl Assocs.	415-933-9595
CO	Boulder, Measurement Consultants	303-449-7506
DC	Baltimore, Reptron, Inc.	301-621-1313
FL	Osprey, Dick Ridgewell Co.	813-484-2020
IL	Park Ridge, E.I.A. Inc.	312-298-2290
IN	Indianapolis, EIA, Inc.	317-257-7231
MD	Baltimore, Reptron	301-799-7490
MA	Waltham, Daner-Hayes	617-894-7290
MI	Madison Heights, WKM Assoc.	313-588-2300
MN	New Hope, Trask Engrg.	612-537-2434
MO	St. Louis, Ozark Elctrn. Mktg.	314-423-7200
NH	Wilton, Daner-Hayes, Inc.	617-894-7290
NJ	Glen Gardner, Daner-Hayes, Inc.	617-894-7290
NM	Albuquerque, Amonette Entprs.	505-344-4143
NY	Brewster, Daner-Hayes, Inc.	617-894-7290
NY	Rochester, Daner-Hayes, Inc.	617-894-7290
OH	Cleveland, WKM Assocs.	216-267-0445
OH	Dayton, WKM Assocs	513-434-7500
OK	Edmond, Data Aids Assocs.	405-478-5000/01
PA	Doylestown, Daner-Hayes, Inc.	617-894-7290
PA	Pittsburgh, WKM Assocs.	412-892-2953
TX	Austin, Data Aids Assocs.	512-327-8600
TX	Dallas, Data Aids Assocs.	214-620-1551
UT	Salt Lake City, Measurement Conslts.	801-364-3174
VT	White River Junction, Daner-Hayes, Inc.	617-894-7290
WA	Seattle, Brett Assocs.	206-935-8054

KULKA SMITH, INC., 1913 Atlantic Ave., Manasquan, NJ 08736, Tel: 201-223-9400, TWX: 710-723-4410; Empl.: 500; *Sls. Mgr.:* John Chirico .... **2•1496-1501**

Local Sales Offices & Reps

AZ	Phoenix, Shefler-Kahn Co.	602-257-9015
CA	Los Angeles, E E Strassner	818-242-8823
CA	Redwood City, Hickey Ind. Sls.	415-368-3849
CT	North Haven, Coakley, Boyd & Abbett	800-225-8402
IL	Northbrook, Dolin Sls.	312-498-6770
KS	Shawnee Mission, Lowell-Kangas & Assocs.	913-631-3515
MA	Needham Hgts., Coakley, Boyd & Abbett	617-444-5470
MO	St. Louis, Lowell-Kangas & Assocs.	314-821-4050
OH	Richfield, Bear Mktg.	216-659-3131
PA	Allison Park, K.W. Elctrns.	412-487-4300
PA	Trevose, P.S.A., Inc.	215-245-0513
WI	Milwaukee, D. Dolin Sls.	414-482-1111

Local Distributors

AL	Birmingham, MG Elctrns.	205-328-4525
AZ	Phoenix, Parts Elctrns.	602-258-6476
AZ	Tempe, Fisher/Brownell	602-967-1464
CA	Alhambra, Fisher/Brownell	818-289-0255
CA	Buena Park, RPS Elctrns.	714-521-5230
CA	Buena Park, Control Design	213-802-1371
CA	Cerritos, El-Com	213-404-2961
CA	Mountain View, Cornett Elctrns.	415-969-5420
CA	San Carlo, Control Design	415-592-4808
CA	San Diego, Elcom	213-404-2961
CA	San Diego, Fisher/Brownell	619-560-8545
CA	Santa Clara, Fisher/Brownell	408-988-6041
CO	Denver, Denver Wintronics	303-934-2406
CT	Stratford, Utronics	203-378-4201
CT	Wallingford, Midan	203-265-2077
FL	Casselberry, Fla. AFCOM Inc.	305-831-6630
FL	Largo, Electronic Precepts	813-596-2742
FL	Miami, Electronic Equip. Co.	305-871-3500
FL	Winter Park, Electronic Equip. Co.	305-644-4833
IL	Addison, Lectro Comps.	312-543-1680
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Hoffman Estates, Control Design	312-882-7232
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Peoria, Klaus Radio	309-691-4840
IL	Rockford, Mid West Associated	815-962-8036
IN	Indianapolis, Graham Elctrn. Supp.	317-634-8202
IN	Indianapolis, Control Design	317-788-4559
IA	Cedar Rapids, Vrbik-Berquist	319-366-8733
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
IA	Des Moines, Mid State Distrbg.	515-244-7231
IA	Marion, Control Design	313-373-2923
KS	Wichita, Radio Supp. Co.	316-267-5213
KY	Louisville, Peerless Elctrn. Equip.	502-637-7677
LA	New Orleans, W. B. Allen Supp.	504-525-8222
LA	New Orleans, Radio Parts	504-581-5959
MD	Baltimore, Resco/Baltimore	301-823-0070
MA	Newton, Greene Shaw Co.	617-969-8900
MA	Norwood, Gerber Elctrns.	617-329-2400
MI	Augusta, Great Lakes Elctrns.	616-731-4156
MI	Farmington Hills, Star-Tronic Distr.	313-477-7586
MI	Grand Rapids, Stotts Friedman	616-459-0216
MN	Minneapolis, Control Design	612-721-6555
MN	St. Paul, R. G. Ragon Elctrns.	612-488-0201
MO	Kansas City, Walters Radio Supp.	816-531-7015
MO	Maryland Hgts., L-Comp	314-291-6200
MO	St. Louis, Control Design	314-426-3150
NE	Omaha, Scott Elctrns. Supp.	402-466-8221
NJ	Prospect Park, Kappe Electrical Distrs.	201-790-1999
NM	Albuquerque, Walker Radio	505-247-2288
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Elmsford, Ancar Elctrns.	914-592-7100
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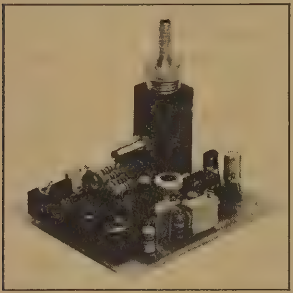
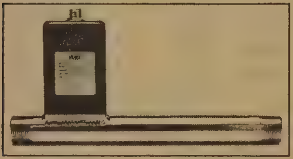
Kurz manufactures a wide line of basic airflow and mass flow transducers and is always eager to work with you on your OEM product requirements.



SERIES 501
Micropower Mass Flow Meter
The 501, the worlds smallest commercial mass flow meter, measures flows up to 5 slpm. The 501 is perfect for biomedical toxicology and instrumentation applications.



SERIES 565
DC Powered Mass Flow Meters
The compact 565 Series include linear 0-5 VDC outputs and are most often specified for flows from 10 sccm to 10 scfm. Popular with OEM's, the economical 565 operates on 15VDC.

SERIES 435DC
Linear Air Velocity Transducers
Powered by 15VDC, and available in self contained, bare board with cable and rack mount configurations, the 435DC features a linear 0-5VDC output.

KURZ
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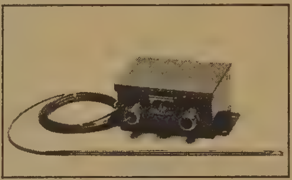
SERIES 430DC
Air Velocity Transducers
Powered by 15VDC, the self contained 430DC features a non-linear 0-5VDC output.

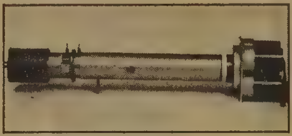


SERIES 430DC-VF
RS422 Frequency Output DC Powered Air Velocity Transducers
The 430DC-VF features a RS422 compatible output where 12KHz to 60KHz corresponds to zero to full scale. The high frequency output allows two-wire runs to lengths of several miles. The 430DC-VF operates on 15VDC, has 15 ft. of probe cable and a NEMA 1 electronics enclosure.

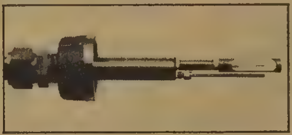
SERIES 280
Micropower Mass Flow Controlled Air Sampler
A miniature flow controller, the 280 combines the worlds smallest commercial mass flow meter, the 501, with the worlds smallest rotary carbon vane vacuum pump, the Series 290, to produce a compact, mass flow controlled, air sampler. The 280 can also function as a mass flow controlled gas supply, and can be computer controlled via an external setpoint feature.

AIR VELOCITY

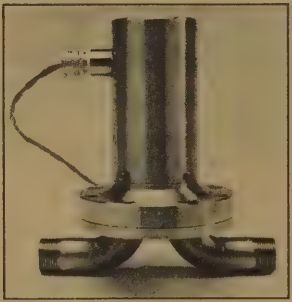
SERIES 415
2-Wire Linear Air Velocity Transducers
With linear 0-5 VDC outputs and 2-wire runs to over 1,000 ft., the popular 415 provides an industrial grade application solutions anywhere air flow is measured.



SERIES 400
Air Velocity Calibration Systems
Complete benchtop wind tunnel systems for calibrating a variety of air flow instrumentation and sensor.



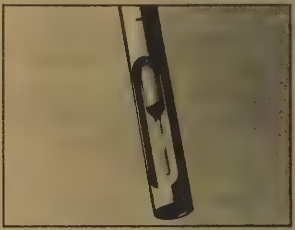
SERIES 455
Stack Velocity Transducer
The 455 is designed for operation in the harshest environments and features Kurzs new all metal sensor.



SERIES 730
Electric Rotary Ramp Metering Valve
A major breakthrough in valve technology invented by Dr. Kurz. This exclusive valve features single turn operation and a linear Cv from 0 to 100% of flow. The **730** Series valves alone allow new achievements in precise mass flow control.

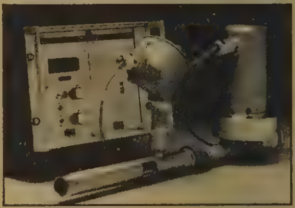
MASS FLOW

SERIES 505
In Line Mass Flow Meters
Previously complex measurements are now made simple with Kurz mass flow sensors. Linear outputs, 2-wire hookups, NBS calibrations, corrosive gases—the 505 Series does it all!



SERIES 515/555
Insertion Mass Flow Meters
For larger pipes, the economical 515 Series includes a ball valve/retractor assembly designed for hot tapping into existing lines. Weld on the fitting, drill a hole in the line, insert the probe and you're ready to go!

MASS FLOW CONTROL



Kurz **7500** Mass Flow Control system are composed of a Kurz **505** Series Mass Flow Meter, a Kurz **710** Series Electric Valve P.I.D. Controller and a Kurz **730** Series Electric Rotary Ramp Valve.

Many more state of the art Sensor and Transducer Systems are available from Kurz. Kurz Mass Flow Technology makes complex measurements simple. Call one of our Applications Engineers today.

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NJ	Tenafly, ABC Elec.	201-568-2354
NM	Albuquerque, Moss Elec.	505-256-3622
NY	Syracuse, C. W. Floring & Assoc.	315-478-2149
NY	Williston Park, ABC Elec.	516-747-6610
OH	Cleveland, Geotronix	216-526-2535
OH	Columbus, Geotronix	614-457-8472
TX	Houston, Alpha Tech	214-423-4570

Local Distributors

Intl	Eng., Eastleigh Hants, Vero Elctrns.	TWX 851-47-551
Intl	Japan, Tokyo, Hakuto Co.	TWX 78-12-2912
Can	Ontario, Elctrn. Pkg. Sys.	613-549-5152

LEASAMETRIC, INC., 1164 Triton Dr., Foster City, CA 94404, Tel: 415-574-4441; *Sls. Mgr.:* David Sobo

LEBOW CO., 38 Gerald Cass Pl., Goleta, CA 93117, Tel: 805-964-7117; *Sls. Mgr.:* Sharon J. Neiman

LEBOW PRODUCTS, Eaton Corp., 1728 Maplelawn Rd., Troy, MI 48237, Tel: 313-643-0220; *Sls. Mgr.:* Richard C. Phillips

LECROY RESCH. SYS. CORP., 700 S. Main St., Spring Vly., NY 10977, Tel: 914-425-2000, TWX: 710-577-2832; Empl.: 300; *Sls. Mgr.:* Richard Eandi

LECROY RESCH. SYS. CORP. (CAL.), 1806 Embarcadero Rd., Palo Alto, CA 94303, Tel: 415-856-1800, TWX: 910-373-1791; *Sls. Mgr.:* Andy Keyser

LECTROHM DIV. OF CAPCO, INC., Box 1028, Grand Junction, CO 81502, Tel: 303-243-8480, TWX: 910-929-6989; Empl.: 200

LECTRO MAGNETICS, INC., 6056 W. Jefferson Blvd., Los Angeles, CA 90016, Tel: 213-870-9383, 800-325-9814; FSC No.: 29098; Empl.: 45; *Sls. Mgr.:* Terry Cantine

LECTROTECH, INC., 5810 N. Western Ave., Chicago, IL 60659, Tel: 312-769-6262; Empl.: 42

LEDCO DIV., 240 Plato Blvd., St. Paul, MN 55107, Tel: 612-222-2791, TWX: 910-563-3699; FSC No.: 55292; Empl.: 300; *Sls. Mgr.:* Greg Larson

LEDEX

LEDEX INC., P.O. Box 427, Vandalia, OH 45377, Tel: 513-898-3621, Telex: 28-8228, TWX: 810-450-2526; FSC No.: 81840; Empl.: 500; *Sls. Mgr.:* T. C. Ristoff .... **1B**•1480, 1490-1492, 1672-1674

Local Sales Offices & Reps

AL	Huntsville, A. B. Andrews & Co.	205-539-6817
AZ	Scottsdale, Arcom Sls.	602-947-5745
CA	San Diego, Interstate Mktg. Assoc.	619-292-8117
CA	Saratoga, Testco Co.	408-253-1900
CA	Woodland Hills, Interstate Mktg. Assocs.	213-883-7606
CO	Boulder, Front Range Mktg.	303-443-4780
CT	Bloomfield, SIR Assoc.	203-243-9343
FL	Melbourne, Techn. Mktg. Assocs.	305-676-3776
FL	Orlando, Techn. Mktg. Assocs.	305-857-3760
FL	Pompano Beach, Techn. Mktg. Assocs.	305-942-0774
IL	Elk Grove Village, Control Sls.	312-595-2110
IN	Greenwood, Valentine & Assoc.	317-888-2260
IN	South Bend, Valentine & Assoc.	219-288-7070
KS	Leawood, Thunderbird Tech. Sls. & Svcs.	913-642-7220
KS	Wichita, Thunderbird Tech. Sls. & Svcs.	316-684-3941
MA	Bedford, SIR Assocs.	617-275-5550
MI	Jenison, R. C. Nordstrom & Co.	616-457-5762
MI	Lathrup Village, R. C. Nordstrom & Co.	313-559-7373
MN	Bloomington, Merrill Franklin Co.	612-854-9446
MO	Maryland Heights, Thunderbird Tech. Sls. & Svcs.	314-567-6488
NY	Clark Mills, KLM-Garner Co.	315-853-6126
NY	N. Syracuse, KLM-Garner Co.	315-458-6214
NY	Oceanside, Bittan Assocs.	516-678-6222
NY	Pittsford, KLM-Garner Co.	716-381-8350
NC	Research Triangle Park, A. B. Andrews & Co.	919-544-1762
OH	Cleveland, Del Steffen & Assoc.	216-461-8333
OH	Dayton, Del Steffen & Assoc.	513-293-3145
OH	Lexington, Del Steffen & Assoc.	419-884-2313
PA	King of Prussia, Freedman-Malta Assoc.	215-337-9211
PA	Pittsburgh, Del Steffen & Assoc.	412-276-7366
TX	Richardson, Thunderbird Tech. Sls. & Svcs.	214-690-0763
UT	Salt Lake City, Front Range Mktg.	801-364-6481
VA	Vinton, A. B. Andrews & Co.	703-890-1128
WA	Bellevue, Testco	206-454-7422
WI	Thiensville, Control Sls.	414-242-4580

LEECRAFT MFG., 21-02 44th Rd., Long Island City, NY 11101, Tel: 212-392-8800, TWX: 710-582-2897; Empl.: 250; *Sls. Mgr.:* T. J. Marine .... **1B**•1089

Local Sales Offices & Reps

AL	Huntsville, L & D, Inc.	205-837-1469
AZ	Tempe, Tempe Assocs.	602-829-1901
CA	Los Angeles, Hartfield-Kennan-Freytag	213-225-1318
CO	Arvada, Arrowhead Sls. Co.	303-423-5556
CT	Bloomfield, Zaslow Sls.	203-242-7781
FL	Lighthouse Point, J. Krutek & Assoc.	305-941-6544
GA	Atlanta, L & D, Inc.	404-455-3483
ID	Boise, Doran Sls. Assoc.	208-343-9969
IL	Elmhurst, Hill Gray	312-832-4101
IN	Indianapolis, Needler Sls. Co.	317-255-8056
IA	Cedar Rapids, PMR Corp.	319-362-9177
KS	Overland Park, PMR Corp.	913-381-0004
KY	Nicholasville, W. H. Mathews	606-885-4943
MD	Woodbine, Naudain Assocs. Southern	301-442-2270
MA	Northboro, Zaslow Sls.	617-393-8150
MI	Livonia, Electronic Salesmasters	313-591-2433
MN	Bloomington, Northport Engrg.	612-854-5556
MO	Maryland Hgts., PMR Corp.	314-569-1220
NH	Londonderry, Zaslow Sls.	603-432-8907
NJ	Marlton, Naudain Assocs.	609-235-1801
NY	Great Neck, Tylinski Assocs.	516-466-9070
NY	Rochester, B. H. Tollefson Assoc.	716-271-4141
NC	Greensboro, L & D, Inc.	919-292-3201
OH	Beachwood, Elctrn. Sls. Masters	216-831-9555
OR	Forest Grove, Doran Sls. Assocs.	503-357-3333
PA	Philadelphia, Naudain Assocs.	609-235-1801
PA	Pittsburgh, Covert & Newman	412-531-2002
RI	Providence, Zaslow Sls.	401-351-0070
TN	Franklin, Groover & Assocs.	615-794-6344
TX	Arlington, Fralia & Assocs.	817-640-9101
TX	Stafford, Fralia & Assocs.	713-772-1572
UT	Salt Lake City, Arrowhead Sls.	801-261-1661
VA	Richmond, L & D, Inc.	804-794-7915
WA	Redmond, Doran Sls. Assocs.	206-885-1885
EXP	NY, Long Island City, Leecraft Intl. Corp.	212-392-8800

Local Distributors

CA	Alhambra, Fisher Brownell	213-289-0255
CA	El Monte, Kimball & Stark	213-444-2594
CA	Los Angeles, Western Electromotive	213-820-3777
CA	Sacramento, Sacramento Elec.	916-441-4821
CA	Santa Clara, Fisher Brownell	408-988-6041
CO	Denver, Denver Wintronics	303-934-2406
CT	Hartford, Allied Electric	203-527-6405
FL	Casselberry, Afcom	305-831-6630
FL	Miami, Electronic Equip.	305-871-3500
GA	Atlanta, Specialty Dist.	404-873-2521
IL	Champaign, Klaus Radio	217-356-1896
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Niles, Industribution	312-966-5630
IL	Northbrook, Classic Comps.	312-272-9650
IN	Evansville, Hutch & Son	812-425-7201
IN	Fort Wayne, Graham Elect.	219-423-3422
IN	Indianapolis, Genesis Elect.	317-637-5571
IN	Indianapolis, Graham Elctrns.	317-634-8202
KS	Wichita, RSC Electronics	316-267-5213
KY	Louisville, P. I. Burks	502-589-3960
LA	New Orleans, Southern Radio	504-524-2343
MD	Beltsville, Treeko Sls.	301-937-8260
MD	Rockville, Capitol Radio	301-881-2270
MA	Hingham, Sager Electrical Supp.	617-749-6700
MI	Ann Arbor, Wedemeyer Elect. Supp.	313-665-8611
MI	Grand Rapids, SF Elctrns.	616-459-0216
MI	Livonia, LWC Distrs.	313-464-7700
MI	Livonia, RS Elctrns.	313-525-1155
MN	Minneapolis, Newark Elect.	612-331-6350
MO	Kansas City, Electronics Supp.	816-931-0250
MO	Kansas City, LCOMP	816-221-2400
MO	Maryland Hgts., LCOMP	314-291-6200
NH	Hudson, C & H Elect.	603-882-1133
NJ	E. Hanover, State Elctrn. Parts	201-887-2550

NJ	Kenilworth, Federated Purchasers	201-272-0505
NJ	Pennsauken, Resco Elctrns.	609-662-4000
NY	Buffalo, Genesee Radio	716-873-9661
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Elmsford, Ancar Elctrns.	914-592-7100
NY	Endwell, ASI Electronics	607-754-3823
NY	Hempstead, Electronic Equip.	516-538-5510
NY	New York, City Elec.	212-564-5454
NY	Rochester, Summit Elec. of Roch.	716-334-8110
NY	Rockville Centre, Midway Ind. Elctrns.	516-764-2400
NC	Greensboro, Hammond Elctrns.	919-275-6391
OH	Akron, Sun Radio	216-434-2171
OH	Akron, Akron Elctrn. Supp.	216-762-8818
OH	Cincinnati, United Radio	513-761-4030
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Columbus, Hughes-Peters	614-294-5351
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Warren, REM Elect.	216-373-1300
PA	McKeesport, Barno Radio	412-462-7574
PA	Philadelphia, Herbach & Rademan	215-426-1700
PA	Philadelphia, Phila. Elect.	215-568-7400
PA	Reading, Barbey Elctrns.	215-376-7451
RI	Providence, Wm. Dandreta	401-861-2800
TN	Kingsport, Radio Elec. Supp.	615-247-8111
TN	Nashville, Electra Distributing	615-329-3971
TX	McKinney, Prime Distributing	214-231-0170
TX	Richardson, Fisher Brownell	214-235-3177
VA	Richmond, Sterling Elect.	804-226-2190
WA	Seattle, Pacific Elctrns.	206-575-1050
WI	Milwaukee, Indl. Elctrns.	414-276-1212

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CA	Orange	714-937-1647; 213-924-1647
GA	Atlanta	404-938-8946
IL	South Holland	312-596-8480
IA	Bettandorf	319-355-6481
MA	Dedham	617-326-8816
NJ	Union	201-686-5200
NC	Winston-Salem	919-765-6580
OH	Beachwood	216-292-0020
PA	Horsham	215-441-5600
PA	Pittsburgh	412-561-7808
TX	Richardson	214-234-3363
TX	Stafford	713-491-6000
WA	Seattle	206-451-9028
WV	Charleston	304-342-0385
WI	Milwaukee	414-774-6000

LEEPOXY PLASTICS, 3324 Ferguson Rd., Ft. Wayne, IN 46809, Tel: 219-747-7411; Empl.: 15

LEHIGHTON ELCTRNS., INC., Box 328, Dept M, Lehighton, PA 18235, Tel: 717-386-4156, 215-377-5990; Empl.: 55; *Sls. Mgr.:* George White; *Dist. Mgr.:* George White

LEIGH INSTRS. LTD., Frequency Control Div., C.R. Snelgrove Co., 141 Bond Ave., Don Mills, ON M3B 1M2, Canada, Tel: 416-447-8531, Telex: 06-966626, TWX: 610-492-1354; FSC No.: 02533; Empl.: 158; *Sls. Mgr.:* R. W. Parkins

LEKTRA LABS., 129-07 18th Ave., P.O. Box 222, College Point, NY 11356, Tel: 212-939-7171; Empl.: 45; *Sls. Mgr.:* Frank L. Chilton

LEL CO., 5 Burns Pl., Cresskill, NJ 07626, Tel: 201-569-8641; Empl.: 10

LEMO U.S.A. INC., P.O. Box 11006M, Santa Rosa, CA 95406, Tel: 707-578-8811, Telex: 340-933; FSC No.: 2P953; Empl.: 13; *Sls. Mgr.:* David A. Battaglia .... **2**•1503-1512

Local Sales Offices & Reps

CA	Los Angeles, Ezra Mintz Assocs.	213-670-5410
CA	Moraga, Ruppert Sls. & Engrg.	415-376-8040
CA	San Diego, Ezra Mintz Assocs.	619-565-4921
CA	San Jose, Ruppert Sls. & Engrg.	408-998-8717
CO	Littleton, Omega Ltd.	303-798-7040
FL	Indian Harbor Beach, Bill Toy Assocs.	305-773-5805
IL	Northbrook, Raines & Assocs.	312-498-0890
IA	Marion, M-S-B Assoc., Inc.	319-377-6261
KS	Shawnee Mission, M-S-B Assoc., Inc.	913-432-2131
MA	Lexington, Zieco	617-861-8300
MI	Detroit, Jack M. Thorpe Co.	313-779-6363
MN	Edina, Electro-Tech	612-927-5878
MO	St. Charles, M-S-B Assoc., Inc.	314-946-5577
NJ	Ho-Ho-Kus, Don J. Fisher Co.	201-652-0090
NY	Cooperstown, Lloyd Hart Assoc.	607-547-9333
NY	Rochester, Lloyd Hart Assocs.	716-244-3253
ND	Edina, Electro-Tech	612-927-5878
OH	Chesterland, K/T Depco	216-729-3588
OH	Troy, K/T Depco	513-335-3914
OR	Portland, Earl & Brown Co.	503-245-2283
PA	Doylestown, T.O.E. Sls.	215-348-2212
PA	Pittsburgh, K/T Depco	412-487-8777
SD	Edina, Electro-Tech	612-927-5878
TX	Lewisville, Jim Hughes Co.	214-221-1536
TX	Stafford, Jesse B. Simms - Jim Hughes Co.	713-343-0673
WA	Seattle, Earl & Brown Co.	206-284-1121

LENCO ELCTRNS., INC., 1330 Belden St., McHenry, IL 60050, Tel: 815-344-2900; *Sls. Mgr.:* Lenard J. Duncan .... **1A**•2182, 2183

Local Sales Offices & Reps

AZ	Phoenix, Vari Tron Sls. Co.	602-992-3438
CA	Northridge, Myco Sls.	818-886-7101
CA	Palo Alto, TriRep	415-965-1822
FL	Lighthouse Point, NPM Assocs.	305-941-4586
IL	McHenry, Mesa Inc.	815-344-2820
KS	Mission, McAllister Assocs.	913-262-5500
MA	Framingham, Stone Comps.	617-875-3266
MI	Farmington Hills, KRW Sls.	313-476-6090
MI	Grand Rapids, KRW Sls.	616-363-2925
NJ	Oak Ridge, P.G. Assocs.	201-697-0128
NC	Fripp Island, NPM Assocs.	803-838-4438
OH	Columbus, KRW Sls.	614-464-1861
OH	Westlake, KRW Sls.	216-871-7521
PA	Oakmont, KRW Sls.	412-261-1323
TX	Dallas, Seaton Corp.	214-380-0414

LENCO ELCTRNS., INC., 300 N. Maryland St., Jackson, MO 63755, Tel: 314-243-3147, TWX: 910-760-1382; Empl.: 70; *Sls. Mgr.:* Robert N. Henson; *Dist. Mgr.:* P. A. Leonard

Local Sales Offices & Reps

CA	San Jose, Lenco Elctrns. Div.	408-356-0221
GA	Albany, Lenco Elctrns. Div.	912-436-4927
IL	Mt. Prospect, Lenco, Inc., Elctrns. Div.	312-392-5297
MD	Middletown, Lenco Elctrns. Div.	301-371-5588
TX	Euless, Lenco, Inc., Elctrns. Div.	817-540-0130

LENOX-FUGLE ELCTRNS., 100 Sylvania Pl., S. Plainfield, NJ 07080, Tel: 201-756-1164; Empl.: 25; *Sls. Mgr.:* Henry J. Lenox

LENOX INSTR., 111 E. Luray St., Philadelphia, PA 19120, Tel: 215-DA4-4543, TWX: 710-670-1440; Empl.: 40; *Sls. Mgr.:* William Lang

LENOX LASER, 615 Pittsfield Rd., Lenox, MA 01240, Tel: 413-499-4477; *Sls. Mgr.:* Joe D'Entremont; *Dist. Mgr.:* Joe D'Entremont

LENZ ELECTRIC MFG. CO., 1751 N. Western Ave., Chicago, IL 60647, Tel: 312-276-4454

LEONARD ELEC. PRODS., 85 Industrial Dr., Brownsville, TX 78521, Tel: 512-546-1625; Empl.: 150; *Sls. Mgr.:* Andrew C. Smith

LEPCO, See Leonard Elec. Prods.

LEPEL, 59-21 Queens-Midtown Expwy., Maspeth, NY 11378, Tel: 212-426-4580, Telex: 12303; Empl.: 200; *Sls. Mgr.:* Richard Sutton

LESTRONICS, INC., 1840 Industrial Circle, Longmont, CO 80501, Tel: 303-443-6250, 800-525-6478, TWX: 910-320-0786; *Sls. Mgr.:* George Buys

LEXICON CORP. OF MIAMI, 1541 N. W. 65th Ave., Ft. Lauderdale, FL 33313, Tel: 305-792-4400, TWX: 510-955-4130; FSC No.: 7025-0011; Empl.: 40; *Sls. Mgr.:* Barry Sleight

LEXIDATA CORP., 755 Middlesex Tpke., Billerica, MA 01865, Tel: 617-663-8550, 800-472-4747, TWX: 710-347-1574; Empl.: 30; *Sls. Mgr.:* Lou Gennaro

LFE, Process Control Div., 55 Green St., Clinton, MA 01510, Tel: 617-835-1000, Telex: 92-3445, TWX: 710-347-1734; FSC No.: 20905; Empl.: 1500; *Sls. Mgr.:* Ray Grande; *Dist. Mgr.:* Bob Pugsley

LH RESEARCH, INC., 14402 Franklin Ave., Tustin, CA 92680, Tel: 714-730-0162, TWX: 910-595-2540; Empl.: 620; *Sls. Mgr.:* James Williams .. **3**•1650-1653

Local Sales Offices & Reps

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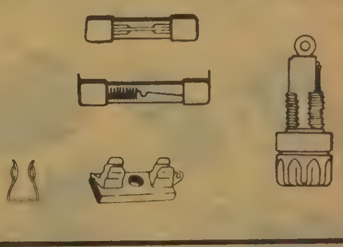

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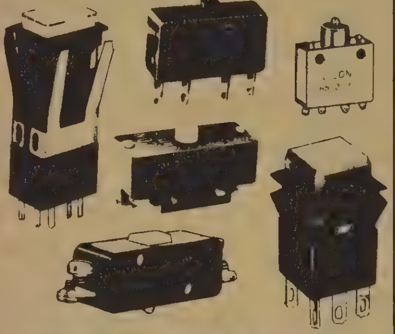

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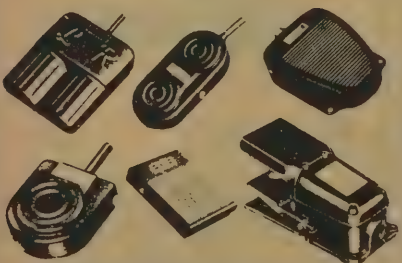

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LIBERTY CONTROLS, 500 Brookforest Ave., Shorewood, IL 60435, Tel: 815-725-2241, TWX: 910-633-1557; Empl.: 60; *Sls. Mgr.:* Michael C. Maloney .... 1B•1494, 1495

Local Sales Offices & Reps

AL	Huntsville, R. W. Mitscher Co.	205-852-7676
CA	S. El Monte, H.M.C. Inc.	213-285-0485
CO	Englewood, Dynatech	303-773-2830
CT	Bloomfield, Wood Sls.	203-243-0457
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GA	Lawrence, R. W. Mitscher Co.	404-923-3239
IL	Downers Grove, Splon Assocs.	312-963-7011
IN	Ft. Wayne, Menze Sls.	219-747-5616
MD	Laurel, R. W. Mitscher Co.	301-498-6090
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MI	Grand Rapids, R. P. Urban & Assocs.	616-245-0511
MN	St. Paul, Countryman Assocs.	612-645-9151
NJ	Pennsauken, Vantage Sls.	609-663-6660
NY	Buffalo, R. W. Mitscher Co.	716-633-7970
NY	Lynbrook, H.L.J. Comptech	516-599-2999
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LIBERTY INTL. CORP., First Resistor & Condenser Co., Ltd., 2539 237th St., Suite F, Torrance, CA 90505, Tel: 213-539-6452, Telex: 182421 LIBERTY TRNC; Empl.: 5; *Sls. Mgr.:* Gary Lee

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CA	San Diego, Sigma Elctrns.	714-565-2000
MA	Waltham, Del Tech Sls.	617-894-4550

LICON DIV., 6615 W. Irving Park Rd., Chicago, IL 60634, Tel: 312-282-4040, Telex: 4330130, TWX: 910-221-0275; Empl.: 500; *Sls. Mgr.:* R. Schmidt; *Dist. Mgr.:* R. Scrivner

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FL	Melbourne Beach, Brennan Associates, Inc.	305-724-0854
IL	Addison, Lindgren R.F. Enclosures, Inc.	312-628-9100
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NM	Albuquerque, Industrial Products Corp.	505-256-3561
NY	Ocean, Gordon & Wallach, Inc.	201-922-3014
OH	St. Marys, Thomas Shelby & Co., Inc.	419-394-3377
TX	Dallas, Tech Rep Marketing	214-241-2434
UT	Salt Lake City, Westek Data Products, Inc.	801-261-0999
VA	Springfield, Tech Reps, Inc.	703-569-6868
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CA	Irvine, Bestronics	714-261-7233
CA	San Diego, Harvey King	619-566-5252
CA	Sunnyvale, Emerging Technlg. Sls.	408-720-0240
CA	Woodland Hills, Bestronics	213-704-5616
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IL	Arlington Heights, Micro Sls.	312-956-1000
IN	Indianapolis, Leslie M. DeVoe Co.	317-842-3245
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CA	Costa Mesa, Berman-Gravley	714-549-2122
CA	Tustin, Clemick & Assoc.	714-547-0966
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MACPOWER, 9115 26th Ave., Kenosha, WI 53140, Tel: 414-694-8866; *Sls. Mgr.:* Edward A. Joyner

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MACRO ELECTRONICS CORP., 23 Royalston Lane, So. Setauket, NY 11720, Tel: 516-698-3357; *Sls. Mgr.:* N. Blumenthal; *Dist. Mgr.:* T. Shlisky

Local Sales Offices & Reps

NY	Kings Park, Pharmetics Inc.	516-360-0654

MACROLINK, 1150 E. Stanford Ct., Anaheim, CA 92805, Tel: 714-634-8080, TWX: 910-591-1671; Empl.: 25; *Sls. Mgr.:* Bill Goodale

MACRONETICS, See Veeco Instrs. Inc.

MAG-CON, 1626 Terrace Dr., St. Paul, MN 55113, Tel: 612-633-8820; Empl.: 30; *Sls. Mgr.:* M. Crellin

MAGNATROL VALVE CORP., 67 Fifth Ave., Hawthorne, NJ 07507, Tel: 201-427-4341, Telex: 130357; *Sls. Mgr.:* R. Kretschmer

MAGNAVOX ADVANCED PRODS. & SYS. CO., Magnavox Govt. Indl. Elctrns. Co., 2829 Maricopa St., Torrance, CA 90503, Tel: 213-618-1200, Telex: 674-373, TWX: 910-349-6657

MAGNECRAFT ELEC. CO., 5575 N. Lynch Ave., Chicago, IL 60630, Tel: 312-282-5500, TWX: 910-221-5221; FSC No.: 94696; Empl.: 700; *Sls. Mgr.:* M. S. Steinback; *Dist. Mgr.:* M. S. Steinback .... **1B**•1469

Local Sales Offices & Reps

AL	Huntsville, Electronic Mktg. Assoc.	205-837-7363
AZ	Tempe, Foley, Tallent & Lee	602-438-1564
CA	Campbell, Kottmeier Assoc.	408-866-5153
CA	Los Angeles, Universal Comp. Corp.	213-641-4255
CO	Parker, Technology Mktg. Assoc.	303-841-3435
CT	Farmington, R. Perron & Co.	203-673-4825
FL	Altamonte Springs, Semtronic Assocs.	305-831-8233
FL	Clearwater, Semtronic Assocs.	813-461-4675
GA	Atlanta, Elctrn Mktg. Assoc.	404-448-1215
IN	Carmel, Mktg. Engrs.	317-872-5665
KS	Overland Park, Advanced Techn. Sls.	913-642-6675
LA	Folsom, McKinney Sls.	504-796-5861
MD	Lutherville, Walker-Houck Assocs.	301-296-6021
MA	Needham, R. Perron & Co.	617-449-6162
MI	Ferndale, Hilltronics	313-398-5556
MN	Minneapolis, Elec. Comps. Sls.	612-933-2594
MO	St. Louis, Advanced Techn. Sls.	314-227-4448
NH	Dover, R. Perron & Co.	603-742-2321
NJ	Marlton, B.G.R. Assoc.	609-940-1358
NY	Pittsford, W. A. Franklin Sls	716-248-8251
NY	West Hempstead, Schmitt Ind. Mkt.	516-486-3510
NC	Raleigh, Elctrn Mktg. Assoc.	919-847-8800

OH	Cleveland, Scott Elec. Inc.	216-473-5050
OH	Kettering, Scott Elec. Inc.	513-294-0539
PA	Pittsburg, Scott Elec. Inc.	412-963-6116
SC	Greenville, Elctrn. Mktg. Assoc.	803-233-4637
TX	Dallas, McKinney Sls.	214-631-9450
UT	Salt Lake City, Techn. Mktg. & Assoc.	801-364-3296
WA	Redmond, Quadra Sls.	206-883-3550

MAGNETEK, 7315 Red Deer Dr., Boulder, CO 80301-4696, Tel: 303-442-6700; FSC No.: 58439; Empl.: 25; *Sls. Mgr.:* Ruth E. Forsberg

Local Sales Offices & Reps

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KS	Shawnee Mission, Robinson & Assoc.	913-262-1374

MAGNETIC AUDIO/VIDEO PRODUCTS DIV., 3M Co., 3M Center, Bldg. 223-5 South, St. Paul, MN 55101, Tel: 612-733-1110, TWX: 910-563-3712; Empl.: 38,351

Local Sales Offices & Reps

AK	Anchorage	907-279-6481
CA	Burbank	213-843-5935
CA	Los Angeles	213-726-6300
CA	San Francisco	415-761-1155
DC	Washington, D.C.	202-331-6963
GA	Atlanta	404-447-7000
HI	Honolulu	808-841-0147
IL	Argo	312-496-6500
IL	Hinsdale	312-920-7382
MA	Needham	617-449-0300
MI	Farmington	313-477-5000
MN	St. Paul	612-733-3300
MO	St. Louis	314-997-8500
NJ	Cherry Hill	609-667-7062
NJ	West Caldwell	201-575-2000
NC	High Point	919-886-7181
OH	Cincinnati	513-482-3100
OH	Cleveland	216-362-1700
PA	Philadelphia	215-728-5300
TX	Dallas	214-324-8100
WA	Seattle	206-244-7200

MAGNETIC CIRCUIT ELEMENTS, 1540 Moffett St., Salinas, CA 93905, Tel: 408-757-8752; FSC No.: 09349; Empl.: 24

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OR	Portland, RTS, Inc.	503-638-5670
WA	Vashon, RTS, Inc.	206-285-1363

MAGNETIC COILS INC., 411 Manhattan Ave., Babylon, NY 11704, Tel: 516-587-0510; Empl.: 50; *Sls. Mgr.:* John O. Williams ....**1A**•2186-2191

MAGNETIC DEVICES INC., 5575 Kearny Villa Rd., San Diego, CA 92123, Tel: 619-279-7054; FSC No.: 13786; *Sls. Mgr.:* Dave Loughlin

MAGNETIC INSTRUMENTATION, 8350 E. 48TH ST., Indianapolis, IN 46226, Tel: 317-545-2102, Telex: 27-2111; Empl.: 23 ....**3**•1261

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CA	Aptos, Wasson & Assocs.	408-496-6011
EXP	NY, Irvington, Inter Technical Export Corp.	914-591-8822

MAGNETIC METALS CO., Hayes Ave. at 21st St., Camden, NJ 08105, Tel: 609-964-7842, TWX: 710-891-7054; Empl.: 500; *Sls. Mgr.:* Brian J. Sully

MAGNETICO INC., 182 Morris Ave., Holtsville, NY 11742, Tel: 516-654-1166; Empl.: 45 ....**1A**•2185

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MAGNETICS, Box 391, Butler, PA 16003-0391, Tel: 412-282-8282, TWX: 710-373-3821; Empl.: 650; *Sls. Mgr.:* J. F. Huth

MAGNETIC SHIELD DIV., Perfection Mica Co., 750 North Thomas Dr., Bensenville, IL 60106, Tel: 312-766-7800, TWX: 910-256-4815; Empl.: 43 ....**2**•1911-1913

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CA	Redwood City, Ault Assoc.	415-367-1710
CA	Woodland Hills, Cal-Ward Sls. Co.	213-883-2202
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FL	Miami, Ludium Assoc. Co.	305-592-6523
MD	Baltimore, Bernard White & Co.	301-484-5400
MA	Milton, Naton Assoc.	617-698-0670
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NM	Albuquerque, IMEC	505-883-9010
NY	Syracuse, Canavan-Scanlon Assoc.	315-437-1271
OH	Cleveland, Bill Teplitz & Co.	216-439-3265
PA	Media, W. Reeves Assoc.	215-566-6709
TX	Bedford, De Armond Ent.	817-268-6821

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MAGNETIC SYSTEMS INC., 95 Saginaw Dr., Rochester, NY 14623, Tel: 716-244-2940, Telex: 978324; Empl.: 50; *Sls. Mgr.:* G. H. McNeil

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MA	Framingham, Gerald Rosen Co.	617-879-5505
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MI	Grand Rapids, A. Blumenberg Assoc.	616-456-7320
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TX	Dallas, Norcom	214-386-4888
TX	Houston, Norcom	713-933-6021
WA	Redmond, Halber Assocs.	206-882-0990

MAGNETIKA, INC., 4254 Glencoe Ave., Venice, CA 90292, Tel: 213-391-0391

MAGNETOELASTIC DEVICES, 326 Springside Ave., Box 625, Pittsfield, MA 01201, Tel: 413-445-5608

MAGNETRAN CORP., 5701 Savoy Lane, Houston, TX 77036, Tel: 713-785-4202; Empl.: 15

MAGNET SALES & MFG. CO. INC., 11250 Playa Court, Culver City, CA 90230-6127, Tel: 213-391-7213, 800-421-6692; FSC No.: 95-2916141; *Sls. Mgr.:* Anil Nanji; *Dist. Mgr.:* Anil Nanji ....**2**•1794

MAGNOS, Old School House Rd., Harvard, MA 01451, Tel: 617-456-8880; Empl.: 4

MAGNUM ELEC., 6385 Dixie Hwy., Erie, MI 48133, Tel: 313-848-2555, TWX: 810-231-7160; Empl.: 105; *Sls. Mgr.:* Ronald Pitchford; *Dist. Mgr.:* Ronald Pitchford ....**2**•1516-1518

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AZ	Tempe, Delta Elctrns.	602-224-1601
CA	Garden Grove, West Elctrn. Sls.	714-898-0120
CA	Pleasanton, Moulthrop Sls.	415-463-0450
CO	Englewood, Grimes Mktg.	303-799-6063
CT	North Haven, Kitchen & Kutchin	203-239-0212
IL	Elk Grove Village, Control Sls.	312-595-2110
IN	Indianapolis, Marketing Engrs.	317-872-5665
KS	Overland Park, Thomas L. Dowell & Assocs.	913-648-7373
MD	Pikesville, Imagitron Sls. Co.	301-521-2020
MA	Burlington, Kitchen & Kutchin	617-862-8230
MN	Brooklyn Center, Willman Assocs.	612-566-5010
MO	St. Louis, Thomas L. Dowell & Assocs.	314-849-4234
NJ	Perth Amboy, Astrorep, Inc.	201-826-8050
NY	Babylon, Astrorep	516-422-2500
NY	Rochester, Marchese Marsey & Barden	716-544-4300
OH	Beachwood, ESI	216-831-9555
OH	Cleveland, Baehr, Greenleaf & Assocs.	216-221-9030
OH	Columbus, Baehr, Greenleaf & Assocs.	614-486-4046
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OR	Portland, Jos. V. Belusko Co.	503-222-4279
PA	Huntingdon Valley, Inacker Sls.	215-947-5660
TX	Dallas, J. Y. Schoonmaker	214-349-1650
TX	Houston, J. Y. Schoonmaker	713-738-2427
WI	Thiensville, Control Sls.	414-242-4580

MAGNUM MICROWAVE CORP., 365 Ravendale Dr., Mountain View, CA 94043, Tel: 415-968-9281, Telex: 171596; FSC No.: 59277; *Sls. Mgr.:* Gordon W. Graham

MAGNUM OPUS CUSTOM ELCTRN. ENGRG., 284 Kennedy St., Iselin, NJ 08830, Tel: 201-283-4925; *Sls. Mgr.:* R. Galanty ....**3**•1112

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MAGTON INC., 1977 O'Toole Ave., San Jose, CA 95131, Tel: 408-943-9319; FSC No.: 52495; *Sls. Mgr.:* Robert C. Meyer

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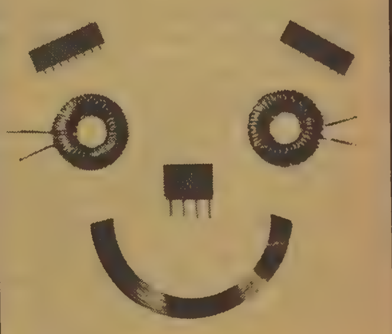
Local Sales Offices & Reps

CA	Los Angeles, High Voltage Sls.	213-881-9194
CA	Mountain View, West/Mark Assocs.	415-969-1700
FL	Vero Beach, John Hansen & Assocs.	305-562-2328
MA	Burlington, Conti-Younger	617-273-1582
MN	Fridley, Tesky & Assocs.	612-571-0876
NC	Cary, FBD Sls.	919-467-7595



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CA	San Francisco	415-856-1136
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FL	Orlando	305-855-6353
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MI	Detroit	313-524-0015
MN	Minneapolis	612-884-2881
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NC	Raleigh	919-836-0401
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MA	Sudbury, Poulin Assoc, Inc.	617-443-7333
MO	St. Louis, Engrg. Svcs. Co.	314-997-1515
NM	Albuquerque, Southwestern Eng. & Equip. Co.	505-881-3677
NY	Plainview, Eastern Metro Assocs.	516-931-1414
NC	Fayetteville, ZIM-TEK	919-485-2222
TX	Dallas, Southwestern Eng. & Equip. Co.	214-340-1741
VA	Fairfax, Schibley Assocs., Inc.	703-591-3008
WA	Seattle, SJI Corp.	206-763-8981

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MANHATTAN ELECTRIC CABLE, 225 Passaic St., Passaic, NJ 07055, Tel: 201-779-8900, Telex: 137-387; Empl.: 125; *Sls. Mgr.:* Ed Harvey; *Dist. Mgr.:* Allan Marconi

MANHATTAN ELEC. CABLE CORP., 1 Station Plaza, Rye, NY 10580, Tel: 914-967-8000, Telex: 137-387; Empl.: 125; *Sls. Mgr.:* Edward J. Harvey

MANN, HENRY, INC., 3983 Mann Road, Huntingdon Valley, PA 19006, Tel: 215-355-7200, Telex: 6851160; Empl.: 105; *Sls. Mgr.:* Jacques Werth; *Dist. Mgr.:* James P. Massi

MANNESMANN TALLY CORP., 8301 S. 180th St., Kent, WA 98032, Tel: 206-251-5500, Telex: 32-0200

MANTEX CORP., 1800 Metamora Rd., P.O. Box 15E, Oxford, MI 48051, Tel: 313-628-9711; Empl.: 100; *Sls. Mgr.:* Dennis J. Stepien .... **1B**•1783

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CA	San Mateo, Halbar Assocs.	415-349-4700
CO	Lakewood, Christee-Meade Co.	303-232-0287
IL	Highland Park, Thomas B. Hunter Assoc.	312-433-7000
IN	Indianapolis, S.A.I. Mktg. Corp.	317-241-9276
KS	Leawood, Thunderbird	913-642-7220
KS	Wichita, Thunderbird	316-684-3941
MD	Baltimore, Muncy Sls. Assocs.	301-484-6376
MI	Brighton, S.A.I. Mktg. Corp.	313-227-1786
MN	St. Louis Park, Lestronix	612-926-8466
MO	Leawood, Thunderbird	913-642-7220
MO	Maryland Hgts., Thunderbird	314-567-6488
NH	Salem, Sales Engrg.	603-893-5521
OH	Columbus, S.A.I. Mktg. Corp.	614-454-8942
OH	Dayton, S.A.I. Mktg. Corp.	513-435-3181
OH	Shaker Hgts., S.A.I. Mktg. Corp.	216-751-3633
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TX	Richardson, Thunderbird	214-690-0763
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AL	Huntsville, Beacon Electronics Assoc.	205-881-5031
CA	Los Alamitos, Scientific Devices—West	213-598-7678
CA	San Jose, Scientific Devices—West	408-554-0455
CA	Westminster, Marconi (Sls. Off.)	714-895-7182
FL	Ft. Lauderdale, Beacon Electrns. Assocs.	305-491-1054
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MA	Framingham, Marketing East	617-879-3355
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NY	Syracuse, I. A. Hotze Assocs.	315-479-6641
OR	Hillsboro, CompRepco	503-796-1350
PA	Chalfont, Eastern Sci. Mktg.	215-822-6503
TX	Richardson, Spectra Sls.	214-234-3600

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MARTEL ELCTRNS. CORP., 13 Heritage Hill Rd., Windham, NH 03087, Tel: 603-893-0886, Telex: 95-1232; *Sls. Mgr.:* David DeVries

MARTIN SOUND PRODS., 28 Alpha Park, Cleveland, OH 44143-2297, Tel: 216-442-2286; Empl.: 2; *Sls. Mgr.:* DeWayne (Bud) Martin; *Dist. Mgr.:* DeWayne (Bud) Martin

MARWAY PRODS. INC., 311 N. Clara St., Santa Ana, CA 92703, Tel: 714-973-1800; FSC No.: 60955; *Sls. Mgr.:* Wayne Whitney .... **3**•1892, 1893

MASTER APPLIANCE CORP., 2420 18th St., Box 68, Racine, WI 53403, Tel: 414-633-7791, Telex: 269-505; FSC No.: 83284; Empl.: 50; *Sls. Mgr.:* G. E. Mertins; *Dist. Mgr.:* G. E. Mertins

MASTER BOND, P.O. Box 522, Teaneck, NJ 07666, Tel: 201-343-8983; FSC No.: 59504; Empl.: 16; *Sls. Mgr.:* James Brenner

MASTER DYNAMICS CORP., 922 California Ave., Sunnyvale, CA 94086, Tel: 408-245-9040

MASTER ELCTRN. CONTROLS, P.O. Box 25905, Los Angeles, CA 90025, Tel: 213-452-1336, Telex: 182041; Empl.: 64; *Sls. Mgr.:* I. Nizam; *Dist. Mgr.:* Bob Kent

MASTERITE CORPORATION, 2841 Lomita Blvd., Torrance, CA 90505, Tel: 213-775-3471, TWX: 910-347-6237; FSC No.: 05041; Empl.: 680; *Sls. Mgr.:* C.J. Huebert; *Dist. Mgr.:* G. Peterson

MASTER LOGIC, 761 E. Evelyn, Sunnyvale, CA 94086, Tel: 408-732-7777; *Sls. Mgr.:* Stephen Allen

MSC PRODS./EATON CORP., 1640 Monrovia St., Costa Mesa, CA 92627, Tel: 714-642-2427, Telex: 67-8433; Empl.: 350; *Sls. Mgr.:* J. McDorough

MATERIALS RESCH., Route 303, Orangeburg, NY 10962, Tel: 914-359-4200, Telex: 221862 MRC UR; Empl.: 700; *Sls. Mgr.:* Joseph Peoples

Local Sales Offices & Reps

AZ	Scottsdale	602-949-8311
CA	Carson	213-538-9032
CA	Santa Clara	408-748-0902
MO	Bridgeton	314-739-3326
NY	Pearl River	914-735-6100
TX	Dallas	214-235-9008

MATH ASSOCS., 2200 Shames Dr., Westbury, NY 11590, Tel: 516-334-6800; Empl.: 25; *Sls. Mgr.:* Robert DeLia

MATHEMATICAL SYSTEMS DESIGN, INC., 2850 Ocean Park Blvd., Ste. 300, Santa Monica, CA 90405, Tel: 213-450-9851; *Sls. Mgr.:* William E. Schaff

MATRIX CORP., 2260 Distributors Dr., Indianapolis, IN 46241, Tel: 317-248-2036; Empl.: 10 .... **3**•1086

MATRIX CORP., 1639 Green St., Raleigh, NC 27603, Tel: 919-833-2837; *Sls. Mgr.:* Ron Zweben

MATRIX ENGINEERING CORP., 17000 S. Western Ave. 19, Gardena, CA 90247, Tel: 213-770-0521; Empl.: 7

MATRIX SCIENCE CORP., 435 Maple Ave., Torrance, CA 90503, Tel: 213-328-0271

MATRIX SYS. CORP., 5177 N. Douglas Fir Rd., Calabasas, CA 91302, Tel: 213-992-6776, TWX: 910-494-4975; Empl.: 40; *Sls. Mgr.:* Jack Singleton .... **1A**•1709

Local Sales Offices & Reps

AZ	Scottsdale, Faser Techn. Sls.	602-948-4404
CA	Mountain View, IFM	415-961-2828
CA	N. Hollywood, Crown Elctrns.	213-877-3550
CO	Boulder, Sci. Dvcs.	303-449-9466
CT	Hamden, Poly Tek Assocs.	203-288-5246
FL	Melbourne, Reynolds & Assocs.	305-259-7000
GA	Acworth, RJC Assocs.	800-255-1965
IL	Chicago, Comtel Midwest	312-539-4838
IN	Indianapolis, Comtel Midwest	317-253-1681
IA	Cedar Rapids, Comtel Midwest	319-377-9434
KS	Shawnee Mission, Comtel Midwest	913-722-1030
MA	Ashland, Poly Tek Assocs.	617-881-4741
MI	Southfield, Comtel-Instr.	313-258-2505
MN	Wayzata, Comtel Midwest	612-476-1551
MO	St. Louis, Comtel Midwest	314-991-5363
NY	Mamaroneck, Bassin Tech. Sls. Co.	914-698-9332
NC	Winston Salem, Reynolds Assoc.	800-255-1965
OH	Cleveland, Comtel-Instr. Assocs.	216-442-8080
OH	Dayton, Comtel-Instr. Assocs.	513-298-7573
PA	Pittsburgh, Comtel-Instr. Assocs.	412-922-5720
TX	Carrollton, Seaton Corp.	214-380-0414
VA	Fairfax, Schibley Assocs.	703-591-3008
WA	Bellevue, Topp Engrg. Sls.	206-747-5400
WI	New Berlin, Comtel Midwest	414-544-6042

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MATROX ELCTRN. SYS., 5800 Andover Ave., Montreal, QU H4T 1H4, Canada, Tel: 514-735-1182, Telex: 05-825651; Empl.: 185; *Sls. Mgr.:* Ed Dwyer

Local Sales Offices & Reps

AL	Huntsville, Pentech Assocs.	205-881-9298
AZ	Phoenix, P.A.R. Assocs.	602-243-4267
CA	Santa Clara, Indl. Modules	408-988-1911
CA	Torrance, High-Tech Digital	213-378-5131
CO	Denver, P.A.R. Assoc.	303-371-4140
FL	Deerfield Beach, Pentech Assocs.	305-421-4989
GA	Marietta, Pentech Assocs.	404-424-1931
IL	Schaumburg, Micro-Tex	312-885-1131
IL	Waukesha, Micro-Tex	414-542-5352
IN	Indianapolis, Giesting & Assocs.	317-271-5183
MD	Baltimore, Burgin-Kreh	301-265-8500
MA	Lexington, Nova Sls.	617-861-1820
MI	Novi, Giesting & Assocs.	313-348-3811
MN	Minneapolis, Jen-Ray Sys.	612-831-5060
NY	Clark Mills, KLM Garner	315-381-8350
NY	North Syracuse, KLM Garner	315-458-6214
NY	Pittsford, KLM Garner	716-381-8350
NY	Pleasantville, ABC Elctrn. Sls.	914-796-8088
NY	Williston Park, ABC Elctrn. Sls.	516-747-6610
NC	Greensboro, Pentech Assocs.	919-852-6000
OH	Cincinnati, Giesting & Assocs.	513-521-8800
OH	Mentor, Giesting & Assocs.	216-942-3407
OR	Portland, Westerberg & Assocs.	503-297-1710
PA	Pittsburgh, Giesting & Assocs.	412-963-0727
TX	Austin, Mycrosystems Mktg.	512-452-2842
TX	Houston, Mycrosystems Mktg.	713-270-7198
TX	Richardson, Mycrosystems Mktg.	214-669-2380
UT	Centerville, P.A.R. Assoc.	801-292-8145
VA	Lynchburg, Burgin-Kreh	804-239-2626
WA	Bellevue, Westerberg & Assoc.	206-453-8881

MATSUO ELCTRNS., 12831 Western Ave., Ste. A, Garden Grove, CA 92641, Tel: 714-898-0707, TWX: 910-596-1828; Empl.: 854; *Sls. Mgr.:* Ken Rhines; *Dist. Mgr.:* Ken Rhines

MAUREY INSTR. CORP., 4555 W. 60th St., Chicago, IL 60629, Tel: 312-581-4555, TWX: 910-221-6025; FSC No.: 03942; Empl.: 50; *Sls. Mgr.:* E. Maurey; *Dist. Mgr.:* Louis Derdzinski .. **1A**•2041-2045; **1B**•1162

Local Sales Offices & Reps

FL	Orlando, ASI	305-851-7929
FL	Plantation, Innovative Mktg.	305-583-8895
WA	Vancouver, Sls. & Engrg. Assoc.	206-573-5161

Local Distributors

CA	Garden Grove, Allied Elctrns.	714-554-0731
CA	Santa Clara, Allied Elctrns.	408-727-1690
CO	Wheatridge, Allied Elctrns.	303-425-7144
CT	Ridgefield, PIC	203-451-1533
FL	Margate, Allied Elctrns.	305-973-3070
IL	Elgin, Allied Elctrns.	
MA	Wilmington, Allied Elctrns.	617-942-0150
MI	Westland, Allied Elctrns.	313-595-6565
MO	St. Louis, Allied Elctrns.	314-878-1229
NY	Mineola, Allied Elctrns.	516-248-2360
NC	Raleigh, Allied Elctrns.	919-821-0415
OH	Willoughby, Allied Elctrns.	216-951-0908
OK	Tulsa, Allied Elctrns.	918-663-7630
PA	Bala Cynwyd, Allied Elctrns.	215-267-6940
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Houston, Allied Elctrns.	713-932-7321
VA	Alexandria, Allied Elctrns.	703-836-5002
WA	Seattle, Allied Elctrns.	206-767-5772
WI	Milwaukee, Allied Elctrns.	414-463-2662
Can	Lachine, Montreal, Electrodesign	514-636-4838

MAURY MICROWAVE, 8610 Helms Ave., Cucamonga, CA 91730, Tel: 714-987-4715, TWX: 910-581-3408; FSC No.: 13047; Empl.: 40; *Sls. Mgr.:* D. A. Smith

MAXI-SWITCH CO., 9697 East River Rd., Minneapolis, MN 55433, Tel: 612-755-7660, TWX: 910-576-2690; Empl.: 100; *Sls. Mgr.:* Craig Stout

maxon DC motor

MAXON PRECISION MOTORS, INC., 838 Mitten Rd., Burlingame, CA 94010, Tel: 415-697-9614, TWX: 910-375-2049; Empl.: 270; *Sls. Mgr.:* Steven E. Buller .... **1B**•1163

MAXWELL LABS., 8835 Balboa Ave., San Diego, CA 92123, Tel: 619-279-5100, TWX: 910-335-2063; Empl.: 300; *Sls. Mgr.:* William Fox (Prods.);Mike Plum (Magneform)

MCCOY ELECTRONICS CO., Sub. Oak Technology Inc., 100 Watts St., P.O. Box B, Mt. Holly Springs, PA 17065, Tel: 717-486-3411, TWX: 510-650-3548; Empl.: 600 .... **1A**•1374-1382

Local Sales Offices & Reps

AL	Huntsville, Oak Southeast	205-882-9296
CA	Huntington Bch., Oak Southwest	714-846-6691
CA	Los Altos, Oak Western	415-941-1237
CO	Colorado Springs, I. W. Strong & Assocs.	303-576-1962
CO	Denver, I. W. Strong & Assocs.	303-292-6900
CT	Meriden, JMG, Inc.	203-235-0819
FL	Altamonte Springs, Oak Southeast	305-831-5411
IL	Rolling Meadows, Oak Inds./Illinois	312-255-6150
IA	Cedar Rapids, Lorenz Sls.	319-377-4666
MA	Norwood, JMG, Inc.	617-762-5333
MN	St. Louis Pk., Wagner Consits. Co.	612-922-6330
MO	N. Kansas City, Automatic Gen. Elctrn. Sls.	816-421-0426
NJ	Haddonfield, Gray Assocs.	609-429-5300
NY	Fayetteville, S. F. Foster Co.	315-637-5427
NY	New Rochelle, Ascor Elctrns.	914-235-8838
NY	Webster, S. F. Foster Co.	716-265-2072
NC	Raleigh, Oak Northeast	919-876-7591
OH	Cincinnati, Oak Inds./Ohio	513-851-4411
OR	Beaverton, Oak Northwest	503-643-0127
TX	Austin, R. F. Kimball Co.	512-443-5284
TX	Houston, R. F. Kimball Co.	713-840-0590
TX	Richardson, R. F. Kimball Co.	214-231-3447
EXP	NJ, Oradell, Sylvan Ginsbury Ltd.	201-261-3200

MCE SEMICONDUCTOR, 1111 Fairfield Dr., West Palm Beach, FL 33407, Tel: 305-845-2837, Telex: 513463; Empl.: 140

MCFADDEN SYS., INC., 8956 S. Atlantic Ave., South Gate, CA 90280-9990, Tel: 213-564-5958, Telex: 677161; FSC No.: 25750; Empl.: 28

MCG ELCTRNS., 12 Burt Dr., Deer Park, NY 11729, Tel: 516-586-5125, Telex: 645518; FSC No.: 29779; Empl.: 30 .... **1B**•1277-1280

Local Sales Offices & Reps

CT	Norwalk, Gemini Grp.	203-852-8173
LA	Covington, Svc. Elctrl. Sls.	504-893-2830

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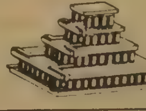

MS	Brandon, Svc. Elctrl. Sls.	601-992-9122
MO	St. Louis, Engrg. Svc. Co.	314-997-1515
NJ	Caldwell, Fred Urban	201-228-5249
NC	Greensboro, The Saylor Assocs.	919-292-0452

MCGILL MFG. CO., INC., Bearing Div., 909 N. Lafayette St., Valparaiso, IN 46383, Tel: 219-465-2200, Telex: 25-8446

MCGILL MFG. CO., INC., Electrical Div., 1002 N. Campbell St., Valparaiso, IN 46383, Tel: 219-465-2200, TWX: 910-690-4982; Empl.: 295; *Sls. Mgr.:* David Rickards (OEM Switch), Thomas Frary (Control Prods.); *Dist. Mgr.:* Thomas F. Morris .... 1B•1676

Local Sales Offices & Reps

AL	Decatur, Tenn Tech Sls.	205-350-0630
CA	S. El Monte, HMC Inc.	213-442-7970
CA	Santa Clara, Logan Sls.	408-496-0660
IN	Indianapolis, A. E. Fred Schaab	317-253-8689
MD	Baltimore, R. A. Wafer Assocs.	301-744-1133
MA	Needham, Hgts. Newscott Co.	617-444-1923
MI	W. Bloomfield, OBE, Inc.	313-332-4900
MN	Minneapolis, Elec. Comp. Sls.	612-933-2594
MO	Ellisville, Larco Sls.	314-394-7141
NJ	Cherry Hill, Danco Elctrn. Sls.	609-424-5590
NY	Baldwin, C. Glianna	516-378-2700
NY	N. Syracuse, Advanced Comp. Corp.	315-699-2671
OH	Cleveland, Allied Entprs.	216-779-0080
SC	Columbia, H. Heaton	803-256-9230
TX	Dallas, Erickson Sls.	214-739-5833
UT	Salt Lake City, Sage Sls.	801-467-5451
WA	Seattle, SPS Elctrns.	206-323-4140

MCGUIRK ELECTRONICS CO. INC., York St. P.O. Box 101 S.V., Andover, MA 01810, Tel: 617-933-3500; FSC No.: 55902; Empl.: 10; *Sls. Mgr.:* V. James Stabile

MCI TRANSFORMER DIV., See Magnetic Coils Inc.

MCKINSTRY METAL WORKS, INC., 285 McKinstry Ave., Chicopee, MA 01013; Empl.: 80

MCL, INC., 10 North Beach Ave., La Grange, IL 60525, Tel: 312-354-4350, TWX: 910-683-1899; FSC No.: 16469; Empl.: 60; *Sls. Mgr.:* Frank Morgan .... 3•1390, 1391

Local Sales Offices & Reps

CA	Los Angeles, RF Associates	213-478-1586
CA	Palo Alto, RF Associates	415-494-3331
GA	Riverdale, MCL, Inc./Bob Lundy	404-996-6632
MA	Reading, Geder Assocs.	617-944-3105

MCLEAN ENGRG., Div. of Zero Corp., 70 Washington Rd., Princeton Junction, NJ 08550, Tel: 609-799-0100, TWX: 510-685-2543; FSC No.: 03522; Empl.: 135; *Sls. Mgr.:* William L. Sly; *Dist. Mgr.:* Craig A. Reed .... 2•1824, 1825

Local Sales Offices & Reps

CA	Cupertino, T. Snitzer Co.	408-257-8333
CA	Del Mar, T. Snitzer Co.	714-226-0305
CA	L.A., T. Snitzer Co.	213-836-6170
CO	Boulder, Component Prod. Sls.	303-530-2800
CT	North Haven, John E. Boeing Co.	800-343-4331
FL	Clearwater, R.I. Smith Assocs.	813-581-1492
FL	Ft. Lauderdale, R.I. Smith Assocs.	305-772-5100
FL	Orlando, R.I. Smith Assocs.	305-365-8077
IL	Elmhurst, Scott Assocs.	312-279-5681
LA	Gretna, M. F. Sls.	504-361-4343
MD	Hunt Valley, Marktron	301-628-1111
MD	Rockville, Marktron	301-251-8990
MA	Lexington, John E. Boeing Co.	617-862-2500
MI	East Detroit, J. Thorpe Co.	313-779-6363
MN	Minneapolis, Scott Elctrn. Sls.	612-929-2985
MO	Grandview, Harris-Hanson	816-763-6200
MO	St. Louis, Harris-Hanson	314-432-3611
NJ	Ridgewood, Hansen & Hughes	201-652-7055
NM	Albuquerque, Fry-Gates	505-262-1525
NY	Albany, Reagan/Compar Albany	518-489-4777
NY	Binghamton, Reagan/Compar	607-754-8946
NY	Fairport, Reagan/Compar Albany	716-271-2230
NY	New Hartford, Reagan/Compar Albany	315-732-3775
NY	New York, Hansen & Hughes	800-526-5114
OH	Cleveland, Marlow Assocs.	216-991-6500
OH	Columbus, Marlow Assocs.	614-885-7643
OR	Wilsonville, R.T.S.	503-638-5670
PA	Huntingdon Valley, Inacker Sls.	215-947-5660
PA	Pittsburgh, Marlow Assocs.	412-367-8886
SC	Greenville, Sunbelt Sls.	803-877-9088
TN	Taft, Sunbelt Sls.	615-425-6164
TX	Dallas, J.A. Green Co.	214-631-7450
TX	Houston, Milco Mktg.	713-946-2841
UT	Salt Lake City, Component Prod. Sls.	801-262-0000
VA	Charlottesville, Marktron	804-973-5874
WA	Vashon, R.T.S.	206-285-1363

Local Distributors

CA	Los Angeles, Snitzer Supply	213-836-6170
MI	Ann Arbor, Wedemeyer Elctrn. Supp. Co.	313-665-8611
TX	Houston, R. V. Weatherford	713-688-7406
Can	Guelph, Ontario, Hammond Mfg. Co.	519-822-2960

MCLEAN MIDWEST, 4000 83rd Ave. N., Brooklyn Pk., MN 55443, Tel: 612-561-9400, Telex: 29-0883, TWX: 910-576-2951; *Sls. Mgr.:* J. Buyse .... 2•1826, 1827

3M CO., Carbonless/Related Prods Div Ind'l Optics, 3M Center, Bldg. 225-3S, St. Paul, MN. 55144, Tel: 612-733-4403, Telex: 29-7023, TWX: 910-563-3712; *Sls. Mgr.:* A. Rivard

3M-ELECTRONIC PRODUCTS DIVISION, 3M Center, Bldg. 225-1N-06, St. Paul, MN 55144, Tel: 612-733-7408 .... 2•1514, 1515

Local Sales Offices & Reps

AK	Anchorage	907-561-1030
CA	Los Angeles	213-726-6300
CA	So. San Francisco	415-761-1155
GA	Atlanta	404-447-7000
HI	Honolulu	808-422-2721
IL	Chicago	312-496-6500
MA	Boston	617-449-0300
MI	Detroit	313-477-5000
MN	St. Paul	612-733-3300
MO	St. Louis	314-997-8500
NJ	West Caldwell	201-575-2000
NC	High Point	919-889-7181
OH	Cincinnati	513-482-3100
OH	Cleveland	216-362-1700
PA	Philadelphia	215-728-5300
TX	Dallas	214-324-8100
WA	Seattle	206-244-7200

Local Distributors

AL	Huntsville, RM Alabama	205-852-1550
AL	Huntsville, Powell Electronics	205-539-2731
AZ	Tempe, Richey/Western Elctrns., Inc.	602-894-9251
AZ	Tempe, Acacia Sls.	602-894-2874
CA	Irvine, Ratel Elctrns.	714-549-8611
CA	Irvine, Acacia Sls.	714-549-0954
CA	Los Angeles, Richey/Western Elctrns., Inc.	213-820-3777
CA	San Diego, Acacia Sls.	619-565-4365
CA	San Diego, Richey/Western Elctrns., Inc.	619-271-4511
CA	San Jose, Ratel Elctrns.	408-946-4300
CA	San Jose, Powell Elctrns.	408-943-9020
CA	Santa Clara, Richey/Western Elctrns., Inc.	408-727-7411
CA	Sun Valley, Richey/Western Elctrns., Inc.	818-768-3800; 213-875-2862
CA	Sunnyvale, Acacia Sls.	408-745-7200
CO	Denver, Ragon Electronic Parts	303-744-3601
CO	East Haven, JV Elctrns.	203-469-2321
CO	Lakewood, Acacia Sls.	303-232-2882
CT	Hamden, Impact Sls. Co.	203-281-1331
FL	Ft. Lauderdale, Power Elctrns.	305-979-5000
FL	Winter Park, Deanco	305-671-5100
GA	Atlanta, A.C. Equipment Co.	404-451-2747
GA	Marietta, Deanco	404-429-0126
IL	Chicago, Prehler	312-384-6100
IL	Lombard, RM Illinois	312-932-5150
IL	Mt. Prospect, Magnuson Elctrns.	312-956-0700
MD	Columbia, Powell Elctrns.	301-995-0410; 301-621-4070 in D.C.
MD	Gaithersburg, Deanco	301-948-5444
MA	Burlington, Schaal Assoc./Deanco	617-272-1506
MA	Canton, Impact Sls.	617-821-1500
MA	Westboro, Powell Elctrns.	617-366-6100
MI	Grand Rapids, RM Michigan	616-531-9300
MN	St. Paul, Ragon Elctrns.	612-642-2828
MO	Independence, Ragon Elctrns.	816-254-3410
MO	St. Charles, Lectronix	314-946-6424
NJ	Clifton, J-Mar Elctrns.	201-772-6400
NJ	Englewood, Powell Electronics	201-894-0800
NJ	Fairfield, Deanco	201-575-7960
NY	Farmingdale, Addem Distributors	516-752-9303
NY	Hauppauge, LI, Schaal Associates/Deanco	516-234-4600
NY	Ithaca, Deanco	607-257-4444
NY	Ronkonkoma, Zenith Wire & Cable	516-585-1444
NC	Cary, Powell Electronics	919-467-1212
NC	Charlotte, Elctrns. Mktg. Corp.	704-394-6195
OH	Columbus, Electronics Mktg. Corp.	614-299-4161
OH	Highland Heights, Elctrns. Mktg. Corp.	2 6-422-3411
OH	Middleburg Heights, Prehler	216-826-0110
OK	Tulsa, Norvell Elctrns.	918-663-1247
OR	Beaverton, Acacia Sls.	503-646-3377
OR	Lake Oswego, Moore Elctrns., Inc.	503-684-3100
OR	Wilsonville, Zepher Elctrns.	503-682-2929
PA	Philadelphia, Powell Elctrns.	215-365-1900
TX	Austin, Kent Elctrns.	512-834-1900
TX	Austin, Norvell Elctrns.	512-458-8106
TX	Dallas, Norvell Elctrns.	214-233-0020
TX	Houston, Kent Elctrns.	713-780-7770
TX	Houston, Norvell Elctrns.	713-777-1666
TX	Richardson, Kent Elctrns.	214-669-2600
UT	Midvale, Ratel Elctrns.	801-562-2600
WA	Seattle, Zepher Elctrns.	206-241-1980

3M CO., STATIC CONTROL SYS. DIV., 3M Center, Bldg. 225-4S-04, St. Paul, MN 55144, Tel: 612-733-9420, TWX: 910-563-3712; Empl.: 300; *Sls. Mgr.:* Mike Martin .... 3•1924, 1925

Local Sales Offices & Reps

AZ	Phoenix	602-934-7413; 800-221-1046
CA	Los Angeles	800-221-1045
CA	San Francisco	415-761-1155
CO	Denver	303-321-3873
DC	Washington	800-241-3669
FL	Orlando	800-241-3669
GA	Atlanta	800-241-3670
IL	Chicago	312-496-6553
MA	Boston	617-449-0300
MI	Detroit	800-323-4087
MN	St. Paul	800-392-0312
MO	St. Louis	314-997-8500
NJ	Newark	800-221-1454
NJ	West Caldwell	800-221-1454
NY	Syracuse	800-221-1455
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WA	Seattle	206-244-7200; 206-241-2250

3M CO., TECH CERAMIC RESOURCES, 3M Center 225-4W, St. Paul, MN. 55101, Tel: 617-736-0601, Telex: 29-7023, TWX: 910-563-3712; Empl.: 83000

3M CO. VISUAL PRODS./INDUS. OPTICS., See 3M Co. Carbonless Related Prods. Div.

MDB SYS., 1995 N Batavia St., Orange, CA 92665, Tel: 714-998-6900, TWX: 910-593-1339; Empl.: 200; *Sls. Mgr.:* William Wollam

MDF PRODUCTS INC., 7 Johnson Dr., Danbury, CT 06810, Tel: 203-743-3579, Telex: 499-8051; FSC No.: 60628; Empl.: 5 .... 3•1262

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MEASUREMENTS GROUP, INC., Box 27777, Raleigh, NC 27611, Tel: 919-365-3800, Telex: 802-502, TWX: 510-920-0770; *Sls. Mgr.:* Stephen R. Katz

MEASUREMENT SYS., INC., 121 Water St., Norwalk, CT 06854, Tel: 203-838-5561, TWX: 710-468-2185; Empl.: 75; *Sls. Mgr.:* John Cronan ....3•1134

Local Sales Offices & Reps

IA	Cedar Rapids, S & O Sls.	319-393-1845
MD	Columbia, Robert Elctrn. Sls.	301-995-1900
MA	Hudson, Data Rep.	617-481-0333
PA	Melrose Park, R. Meyers Assocs.	215-224-1663
VA	Richmond, Robert Elctrn. Sls.	804-276-3979

MEC A/S, Industriparken 23, Ballerup, DK-2750, Denmark, Tel: 452-973366, Telex: 35323

Local Sales Offices & Reps

AZ	Phoenix, Eltron	602-266-2164
CA	Brea, Masco	714-529-0867
CA	Mountain View, Switches Inc.	415-962-8649
CA	Orange County, Pacific Switch Controls Inc	714-953-1254
CA	Van Nuys, Pacific Switch Controls Inc	213-873-4802
CO	Aurora, Mountain View Mktg.	303-360-9641
FL	Fort Lauderdale, KSM Elctrns. Inc	305-971-5900
GA	Atlanta, KSM Elctrns. Inc	404-458-2013
IL	Downers Grove, Richmar Elctrns.	312-968-0118
IN	Indianapolis, Insul Reps	317-842-5203
MA	Needham, A&M Elctrns.	617-444-8170
MI	Brighton, AP Assocs.	313-229-6550
MN	Minneapolis, Elctrn. Comps. Grp.	612-559-0720
NY	Great Neck, M.O.S. Assocs.	516-487-3966
PA	Glenside, Wyncote Instrmn.	215-572-6500
TX	Richardson, Southern States Mktg.	214-238-7500
VA	Fairfax	701-591-1300
WA	Mercer Island, Elctrn. Comp. Sls.	206-232-9301

MECHANICAL ENGRAVING, 4500 Bullard Ave, Bronx, NY 10470, Tel: 212-324-4455; FSC No.: 99040; Empl.: 35; *Sls. Mgr.:* Bernard W. Mandel

Local Sales Offices & Reps

CT	Huntington, Richard Jonassen & Assocs.	203-929-7987
IL	Chicago, Zinsmaster & Assocs.	312-870-7347
IL	Moline, Louis Turilli	309-797-2307
MO	Kansas City, Zinsmaster & Assocs.	816-333-6233
NH	Hillsboro, Richard Jonassen and Assocs.	603-464-3264

MECHANICAL ENTPRS., 461 Carlisle Dr., Herndon, VA 22070, Tel: 703-435-9496, TWX: 710-832-0942; Empl.: 25; *Sls. Mgr.:* R.H. Twyford ....1B•1677, 1784, 1785

Local Sales Offices & Reps

CA	Irvine, Vale Elctrn.	714-551-4821; 619-693-0113;213-886-7101
CT	Bristol, Technlg. Prods.	203-583-0703
FL	Casselberry, Semi	305-695-3334
FL	Clearwater, SEMI	813-441-3902
FL	Ft. Lauderdale, SEMI	305-475-3686
IL	Arlington Heights, Coombs Assoc.	312-439-9810
IN	Ft. Wayne, Coombs Assoc.	219-747-7661
IA	Cedar Rapids, Coombs Assoc.	319-362-4116
MA	Brookline, Technlg. Prods.	617-731-0858
MI	Jackson, Norwood Scroggs Co.	517-750-1170
NJ	Parlin, JMR Sls., Inc.	201-727-5335
NY	Cooperstown, Fitzelle Assoc.	607-547-9333
NY	East Setauket, JMR Sls., Inc.	516-689-8871
NY	Rochester, Lloyd Hart Assoc.	716-225-4455
TX	Dallas, Stasco	214-239-4517
WI	Milwaukee, Coombs Assoc.	414-351-6123

Local Distributors

CA	Los Angeles, Electric Switches	213-660-1310
IL	Wheeling, Hawk Elctrns.	312-459-4030
NY	Mt. Vernon, Kintronics	914-668-9885

MECHANICAL PRODUCTS, Amstar, 1824 Kiver St., P.O. Box 729, Jackson, MI 49204, Tel: 517-782-0391, TWX: 810-253-0827; *Sls. Mgr.:* Bob Vangermeersch

MECHANICAL TECHN., 968 Albany Shaker Rd., Latham, NY 12110, Tel: 518-785-2353, TWX: 710-443-8150; Empl.: 1000; *Sls. Mgr.:* David W. Bender; *Dist. Mgr.:* David W. Bender

MECHANIZED ELECTRONIC ASSEMBLY DIV., Universal Instrs. Corp., P.O. Box 825, Binghamton, NY 13902, Tel: 607-772-7522, TWX: 510-252-1990; *Sls. Mgr.:* Gene Exley ....3•1926

Local Sales Offices & Reps

MA	Marshfield, Universal Instrs. Corp.	617-834-6576
NY	Binghamton, Universal Instrs. Corp.	607-772-7472
PA	Hollidaysburg, Universal Instrs. Corp.	814-695-7324

MEDIA RECOVERY INC., Box 1407, Graham, TX 76046, Tel: 800-527-9497, 214-630-9625 (Texas), Telex: 73-2561; Empl.: 130; *Sls. Mgr.:* J. Ricciardi

Local Sales Offices & Reps

CA	San Francisco, Media Recovery	415-572-0167
CA	Van Nuys, Media Recovery of Cal	213-782-8978
CT	Hartford, Media Recovery of N.J.	203-528-9776
GA	Atlanta, Media Recovery	404-441-1547
MA	Boston, Media Recovery Inc.	617-843-8400
MI	Livonia, Media Recovery	313-421-4244
TX	Dallas, Media Recovery of Tex	214-630-9625
TX	Houston, Media Recovery of Tex	713-681-5464
TX	San Antonio, Media Recovery of Texas	512-349-5854

MEGA LOGIC, 9659 Natl. Rd., Brookville, OH 45309, Tel: 513-833-5222

MEGATEK CORP., 9605 Scranton Rd., San Diego, CA 92121, Tel: 619-455-5590, TWX: 910-335-2056; Empl.: 500; *Sls. Mgr.:* Robert A. Becker, Dir., North Amer. Sls.; *Dist. Mgr.:* Michel Schwab, Dir., International Sls.

MEGATEST, 880 Fox La., San Jose, CA 95131, Tel: 408-998-7110, TWX: 910-338-0259; Empl.: 225; *Sls. Mgr.:* Rick Carmichael

MEGATRAN ELECTRONIC POWER, Rising Sun Rd., Bordentown, NJ 08505, Tel: 609-298-7300, TWX: 510-685-3645; Empl.: 25; *Sls. Mgr.:* C. W. Harrison

MEISSNER INDS., 551 Rte. 10, Dover, NJ 07801, Tel: 201-366-1700; Empl.: 10 ....1A•1889

meLcoR

MELCOR/MATERIALS ELCTRN. PRODS., 994 Spruce St., Trenton, NJ 08648, Tel: 609-393-4178, Telex: 84-3314; FSC No.: 32333; Empl.: 100; *Sls. Mgr.:* M.A. Levine ....2•1828, 1829

MELCO SLS., See Mitsubishi Elctrns.

MELLES GRIOT, 1770 Kettering St., Irvine, CA 92714, Tel: 714-556-8200, Telex: 678-447; Empl.: 90; *Sls. Mgr.:* Richard P. Gluch

MEL-RAIN CONTROLS, 42974 M-43 Hwy., Paw Paw, MI 49079, Tel: 616-657-2527; FSC No.: 639; Empl.: 20; *Sls. Mgr.:* Howard F. Walter

MEL TEC, Div. Epsco, Inc., 411 Providence Hwy., Westwood, MA 02090, Tel: 617-329-1508, Telex: 95-1110, TWX: 710-348-0484; Empl.: 180

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AL	Huntsville, Currie, Peak & Frazier	205-536-1506
AZ	Scottsdale, Carl Carlburg Assocs.	
FL	Orlando, Currie, Peak & Frazier	305-855-0843
GA	Duluth, Currie, Peak & Frazier	404-476-3107
KS	Wichita, Kebco	316-733-1301
MD	Towson, Arbotek	301-825-0775
MI	Troy, C. B. Jensen	313-643-0506
MO	Maryland Heights, Kebco	314-576-4111
NM	Alburqueque, C. T. Carlburg & Assocs.	505-888-3883
NY	Melville, Long Island, Comtronic	516-249-0505
NC	Greensboro, Currie, Peak & Frazier	919-373-0380
WI	Greenfield, Olympic	414-281-9294

MEMODYNE, 220 Reservoir St., Needham Hgts., MA 02194, Tel: 617-444-7000, Telex: 92-2537; Empl.: 40; *Sls. Mgr.:* N.H. Renaud ....3•1087

Local Sales Offices & Reps

AL	Huntsville, Magaro & Assoc.	205-882-0827
AZ	Tempe, Mar Tech Assocs., Inc.	602-968-4944
CA	Fullerton, Elctrn. Comp. Mktg.	714-879-9460
CA	Santa Clara, Nelson Elctrns. Sls.	408-980-1950
CO	Englewood, F. G. Mktg. Co.	303-795-9176
CT	Hamden, Burton Forrester Associates	203-248-4380
GA	Atlanta, Magaro & Assoc.	404-451-8862
HI	Honolulu, Aloha Assocs.	808-941-1574
IL	Elmhurst, Scott Assocs.	312-279-5681
KS	DeSoto, Midtec Assocs.	910-743-6565
MA	Braintree, Burton Forrester Assocs.	617-848-7234
MI	Detroit, EQS Sys.	313-961-3042
MO	Florissant, Midtec Assocs.	313-837-5200
NM	Albuquerque, Mar Tech Assocs., Inc.	505-821-2775
NY	Clark Mills, KLM Assocs.	315-853-6126
NY	Elmont, Crane & Egert Corp.	516-872-0800
NY	North Syracuse, KLM Assocs.	315-458-6214
NY	Pittsford, KLM Assocs.	716-381-8350
NC	Greensboro, Magaro & Assocs.	919-294-4783
OH	Chesterland, EQS Sys.	216-729-2222
OH	Columbus, EQS Sys.	614-228-3453
OR	Portland, Topp Engrg. Sls.	503-244-7265
PA	Ambler, Denco Data Equip. Corp.	215-542-9876
PA	Pittsburgh, EQS Sys.	412-261-2604
TX	Houston, Acudata	713-488-8195
TX	Plano, Acudata	214-424-3567
UT	Englewood, F. G. Mktg. Co.	303-795-9176
WA	Bellevue, Topp Engrg. Sls.	206-747-5400

MEMOREX CORP., San Thomas at Central Expwy., Santa Clara, CA 95052, Tel: 408-987-1000; Empl.: 12,284

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MEMORY PROTECTION DEVICES INC., 320 Broad Hollow Rd., Farmingdale, NY 11735, Tel: 516-454-0340; *Sls. Mgr.:* Lou Asighieri; *Dist. Mgr.:* Sandy Silvani ....2•1519

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AL	Huntsville, REP Inc.	205-881-9270
AZ	Phoenix, Stitzer & Dodd	602-944-2237
CA	Pleasonton, Moulthrop Sls.	415-846-0550
CA	San Diego, Tauber Assoc.	619-274-7242
CO	Denver, Comp. Sls. Inc.	303-759-1666
FL	Melbourne, Reynolds	305-259-7000
GA	Tucker, Rep Inc.	404-938-4358
IL	Chicago, Brock & Cushman	312-622-4110
IN	Indianapolis, Marketing Engr.	317-872-5665
KS	Olathe, Rush & West	913-764-2700
MA	Burlington, Conti Younger	617-273-1582
MI	Birmingham, Favco	313-644-0173
MN	Minneapolis, Electro Mark	612-881-3306
MO	Ballwin, Rush West	314-394-7271
NJ	Mt. Laurel, Comtek	609-235-8505
NY	Pittsford, Andres Comp.	716-381-3818
NY	Westchester Great Neck, Cooper Simon	516-487-1142
NC	Raleigh, Rep Inc.	919-851-3007
OH	Cleveland, Del Steffen	216-461-8333
OR	Tigard, Electronic Sources	503-684-0040
PA	Pittsburgh, Del Steffen	412-276-7366
TN	Jefferson City, Rep. Inc.	716-475-4105
TX	Dallas, Dunbar	214-239-7151
UT	Salt Lake City, Comp. Sls.	801-466-8623
WA	Bellevue, Elctrn. Sources	206-451-3500
WI	Menomonee Falls, Brock Cushman	414-255-2166

Local Distributors

AL	Huntsville, Resistacap, Inc.	205-881-9270
CA	Burlingame, Rose Elect	415-348-0483
CA	San Diego, Fauber Elect	619-272-7242
CA	San Jose, Cypress Elect	408-945-8400
CA	Van Nuys, Nesco	213-781-0505
CO	Denver, Denver/Wentronics	303-934-2406
FL	Dania, Summit Distr	305-920-6253
FL	Longwood, Intertec	305-834-7777
IL	Chicago, Prehler Elec	312-384-6100
IN	Indianapolis, Graham Elec	317-634-8202
MA	Canton, Impact Sales	617-821-1500
MA	Sharon, Adcour	617-784-9123
MI	Brighton, A. P. Sales	313-229-6550
MI	Farmington Hills, Prehler Elec	313-476-7084
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MN	Thief River Falls, Digi Key	218-681-6674
NJ	Bellmawr, Mid-Atlantic	609-931-5303
NJ	Plainfield, Mars Elec	201-757-4332
NY	Buffalo, Summit Dist	716-887-2800
OH	Cincinnati, Hughes Peters	513-351-2000
OH	Columbus, Hughes Peters	614-294-5351
OR	Beaverton, Almac	503-641-9070
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MEPCO/ELECTRA, INC., North American Philips Corp., Corporate Headquarters, Columbia Rd., Morristown, NJ 07960, Tel: 201-539-2000, TWX: 710-986-7437; *Sls. Mgr.:* Michael F. Kirkowski; *Dist. Mgr.:* Robert G. Elko

MEPCO/ELECTRA, INC., North American Philips Corp., 11468 Sorrento Valley Rd., San Diego, CA 92121, Tel: 619-453-0332, TWX: 910-337-1120 .... **1A**•2046; **1B**•1012

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MEPCO/ELECTRA, INC., North American Philips Corp., 5900 Australian Ave., West Palm Beach, FL 33407, Tel: 305-842-3201, TWX: 510-952-7618 .... **1A**•1134; **1B**•1013

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MEPCO/ELECTRA, INC., North American Philips Corp., Columbia Rd., Morristown, NJ 07960, Tel: 201-539-2000, TWX: 710-986-4737 .... **1A**•1136, 1890, 1891; **1B**•1012

Metal Film Resistors (Established Reliability-Hermetic) Thick Film Chips, Thick Film Networks, Non-Linear Resistors, Film Trimmer Capacitors

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Metal Film Resistors (General Purpose, Standard Precision, Ultra Precision, Standard Military, Established Reliability) Carbon Film Resistors, Precision Matched Sets

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CA	Milpitas, Mepco/Electra	408-945-1020
CA	N. Hollywood, Mepco/Electra	818-982-7470
CA	San Diego, The Rep Co.	619-292-9001
CA	Santa Clara, I-Squared	408-988-3400
CO	Englewood, Thorson Rocky Mountain	303-779-0666
FL	Fern Park, Mepco/Electra	305-339-5073
FL	Ft. Lauderdale, Mepco/Electra	305-485-0115
GA	Norcross, Over & Over, Inc.	404-449-6205
IL	Bannockburn, Heth	312-295-8440
IL	Elk Grove Village, Oasis Sls.	312-640-1850
IL	Itasca, Mepco/Electra	312-773-3399
IN	Fort Wayne, Corrao Marsh, Inc.	219-637-5548
IN	Greenfield, Corrao Marsh, Inc.	317-894-0377
IN	Indianapolis, Corrao Marsh, Inc.	317-872-7157
IN	Indianapolis, Leslie M. Devoe Co.	317-842-3245
IA	Cedar Rapids, Lorenz Sls.	319-377-4666
KS	Leawood, H. C. Heyde	913-649-8628
KS	Overland Park, PMR Corp.	913-381-0004
KS	Wichita, PMR Corp.	316-684-4141
MD	Columbia, Delta III Assoc.	301-730-4700
MA	Woburn, Mepco/Electra	617-935-6920
MI	Grand Rapids, Miltimore Sls.	616-942-9721
MI	Novi, Miltimore Sls.	313-349-0260
MN	Burnsville, Heth, Inc.	612-435-7876
MN	Edina, Mepco/Electra	612-835-5935
MN	Minneapolis, Comprehensive Technical Sls.	612-888-7011
MO	Maryland Heights, PMR Corp.	314-569-1220
NE	Lincoln, Lorenz Sls.	402-475-4660
NJ	Englewood Cliffs, Ed Glass Assocs.	201-592-0200
NJ	Marlton, B.G.R. Assocs.	609-983-1020
NJ	Morristown, Mepco/Electra	201-539-2000
NJ	Springfield, Gebhardt Mktg.	201-376-4415
NY	Rochester, Electra Sls. Corp.	716-461-5252
NY	Syracuse, Electra Sls. Corp.	315-463-1248
NC	Charlotte, Over & Over, Inc.	704-527-3070
NC	Raleigh, Over & Over	919-872-2262
OH	Dayton, Mepco/Electra	513-278-5842
OR	Beaverton, Mepco/Electra	503-643-5516
PA	Greensburg, Pro Mark	412-832-3800
TX	Richardson, Mepco/Electra	214-231-8274
UT	West Valley City, Thorson Rocky Mountain	801-973-7969
VA	Richmond, Mepco/Electra	804-359-1416
WA	Bellevue, Mepco/Electra	206-643-4555
WI	Wauwatosa, Larsen Assoc.	414-258-0529

Local Distributors

AL	Huntsville, Hamilton/Avnet	205-837-7210
AZ	Tempe, Shelley Elctrns., Inc.	602-894-2058
AZ	Tempe, Hamilton/Avnet	602-231-5100
AZ	Tempe, T.T.I.-AZ	602-966-1616
CA	Chatsworth, Shelley Elctrns., Inc.	213-998-3333
CA	Compton, Harper, S.I.D.	213-979-5090
CA	Costa Mesa, Hamilton Electro Sls.	714-641-4100
CA	Costa Mesa, Avnet Elctrns.	714-754-6077
CA	Culver City, Hamilton Electro Sls.	213-558-2131
CA	Culver City, Hamilton/Avnet	213-558-2020
CA	Garden Grove, Hi-Rel Distrs.	714-898-9858
CA	Los Angeles, Western Electromotive	213-820-3777
CA	Mountain View, Shelley Elctrns., Inc.	415-969-1820
CA	N. Hollywood, T.T.I. West	213-982-0201
CA	Sacramento, Hamilton/Avnet	916-920-3120
CA	San Diego, Hamilton/Avnet	619-571-7500
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Jose, TTI, Inc.	408-943-9155
CA	San Jose, Ratel Elctrns.	408-946-4300
CA	San Jose, Eric Elctrns.	408-262-1111
CA	Santa Clara, Western Electromotive	408-727-7411
CA	Sun Valley, Q.C. Comps.	213-768-6111
CA	Sunnyvale, Hamilton/Avnet	408-743-3355
CA	Woodland Hills, Avnet Elctrns.	818-700-8668
CO	Boulder, Shelley Elctrns., Inc.	303-442-2718
CO	Denver, Ragon Elctrns.	303-774-0527
CO	Englewood, Hamilton/Avnet	303-740-1000
CT	Danbury, Hamilton/Avnet	203-797-2800
CT	New Haven, Greene Shaw Co.	203-397-0710
FL	Ft. Lauderdale, Dielco	305-973-8700
FL	Ft. Lauderdale, Hamilton/Avnet	305-971-2900
FL	Orlando, T.T.I. II	305-859-1000
FL	Orlando, Hammond Elctrns.	305-849-6060
FL	St. Petersburg, Hamilton/Avnet	813-576-3930
FL	Tampa, Impala Elctrns.	813-885-4747
GA	Norcross, Hamilton/Avnet	404-447-7507
IL	Bensenville, Hamilton/Avnet	312-860-7700
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Chicago, Nep Elctrns.	312-625-8400
IL	Rosemont, Advent Elctrns.	312-298-4210
IN	Carmel, Altex Elctrns., Inc.	317-848-1323
IN	Carmel, Hamilton/Avnet	317-844-9603
IN	Indianapolis, Advent Elctrns.	317-872-4910
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
KS	Overland Park, Hamilton/Avnet	913-888-8900
MD	Baltimore, Resco/Baltimore	301-823-0070
MD	Beltsville, Resco/Washington	301-937-9100
MD	Columbia, Hamilton/Avnet	301-995-3500
MD	Columbia, Aztech Elctrns.	301-995-1760
MA	Burlington, TLC Elctrns.	617-273-0140
MA	Newton, Greene-Shaw Co.	617-969-8900
MA	Woburn, Hamilton/Avnet	617-273-7500
MA	Woburn, T.T.I.	617-938-8800
MI	Grand Rapids, Hamilton/Avnet	616-243-8805
MI	Livonia, Hamilton/Avnet	313-522-4700
MI	Livonia, RepTron Elctrns.	313-525-2700
MN	Minneapolis, Merit Elctrns.	612-546-5383
MN	Minneapolis, Merit Elctrns.	612-546-5383
MN	Minnetonka, Hamilton/Avnet	612-932-0600
MN	St. Paul, Ragon Elctrns.	612-642-2828
MO	Earth City, Hamilton/Avnet	314-344-1200
MO	Independence, Ragon Elctrns.	816-254-3410
NJ	Cherry Hill, Hamilton/Avnet	609-424-0100
NJ	Clifton, J-Mar Elctrns.	201-772-6400
NJ	Fairfield, Hamilton/Avnet	201-575-3390
NM	Albuquerque, Hamilton/Avnet	505-765-1500
NY	Bohemia, T.T.I. Inc.	516-567-1500
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Central Islip, Semi-Cap Elctrns.	516-582-4400
NY	East Syracuse, Hamilton/Avnet	315-347-2641
NY	Farmingdale, Command Elctrns. Corp.	516-293-1212
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Hauppauge, Fairmont Elctrns.	516-231-3313
NY	Hempstead, Kahgan Comps.	516-538-2300
NY	Melville, Hamilton/Avnet	516-454-6060
NY	Rochester, Summit Distrs.	716-334-8110
NY	Rochester, Hamilton/Avnet	716-475-9130
NY	Rome, Rome Elctrns.	315-337-5400
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, Hamilton/Avnet	919-829-8030
OH	Cleveland, Hamilton/Avnet	216-831-3500
OH	Columbus, RepTron Elctrns.	614-436-6675
OH	Dayton, Hamilton/Avnet	513-433-0610
OH	Englewood. Argent Electra	513-836-8633
OH	Fairborn, Aschbacher & Assocs.	513-252-7785
OK	Tulsa, Altair Co.	918-252-5781
OR	Beaverton, Almac Elctrns.	503-641-9076
OR	Lake Oswego, Hamilton/Avnet	503-635-8157
PA	McKean, Advacom, Inc.	814-476-7774
PA	Norristown, Century Elctrn. Corp.	215-631-5400
SC	Greenville, Hammond Elctrns.	803-233-4121
TX	Austin, Altair Co.	512-837-4470
TX	Austin, Hamilton/Avnet	512-837-8911
TX	Dallas, Computer Comp.	214-239-0271
TX	El Paso, Era Elctrns.	915-592-4126
TX	Ft. Worth, T.T.I. Inc.	817-429-1440
TX	Houston, Altair Co.	713-462-3029
TX	Houston, Hamilton/Avnet	713-780-1771
TX	Irving, Hamilton/Avnet	214-659-4111
TX	Richardson, Jaco Elctrns.	214-235-9575
TX	Richardson, Altair Co.	214-231-5166
UT	Salt Lake City, Hamilton/Avnet	801-972-2800
VA	Arlington, Arlington Elctrns.	703-52[illegible]-2412
VA	Charlottesville, Virginia Radio Supp. Co.	804-296-4184
WA	Bellevue, Almac Elctrns. Corp.	206-643-9992
WA	Bellevue, Hamilton/Avnet	206-643-3950
WA	Kent, Shannon Ltd.	206-763-0545
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	New Berlin, NEP Elctrns., Inc.	414-785-9100
WI	New Berlin, R.M. Elctrns.	414-784-4420
WI	New Berlin, Hamilton/Avnet	414-784-4510

MERCURY PLASTICS, A UNIT OF ZERO CORP., 672 Fuller Rd., Chicopee, MA 01020, Tel: 413-592-5118, 413-267-5561, TWX: 710-354-1450; Empl.: 100; *Sls. Mgr.:* Douglas W. Griffith; *Dist. Mgr.:* Douglas W. Griffith

MERECO PRODUCTS DIV., Metachem Resins Corp., 1505 Main St., West Warwick, RI 02893, Tel: 401-828-4550; Empl.: 100; *Sls. Mgr.:* John E. Powell, Jr.

MERET, INC., 1815 24th St., Santa Monica, CA 90404-4998, Tel: 213-828-7496, Telex: 371-9305; Empl.: 23; *Sls. Mgr.:* David Medved .... **1B**•1116

Local Sales Offices & Reps

CA	Carmichael, Acquironics	916-487-9070
CA	West Covina, Eureka Tech. Sls.	213-331-8766
CO	Wheatridge, C-Tech	303-431-7025
FL	Melbourne, Star-Tec	305-727-2247
GA	Snellville, Oliver Engrg. Svcs.	404-972-2249
IL	Des Plaines, Synmark Sls. Co.	312-296-0180
MA	Brookline, Boston Elctrn. Corp.	617-566-3821
TX	Seabrook, Q-Max Mktg.	713-474-2233

MERIX CHEM. CO., 2234 East 75th St., Chicago, IL 60649, Tel: 312-221-8242; Empl.: 15; *Sls. Mgr.:* E. O. Sonneman; *Dist. Mgr.:* E. O. Sonneman

MERRILL, POB 308, 1316 Sumneytown Pike, Gwynedd Valley, PA 19437, Tel: 215-643-2116; FSC No.: 58624; Empl.: 10; *Sls. Mgr.:* Skip Hartman

MERRIMAC INDS., 41 Fairfield Pl., West Caldwell, NJ 07006, Tel: 201-575-1300, Telex: 6853128, TWX: 710-734-4314; FSC No.: 12457; Empl.: 225; *Sls. Mgr.:* Gary Tahlmore; *Dist. Mgr.:* T.V.R.O. Prods. Only - Laurie Festa

Local Distributors

AL	Birmingham, Long's Electrns.	205-956-9341
AR	Beebe, Odom Antenna	501-882-6485
AR	Littlerock, Intl. Video Comms.	501-771-2800
CO	Englewood, Echosphere Corp.	303-935-1909
KS	Oakley, Precision Satellite	913-672-3247
NC	Oxford, Channel Master	919-693-3141
OR	Bend, Wespercom Corp.	503-389-0996
PA	Bensalem, Eastern Instr.	215-245-6660

MERRIMACK MAGNETICS CORP., 121 Hale St., Lowell, MA 01851, Tel: 617-458-1487; Empl.: 450; *Sls. Mgr.:* L. J. Woods; *Dist. Mgr.:* R. O. Ross

MESUR-MATIC ELCTRNS., 50 Grove St., Salem, MA 01970-2294, Tel: 617-745-7000; Empl.: 29; *Sls. Mgr.:* Kosma L. Evangelidis

Local Sales Offices & Reps

AZ	Phoenix, Richard A. Mayes Co.	602-279-5243
CA	Claremont, Gandalf Elctrns.	714-626-5481
CO	Denver, Richard A. Mayes Co.	303-761-9447
IL	Maywood, KGA Engrg. Co.	312-343-6500
KS	Wichita, Electro Mechanical Assocs.	316-682-9433
MD	Glen Burnie, Macrotech Assocs.	301-437-5588
MO	Bridgeton, Electro Mechanical Assocs.	314-291-8661
NM	Albuquerque, Richard A. Mayes Co.	505-292-2330
NY	Latham, L-Tron Corp.	518-785-5032
PA	Glenside, Wyncote Instr.	215-572-6500

METAVAC, INC., 45-68 162nd St., Flushing, NY 11358, Tel: 212-HI5-0400; Empl.: 52; *Sls. Mgr.:* Clifford E. Sisler

METEREX CORP., 25 Industrial Park Rd., Hingham, MA 02043, Tel: 617-749-8100; Empl.: 5; *Sls. Mgr.:* K. Sharples

Distributor

METERMASTER, 5645 Jullson St., Los Angeles, CA 90040, Tel: 213-685-4340 ....pgs. 611, 675, 678, 715, 736, 769, 792

METHODE ELCTRNS., INC., 7444 W. Wilson Ave., Chicago, IL 60656, Tel: 312-867-9600, TWX: 910-221-2468; Empl.: 900; *Sls. Mgr.:* John Klimek; *Dist. Mgr.:* K. Lindsey

METHODE ELECTRONICS, INC., Interconnect Prods Div, 1700 Hicks Rd, Rolling Meadows, IL 60008, Tel: 312-392-3500, TWX: 910-687-0760; FSC No.: 95354; Empl.: 250; *Sls. Mgr.:* L. W. Ekstrom; *Dist. Mgr.:* L. W. Ekstrom

METHODS RESEARCH, 54D Asbury Ave., Farmingdale, NJ 07727, Tel: 201-938-6000; *Sls. Mgr.:* J. James Mandy

METIER MANAGEMENT SYS., INC., 10175 Harwin Dr., Ste. 100, Houston, TX 77449, Tel: 713-988-9100, Telex: 774367 (Metier Hou); *Sls. Mgr.:* Don Gammon

METIS, P.O. Box 1499, Bowie, MD 20716, Tel: 301-249-1702; Empl.: 2; *Sls. Mgr.:* Eric K. Pritchard

METRA INSTRS., 2056 Bering Dr., San Jose, CA 95131, Tel: 408-297-8530; Empl.: 16; *Sls. Mgr.:* Gary Heil

Local Sales Offices & Reps

AL	Birmingham, Regal Controls	205-991-6340
CA	Anaheim, R. D. Brunnemer & Assocs., Inc.	714-525-1644
CO	Wheatridge, Emcar Mktg., Inc.	303-424-0108
FL	Jacksonville, W. K. Hile Co., Inc.	904-731-5595
GA	Marietta, W. K. Hile Co., Inc.	404-424-8372
IL	Chicago, Synergy Sys., Inc.	312-2021
MI	Detroit, Automatic Controls Co.	313-533-8890
MO	Penton, Hi-Tech Elec. Inc.	314-343-6060
NH	Portsmouth, The Valve Co.	603-431-5251
NY	Buffalo, Robert F. Lamb Co., Inc.	716-874-4900
NY	Rochester, Robert F. Lamb Co., Inc.	716-323-1250
NC	Matthews, W. K. Hile Co., Inc.	704-847-9125
OH	Cincinnati, Automatic Controls Co.	513-522-1118
OH	Cleveland, Automatic Controls Co.	216-631-0333
PA	Jenkintown, PCD Corp.	215-887-9610
TX	Houston, Abcor	713-486-9251

METRAPLEX CORP., Berkshire Indl. Park, Bethel, CT 06801, Tel: 203-748-0606, TWX: 710-456-3959; *Sls. Mgr.:* Charles B. Weaver

METRIC SYS., 645 Anchors St., Ft. Walton Beach, FL 32548, Tel: 904-244-9600, Telex: 70-2447; FSC No.: 12339; Empl.: 437

METRIX INSTRUMENT CO., 1711 Townhurst, Houston, TX 77043, Tel: 713-461-2131, Telex: 77-5486; Empl.: 50; *Sls. Mgr.:* A. J. Bahry

METRON OPTICS INC., P.O. Box 690, Solana Beach, CA 92075-0690, Tel: 619-755-4477; Empl.: 12; *Sls. Mgr.:* P. S. Kempf

METROPOLE PRODUCTS INC., P.O. Box 10275, Alexandria, VA 22310, Tel: 703-971-8606, 703-971-7082, Telex: 908041 BAL; FSC No.: 55908; *Sls. Mgr.:* John DePaola

METROSONICS, Box 23075, Rochester, NY 14692-3075, Tel: 716-334-7300, Telex: 978330; Empl.: 80; *Sls. Mgr.:* W. Whitford; *Dist. Mgr.:* W. Whitford

METUCHEN CAPACITORS, INC., 420 Park Ave., Perth Amboy, NJ 08861, Tel: 201-442-0500, TWX: 710-998-0892; FSC No.: 55969; Empl.: 25; *Sls. Mgr.:* George Wolter ....**1A**•1138-1146, 1602, 1603; **2**•1524-1527

MEYERCORD, 365 E. North Ave., Carol Stream, IL 60187, Tel: 312-682-6200, Telex: 72-2449; Empl.: 500; *Sls. Mgr.:* J. O'Briskie

MFE CORP., Instr. Div., Keewaydin Dr., Bldg. #1, Salem, NH 03079, Tel: 603-893-1921, Telex: 94-7477, TWX: 710-366-1887; *Sls. Mgr.:* Peter Schwartz; *Dist. Mgr.:* Jim Muckenhoupt

MF ELCTRNS. CORP., 10 Renewal Pl., New Rochelle, NY 10801, Tel: 914-576-6570, TWX: 710-563-0643; FSC No.: 08111; Empl.: 65; *Sls. Mgr.:* Bill Braverman; *Dist. Mgr.:* Bill Braverman ....**1A**•1384-1386

Local Sales Offices & Reps

AL	Huntsville, E.M.A.	205-837-7363
CA	Irvine, J. V. Earley & Assocs.	714-833-1806
CA	Sunnyvale, W. W. Posey Co.	408-746-0771
CO	Littleton, Quatra Inc.	303-795-3187
CT	Meriden, Orion Group	203-621-8371
FL	Hollywood, APM Assocs.	305-987-6720
FL	Longwood, APM Assocs.	305-869-6831
FL	Tampa, AMP Assocs.	813-886-2457
GA	Norcross, E.M.A.	404-448-1215
IL	Addison, Banner Tech. Sls.	312-279-6070
MI	Brighton, A.P.J. Assocs.	313-229-6550
MN	Minneapolis, Peterson Sls. & Assoc.	612-884-3483
NJ	Perth Amboy, Astro Rep.	201-826-8050
NY	Rochester, Sweetco Assocs.	716-225-2383
NY	Utica, Sweetco Assocs.	315-733-6721
NY	W. Babylon, Astro Rep.	516-422-2500
NC	Greenville, E.M.A.	803-233-4637
NC	Winston-Salem, E.M.A.	919-722-5151
OH	Dayton, APJ Assoc.	216-356-2424
OR	Portland, Controltek Sls.	503-641-0877
PA	Prospect Park, ELF Sls.	215-534-3340
TX	Austin, Matthews & Assocs.	512-479-0028
TX	Dallas, Matthews & Assocs.	214-931-0167
WA	Bellevue, Controltek Sls.	206-451-8163
WI	Mukwonago, Banner Tech. Sls.	414-363-5086

Local Distributors

CA	Sunnyvale, Pacesetter	408-734-5470

MG ELECTRONICS

MG ELECTRONICS, 32 Ranick Rd., Hauppauge, NY 11788, Tel: 516-582-3400, Telex: 645113; Empl.: 14; *Sls. Mgr.:* Mel Karasik; *Dist. Mgr.:* Stan Grey ....**3**•1037

M.I.A.L., See TRW/Capacitor Div.

MICA CORPORATION, 8536 National Blvd., Culver City, CA 90230, Tel: 213-837-8100, Telex: WU 664336, ITT 4720769; FSC No.: 06216; Empl.: 300

Local Sales Offices & Reps

AZ	Glendale, Method Engrg.	602-846-7901
CA	Sunnyvale, The Mica Corp.	408-738-1020
FL	Sarasota, James N. Lordi	813-365-2992
MA	Pinehurst, Mica	617-272-1558
MN	Hopkins, Mica	612-933-3811
NC	Greensboro, DMI	919-885-4634
TX	Dallas, Stevens Sls.	214-350-2476

MICAP ELCTRNS., INC., 592 Oak St., Copiague, NY 11726, Tel: 516-842-8866; FSC No.: 61544; Empl.: 6; *Sls. Mgr.:* Bernard Lefenfeld

MICHIGAN MAGNETICS, 203 W. Third St., Vermontville, MI 49096, Tel: 517-726-0590; Empl.: 95; *Sls. Mgr.:* B. L. Killinger ....**3**•1038, 1039

Local Sales Offices & Reps

CT	Kensington, N. Stachelek Co.	203-828-4587
MN	Minneapolis, Countryman Assoc.	612-645-9151
WA	Bellevue, Panoco	206-454-2503

MICOM SYSTEMS, INC., 20151 Nordhoff Street, Chatsworth, CA 91311, Tel: 818-998-8844, Telex: 687-497, TWX: 910-494-4910; *Sls. Mgr.:* Mark Vonarx; *Dist. Mgr.:* Mark Vonarx

MICREL, INC., 1235 Midas Way, Sunnyvale, CA 94086, Tel: 408-245-2500, TWX: 910-379-0007; Empl.: 120

MICROAVIONICS CORP., 3198-K Airport Loop Dr., Costa Mesa, CA 92626, Tel: 714-957-6904; Empl.: 15; *Sls. Mgr.:* B. H. Corzine ....**2**•1781

Local Sales Offices & Reps

AZ	Phoenix, Finn-Pat Co.	602-954-0301
TX	Houston, RCG Entprs.	713-955-7200

MICROBAR SYS., INC., 1121 San Antonio Rd., Palo Alto, CA 94303, Tel: 415-964-2862, TWX: 910-373-2047; *Sls. Mgr.:* Rich Boberg

MICROBOND DIV., PO Box 689, Altamonte Springs, FL 32701, Tel: 305-339-8298, Telex: 56-4303; *Sls. Mgr.:* William S. Hodges

MICROCAP, 11120 Roselle St., San Diego, CA 92121, Tel: 619-452-9812, Telex: 695073, TWX: 910-335-1607; *Sls. Mgr.:* Debbie Toscano ....**1A**•1186-1188

MICRO-CIRCUIT ENGRG., See MCE Semiconductor

MICRO-CIRCUITS CO., INC., Route 1 - Box 518, New Buffalo, MI 49117, Tel: 616-469-2727

MICRO COMPONENT TECHNLG., INC., P.O. Box 64013, St. Paul, MN 55164, Tel: 612-482-5100, Telex: 297422; Empl.: 500; *Sls. Mgr.:* James Gibson

MICROCOMPUTER POWER, 2272 Calle de Luna, Santa Clara, CA 95050, Tel: 408-988-0265, TWX: 910-338-7694; Empl.: 60; *Sls. Mgr.:* Jim Armstrong; *Dist. Mgr.:* Jim Armstrong

MICRO COMPUTER RENTALS, 742D Hampshire Rd., Westlake Village, CA 91361, Tel: 213-991-1704

MICRODATA CORP., 17481 Red Hill Ave., Irvine, CA 92705, Tel: 714-540-6730, TWX: 910-595-1764; Empl.: 375

MICRO DEVICES PRODUCT GROUP, Therm-O-Disc, Inc., 1320 South Main Street, P.O. Box 3538, Mansfield, OH 44907, Tel: 419-756-5005, Telex: 987455; *Sls. Mgr.:* J. A. Kight ....**1B**•1823

MICRO DIGITAL ASSOCS., INC., 12791 Western Ave., Unit C, Garden Grove, CA 92641, Tel: 714-891-2363; *Sls. Mgr.:* Ralph Moore; *Dist. Mgr.:* Ralph Moore

MICRODRY CORP., Golden Grain Macaroni Co., 3111 Fostoria Way, San Ramon, CA 94583, Tel: 415-837-9106, Telex: 33-5320; Empl.: 40; *Sls. Mgr.:* Al Katskee

MICRO ELECTRONIC SYS., INC., 87 Sand Pit Road, Danbury, CT 06810, Tel: 203-797-1441, 800-243-7254, Telex: 969659

MICROFLECT, 3575 25th S.E., Salem, OR 97302-0985, Tel: 503-363-9267, TWX: 510-599-0107; Empl.: 98; *Sls. Mgr.:* John J. Kranitz

MICRO INSTR., 2250 Micro Pl., Escondido, CA 92025, Tel: 619-746-2010, Telex: 882205 MICROINST ESCD; FSC No.: FSCM 24836; Empl.: 45; *Sls. Mgr.:* C. Marks

Local Sales Offices & Reps

CO	Conifer, Energy Equip. Sls.	303-674-8111
FL	Clearwater, Teqspec Inc.	813-725-2201
GA	Atlanta, Teqspec II	404-455-7222
MA	Natick, Wayland Engr. Sls.	617-655-6080
MO	Platte City, Stantec Sales	816-464-2211
NJ	Englewood Cliffs, Power Conversion & Conts.	201-569-0015
NC	Winston Salem, Teqspec III	919-723-8102
TX	Allen, Harris Tech. Sls.	214-727-2182

MICROLAB/FXR, 10 Microlab Rd., Livingston, NJ 07039, Tel: 201-992-7700, TWX: 710-994-4850; FSC No.: 00929; Empl.: 80

MICRO LAMPS, INC., 1N111 Linlar Rd., La Fox, IL 60147, Tel: 312-232-6001; *Sls. Mgr.:* R. Marimatsu

MICRO LOGIC CORP., P.O. Box 174, 100 2nd St., Hackensack, NJ 07602, Tel: 201-342-6518

MICROLOGIC, INC., 123 Water St., Watertown, MA 02172, Tel: 617-923-1700; *Sls. Mgr.:* Erick Kapust

MICROMETALS, 1190 N. Hawk, Anaheim, CA 92807, Tel: 714-630-7420, TWX: 910-591-1690; FSC No.: 12856; Empl.: 40; *Sls. Mgr.:* K. Baker, Jr.

Local Sales Offices & Reps

MA	Newton Upper Falls, Anchor Engrg.	617-964-6416
NY	Hempstead, Kahgan Sls.	516-538-2300
TX	Dallas, Southwest Elctrns.	214-690-9881

MICRO MODE PRODS., 1870 John Towers Ave., El Cajon, CA 92020, Tel: 619-449-3844, TWX: 910-331-1673; FSC No.: 15907; Empl.: 40; *Sls. Mgr.:* L. Moore; *Dist. Mgr.:* L. Moore

MICRO MO ELECTRONICS, INC., 742 2nd Ave. S., St. Petersburg, FL 33701, Tel: 813-822-2529, Telex: 807-982; Empl.: 25; *Sls. Mgr.:* Christine Contos .... **1B**•1164, 1165, 1849; **3**•1135

MICRO-MOUNTING DEVICES, 4092 Keith Dr., Campbell, CA 95008, Tel: 408-866-4626; FSC No.: 59058

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MICRONEL U.S., 2142F Industrial Ct., Sycamore Research Center, Vista, CA 92083, Tel: 619-727-7400; Empl.: 20; *Sls. Mgr.:* S. William Linko ... **2**•1830-1838

Local Sales Offices & Reps

MA	Lexington, Micronel U.S.-E.	617-862-1202

MICRONETICS, 36 Oak St., Norwood, NJ 07648, Tel: 201-767-1320, TWX: 710-991-9603; FSC No.: 54487; Empl.: 26; *Sls. Mgr.:* Gary Simonyan

MICRO NETWORKS, 324 Clark St., Worcester, MA 01606, Tel: 617-852-5400, Telex: 951808, TWX: 710-340-0067; Empl.: 300

MICRON INDS., 1830 N. 32nd Ave., Stone Park, IL 60165, Tel: 312-345-0788, Telex: 27-0248; FSC No.: 30882; Empl.: 100; *Sls. Mgr.:* Dave Hayes

MICRO-NOW INSTR. CO., INC., 8260 N. Elmwood St., P.O. Box 856, Skokie, IL 60077, Tel: 312-677-4700, Telex: RCA 297214-MICRO-UR; FSC No.: 33288; Empl.: 25; *Sls. Mgr.:* C. Arnow

Local Sales Offices & Reps

CA	Los Angeles, Mc Dougall/Mc Laughlin	213-477-8556
CA	Mountain View, Mark V Assoc.	415-964-6275
CO	Boulder, H. Bass Assocs.	303-499-7509
CT	North Haven, Pat Jenks Assoc.	203-239-6201
MA	Woburn, Pat Jenks Assoc.	617-938-0488
NM	Albuquerque, IMEC	505-344-2212
NY	Huntington Station, Metro-Mic	516-GE3-3333
PA	Melrose Park, Robert Meyers Assoc.	215-224-1663
TX	Dallas, Texas Avionics	214-368-3566
WA	Seattle, Datacom	206-285-2525

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Local Sales Offices & Reps

AZ	Scottsdale, Burke Hill & Assoc.	602-945-9116
CA	Laguna Hills, Cravins Assoc.	714-855-4327
CA	Northridge, Myco Sls.	213-886-7101
CA	Rancho Cordova, Alpha Omega Grp.	916-638-0480
CA	San Diego, Cerco	619-450-1754
CA	San Marino, Walls Assoc.	213-287-7276
CO	Denver, William Purdy Co.	303-777-1411
FL	DeBary, DJE Assoc.	305-668-6827
IL	Woodridge, Trend-Tronics	312-985-0626
MA	Canton, N E E S Co.	617-828-4835
NM	Albuquerque, Wm. J. Purdy Co.	505-266-7959
OH	Cleveland, Jim Finnigan & Co.	216-238-5905
OR	Beaverton, Wm. J. Purdy Co.	503-641-9373
UT	Salt Lake City, Wm. J. Purdy Co.	801-486-8557

Local Distributors

CA	Anaheim, A to Z Elctrns.	714-634-3620
CA	Burbank, TAW Elctrns.	213-846-3911
CA	Burlingame, Rose Elctrns.	415-348-2740
CA	Canoga Park, Myco-Vickers	213-340-2025
CA	Costa Mesa, Orange County Comps.	714-979-3597
CA	Industry, Ital Elctrn. Sls.	213-968-8515
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	Santa Ana, Compuserv	714-546-5140
IL	Des Plaines, Circuit Svc.	312-296-4412
MN	Minneapolis, Electronic Ctr.	612-371-5200
NE	Omaha, Radio Equip. Co.	402-341-7700
NH	Hampstead, Astrum Elctrns.	603-329-5656
NY	New Rochelle, Derf Elctrns.	914-235-4600
NY	Oceanside, Tritech	516-678-6222
OH	Toledo, J R Inds.	419-865-1408
PA	McKean, Advacom	814-476-7774
TX	Ft. Worth, Industrial Elect.	817-731-7321
UT	Provo, Central Utah Elctrns. Supp.	801-373-7522
UT	Salt Lake City, Nytronics	800-242-7612
Intl	Japan, Tokyo, Yoshico Intl.	03-230-2641

MICROPAC INDS., 905 E. Walnut St., Garland, TX 75040, Tel: 214-272-3571, TWX: 910-860-5186; Empl.: 135; *Sls. Mgr.:* Dick Schlueter

MICROPAC INDS., INC., General Sensors Div., 905 E. Walnut St., Garland, TX 75040, Tel: 214-272-3571, TWX: 910-860-5186; Empl.: 120; *Sls. Mgr.:* Richard Schlueter

MICRO PERIPHERALS INC., 9754 Deering Ave., Chatsworth, CA 91311, Tel: 213-709-4202, TWX: 910-494-1213; Empl.: 400; *Sls. Mgr.:* Keith Murphy; *Dist. Mgr.:* Robert Lewis

MICROPHASE, 587 Connecticut Ave., Norwalk, CT 06856, Tel: 203-866-8000, TWX: 710-468-0003; Empl.: 180; *Sls. Mgr.:* F. S. Parin

MICRO PLASTICS INC., 20821 Dearborn St., Chatsworth, CA 91311

MICRO PLASTICS INC., Highway 178 N., Flippin, AR 72634, Tel: 501-453-2261, Telex: 783-036; FSC No.: 13764; *Sls. Mgr.:* James H. Beijen; *Dist. Mgr.:* James H. Beijen

MICROPLEX, inc.

MICROPLEX, INC., 1977 State College Blvd., Anaheim, CA 92806, Tel: 714-979-8833, 714-634-1535; Empl.: 30 .... **1A**•1897

MICRO POWER INTL., INC., 9420 Activity Rd., San Diego, CA 92126, Tel: 619-271-0831

MICRO POWER SYS. INC., 3100 Alfred St., Santa Clara, CA 95050, Tel: 408-727-5350, TWX: 910-338-0154; FSC No.: 54186; Empl.: 305; *Sls. Mgr.:* Don Cavallo; *Dist. Mgr.:* Reed Neddermeyer

MICRO-PRODUCTS ENGRG. CO., 230 Ridgewood Ave., Newark, NJ 07108, Tel: 201-824-8467; Empl.: 100; *Sls. Mgr.:* Gerald Muller

MICROSCIENCE, INC., 110A Jerusalem Rd., Cohasset, MA 02025, Tel: 617-383-1622, Telex: 750-480; *Sls. Mgr.:* Toni Z. Drybanski

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NC	Greensboro, L & D, Inc.	919-292-3201
OH	Fairborn, Midwest Meridian	513-879-7100
OR	Beaverton, Caruso-Northcutt	503-646-4973
PA	Downingtown, McCoy, Inc.	215-363-0350
TX	Fort Worth, Midwest Meridian	817-654-2132
UT	Salt Lake City, West, Inc.	801-466-2888
WA	Bellevue, Caruso-Northcutt	206-454-9699

MINI-CIRCUITS LAB., 2625 E. 14th St., Brooklyn, NY 11235, Tel: 212-769-0200, Telex: 125460, 620156 (Intl.); FSC No.: 15542 .... **1A**•1684, 1710-1773

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns.	205-881-5031
AZ	Phoenix, Crown Elctrns.	602-944-3721
AR	Little Rock, Beacon Elctrns.	501-224-5449
CA	Los Altos, Cain-White & Co.	415-948-6533
CA	N. Hollywood, Crown Elctrns.	213-877-3550
FL	Clearwater, Beacon Elctrns.	813-796-2378
FL	Ft. Lauderdale, Beacon Elctrns.	305-491-1054
FL	Maitland, Beacon Elctrns.	305-647-3498
FL	Melbourne, Beacon Elctrns.	305-724-8010
GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Mount Prospect, Cain Forlaw Co.	312-253-3578
MD	Columbia, M. Lader & Co.	301-730-1550
MD	Conowingo, M. Lader & Co.	301-378-3449
MA	Waltham, Scientific Devices	617-890-2252
NY	Hartsdale, Spectrum Sales	914-997-1166
NY	Skaneateles, Robtron	315-685-5731
NC	Greensboro, Beacon Elctrns.	919-275-9997
OH	Lancaster, Cain Forlaw Co.	614-654-4800
PA	Lafayette Hill, M. Lader & Co.	215-825-3177
TX	Dallas, Cain & Co.	214-233-6809

Local Distributors

AL	Huntsville, Components Distrs.	205-883-7501
AR	Little Rock, Components Distrs.	501-227-6278
CA	Los Altos, Pen Stock	415-948-6552
CA	N. Hollywood, Crown Elctrns.	213-877-3550
FL	Ft. Lauderdale, Components Distrs.	305-971-4950
IL	Mt. Prospect, CFC Distributors	312-253-3578
NC	Raleigh, Components Distrs.	919-781-0262
PA	Lafayette Hill, MLC Distrs.	215-825-3177

MINI COMPUTER TECHNLG., 696 E. Trimble Rd. San Jose, CA 95131, Tel: 408-942-1616, TWX: 910 338-2281; Empl.: 30; *Sls. Mgr.:* Doug Vincent; *Dist Mgr.:* Ed Hagenbuch

MINI-SYSTEMS, INC., 20 David Rd., North Attleboro, MA 02761, Tel: 617-695-0203, TWX: 710 348-0564; FSC No.: 50316; Empl.: 150 .... **1A**•190

Local Sales Offices & Reps

FL	Coral Springs, Marks Tech. Sls. Assocs.	305-753-383
MA	Newton, Normell Assocs.	617-969-547
TX	Lewisville, C & J Assocs.	214-539-014

MINI-SYSTEMS, INC., Electronic Package Div., 168 E. Bacon St., P.O. Box 1597, Plainville, MA 02762, Tel: 617-695-2000, TWX: 710-348-0564 1A•1666

MITEC ELCTRNS., 15 Commerce St., Williston, VT 05495, Tel: 802-864-0064, TWX: 610-421-3572; *Sls. Mgr.:* Elayne Bernstein

MITEL SEMICONDUCTOR, P.O. Box 13089, Kanata, ON K2K 1X3, Canada, Tel: 613-592-5280, Telex: 053-3221, TWX: 610-562-8529; Empl.: 200

MITEQ INC., 100 Ricefield La., Hauppauge, NY 11788, Tel: 516-543-8873, TWX: 510-226-3781; Empl.: 140

MITRONICS, 18039 Crenshaw Blvd., Torrance, CA 90504, Tel: 213-323-7934

MITSUBISHI ELCTRNS. AMERICA, Computer Peripheral Div., 991 Knox St., Torrance, CA 90502, Tel: 213-515-3993; *Sls. Mgr.:* Mike Foster

MITSUBISHI ELCTRNS., Industrial Electronics Div., 991 Knox Street, Torrance, CA 90502, Tel: 213-515-3993, Telex: 06-4703-M USA LSA, TWX: 66-4787-MELA TRNC; *Sls. Mgr.:* Don Aarons

MITSUBISHI ELCTRNS. AMERICA, INC., Semiconductor Div., 777 N. Pastoria Ave., Sunnyvale, CA 94086, Tel: 408-730-5900; *Sls. Mgr.:* John Zucker

MITSUMI ELEC, CO., LTD., 8-2, 8-Chome, Kokuryo, Chofu-City, Tokyo, Japan, Tel: 489-5333, Telex: J28846/J24935; Empl.: 1700; *Sls. Mgr.:* H. Sato; *Dist. Mgr.:* U. Nishimura

MIZAR INC.

MIZAR INC., 302 Chester St., St. Paul, MN 55107, Tel: 612-224-8941, Telex: 469542; Empl.: 11; *Sls. Mgr.:* Susan Roth 3•1113

Local Sales Offices & Reps

AZ	Tempe, Foley, Tallent & Lee Inc.	602-894-2345
CA	Long Beach, B. K. & Associates	213-596-1233
CA	San Jose, Data-Rep Inc.	408-279-1212
FL	Melbourne, Star-Tec Co.	305-727-2247
MA	Waltham, Com-Sls. Inc.	617-890-0011
MN	Minneapolis, D. A. Case & Assoc.	612-888-8666
NJ	Springfield, Gebhardt Mktg. Inc.	201-376-4415
OH	Strongsville, Dolfuss Root & Co.	216-238-0300
PA	Hatboro, Electro-Rep Engrg.	215-674-4421
PA	Ivyland, Technico	215-322-5966
TX	Austin, Acudata, Inc.	512-346-4033
TX	Houston, Acudata, Inc.	713-580-2451

MKC ELCTRNS., 454 E. Donovan Rd., Kansas City, KS 66115, Tel: 913-371-1351; Empl.: 26

MKS INSTRS., INC., 22 Third Ave., Burlington, MA 01803, Tel: 617-272-9255, Telex: 94-9375; Empl.: 130

MOBILE-TRONICS CO., INC., Box 1022, Tustin, CA 92680, Tel: 714-768-4271; Empl.: 2

MODICON PROGRAMMABLE CONTROL DIV., Gould Inc., P.O. Box 83 S.V.S., Andover, MA 01810, Tel: 617-475-4700, Telex: 94-7402, TWX: 710-347-6610; *Sls. Mgr.:* Steven Mader (PC's); John Pemble (Motion Control); *Dist. Mgr.:* George Dannecker (Micro 84)

MODULAR COMPUTER SYSTEMS, P.O. Box 6099, Ft. Lauderdale, FL 33310, Tel: 305-974-1380, Telex: 52-2564, TWX: 510-956-9414; Empl.: 950

MODULAR AUDIO PRODS., Modular Devices Inc., 50 Orville Dr., Bohemia, NY 11716, Tel: 516-567-9620; *Sls. Mgr.:* S. Summer 3•1012

Local Sales Offices & Reps

CA	San Diego, Total Elctrns. Intl., Inc.	619-224-3291

MODULAR DEVICES, 50 Orville Dr., Bohemia, NY 11716, Tel: 516-567-9620; FSC No.: 52202; Empl.: 40; *Sls. Mgr.:* Julius Brick 3•1012, 1933

Local Sales Offices & Reps

NY	Rochester, T.T.A. North-Div. Tri-Tek Assoc.	716-271-6764
NY	Wantaugh, Tri-Tek Assocs.	516-221-7600
EXP	CA, San Diego, Total Elctrns. Int'l.	619-224-3291

MODULAR POWER SYS. INC., P.O. Box 180579, Austin, TX 78718-0579, Tel: 512-834-9262, Telex: 752-890; FSC No.: 58480; Empl.: 86; *Sls. Mgr.:* Manard Overall; *Dist. Mgr.:* Manard Overall

MODULAR SYSTEMS, 905 Albemarle St., Charlottesville, VA 22901, Tel: 804-295-7882; Empl.: 5; *Sls. Mgr.:* G. L. Blencowe

MODUTEC, 18 Marshall St., Norwalk, CT 06854, Tel: 203-853-3636, TWX: 710-468-2039; Empl.: 300; *Sls. Mgr.:* Lester A. Velez; *Dist. Mgr.:* William J. Betz 3•1335-1337

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns. Assocs.	205-881-5031
AK	Anchorage, Denali Indl. Sls.	907-243-6283
AZ	Scottsdale, Luscombe Engrg. Co.	602-949-9333
AR	Little Rock, Beacon Elec. Assoc.	501-224-5449
CA	Campbell, Luscombe Engrg. Co.	408-370-2020
CA	Pasadena, Luscombe Engrg. Co.	213-684-2000
CO	Arvada, Arrowhead Sls. Co.	303-423-5556
FL	Clearwater, Beacon Elec. Assoc.	813-796-2378
FL	Ft. Lauderdale, Beacon Elctrn. Assoc.	305-491-1054
FL	Maitland, Beacon Elctrn. Assocs.	305-647-3498
FL	Melbourne, Beacon Elec. Assoc.	305-724-8010
GA	Atlanta, Beacon Elctrn. Assocs.	404-256-9640
HI	Honolulu, Aloha Assocs.	808-941-1574
IL	Arlington Hgts., Brainard-Wilson Mktg.	312-437-2700
IN	Carmel, Carter, McCormic & Peirce	317-844-4175
IN	Carmel, Brainard-Wilson Mktg.	317-844-2800
IA	Marion, M-S-B Assocs.	319-377-6261
KS	Shawnee Mission, M-S-B Assocs.	913-432-2131
MD	Randallstown, Beacon Elec.	703-534-7200
MA	Canton, New England Elctrn. Sls. Corp.	617-828-4835
MI	Farmington, Carter, McCormic & Peirce	313-477-7700
MN	Minneapolis, R.J. Inc.	612-866-3661
MO	St. Charles, M-S-B Assocs.	314-946-5577
NJ	Englewood, Sprung/Nussbaum	201-569-5666
NJ	Marmora, Holdsworth & Co.	609-398-4340
NM	Albuquerque, Amonette Entprs.	505-344-4143
NY	Bainbridge, R. W. Mitscher	607-697-7192
NY	Buffalo, R. W. Mitscher	716-633-7970
NY	N. Syracuse, R. W. Mitscher	315-458-1321
NY	Pittsford, R. W. Mitscher	716-586-4012
NY	Red Hook, R. W. Mitscher	914-758-8375
NY	Rochester, R. W. Mitscher	716-227-0839
NC	Greensboro, Beacon Elctrn. Assoc.	919-275-9997
NC	Raleigh, Beacon Elctrn.	919-787-0330
OH	Cleveland, Carter, McCormic & Peirce	216-779-5100
OH	Englewood, Carter, McCormic & Peirce	513-836-0951
OR	Beaverton, Barrett-Squibb & Assoc.	503-644-2550
PA	Monroeville, Carter, McCormic & Peirce	412-372-4415
PA	Newtown Square, Holdsworth & Co.-SWR	215-356-8550
TX	Houston, Scientific Sls. Co.	713-460-9170
TX	Richardson, Scientific Sls. Co.	214-231-6541
UT	Salt Lake City, Arrowhead Sls.	801-261-1661
VA	Fairfax, Beacon Elctrns.	703-591-1300
VA	Forrest, Beacon North	804-239-8486
WA	Redmond, Barrett Squibb, Inc.	206-885-6991
WI	Colgate, Rep-1 Assoc.	414-628-4016
EXP	Freeport, Minthorne	516-546-4700

Local Distributors

AL	Birmingham, Brownell Electro	205-322-3374
AL	Huntsville, Component Distrs.	205-883-7501
AL	Mobile, Brownell Electro	205-479-8581
AR	Little Rock, Component Distrs.	501-227-6278
CA	Inglewood, Force Elctrns.	213-776-1324
CA	Los Angeles, Erlanger Sls.	213-731-2238
CA	Los Angeles, Erlanger Sls. Co.	213-731-2238
CA	Santa Clara, Fisher-Brownell	408-988-6041
FL	Ft. Lauderdale, Component Distrs.	305-971-4950
FL	Miami, Brownell Electro	305-591-3215
FL	Orlando, Brownell Electro	305-843-6770
GA	Hapeville, Brownell Electro	404-762-5181
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Elk Grove Village, Meter Master	312-593-8650
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Graham Elctrns.	317-634-8202
MD	Gaithersburg, Pioneer Instrumentation	301-921-0660
MA	Canton, E.D.S. Inc.	617-828-4835
MA	Woburn, Brownell Electro	617-935-7820
MA	Woburn, Abbott Elctrns.	617-935-2040
MI	Ferndale, RAM Meter	313-398-6767
MO	St. Louis, Olive Elctrns.	314-426-4500
NJ	Belleville, Miscorp	201-751-1190
NJ	Fairfield, Ampower Elctrn. Instr.	201-227-7720
NJ	S. Plainfield, Brownell Electro	201-753-4600
NY	Clarence, Trott Elctrns.	716-634-8500
NY	New York, Brownell Electro	212-691-1171
NY	Pittsford, Trott Elctrns.	716-586-8251
NC	Charlotte, Brownell Electro	704-597-1270
NC	Raleigh, Brownell Electro	919-876-6524
NC	Raleigh, Component Distrs.	919-781-0262
OH	Cleveland, Weschler Elec. Co.	216-238-2550
OH	Cleveland, Pioneer Instrumentation	216-587-3600
OH	Dayton, Pioneer Instrumentation	513-236-9900
PA	Norristown, Kimberly-James Co.	215-666-7286
SC	Columbia, Brownell Electro	803-772-6111
TN	Chattanooga, Techni-Tronics	615-875-5449
TN	Knoxville, Brownell Electro	615-966-3441
TN	Memphis, Brownell Electro	901-795-8483
TN	Nashville, Brownell Electro	615-889-8230
TX	Dallas, Inotek Corp.	214-243-7000
TX	Ft. Worth, Inotek Corp.	817-831-2126
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Houston, Brownell Electro	713-699-1981
TX	Houston, Inotek Corp.	713-688-4494
TX	Houston, American Analog	713-941-7265
WA	Seattle, Eicher-Richards Co.	206-523-7888
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Milwaukee, E-M Instrs.	414-272-7799

MODU-TEL CORP., 1429 N. Halstead, Hutchinson, KS 67501, Tel: 316-662-3302, Telex: 469331 COMTRON CI; Empl.: 5; *Sls. Mgr.:* Paul Bascom

MOHAWK DATA SCIENCES, MDS Center, Herkimer, NY 13350, Tel: 315-866-5300, Telex: (71)662032; Empl.: 4500

MOHAWK WIRE & CABLE CORP., 9 Mohawk Drive, Leominister, MA 01453, Tel: 617-537-9961

MOLDCON CORP., 221 Interstate Dr., W. Springfield, MA 01089, Tel: 413-736-0371, TWX: 710-350-6463; *Sls. Mgr.:* James Loeffler

MOLDING TECHNOLOGY INC., See MTI

MOLDTRONICS, INC., 707 Roger St., Downers Grove, IL 60515, Tel: 312-968-7000, TWX: 910-695-3537; Empl.: 140; *Sls. Mgr.:* Jim Arnold

Local Sales Offices & Reps

CA	Topauga, S-J-N Sales	213-455-1813
FL	Vero Beach, Peter Martinet	305-567-8413
IL	Downers Grove, Momak Sales	312-963-6400
IN	Indianapolis, Butler Sls. & Engrg.	317-253-5143
MN	St. Paul, PDO Comps.	612-690-5215
OH	Dayton, H. G. Lake Co.	513-277-8181
PA	Lancaster, Thomas G. Armstrong Assoc.	717-397-2942
RI	Wickford, R. P. Morrison Co.	401-295-5692

MOLECU-WIRE, P.O. Box 495, Farmingdale, NJ 07727, Tel: 201-938-9473, TWX: 710-723-6943; Empl.: 175

Local Sales Offices & Reps

CA	Montrose, Roger D. Dahl	213-245-3817
CT	Orange, KLS Sls.	203-795-6210
IL	Northbrook, Jack Norlie Assocs.	312-498-3657
KS	Shawnee Mission, B.C. Elctrn. Sls.	913-342-1211
NC	Charlotte, QED	704-525-3053
PA	Ligonier, Patterson Elec.	412-238-6238
WA	Seattle, Comptronics	206-284-4842
WI	Mequon, Robco	414-241-3348

MOLEX, 2222 Wellington Ct., Lisle, IL 60532, Tel: 312-969-4550, TWX: 910-695-3227; Empl.: 2,200; *Sls. Mgr.:* Gregg Johnson; *Dist. Mgr.:* Pat Weber

Local Sales Offices & Reps

AL	Huntsville, Dennis Andrew	404-396-6120
AZ	Scottsdale, Luscombe Engrg. Co.	602-949-9333
AR	Little Rock, Glenn Montgomery	501-666-0260
CA	Costa Mesa, Molex (W Reg. Off.)	714-241-8588
CA	Encino, Dow Lebowski	714-241-8588
CA	Mission Viejo, Tony Scutetta	714-241-8588
CA	San Diego, Al Batza	619-241-8588
CA	Sunnyvale, Molex	408-773-0505
CO	Englewood, Thorson Rocky Mountain	303-779-0666
CT	West Hartford, Randy Stone	617-935-8983
FL	North Palm Beach, Chuck Vincent	404-396-6120
FL	St. Petersburg, Molex	404-396-6120
GA	Atlanta, Molex (SE Reg. Off.)	404-396-6120
IL	Crystal Lake, E.S. Healy & Assocs.	815-459-4386
IN	Connersville, George Allen	317-844-8986
IN	Indianapolis, Steve Byrne	317-844-8986
IA	Cedar Rapids, J.R. Sls. Engrg.	319-393-2232
KY	Louisville, Glen Towater	404-396-6120
KY	Taylorsville, Jim Lieb	404-396-6120
MD	Bethesda, Molex	404-396-6120
MA	Mansfield, Paul Hansen	617-935-8983
MA	Marblehead, Pete Evans	617-935-8983
MA	Woburn, Molex (E Reg. Off.)	617-935-8983
MI	Grand Rapids, Mark Fluga	616-957-1205
MI	Royal Oak, Schwegman & Assocs.	313-542-6767
MN	Edina, Mark Boe	612-893-9029

MO	Gladstone, Mark Rider	214-247-7117
MO	Independence, Dy-Tronix Inc.	816-373-6600
NJ	Washington, Oscar Cobian	201-267-8014
NY	Webster, Joe Schmitt	716-223-6899
NC	Raleigh, Molex Inc.	404-396-6120
OH	Geneva, Bill Hyslop	216-466-9244
OR	Lake Oswego, Gary Rohde	503-636-7558
PA	Rosemont, Ed M. Sullivan	617-935-8983
TN	Knoxville, Insul Reps.	615-691-7586
TX	Austin, Daniel Daneff	512-453-1398
TX	Dallas, Dale Otten	214-247-7117
TX	Manchaca, Max Bassler	512-453-1398
UT	West Valley, Thorson Rocky Mountain	801-973-7969
WA	Redmond, Molex	206-881-2042
PR	Hato Rey, Max Anderson Co.	809-751-2202

MOLON MOTOR & COIL CORP., 3737 Industrial Ave., Rolling Meadows, IL 60008, Tel: 312-259-8700, TWX: 910-687-0428; Empl.: 350; *Sls. Mgr.:* J. Bailey

MONITOR LABS, INC., 10180 Scripps Ranch Blvd., San Diego, CA 92131, Tel: 619-578-5060, Telex: 182794

MONITOR PC

MONITOR PRODS. CO., INC., 502 Via Del Monte, Oceanside, CA 92054, Tel: 619-433-4510, TWX: 910-322-1381; FSC No.: 54331 ....**1A**•1387-1389

Local Sales Offices & Reps

AL	Huntsville, CSR Elctrns.	205-533-2444
AZ	Phoenix, Eltron	602-266-2164
CA	Encino, Great American Rep Co.	818-990-4870
CA	Mountain View, West Mark Assocs.	415-969-1700
CA	San Diego, Rep Co.	619-292-9001
CA	Tustin, Great American Rep. Co.	714-832-8113
CO	Aurora, Electrodyne	303-695-8903
CT	Woodbury, Lindco Assocs.	203-263-0629
FL	Lake Worth, Tech-Rep Assocs.	305-968-7792
FL	Melbourne Beach, Tech-Rep Assocs.	305-725-4655
FL	St. Petersburg, Tech-Rep Assocs.	813-577-2779
GA	Atlanta, CSR Elctrns.	404-396-3720
IL	Downers Grove, Momak Sls.	312-963-6400
IA	Davenport, Ensco Rep	319-386-6600
KS	Overland Park, Ensco Rep	913-381-7557
KS	Wichita, Ensco Rep	316-683-1070
MA	Stow, Today Comps. Sls.	617-897-7500
MN	Eden Prairie, Elctrn. Innovators	612-941-0830
MO	Maryland Heights, Ensco Rep	314-423-3935
NY	Nekvukke, Parallax	516-351-1000
NC	Matthews, CSR Elctrns.	704-847-1927
NC	Raleigh, CSR Elctrns.	919-878-9200
OH	Dayton, Berberich & Assocs.	513-433-0342
OR	Aloha, Micro Sales	503-642-1818
PA	Pittsburgh, Covert & Newman Co.	412-531-2002
TX	Austin, Mil-Rep Assocs.	512-258-2828
TX	Houston, Mil-Rep Assocs.	713-937-0127
TX	Richardson, Mil-Rep Assocs.	214-644-6731
UT	Salt Lake City, Electrodyne	801-486-3801
VA	Fairfax, Beacon North	703-591-1300
WA	Bellevue, Micro Sales	206-451-0568
WI	Mukwonago, Momak Sls.	414-363-7744

MONOLITHIC COMPONENTS CORP., 6828 Nancy Ridge Drive, San Diego, CA 92121, Tel: 619-457-1727

MONOLITHIC SYS., 84 Inverness Circle E., Englewood, CO 80112, Tel: 303-790-7400, Telex: 45-4498; Empl.: 100; *Sls. Mgr.:* Mike Hart

MONSANTO CO., 800 N. Lindbergh Blvd., St. Louis, MO 63167, Tel: 314-694-1000, Telex: 44-7282 ....**2**•1085-1087

MONSANTO-ELECTRONICS DIV., See General Instr., Optoelctrns. Div.

MOODY TOOLS, 43 Crompton Ave., E. Greenwich, RI 02818, Tel: 401-885-0911; Empl.: 11; *Sls. Mgr.:* J. H. Moody; *Dist. Mgr.:* D .H. Moody

Local Sales Offices & Reps

CA	San Carlos, W. M. S. Co.	415-591-7043
CO	Denver, A-E-S	303-777-8733
FL	Winter Park, Floritronics	305-886-4818
IL	Palatine, Witz-Knight, Inc.	312-358-5990
KS	Overland Park, Modern Mktg. Co.	913-341-2426
MD	Baltimore, Coastline Sls. Co.	301-828-8520
NY	New York, Lane-Mizner Assocs.	212-889-9711
NY	Orchard Park, S & B Indl. Sls.	716-662-5988
OH	St. Marys, Thomas Shelby & Co.	419-394-3377
OR	Portland, Joseph V. BeLusko Co.	503-222-4279
RI	Barrington, Kilburn Assocs.	401-437-1839
EXP	IL, Northbrook, Vaco/Intl.	312-564-3300

MORRIS, J. I., CO., 372 Elm St., Southbridge, MA 01550, Tel: 617-764-4394; Empl.: 45

MORRIS ENTPRS., 16799 Schoenborn St, Sepulveda, CA 91343, Tel: 213-894-9103, Telex: 6-74681, TWX: 910-496-1525; FSC No.: 54918; Empl.: 40; *Sls. Mgr.:* J. Dumpert

MOSS CO., See Electron General

MOTION CONTROL DEVICES, INC., 80 Steadman St., Lowell, MA 01851, Tel: 617-454-3704, Telex: 955318-INTL-DIV-ATTEN-MCD-I; Empl.: 25; *Sls. Mgr.:* Joe Laliberte

MOTOROLA INC., Auto. & Indl. Elctrns. Grp., 1299 E. Algonquin Rd., Schaumburg, IL 60196, Tel: 312-576-4850, Telex: 722443; *Sls. Mgr.:* Jay A. Bonk

MOTOROLA INC.

Component Products

MOTOROLA, INC., Compt. Divs. Clock Oscillator Dept., 2553 N. Edgington, Franklin Park, IL 60131, Tel: 312-451-1000, TWX: 910-227-0799; Empl.: 1400; *Sls. Mgr.:* Barnie III; *Dist. Mgr.:* Ted Hoffman ....**1A**•1390, 1391; **3**•1413

Local Sales Offices & Reps

AL	Huntsville, R. O. Whitesell	205-883-5110
AZ	Scottsdale, Thorson Desert States	602-998-2444
AR	Ft. Smith, Electra Reps.	501-452-4030
CA	Campbell, Kottmeier Assocs.	408-866-5153
CA	Fullerton, Groh Assoc.	714-738-7150
CO	Englewood, Thorsen Co.	303-779-0666
FL	Clearwater, Perrott Assocs.	813-443-5414
FL	Orlando, Perrott Assocs.	305-298-7748
FL	Sunrise, Perrott Assocs.	305-792-2211
GA	Norcross, Glen White Assoc.	404-441-1447
IL	Rolling Meadows, KMA Sls. Co.	312-398-5300
IN	Fort Wayne, R. O. Whitesell	219-432-5591
IN	Indianapolis, R. O. Whitesell	317-359-9283
IA	Cedar Rapids, Comstrand	319-377-1575
MD	Timonium, Glen White Assoc.	301-252-6360
MA	Natick, Wayland Engrg. Sls.	617-655-6080
MI	Southfield, R. O. Whitesell Assoc.	313-559-5454
MI	St. Joseph, R. O. Whitesell Assoc.	616-983-7337
MN	Minneapolis, Comstrand	612-788-9234
MO	St. Louis, Abrams Assoc.	314-569-0447
NM	Albuquerque, Thorsen Desert States	505-293-8555
NY	Great Neck, Trionic Assoc.	516-466-2300
NY	Rochester, Ossmann Comp. Sls.	716-442-4460
NY	Syracuse, Ossmann Comp. Sls.	315-455-6611
NC	Raleigh, Glen White Assoc.	919-787-7016
OH	Cincinnati, R. O. Whitesell	513-521-2290
OH	Cleveland, R.O. Whitesell & Assoc.	216-447-9020
OH	Columbus, R. O. Whitesell	614-888-9396
OH	Dayton, R. O. Whitesell	513-298-9546
OK	Tulsa, H. J. Daly Co.	918-494-7711
OR	Tigard, Elctrn. Sources	503-684-0040
PA	Glenside, Koebert Assoc.	215-887-2310
PA	Pittsburgh, R. O. Whitesell	412-963-6161
TN	Gray, Glen White Assoc.	615-477-8850
TX	Dallas, Electra Reps.	214-387-3594
TX	Houston, Electra Reps.	713-530-2208
UT	West Valley City, Thorsen Co.	801-973-7969
VA	Colonial Beach, Glen White Assoc.	804-224-7764
VA	Lynchburg, Glen White Assoc.	804-237-6291
WA	Bellevue, Electronic Sources	206-451-2530
WI	Milwaukee, KMA Sls. & Co.	414-259-1771
EXP	IL, Franklin Pk., Motorola	312-451-1000

MOTOROLA INC.

MOTOROLA SEMICONDUCTOR PRODS. SECTOR, Adv. 72, Box 20912, Phoenix, AZ 85036, Tel: 602-244-6900, TWX: 910-951-1334; FSC No.: 04713; *Sls. Mgr.:* Brian Hilton; *Dist. Mgr.:* John Dunleavy .**1A**•1667-1677, 2086, 2099-2105; **1B**•1117; **3**•1114-1116

Local Sales Offices & Reps

AL	Huntsville	205-830-1050
AZ	Phoenix, (General Motors Grp.)	602-244-7125
AZ	Phoenix	602-244-7100
CA	Encino/Sherman Oaks	213-986-6850, 213-872-1504
CA	Los Angeles	213-445-5585
CA	Orange	714-634-2844
CA	San Diego	619-560-4644
CA	San Jose	408-985-0510
CO	Colorado Springs	303-599-7404
CO	Denver	303-773-6800
CT	New Haven/Hamden	203-281-0771
DC	Washington	301-577-2600
FL	Casselberry/Maitland	305-831-3422
FL	Pompano Bch./Ft. Lauderdale	305-491-8141
FL	St. Petersburg	813-576-6030
GA	Atlanta	404-256-0222
IL	Chicago/Schaumburg	312-576-7800
IN	Ft. Wayne	219-484-0436
IN	Indianapolis	317-849-7060
IN	Kokomo	317-457-6634
IA	Cedar Rapids	319-373-1328
KS	Kansas City/Mission	913-384-3050
MD	Hyattsville	301-577-2600
MA	Berlin	617-562-3856
MA	Burlington	617-273-5020
MI	Detroit/Westland	313-261-6200
MN	Minneapolis	612-545-0251
MO	St. Louis	314-872-7681
NJ	River Edge	201-488-1200
NY	Hauppauge	516-231-9000
NY	Pittsford	716-248-5494
NY	Poughkeepsie/Fishkill	914-473-8102
NY	Syracuse	315-455-7373
NC	Raleigh	919-876-6025
OH	Cleveland	216-461-3160
OH	Columbus/Worthington	614-846-9460
OH	Dayton	513-294-2231
OK	Tulsa	918-664-5227
OR	Portland	503-641-3681
PA	Philadelphia/Horsham	215-443-9400
TN	Knoxville	615-690-5592
TX	Austin	512-452-7673
TX	Dallas	214-931-9222
TX	Houston	713-783-6400
UT	Salt Lake City	801-539-1190
VA	Charlottesville	804-977-3691
WA	Bellevue	206-454-4160
WA	Seattle Access	206-622-9960
WI	Milwaukee/Wauwatosa	414-476-5554
	Motorola Systems Reps.	
AL	Huntsville, EMA	205-830-4030
CA	Inglewood, Basic Sys. Corp.	213-673-4300
CA	San Diego, Basic Sys. Corp.	619-999-6566
CA	Santa Clara, Basic Sys. Corp.	408-727-1800
CT	Goshen, Northern Computer Sls.	203-491-3585
GA	Norcross, EMA	404-329-0530
IL	Northbrook, Marketech Assoc.	312-291-0315
IN	Carmel, Carter, McCormic & Peirce	317-844-4175
MA	Westwood, Northern Computer Sls.	617-326-3454
MI	Farmington Hills, Carter, McCormic & Peirce	313-477-7700
MN	Minneapolis, P.S.I. Co.	612-944-8545
MO	Independence, Dy-Tronix	816-373-6600
NY	Elmont, Crane & Egert Corp.	516-872-0800
NC	Raleigh, EMA	919-781-9369
OH	Cleveland, Carter, McCormic & Peirce	216-779-5100
OH	Dayton, Carter, McCormic & Peirce	513-836-0951
OR	Beaverton, Thorson Co. Northwest	503-644-5900
PA	King of Prussia, K.S.I.	215-783-6440
PA	Monroeville, Carter, McCormic & Peirce	412-372-4415
TN	Jonesboro, EMA	615-753-5844
WA	Bellevue, Thorson Co. Northwest	206-455-9180

Local Distributors

AL	Huntsville, Schweber Elctrns.	205-882-2200
AL	Huntsville, Hamilton/Avnet Elctrns.	205-837-7210
AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AL	Huntsville, Pioneer/Huntsville	205-837-9300
AZ	Phoenix, Hall-Mark Elctrns.	602-243-6601
AZ	Phoenix, Kierulff Elctrns.	602-243-4101

AZ	Tempe, Hamilton/Avnet Elctrns.	602-231-5100
AZ	Tucson, Kierulff Elctrns.	602-624-9986
CA	Anaheim, Zeus Comps. West	714-632-6880
CA	Canoga Park, Schweber Elctrns.	213-999-4702
CA	Costa Mesa, Hamilton Electro Sls.	714-641-4111
CA	Costa Mesa, Avnet	714-754-6155, 213-558-2345
CA	Culver City, Hamilton Electro Sls./L.A.	213-558-2000
CA	Culver City, Hamilton/Avnet	213-558-2000
CA	Irvine, Schweber Elctrns.	213-537-4321
CA	Los Angeles, Kierulff Elctrns.	213-725-0325
CA	Palo Alto, Kierulff Elctrns.	415-968-6292
CA	Roseville, Bell Inds.	916-969-3100
CA	Sacramento, Hamilton/Avnet Elctrns.	916-925-2216
CA	Sacramento, Schweber Elctrns.	916-929-9732
CA	San Diego, Hall-Mark Elctrns.	619-268-1201
CA	San Diego, Hamilton/Avnet Elctrns.	619-571-7510
CA	San Diego, Kierulff Elctrns.	619-278-2118
CA	Santa Clara, Schweber Elctrns.	408-748-4700
CA	Sunnyvale, Hall-Mark Elctrns.	408-773-9990
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Sunnyvale, Hamilton/Avnet Elctrns.	408-743-3360
CA	Tustin, Kierulff Elctrns.	714-731-5711
CA	Woodland Hills, Hamilton/Avnet Elctrns.	213-887-2353
CO	Denver, Hall-Mark Elctrns.	303-694-1662
CO	Denver, Kierulff Elctrns.	303-790-4444
CO	Denver, Hamilton/Avnet Elctrns.	303-740-1017
CO	Wheatridge, Bell Inds.	303-424-1985
CT	Danbury, Hamilton/Avnet Elctrns.	203-797-2800
CT	Danbury, Schweber Elctrns.	203-792-3500
CT	Norwalk, Pioneer-Harvey/Norwalk	203-853-1515
FL	Altamonte Springs, Pioneer/Florida	305-834-9090
FL	Altamonte Springs, Schweber Elctrns.	305-331-7555
FL	Ft. Lauderdale, Pioneer/Ft. Lauderdale	305-771-7520
FL	Ft. Lauderdale, Kierulff Elctrns.	305-486-4004
FL	Ft. Lauderdale, Hamilton/Avnet Elctrns.	305-971-2900
FL	Ft. Lauderdale, Hall-Mark Elctrns.	305-971-9280
FL	Hollywood, Schweber Elctrns.	305-927-0511
FL	Orlando, Hall-Mark Elctrns.	305-855-4020
FL	St. Petersburg, Hamilton/Avnet Elctrns.	813-576-3930
FL	St. Petersburg, Kierulff Elctrns.	813-576-1966
GA	Atlanta, Schweber Elctrns.	404-449-9170
GA	Norcross, Kierulff Elctrns.	404-447-5252
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
GA	Norcross, Hamilton/Avnet Elctrns.	404-447-7507
GA	Norcross, Pioneer/Atlanta	404-448-1711
IL	Bensenville, Hall-Mark Elctrns.	312-860-3800
IL	Bensenville, Hamilton/Avnet Elctrns.	312-860-7700
IL	Chicago, Bell Inds.	312-982-9210
IL	Chicago, Newark Elctrns. Corp.	312-638-4411
IL	Elk Grove Village, Pioneer/Chicago	312-437-9680
IL	Elk Grove Village, Kierulff Elctrns.	312-640-0200
IL	Elk Grove Village, Schweber Elctrns.	312-364-3750
IN	Indianapolis, Hamilton/Avnet Elctrns.	317-844-9333
IN	Indianapolis, Pioneer/Indiana	317-849-7300
IN	Indianapolis, Graham Elctrns. Supp.	317-634-8202
IA	Cedar Rapids, Schweber Elctrns.	319-373-1417
KS	Overland Pk., Hamilton/Avnet Elctrns.	913-888-8900
KS	Shawnee Mission, Hall-Mark Elctrns.	913-888-4747
MD	Baltimore, Kierulff Elctrns.	301-636-5800
MD	Baltimore, Hall-Mark Elctrns.	301-796-9300
MD	Gaithersburg, Schweber Elctrns.	301-840-5900
MD	Gaithersburg, Pioneer/Washington	301-948-0710
MD	Hanover, Hamilton/Avnet Elctrns.	301-621-5410
MA	Bedford, Schweber Elctrns.	617-275-5100
MA	Boston, Kierulff Elctrns.	617-667-8331
MA	Boston, Lionex Corp.	617-272-9400
MA	Burlington, Zeus Comps.	617-273-0750
MA	Needham, Impact Sls. Co.	617-821-1500
MA	Woburn, Hamilton/Avnet Elctrns.	617-935-9700
MI	Grand Rapids, Hamilton/Avnet Elctrns.	616-243-8805
MI	Livonia, RS Elctrns.	313-525-1155
MI	Livonia, Schweber Elctrns.	313-525-8100
MI	Livonia, Hamilton/Avnet Elctrns.	313-522-4700
MI	Livonia, Pioneer/Michigan	313-525-1800
MI	Madison Hgts., McNaughton-McKay Elec. Co.	313-399-7500
MN	Bloomington, Hall-Mark Elctrns.	612-854-3223
MN	Eden Prairie, Schweber Elctrns.	612-941-5280
MN	Edina, Kierulff Elctrns.	612-941-7500
MN	Minnetonka, Pioneer/Twin Cities	612-935-5444
MN	Minnetonka, Hamilton/Avnet Elctrns.	612-932-0600
MO	Earth City, Hall-Mark Elctrns.	314-291-5350
MO	Earth City, Hamilton/Avnet Elctrns.	314-344-1200
MO	Maryland Hgts., Kierulff Elctrns.	314-739-0855
MO	St. Louis, Schweber Elctrns.	314-739-0526
NJ	Cherry Hill, Hall-Mark Elctrns.	609-424-7300
NJ	Cherry Hill, Hamilton/Avnet Elctrns.	609-424-0110
NJ	Fairfield, Hall-Mark Elctrns.	201-575-4415
NJ	Fairfield, Kierulff Elctrns.	201-575-6750
NJ	Fairfield, Schweber Elctrns.	201-227-7880
NJ	Fairfield, Hamilton/Avnet Elctrns.	201-575-3390
NJ	Pinebrook, Pioneer-Harvey/Pinebrook	201-227-1262
NM	Albuquergue, Alliance Elctrns.	505-292-3360
NM	Albuquerque, Bells Inds.	505-292-2700
NM	Albuquerque, Hamilton/Avnet Elctrns.	505-765-1500
NY	Binghamton, Pioneer-Harvey/Binghamton	607-748-8211
NY	E. Syracuse, Hamilton/Avnet Elctrns.	315-437-2641
NY	Fairport, Pioneer-Harvey/Rochester	716-381-7070
NY	Hauppauge, Pioneer/Military	516-231-9200
NY	Hauppauge, Lionex Corp.	516-273-1660
NY	Melville, Hamilton/Avnet Elctrns.	516-454-6060
NY	Port Chester, Zeus Comps.	914-937-7400
NY	Rochester, Hamilton/Avnet Elctrns.	716-475-9130
NY	Rochester, Schweber Elctrns.	716-424-2222
NY	Westbury, Schweber Elctrns.	516-334-7474
NY	Woodbury, Pioneer-Harvey/Woodbury	516-921-8700
NC	Greensboro, Kierulff Elctrns.	919-872-8410
NC	Raleigh, Hall-Mark Elctrns.	919-872-0712
NC	Raleigh, Hamilton/Avnet Elctrns.	919-878-0810
OH	Beachwood, Schweber Elctrns.	216-464-2970
OH	Centerville, Hamilton/Avnet Elctrns.	513-433-0610
OH	Cincinnati, Graham Elctrns.	513-772-1661
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Cleveland, Hall-Mark Elctrns.	216-473-2907
OH	Cleveland, Hamilton/Avnet Elctrns.	216-831-3500
OH	Dayton, Schweber Elctrns.	513-439-1800
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Westerville, Hall-Mark Elctrns.	614-891-4555
OK	Tulsa, Schweber Elctrns.	918-622-8000
OK	Tulsa, Hall-Mark Elctrns.	918-665-3200
OK	Tulsa, Kierulff Elctrns.	918-252-7537
OR	Beaverton, Almac Elctrns. Corp.	503-641-9070
OR	Lake Oswego, Hamilton/Avnet Elctrns.	503-635-8831
OR	Portland, Kierulff Elctrns.	503-641-9150
PA	Horsham, Pioneer/Delaware Valley	215-674-4000
PA	Horsham, Schweber Elctrns.	215-441-0600
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
PA	Pittsburgh, Schweber Elctrns.	412-782-1600
TX	Austin, Pioneer/Austin	512-835-4000
TX	Austin, Hall-Mark Elctrns.	512-258-8848
TX	Austin, Schweber Elctrns.	512-458-8253
TX	Austin, Kierulff Elctrns.	512-835-2090
TX	Austin, Hamilton/Avnet Elctrns.	512-837-8911
TX	Dallas, Hall-Mark Corp.	214-343-5000
TX	Dallas, Schweber Elctrns.	214-661-5010
TX	Dallas, Kierulff Elctrns.	214-343-2400
TX	Dallas, Pioneer/Dallas	214-386-7300
TX	Dallas, Hall-Mark Elctrns.	214-341-1147
TX	Houston, Pioneer/Houston	713-988-5555
TX	Houston, Hall-Mark Elctrns.	713-781-6100
TX	Houston, Schweber Elctrns.	713-784-3600
TX	Houston, Kierulff Elctrns.	713-530-7030
TX	Houston, Hamilton/Avnet Elctrns.	713-780-1771
TX	Irving, Hamilton/Avnet Elctrns.	214-659-4111
UT	Salt Lake City, Kierulff Elctrns.	801-973-6913
UT	Salt Lake City, Hamilton/Avnet Elctrns.	801-972-2800
UT	Salt Lake City, Bell Inds.	801-972-6969
WA	Bellevue, Hamilton/Avnet Elctrns.	206-643-3950
WA	Seattle, Almac Elctrns. Corp.	206-643-9992
WA	Tukwila, Kierulff Elctrns.	206-575-4420
WI	Brookfield, Schweber Elctrns.	414-784-9020
WI	New Berlin, Hamilton/Avnet Elctrns.	414-784-4510
WI	Oak Creek, Hall-Mark Elctrns.	414-761-3000
WI	Waukesha, Bell Inds.	414-784-0235
WI	Waukesha, Kierulff Elctrns.	414-784-8160

MOTOR-TRONICS, INC., 2142 Industrial Ct., Bldg. F2, Vista, CA 92083, Tel: 619-727-7430 .... **1B**•1166, 1167

MOTRONICS CORP., Riverside Indl. Pk., Little Falls, NY 13365, Tel: 315-823-4050; Empl.: 90; *Sls. Mgr.:* Thomas J. Breach .... **1B**•1169

Local Sales Offices & Reps

CA	San Jose, McFarland Assocs. Corp.	408-286-9333
CO	Englewood, Integrated Motion Sys.	303-762-1817
FL	Melbourne, R-Concept	305-725-6993
IN	Beech Grove, Control Sls.	317-353-6094
KS	Shawnee Mission, L.S.C. Inc.	913-362-2121
MA	Southborough, Motion Engrg.	617-485-2144
MI	Livonia, Electrolines	313-591-2428
MN	St. Paul, Northstar Motion & Control Co.	612-770-5311
NY	Clark Mills, KLM Garner	315-853-6126
OH	Chesterland, KT/Depco	216-729-3588
PA	Audubon, Holmes Assocs.	215-666-0636
PA	Pittsburgh, Greye Glass Assocs.	412-366-6664
VA	Roanoke, Engrg. & Mktg. Corp. of Virginia	703-986-1410
WI	Milwaukee, Schreiber-Arterburn	414-545-7800

Distributor

MOUSER ELECTRONICS, 11433 Woodside Ave., Santee, CA 92071, Tel: 619-449-2222, TWX: 910-331-1175; Empl.: 200; *Sls. Mgr.:* Jerry Tallent p.731

MOUSER ELECTRONICS, 2401 Hwy. 287 North, Mansfield, TX 76063, Tel: 817-483-4422 .... p.731

MOUSE SYS. CORP., 2336H Walsh Ave., Santa Clara, CA 95051, Tel: 408-988-0211, Telex: 467848; *Sls. Mgr.:* Evelyn Boyd; *Dist. Mgr.:* Barbara Marsh-Wetherell

MOXON INC., See Kode

MPB CORP., Precision Park, Keene, NH 03431, Tel: 603-352-0310, TWX: 710-366-1801; Empl.: 1600

MPC SYS., Div. of Consulting Systems, RFD Box 441, Fremont, NH 03044, Tel: 603-642-5913; *Sls. Mgr.:* W. Morse

MPH ELCTRNS., 2660 Loma Ave., S. El Monte, CA 91733, Tel: 213-442-7818; *Sls. Mgr.:* A. Pastecci

MPI, 4426 S. Century Dr., Salt Lake City, UT 84107, Tel: 800-821-8848; *Sls. Mgr.:* Jamie Johnston

MSI DATA CORP., 340 Fischer Ave., Costa Mesa, CA 92626, Tel: 714-549-6000, TWX: 910-595-1719; Empl.: 750; *Sls. Mgr.:* J. Falvey; *Dist. Mgr.:* S. Altice

MSI ELECTRONICS, INC., 34-32 57th St., Woodside, NY 11377, Tel: 212-672-6500, Telex: 424431; FSC No.: 18518; Empl.: 25; *Sls. Mgr.:* A. Lederman

Local Sales Offices & Reps

AZ	San Diego, Fetty/Schoenduve	619-292-5136
CA	El Segundo, Fetty/Schoenduve	213-322-4991

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FL	Lighthouse Pt., R. C. Simon & Co.	305-941-2757
FL	Riverview, R. C. Simon & Co.	813-669-1947
GA	Keenesaw, BWS Mktg.	404-448-7759
IL	McHenry, Mesa, Inc.	815-344-2820
IN	Ft. Wayne, Menze Sls. Inc.	219-747-5616
MD	Laurel, CSDS Inc.	301-490-3800
MA	Framingham, Stone Comp. Sls.	617-875-3266
NY	Plainview, R. Smith Assocs.	516-681-3155
PA	Jenkintown, Arnold Assocs.	215-887-7870
TX	Richardson, Eagle Mktg. Inc.	214-238-5383
EXP	NY, Woodside, MSI Elctrns.	212-672-6500

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M-TRON INDS., P.O. Box 630, E. Hwy. 50, Yankton, SD 57078, Tel: 605-665-9321, TWX: 910-668-3603; Empl.: 226; *Sls. Mgr.:* Mike Huennekens; *Dist. Mgr.:* Karen Hansen .... **1A**•1393

Local Sales Offices & Reps

AL	Huntsville, 20th Century Mktg.	205-533-9281
AZ	Tempe, SSA Sales	602-829-9338
CA	San Diego, Bestronics	619-452-5500
CA	Santa Ana, SC Cubed	714-731-9206
CA	Santa Clara, Criterion Mfg.	408-988-6300
CA	Thousand Oaks, SC Cubed	805-496-7307
CO	Littleton, Simpson Assoc.	303-794-8381
CT	Ridgefield, Phoenix Sls.	203-438-9644
FL	Apopka, G.F. Bohman	305-886-1882
FL	Ft. Lauderdale, Bohman Assoc.	305-979-0008
GA	Stone Mountain, 20th Century	404-292-7088
IL	Arlington Hgts., Micro Sls.	312-956-1000
IN	Fort Wayne, Given Corp.	219-432-5585
IA	West Des Moines, SPS Assoc.	515-225-0607
KS	Olathe, SPS Assoc.	913-764-4460
MD	Ellicott City, Marketing Tech Inc.	301-862-1882
MA	Reading, Kanan	617-944-8484
MI	Detroit, Rathsburg Assoc.	313-882-1717
MN	Bloomington, Com-Tek Sls.	612-888-7011
NE	Panama, SPS Assoc.	800-228-3018
NJ	Englewood, Sprung/Nussbaum	201-569-5666
NJ	Marlton, BGR	609-983-1020
NM	Albuquerque, SSA	505-881-8877
NC	Smithfield, ADI	919-934-8136
OH	Dayton, Lyons Corp.	513-278-0714
OH	Richfield, Lyons Corp.	216-659-9224
SC	Fort Mill, ADI	803-547-2115
TN	Knoxville, 20th Century	615-966-3608
TX	Austin, Mech-Tron Mktg.	512-835-0980
TX	Dallas, Mech-Tron Mktg.	214-343-3786
TX	Houston, Mech-Tron Mktg.	713-462-1432
UT	Midvale, Simpson Assoc.	801-566-3691
VA	Lynchburg, Marketing Tech Inc.	804-384-6459
WA	Redmond, Quadra Sls.	206-883-3550

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AZ	Phoenix, Wyle Distr. Grp.	602-249-2232
AZ	Phoenix, Sterling Elect.	602-258-4531
AZ	Tempe, CSC Distr.	602-966-0764
AZ	Tempe, Bell Inds.	602-966-7800
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Fullerton, Pyramid Elctrns.	714-773-0781
CA	Irvine, Ryno Elctrns.	714-261-2500
CA	San Diego, Ryno Elctrns.	619-292-6022
CA	Santa Clara, Capacitors Unltd.	408-946-7676
CA	Santa Clara, Wyle Distr. Grp.	408-727-2500
CA	Tustin, Image Elctrns.	714-730-0303
CO	Thornton, Wyle Distr. Grp.	303-457-9953
CO	Wheatridge, Bell Inds.	303-424-1985
CT	E. Haven, J. V. Elctrns.	203-469-2321
CT	Norwalk, Pioneer Elctrns.	203-853-1515
CT	Orange, Milgray Elctrns.	203-795-0711
CT	Wallingford, Mid-State Elect.	203-265-9900
FL	Orlando, Pioneer Elctrns.	305-834-9090
FL	Winter Park, Milgray Elctrns.	305-647-5747
GA	Norcross, Pioneer Elctrns.	404-448-1711
IL	Elk Grove, Pioneer Elctrns.	312-437-9680
IL	Hoffman Estates, Inter Comp	312-843-2040
IN	Indianapolis, Advent	317-872-4910
IN	Indianapolis, Pioneer/IN	317-849-7300
KS	Overland Park, Milgray Elctrns.	913-236-8800
MD	Beltsville, Resco/Wash.	301-937-9100
MD	Gaithersburg, Pioneer	301-921-0660
MD	Rockville, Milgray Elctrns.	301-468-6400
MA	Burlington, Milgray Elctrns.	617-272-6800
MA	Burlington, J.V. Elctrns.	617-273-4300
MA	Lexington, Pioneer Elctrns.	617-861-9200
MI	Livonia, RS Elctrns.	313-525-1155
MI	Livonia, Pioneer Elctrns.	313-525-1800
MN	Bloomington, NWR	612-854-7329
MN	Minneapolis, Stark Elctrns.	612-832-1325
MN	Minnetonka, Pioneer Elctrns.	612-935-5444
MO	St. Louis, Olive Elctrns.	314-426-4500
NJ	Berlin, GCI	609-768-6767
NJ	Marlton, Milgray Elctrns.	609-983-5010
NJ	Mt. Laurel, P.A.C. Elctrns.	609-778-1526
NJ	Pinebrook, Pioneer Elctrns.	201-575-3510
NM	Albuquerque, Sterling Elect.	505-884-1900
NY	Binghamton, Pioneer Elctrns.	607-748-8211
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Woodbury, Pioneer Elctrns.	516-921-8700
NC	Charlotte, Pioneer Elctrns.	704-527-8188
NC	Raleigh, Century Elctrns.	918-872-2203
OH	Cleveland, Milgray Elctrns.	216-447-1520
OH	Cleveland, Pioneer Elctrns.	216-587-3600
OH	Dayton, Pioneer Elctrns.	513-236-9900
OK	Tulsa, Radio Inc.	918-587-9123
OR	Hillsboro, Wyle Distr. Grp.	503-640-6000
OR	Portland, Radar Elctrns.	503-232-3404
PA	Horsham, Pioneer Elctrns.	215-674-4000
PA	Pittsburgh, Pioneer Elctrns.	412-782-2300
TX	Dallas, Pioneer Elctrns.	214-386-7300
TX	Dallas, Solid State Elctrns.	214-438-5700
TX	Houston, Powerline Elctrns.	713-578-3222
UT	Salt Lake City, Standard Supp.	801-486-3371
UT	West Valley City, Wyle Distr. Grp.	801-974-9953
VT	Richmond, Sterling Elect.	804-226-2190
WA	Bellevue, Wyle Distr. Grp.	206-453-8300
WI	Milwaukee, Marsh Elect.	414-475-6000

MTS SYS., Box 24012, Minneapolis, MN 55424, Tel: 612-937-4000, Telex: 29-0521; Empl.: 800; *Sls. Mgr.:* J. Beal

MUELLER ELEC. CO., 1583 E 31st St., Dept. 20, Cleveland, OH 44114, Tel: 216-771-5225; Empl.: 156; *Sls. Mgr.:* J. E. Wisneski **2**•1528, 1529; **3**•1264, 1265

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-533-3509
AZ	Glendale, Heath Group	602-938-8308
AZ	Phoenix, Heath Group	602-944-4340
CA	Downey, Ungar Sls. Assocs.	213-923-1467
CA	Gardena, Ungar Sales Co.	213-538-2811
CA	Reseda, Ungar Sls. Assocs.	213-342-2671
CA	San Francisco, Maddox Sls.	415-647-5560
CO	Colorado Springs, Norris & Warren Co.	303-576-8697
CO	Denver, Norris & Warren	303-759-1676
FL	Ft. Lauderdale, Cartwright & Bean	305-735-4900
FL	Orlando, Cartwright & Bean	305-422-4531
FL	Tampa, Cartwright & Bean Inc.	305-422-4531
GA	Atlanta, Cartwright & Bean	404-233-2939
IL	Libertyville, R. Klipp Assocs.	312-367-4676
IN	Indianapolis, Sukup & Cox	317-253-5501
KS	Shawnee Mission, K & M Sls.	913-262-1444
MA	Lynn, Keene Sls.	617-595-2300
MA	Springfield, Keene Sls. Co. Inc.	413-785-1158
MI	Ferndale, Hilltronics	313-398-5556
MN	Minneapolis, Boerger & Associates	612-560-3435
MS	Jackson, Cartwright & Bean	601-981-1368
NJ	Medford, Champion Elctrn. Sls.	609-654-0475
NY	Port Washington, Joseph Assocs.	516-883-1829
NY	Webster, Bieniek & Assocs.	716-872-0387
NC	Charlotte, Cartwright & Bean	704-377-5673
NC	Raleigh, Cartwright & Bean	919-781-6560
OH	Akron, Arrow Mktg.	216-733-8901
OH	Mogadore, Arrow Mktg. Co.	216-733-8901
OR	Portland, Jud LeBrun	503-244-6805
TN	Knoxville, Cartwright & Bean	615-693-7450
TN	Memphis, Cartwright & Bean	901-276-4442
TX	Waco, Jabs Sls.	817-776-3236

M. U. INC., P.O. Box 1007, Oceanside, CA 92054, Tel: 619-757-7576

MUIRHEAD, 1101 Briston Rd., Mountainside, NJ 07092, Tel: 201-233-6010, Telex: 13-8275; Empl.: 60; *Sls. Mgr.:* Gerald M. Pochurek

MULTI-AMP CORP., Indian Head Corp., 4271 Bronze Way, Dallas, TX 75237, Tel: 214-333-3201, TWX: 910-861-9052; Empl.: 350; *Sls. Mgr.:* Robert D. Libbey

MULTICORE SOLDERS, Cantiague Rock Rd., Westbury, NY 11590, Tel: 516-334-7997, TWX: 510-222-5185; Empl.: 1000

MULTI-PLATE CO., INC., 2362 Lu Field Rd., Dallas, TX 75229, Tel: 214-243-1557; *Sls. Mgr.:* David A. Bartley

MULTI PRODS. INTL., 218 Little Falls Rd., P.O. Box 238, Cedar Grove, NJ 07009, Tel: 201-239-8183, Telex: 13-0430; Empl.: 25; *Sls. Mgr.:* LeRoy Gray .... **1A**•1147, 2206, 2207; **3**•1658

Local Sales Offices & Reps

AL	Huntsville, Elctrns Mfrs. Agts	205-830-4030
AZ	Tempe, Tempe Assoc.	602-831-6720
AR	Little Rock, Erickson Sls. Inc.	501-225-7379
CA	Campbell, Kottmeier Assoc.	408-866-5153
CA	El Monte, Cook Entprs	213-686-2120
FL	Coral Springs, PC Electronic Sales	305-755-3980
GA	Atlanta, Elctrn. Mfrs. Agts.	404-529-0530
IL	Chicago, Esco Assoc.	312-763-0800
IN	Frankfort, C-S Elctrns. Sls.	317-659-1874
KS	Overland Park, Electri-Rep	913-649-2168
LA	Chalmette, Erickson Sls. Inc.	504-271-1976
MA	Norwood, Mac Innis Co..	617-762-8090
MI	Jenison, R.C. Nordstrom & Co	616-457-5762
MI	Southfield, R. C. Nordstrom & Co.	313-559-7373
MN	St. Paul, Proud Industries	612-646-9428
NJ	Cedar Grove, Legtonics Assoc.	201-239-4098
NJ	Cedar Grove, Legtronics Assoc.	201-239-4098
NC	Raleigh, Elctrns. Mfg. Agent	919-781-4139
OK	Oklahoma City, Erickson Sls. Inc.	405-682-2947
OR	Portland, Eltech	503-238-0805
PA	Albrightsville, Centurion Linear	717-722-0166
TN	Knoxville, Elctrn. Mfrs. Agents	615-966-1286
TX	Austin, Erickson Sls. Inc.	512-445-2952
TX	Dallas, Erickson Sls. Inc.	214-739-5833
TX	Houston, Erickson Sls. Inc.	713-980-9606
WA	Bellevue, Eltech	206-643-4330

MULTITECH ELCTRNS. INC., 195 W. El Camino Real, Sunnyvale, CA 94086, Tel: 408-773-8400, Telex 176004 MAC SUVL; *Sls. Mgr.:* James Tseng

MULTI-TECH INDS., 64 South Main St., P.O. Box A Marlboro, NJ 07746, Tel: 201-431-0550; Empl.: 40 *Sls. Mgr.:* James L. Bernard

MULTI-TECH SYSTEMS, INC., 82 Second Ave S.E., New Brighton, MN 55112, Tel: 612-631-3550 TWX: 910-563-3610; *Sls. Mgr.:* Thomas Heimerman; *Dist. Mgr.:* Peter Hanlon

MULTI-TRONIX, 3210 Terry Dr, Toledo, OH 43613, Tel: 419-472-0723; *Sls. Mgr.:* K. L. Schepler

MULTIWIRE DIV., Kollmorgen Corp., Andrews Rd., Hicksville, NY 11801, Tel: 516-938-2000, TWX: 510-223-0639

Local Sales Offices & Reps

CA	Anaheim, Multiwire West	714-632-7770
NH	Nashua, Multiwire New England	603-889-0083
NY	Hicksville, Advanced Mfg. Grp.	516-938-2000
NY	Hicksville, Multiwire	516-933-8300; 800-447-0007

MUPAC, 10 Mupac Dr., Brockton, MA 02401, Tel: 617-588-6110, TWX: 710-345-8458; Empl.: 100

Local Distributors

CA	San Francisco, Peters - de Laet, Inc.	415-873-9595
CA	Santa Clara, Peters - de Laet, Inc.	408-727-9440
CT	Wallingford, Sager Electrical Supp. Co.	203-265-4600
MA	Hingham, Sager Electrical Supp. Co.	617-749-6700

MURA CORP., 177 Cantiague Rock Rd., Westbury, NY 11590, Tel: 516-935-3640, Telex: 967-879; Empl.: 165; *Sls. Mgr.:* William Mercurio .. **1A**•2047; **1B**•1090; **2**•2109; **3**•1040, 1041

Local Sales Offices & Reps

AL	Huntsville, DHR Mktg., Inc.	205-533-5165
CA	Los Alamitos, Santana Sls.	714-827-9100
CA	San Diego, Littlefield & Smith Assocs.	619-455-0055
CA	San Jose, Frequency Control Assocs.	408-446-0200
CA	Saratoga, Frequency Control Assocs.	408-446-0200
CT	Manchester, G. M. Assocs.	203-646-4443
FL	Casselberry, HAI Elctrns., Inc.	305-831-4892
FL	Coral Springs, HAI	305-752-7520
GA	Atlanta, DHR Mktg.	404-451-9848
L	Highland Park, Bransky Sls.	312-433-2375
N	Indianapolis, Elctrn. Reps.	317-894-1414
A	Bettendorf, Weisler & Assocs., Inc.	319-344-0566
A	Davenport, Weisler Assocs.	319-386-5905
LA	Manderville, Design Mktg.	713-237-2319
MA	Framingham, G.M. Assocs.	617-872-4871
MN	Minneapolis, O.E.M. Elctrl. Sls., Inc.	612-559-2448
MS	Jackson, Welch & Doby, Inc.	601-932-5534
MO	Ellisville, Weisler Assocs.	314-394-4543
MO	N. Kansas City, Weisler Assocs.	816-421-1679
NH	Exeter, G. M. Assocs.	603-778-7472
NY	Jericho (Downstate), J-Square Mktg., Inc.	516-935-3200
NC	Charlotte, DHR Mktg., Inc.	704-335-1215
NC	Greensboro, DHR Mktg., Inc.	919-273-2671
NC	Raleigh, DHR Mktg.	919-876-5450
OH	Cleveland, Arthur H. Baier & Assocs.	216-461-6161
OH	Dayton, Arthur H. Baier & Assocs.	513-276-4128
OK	Broken Arrow, Design Mktg., Inc.	918-258-8656
OR	Portland, Jas J. Backer Co.	503-297-2218
OR	Salem, Jas J. Backer Co.	503-362-0717
PA	Stewartstown, Eastern Comps.	301-323-7104
PA	W. Conshohocken, Eastern Comps.	215-825-8610
SC	Greenville, DHR Mktg.	803-235-3594
TN	Knoxville, DHR Mktg., Inc.	615-584-5286
TN	Memphis, Welch & Doby, Inc.	901-683-8099
TX	Conroe, Design Mktg., Inc.	713-273-2319
TX	Dallas, Design Mktg., Inc.	214-680-9767
TX	Hurst, Design Mktg.	817-268-2004
TX	Round Rock, Design Mktg., Inc.	512-255-9896
VA	Manassas, Eastern Comps.	703-471-1025
WA	Seattle, Jas J. Backer Co.	206-285-1300
WI	Cedarburg, Bransky Sls.	414-377-6837

Local Distributors

AZ	Phoenix, Elctrn. Parts	602-277-7281
AR	Little Rock, Carlton-Bates	501-462-9100
CA	Costa Mesa, Marvac Elec.	714-540-3280
CA	Dublin, Valley Elctrns.	415-829-5960
CA	Lakeside, Mouser Corp.	714-449-2220
CA	Mt. View, U-DO Elctrns.	415-968-8894
CA	N. Hollywood, Mitchell Co.	213-875-1552
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Sacramento, Sacramento Elctrns.	916-441-4821
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	Sunnyvale, Com-Kyl	408-734-9660
CO	Colorado Springs, Colorado Springs Walker Elec.	303-636-1661
CO	Denver, Fistell's	303-629-1312
CO	Denver, Denver Walker Elec.	303-935-2401
CO	Denver, Elctrn. Parts	303-744-1992
CT	W. Hartford, Signal Center	203-233-8551
FL	Ft. Lauderdale, Southeastern Elctrns.	305-536-4131
FL	Miami, Gulf Elctrns.	305-592-6538
FL	Miami, Electro Standards	305-663-6973
FL	Tallahassee, Dell Elctrns.	904-224-5145
D	Twin Falls, Idaho Central Elctrns.	
L	Chicago, McMaster-Carr	312-834-9600
L	La Salle, Warren Radio	815-223-4028
L	Rockford, Jay Tronics	851-965-8786
N	Evansville, Ohio Valley Sound	812-425-6173
N	Evansville, Hutch & Son	812-425-7201
IN	Michigan City, Tri-State Elctrns.	219-872-5551
IA	Des Moines, Mid State Dist.	515-244-7231
LA	New Orleans, Wm. B. Allen Co.	504-525-8222
MI	Augusta, Great Lakes	616-731-4156
MI	Grand Rapids, Stotts Freidman	616-459-0216
MN	Minneapolis, Acme Elctrns.	612-338-4755
MS	Jackson, Ellington Elctrns.	601-355-0561
MO	St. Louis, Olive Elctrns.	314-426-4500
MT	Missoula, Northwest Distrs.	406-543-5181
NE	Lincoln, Scott Elctrns.	402-466-8221
NJ	Edison, Willian Elctrns.	201-985-3700
NJ	Marlton, Resco Elctrns.	609-983-6552
NJ	Raritan, Masters Supp.	201-725-3533
NM	Carslbad, Indl. Elctrns.	505-887-1121
NY	Hempstead, Elctrn. Equip.	516-538-5510
NY	Jamaica, All State Elctrns.	212-739-3916
NY	Levittown, Eddie Elctrns.	
NY	NYC, B&B Elctrns.	212-446-5120
NY	NYC, Barry Elctrns.	212-925-7000
NY	Plainview, Atlas West	516-576-9100
NC	Charlotte, United Elctrns. Supp.	704-372-2650
ND	Fargo, S&S Elctrns.	701-237-5003
OH	Columbus, Whitehead Radio	614-224-1186
OH	Columbus, Comps. Unltd.	614-252-0728
OH	Freemont, J&B Elctrns.	419-332-9334
OR	Beaverton, Norvac Elctrns.	503-644-1025
PA	Philadelphia, Almo Elctrns.	215-698-4000
PA	Pittsburgh, CRS Elctrns.	412-431-7700
TX	Dallas, Wholesale Radio	214-824-3001
TX	Ft. Worth, Indl. Elctrns.	817-731-7321
TX	Houston, Lenert Co.	713-225-1465
WA	Seattle, Westlake Distrs.	206-282-3660
WV	Arlington, Arlington Elctrns.	703-524-2412
WV	Fairmont, State Elctrns.	304-366-4520
WI	Madison, Superior Elctrns.	608-257-1477
WI	Madison, Satterfield Elctrns.	608-257-4801
WI	Oskosh, Elctrn. Inds.	414-235-8930

MURATA ERIE NORTH AMERICA, INC., 1148 Franklin Rd., S.E., Marietta, GA 30067, Tel: 404-952-9777, Telex: 54-2329, TWX: 810-766-1531; Empl.: 1800; *Sls. Mgr.:* Jack Driscoll; *Dist. Mgr.:* C. Augello ....**1A**•1148-1151, 1394, 1395, 1576, 1604, 1605, 1903-1905, 2016, 2048, 2049, 2107, 2209; **3**•1042, 1659

Local Sales Offices & Reps

AL	Huntsville, Jack W. Harvey & Assocs.	205-536-4414
AZ	Scottsdale, Murata Erie N. America	602-941-2667
CA	Los Altos, Recht. Assocs.	415-964-6321
CA	Palo Alto, Murata Erie North America	415-327-1520
CA	Santa Ana, Murata Erie North America	714-835-4822
FL	Maitland, Murata Erie North America	305-644-0954
FL	Plantation, Innovative Mktg., Inc.	305-583-8895
GA	Marietta, Murata Erie N. America	404-952-9777
IL	Des Plaines, Murata Erie North America	312-297-5560
IN	Ft. Wayne, Murata Erie North America	219-484-1528
IN	Indianapolis, Jack Harvey & Assocs.	317-872-1031
IN	Kokomo, Jack Harvey & Assocs.	317-453-4260
MD	Columbia, Murata Erie North America	301-992-6612
MA	Wakefield, Murata Erie North America	617-245-7880
MN	Plymouth, Murata Erie North America	612-553-1594
NJ	Springfield, Radix	201-467-4970
NC	Greensboro, Murata Erie North America	919-299-1905
OK	Tulsa, Murata Erie N. America	918-663-2882
OR	Beaverton, Caruso & Northcutt, Inc.	503-646-4973
TN	Johnson City, Jack Harvey & Assocs.	615-928-7588
TX	Richardson, Murata Erie North America	214-238-8211
WA	Bellevue, Caruso & Northcutt, Inc.	206-454-9699

Local Distributors

AL	Huntsville, Powell Elctrns.	205-539-2731
AZ	Phoenix, R.V. Weatherford	602-272-7144
AZ	Tempe, Arrow Elctrns.	602-968-4800
AZ	Tempe, Powell Elctrns.	602-967-7538
AZ	Tempe, Time Elctrns.	602-967-2000
CA	Anaheim, Time Elctrns.	714-937-0911
CA	Anaheim, R.V. Weatherford Co.	714-547-0981
CA	Belmont, Varitech Elctrns.	415-593-3300
CA	Chatsworth, Shelley Elctrns.	213-998-3333
CA	Chatsworth, Arrow Elctrns.	213-701-7500
CA	Costa Mesa, Powell Elctrns.	714-754-1717
CA	Garden Grove, Inductive Prods. Inc.	714-892-7749
CA	Garden Grove, Natl. Capacitor Supp.	213-598-9611
CA	Glendale, R.V. Weatherford Co.	213-849-3451
CA	Inglewood, Newark Elctrns.	213-678-0441
CA	Mountain View, Shelly Elctrns.	415-969-1820
CA	Newport Beach, Arrow Elctrns.	714-851-8961
CA	Pomona, R.V. Weatherford Co.	714-623-1261
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Diego, R.V. Weatherford Co.	714-695-1700
CA	San Diego, Arrow Elctrns.	714-565-4800
CA	Santa Clara, Pyramid Elctrns. Supp.	408-727-9810
CA	Santa Clara, Intl. Standard Comps.	408-496-0411
CA	Sunnyvale, Acacia Sls.	408-745-7200
CA	Sunnyvale, R.V. Weatherford Co.	408-738-8694
CA	Sunnyvale, Capsco	408-734-3020
CA	Sunnyvale, Powell Elctrns.	408-739-4321
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Time Elctrns.	408-734-9888
CA	Torrance, Time Elctrns.	213-320-0880
CO	Aurora, Arrow Elctrns.	303-696-1111
CO	Boulder, Shelley Elctrns.	303-442-2718
CO	Denver, Newark Elctrns.	303-423-7941
CO	Denver, R.V. Weatherford Co.	303-428-6900
CO	Englewood, Time Electrns.	303-850-7701
CO	Lakewood, Acacia Sls.	303-232-2882
CT	Orange, Milgray Elctrns.	263-795-0711
CT	Wallingford, Cronin Elctrns.	203-265-3134
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Ft. Lauderdale, Time Elctrns.	305-974-4800
FL	Ft. Lauderdale, Newark Elctrns.	305-587-2372
FL	Ft. Lauderdale, Powell Elctrns.	305-979-5000
FL	Palm Bay, Arrow Elctrns.	305-725-1480
FL	Winter Park, Milgray Elctrns.	305-647-5747
GA	Atlanta, Milgray Elctrns.	404-393-9666
GA	Norcross, Newark Elctrns.	404-448-1300
GA	Norcross, Arrow Elctrns.	404-449-8252
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Chicago, Bell Inds.	312-982-9210
IL	Rosemont, Advent Elctrns.	312-297-6200
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Indianapolis, Advent Elctrns.	317-872-4910
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IA	Cedar Rapids, Advent Elctrns. Inc.	319-363-0221
KS	Overland Park, Milgray Elctrns.	913-236-8800
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Baltimore, Resco	301-823-0070
MD	Beltsville, Resco	301-937-9100
MD	Columbia, Time Elctrns.	301-964-3090
MD	Columbia, Powell Elctrns.	301-621-4070
MD	Rockville, Milgray Elctrns.	301-468-6400
MA	Burlington, Milgray Elctrns.	617-272-6800
MA	Needham, Cronin Elctrns.	617-449-5000
MA	Westboro, Powell Elctrns.	617-366-6100
MA	Woburn, Time Elctrns.	617-935-8080
MA	Woburn, Arrow Elctrns.	617-933-8130
MI	Ann Arbor, Arrow Elctrns.	313-971-7220
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Grand Rapids, Arrow Elctrns.	616-243-0912
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minneapolis, The Joel Co.	612-545-5669
MN	Minneapolis, Newark Elctrns.	612-331-6350
MO	St. Louis, Time Elctrns.	314-391-6444
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	Englewood, Powell Elctrns.	201-894-0800
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Marlton, Arrow Elctrns.	609-596-8000
NJ	Moorestown, Arrow Elctrns.	609-235-1900
NJ	Whippany, Tonar Inds.	201-884-1400
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	Buffalo, Newark Elctrns.	716-892-4321
NY	Farmingdale, Arrow Elctrns.	516-293-6363
NY	Farmingdale, Arrow Elctrns.	516-694-6800
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Hauppauge, Time Elctrns.	516-273-0100
NY	Hauppauge, Fairmont Elctrns.	516-231-3313
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Lynbrook, Varitech Elctrns.	516-593-9300
NY	Melville, Arrow Elctrns.	516-391-1485
NY	Pittsford, Milgray Elctrns.	711-385-9330
NY	Rochester, Arrow Elctrns.	716-275-0300
NC	Cary, Powell Elctrns.	919-467-1212
NC	Charlotte, Elctrn. Mktg. Corp.	704-394-6195
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OH	Cleveland, Newark Elctrns.	216-361-4700
OH	Columbus, Elctrn. Mktg. Corp.	614-299-4161
OH	Columbus, Newark Elctrns.	614-451-0002
OH	Dayton, Elctrn. Mktg. Corp.	513-439-3441
OH	Highland Hts., Elctrn. Mktg. Corp.	216-442-3441
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OK	Tulsa, Arrow Elctrns.	918-665-7700
OR	Lake Oswego, Moore Elctrns.	503-684-3100
OR	Portland, Newark Elctrns.	503-257-0741
OR	Tigard, Arrow Elctrns.	503-684-1690
PA	Broomall, Time Elctrns.	215-359-1200
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Philadelphia, Powell Elctrns.	215-365-1900
PA	Versailles, Newark Elctrns.	412-834-8504
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TX	Austin, Arrow Elctrns.	512-835-4180
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MUSHIELD CO., Div. Bomco, Inc., 121 Madison St., P.O. Box W, Malden, MA 02148, Tel: 617-321-4410; FSC No.: 22780; Empl.: 10; *Sls. Mgr.:* Mark Standley .... 2•1915

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CA	Los Angeles, Yarbrough Sls.	213-254-5101
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CO	Littleton, The McCarthy Co.	303-773-0643
GA	Atlanta, Biondo Assoc.	404-394-9640
MA	Newtonville, Shain Assocs.	617-965-3060
MN	Edina, Wendell Lee & Assoc.	612-831-5056
OH	Akron, Augnat Assoc.	216-273-1211
PA	Orwigsburg, Jase Assoc.	717-366-1109
TX	Cypress, Wessco	713-469-7814

MVP ELCTRNS., 1161 N. Tustin, Orange, CA 92667, Tel: 714-639-9246, Telex: 678401; Empl.: 4; *Sls. Mgr.:* M. Vander Plaats

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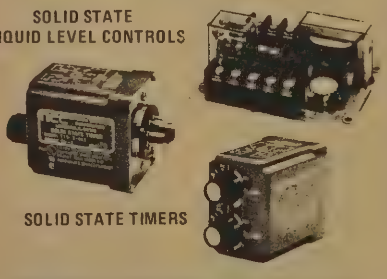

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IN	Indianapolis, Sector Engrg. Sls.	317-842-1120
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NM	Albuquerque, Odyssey	505-265-6645
OH	Chesterland, EQS Systems	216-729-2222
WI	Milwaukee, Sector Engrg. Sls.	414-352-8280

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CA	Palo Alto, Abbott Engrg. Co., Inc.	415-968-2265
CA	San Diego, Mesa Engrg.	619-278-8021
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KY	Ft. Mitchell, G. W. Thelen	606-341-8181
MD	Randallstown, Beacon North	301-655-2265
MA	Chelmsford, Encotronics	617-256-4207
NY	Wantagh, Bytec	516-781-7400; 201-531-7792
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VA	Forest, Beacon North	804-239-8486
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NATIONAL-STANDARD CO., 601 N. 8th, Niles, MI 49120, Tel: 616-683-8100, Telex: 25-8453, TWX: 810-270-3153; Empl.: 1000; *Sls. Mgr.:* J. L. Dayton; *Dist. Mgr.:* J. L. Dayton

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AL	Birmingham, Southeastern First Rep	205-967-708
AZ	Phoenix, Finn-Pat Co.	602-954-030
CA	Garden Grove, West Elctrn. Sls. Co.	714-898-012
CA	San Diego, CK Associates	619-279-042
CA	Santa Ana, Electrotechnical Sales	714-546-930
CA	Sunnyvale, Ward Elctrn. Packaging Sls.	408-730-099
CO	Denver, Donohue Sls. Co.	303-455-171
CT	Wallingford, Marathon Sls. Ltd.	
FL	Kissimmee, Southeastern First Rep	305-846-130
FL	Melbourne, Southeastern First Rep	305-784-472

FL	North Palm Beach, Southeastern First Rep	305-844-3758
GA	Atlanta, Southeastern First Rep	404-393-2073
L	Chicago, Electro-Mech Sls. Co.	312-777-0554
N	Columbus, Tech. Reps.	812-376-9226
A	Des Moines, Beams Co.	515-255-1148
KS	Shawnee Mission, Beams Co.	913-631-0300
MA	Hopkinton, Marathon Sls. Ltd.	617-435-6984
MI	Union Lake, Randall Sales Inc.	313-363-7129
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
MO	St. Louis, Beams Co.	314-569-1069
NJ	Cherry Hill, Ned Krouse Assocs.	609-424-3543
NJ	Nutley, Falk-Baker Assocs.	201-661-2430
NY	E. Syracuse, Nycom	315-437-8343
NC	Raleigh, RepCo Mktg.	919-787-7887
OH	Akron, Imtech	216-666-1185
OH	Dayton, Imtech	513-278-6507
OR	Portland, Earl & Brown Co.	503-245-2283
PA	Pittsburgh, Imtech	412-344-0844
TN	Greeneville, Dimark	615-639-0113
TX	Dallas, Allied Comps.	214-238-0408
TX	Houston, Allied Comps.	713-988-1600
TX	Hurst, Allied Comps.	817-589-0456
TX	Round Rock, Allied Comps.	512-244-1166
UT	Salt Lake City, Meridian Mktg.	801-968-4177
WA	Bellevue, Panoco	206-454-2503

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CA	Redondo Beach, Mark Elctrns.	213-772-2141
CA	San Jose, Besco Industries	408-946-8980
CA	Santa Ana, Compu Serv	714-546-5140
CA	Santa Ana, CR Elctrns.	714-556-2040
CO	Arvada, Denver Wintronics	303-431-7161
CO	Denver, CSID	303-292-9594
CT	Bethel, Heilind Elctrns.	203-797-8600
FL	Pompano Beach, Components South	305-971-0350
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L	Franklin Park, Besco Industries	312-451-1230
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N	Indianapolis, Graham Elctrn.	317-634-8202
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MA	Lynn, Land Elctrns.	617-592-2220
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NH	Hudson, Heilind Elctrns.	603-883-9536
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NY	Buffalo, Summit Distributors	716-884-3450
NY	Port Washington, Connector Concepts	516-883-3800
NY	Rochester, Summit Distributors	716-334-8110
NC	Winston-Salem, Kirkman Elctrns. Inc.	919-722-9131
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TX	Dallas, Heilind Elctrns.	214-351-2058
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Local Sales Offices & Reps

AZ	Phoenix, Coker Assoc.	602-277-7148
AR	Fort Smith, Electro-Related Prod.	501-452-4130
CA	Redwood City, National Wire & Cable	415-365-1952
CA	San Diego, McKinley Elctrn. Sls.	619-271-7221
CA	Santa Clara, Ross Mktg.	408-988-8111
CO	Arvada, Arrowhead Sls.	303-423-5556
FL	Altamonte Springs, Gugel-Tuttle Assocs.	305-788-0845
FL	Orlando, National Wire & Cable	305-898-3801
GA	Lawrenceville, Tek-Rep Mktg.	404-963-1600
HI	Hilo, Kirco Corp.	808-959-3888
L	Northfield, H. S. Tollaksen	312-441-6644
KS	Baxter Springs, P.M.I. Sls.	316-856-2133
MD	Glen Burnie, Faion Lott	301-744-4611
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N.C.E., Mail Station 331, 9925 Lyndale Ave. S., Bloomington, MN 55420, Tel: 612-890-1360; *Sls. Mgr.:* Hortense M. Rowe .... 3•1420, 1421

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NCR CORP., Terminal Sys Div., Babcock Hall, Terrace Hill, Ithaca, NY 14850, Tel: 607-273-5310

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NE	Lincoln, Jim Otis & Assocs.	402-474-2390
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NY	Rochester, L-Tron Assocs. Corp.	716-436-4410
OH	Cincinnati, Anderson-Bolds	513-528-5680
OH	Cleveland, Anderson-Bolds	216-229-4700
PA	Wayne, Wistex, Inc.	215-687-5930
UT	Sandy, Priz Co.	801-571-7311
WI	Brookfield, BII, Inc.	414-783-5252

Local Distributors

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KY	Louisville, Main Elec.	502-587-6511
MN	St. Paul, Century Controls	612-222-7355
NC	Charlotte, General Elctrn. of Charlotte	704-568-6793
SC	Charleston, Flow Control	803-722-0176
TX	Houston, Quality Instr. Lab	713-524-0528

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IL	Northbrook, Steffey Mktg.	312-480-3575
IN	Fort Wayne, N. Browning & Co.	219-432-9738
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NY	Baldwinsville, Darmstedter Assocs.	315-638-1261
NC	Raleigh, Millar Elctrns.	919-787-9564
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TX	Dallas, Dimenson Mktg.	214-348-9657
WA	Seattle, Earl & Brown Co.	206-284-1121

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Local Sales Offices & Reps

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Local Sales Offices & Reps

AZ	Phoenix, PLS Assocs.	602-246-6614
CA	Campbell, Luscombe Engrg. Co.	408-370-2020
CA	Pasadena, Luscombe Engrg. Co.	213-684-2000
CO	Englewood, PLS Assocs.	303-773-1218
FL	Orlando, Gra-Mar	305-894-3351
IL	Arlington Hgts., Brainard-Wilson	312-437-2700
IN	Carmel, Brainard-Wilson	317-844-2800
KS	De Soto, Midtec Assocs.	913-441-6565
LA	Baton Rouge, Alpha Engrg.	504-769-3740
MD	Perry Hall, Electra-Tech	301-256-2723
MA	Bedford, Eastronix, Inc.	617-275-5775
MI	Farmington, Amtech Reps.	313-474-8300
MN	Eden Prairie, Rockmore Sls. Corp.	612-941-1390
MO	Florissant, Midtec Assocs.	314-837-5200
NJ	Parlin, JMR Sls.	201-727-5335
NM	Albuquerque, PLS Assocs.	505-345-5501
NY	East Setauket, JMR Sls., Inc.	516-689-8871
NY	Skaneateles, ADN Entprs.	315-685-8991
OH	Centerville, Dolfuss-Root & Co.	513-433-6776
OH	Strongsville, Dolfuss-Root & Co.	216-238-0300
PA	Bridgeville, Dolfuss-Root & Co.	412-221-4420
PA	King of Prussia, J. E. Cuesta & Co., Inc.	215-265-5800
TX	Addison, Associated Dynamics, Inc.	214-387-3800
TX	Sugarland, Alpha Engrg.	713-491-4505
UT	Midvale, PLS Assocs.	801-566-0671
VA	Dumfries, Electra-Tech	703-670-6962
WI	Menomonee Falls, Brainard-Wilson	414-255-3400

Local Distributors

AL	Birmingham, Brownell-Electro, Inc.	205-322-3374
AL	Muscle Schoals, Jones Elctrns.	205-383-1241
AZ	Phoenix, Metermaster	602-437-1425
AZ	Scottsdale, Beta Distrs.	602-947-7841
CA	Costa Mesa, FLW, Inc	714-751-7512
CA	Hayward, FLW, Inc.	415-487-2222
CA	Los Angeles, EIL Instrs., Inc.	213-685-7020
CA	Los Angeles, Metermaster	213-685-4340
CA	Van Nuys, FLW, Inc.	818-989-5238
CO	Englewood, Beta Distrs.	303-779-4494
CT	Middletown, EIL Instrs., Inc.	203-346-6646
FL	Miami, Brownell Electro, Inc.	305-591-3215
GA	Atlanta (Hapeville), Brownell Electro	404-762-5181
GA	Marietta, FLW, S.E.	404-424-1731
IL	Chicago, Data Elctrns. Co.	312-283-0300
IL	Elk Grove Village, Metermaster	312-593-8650
IN	Indianapolis, Data Elctrns.	317-359-5368
IA	Davenport, Universal Precision Instr.	319-326-5757
KS	Kansas City, Kornfeld Thorp	913-321-7070
KY	Louisville, EIL Instrs.	502-454-3420
LA	Baton Rouge, Beta Distrs.	504-924-6826
MD	Gaithersburg, Pioneer Instrs.	301-921-0660
MD	Sparks, EIL Instr.	301-771-4800
MA	Waltham, Calibron Instrs.	617-894-6440
MI	Livonia, Pioneer Instr.	313-525-1800
MI	Madison Heights, NIDI	313-588-2300
MN	Plymouth, Data Elctrns.	612-559-1434
MO	St. Louis, Universal Precision Inst.	314-394-4693
NJ	North Caldwell, Hosica Labs.	201-256-7724
NM	Albuquerque, Beta Distrs.	505-299-7658
NY	Buffalo, Robert F. Lamb Co.	716-874-4900
NY	Clarence, Trott Elctrns.	716-634-8500
NY	Hauppauge, EIL Instrs., Inc.	516-231-6333
NY	NYC, Brownell Electro	212-691-1171
NY	Rochester, Robert F. Lamb Co.	716-323-1250
NC	Concord, FLW Southeast	704-782-6615
NC	Raleigh, Brownell Electro	919-876-6524
OH	Cleveland, Weschler Elec.	216-238-2550
OH	Cleveland, Metermaster	216-651-4100
OH	Cleveland, Pioneer Instr.	216-587-3600
OH	Dayton, EIL Instrs., Inc.	513-435-2134
OH	Dayton, Pioneer Instr.	513-236-9900
OH	Dayton, NIDI	513-434-7500
OK	Tulsa, Inotek	918-622-8570
OR	Portland, Westcon	503-283-0132
PA	Pittsburgh, Pioneer Instr.	412-782-2300
TN	Memphis, FLW Southeast	901-345-3563
TN	Nashville, Brownell Electro, Inc.	615-889-8230
TX	Austin, Beta Distrs.	512-452-0199
TX	Dallas, Dallas Meter Tek	214-349-6044
TX	Dallas, Inotek	214-243-7000
TX	Ft. Worth, Inotek	817-831-2126
TX	Garland, Metermaster	214-271-5671
TX	Houston, American Analog	713-941-7265
TX	Houston, Inotek	713-688-7000
TX	Houston, Beta Distrs.	713-688-9971
TX	Richardson, Beta Distrs.	214-231-2573
UT	Murray, Beta Distrs.	801-262-3000
VA	Richmond, Metermetrics	804-275-1431
WA	Seattle, EIL Instrs., Inc.	206-762-0880
WI	Milwaukee, E-M Instrs.	414-272-7799

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N.Y. TESTING LABS., INC., 81 Urban Ave., Westbury, NY 11590, Tel: 516-334-7770, TWX: 212-297-1449; Empl.: 50

NIC COMPONENTS CORP., 238 Rte. 109, Farmingdale, NY 11735, Tel: 516-694-0060, 800-645-9333, Telex: 221-228; Empl.: 50; *Sls. Mgr.:* Ronald J. Travis; *Dist. Mgr.:* Nancy Lamendola .... **1A**•1152, 1153, 1906

Local Sales Offices & Reps

AL	Huntsville, Novus Group	205-881-2207
AZ	Phoenix, Sterling Elctrns.	602-258-4531
AZ	Phoenix, Tech Sls.	602-246-1614
AR	Little Rock, Carlton Bates	501-562-9100
CA	Fullerton, Pyramid Elctrns.	714-773-0781
CA	Mission Viejo, Par Mktg.	714-768-6021
CA	Redwood City, James S. Heaton Co.	415-367-9000
CA	San Diego, Ryno	619-292-6022
CA	San Diego, Bestronic South	619-452-5500
CA	Santa Ana, Projections Unlimited	714-641-1472
CA	Sun Valley, QC Comps.	213-768-6111
CT	Bloomfield, SLR Assocs.	203-243-9343
CT	Danbury, Pilgrim Elctrns.	203-792-7274
FL	Clearwater, Perrott Assocs.	813-443-5214
FL	Largo, Graham Elctrns.	813-541-4434
IL	Champaign, Klaus Radio	217-356-1896
IL	Lisle, W. G. Controls	312-963-5954
IL	Melrose Park, Belford Elctrns,	312-865-2400
IN	Fort Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Elctrn. Rep. Inc.	317-894-1414
IA	Cedar Rapids, Deeco	319-365-7551
KS	Shawnee Mission, K&M Sls.	913-262-1444
KY	Louisville, Peerless	502-637-7674
LA	Harvey, AFG	504-368-9696
MD	Baltimore, Burgin-Kreh Assocs.	301-265-8500
MD	Rockville, MS Elctrns.	301-340-6400
MA	Bedford, SLR Assocs.	617-275-5550
MA	Burlington, TLC	617-273-0140
MI	Detroit, Burcaw Co.	313-533-7700
MI	Grand Rapids, SF Elctrns.	616-459-0216
MI	Livonia, Reptron	313-525-2700
MN	Bloomington, NWR	612-854-7329
MN	Golden Valley, Ambassador Ino Mktg.	612-542-8437
NH	Londonderry, S Squared	603-434-2033
NJ	Perth Amboy, Sterling	201-442-8000
NJ	Union, Cougar	201-687-7722
NY	Hauppauge, Belmont Elctrns.	516-273-1333
NY	Jericho, J-Square Mktg. Inc.	516-935-3200
NY	Suffern, M&M Assoc.	914-368-0583
NC	Greensboro, United Sls.	919-674-9849
OH	Cincinnati, Stegman Blaine Mktg. Inc.	513-729-1969
OH	Cincinnati, Graham Elctrns.	513-772-1661
OH	Dayton, Dulian	513-445-0424
OH	Vandalia, Stegman Blaine Mktg. Inc.	513-890-7975
OR	Beaverton, ACACIA	503-646-3377
PA	Philadelphia, Paragon Sls.	215-563-7060
TN	Nashville, Graham	615-242-2682
TX	Dallas, Heiland Elctrns.	214-351-2050
TX	Dallas, Design Mktg.	214-680-9767
TX	Hurst, Design Mktg.	817-268-2004
UT	S. Jordan, Mac III	801-566-3781
EXP	New York Farmingdale, NIC Comps. Corp.	516-694-0060

NICHICON (AMERICA) CORP., 927 E. State Pkwy., Schaumburg, IL 60195, Tel: 312-843-7500, Telex: 20-6577; FSC No.: 312-843-2798; *Sls. Mgr.:* Russ Edwards; *Dist. Mgr.:* Robert Poteracki .... **1A**•1154-1159

Local Sales Offices & Reps

AL	Huntsville, Intrep Assocs.	205-533-1730
AZ	Phoenix, Compass Mktg.	602-266-5400
CA	Huntington Bch., J. J. Riley & Assoc.	714-841-1411
CA	Santa Clara, I2 Inc.	408-988-3400
CO	Denver, West Inc.	303-692-0131
CT	Stratford, Gerald Rosen Co.	203-375-5456
FL	Clearwater, Delmac Sls.	813-447-5192
FL	Miami, Delmac Sls.	305-726-1330
FL	Orlando, Delmac Sls.	305-898-4688
GA	Norcross, Intrep Assocs.	404-449-8680
IL	Chicago, IRI	312-647-7755
IN	Indianapolis, Jack Harvey Assoc.	317-453-4260
MA	Framingham, Gerald Rosen Co.	617-879-5505
MI	Gross Pointe, Greiner Assoc.	313-499-0188
MN	Minneapolis, R. W. Marshall	612-929-0457
MO	Earth City, Centech	314-291-4230
MO	Raytown, Centech	816-358-8100
NJ	Springfield, Radix Inc.	201-467-4970
NM	Albuquerque, Compass Mktg.	505-292-7377
NY	Syracuse, T-Squared Elctrns.	315-463-8592
NY	Victor, T-Squared Elctrns.	716-924-9101
NC	Raleigh, Zucker Assoc.	919-782-8433
OH	Columbus, KW Elctrn. Sls.	614-888-0483
OH	Dayton, KW Elctrn. Sls.	513-890-2150
OH	Shaker Hgts., KW Elctrn. Sls.	216-491-9177
PA	Allison Park, KW Elctrn. Sls.	412-287-4300
PA	Huntingdon Valley, Omega Elctrns.	215-947-4135
TX	Austin, Southern States Mktg.	512-452-9459
TX	Dallas, Southern States Mktg.	214-238-7500
TX	Houston, Southern States Mktg.	713-558-4900
WA	Bellevue, Venture Elctrns.	206-454-4594
WI	Milwaukee, IRI	414-259-0965

Local Distributors

AL	Huntsville, Hall Mark Elctrns.	205-837-8700
AZ	Phoenix, TTI	602-966-1616
AZ	Phoenix, Hall-Mark	602-437-1200
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tempe, Shelley Elctrns.	602-894-2058
CA	Chatsworth, Shelley Elctrns.	213-998-3333
CA	Chatsworth, Integrated Elctrns.	213-998-2200
CA	Fullerton, Pyramid Elctrns.	714-773-0781
CA	Irvine, Ryno Elctrns.	714-261-2500
CA	Irvine, Integrated Elctrns.	714-660-1055
CA	Irvine, Kelex Elctrns.	714-863-1230
CA	Sacramento, Integrated Elctrns.	916-424-4297
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Diego, Hall-Mark	619-268-1201
CA	San Diego, Ryno Elctrns.	619-252-6022
CA	San Jose, Shelley Elctrns.	408-942-9111
CA	San Jose, Eric Electronics	408-262-1111
CA	San Jose, Integrated Electronics	408-287-6488
CA	Sunnyvale, Hall-Mark	408-773-9990
CO	Boulder, Shelley Elctrns.	303-442-2718
CO	Denver, Integrated Elctrns.	303-292-6121
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CT	Hamden, Almo	203-288-6556
CT	Wallingford, Cronin Elctrns.	203-265-3134
CT	Wallingford, Sager Elctrns.	203-265-4600
FL	Clearwater, Hall-Mark	813-530-4543

	Ft. Lauderdale, Hall-Mark	305-971-9280
	Orlando, Hall Mark Elctrns.	305-855-4020
	Orlando, T.T.I 2	305-859-1000
	Tampa, Reptron	813-855-4656
A	Norcross, Hall-Mark	404-447-8000
A	Norcross, Spectrum	404-448-1516
	Arlington Hts., Reptron	312-593-7070
	Bensenville, Hall Mark Elctrns.	312-860-3800
	Chicago, Century Elctrns.	312-777-9700
	Elkgrove, GBL/Goold	312-593-3220
	Hoffman, Estates Intercomp	312-843-2040
	Ft. Wayne, Graham Elctrns.	619-423-3422
	Indianapolis, Advent Elctrn.	317-872-4910
	Cedar Rapids, Deeco	319-365-7551
S	Lenexa, Hall Mark Elctrns.	913-888-4747
D	Baltimore, Hall Mark Elctrns.	301-796-9300
D	Rockville, Almo Elctrn.	301-251-1161
A	Canton, Almo	617-821-1450
A	Hingham, Saager Elctrn.	617-749-6700
A	Needham, Cronin Elctrn.	617-449-5000
A	Woburn, T.T.I.	617-938-8800
A	Woburn, Hall-Mark Electr.	617-935-9777
I	Livonia, Reptron	313-525-2700
N	Bloomington, Hall Mark Elctrns.	612-854-3223
N	Minneapolis, Joel	612-545-5669
O	Earth City, Hall Mark Elctrns.	314-291-5350
J	Cherry Hill, Hall Mark Elctrns.	609-424-7300
J	Fairfield, Hall-Mark	201-575-4415
J	Perth Amboy, Sterling Elctrns.	201-442-8000
Y	Buffalo, Summit	716-887-2800
Y	Hauppauge, Fairmont	516-231-3313
Y	Hauppauge, Jaco Elctrns.	516-273-5500
Y	Rochester, Masline	716-546-5373
Y	Rome, Rome Elctrns.	800-962-2153
Y	Ronkonkoma, Hall-Mark	516-737-0600
C	Charlotte, Dixie	704-377-5413
C	Raleigh, Hall Mark Elctrns.	919-872-0712
C	Raleigh, Resco/Raleigh	919-781-5700
C	Winston-Salem, Dixie	919-724-5961
H	Cincinnati, Hall-Mark	513-563-5980
H	Dayton, Pioneer	513-236-9900
H	Englewood, Argent Inds.	513-836-8633
H	Solon, Hall-Mark	216-349-4632
H	Solon, Repco	216-248-8900
H	Westerville, Hall Mark Elctrns.	614-891-4555
K	Tulsa, Hall Mark Elctrns.	918-665-3200
R	Lake Oswego, Bell Inds.	503-241-4115
A	Harrisburg, Cumberland	717-232-5999
A	Harrisburg, Advacom	717-545-5674
A	McKean, Advacom	814-476-7774
A	Philadelphia, Almo	215-698-4000
C	Columbia, Dixie	803-779-5332
N	Knoxville, Dixie	615-938-4131
	Austin, Hall-Mark	512-258-8848
	Dallas, Captronics	214-340-3592
	Dallas, Hall Mark Elctrns.	214-341-1147
	Ft Worth, T.T.I 2	817-831-0441
	Houston, Hall-Mark	713-781-6100
A	Bellevue, Integrated Electr.	206-455-2727
A	Bellevue, Bell Inds.	206-747-1515
I	Oak Creek, Hall Mark Elctrns.	414-761-3000

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ICOLET INSTR. CORP., Oscilloscope Div., 5225 Verona Rd., Madison, WI 53711, Tel: 608-271-3333, TWX: 910-286-2737; Empl.: 525; *Sls. Mgr.:* Dean Dawson

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Z	Phoenix, Axtec Entprs.	602-944-9185
A	Los Angeles, Nicolet Instr.	714-549-7611
A	San Diego, Nicolet Instr.	619-454-6274
A	San Jose, Nicolet Instr.	408-946-3310
O	Littleton, Aztec Entprs.	303-795-0250
	Valrico, Nicolet Instr.	813-685-0444
A	Tucker, Nicolet Instr.	404-491-0127
	Chicago, Nicolet Instr.	312-843-2905
D	Lanham, Nicolet Instr.	301-459-2940
A	Burlington, Nicolet Instr.	617-273-4404
I	Brighton, Nicolet Instrument	313-229-4655
N	Minneapolis, Nicolet Instr.	612-933-0048
O	St. Louis, Nicolet Instr.	314-821-2868
J	Cherry Hill, Nicolet Instr.	609-665-5100
J	Cranford, Nicolet Instr.	201-276-6677
M	Albuquerque, Aztec Entprs.	505-262-1688
Y	Schenectady, Nicolet Instr.	518-346-2503
C	Charlotte, Nicolet Instr. Corp.	704-364-0240
OH	Chardon, Nicolet Instr.	216-951-8249
OH	Hamilton, NIC Inst.	513-868-3611
PA	Beaver Falls, Nicolet Instrument	412-847-0100
TX	Plano, Nicolet Instr.	214-422-4014
UT	Salt Lake City, Aztec Entprs.	801-621-1655
WA	Edmonds, Nicolet Instr. Corp.	206-771-2400
WI	Madison, Nicolet Instr.	608-273-5008

NICOLET PARATRONICS, 201 Fourier Ave., Fremont, CA 94539, Tel: 415-490-8300, TWX: 910-381-7030; FSC No.: 6625; Empl.: 95; *Sls. Mgr.:* Ernie Marsh

Local Sales Offices & Reps

AL	Huntsville, Magaro & Assocs.	205-882-0827
AZ	Phoenix, Zeus	602-263-6022
CA	Carson, Amasco	213-516-8561
CA	Sunnyvale, Amasco	408-733-8690
CO	Denver, Zeus	303-321-4246
CT	Danbury, Martindale Assoc.	203-748-2253
FL	Orlando, Datarep, Inc.	305-843-5224
FL	Tampa, Datarep, Inc.	813-962-7555
GA	Atlanta, Magaro & Assocs.	404-451-8862
IL	Downers Grove, Charles Menshek	312-964-8700
IN	Carmel, Carter, McCormic, & Peirce, Inc.	317-844-4175
MD	Burtonsville, Eastern Instr.	301-384-8500
MA	North Reading, Martindale Assoc.	617-942-0514
MI	Farmington, Carter, McCormic, & Peirce, Inc.	313-477-7700
MO	Kansas City, Eir Company	816-452-7030
MO	Leasburg, Eir Company	314-895-4100
NJ	Ridgefield, Rical Assocs.	201-945-5250
NM	Albuquerque, Zeus Elctrns.	505-256-9831
NY	Earlton, Martindale-Paul, Inc.	518-634-7617
NY	Rochester, Martindale-Paul, Inc.	716-288-8611
NY	Syracuse, Martindale-Paul, Inc.	315-432-1141
NC	Greensboro, Magaro & Assocs.	919-294-4783
OH	Englewood, Carter, McCormic & Peirce, Inc.	513-836-0951
OH	Fairview Park, Carter, McCormic, & Peirce, Inc.	216-779-1700
PA	Jenkintown, Monument Techn. Assoc.	215-884-3737
PA	Monroeville, Carter, McCormic & Peirce, Inc.	412-372-4415
TX	Austin, Testech	512-327-7033
TX	Houston, Testech	713-956-0837
TX	Richardson, Testech	214-644-5010
UT	Salt Lake City, Zeus Elctrns.	801-534-0500
VT	Jericho, Martindale Assocs.	802-899-2329
WA	Edmond, Nicolet Instrument Corp.	206-771-2400

NISSEI SANGYO AMERICA, LTD., 1701 Golf Rd., Ste. 401, Rolling Meadows, IL 60008, Tel: 312-981-8989, Telex: 28-0547, TWX: 910-233-5865; *Sls. Mgr.:* Y. Hamada

NITRON, 10420 Bubb Rd., Cupertino, CA 95014, Tel: 408-255-7550, TWX: 910-338-0222; Empl.: 150; *Sls. Mgr.:* R. Gardner

NITTO DENKO AMERICA, INC., 27 Seaview Blvd., Port Washington, NY 11050, Tel: 516-484-9700, Telex: 96-1386; *Sls. Mgr.:* Steven E. Schoenstadt

NJE CORPORATION, Box 50, Culver Rd., Dayton, NJ 08810, Tel: 201-329-4611, TWX: 710-480-5674; FSC No.: 98380; Empl.: 125; *Sls. Mgr.:* John M. Slavik 3-1661

Local Sales Offices & Reps

AZ	Phoenix, Sigma Engrg. Sls.	602-241-1334
CA	Garden Grove, Elsco Elctrns.	714-891-4621
CO	Englewood, F. G. Mktg.	303-795-9176
CT	Ansonia, R. H. Sturdy Co.	203-734-2186
ID	Boise, Underwood Hanify Co.	208-343-0964
IA	Davenport, Ensco Rep	319-386-6600
KS	Overland Park, Ensco Rep	913-381-7557
KS	Wichita, Ensco Rep	316-683-1070
MA	Salisbury, R. H. Sturdy Co.	617-465-1505
MA	Wellesley Hills, R. H. Sturdy Co.	617-235-2330
MI	Brighton, A. P. Assocs.	313-229-6550
MN	Edina, Grayden & Flemmer	612-941-1120
MO	Maryland Heights, Ensco Rep	314-423-3935
NY	Clark Mills, KLM Garner	315-853-6126
NY	N. Syracuse, KLM Garner	315-458-6214
NY	Pittsford, KLM Garner	716-381-8350
OH	Englewood, Allen Nace Co.	513-836-0931
OH	Richfield, Allen Nace Co.	216-659-7178
PA	Glenshaw, Allen Nace Co.	412-487-1217
WA	Bellevue, Underwood Hanify Co.	206-451-8223
WA	Vancouver, Underwood Hanify Co.	503-641-4463
EXP	NJ, Dayton, NJE Corp.	201-329-4611

nkk switches OF AMERICA INC.

NKK SWITCHES OF AMERICA, INC., 14415 N. Scottsdale Rd., Ste. 600, Scottsdale, AZ 85260, Tel: 602-991-0942, TWX: 910-950-1167; FSC No.: FSCN 63426; *Sls. Mgr.:* Samuel L. Porcelli; *Dist. Mgr.:* Samuel L. Porcelli 1B-1723-1731

Local Sales Offices & Reps

AL	Huntsville, Over & Over	205-837-7105
AZ	Scottsdale, Mahaffey & Assocs.	602-991-9790
CA	Granada Hills, C & W Component Sls.	213-368-4032
CA	Mountain View, Caltron Components Corp.	415-964-3244
CA	San Diego, McKinley Elctrn. Sls.	619-271-7221
CO	Parker, TMA of Colorado	303-841-3435
FL	Orlando, Over & Over, Florida, Inc.	305-857-4057
GA	Norcross, Over & Over	404-449-6205
IL	Rolling Meadows, KMA Sales	312-398-5300
IN	Fort Wayne, Frank E. Kahsar Sls.	219-422-0311
IN	Indianapolis, Frank E. Kahsar Sls.	317-888-8396
KS	Merriam, Midwest Tech. Sls.	913-236-8557
MA	Needham Hgts., Newscott Co.	617-444-1923
MN	Minnetonka, SAI Mktg. Corp.	612-935-0777
MS	Jackson, Welch & Doby, Inc.	601-932-5534
NY	De Ruyter, NET Sales Co.	315-662-7996
NY	Fairport, NET Sales Co.	716-467-4538
NY	Oceanside, Bittan	516-678-6222
NY	Troy, NET Sales Co.	716-467-4538
NY	Webster, NET Sales Co.	716-467-4538
NC	Charlotte, Over & Over	704-527-3070
NC	Raleigh, Over & Over	919-872-2262
OH	Cincinnati, Frank E. Kahsar Sls.	513-922-3133
OH	Hudson, Frank E. Kahsar Sls.	216-650-1089
OR	Portland, James J. Backer, Inc.	503-297-8744
OR	Salem, James J. Backer, Inc.	503-362-0717
PA	West Conshohocken, Eastern Comps. Sls.	215-825-8610
RI	Stewartstown, Eastern Comps. Sls.	301-323-7104
TX	Dallas, Rem Air Components Corp.	214-234-1069
UT	Salt Lake City, TMA of Colorado	801-483-1009
VA	Manassas, Eastern Comps. Sls.	703-471-1025
WA	Seattle, James J. Backer, Inc.	206-285-1300
WI	Milwaukee, KMA Sales	414-259-1771

Local Distributors

AZ	Phoenix, Dalis Elctrn. Supply	602-275-2885
AZ	Tempe, Powell Elctrns.	602-438-1505
CA	Burlingame, Rose Electronic Dist. Co.	415-348-2740
CA	San Diego, Shanks & Wright	619-239-0176
CA	San Dimas, Mrs. Switch, Inc.	714-599-6639
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	San Jose, Powell Elctrns.	408-943-9020
CA	Torrance, Cypress Elctrns.	213-533-6005
CA	Tustin, Western Switches & Controls	714-731-4333
CO	Arvada, Denver Wintronics	303-431-7161
CO	Aurora, Jet Elctrns. Supp. Co.	303-364-1000
CT	Danbury, Pilgrim Elctrns.	203-792-7274
CT	Stamford, Bond Elctrns.	203-348-2663
FL	Miami, Elctrn. Equip. Co.	305-871-3500
FL	West Palm Beach, Nurmi Elctrn. Supply	305-686-8553
IL	Wheeling, Hawk Elctrns.	312-459-4030
IN	Fort Wayne, Graham Elctrns. Supply	219-423-3422
IN	Indianapolis, Graham Elctrns. Supply	317-634-8202
IN	Indianapolis, MAR Elctrn.	317-875-4510
KS	Wichita, Radio, Inc.	316-264-2798
KS	Wichita, Air Technics	316-267-2849
MD	Kensington, Marine Air Supply Co.	301-949-9560
MA	Boston, Controller Svc. & Sls.	617-269-1300
MA	Woburn, EPC, Inc.	617-935-0400
MI	St. Clair Shores, Spemco Switches	313-771-2700
MN	Minneapolis, The Joel Co.	612-545-5669
MO	St. Louis, Franklin Elctrns.	314-993-5333
NJ	Englewood, Powell	201-894-0800
NY	Hempstead, Elctrn. Equip. Co.	516-538-5510
NY	Mt. Vernon, Kin-Tronics	914-668-9882
NY	Oceanside, Tritech Elctrn. Distr.	516-678-6222
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Rome, Rome Elctrns.	315-337-5400
NY	Troy, Trojan Elctrn. Supp. Co.	518-274-4481
NC	Cary, Powell Elctrns.	919-467-1212
OH	Cincinnati, Schuster Elec. Co.	513-489-1400
OH	Twinsburg, Schuster Elec. Co.	216-425-8134
OK	Oklahoma City, Radio, Inc.	405-789-0741
OK	Tulsa, Radio, Inc.	918-587-9123
OR	Lake Oswego, Rose Elctrn. Distr. Co.	503-635-8823
PA	Philadelphia, Powell Elctrns.	215-365-1900
PA	Wayne, Peak Elctrns. Corp.	215-293-9000

TN	Chattanooga, Techni-Tronics	615-875-5449
TX	Austin, Southwest Elctrns.	512-837-8971
TX	Dallas, Wallace Elctrns. Co.	214-340-0400
TX	Fort Worth, Allied Elctrns.	817-336-5401
TX	Houston, Powerline Prods.	713-578-3222
TX	Richardson, Southwest Elctrns.	214-234-3050
TX	Stafford, Southwest Elctrns.	713-491-4900
WA	Seattle, Priebe Elctrns.	206-682-8242
WI	Hartland, GW Elctrns.	414-367-6003

NKR PRECISION MFG., Rte. 17M, Box 333, Harriman, NY 10926, Tel: 914-782-8562; Empl.: 17

NL BEARINGS/NL INDUSTRIES INC., PO Box 934, Toledo, OH 43694, Tel: 419-381-3100; Empl.: 1000; *Sls. Mgr.:* James Doherty; *Dist. Mgr.:* B. Sexauer

NMB CORP., MOTOR DIV., 9730 Independence Ave., Chatsworth, CA 91311, Tel: 213-709-1555

NOBEX DIV., Griffith Plastics Corp., 1027 California Dr., Box 4365, Burlingame, CA 94010, Tel: 415-342-8170, TWX: 910-374-2840; FSC No.: 32767; Empl.: 35

NOBLE U.S.A., INC., 151 Stanley St., Elk Grove Vllg., IL 60007, Tel: 312-364-6038, Telex: 206745; FSC No.: 1-3123646045; *Sls. Mgr.:* Vyto Omilijonas; *Dist. Mgr.:* Vyto Omilijonas

NOLATRON, P.O. Box 4042, Harrisburg, PA 17111, Tel: 717-564-3398; Empl.: 10

NOLL, J. A., CO., P.O. Box 447, Cumberland, MD 21502, Tel: 301-777-7887; *Sls. Mgr.:* P. Carson; *Dist. Mgr.:* P. Carson

NON-LINEAR SYSTEMS/DIV. OF KAYPRO CORP., 533 Stevens Ave., Solana Bch., CA 92075, Tel: 619-481-3900, TWX: 910-322-1132; Empl.: 55; *Sls. Mgr.:* Ben W. Fisher; *Dist. Mgr.:* Jeanne Simmons

Local Sales Offices & Reps

GA	Norcross, Hollingsworth & Still	404-447-1700
MA	N. Scituate, W. A. Hendrickson Co.	617-545-0652
OH	Dayton, Shamrock Elctrn. Sls.	513-258-1227
PA	Abington, Mid-Atlantic Sls.	215-657-2815
TX	Dallas, Berthold Sls.	214-328-0067

Local Distributors

AZ	Phoenix, Metermaster	602-273-7331
CA	Costa Mesa, Marvac Elctrns.	714-540-3280
CA	Garden Grove, Allied Electronics	714-554-0731
CA	Hayward, Allied Electronics	415-487-5250
CA	Irvine, Meter Craft	714-979-1420
CA	Los Angeles, E.I.L. Instrs.	213-685-7020
CA	Los Angeles, Metermaster	213-685-4340
CA	Oakland, Western Electro. Mech.	415-452-1936
CA	Palo Alto, Metermaster	415-968-0313
CA	San Diego, Metermaster	619-560-4841
CA	San Jose, Allied Electronics	408-727-1690
CA	Santa Clara, Eil Instruments	408-272-0396
FL	Ft. Lauderdale, Allied Electronics	305-486-0550
FL	Miami, Brownell Electro	305-591-3215
FL	Orlando, Brownell Electro	305-843-6770
FL	Palm City, Eil Instruments	305-725-8300
GA	Atlanta, Allied Electronics	404-237-3366
GA	Atlanta, Metermaster	404-446-0166
GA	Atlanta, Brownell Electro	404-762-5181
IL	Bridgeview, Eil Instruments	312-430-2292
IL	Elgin, Allied Elctrns.	312-697-8200
IL	Elk Grove, Metermaster	312-593-8650
IL	Niles, Joseph Elctrns.	312-297-4200
IL	Peoria, Klaus Radio	309-691-4840
IN	Indianapolis, Eil Instruments	317-545-1373
KY	Louisville, Eil Instruments	502-637-7677
LA	Harahan, Indus. Instru. Works	504-733-8355
LA	Shreveport, Indl. Elctrns. Supp.	318-222-9459
MD	Elkridge, Sunshine Sci. Instrs.	301-796-5600
MD	Marlow Heights, Allied Electronics	301-423-0161
MD	Rockville, Capitol Radio Whlsrs.	301-881-2270
MD	Sparks, E. I. L. Instrs	301-252-1260
MA	Boston, Allied Electronics	617-942-0150
MA	Burlington, E.I.L. Instrs.	617-272-9450
MA	Hingham, Sager Electrical Supply	617-542-2281
MI	Ferndale, Ram Meter	313-547-1000
MN	Minneapolis, Instrumentation Serv.	612-544-8916
MO	Kansas City, Electronic Supply	816-931-0250
MO	St. Louis, Eil Instruments	317-545-1373
NV	Las Vegas, Hurley Electronics	702-384-5666
NJ	N. Caldwell, Hosica Labs	201-256-7724
NJ	So. Plainfield, Brownell Electro	201-753-4600
NM	Albuquerque, Electronic Parks	505-293-6161
NY	Albany, Edwin E. Taylor	518-438-7811
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Hauppauge, Eil Instruments	516-231-6333
NY	Mineola, Allied Electronics	516-248-2360
NY	New York, Advance Electronics	212-687-2224
NY	Port Chester, Wise Electronics	914-939-3940
NY	Rochester, Eil Instruments	716-424-5750
NY	Rochester, Simcona Elctrns.	716-328-3230
NC	Charlotte, Brownell Electro	704-597-1270
NC	Raleigh, Brownell Electro	919-876-6524
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cleveland, Metermaster	216-651-4100
OH	Columbus, Hughes Peters	614-294-5351
OH	Dayton, Eil Instruments	513-435-2134
OH	Wickliffe, Gateway-Megatech	216-944-8565
OH	Willoughby, Allied Electronics	216-951-0908
OK	Oklahoma City, Trice	405-524-4411
OK	Tulsa, Trice	918-585-5718
OK	Tulsa, Radio Inc.	918-587-9123
OR	Portland, United Radio Supply	503-434-2171
PA	Bala Cynwyd, Allied Electronics	215-667-6940
PA	Philadelphia, Sunshine Sci. Instrs.	215-673-5600
PA	Pittsburgh, CAM/RPC	412-782-3770
PA	Pittsburgh, Eil Instruments	412-731-5230
PA	Reading, Barbey	215-376-7451
PA	York, Cumberland	717-845-8791
SC	Columbia, Dixie Electronics	803-779-5332
TN	Chattanooga, Curle Elctrns.	615-266-4728
TN	Knoxville, Brownell Electro	615-966-3441
TN	Memphis, Brownell Electro	901-795-8487
TN	Nashville, Brownell Electro	615-889-8230
TX	Austin, Electrotex	512-454-0318
TX	Dallas, Eil Instruments	214-931-1236
TX	Dallas, Metermaster	214-271-5671
TX	Dallas, Dallas Meter Tek	214-349-6044
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Houston, Allied Electronics	713-681-2983
TX	Houston, Electrotex	713-526-3456
TX	Houston, Eil Instruments	713-271-3100
TX	San Antonio, Sherman Elctrns.	512-224-1001
VA	Alexandria, Eil Instruments	703-354-4330
VA	Virginia Beach, Eil Instruments	804-499-3746
WA	Seattle, Allied Electronics	206-547-2827
WA	Seattle, Eil Instruments	206-762-0880
WA	Seattle, Eicher-Richards Co.	206-523-7888
WI	Milwaukee, Allied Electronics	414-355-8866

NORELCOM INDS., 63 Marine St., Farmingdale, NY 11735, Tel: 516-249-7245; Empl.: 55; *Sls. Mgr.:* Richard E. Thaw; *Dist. Mgr.:* Regina Vena

NORITAKE ELCTRNS., INC., Noritake Co., Ltd. (Japan), 22410 Hawthorne Blvd., #6, Torrance, CA 90505, Tel: 213-373-6704, Telex: 67-4910; *Sls. Mgr.:* T. Ohki

NORLAND, Norland Dr., Ft. Atkinson, WI 53538, Tel: 414-563-8456, Telex: 26-5448; Empl.: 275; *Sls. Mgr.:* Robert J. Millar

Local Sales Offices & Reps

CA	San Jose, Norland	408-972-2248
FL	Orlando, Micro Spec	305-299-6508
MD	Silver Spring, Seltronics	301-589-3391
MI	Coloma, Norland	800-558-0158
MI	Farmington Hills, Anderson Elctrns.	313-553-7600
NM	Las Cruces, Sota-Com	505-523-4480
NY	Rensselaer, Norland	518-477-2329
SC	Rock Hill, Micro Spec	803-366-3015
TX	Arlington, Norland	817-261-5284
WA	Bellevue, Showalter Instrs.	206-746-7970

NORPLEX DIV., 10 V.O.P. Plaza, Des Plaines, IL 60016, Tel: 312-391-2000

NORSAL INDS., 85 D Hoffman Lane So., Central Islip, NY 11722, Tel: 516-234-1200, TWX: 510-227-1045; *Sls. Mgr.:* Lauren Kent

Local Sales Offices & Reps

CA	El Segundo, Fetty/Schoenduve, Inc.	213-322-4991
CA	Santa Clara, Donahue Assocs.	408-727-6694
GA	Kennesaw, BWS Mktg.	800-824-7888
MD	Pasadena, Spectro-Lambda Inc.	301-279-2010
MA	Lexington, Eugene Delfino Inc.	617-862-1118
MN	Minneapolis, Deming & Assocs.	612-888-5000
OH	Dayton, Frederick Ohmer Assoc.	513-434-1454
OH	Dayton, Ohmer Assocs.	513-434-1454
PA	Elkins Park, Snow Assocs.	215-379-4700
TX	Dallas, Texas Microwave	214-351-4773
WA	Seattle, Datacom	206-285-2525
EXP	NY, Central Islip, Norsal Export, Ltd.	516-234-1200

Local Distributors

CA	El Segundo, Fetty/Schoenduve, Inc.	213-322-4991
CA	Santa Clara, Donahue Assocs.	408-727-6694
GA	Kennesaw, BWS Mktg.	800-824-7888
MD	Pasadena, Spectro-Lambda, Inc.	301-279-2010
MA	Lexington, Eugene Delfino, Inc.	617-862-1118
MN	Minneapolis, Deming & Assocs.	612-999-5000
OH	Dayton, Frederick Ohmer Assocs.	513-434-4454
PA	Elkins Park, Snow Assocs.	215-379-4700
TX	Dallas, Texas Microwave	214-351-4773
WA	Seattle, Datacom	206-285-2525

NORTH AMERICAN PHILIPS CONTROLS CORP., See Airpax Corporation, Cheshire Div.

NORTH AMERICAN PHILIPS LIGHTING, Bank St., Hightstown, NJ 08520, Tel: 609-448-4000, TWX: 510-685-5651; Empl.: 600; *Sls. Mgr.:* C. J. Lehmann

NORTH AMERICAN PRINTED CIRCUIT DIV., Tyco Labs., Inc., Box 145, Stafford, CT 06075, Tel: 203-684-2703; Empl.: 230

NORTH AMERICAN SOAR CORP., 11126 Cornell Ave., Cherry Hill, NJ 08002, Tel: 609-488-1060; Empl.: 7; *Sls. Mgr.:* Robert Liska ....3•1267-1275, 1360, 1372-1374

NORTH ATLANTIC INDS., Instrument Div., 60 Plant Ave., Hauppauge, NY 11788, Tel: 516-582-6500, TWX: 510-227-9660; FSC No.: 07342; Empl.: 320; *Sls. Mgr.:* K. Salz ....3•1277, 1345

Local Sales Offices & Reps

AZ	Phoenix, Aztec Entprs.	602-944-9185
CA	Cupertino, T. Louis Snitzer Co.	408-257-8333
CA	Delmar, T. Louis Snitzer Co.	714-226-0305
CA	Los Angeles, T. Louis Snitzer Co.	213-836-6170
CO	Littleton, Aztec Entprs.	303-795-0250
CT	Enfield, Meco	800-225-3409
FL	Cocoa Beach, TeqSpec	305-783-3444
FL	Palm Harbor, Teqspec	813-785-2296
GA	Atlanta, Teqspec II	404-399-6780
IL	Chicago, Pat Lind Elctrns.	312-726-3513
IN	Indianapolis, Pat Lind Elctrns.	317-632-7444
MD	Wheaton, Brimberg Sls. Co.	301-946-2670
MA	Reading, Meco	617-944-6660
MI	Madison Hgts., WKM Assoc.	313-588-2300
MN	Circle Pines, P. Lind	612-786-5770
NM	Albuquerque, Aztec Entprs.	505-262-1688
NC	Winston-Salem, Teqspec III	919-723-8102
OH	Cleveland, WKM Assoc.	216-524-5930
OH	Dayton, WKM Assoc.	513-434-7500
OR	Beaverton, Northwest Test & Meas.	503-646-996
PA	Philadelphia, Tech. Instr. Sls.	215-836-222
PA	Pittsburgh, WKM Assoc.	412-892-295
TN	Morristown, Teqspec	615-587-098
TX	Houston, Scientific Sls.	713-460-917
TX	Richardson, Sci. Sls.	214-231-654
UT	Ogden, Aztec Entprs.	801-621-165
WA	Redmond, Northwest Test & Meas.	206-881-885
WI	Milwaukee, Pat Lind Elctrns.	414-224-014

NORTHEAST SCIENTIFIC CORP., 30 Wetherbe St., Acton, MA 01720, Tel: 617-263-2711; Empl.: 10 *Sls. Mgr.:* C. Moritz

NORTHERN ENGRG. LABS., See Midland-Ros Corp., NEL Unit

NORTHERN PRECISION LABS., 11 Madison Rd. Fairfield, NJ 07006, Tel: 201-227-4800, TWX: 710 734-4301; Empl.: 95; *Sls. Mgr.:* M.P. Nigro

NORTH HILLS ELCTRNS., Alexander Pl., Gle Cove, NY 11542, Tel: 516-671-5700, Telex: 64-047 FSC No.: 98821; Empl.: 85; *Sls. Mgr.:* H. H. Marx ....**1A**•1247, 1774, 2210; **3**•1393, 166

Local Sales Offices & Reps

MA	Burlington, Microwave Comps. Mktg.	617-273-310
MN	Minneapolis, Hei-Lite Sls.	612-861-605

NORTHLAKE ENGRG., 999 Anita Ave., Antioch, 60002, Tel: 312-395-5710; FSC No.: 50638; Empl 100; *Sls. Mgr.:* M. R. Whitman

ORTHWEST MICROCIRCUITS, 2115 N. College, Newburg, OR 97132, Tel: 503-538-7081; Empl.: 5; *Sls. Mgr.:* Wm. H. Ferwalt

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NORTHWEST MICRO produces custom Hybrid Circuits from customer schematics, layouts, or film positives. Turn around time for prototypes runs 4 to 6 weeks with engineering costs usually ranging from $500 to $900. NWμ also does complete circuit design to customer performance specifications. Hybrid ckt experience includes voltage-regulators, R & RC networks, digital & analog timing, and medical products. Services include solder sealing of flat packs and chip carriers for hermeticity.

ORTON, One New Bond St., Worcester, MA 01606, Tel: 617-853-1000, Telex: 920428, TWX: 710-340-1126; Empl.: 19000

ORTON ASSOCS., 10 Di Tomas Ct., Copiague, NY 11726, Tel: 516-842-4666; FSC No.: 08739

ORTON CHEMPLAST, 31-150 Dey Rd., Wayne, NJ 07470, Tel: 201-696-4700, TWX: 710-988-5834; Empl.: 300; *Dist. Mgr.:* Wes Wheeler

ORTRAN, Power Elctrns. Corp., 96 Milton Rd., Rochester, NH 03867, Tel: 603-332-3334, TWX: 510-297-4462; *Sls. Mgr.:* Robert S. Karstedt

OTHELFER WINDING LABS, See NWL Transformers

OUMENON CORP., 512 Westline Dr., Alamdea, CA 94501, Tel: 415-521-2145, Telex: 176340; *Sls. Mgr.:* Michael C. Mead

NOVA

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OVA ELEC., 263 Hillside Ave., Nutley, NJ 07110, Tel: 201-661-3434, Telex: 219077; FSC No.: 29019; Empl.: 50; *Sls. Mgr.:* Carlton C. Applegate ....**3**•1895

Local Sales Offices & Reps

L	Huntsville, Kemp Instrs.	205-837-4304
Z	Phoenix, Adtek	602-931-9289
A	Los Alamitos, Sci. Devices	213-598-7678
A	San Diego, Sci. Devices	619-279-6642
A	San Jose, Sci. Devices	408-554-0455
O	Boulder, Sci. Devices	303-449-9466
O	Denver, Sci. Devices	303-449-9466
L	Orlando, Data Rep	305-843-5224
	Chicago, Ampol Svcs. & Engrg.	312-685-1350
I	Carmel, CMP	317-844-4175
S	Shawnee Mission, W. Hickman	913-362-4300
A	Abbeville, Data Mktg. Assoc.	318-989-1265
D	Silver Spring, Spectro Sls.	301-949-8261
A	Wakefield, Bordewieck Engrg.	617-659-4915
	Farmington Hills, Carter, McCormic & Peirce	313-477-7700
N	Eden Prairie, Compusite	612-944-8552
O	St. Louis, F. Gilliam	314-961-5555
J	Northvale, Comp-Tran	201-768-2060
Y	Binghamton, Tae-Rep	607-772-6952
Y	Fishkill, Tae-Rep	716-586-8710
Y	Rochester, Tae-Rep	716-586-8710
C	Charlotte, J. Rudisill Assoc.	704-377-6901
H	Cleveland, CMP	216-779-5100
H	Englewood, CMP	513-836-0951
K	Oklahoma City, Data Mktg. Assoc.	918-496-1497
A	Bala Cynwyd, Electrical Distribution	215-665-5654
A	Monroeville, CMP	412-372-4415
X	Austin, Data Mktg. Assoc.	512-451-5174
X	Dallas, Data Mktg. Assoc.	214-661-0300
X	Houston, Data Mktg. Assoc.	713-780-2511
X	San Antonio, Data Mktg. Assoc.	512-342-3031
A	Richmond, J. Rudisill Assoc.	704-377-6901
A	Seattle, Al Smith Co.	206-746-6770

OVA TRAN, 100 Deposition Dr., Clear Lake, WI 54005, Tel: 715-263-2333; FSC No.: 56643; Empl.: 45; *Sls. Mgr.:* R. Schley

NOVATRONICS, Box 878, Pompano Beach, FL 33061, Tel: 305-942-5200, TWX: 510-956-9878; Empl.: 225; *Sls. Mgr.:* W. G. Peters

NRD, Mark IV Inds., 2937 Alt Blvd. N., Grand Island, NY 14072, Tel: 716-773-7634, Telex: 91578 NRD GRDI; *Sls. Mgr.:* James R. Curtis; *Dist. Mgr.:* Larry Keating

NSD, 10936 Portal Dr., Los Alamitos, CA 90720, Tel: 714-527-4896; *Sls. Mgr.:* Paul Pomerantz; *Dist. Mgr.:* Paul Pomerantz

NTK

NTK TECHNICAL CERAMICS, NGK Spark Plugs (U.S.A.), Inc., 1701 N. Greenville Ave. #205, Richardson, TX 75081, Tel: 214-235-8332; FSC No.: 95-246-1286; *Sls. Mgr.:* K. C. Ogawa; *Dist. Mgr.:* Mark Ota ....**1A**•1396, 1397; **1B**•1853; **3**•1043

Local Sales Offices & Reps

AL	Huntsville, L&D, Inc.	919-292-3201
CA	Culver City, DeAngelo Rothman and Co. Inc.	213-827-2202
CA	San Jose, Frequency Control Assocs.	408-446-0200
CT	Bloomfield, Zaslow Sales Co.	203-242-7781
FL	Maitland, D.J. Ellis & Assocs. Inc.	305-645-1101
GA	Atlanta, L&D Inc.	404-455-3483
IN	Indianapolis, Intl. Elctrns. Corp. of Indiana	317-257-8115
IN	Scottsburg, Intl. Elctrns. Corp. of Indiana	812-752-4611
IA	Chanhassen, Barnes Sls. Assocs.	612-934-2907
KS	Overland Park, Barnes Midwest Sls.	913-341-9317
MD	Baltimore, Espy Sls. Co.	301-441-6982
MI	Ann Arbor, Elliott Sls. Co.	313-662-4087
MN	Chanhassen, Barnes Sales Assocs.	612-934-2907
NJ	Boonton, Pafi Assocs.	201-335-0680
NY	Smithtown, Pafi Assocs.	516-360-0940
NC	Raleigh, L&D Inc.	919-876-5301
PA	Rydal, Espy Sls. Assocs.	215-576-0780
TN	Seymour, Espy Sls. Assocs.	315-573-6511
VA	Richmond, Espy Sls. Assocs.	804-359-0125
WA	Seattle, Northmar Inc.	206-524-5170

NUCLEAR RESCH. CORP., 125 Titus Ave., Warrington, PA 18976, Tel: 215-343-5900, Telex: 510-665-8525 NRC WNTN; FSC No.: 96696; Empl.: 85; *Sls. Mgr.:* D.T. McIntyre, V.P.

NUCLEONIC PRODS., See Thomson-CSF Comps. Corp., Passive Comps. Div.

NU-CONCEPT COMPUTER SYS., Rte. 309 & Advance La., Colmar, PA 18915, Tel: 215-822-8400; Empl.: 17; *Sls. Mgr.:* Thomas Dvorak

NU DATA, 32 Fairview Ave., Little Silver, NJ 07739, Tel: 201-842-5757, Telex: 132405, TWX: 710-722-5754; Empl.: 20; *Sls. Mgr.:* S. L. Houcke

NUMARK ELCTRNS. CORP., 503 Raritan Ctr., Edison, NJ 08817

NUMERIX CORP., 320 Needham St., Newton, MA 02161, Tel: 617-964-2500, Telex: 948032; *Sls. Mgr.:* Harold Messias

NU-METRICS, P.O. Box 800, Connellsville, PA 15425, Tel: 412-628-0400; Empl.: 12; *Sls. Mgr.:* Waide Miller

NURAD, INC., 2165 Druid Pk. Dr., Baltimore, MD 21211, Tel: 301-462-1700, TWX: 710-234-1071; Empl.: 80

NWL TRANSFORMERS

NWL TRANSFORMERS, Rising Sun Rd., P.O. Box 358, Bordentown, NJ 08505, Tel: 609-298-7300, TWX: 510-685-3645; Empl.: 230; *Sls. Mgr.:* C. W. Harrison ....**1A**•2211; **3**•1663

NWL TRANSFORMERS, Megatran Electronic Power, Rising Sun Rd., P.O. Box 358, Bordentown, NJ 08505, Tel: 609-298-7300, TWX: 510-685-3645; Empl.: 195; *Sls. Mgr.:* C. W. Harrison ....**3**•1663

NYE, WILLIAM F., INC., P.O. Box G-927, New Bedford, MA 02742-0927, Tel: 617-996-6721, Telex: 940807; Empl.: 15

NYLTITE, 3451 S. Clinton Ave., S. Plainfield, NJ 07080, Tel: 201-561-1300; *Sls. Mgr.:* Frances Gould

Nytronics Components Group, Inc.

NYTRONICS COMPS. GROUP INC., Orange St., Darlington, SC 29532, Tel: 803-393-5421, TWX: 810-665-2182; FSC No.: 83125; Empl.: 450 ....**1A**•1160-1172, 1218, 1248-1267, 1554-1557, 1907-1909

Local Sales Offices & Reps

AL	Huntsville, B.C.I.	205-539-4411
AZ	Tucson, Clemick Neenan & Assoc.	802-749-4003
CA	San Diego, Clemick Neenan & Assocs.	619-268-8540
CA	Sherman Oaks, Clemick Neenan & Assocs.	213-990-3150
CA	Sunnyvale, W.W. Posey	408-746-0771
CO	Denver, Component Sls.	303-759-1666
GA	Chamblee, B.C.I.	404-455-0405
IL	Rolling Meadows, Sumer Inc.	312-991-8500
IN	Indianapolis, Southern Sls.	317-875-8750
KS	De Soto, Mid-Tec Assoc.	913-441-6565
MA	Bedford, F.R. Lesser	617-275-7558
MI	Rockford, H.C. Heym Assoc.	616-874-7443
MN	Minneapolis, Dunlop Consits.	612-529-7626
MO	Florissant, Mid-Tec Assoc.	314-837-5200
NJ	West Orange, National Atlantic	201-731-0703
NY	Pittsford, W.A. Franklin Sls.	716-248-8251
NY	Valley Cottage, LRC Assocs.	914-268-4435
NC	Charlotte, B.C.I. Inc.	704-567-0473
NC	Raleigh, B.C.I.	919-781-9426
OH	Akron, Imtech	216-666-1185
OH	Dayton, Imtech	513-278-6507
OK	Tulsa, Design Mktg.	918-742-2589
PA	Narberth, Bresson Assocs.	215-664-6460
TX	Dallas, Design Mktg.	214-680-9767
TX	Round Rock, Design Mktg.	512-255-9896
UT	Salt Lake City, Component Sls.	801-466-8623
VA	Lynchburg, Bresson Assocs.	703-237-1304
WA	Bellevue, Eltec	206-643-4330
WI	Brookfield, Sumer, Inc.	414-784-6641

Local Distributors

CA	Garden Grove, Hi Rel	213-594-9571
CA	Gardena, Bell Inds.	213-515-1800
CA	San Diego, Mock III	619-560-0515
CA	Sunnyvale, Bell Inds.	408-734-8570
CO	Denver, Newark Elec.	303-757-3351
CO	Wheatridge, Bell Inds.	303-424-1985
FL	Ft. Lauderdale, Newark Elect.	305-587-2372
IL	Chicago, Newark Elect.	312-638-4411
IL	Chicago, Bell Inds.	312-982-9210
IN	Indianapolis, Graham Elect.	317-634-8202
IA	Cedar Rapids, Newark Elect.	312-362-1171
MD	Baltimore, Radio Elect.	301-823-0070
MD	Beltsville, Newark Elec.	301-937-5085
MA	Needham, Cronin Elctrns.	617-449-0500
MA	Waltham, Sterling Elec.	617-894-6200
MN	Minneapolis, Newark Elect.	216-361-4700
MN	Minneapolis, Joel Co.	612-545-5669
NJ	Kenilworth, Newark Elect.	201-272-8410
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Hauppauge, Fairmont Elctrns.	516-231-3313
NY	Hauppauge, Jaco Elect.	516-273-5500
NY	Plainview, ACI Elect.	516-293-6630
NY	Rome, Rome Elect.	315-337-5400
NC	Raleigh, Radio Elec. Svc.	919-781-5700
OH	Centerville, C.V. Clark	513-435-3000
OH	Cleveland, Newark Elect.	216-361-4700
OR	Lake Oswego, Bell Inds.	503-241-4115
PA	Montgomeryville, Pyttronic Inds.	215-643-2850
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	Philadelphia, Herback Rademan	215-426-1700
TX	Dallas, Wholesale Elect.	214-824-3001
UT	Salt Lake City, Newark Elect.	801-486-1048
WA	Bellevue, Bell Inds.	206-747-1515
WI	Brookfield, Newark Elect.	414-781-2450

OAK MATERIALS GROUP INC., Laminates Div., 174 N. Main St., Franklin, NH 03235, Tel: 603-934-5736, TWX: 510-298-1170; FSC No.: 53240

OAK Switch Systems Inc.

OAK SWITCH SYS., 100 S. Main St., Crystal Lake, IL 60014, Tel: 815-459-5000, Telex: 72-2447, TWX: 910-634-3353; FSC No.: 76854; Empl.: 1200 ....**1B**•1092, 1732, 1733, 1789

Local Sales Offices & Reps

AZ	Phoenix, Shefler/Kahn	602-257-9015
AR	Little Rock, Erickson Sls., Inc.	501-562-2159
CA	Huntington Bch., Oak Switch Sys.	714-963-0577
CA	Irvine, Oak Switch Sys. Inc.	714-786-8028
CA	Palo Alto, Oak Switch Sys. Inc.	415-493-0960
CA	San Jose, Oak Switch Sys. Inc.	408-729-1200
CA	Saratoga, Oak Switch Sys. Inc.	408-741-0372
CO	Denver, I.W. Strong Assoc.	303-292-6900
FL	Altamonte Springs, Oak Switch Sys.	305-831-5411
GA	Marietta, Oak Switch Sys. Inc.	404-953-9279
IL	Crystal Lake, Oak Switch Sys. Inc.	815-459-5000
IN	Speedway, Oak Switch Sys. Inc.	317-241-4424
LA	Chalmette, Erickson Sls., Inc.	504-271-1976
MA	Framingham, Oak Switch Sys. Inc.	617-256-1414
MA	Hudson, Oak Switch Sys. Inc.	617-562-3328
MI	Southfield, R.E.P. Assocs.	313-352-0110
MI	St. Joseph, R.E.P. Assocs.	616-983-7702
MN	Minnetonka, Gibb Elctrns. Sls.	612-935-4600
MO	Florissant, Oak Switch Sys.	314-355-8732
NJ	Haddonfield, Gray Assoc.	609-429-5300
NJ	Mountainside, Henry G. Richter	201-233-4615
NM	Albuquerque, Shefler/Kahn	505-296-0749
NY	Fayetteville, Henry G. Richter	315-637-6713
NC	Raleigh, Oak Switch Sys.	919-876-7591
OH	Eastlake, Oak Switch Sys. Inc.	216-946-0970
OK	Oklahoma City, Erickson Sls., Inc.	405-682-2947
OR	Beaverton, Oak Switch Sys.	503-642-4675
TX	Austin, Erickson Sls., Inc.	512-244-3068
TX	Dallas, Erickson Sls., Inc.	214-739-5833
TX	Houston, Erickson Sls., Inc.	713-980-9606
UT	Salt Lake City, I.W. Strong Assoc.	801-363-1014

Local Distributors

AL	Huntsville, Marshall Elctrns.	205-881-9235
AZ	Tempe, Marshall Elctrns.	602-968-6181
AZ	Tempe, Fisher-Brownell	602-967-1464
CA	Alhambra, Fisher-Brownell	213-289-0255
CA	Canoga Park, Marshall Elctrns.	213-999-5001
CA	Inglewood, Newark Elctrns.	213-671-7066
CA	Irvine, Marshall Elctrns.	714-556-6400
CA	Mountain View, I/O Sls. Inc.	415-968-1080
CA	San Diego, Marshall Elctrns.	619-578-9600
CA	San Diego, Fisher-Brownell	619-560-8545
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	Santa Clara, Fisher-Brownell	408-988-6041
CA	Sunnyvale, Marshall Elctrns.	408-732-1100
CO	Denver, CSID	303-292-9594
CO	Denver, Newark Elctrns.	303-757-3351
CO	Denver, Marshall Elctrns.	303-427-1818
CT	Hamden, Impact Elctrns.	203-281-1331
CT	Wallingford, Marshall Elctrns.	203-265-7338
FL	Ft. Lauderdale, Component Distr.	305-971-4950
FL	Orlando, Marshall Elctrns.	305-841-1878
GA	Norcross, Marshall Elctrns.	404-923-5750
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Crystal Lake, Sub-Sem, Inc.	815-459-4139
IL	Palatine, Ohm/Elctrns.	312-359-5500
IL	Rosemont, Advent Elctrns.	312-297-6200
IL	Schaumburg, Marshall Elctrns.	312-490-0155
IN	Indianapolis, Graham Elctrns.	317-634-8202
MD	Baltimore, C.E.I. Distr.	301-744-7711
MD	Beltsville, Newark Elctrns.	301-937-5085
MD	Gaithersburg, Marshall Elctrns.	301-840-9450
MA	Burlington, Marshall Elctrns.	617-272-8200
MA	Canton, Impact Sls.	617-821-1500
MI	Farmington Hills, Advent Elctrns.	313-477-1650
MI	Livonia, Marshall Elctrns.	313-525-5850
MI	Oak Park, Newark Elctrns.	313-967-0600
MN	Minneapolis, Newark Elctrns.	612-331-6350
MN	Minneapolis, Northern Elec. Supp.	612-944-1167
MN	Plymouth, Marshall Elctrns.	612-559-2211
MO	St. Louis, Olive Elctrns.	314-426-4500
NJ	Fairfield, Marshall Elctrns.	201-882-0320
NJ	Mt. Laurel, Marshall Elctrns.	609-234-9100
NJ	Springfield, Newark Elctrns.	201-376-9500
NJ	Springfield, Route Elctrns.	201-379-7710
NM	Albuquerque, Walker Radio	505-247-2288
NY	Endwell, Marshall Elctrns.	607-754-1570
NY	Hauppauge, Marshall Elctrns.	516-273-2424
NY	Hauppauge, Fairmont Elec.	516-231-3313
NY	Jamaica, Calson Co.	212-525-5900
NY	Rochester, Marshall Elctrns.	716-235-7620
NY	Rochester, Modutex Corp.	716-647-9700
NC	Raleigh, Southeastern Radio	919-828-2311
OH	Centerville, IPD	513-435-2086
OH	Dayton, Marshall Elctrns.	513-236-8088
OH	Solon, Marshall Elctrns.	216-248-1788
OH	Wickliffe, Gateway Megatech	216-944-8565
OR	Portland, Radar Elec.	503-232-3404
PA	Pittsburgh, Newark Elctrns.	412-787-7740
TX	Austin, Marshall Elctrns.	512-458-5654
TX	Dallas, Marshall Elctrns.	214-233-5200
TX	El Paso, Ideal Indl. Elect.	915-779-6647
TX	Houston, Marshall Elctrns.	713-789-6600
TX	Richardson, Fisher-Brownell	214-235-3177
UT	Salt Lake City, Newark Elctrns.	801-484-8611
WA	Bellevue, Marshall Elctrns.	206-747-9100
WA	Seattle, Radar Elec.	206-282-2511
WA	Spokane, Radar Elec.	509-747-3053

OAKTRON INDS., 1000 30th St., Monroe, WI 53566, Tel: 608-328-5560; Empl.: 250 ....**3**•1045

Local Sales Offices & Reps

AZ	Phoenix, S. Fisher Assoc.	602-247-7865
CA	Mill Valley, Roy Colen Sls., Inc.	415-383-8700
CA	Newhall, Lessing Assoc.	213-348-6662
CO	Arvada, C B Elctrn. Mktg.	303-422-0561
FL	Tampa, SRT Marketing	813-884-4805
GA	Atlanta, Millar Elect.	404-261-6160
IL	Elmhurst, E.S.I.	312-941-0710
IN	Mulberry, Maish Sls.	317-296-2322
MA	Lexington, Six States Sls.	617-376-2044
MN	Minneapolis, Kodo Assoc.	612-881-1255
MO	Kansas City, Nevco	816-421-1751
MO	St. Louis, Nevco	314-843-7406
NY	Rochester, J. Brown Elect. Sls.	716-266-2728
NY	Whitestone, J. Brown Elect. Sls.	212-767-1977
NC	Raleigh, Millar Elect.	919-787-9564
OH	Akron, Shamrock Elect.	216-645-0363
OH	Dayton, Shamrock Elect.	513-298-1227
TX	Richardson, Campion Sls.	214-238-8145
VA	Great Falls, Kendall & Assoc.	703-759-3128
WA	Seattle, Vector/RMC	206-322-4343
EXP	IL, Chicago, Magnus Elect.	312-679-6070

OAL ASSOCS., P.O. Box J, Escondido, CA 92025, Tel: 619-743-7143; Empl.: 10; *Sls. Mgr.:* Mark Lohkemper

Local Sales Offices & Reps

CA	Costa Mesa, Pat Dooley Co.	714-548-2232
IL	Palatine, Jos. Clark Co.	312-358-5095
NY	Great Neck, W&A Holland	516-487-8877

OAR CORP., A CompuDyne Co., 10447 Roselle St., San Diego, CA 92121, Tel: 619-453-4013, Telex: 697852; *Sls. Mgr.:* Michael A. Duke

OAS INC., See Optimum Applied Systems

OCEAN RESCH. EQUIP., INC., Box 709, Falmouth, MA 02541, Tel: 617-548-5800, Telex: 94-0859; Empl.: 125; *Sls. Mgr.:* J. Angell

OCLI PHOTOELCTRNS. DIV., See Applied Solar Energy

ODELL, M. P., CO., 1620 Chesapeake Dr., Hoffman Estates, IL 60195, Tel: 312-991-2828, 800-633-5526; *Sls. Mgr.:* Maria McClurkin ....**3**•1927

OECO CORP., 712 S.E. Hawthorne Blvd., Portland, OR 97214, Tel: 503-238-2440, Telex: 36-0350; FSC No.: 95266; Empl.: 575; *Sls. Mgr.:* Bob Bunker

OGALLALA ELCTRNS., Div. Arnold Engrg. Co., Box 59, Ogallala, NE 69153, Tel: 308-284-4093; Empl.: 37; *Sls. Mgr.:* H. L. Harrington

OHIO SEMITRONICS, INC., 1205 Chesapeake Ave., Columbus, OH 43212, Tel: 614-486-9561, TWX: 810-482-1630; FSC No.: 12066; Empl.: 46; *Sls. Mgr.:* G. Clagett ....**1B**•1854-1867; **3**•1278-1283

Local Sales Offices & Reps

AL	Huntsville, Guest Assocs.	205-534-2487
CA	Arcadia, Van Gott & Assocs.	818-445-9728
CA	Hayward, FLW, Inc.	415-487-2222
CO	Boulder, Meas. Conslts.	303-449-7506
CT	North Haven, Pat Jenks Assocs.	203-239-6201
FL	Orlando, Datarep	305-843-5224
GA	Stone Mountain, Zelco Assocs.	404-498-2181
IL	Columbia, R. L. Weisheimer & Assocs.	618-281-4148
IL	Park Ridge, Elctrn. Instr. Assocs.	312-298-2290
MA	Woburn, Pat Jenks Assocs.	617-938-0488
MN	Minneapolis, Mark Co.	612-920-6280
NJ	Springfield, E. R. Mertz, Inc.	201-232-4643
NY	Latham, L-Tron Corp.	518-785-5032
NC	Charlotte, Zelco Assocs.	704-523-2961
OH	Dayton, Mohawk Intronics	513-434-8873
PA	Carnegie, Flow Media	412-923-1619
PA	King of Prussia, FLW, PA, Inc.	215-337-4343
TX	Houston, Scientific Sls. Co.	713-460-9170
TX	Richardson, Scientific Sls. Co.	214-231-6541
UT	Salt Lake City, Meas. Conslts.	801-364-3174
WA	Bellevue, Topp Engrg. Sls. Corp.	206-747-5400

Distributor

OHIOSWITCH, INC., 6534 Singletree Dr., Columbus, OH 43229, Tel: 614-885-0319 ....**1B**•1742

OHMITE MFG. CO., 3601 W. Howard St., Skokie, IL 60076, Tel: 312-675-2600, Telex: 72-4433, TWX: 910-223-0805 ....**1A**•1910-1917, 2050, 2051

Local Sales Offices & Reps

AL	Huntsville, Cartwright & Bean	205-830-1540
AK	Anchorage, H. J. Lang Assoc.	907-279-5741
AZ	Phoenix, Stitzer-Dodd Inc.	602-944-2237
CA	Los Angeles, Wiley Co.	213-666-1611
CA	Palo Alto, Ohmite Mfg. Co.	415-494-6954
CA	San Diego, Wiley Co.	619-571-2881
CO	Denver, Lindberg Co.	303-758-9033
CT	North Haven, Coakley, Boyd & Abbett	203-239-6217
FL	Ft. Lauderdale, Cartwright & Bean	305-735-4900
FL	Orlando, Cartwright & Bean	305-422-4531
GA	Atlanta, Cartwright & Bean	404-233-2939
LA	Kenner, Cartwright & Bean	504-466-0020
MA	Needham Hgts., Coakley, Boyd & Abbett	617-444-5470
MI	Grosse Pointe Park, Greiner Assoc.	313-499-0188
MN	Bloomington, PWC Inc.	612-831-5999
MS	Jackson, Cartwright & Bean	601-981-1170
MO	Gladstone, Delltron Co.	816-436-6445
MO	St. Louis, Delltron Co.	314-869-4779
NH	Plaistow, Coakley, Boyd & Abbett	617-444-5470
NJ	River Edge, Ohmite Mfg. Co.	201-488-3690
NJ	Willingboro, Ohmite Mfg. Co.	609-871-1691
NY	Rochester, Electra Sls. Corp.	716-461-5252
NY	Syracuse, Electra Sls. Corp.	315-463-1248
NC	Charlotte, Polytech Svcs.	704-372-4161
OH	Chardon, Ohmite Mfg. Co.	216-286-7454
OH	Dayton, Ohmite Mfg. Co.	513-277-6543
OK	Oklahoma City, Erickson Sls.	405-682-2947
OR	Tigaird, Electronic Comp Sales	503-245-2342
PA	Monroeville, Ohmite Mfg. Co.	412-373-2695
TN	Knoxville, Cartwright & Bean	615-693-7450
TN	Memphis, Cartwright & Bean	901-276-4442
TX	Austin, Erickson Sls.	512-445-2952
TX	Dallas, Erickson Sls.	214-739-5833
TX	Houston, Erickson Sls.	713-980-9606
UT	Salt Lake City, Lindberg Co.	801-467-1794
WA	Mercer Island, Electronic Comp Sales	206-232-9301

Local Distributors

AZ	Phoenix, Dalis Elctrn. Supp.	602-258-8151
CA	El Monte, Kimball & Stark	213-444-2594
CA	Hollywood, Yale Radio Elec.	213-465-318
CA	Mountain View, Abacus Elctrns. Co.	415-961-150
FL	Tampa, Leader Elctrn. Distr.	813-870-331
FL	West Palm Beach, Nurmi Elec. Supp.	305-684-032
GA	Atlanta, Specialty Distr. Co.	404-873-252
IL	Chicago, Newark Elctrns.	312-638-441
IL	Peoria, Klaus Radio	309-691-484
IN	East Chicago, Acro Elctrns. Corp.	219-397-868
KS	Wichita, Radio Supp. Co.	316-267-521
MA	Hingham, Sager Electrical Supp.	617-749-670
MI	Grand Rapids, S-F Elctrn. Supp.	616-459-021
MO	Kansas City, Walters Radio Supp.	816-531-701
NJ	Camden, General Radio Supp.	609-964-856
NY	Hempstead, Electronic Equip.	516-538-551
NY	Richmond Hill, Anchor Elctrn. Distr.	212-846-242
NY	Rochester, Simcona Elctrns.	716-328-323
NY	Rome, Rome Elctrns.	315-337-540
OH	Cleveland, Specialized Comp. Sls.	216-464-040
OH	Dayton, Stotts-Friedman Co.	513-224-111
PA	Drexel Hill, Kass Elctrns. Distr.	215-449-230
PA	Pittsburgh, CAM/RPC Elctrns.	412-782-377
PA	Reading, Barbey Elctrns.	215-376-611
VA	Charlottesville, Virginia Radio Supp.	804-296-418
WI	Milwaukee, Marsh Elctrns.	414-475-600

ohmtek INC

HMTEK, INC., 2160 Liberty Dr., Niagara Falls, NY 14304, Tel: 716-283-4025, TWX: 710-524-1653; FSC No.: 57489; Empl.: 115; *Sls. Mgr.:* John Burger ....**1A**•1919-1921

Local Sales Offices & Reps

A	Santa Clara, I² Inc.	408-988-3400
A	Woodland Hills, Interstate Mktg. Assoc.	213-883-7606
O	Aurora, High Tech. Assocs.	303-695-1990
L	Hollywood, Askland Elctrn. Comps.	305-987-1074
S	Overland Pk., Advanced Techn. Sls.	913-642-6675
A	Shrewsbury, Compatible Comps.	617-842-2022
N	Mendota Hgts., G-II Sales	612-454-3086
J	Englewood, Harold Gray Assocs.	201-894-0894
M	Albuquerque, Power Entprs.	505-298-1918
Y	Rochester, Fritz Dasson	716-338-1699
H	Cincinnati, John F. Kilfoil Co.	513-791-6150
A	Wynnewood, Metz-Benham Assocs.	215-896-7300
X	Lewisville, Jim Hughes Co.	214-221-1536

K INDUSTRIES, INC., 3455 Conner St., Bronx, NY 10475, Tel: 212-994-6600, Telex: 12-5091; Empl.: 100; *Sls. Mgr.:* David Leventhal

KONITE, Box 340, Ramsey, NJ 07446, Tel: 201-825-0300, TWX: 710-988-1017; Empl.: 1900; *Sls. Mgr.:* A. C. Coppola

LIVER ADVANCED ENGRG., 676 W. Wilson Ave., Glendale, CA 91203, Tel: 818-240-0080, Telex: 194773; Empl.: 28; *Sls. Mgr.:* Dane Hutchins; *Dist. Mgr.:* Dane Hutchins

LYMPIC WIRE & CABLE, 1 Madison Rd., Fairfield, NJ 07006, Tel: 201-227-7996, Telex: 75-2217; Empl.: 18; *Sls. Mgr.:* Robert T. Mello; *Dist. Mgr.:* Robert T. Mello

OMEGA ENGINEERING, INC.

MEGA ENGRG., Box 4047, Stamford, CT 06907, Tel: 203-359-1660, Telex: 99-6404; Empl.: 400; *Sls. Mgr.:* George Vermilyea ..... **1B**•1735, 1818, 1819, 1868, 1869; **2**•2135; **3**•1013, 1089, 1137, 1168, 1284, 1346, 1347, 1386

MNETICS, P.O. Box 2577, Syracuse, NY 13220, Tel: 315-699-5262, TWX: 710-545-0235; FSC No.: 52516; Empl.: 85; *Sls. Mgr.:* Dennis G. Conard; *Dist. Mgr.:* Dennis G. Conard

MNIBYTE CORP., 245 W. Roosevelt Rd., Bldg. 1-5, W. Chicago, IL 60185, Tel: 312-231-6880; Empl.: 30; *Sls. Mgr.:* Susan Cochran

Local Sales Offices & Reps

Z	Scottsdale, Frontier Technology	602-998-4438
A	Santa Clara, Applied Micro Tech.	408-730-1289
A	Woodland Hills, Applied Micro Tech.	213-888-2027
L	Melbourne, Reynolds & Assoc.	305-259-7000
	Park Ridge, Ad Tech Inc.	312-692-7320
A	Belmont, E.S.M.	617-489-4414
I	Southfield, Infinity, Inc.	313-557-7230
N	Minneapolis, Jen-Ray Systems	612-831-5060
J	Boonton, Winter Assoc.	201-334-3434
Y	Caledonia, E. F. Sls.	716-538-4754
A	Philadelphia, Systems Plus	215-677-2985
X	Houston, Dyna Marketing	713-460-0314
XP	IL, Chicago, Computer Overseas Corp.	312-332-3272

MNI SPECTRA, 21 Continental Blvd., Merrimack, NH 03054, Tel: 603-424-4111, Telex: 953053, TWX: 710-366-0674; FSC No.: QUIP; Empl.: 750; *Sls. Mgr.:* Ernest J. Devita; *Dist. Mgr.:* Terri Hastings

MNI SPECTRA, INC., Microwave Connector Div., 140 Fourth Ave., Waltham, MA 02154, Tel: 617-890-4750

MNI SPECTRA, INC., Microwave Subsystems Div., 2626 So. Hardy Dr., Tempe, AZ 85282, Tel: 602-966-1471, TWX: 910-950-1296; *Sls. Mgr.:* Carl Seburn; *Dist. Mgr.:* Carl Seburn

OMNITEC DATA INC., 2405 S. 20th St., Phoenix, AZ 85034, Tel: 602-258-8244, 800-528-8423, TWX: 910-951-4247; *Sls. Mgr.:* Dan J. Mitchell; *Dist. Mgr.:* Dan J. Mitchell

OMNITEK, INC., P.O. Box 102, 820 Pennsylvania Blvd., Feasterville, PA 19047, Tel: 215-355-4443, TWX: 510-667-1730; FSC No.: 54316; *Sls. Mgr.:* Frank Shandelman

OMNI-WAVE ELECTRONICS CORP., P.O. Box 660, Gloucester, MA 01930, Tel: 617-281-2800

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ONSET COMPUTER CORP., 199 Main St., P.O. Box 1016, N. Falmouth, MA 02556, Tel: 617-563-2267, Telex: 469915; Empl.: 6; *Sls. Mgr.:* Elaine Boyd

ONTEL CORP., 250 Crossways Park Dr., Woodbury, NY 11797, Tel: 516-364-2121, Telex: 961-382; Empl.: 430; *Sls. Mgr.:* Ed Heinze

OPAMP LABS, INC., 1033 N. Sycamore Ave., Los Angeles, CA 90038, Tel: 213-934-3566; FSC No.: 24699; Empl.: 18 ....**3**•1046

OPTEK, Crown Semi, 345 Industrial Blvd., McKinney, TX 75069, Tel: 214-542-9461, TWX: 910-860-5625; Empl.: 320; *Sls. Mgr.:* James Trautwein; *Dist. Mgr.:* Dave Kimbrough .... **1B**•1232

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AL	Huntsville, Montgomery Mktg.	205-830-0498
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CA	Thousand Oaks, Sc Cubed	805-496-7307
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CO	Wheatridge, Waugaman Assocs.	303-423-1020
CT	Madison, Conti-Younger Assocs.	203-245-1136
FL	Ft. Lauderdale, APM Assocs.	305-565-0056
FL	Longhorn, APM Assocs.	305-869-6831
FL	Tampa, APM Assocs.	813-886-2457
GA	Norcross, Montgomery Mktg.	404-447-6124
ID	Rathdrum, Vantage Corp.	208-772-7235
IL	Rolling Meadows, KMA Sales	312-398-5300
IN	Indianapolis, J & W Sales	317-842-3740
MA	Burlington, Conti-Younger Assocs.	617-273-1582
MI	Grosse Pointe Pk., Greiner Assocs.	313-499-0188
MN	Eden Praire, Elctrn. Innovators	612-941-0830
NH	Melvin Village, Conti-Younger Assocs.	603-544-7278
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NY	Manhasset, Win-Cor Elec.	516-627-9474
NY	Pittsford, KLM/Garner	716-381-8350
NY	Syracuse, KLM/Garner	315-458-6214
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Cincinnati, Makin & Assocs.	513-871-2424
OH	Columbus, Makin & Assocs.	614-459-2423
OH	Ravenna, Makin & Assocs.	216-297-9748
OR	Silverton, Vantage Corp.	206-455-3460
TX	Austin, Kruvand Assocs.	512-458-9204
TX	Dallas, Kruvand Assocs.	214-691-4592
TX	Houston, Kruvand Assocs.	713-780-9710
UT	Salt Lake City, Waugaman Assocs.	801-254-0570
WA	Bellevue, Vantage Corp.	206-455-3460
WI	Milwaukee, KMA	414-259-1771

OPTELECOM, 15940 Lauanne Dr., Gaithersburg, MD 20760, Tel: 301-948-4232; FSC No.: 59338; Empl.: 50; *Sls. Mgr.:* F. C. Eggleston

OPTICAL & CONDUCTIVE COATINGS, Meridian Inds., Inc., 428 N. Buchanan Cir., #8, Pacheco, CA 94553, Tel: 415-798-6066, Telex: 171309 HQ WNCK; FSC No.: 9U775; Empl.: 8; *Sls. Mgr.:* Glenn G. Grupe

OPTICAL ELECTRONICS, INC., Box 11140, Tucson, AZ 85734, Tel: 602-624-8358, TWX: 910-952-1283; FSC No.: 5962; Empl.: 16; *Sls. Mgr.:* George L. Hill

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CA	Santa Clara, Comtronics	408-773-9800
MA	Burlington, Tritek Inc.	617-272-4550
NJ	Paramus, Design Elctrns.	201-845-6224
TX	Hurst, El-Tec Sls.	817-268-2896

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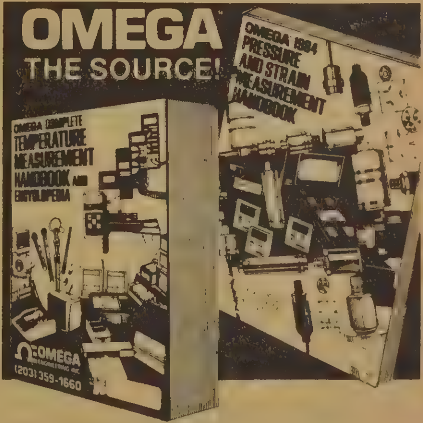
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Local Sales Offices & Reps

AZ	Scottsdale, Arcom Sls.	602-947-5745
CA	Santa Clara, Optima Div.	408-496-1040
CA	Santa Fe Springs, Optima Div.	213-949-9302
CO	Denver, Quorum 3	303-696-8480
FL	Orlando, OEM Mktg.	305-299-1000
GA	Atlanta, Optima Div.	404-449-2530
IL	Arlington Heights, Diethert/Angel	312-593-7600
KS	Kansas City, BC Elctrn. Sls.	913-342-1211
KS	Wichita, BC Elctrn. Sls.	316-942-9840
MD	Gaithersburg, Beacon North	301-869-3289
MD	Randallstown, Beacon North	703-591-1300
MI	Southfield, L. H. Dickelman Co.	313-353-8210
MN	Golden Valley, Diethert/Angel	612-546-6099
MO	Bridgeton, BCElctrn. Sls.	314-291-1101
NJ	Fair Lawn, Optima Div.	201-794-3100
NY	Rochester, Apex Assoc.	716-254-6050
OH	Cleveland, C. A. Robinson Co.	216-381-9049
OH	Dayton, C. A. Robinson Co.	513-278-7969
OR	Beaverton, Caruso & Northcutt, Inc.	503-646-4973
TX	Richardson, Optima Div.	214-238-1116
UT	Sandy, Quorum 3	801-943-9227
VA	Fairfax, Beacon North	703-591-1300
VA	Forest, Beacon North	804-239-8486
WA	Bellevue, Caruso & Northcutt, Inc.	206-454-9699
WI	Waukesha, Diethert/Angel	414-547-6575

OPTIMATION, See Julie Research Labs

OPTIMIZED DEVICES, INC., 220 Marble Ave., Pleasantville, NY 10570, Tel: 914-769-6100; Empl.: 30

OPTIMUM APPLIED SYSTEMS, 145 Palisade St., Dobbs Ferry, NY 10522-1696, Tel: 914-693-9001, Telex: 646689 PANGIA-YONKERS; Empl.: 30; *Sls. Mgr.:* H. Joseph Brakl

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OPT INDS. INC., 300 Red School La., Phillipsburg, NJ 08865, Tel: 201-454-2600, TWX: 510-235-2920; Empl.: 240 ....**1A**•1268, 1269, 1398, 2212, 2213; **3**•1665

Local Sales Offices & Reps

CA	Palo Alto, Sheehan McCristall Assocs.	415-494-8244
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FL	Melbourne, EMS, Inc.	305-724-1027
IL	Chicago, LGS Elctrns. Co.	312-456-9616
IN	Ft. Wayne, Corrao Marsh, Inc.	219-637-5548
IA	Cedar Rapids, Cahill, Schmitz & Cahill	319-377-8219
MI	Ann Arbor, Technical Sls. Assocs.	313-995-4082
MI	Union Lake, Technical Sls. Assocs.	313-363-1427
MN	Minneapolis, White Sls. Co.	612-755-0855/3511
NJ	Freehold, Sal Giaconne	201-462-7410
NJ	Palisades Park, Janco Technlg.	201-941-4008
NY	Pittsford, Franklin Sls. Corp.	716-248-8251; 315-737-7121
OH	Dayton, Technical Sls. Assocs.	513-222-1892
OH	Dayton, Patrick Montplaisir	513-434-4316
OH	Lyndhurst, Technical Sls. Assocs.	216-461-0826
TX	Plano, Zeus Engrg. Co.	214-423-2027

OPTOELECTRONICS, INC., 1309 Dynamic St., Petaluma, CA 94952, Tel: 707-763-4181, Telex: 34-0186; Empl.: 40; *Sls. Mgr.:* Victor Yen

OPTOELECTRONICS, INC., 5821 N.E. 14th Ave., Ft. Lauderdale, FL 33334, Tel: 305-771-2050, Telex: 514849; Empl.: 25; *Sls. Mgr.:* L. R. Hufft; *Dist. Mgr.:* L. R. Hufft

OPTOMICRONIX, 10080 N. Wolfe Rd., SW 3-360, Cupertino, CA 95014, Tel: 408-725-1220; *Sls. Mgr.:* W. M. Otsuka

OPTO TECHNLG., 1674 S. Wolf Rd., Wheeling, IL 60090, Tel: 312-537-4277, TWX: 910-687-1490; Empl.: 25; *Sls. Mgr.:* William E. Hegberg; *Dist. Mgr.:* Richard Hegberg

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OPTO 22, 15461 Springdale St., Huntington Bch., CA 92649, Tel: 714-891-5861, Telex: 692-386; Empl.: 120; *Sls. Mgr.:* Jim Pancake ....**1B**•1470, 1471

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AR	Little Rock, Carlton Bates	501-562-9100
CA	Costa Mesa, Avnet Elctrns.	714-754-6111
CA	Costa Mesa, Hamilton Electro Sls. Orange County	714-641-4100
CA	Culver City, Hamilton Electro Sls.	213-558-2121
CA	Huntington Beach, Opto 22 Distibutor Sls.	714-891-5861
CA	Laguna Hills, Automated Dynamics	714-855-8235
CA	Milpitas, Automated Dynamics	408-946-0222
CA	Sacramento, Hamilton Avnet Electronics	916-925-2216
CA	San Diego, Hamilton Avnet Elctrns.	619-571-7510
CA	Sunnyvale, Hamilton Avnet Elctrns.	408-743-3355
CO	Arvada, Automated Dynamics	303-425-5242
CO	Denver, Hamilton Avnet Elctrns.	303-740-1000
CT	Danbury, Hamilton Avnet Elctrns.	203-797-2800
FL	Fort Lauderdale, Hamilton Avnet Elctrns.	305-971-2900
FL	Orlando, Hamilton Avnet Elctrns.	305-628-3888
FL	St. Petersburg, Hamilton Avnet Elctrns.	813-576-3930
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GA	Norcross, Hamilton Avnet	404-447-7507
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IL	Berkeley, Tara	312-449-6434
IL	Elk Grove Village, GBL Goold Elctrns.	312-593-3220
IL	Moline, Jim Otis	309-762-9311
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IN	Indianapolis, Process Automation Devices	317-849-3682
KS	Overland Park, Hamilton Avnet Elctrns.	913-888-8900
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MD	Columbia, Hamilton Avnet Elctrns.	301-995-3500
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MI	Livonia, Hamilton Avnet Elctrns.	313-522-4700
MI	Madison Heights, McNaughton-McKay Elect.	313-399-7500
MN	Minneapolis, Cassidy Elctrns.	612-944-0100
MN	Minnetonka, Hamilton Avnet Elctrns.	612-932-0600
MN	St. Paul, Kim Controls	612-780-2991
MO.	Earth City, Hamilton Avnet Elctrns.	314-344-1200
NJ	Cherry Hill, Hamilton Avnet Elctrns.	609-424-0100
NJ	Fairfield, Hamilton Avnet Elctrns.	201-575-3390
NM	Albuquerque, Hamilton Avnet Elctrns.	505-765-1500
NY	East Syracuse, Hamilton Avnet Elctrns.	315-437-2641
NY	Glen Head, Livera-Polk Assocs.	516-759-9300
NY	Melville, Hamilton Avnet Elctrns.	516-454-6060
NY	Rochester, Hamilton Avnet Elctrns.	716-475-9130
NC	Charlotte, Regan Controls	704-523-9137
NC	Raleigh, Hamilton Avnet Elctrns.	919-878-0810
OH	Centerville, I. P. D.	513-435-2086
OH	Cincinnati, Richard Equip.	513-271-8666
OH	Cleveland, Hamilton Avnet Elctrns.	216-831-3500
OH	Columbus, Great Lakes Controls Corp.	614-451-7872
OH	Dayton, Hamilton Avnet Elctrns.	513-433-0610
OH	North Royalton, Great Lakes Controls Corp.	216-582-0020
OK	Tulsa, Quality Comps.	918-664-8812
OR	Lake Oswego, Hamilton Avnet Elctrns.	503-635-8831
OR	Portland, Pacific Control Supply	503-249-2033
PA	King of Prussia, Applied Controls	215-265-3832
PA	Pittsburgh, Great Lakes Controls Corp.	412-341-6084
PA	Pittsburgh, Customized Control Sys.	412-921-3196
TX	Addison, Quality Comps.	214-387-4949
TX	Austin, Quality Comps.	512-835-0220
TX	Austin, Hamilton Avnet Elctrns.	512-837-8911
TX	Houston, Hamilton Avnet Elctrns.	713-780-1771
TX	Houston, Quality Comps.	713-491-2255
TX	Irving, Hamilton Avnet Elctrns.	214-659-4111
UT	Salt Lake City, Hamilton Avnet Elctrns.	801-972-2800
WA	Bellevue, Hamilton Avnet Elctrns.	206-643-3950
WA	Kent, Shannon, Ltd.	206-763-0545
WA	Redmond, Cascade Controls	206-881-8843
WI	Milwaukee, Taylor Elctrns.	414-241-4321
WI	Milwaukee, Hamilton Avnet Elctrns.	414-784-4510
WI	Sussex, Professional Control Corp.	414-246-3220

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ORAM ELCTRNS., Rte. 22, Brewster, NY 10509, Tel: 914-279-2966; Empl.: 25; *Sls. Mgr.:* Vincent A. Gianguzzi

ORBIT INDS., 2670 Lockheed Way, Carson City, NV 89701, Tel: 702-882-6123; Empl.: 10

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ORBIT INSTRUMENT CORP., 80 Cabot Ct., Hauppauge, NY 11788, Tel: 516-435-8300, TWX: 510-221-2122; FSC No.: 11263; *Sls. Mgr.:* Bruce Reissman, Dennis Sunshine ...**1B**•1790, 1791; **3**•1138

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CA	San Diego, Orbit Instr. Corp.	619-566-3437

ORBIT INSTRUMENT OF CAL., 6431 Global Dr., Cypress, CA 90630, Tel: 714-527-0561, TWX: 510-221-2122; FSC No.: 11263; *Sls. Mgr.:* Bruce Reissman

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ORTEL CORP., 2015 W. Chestnut St., Alhambra, CA 91803, Tel: 213-281-3636; *Sls. Mgr.:* Andrew Hilbert

OSBORNE TRANSFORMER, 19636 Derby St., Detroit, MI 48203, Tel: 313-368-4136; Empl.: 30; *Sls. Mgr.:* J. R. Osborne

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AZ	Scottsdale, Semi-Systems	602-991-1151
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CA	Mountain View, Westech Sls.	415-961-1422
CO	Englewood, Computech Mkt.	303-773-3981
CT	Bloomfield, Zaslow Sls.	203-242-7781
FL	Tampa, J-R Controls	813-961-9478
IL	Lisle, W-G Controls	312-963-5954
MD	Silver Spring, L. G. White & Co.	301-434-1555
MI	Grosse Pointe Park, Greiner Assoc.	313-499-0188
MN	Minneapolis, JOS-CO/Melius	612-861-3343
MO	St. Louis, Hill & Co.	314-432-1136
NJ	Caldwell, Grimm Siegel Assoc.	201-575-9300
NY	Syracuse, Canavan-Scanlon Assoc.	315-437-127
OH	Cincinnati, O. H. Bromberg & Assoc.	513-771-9333
OH	Mentor, KT/DEPCO	216-729-3588
PA	Broomall, White-Whiddett	215-353-6347
TX	Dallas, Glidden Electro Equip.	214-341-0610
WA	Mercer Island, J. H. Andersen & Assocs.	206-232-0484

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CA	Los Angeles, Minarik Elect.	213-485-129
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CA	San Diego, Deco Elctrns.	619-693-159
CA	San Jose, Cypress Elctrns.	408-945-840
CA	Tustin, Western Switches	714-731-433
CA	Van Nuys, Pacific Switch Controls	213-873-480
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CT	West Hartford, Atlantic Switch Controls	203-527-770

Lakeland, A A Elec.	800-237-8274
Lakeland, Switch Controls	813-644-7564
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Canton, Impact Elctrns.	617-821-1500
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Fair Lawn, Relay Specialties	201-797-3313
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Columbus, Ohio Switch	614-885-0319
Dallas, Glidden Electro Equip. Co.	214-341-0610
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Mequon, Taylor Elec.	414-241-4321
Ponce, Distributronics	809-843-3321

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Costa Mesa, Gabriel Assocs.	714-957-1981
San Jose, Mollard Mktg.	415-961-0456
Ft. Lauderdale, Newell-Hynes Assocs.	305-761-1113
Glen Ellyn, Rockford Controls Co.	312-469-6016
Needhan Heights, Newscott	617-444-1923
Kansas City, Harris-Hanson Co.	816-444-9494
St. Louis, Harris-Hanson Co.	314-432-3611
Medford, Jack McCoy Inc.	609-953-0770
Great Neck, F. Tylinski Co.	516-466-9070
Cleveland, Electro-Com	216-676-8154
Dayton, Electro-Com	513-898-5140
Irmo, Heritage Sls. Assoc.	803-781-8259
Dallas, Control Comps. Corp.	214-458-8877
Bellevue, James Findlay Co.	206-455-9597

Local Distributors

Los Angeles, Electric Switches, Inc.	213-664-2125
N. Hollywood, Flame Enterprises	213-769-2442
Sunnyvale, Pyramid Elctrns.	408-744-1900
Kensington, Marine Air Supp.	301-949-1353
Hingham, Sager Elec. Supp.	617-749-6700
Farmingdale, Harrison Radio Corp.	516-293-7990
Lynbrook, Peerless Radio Corp.	516-593-2121
Woodside, Durham Aircraft Srvc.	212-274-9000
Dallas, Associated Aircraft Supp.	214-331-4381

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Local Sales Offices & Reps

Huntsville, L & D, Inc.	205-837-1469
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Van Nuys, R.L. Assocs.	213-782-7826
Loveland, Morbak Mktg.	303-669-8900
Maitland, Ellis & Assocs.	305-645-1101
Atlanta, L & D Inc.	404-455-3483
Des Plaines, Janus Inc.	312-298-9330
Fort Wayne, TX Sls., Inc.	219-489-4447
Towson, Dickison Sls. Co.	301-823-0923
Milton, Naton Assocs.	617-698-0670
St. Paul, Countryman	612-645-9151
Blue Springs, Chesco	816-229-1404
St. Charles, Chesco	314-946-6677
Cherry Hill, H. J. White Co.	609-428-4544
Paramus, Eltech Sls.	201-967-1309
Buffalo, Quality Comps.	716-837-5430
Greensboro, L & D, Inc.	919-292-3201
Raleigh, L&D Inc.	919-876-5301
Seymour, L&D Inc.	615-577-1549
Arlington, W. Pat Fralia Co.	817-640-9101

VA	Richmond, L & D, Inc.	804-359-1025
WA	Seattle, Carlyle Tech. Sls.	206-575-6750
WI	Milwaukee, Janus Inc.	414-476-9104

OVEN INDS., 191 Hempt Rd., P.O. Box 290, Mechanicsburg, PA 17055, Tel: 717-766-0721; FSC No.: 21302; Empl.: 50; *Sls. Mgr.:* T. M. Nolan

OXLEY INC., 6290 Sunset Blvd., Ste. 1126, Los Angeles, CA 90028, Tel: 213-463-5120, TWX: 910-321-2903; *Sls. Mgr.:* Norman R. Sutherland

PACCOM, 3928 148th NE, Redmond, WA 98052, Tel: 206-883-9200, 800-426-6254, TWX: 910-449-2592; Empl.: 15; *Sls. Mgr.:* D. Tully; *Dist. Mgr.:* C. Beaudette

PACE INC., 9893 Brewers Ct., Laurel, MD 20707, Tel: 301-490-9860, Telex: 87446; Empl.: 75; *Sls. Mgr.:* James K. Bausell

PACER INDUSTRIES, INC., 1450 First Ave., Chippewa Falls, WI 54729, Tel: 715-723-1141, Telex: 260391; FSC No.: 60162; *Sls. Mgr.:* Steven Prince; *Dist. Mgr.:* Steven Prince

PACIFIC ATLANTIC ELCTRNS., Box 754, El Cerrito, CA 94530, Tel: 415-237-5837, TWX: 910-366-7296; Empl.: 4; *Sls. Mgr.:* P. Yen; *Dist. Mgr.:* P. Yen

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PACIFIC COMMUNICATIONS, 2041-A S. Grand Ave., Santa Ana, CA 92705, Tel: 714-546-0147; Empl.: 35

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PACIFIC INSTRS. INC., 2355 Whitman Rd., Concord, CA 94518, Tel: 415-827-9010, TWX: 910-481-9977; Empl.: 45 .... **3**•1015

Local Sales Offices & Reps

AL	Huntsville, Lee Assocs.-Mid South, Inc.	205-533-5896
AZ	Phoenix, Vic Myers Assocs.	602-241-9324
AZ	Phoenix, Trembly Assocs.	602-967-2058
CA	Alhambra, Dale-Dahl Assocs.	213-682-3417
CA	Walnut Creek, Dale-Dahl Assocs.	415-933-9595
CO	Denver, Vic Myers Assocs.	303-629-9676
CO	Denver, Trembly Assocs.	303-759-1195
CT	Hamden, Applied Measurements	203-288-5288
FL	Maitland, Wade H. Boggs, Inc.	305-647-2226
IL	Park Ridge, EIA, Inc.	312-298-2290
IN	Indianapolis, EIA, Inc.	317-257-7231
ME	Freeport, Applied Measurements	207-773-4580
MA	Acton, Applied Measurements	617-263-2766
MI	Farmington Hill, Anderson Elctrns., Inc.	313-553-7608
NJ	Marlboro, Cook & Weil	201-536-3964
NM	Albuquerque, Vic Myers Assocs.	505-884-6878
NM	Albuquerque, Trembly Assocs.	505-266-8616
NY	Latham, L-Tron Corp.	518-785-5032
NY	New York, Cook & Weil	212-246-6599
PA	Radnor, Roberts Engrg.	215-688-6525
TN	Nashville, Lee Assocs.-Mid South, Inc.	205-533-5896
TX	Arlington, John T. Houston Assocs., Inc.	817-265-2931
UT	Salt Lake City, Trembly Assocs.	801-486-5292
UT	Salt Lake City, Vic Myers Assocs.	801-581-1760
VT	Bennington, Applied Measurements	802-442-2222
VA	Arlington, Gans & Pugh Assocs.	703-527-3262

PACIFIC MAGNETICS CORP., 2602 Transportation Ave., Ste. F, National City, CA 92050, Tel: 619-474-8216; *Sls. Mgr.:* Mary Hill

PACIFIC MEAS., INC., 488 Tasman Drive, Sunnyvale, CA 94086, Tel: 408-734-5780, TWX: 910-339-9273; Empl.: 100; *Sls. Mgr.:* Ed Mendel

PACIFIC MICROCOMPUTERS, INC., 119 Aberdeen, Cardiff, CA 92007, Tel: 619-436-8649; Empl.: 27; *Sls. Mgr.:* Sherrell Harper

PACIFIC MICRO SYS., INC., 160 Gate 5 Rd., Sausalito, CA 94965, Tel: 415-331-2525; Empl.: 12; *Sls. Mgr.:* Donald Shipley; *Dist. Mgr.:* Donald Shipley

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Local Sales Offices & Reps

KS	Overland Park, Ramsey Assocs.	913-649-6996
MA	Burlington, Intersell, Inc.	617-273-3844
MN	Minneapolis, Loren Green Assocs.	612-571-6666
MO	Maryland Heights, Ramsey Assocs.	314-878-5042
NY	Dewitt, D. B. Assocs. Inc.	315-446-0220
NY	Wantagh, Bytec Reps.	516-781-7400
VA	Springfield, Tech Reps. Inc.	703-569-6868
WA	Bellevue, Al Smith	206-746-6770
WA	Vancouver, Al Smith	206-892-9912

Local Distributors

EXP	Los Angeles, CA, Trans World Trade	213-476-8406

PACIFIC RESISTOR CO., 18300 Oxnard St., Tarzana, CA 91356, Tel: 213-345-7811 .... **1A**•1922, 1923

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CA	San Jose, Silcon Valley	408-286-7510
MN	St. Paul	612-642-2828

PACIFIC SCIENTIFIC CO., 4301 Kishwaukee, Rockford, IL 61105, Tel: 815-966-3600, Telex: 257-315; Empl.: 400

Distributor

PACIFIC SWITCH CONTROLS, INC., 16116 Leadwell St., Van Nuys, CA 91406, Tel: 213-873-4802 .... **1B**•1742

PACIFIC TIMER INC., 21739 N.E. 18th Way, Redmond, WA 98052, Tel: 206-881-1785; *Sls. Mgr.:* Karen A. Pettyjohn

PACIFIC TRANSDUCER, 2301 Federal, Los Angeles, CA 90064, Tel: 213-478-1134; Empl.: 23

PACTEC DIV., LaFrance Corp., Enterprise & Executive Avenues, Philadelphia, PA 19153, Tel: 215-365-8400, Telex: 83-1732; *Dist. Mgr.:* Edward Fitzpatrick .... **2**•1002, 1042, 1043

Local Sales Offices & Reps

AL	Huntsville, Hollingsworth & Still	800-241-5712
AZ	Phoenix, Gramer & Co.	602-995-9455
CA	Fallbrook, Martronix	619-728-7678
CA	Santa Clara, Warren Assoc.	408-988-7762
CO	Denver, High Plains Mktg.	303-751-7150
CT	Middletown, Gerber Sls.	203-347-3000
FL	Ft. Lauderdale, Hollingsworth & Still	305-748-8964
GA	Norcross, Hollingsworth & Still	404-447-1700
IL	Arlington, Brainard-Wilson Mktg.	312-437-2700
IN	Carmel, Brainard-Wilson Mktg.	317-844-2800
MA	Newton, Gerber Sls.	617-969-2620
MI	Detroit, Burcaw Co.	313-533-7700
MN	St. Louis Park, Lestronix	612-926-8466
MO	Grandview, Harris Hanson Co.	816-763-6200
MO	St. Louis, Harris Hanson Co.	314-432-3611
NJ	Broomall, L. D. Lowery, Inc.	215-528-5170
NJ	Woodcliff Lake, Joe Freid & Assoc.	201-391-8091
NY	Great Neck, F & F Metro	516-482-4080
NY	Mendon, Tech-Mark	716-624-3840
OH	Richfield, Bear Mktg.	216-659-3131
OR	Portland, James J. Backer Co.	503-297-8744
PA	Broomall, L.D. Lowery, Inc.	215-528-5170
TX	Dallas, MGR Elctrn.	214-238-5246
UT	Salt Lake City, High Plains Mktg.	801-968-9456
WA	Seattle, James J. Backer Co.	206-285-1300
WI	Colgate, Rep 1 & Assocs.	414-628-4016

Local Distributors

AL	Decatur, Forbes Distrs.	205-353-4762
AZ	Phoenix, R. V. Weatherford	602-272-7144

AZ	Phoenix, Tri-Tek	602-995-9352
AZ	Phoenix, Lion Elctrns.	602-869-9611
AZ	Tucson, Elliot Elctrns.	602-884-7394
CA	Anaheim, R. V. Weatherford	714-634-9600
CA	Burlingame, Rose Elctrns.	415-348-2740
CA	Cucamonga, Abletronics	714-987-7606
CA	Gardena, California Switch & Signal	714-522-8600
CA	Glendale, R. V. Weatherford	213-849-3451
CA	Glendale, R. V. Weatherford	213-849-3451
CA	Monterey, Zackit (Monterey)	408-375-3144
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Palo Alto, R. V. Weatherford	415-493-5373
CA	Pomona, R. V. Weatherford	714-623-1261
CA	Sacramento, Zackit/Sacramento	916-446-3131
CA	San Diego, R. V. Weatherford	619-278-7400
CA	San Jose, Quement Elctrns.	408-998-5900
CA	San Rafael, Electronics Plus	415-457-0456
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Valleyo, Zackit (Valleyo)	707-644-6676
CO	Denver, Intergrated Elctrns.	303-292-6121
CO	Denver, Gateway Elctrns.	303-458-5444
CO	Denver, R. V. Weatherford	303-428-6900
CO	Greeley, Greely Walker	303-353-3241
CT	Middletown, Midstate Elctrns.	203-347-5638
CT	New Haven, Hatry Elctrns.	203-787-5921
CT	New London, Jan Elctrns.	203-442-4386
CT	Stratford, Utronics	203-378-4201
DE	Wilmington, Wholesale Elctrns.	302-656-9988
FL	Longwood, MRP Micro Elctrns.	305-331-8787
FL	Miami, Electronic Equip. Co.	305-871-3500
FL	Orlando, EMSCO	305-849-6362
FL	West Palm Beach, Nurmi Elctrns.	305-686-8553
GA	Atlanta, Ack Radio	404-351-6340
IL	Arlington Hgts., Martec Assocs.	312-437-2700
IL	Berwyn, BB & W Inc.	312-242-1533
IL	Champagne, Klaus Radio	217-356-1896
IL	Chicago, R. W. Elctrns.	312-248-2480
IL	Chicago, Electronic Distrs.	312-283-4800
IL	Elk Grove, Martec Assocs.	312-956-8090
IL	Mt. Prospect, Tri State Elctrns.	312-255-0600
IL	Niles, Joseph Elctrns.	312-297-4200
IL	Rosemont, Advent Elctrns.	312-297-6200
IN	Bloomington, Stansifer Radio Co.	812-336-6339
IN	Gary, Calumet Elctrns.	317-887-4961
IN	Indianapolis, Electronic Service Parts	317-632-8586
IN	Jasper, Elex Mart	812-882-3615
IA	Cedar Rapids, Iowa Radio Supply	319-393-5410
KS	Salina, Electronics, Inc.	913-827-7377
KY	Bowling Green, Randolph, Hale & Meredith	502-781-1460
KY	Louisville, Peerless Elctrns.	502-637-7674
MD	Aberdeen, Harco Elctrns.	301-838-7990
MD	Baltimore, Almo Elctrns.	301-247-5955
MD	Beltsville, P.S.I.	301-937-4960
MD	Hyattsville, Mark Elctrns.	301-559-7700
MD	Rockville, Capitol Radio	301-881-2270
MD	Rockville, Heath Kit Elctrns.	301-881-5420
MD	Towson, Baynesville Elctrns.	301-823-0082
MA	Hingham, Sager Elec. Supp.	617-749-6700
MI	Augusta, Great Lakes Elctrns.	616-731-4156
MI	Berrien Springs, Data Comms.	616-471-2119
MI	Detroit, Radio Supp. & Engrg.	313-TE1-3174
MI	Grand Rapids, S. F. Elctrns.	616-459-0216
MI	Lansing, Fulton Radio	517-394-5020
MI	Livonia, RS Elctrns.	313-525-1155
MN	Edina, Northern Elctrns.	612-944-1167
MO	Kansas City, Burstein & Assocs.	816-BA1-4100
MO	St. Louis, Gateway Elctrns.	314-427-6116
NE	Lincoln, Scott Elctrns.	402-466-8221
NJ	Milford, Sintec/Aries	201-996-4093
NJ	Pine Brook, Parts Masters	201-227-7797
NM	Albuquerque, Walker Radio Co.	505-247-2288
NY	Buffalo, Summit Distr.	716-887-2800
NY	Freeport, KRP Elctrns.	516-623-3346
NY	New York, Advance Elctrns.	212-687-2224
NY	Rochester, Summit Distr.	716-334-8110
NY	Rochester, Rochester Radio Supp.	716-454-7800
NY	Rockville Centre, Midway Indl. Elctrns.	212-895-2443
NY	Rockville Centre, Midway Indl.	516-764-2400
NY	Troy, Trojan Elctrn. Supp.	518-274-4481
NC	Burlington, Womack Elctrns.	919-227-7486
NC	Charlotte, Dixie Elctrns.	704-377-5413
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, Southeastern Elctrns.	919-828-2311
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Columbus, Hughes-Peters	614-294-5351
OH	Solon, Hart Elctrns.	216-248-8855
OK	Oklahoma City, Electronic Supp.	405-232-5215
OK	Tulsa, Radio Inc.	918-587-9123
OR	Beaverton, Norvac Elctrns.	503-644-1025
OR	Portland, Radar Elec.	206-233-3691
PA	Allentown, A.A. Peter, Inc.	215-434-5237
PA	Coatesville, County Supply	215-384-4585
PA	Enola, Almo Elctrns.	717-732-3681
PA	Marcus Hook, Linwood Wholesalers	215-485-0777
PA	Philadelphia, Almo Elctrns.	215-698-4000
PA	Willow Grove, Resco Elctrns.	215-659-4575
PA	York, Rosen Elctrns.	717-843-3875
RI	Pawtucket, Jabbour Elctrns.	401-728-4600
SC	Columbia, Dixie Elctrns.	803-779-5332
TN	Chattanooga, Techni-Tronics	615-875-5449
TN	Clarksville, Randolph, Hale & Matthews	615-647-2325
TN	Columbus, Randolph & Williams	615-388-7566
TN	Gray, Dixie Elctrns.	615-477-3838
TN	Memphis, Bluff City	901-345-9500
TN	Nashville, Randolph & Rice	615-255-5602
TN	Tullahoma, Randolph, Rice & Williams	615-455-4531
TX	Austin, Galtronics	512-452-9311
TX	Dallas, R. V. Weatherford	214-243-1571
TX	Dallas, Solid State Elctrns.	214-438-5700
TX	Houston, Ace Elctrns.	713-688-8114
TX	Houston, R. V. Weatherford	713-688-7406
TX	Houston, Gateway Elctrns.	713-978-6575
TX	San Antonio, Altex Elctrns.	512-828-0503
UT	Salt Lake City, Standard Supp.	801-486-3371
VA	Arlington, Arlington Elctrns.	703-524-2415
VA	Charlottesville, Virginia Radio	804-296-4184
VA	Falls Church, Crossroads Elctrns.	703-931-0600
VA	Richmond, ITR (Instr. Tech. Reps.)	804-275-1431
WA	Seattle, Zephyr Elctrn. Sls.	206-241-1980
WA	Seattle, Radar Elec.	206-282-2511
WA	Seattle, R. V. Weatherford	206-575-0922
WI	Madison, Satterfield Elctrns.	608-257-4801
WI	Milwaukee, E-M Instruments	414-272-7799
WI	Milwaukee, Marsh Elctrns.	414-475-6000

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PALL TRINITY MICRO, Rte. 281, Cortland, NY 13045, Tel: 607-753-6041, Telex: 93-7295, TWX: 510-252-0791; Empl.: 500; *Sls. Mgr.:* R. H. Simkins; *Dist. Mgr.:* R. H. Hauslein

PALL ULTRAFINE FILTRATION CORP., 30 Sea Cliff Ave., Glen Cove, NY 11542, Tel: 516-759-1900, Telex: 64-9491, TWX: 510-223-0606; Empl.: 3500

Local Distributors

CA	Fremont, Mensco	408-739-8690
CO	Englewood, Ross Equip.	303-740-9400
CT	Hamden, Pont Tech. Sls.	203-281-0005
FL	Cocoa Beach, Sys. Comps. Corp.	305-783-1002
MI	Kalamazoo, Flowtech Corp.	616-375-1290
MI	Livonia, Flowtech Corp.	313-471-5660
MO	Maryland Heights, Process & Chemical Equip.	314-878-6161
NY	Cortland, Prosco Prods., Inc.	607-753-8231
RI	Cranston, Chisholm	800-556-6436
TX	Houston, AWC Texas, Inc.	713-486-5800
TX	Odessa, Engineered Equip.	915-367-1821

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Local Sales Offices & Reps

AL	Huntsville, Conley & Assocs.	205-882-0316
AZ	Tempe, Foley, Tallent & Lee	602-438-1564
AR	Little Rock, J.Y. Schoonmaker	501-375-2168
CA	Burlingame, W. J. Purdy	415-347-7701
CA	Costa Mesa, Berman-Gravley	714-549-2122
CO	Denver, W. J. Purdy	303-777-1411
CT	Hartford, Sturgeon	203-249-7800
FL	Boca Raton, Conley & Assocs.	305-395-6108
FL	Oviedo, Conley & Assocs.	305-365-3283
FL	Tampa, Conley & Assocs.	813-885-7658
GA	Atlanta, Conley & Assocs.	404-447-6992
IL	Elmhurst, Hill-Gray	312-832-4101
IN	Indianapolis, Sukup & Cox	317-253-5501
IA	Marion, MSB Assocs.	319-377-6261
KS	Shawnee Mission, MSB Assocs.	913-432-2131
MD	Lisbon, S. K. MacDonald	301-924-5880
MA	Needam, Sturgeon	617-444-6603
MI	Ferndale, Hilltronics	313-398-5556
MN	Edina, Mel Foster Tech. Sls.	612-941-9790
MO	St. Charles, MSB Assocs.	314-946-5577
NJ	Englewood, Harold Gray	201-894-0894
NM	Albuquerque, W. J. Purdy	505-266-7959
NY	Syracuse, Paston-Hunter	315-437-2843
NC	Raleigh, Conley & Assocs.	919-876-9862
OH	Beachwood, Electronic Salesmasters	216-831-9555
OK	Tulsa, J.Y. Schoonmaker	918-446-0373
OR	Beaverton, William J. Purdy	503-641-9373
PA	Philadelphia, S. K. MacDonald	215-545-1205
TX	Austin, J. Y. Schoonmaker	512-480-9257
TX	Dallas, J. Y. Schoonmaker	214-349-1650
TX	Houston, J.Y. Schoonmaker	713-738-2427
UT	Salt Lake City, W. J. Purdy	801-486-8557
WA	Redmond, William J. Purdy	206-882-3144

Local Distributors

AL	Birmingham, Forbes Distributing	205-251-4104
AL	Birmingham, JLS Indl. Elctrns.	205-322-2486
AL	Huntsville, Pioneer/Huntsville	205-837-9300
AZ	Phoenix, Electronic Parts	602-277-7281
AZ	Phoenix, Wyle/Distribution	602-249-2232
AZ	Tempe, Waltronic Sls.	602-967-1020
AZ	Tucson, Inland Elctrn. Supp.	602-294-2628
AR	Little Rock, Carlton-Bates Co.	501-562-9100
CA	Buena Park, RPS Elctrns.	213-744-0355
CA	El Segundo, Wyle/Distribution	213-322-8100
CA	Fresno, J. C. Arbuckle	209-264-6554
CA	Hayward, Allied Elctrns.	415-487-5250
CA	Inglewood, Newark	213-678-0441
CA	Irvine, Ratel Elctrns.	714-549-8611
CA	Irvine, Wyle/Distribution	714-641-1600
CA	Mountain View, Abacus Elctrns.	415-961-1500
CA	Palo Alto, Zack Elctrns.	415-326-543
CA	Sacramento, Sacramento Elctrns.	916-441-4821
CA	Sacramento, Dunlap Elctrns.	916-444-8070
CA	San Diego, Wyle/Distribution	619-565-9171
CA	San Jose, Quement Elctrns.	408-998-5900
CA	San Jose, Ratel Elctrns.	408-946-4300
CA	Santa Clara, Waltronic Sls.	408-727-1200
CA	Santa Clara, Wyle/Distribution Grp.	408-727-2500
CA	Van Nuys, Nesco	213-781-050
CO	Colorado Springs, Centennial Elctrns.	303-633-466
CO	Denver, Ragon Elctrns.	303-744-360
CO	Denver, Fistell Elctrns. Supp.	303-244-469
CO	Denver, CW Elctrn. Sls. Co.	303-832-111
CO	Denver, Newark	303-757-335
CO	Lakewood, Acacia Sls.	303-232-288
CO	Thornton, Wyle/Distribution	303-457-995
CT	New Haven, Hatry Elctrns.	203-787-592
CT	Norwalk, Bond Radio Elctrns.	203-348-266
CT	Wallingford, Sager Elect. Supp. Co.	203-265-460
FL	Altamonte, Pioneer/Orlando	305-834-909
FL	Jacksonville, Southeast Elctrns.	904-356-300
FL	Miami, ESL Elctrn. Distrs.	305-633-697
FL	Miami, Electronic Equip.	305-871-350
FL	Tampa, Leader Elctrn. Distrs.	813-870-331
FL	West Palm Beach, Dolphin Elctrn. Supp.	305-659-716
HI	Honolulu, Honolulu Elctrns.	808-949-556
IL	Addison, L Comp/Chicago	312-628-140
IL	Champaign, Klaus Radio	217-356-189
IL	Chicago, Newark/Chicago	312-638-441
IL	Elgin, Allied Elctrns.	312-697-820
IL	Rockford, Midwest Assocs.	815-962-803
IN	E. Chicago, Acro Distrs.	219-397-868
IN	Ft. Wayne, Graham Elctrns.	219-423-342
IN	Indianapolis, Genesis Elctrns.	317-637-557
IN	Indianapolis, Graham Elctrns.	317-634-820
IN	Michigan City, Tri-State Elec. Supp.	219-872-555
IA	Cedar Rapids, Iowa Radio Supp.	319-393-451
KY	Lexington, Radio Elctrn. Equip.	606-255-666
KY	Louisville, Peerless Elctrn. Equip.	502-637-767
LA	Lafayette, Ralph's Elctrns.	318-234-450
LA	New Orleans, Southern Radio Supp.	504-524-234
LA	New Orleans, William B. Allen Co.	504-525-822
LA	Shreveport, Industral Elctrn. Supp.	318-222-945
MD	Baltimore, Resco/Baltimore	301-823-007
MD	Gaithersburg, Pioneer/Wash.	301-948-07
MA	Hingham, Sager Elec. Supp.	617-749-670
MA	Lynn, Land Elctrn. Supp.	617-592-22
MA	Needham, Cronin Electrns.	617-449-500
MA	No. Wilbraham, Industrial Comps.	413-596-385
MA	Waltham, Sterling Elctrns.	617-894-620
MI	Ann Arbor, Wedemeyer Elctrn. Supp.	313-665-86
MI	Battle Creek, Great Lakes Elctrns.	616-731-41
MI	Flint, Shand Elctrns.	313-743-89
MI	Livonia, RS Elctrns.	313-525-11
MI	Oak Park, Newark	313-967-06
MN	Minneapolis, Electrn Center	612-371-52
MN	Minneapolis, Newark	612-331-63
MN	St. Paul, Gopher Elctrns. Co.	612-483-33

Jackson, Ellington Elctrns. Supp.	601-355-0561
Kansas City, L Comp/Kansas City	816-221-2400
Maryland Hgts., L Comp/St. Louis	314-291-6200
St. Louis, Olive Indl. Elctrns.	314-426-4500
St. Louis, Van-Sickle Radio Elctrns.	314-621-5000
Lincoln, Scott Elctrn. Supp.	402-466-8221
Clifton, J-Mar	201-772-6400
Cranford, Garden State Indl. Elect.	201-272-6400
Springfield, Newark	201-376-9500
Albuquerque, Elctrn. Parts Co.	505-293-6161
Albuquerque, Walker Radio	505-247-2288
Albany, E. E. Taylor	518-438-7811
Buffalo, Genessee Radio & Parts	716-873-9661
Buffalo, Summit Distrs.	716-884-3450
Hauppauge, Fairmont Elctrn. Sls.	516-231-3313
Millbrook, Villarreal Elctrns.	914-677-3447
Rochester, Summit Distrs.	716-334-8110
Raleigh, Southeastern Elctrns.	919-828-2311
Akron, Sun Radio Co.	216-434-2171
Akron, Akron Elctrn. Supp.	216-762-8818
Cincinnati, Hughes-Peters	513-351-2000
Columbus, Hughes-Peters	614-294-5351
Solon, Repco	216-248-8900
Oklahoma City, Elctrn. Supp.	405-232-5215
Tulsa, Radio, Inc.	918-587-9123
Hillsboro, Wyle/Distribution	503-640-6000
Portland, United Radio Supp.	503-233-7151
Portland, Radar Elec. Co.	503-232-3404
Altoona, Allegheny Elctrns.	814-946-0871
Erie, Rem Elctrns.	814-453-5626
Philadelphia, Philadelphia Elctrns.	215-568-7400
Philadelphia, Almo Elctrns.	215-698-4000
Pittsburgh, CAM/RPC Ind'l Elctrns.	412-782-3770
Pawtucket, Major/Edwards Elctrns.	401-725-7400
Charleston, Wholesale Ind'l. Elctrns.	803-722-2634
Columbia, Dixie Elctrns.	803-779-5332
Kingsport, Radio Elec. Supp.	615-247-8111
Knoxville, Indl. Elctrns.	615-573-7135
Memphis, Bluff City Dist.	901-345-9500
Nashville, Randolph & Rice	615-255-5601
Austin, Wholesale Elctrns. Supp.	512-478-9568
Austin, Harrison Equip.	512-458-3555
Corpus Christi, Douglas Elctrns.	512-883-5103
Corpus Christi, Wicks Radio Equip.	512-883-4481
Dallas, Wholesale Elctrns. Supp.	214-824-3001
El Paso, Midland Specialty Co.	915-533-9555
El Paso, Ideal Ind'l Elctrn. Supp.	915-779-6647
Ft. Worth, Allied Elctrns.	817-336-5401
Houston, Altair Co.	713-462-3029
San Antonio, Sherman Elctrns.	512-224-1001
Stafford, Harrison Equip.	713-879-2600
Salt Lake City, Newark	801-486-1048
Salt Lake City, Kimball Elctrns.	801-328-2075
Norfolk, Avec Elctrns.	804-627-3502
Richmond, Sterling Elctrns.	804-226-2190
Bellevue, Wyle/Distribution	206-453-8300
Seattle, Radar Elec.	206-282-2511
Beckley, Halley Elctrns.	304-253-2561
Charleston, McJunkin Corp.	304-348-4906
Mequon, Taylor Elec.	414-241-4321
Milwaukee, Indl. Elctrn. Corp. of WI	414-276-1212
San Turce, Elctrn. Centre	809-724-3823

AMRAN, 1101 Cedar Creek, Racine, WI 53402, Tel: 414-639-9076; Empl.: 28; *Sls. Mgr.:* R. C. Pfeil

ANAMETRICS, 221 Cresent St., Waltham, MA 02254, Tel: 617-899-2740, Telex: 6817337, 951006; Empl.: 200; *Sls. Mgr.:* Bob Mel

Local Sales Offices & Reps

Oxnard; Quality Testing Consultants	805-985-1144
Bensenville, Sonoscan	312-766-7088
Westboro, N.E. N D.T. Sls. Co	617-366-9800
Chelsea, Michigan Nondestructive Gage Co.	313-475-2979
Swartswood, E.M.C.O.	201-362-9306
Houston, General Svcs.	713-931-1201
Poulsbo, Engineering Technlg.	206-779-5550

ANASONIC, IND'L. ELCTRN. COMPS., Panasonic, Elctrn. Comps. Div., Box 1503, Secaucus, NJ 07094, Tel: 201-348-7000, Telex: 701 992-8920; Empl.: 25 .... **3**•1414-1419

Local Sales Offices & Reps

Huntsville, Rep. Inc.	205-881-9270
Phoenix, Stitzer-Dodd	602-944-2237
Pleasanton, Moulthrop Sls.	415-463-0450
San Diego, Tauber & Assoc.	619-274-7242
Van Nuys, K & R Sls.	213-781-0522
Denver, Component Sls.	303-759-1666
Madison, Conti-Younger Assoc.	203-245-1136
Ft. Lauderdale, Reynolds & Assoc.	305-581-6611
Melbourne, Reynolds & Assoc.	305-259-7000
St. Petersburg, Reynolds & Assoc.	813-360-1484

GA	Tucker, Rep, Inc.	404-938-4358
IL	Palatine, Techn. Sls.	312-991-6600
IN	Indianapolis, Mktg. Engrs.	317-872-5665
KS	Olathe, Rush & West	913-764-2700
MD	Ellicott City, Mktg. Techn.	301-465-5944
MA	Burlington, Conti-Younger Assoc.	617-273-1582
MI	Birmingham, Favco Assoc.	313-644-0173
MN	Eden Prairie, Electro Mark	612-944-5850
MO	Ballwin, Rush & West	314-394-7271
NH	Melvin Village, Conti-Younger Assoc.	603-544-7378
NJ	Mount Laurel, Comtek	609-235-8505
NY	Great Neck, Cooper-Simon & Co.	516-487-1142
NY	N. Syracuse, Advanced Comp. Corp.	315-699-2671
NC	Raleigh, REP. Inc.	919-851-3007
OH	Cleveland, Del Steffen & Assoc.	216-461-8333
OH	Dayton, Del Steffen & Assoc.	513-293-3145
OH	Lexington, Del Steffen & Assoc.	419-884-2313
OR	Tigard, Elec. Sources	503-684-0040
PA	Pittsburgh, Del Steffen & Assoc.	412-276-7366
TN	Jefferson City, Rep Inc.	615-475-9012
TX	Austin, Dunbar Assoc.	
TX	Dallas, Dunbar Assocs.	214-239-7151
UT	Salt Lake City, Comp. Sls.	801-268-8440
VA	Lynchburg, Marketing Techn.	804-384-6459
WA	Bellevue, Elctrn. Sources	206-451-3500

Local Distributors

AL	Huntsville, Resistacap	205-883-4270
CA	Burlingame, Rose Elect. Distr. Co.	415-348-2740
CA	San Diego, Tauber Elctrns.	619-274-7242
CA	San Jose, Cypress Elctrns.	800-538-5112
CA	Van Nuys, NESCO	213-781-0505
IL	Chicago, Power Pak	312-286-5566
MA	Canton, Impact Sls. Co.	617-821-1500
MI	Brighton, AP Sls.	313-229-6550
NJ	Plainfield, Mars Elctrns.	201-757-4332
NY	Commack, Brentronics	516-499-5155
TX	Dallas, Computer Comp. Corp.	214-239-0271

PANAVISE PRODS., 2850 E. 29th St., Long Beach, CA 90806, Tel: 213-569-8108, Telex: 18-2135; Empl.: 29; *Sls. Mgr.:* Michael Steffen; *Dist. Mgr.:* Michael Steffen

PANDUIT CORP., 17301 Ridgeland Ave., Tinley Park, IL 60477-0981, Tel: 312-532-1800, Telex: 25-4560; Empl.: 1200 .... **2**•1532-1534, 2136-2139

Local Sales Offices & Reps

AL	Birmingham, Frank Parker & Assoc.	205-853-3152
AZ	Phoenix, Panduit Corp.	602-252-4515
AR	Little Rock, Byron Carson Co.	501-568-6798
CA	Los Altos, Ewing-Foley	415-941-4525
CA	San Diego, Tak Sls.	619-287-6141
CA	Santa Ana, Panduit Corp.	714-546-5700
CO	Denver, I. W. Strong & Assocs.	303-292-6900
FL	Lakeland, Panduit Corp.	813-665-5850
GA	Atlanta, Panduit Corp.	404-256-5940
HI	Honolulu, Agencies Co./Pacific	808-847-6581
IN	Fort Wayne, Panduit Corp.	219-424-4082
IN	Indianapolis, Panduit Corp.	317-251-8332
IA	Des Moines, Panduit Corp.	515-280-8343
KS	Kansas City, Panduit Corp.	913-764-7170
KY	Louisville, A. L. Pickens Co.	502-491-4215
LA	New Orleans, Panduit Corp.	504-581-7181
MD	Landover, Agency Group, Inc.	301-773-9292
MI	Fraser, Panduit Corp.	313-791-1700
MI	Grand Rapids, Panduit Corp.	616-942-0420
MN	Minneapolis, Electric Comp. Sls.	612-933-2594
MO	St. Louis, Panduit Corp.	314-894-7800
NH	Salem, Sales Eng. Co.	603-893-5521
NJ	Leonia, Panduit Corp.	201-461-7790
NY	Buffalo, Panduit Corp.	716-632-5182
NY	Rochester, Panduit Corp.	716-244-9480
NY	Syracuse, Panduit Corp.	315-476-6161
NC	Winston-Salem, L. G. White Southern	919-725-3612
OH	Cincinnati, Panduit Corp.	513-874-0660
OH	Cleveland, Panduit Corp.	216-835-2050
OH	Columbus, Panduit Corp.	614-262-6052
OK	Tulsa, Panduit Corp.	918-745-1420
OR	Portland, Panduit Corp.	503-248-1971
PA	Carnegie, Myles F. Smith & Assoc.	412-276-5363
PA	Glenside, Kunz, Powell & Assoc.	215-224-2434
TN	Knoxville, Panduit Corp.	615-588-2476
TN	Memphis, Byron Carson Co.	901-345-5187
TX	Dallas, Panduit Corp.	214-620-7713
TX	Houston, Panduit Corp.	713-580-0100
UT	Salt Lake City, I. W. Strong & Assocs.	801-942-6998
VA	Richmond, L. G. White Southern	804-740-7093
WA	Bellevue, Panduit Corp.	206-454-7267
WV	Dunbar, Myles F. Smith & Assoc.	304-768-9910
WI	Appleton, H. Mercer Co.	414-739-6223
WI	Brookfield, H. Mercer Co.	414-786-6431

PANEL COMPONENTS CORP., P.O. Box 6626M, Santa Rosa, CA 95406, Tel: 707-523-0600, Telex: 176-747; Empl.: 18 .... **1A**•1606-1610; **1B**•1282, 1283; **2**•1536-1539, 2140, 2141

Local Sales Offices & Reps

AL	Huntsville, DHR Mktg. Inc.	205-533-5165
CA	Santa Clara, Ross Mktg. Assoc.	408-988-8111
CO	Littleton, Omega Ltd.	303-798-7040
GA	Atlanta, DHR Mktg., Inc.	404-451-9848
IL	Northbrook, Raines & Assocs.	312-498-0890
IA	Marion, M-S-B Assocs., Inc.	319-377-6261
KS	Shawnee Mission, M-S-B Assocs., Inc.	913-432-2131
MA	Lexington, Zieco	617-861-8300
MN	St. Paul, Arkco Sls.	612-777-7454
MO	St. Charles, M-S-B Assocs., Inc.	314-946-5577
NM	Albuquerque, Burt Dieruf Assocs.	505-299-0989
NY	Great Neck, Tylinski Assocs.	516-466-9070
NY	Rochester, Lloyd Hart Assocs.	716-244-3253
NC	Raleigh, DHR Mktg., Inc.	919-876-5450
OH	Chesterland, K-T Depco	216-729-3588
OR	Portland, Earl & Brown Co.	503-245-2283
PA	Doylestown, T.O.E. Sls.	215-348-2212
PA	Pittsburgh, K-T Depco	412-487-8777
SC	Greenville, DHR Mktg. Inc.	803-235-3594
TN	Knoxville, DHR Mktg. Inc.	615-584-5286
TX	Lewisville, Jim Hughes Co.	214-221-1536
TX	Stafford, Jim Hughes Co.	713-343-0673
WA	Seattle, Earl & Brown Co.	206-284-1121

PANEL CONTROLS, 1000 Mt. Elliott Ave., Detroit, MI 48207, Tel: 313-568-2400; Empl.: 24

PANELGRAPHIC CORP., 10 Henderson Dr., W. Caldwell, NJ 07006, Tel: 201-227-1500, TWX: 710-734-4367; FSC No.: 52657; Empl.: 100

PAN-MAGNETICS INTL., INC., 455-A Carson Plaza Dr., Carson, CA 90746, Tel: 213-532-1790, Telex: 664-759; *Sls. Mgr.:* W. Dull .... **1A**•2215-2221

Local Sales Offices & Reps

AZ	Scottsdale, E.D.P. & Assocs.	602-991-6119
CT	Marlborough, Precision Sls.	203-295-0580
IN	South Bend, Schillinger Assoc.	219-282-4570
KS	Overland Park, Electri-Rep	913-649-2168
MD	Towson, Electronic Comp. Mktg.	301-321-8611
MA	Newton, Precision Sls.	617-969-0594
MN	Minneapolis, DeBeck-Hays Assocs.	612-835-3610
MO	St. Louis, Electri-Rep	314-878-0583
OR	Tigard, Electronic Sources	503-684-0040
WA	Bellevue, Electronic Sources	206-643-0400

PANNIER CORP., Graphics Div., John Fitch Industrial Park, Warminster, PA 18974, Tel: 215-672-3600; Empl.: 45; *Sls. Mgr.:* Barry Stefaniw

PAPST MECHATRONIC CORP., Aquidneck Indl. Pk., Newport, RI 02840, Tel: 401-849-5930, Telex: 952092; *Sls. Mgr.:* Emanuel V. Lauria

PARABAM, INC., 3017 E. Las Hermanas St., Rancho Dominguez, CA 90221, Tel: 213-537-1771; Empl.: 85

PARAGON ELECT., 606 Parkway Blvd., Two Rivers, WI 54241, Tel: 414-793-1161, Telex: 26-3450; Empl.: 1000; *Sls. Mgr.:* Don Karman

PARALINE
TRANSFORMER SPECIALISTS

PARALINE TRANSFORMER CORP., 511 South Palm Ave., Alhambra, CA 91803, Tel: 213-281-0222; FSC No.: 59465; Empl.: 34 .... **1A**•2223-2225

PARAMOUNT TUBE, INC., 1430 Progress Rd., Ft. Wayne, IN 46808, Tel: 219-484-4111; Empl.: 46; *Sls. Mgr.:* D. F. Weimer

PARKER SEAL GRP., P.O. Box 11751, Lexington, KY 40512, Tel: 606-269-2351; Empl.: 2,200; *Sls. Mgr.:* Frand Chesnik

PARLEX CORP., 145 Milk St., Methuen, MA 01844, Tel: 617-685-4341, TWX: 710-342-1538; Empl.: 450; *Sls. Mgr.:* J. Pollack Kutchin

PARSONS MFG., 1055 O'Brien Dr., Menlo Park, CA 94025, Tel: 415-324-4726, TWX: 910-373-2106; Empl.: 85; *Sls. Mgr.:* C. E. Plummer

Local Sales Offices & Reps

CO	Boulder, Scientific Devices	303-449-9466
FL	Melbourne, Reynolds & Assocs.	305-259-7000
GA	Doraville, South Pack, Inc.	404-452-0773
IL	Elmhurst, Cougar Package Designers	312-833-0346
OH	Cleveland, Donray Co.	216-449-6450
PA	Philadelphia, Thermo-Pak Co.	215-742-0447
TX	Fort Worth, Dyna Rep	817-451-1392

PASO SOUND PRODS., 14 First St, Pelham, NY 10803, Tel: 914-738-4800, Telex: 646783 Paso Pelm; Empl.: 50

PASS & SEYMOUR, INC., P.O. Box 4822, Syracuse, NY 13221, Tel: 315-468-6211; *Sls. Mgr.:* Jack Wells

PATHCOM, INC., Pace Two-Way Radio Prods., 24105 S. Frampton Ave., Harbor City, CA 90710, Tel: 213-325-1290; Empl.: 600

PATTON-MACGUYER INC., 17 Virginia Ave., Providence, RI 02905, Tel: 401-941-6000; FSC No.: 77147; Empl.: 55; *Sls. Mgr.:* J. Allen

PAYNE ENGRG., Box 70, Scott Depot, WV 25560, Tel: 304-757-7353, Telex: 88-5452; Empl.: 30; *Sls. Mgr.:* Matthew J. Gilberto; *Dist. Mgr.:* Diane Nelson

PCA ELCTRNS., 16799 Schoenborn St., Sepulveda, CA 91343, Tel: 818-892-0761, Telex: 67-4681, TWX: 910-496-1525; FSC No.: 97722; Empl.: 45; *Sls. Mgr.:* Janice Fowler .... **1A**•1558-1564

Local Sales Offices & Reps

AZ	Phoenix, Toward Engrg. Assocs.	602-955-3193
CA	San Diego, Littlefield & Smith Assoc.	619-455-0055
CA	Santa Clara, Fahrner-Miller Assocs.	408-727-9800
FL	Boca Raton, Lawrence Assocs.	305-368-7373
FL	Clearwater, Lawrence Assocs.	813-584-8110
IL	Westchester, W. G. Brouillette & Assocs.	312-345-6500
MA	Framingham, KSA of New England	617-879-3835
MN	Minneapolis, Bill Deming and Assocs.	612-888-5000
NJ	Wayne, Howard Kagan Assocs.	201-694-1115
OH	Cleveland, Weschler Elec. Corp.	216-238-2550
OR	Portland, Elctrn. Comp. Sls.	503-245-2342
TX	Dallas, Blackburn Assocs.	214-692-8885
TX	Houston, Blackburn Assocs.	713-463-1354
WA	Mercer Island, Elctrn. Comp. Sls.	206-232-9301
WA	Seattle, Elctrn. Comp. Sls.	206-232-9301

PCB PIEZOTRONICS, 3425 Walden Ave., Depew, NY 14043-2495, Tel: 716-684-0001, TWX: 710-263-1371; Empl.: 110; *Sls. Mgr.:* Roy Maines

PCK TECHNLG. DIV./KOLLMORGEN CORP., 322 South Service Rd., Melville, NY 11747, Tel: 516-454-4400, Telex: 6852163; Empl.: 200; *Sls. Mgr.:* J. F. Dennis-Browne

PCM-PAC CYBER-METRIC, 6800 Sierra Ct., Dublin, CA 94568, Tel: 415-829-8700, TWX: 910-389-6890; Empl.: 19; *Sls. Mgr.:* T. J. Netoff

PC TRANSFORMER CORP., 64 D Nancy St., West Babylon, NY 11704, Tel: 516-491-3300; FSC No.: 62281; Empl.: 6; *Sls. Mgr.:* Stanley L. Goldstein .... **1A**•2226-2229

PEARSON ELCTRNS., 1860 Embarcadero Rd., Palo Alto, CA 94303, Tel: 415-494-6444, Telex: 171-412; FSC No.: 05280; Empl.: 18; *Sls. Mgr.:* Patricia L. Pearson .... **1A**•2230

PECA, INC., 4957 Pearson Ave., Philadelphia, PA 19114, Tel: 215-824-1550; Empl.: 15; *Sls. Mgr.:* Jean Douglass

PENFIELD, INC., West & W. Main Sts., Plantsville, CT 06479, Tel: 203-621-9141; Empl.: 25

PENN AIRBORNE PRODS., Industrial Hwy., Southampton, PA 18966, Tel: 215-355-3400, Telex: 834759; FSC No.: 25805; Empl.: 25; *Sls. Mgr.:* W. Williams

PENN ENGRG. & MFG., P.O. Box 1000, Danboro, PA 18916, Tel: 215-766-8853; FSC No.: 46384; Empl.: 370; *Sls. Mgr.:* John E. O'Brien

PENN FIBRE & SPEC., 4343 "G" St., P.O. Box 4890A, Philadelphia, PA 19124, Tel: 215-288-7366; Empl.: 66; *Sls. Mgr.:* L. C. Jones

PENN KEYSTONE CORP., Unimax Switch Corp., Ives Rd., P.O. Box 152, Wallingford, CT 06492, Tel: 203-269-8701, Telex: 96-3485, TWX: 710-476-1397; FSC No.: 03034; *Sls. Mgr.:* Jack Fitzgerald

PENN RESCH. CORP. (PRC), 2652 South Main St., P.O. Box 3357, Kennesaw, GA 30144, Tel: 404-429-9061, Telex: 753010; *Sls. Mgr.:* Wallace Hundley

PENN TRANSFORMER CO., Box 1321, Rte. 144N, Wingate, PA 16880, Tel: 814-355-1521, Telex: EASY LINK 706473

Local Sales Offices & Reps

MN	Minneapolis, Intl. Sls. Co.	612-831-8423
OR	Portland, Intertech Sls.	503-775-7885
PA	Glenside, Koebert Assocs. Inc.	215-887-2301
UT	Salt Lake City, Aspen Sls., Inc.	801-467-2401

PENNTUBE PLASTICS, Madison Ave. & Holly St., Clifton Heights, PA 19018, Tel: 215-622-2300, Telex: 845-212; Empl.: 145

PENN VIDEO INC., 929 Sweitzer Ave., Akron, OH 44311, Tel: 216-762-4840, Telex: 98-6327 PVI-AKR; *Sls. Mgr.:* Sandra Donaldson

PENNWALT CORP., Three Pkwy., Philadelphia, PA 19102, Tel: 215-587-7000, TWX: 215-569-9748

PENRIL, 5520 Randolph Rd., Rockville, MD 20852, Tel: 301-984-8225, TWX: 710-828-0522; Empl.: 250; *Sls. Mgr.:* Dave L. Johnson

PERFECT GEAR & INSTR., 55 S. Denton Ave., New Hyde Park, NY 11040, Tel: 516-328-3300, TWX: 510-223-0642; Empl.: 210

PERFECTION MICA CO., see Magnetic Shield Div.

PERFORMANCE CONTROLS INC., 333 Byberry Rd., Hatboro, PA 19040, Tel: 215-675-6500; Empl.: 22; *Sls. Mgr.:* M. Edward Wokulich

PERIPHERALS, 3001 Red Hill, Bldg. 6, Ste. 107, Costa Mesa, CA 92626, Tel: 714-540-4925; *Sls. Mgr.:* Jone Ford; *Dist. Mgr.:* Jone Ford

PERITEK CORP., 5550 Redwood Rd., Oakland, CA 94619, Tel: 415-531-6500, TWX: 910-366-2029; *Sls. Mgr.:* John Brogan

PERKIN-ELMER

PERKIN-ELMER CORP., Elctrn. Prods. Dept., Main Ave., Norwalk, CT 06856, Tel: 203-762-4786, TWX: 710-468-3213; Empl.: 70 .... **1A**•2231

Local Sales Offices & Reps

CA	Encino, C.D.H. Assocs.	213-707-1970

PERMAG, 400 Karin La., Hicksville, NY 11801, Tel: 516-822-3311, TWX: 710-581-5264; Empl.: 50

PERMAGILE-SALMON LTD., Insulcast Div., 101 Commercial St., Plainview, NY 11803, Tel: 516-349-1100, Telex: 221720 PERM UR; *Sls. Mgr.:* A. Zack Zarcadoolas; *Dist. Mgr.:* Edward R. Salmon

Local Distributors

FL	Boca Raton, Olson Assocs.	305-368-1845
IL	Algonquin, Adhesive Sys., Inc.	312-658-4583
OH	Dayton, Electro Supply	513-299-5020

PERMALUSTER, INC., 1844 N. Keystone St., Burbank, CA 91504, Tel: 818-849-4543; Empl.: 9; *Sls. Mgr.:* J. Ross

PERMANENT MAGNET, 4437 Bragdon St., Indianapolis, IN 46226, Tel: 317-547-1336; Empl.: 85; *Sls. Mgr.:* Jack Amigh

PERMA POWER ELCTRNS., 5615 W. Howard Ave., Chicago, IL 60648, Tel: 312-647-9414; Empl.: 85-100; *Sls. Mgr.:* Michael Shatz ....**1B**•1284; **2**•1862, 1863

Local Sales Offices & Reps

AR	El Dorado, D. Bellew Sls.	214-373-4590
CA	San Francisco, Techn. Sls.	415-467-1434
CA	Sun Valley, Tegni-Rep	213-768-4223
CO	Denver, Stan Sliz & Assoc.	303-666-4760
CT	West Hartford, Smith Co.	203-523-0512
IN	Indianapolis, Green-Wissler	317-291-2232
MI	Plymouth, J. Malcolm Flora	313-453-4296
MN	St. Paul, Skor	612-426-1160
MO	Jefferson City, C. A. Vignola	314-636-3121
NJ	Marlton, Fahy Mktg.	609-983-2366
NY	Phelps, L. S. M. Assocs.	315-548-4891
NY	Plainview, Landau & Mack	516-293-3310
NC	Greensboro, Adams & Assocs.	919-272-6838
OH	Whitehall, Mandabach-Lehner	614-235-0265
TX	Dallas, Berthold Sls.	214-328-0067
WA	Seattle, Northmar Inc.	206-524-5170
EXP	N.Y., Plainview, Morhan Export.	516-293-5582

PERRY AMPLIFIER, 138 Fuller St., Brookline, MA 02146, Tel: 617-734-0844; Empl.: 18; *Sls. Mgr.:* N. Geskos

PERSONAL MICRO COMPUTERS, 475 Ellis St., Mountain View, CA 94043, Tel: 415-962-0224, TWX: 910-379-5022

PERTEC PERIPHERALS CORP., P.O. Box 2198, Chatsworth, CA 91311, Tel: 818-882-0030, TWX: 910-494-2093; Empl.: 650

PERVEL INDS., INC., Bemis, P.O. Box 61, Community Ave., Plainfield, CT 06374, Tel: 203-564-2741, Telex: 966450; Empl.: 350; *Sls. Mgr.:* Stan Furman

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CO	Castle Rock, Romulus Elctrns. Ltd.	303-688-5127
FL	Clearwater, Brennan Assocs., Inc.	813-446-5006
IL	Chicago, Brock and Cushman, Inc.	312-622-4110
MI	Grand Rapids, R. P. Urban & Assoc.	616-245-0511
MN	St. Paul, Bonament Heyda Co., Inc.	612-484-853
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PFC, See Southern Elctrns. Co. Inc.

PHALO CORP., Transitron Elctrn. Corp., 530 Boston Tpke., Shrewsbury, MA 01545, Tel: 617-845-5000, Telex: 92-0416, TWX: 710-392-1383; Empl.: 450

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PHELPS DODGE CABLE & WIRE, Box 2100 Greenwich, CT 06836, Tel: 203-625-3200, TWX: 710 560-0006; Empl.: 750; *Sls. Mgr.:* T. P. Reilly

PHELPS DODGE INTL., 2121 Ponce de Leon Blvd. Ste. 850, Coral Gables, FL 33134, Tel: 212-775-1395 800-221-3333

PHELPS DODGE MAGNET WIRE, P.O. Box 600 Ft. Wayne, IN 46801, Tel: 219-456-4444, TWX: 810 332-1501; *Sls. Mgr.:* G. H. Guyer; *Dist. Mgr.:* W. H Deininger

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A	San Diego, Luscombe Engrg. Co.	619-295-4300
O	Denver, Spectrum Sls.	303-696-1601
T	Bloomfield, Zaslow Sls. Co.	203-242-7781
	Tampa, J-R Controls	813-961-9478
A	Atlanta, Holman-Lobsinger Co.	404-256-9120
	Mt. Prospect, Magnuson Assocs./Magnuson Elctrns.	312-956-0700
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D	Baltimore, McCourt Co., Inc.	301-747-0044
I	Canton, R. W. Barrick & Assocs.	313-453-0591
N	Minneapolis, Grissinger-Johnson Sls. Inc.	612-544-5451
J	Rockaway, R.O.I. Sls. Co.	201-627-8879
Y	North Syracuse, Lachut Electrical Sls.	315-422-2575
C	Charlotte, Mec-Tric Control Co.	704-376-8555
H	Medina, J. C. Hofstetter Co.	216-241-4880
A	Carnegie, Brown-Yates Electrical Equip. Co.	412-279-1101
A	Willow Grove, Jacobson-Rodger Assocs.	215-657-4300
	Dallas, Lynn Elliott Co., Inc.	214-239-8533
	Houston, Lynn Elliott Co., Inc.	713-499-1571
A	Richmond, McCourt Co., Inc.	804-741-3253
A	Bellevue, Comtec	206-453-1188

Local Distributors

Z	Phoenix, Sterling Elctrns.	602-268-2121
A	Concord, Control Room Prods.	415-671-7796
A	Duarte, Nelson West Coast, Inc.	213-303-1526
A	Gardenia, Cal Switch	213-770-2330
A	Riverside, Elctrn. Supply Co.	714-787-9220
T	Wallingford, Sager Electrical	203-265-4600
	Lakeland, A-A Elec.	813-665-6941
A	Atlanta, A-C Equip.	404-451-2747
	Lombard, MacGregor & Co., Inc.	312-629-5752
A	Baton Rouge, Ralph's Indl. Elctrns.	504-344-3761
A	Lafayette, Ralph's Indl. Elctrns.	318-234-4507
A	New Orleans, Long Elec. Supp.	504-524-8383
D	Baltimore, A.I.C.	301-747-0044
A	Hingham, Sager Electrical	617-749-6700
I	Flint, Roth Elec. Supply Co.	313-234-8661
I	Roseville, Madison Elec.	313-778-7640
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J	East Rutherford, A-A Elec.	201-777-5477
J	Pennsauken, Resco Elctrns.	609-662-4000
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Y	Rochester, Rochester Radio	716-454-7800
Y	Syracuse, Salmon Motor Repair Svc.	315-454-9278
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H	Cincinnati, Schuster Elec. Co.	513-489-1400
H	Twinsburg, Schuster Elec. Co.	216-425-8134
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A	Reading, R.A.M. Motors and Controls	215-376-7102
C	Columbia, Dixie Elctrns.	803-779-5332
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X	Houston, Timers & Controls, Inc.	713-894-0714
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HOENIX DATA, 3384 W. Osborn Rd., Phoenix, AZ 85017, Tel: 602-278-8528, TWX: 910-951-1364; Empl.: 55; *Sls. Mgr.:* Srini Iyer

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IL	Rosemont, Synmark Sls. Co.	312-825-3455
IN	Ossian, Science Sls.	219-622-7383
MA	Sudbury, Poulin Assocs.	617-443-7333
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NJ	Pennsauken, Scientific Reps.	609-662-5222
NM	Albuquerque, Grady Moore Assocs.	505-262-1416
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OH	Risingsun, Mecom Inc.	419-457-3231
TX	Dallas, Southwestern Engrg. & Equip. Co.	214-340-1741
TX	Houston, Southwestern Engrg. & Equip. Co.	713-820-2500
VA	Fairfax, Scientific Assocs.	703-385-0600
WA	Walla Walla, Northwest Tech. Co.	509-529-2051

PHOTON TECHNLG., 14125 Capri Dr. #4, Los Gatos, CA 95030, Tel: 408-866-0566, Telex: 17-1618 refer: Photon; Empl.: 12; *Sls. Mgr.:* John M. Fleischer

PHOTO RESCH., 3000 N. Hollywood Way, Burbank, CA 91505, Tel: 213-843-6100, Telex: 69-1427; FSC No.: 92434; Empl.: 68; *Sls. Mgr.:* M. L. Woolsey

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PHO-TRONICS, 8701 W. Bradley Rd., Milwaukee, WI 53224, Tel: 414-355-6704, TWX: 910-262-3099; Empl.: 85; *Sls. Mgr.:* John R. Henry

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WA	Seattle, W. Spaulding Co.	206-282-9173

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CA	Palo Alto, J/M Assocs.	415-857-1260
CO	Parker, Mikro Sls. Co.	303-841-4131
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IL	Chicago, Shaumberg Phoenix Co.	312-980-7060
MA	Natick, Wayland Engrg. Sls. Co.	617-655-6080
MN	Minneapolis, Peterson, Snater & Assocs.	612-884-3483
MO	Grandview, Harris-Hanson Co.	816-763-6200
MO	St. Louis, Harris-Hanson Co.	314-432-3611
NY	Huntington, Regulus Indl. Sls. Co.	516-673-6252
NY	Rochester, J. G. Welch Assocs.	716-244-1100
OH	Cincinnati, G&H Sls. Co.	513-272-0580
PA	Glenside, R. F. Koebert & Assocs.	215-887-2310
TX	Ft. Worth, El-Tec Sales	817-268-2896
VA	Gladys, Ralley Entprs.	804-283-5656

PIEZO CRYSTAL, 100 "K" St., Box 619, Carlisle, PA 17013, Tel: 717-249-2151, TWX: 510-650-2280; Empl.: 250; *Sls. Mgr.:* Roy Burkholder

PIEZO ELEC. PRODS., INC., 212 Durham Ave., CN-15, Metuchen, NJ 08840, Tel: 201-548-2800, TWX: 710-998-0592; Empl.: 125; *Sls. Mgr.:* Jack Gray .... **1B**•1820, 1821, 1871

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MA	Lexington, Hathaway Elctrns. Inc.	617-861-7010
MN	Minneapolis, Elctrn. Innovators	612-941-0830
NJ	Middlesex, Cornell Assocs.	201-469-1303
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NY	Syracuse, Canavan-Scanlon Assocs.	315-437-1271
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OH	Dayton, Berberich Assocs.	513-433-0342
PA	Harleysville, Thomas Jackson Assocs.	215-643-5560
TX	El Paso, El Paso Elctrn. Comps.	915-593-8481
TX	Houston, Aid Elctrns.	713-937-3373
TX	Irving, Aid Elctrns.	214-259-4761

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CA	Los Altos, Cain-White & Co.	415-948-6533
CA	Van Nuys, R.L. Assocs.	213-782-7826
CT	Milford, Bengal Assocs.	203-878-3946
DC	Washington, M. Lader Co.	202-296-2497
FL	Maitland, D. J. Ellis & Assocs.	305-645-1101
IN	South Bend, Schillinger & Assocs.	219-282-4570
KS	Overland Park, Barnes Mid-West Sls.	913-341-9317
MA	Randolph, Bengal Assocs.	617-961-4120
MN	Chanhassen, Barnes Sls. Assocs.	612-934-2907
NJ	Haddonfield, Mesa Tech. Assocs.	609-429-9531
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NY	Great Neck, Phase 4, Inc.	516-482-1790
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PIONEER MAGNETICS, 1745 Berkeley St., Santa Monica, CA 90404, Tel: 213-829-6751, Telex: 182-093, TWX: 910-343-6249; FSC No.: 08676; Empl.: 450; *Sls. Mgr.:* A. Hagiwara .... **3**•1666, 1667

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CA	Los Altos, Frauman Assocs.	415-941-0660
CA	Santa Monica, Pioneer Magnetics, Inc.	213-829-6751

CO	Commerce City, Williams Assocs.	303-289-5647
FL	Deerfield Beach, Pen-Tech Assocs.	305-421-4989
KS	Olanthe, Rush & West Assocs.	913-754-2700
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OH	Westlake, KRW Sales	216-871-7521
PA	Cheltenham, Stein Instrm.	215-379-1990
TX	Dallas, Remtek	214-387-2855
WA	Vashon, RTS, Inc.	206-285-1363

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PIRELLI CIMCO, 800 Rahway Ave., Union, NJ 07083, Tel: 201-687-8444, Telex: 138918, TWX: 6874009; Empl.: 80; *Sls. Mgr.:* John N. Vanderbeek

PITTMAN CORP., 343 Godshall Dr., Harleysville, PA 19438, Tel: 215-256-6601, TWX: 510-661-8696; FSC No.: 98938; Empl.: 135 ....**1B**•1170, 1171

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CA	Glendale, Halbar Assocs.	213-246-8263
CA	San Mateo, Halbar Assocs.	415-349-4700
CO	Commerce City, Williams-Assocs.	303-289-5647
FL	Bradenton, Tropi-Tec, Inc.	813-748-2868
FL	Plantation, Tropi-Tec	305-581-0101
GA	Atlanta, Electro-Rep Assocs.	404-320-1134
IL	Mount Prospect, K-W Assocs.	312-253-6680
IN	Fort Wayne, Neal Engrg.	219-436-2300
IN	Indianapolis, Neal Engrg.	317-849-4201
MA	Ashland, M. L. Assocs.	617-485-6190
NJ	Summit, R.A. Potter	201-277-0220
NM	Albuquerque, Williams-Assocs.	505-255-1638
NY	Buffalo, Application Spec.	716-834-3377
NY	Rochester, Application Spec.	716-586-6226
NY	Syracuse, Application Spec.	315-437-2813
NC	Charlotte, Electro-Rep Assocs.	704-527-2530
OH	Cleveland, Servo-Mark	216-871-2353
OK	Tulsa, Blair Engrg.	918-747-3100
TX	Austin, Blair Engrg.	512-458-3107
TX	Dallas, Blair Engrg.	214-241-5655
TX	Houston, Blair Engrg.	713-776-0011
UT	Salt Lake City, Williams-Assocs.	801-485-6511
WA	Redmond, Halbar Assocs.	206-882-0990
WA	Vancouver, Halbar Assocs.	206-696-0170
PR	Hato Rey, Tropi-Tec	809-759-7303

PLAINVIEW ELCTRNS., 28 Cain Dr., Plainview, NY 11803, Tel: 516-249-6677, Telex: 125043; Empl.: 6; *Sls. Mgr.:* B. Erde

PLANT SPECIALTIES, INC., PO Box 1097, Carrollton, TX 75006, Tel: 214-245-9673; *Sls. Mgr.:* J. E. Bryer

PLASMAGRAPHICS CORP., 141 Mount Bethel Rd., P.O. Box 4903, Warren, NJ 07060, Tel: 201-757-5000, Telex: 83-3456-0, TWX: 710-997-9529; *Dist. Mgr.:* Ronald Pignatello

PLASMA-THERM, INC., Rt. 73, Kresson, NJ 08053, Tel: 609-767-6120, Telex: 837220; *Sls. Mgr.:* John D. Raffl

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AZ	Phoenix, Plasma-Therm	602-962-4522
CA	San Jose, Plasma-Therm	408-945-9000
CA	San Jose, PT Analytical	408-943-0777
IL	Hinsdale, Plasma-Therm	312-789-2636
MA	Wakefield, Plasma-Therm	617-246-4800
MA	Woburn, Plasma Sys.	617-933-9170
NJ	Kresson, Plasma-Therm Sys.	609-767-6120
PA	Whitehall, Plasma-Therm	215-776-0330

PLASTIC CAPACITORS, INC., 2623 N. Pulaski Rd., Chicago, IL 60639, Tel: 312-489-2229, TWX: 910-221-1354; FSC No.: 99120; Empl.: 105; *Sls. Mgr.:* F. J. Pavey

PLASTIC FORMING CO., INC., 5 Lunar Dr., P.O. Box N, Woodbridge, CT 06525, Tel: 203-397-1338, Telex: 963437; Empl.: 37; *Sls. Mgr.:* John C. Womer

PLASTIGLIDE MFG., 2701 W. El Segundo Blvd., Hawthorne, CA 90250, Tel: 213-777-8108; Empl.: 425; *Dist. Mgr.:* J. Shulman

PLASTOID CORPORATION, 45 Gingerbread Castle Rd., Hamburg, NJ 07419, Tel: 201-827-7141

PLASTRONICS INC., 3111 Gardenbrook, Dallas, TX 75234, Tel: 214-243-0611, TWX: 910-860-5542; Empl.: 47

PLATO PRODS., 2120 E. Allen Ave., Glendora, CA 91740, Tel: 800-423-4510, Telex: 673-488; FSC No.: 32399; Empl.: 75; *Sls. Mgr.:* Walter Schaub

Local Distributors

AZ	Phoenix, Scottsdale Tool & Supply	602-273-7376
CA	El Segundo, Wassco	213-640-1060
CA	Sunnyvale, COM-KYL	408-734-9660
CO	Arvada, Western Tool	303-422-3413
CO	Denver, Grenfell Supp.	303-893-3111
FL	Orlando, Deanco	305-851-2480
GA	Marietta, Deanco	404-429-0126
IL	Chicago, E M F	312-889-8323
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
KS	Overland Park, Burke Sls	913-492-1880
MD	Gaithersburg, Deanco	301-948-5444
MA	Boston, Hub Material	617-542-7531
MA	Burlington, Contact East	617-272-5051
MN	St. Paul, R.G. Ragon	612-488-0201
NM	Albuquerque, Intl. Elctrns	505-265-6456
NC	Raleigh, Deanco	919-851-2065
OR	Portland, Murphy Indl Supp.	503-620-8680
TX	Dallas, Roy E. Davis	214-688-0652
TX	El Paso, Intl Elctrns	915-778-9761
UT	Salt Lake City, Techn. Devices	801-972-5935
VA	Virginia Beach, Deanco	804-499-3322

PLESSEY CERAMIC DIV., 8th & Harrison Sts., Frenchtown, NJ 08825, Tel: 201-996-2121, TWX: 510-235-3399; Empl.: 198; *Sls. Mgr.:* William Blackford

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PLESSEY MICROSYSTEMS, Plessey Trading Corp., 1641 Kaiser Ave., Irvine, CA 92714, Tel: 714-540-9931/9932, TWX: 910-595-1930; *Sls. Mgr.:* Garry T. Tomlins

PLESSEY MICROSYSTEMS, 451 Hungerford Dr., Rockville, MD 20850, Tel: 301-279-2892, TWX: 710-828-9815; *Sls. Mgr.:* Garry Tomlins; *Dist. Mgr.:* Randy Williams

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AR	El Dorado, Indl. Controls Assocs.	501-862-2051
CA	San Jose, Motion Control	408-997-0544
CA	San Marino, Motion Control	213-796-0189
CO	Denver, Control Agency	303-936-6641
FL	Altamonte Springs, A. Lovisek	305-788-6606
IL	Bartlett, T. Meyer	312-830-3374
IN	Elkhart, Shaum Mfg.	219-264-0771
IN	Spencer, Shaum Mfg. Inc.	317-842-2255
IA	Marion, Design Solutions, Inc.	319-377-1129
KS	Shawnee Mission, Design Solutions, Inc.	913-432-3109
KS	Wichita, Design Solutions, Inc.	316-529-0114
LA	Baton Rouge, Industrial Controls Assocs.	800-643-1109
MA	Beverly, Electro Kinetics	617-922-4007
MA	Wellesley, Electro Kinetics	617-235-9415
MI	Ann Arbor, Pyramid Integrated Control Sys.	313-996-4162
MI	Belding, Shaum Mfg. Inc.	616-897-5385
MN	Newport, Applied Motion Technlg.	612-459-0600
MO	St. Louis, Design Solutions, Inc.	314-961-7170
NY	Cazenovia, D & O Engrg.	315-655-8602
NY	Syosset, B. Lewis	516-938-8000
NY	Syosset, Motion Control Sls.	516-921-5656
NY	Youngstown, D & O Engrg.	716-745-3915
NC	Greensboro, Engrg. & Mktg. Corp. of Virginia	919-275-1309
NC	Plymouth, Engrg. & Mktg. Corp. of Virginia	919-793-4461
OH	Chagrin Falls, Exonic Sys.	216-247-4788
PA	Pittsburgh, Exonic Systems	412-784-8400
TX	Fort Worth, Industrial Controls Assocs.	800-643-1109
TX	Spring, Industrial Controls Assocs.	800-643-1109
UT	Salt Lake City, Control Agency	801-328-4305
VA	Roanoke, Engrg. & Mktg. Corp. of Va	703-986-1410
WA	Renton, Drive Motor Control Sys. Co.	206-226-9294
WI	Racine, T. Beyer	414-632-6100

Distributor

POCO SALES, 8925 Fullbright St., Chatsworth, CA 91311, Tel: 818-700-8727 .... pgs. 642, 680, 685, 687

POLARAD ELCTRNS., INC., 5 Delaware Dr., Lake Success, NY 11042, Tel: 516-328-1100, TWX: 510-223-0414; FSC No.: 82199; Empl.: 175; *Sls. Mgr.:* Ron Ramirez

POLAROID CORP., 784 Memorial Dr., Cambridge, MA 02139, Tel: 617-577-2024, Telex: 921482, TWX: 710-320-0610; *Sls. Mgr.:* Sal La Rocca

POLYCORE ELCTRNS., 1107 Tourmaline Dr., Newbury Pk., CA 91320, Tel: 213-991-1061, Telex: 910-336-1547; Empl.: 30; *Sls. Mgr.:* S.K. Leong

POLYMER CORP., P.O. Box 422, Reading, PA 19603, Tel: 215-320-6600, Telex: 836-440, TWX: 510-651-5396; Empl.: 1000; *Sls. Mgr.:* R. S. Spangler

POLYPHASE INSTR., 175 Commerce Dr., Ft. Washington, PA 19034, Tel: 215-643-6950, Telex: 84-6327; FSC No.: 98330; Empl.: 175; *Sls. Mgr.:* R.H. Simmons

POLYPHASER CORPORATION, P.O. Box 1237, Gardnerville, NV 89410, Tel: 702-782-2511, Telex: 215406 TBYT UR: PolyPhaser .... **1B**•1285

Local Sales Offices & Reps

CA	North Hollywood, Crown Elctrns.	818-877-355
CO	Aurora, Electro-Tek Sls.	303-343-893
GA	Marietta, Consumer Mktg.	404-424-909
HI	Honolulu, Manon Engrg.	808-833-954
IL	Elk Grove Village, IRO Co.	312-593-064
MI	Rochester, Webster Assocs.	313-375-042
MN	Stillwater, Ned Gordon & Assocs.	612-430-157
MO	Liberty, LectroReps	816-781-252
NV	Gardnerville, PolyPhaser Corp.	702-782-251
NM	Albuquerque, Electro-Tek Sls., Inc.	505-883-487
NC	Pineville, Consumer Mktg.	704-527-404
OH	Toledo, Webster Assocs.	419-535-070
OK	Tulsa, Horizon Engrg. Sls. Co.	918-252-722
OR	Portland, Manon Engrg.	503-245-755
PA	Venetia, Webster Assocs.	412-941-884
RI	Lincoln, Adams-McGregor	401-726-130
TX	Houston, Horizon Engrg. Sls. Co.	713-495-101
TX	Rockwall, Horizon Engrg. Sls. Co.	214-226-471
TX	Rowlett, Horizon Engrg.	214-475-117
UT	Salt Lake City, Electro-Tek Sls.	801-973-843
WA	Kirkland, Manon Engrg.	206-827-744
WY	Sheridan, Electro-Tek Sls., Inc.	307-672-936

Local Distributors

CO	Aurora, Electro-Tek Sls.	303-343-893
IL	Elk Grove Village, IRO-Co.	312-593-064
KS	Dodge City, Teletron	316-225-373
NV	Gardnerville, PolyPhaser Corp.	702-782-251
NC	Greensboro, West Antenna	919-621-247
TX	Rockwall, Horizon Engrg. Sls. Co.	214-226-471
TX	Rowlett, Horizon Engrg. Sls.	214-475-117

POLY-SCIENTIFIC, 1213 N. Main St., Blacksburg, V 24060, Tel: 703-552-3014, TWX: 710-875-369 Empl.: 625

POLYTRON DEVICES, Box 398 - River St. Sta Paterson, NJ 07544, Tel: 201-345-5885; Empl.: 10

OMFRET RESEARCH OPTICS, 817 Long Ridge Rd., Stamford, CT06902, Tel: 203-322-6386; Empl.: 5

OMONA ELECTRONICS, See ITT Pomona

OP FASTENERS DIV., 510 River Rd., Shelton, CT 06484, Tel: 203-735-9341, Telex: 963465, TWX: 710-451-3734; Empl.: 375; *Sls. Mgr.:* James Lynch

ORTESCAP TRANSICOIL, Trooper Rd., P.O. Box 99, Worcester, PA 19490-9990, Tel: 215-277-1300, TWX: 510-660-0132; FSC No.: 82686; Empl.: 220; *Sls. Mgr.:* P. Schoenacker .... **1B**•1172, 1185

Local Sales Offices & Reps

A	Huntington Beach, Portescap Transicoil	714-963-3069
A	Medfield, Portescap Transicoil	617-359-2336
A	Plymouth, Portescap Transicoil	216-224-6533
J	Kinnelon, Avionics Engrg. Sls.	201-838-8105
R	Beaverton, Portescap Transicoil	503-645-7523
A	Andalusia, Portescap Transicoil	215-245-5366
A	Media, Homersmith, Inc.	215-543-2434
X	Richardson, Portescap Transicoil	214-690-9000
XP	PA, Worcester, Portescap Transicoil	215-277-1300

ORTESCAP U.S., 1547 Trooper Rd., P.O. Box 666, Worcester, PA 19490, Tel: 215-277-0433, Telex: 846367; *Sls. Mgr.:* George Beauchemin .... **1B**•1172, 1873

Local Sales Offices & Reps

A	Pomona	714-622-4185
A	Medfield	617-359-2336
J	Ft. Lee	201-461-8803
R	Beaverton	503-645-7523
X	Richardson	214-690-9000

OSITRONIC INDS., 423 North Campbell, Springfield, MO 65806, Tel: 417-866-2322, Telex: 436445; FSC No.: 28198; Empl.: 196; *Sls. Mgr.:* J.E. Myers; *Dist. Mgr.:* Linda Haley

OTTER & BRUMFIELD, P.O. Box 322, Princeton, IN 47671, Tel: 812-386-1000, Telex: 27-8451, TWX: 810-350-2343; Empl.: 3000; *Sls. Mgr.:* Don Morrow; *Dist. Mgr.:* Gordon Collins

OTTER CO., P.O. Box 337, North Hwy. 51, Wesson, MS 39191, Tel: 601-643-2215, TWX: 510-981-4072; FSC No.: 601-643-5126; Empl.: 300 .... **1A**•1612

Local Sales Offices & Reps

A	Los Angeles, Potter Co.	818-704-1151
A	San Jose, Potter Co.	408-297-6222
L	Orlando, Potter Co.	305-831-2782
	Chicago, Potter Co.	312-364-0424
A	Boston, Potter Co.	617-449-1242
N	Minneapolis, Potter Co.	612-933-7712
Y	Mineola, Colucci Sls.	516-746-0397
H	Dayton, Allen Nace Co.	513-836-0931
A	Philadelphia, Potter Co.	215-525-4752
X	Austin, Potter Co.	512-451-5721

Local Distributors

Z	Phoenix, Kachina Elctrn. Distrs.	602-269-6201
Z	Tucson, Kachina Elctrn. Distrs.	602-792-2223
A	Cerritos, El-Com, Inc.	714-739-5656
A	San Diego, El-Com, Inc.	619-578-0900
A	San Francisco, KEA Elctrn. Distributing	415-481-5588
A	Santa Clara, Western Electromotive	408-727-7411
T	New Haven, Cronin Elctrns.	203-265-3134
T	Orange, Milgray Elctrns.	203-795-0711
L	Orlando, Intertec Comps.	305-834-7777
L	Winter Park, Milgray Elctrns.	305-647-5747
A	Atlanta, Milgray Elctrns.	404-393-9666
	Chicago, Advent Elctrns.	312-297-6200
	Indianapolis, Advent Elctrns.	317-872-4910
	Cedar Rapids, Advent Elctrns.	319-363-0221
S	Kansas City, Milgray Elctrns.	913-236-8800
D	Rockville, Milgray Elctrns.	301-468-6400
A	Boston, Cronin Elctrns.	617-449-5000
A	Burlington, Milgray Elctrns.	617-272-6800
I	Detroit, Advent Elctrns.	313-477-1650
J	Marlton, Milgray Elctrns.	609-983-5010
Y	Freeport, Milgray Elctrns.	516-546-6000
Y	North Syracuse, ANDCO	315-699-2660
H	Cleveland, Milgray Elctrns.	216-447-1520
R	Portland, Radar Electric	503-232-3404
A	Philadelphia, Century Elctrn. Comps.	215-631-5400
A	Seattle, Radar Electric	206-282-2511
A	Spokane, Radar Electric	509-747-3053

OTTER INSTR., 10 Main St., Gonic, NH 03867, Tel: 603-332-1991, Telex: 94-4483; FSC No.: 11-1563382; Empl.: 20; *Sls. Mgr.:* S. Alexander

OULIN ASSOCIATES, INC., 302 North Rd., Sudbury, MA 01776, Tel: 617-443-7333; *Sls. Mgr.:* Scott Spalding

POWERBOX, INC., 1860 Broadway, New York, NY 10023, Tel: 212-586-1992; *Sls. Mgr.:* Len Elmlund

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POWER COMPS. CO., Vanguard Elctrns. Co., 1480 W. 178th St., Gardena, CA 90248, Tel: 213-323-8120, TWX: 910-346-7067; *Sls. Mgr.:* Ken Finley .... **3**•1668, 1669

Local Sales Offices & Reps

AZ	Tempe, Sys. Sls. of AZ.	602-829-9338
CA	Canoga Park, Chandler Assoc.	213-340-6103
CA	San Diego, T.D.I.	619-286-5107
CA	San Jose, Silicon Valley Sls.	408-286-7510
CO	Denver, W. H. Howard	303-426-3499
IL	Franklin Park, Dekotech, Inc.	312-455-5100
IN	Fort Wayne, Tx Sls. Indiana	219-489-4447
MD	Columbia; Raleigh, Robert Elect. Sls.	301-995-1900
MA	Medfield; Concord, Nortech Engr. Sls.	617-359-6063
MI	Jackson, Norwood Scroggs Co.	517-878-0434
MN	Minneapolis, Bill Deming & Assoc.	612-888-5000
NY	Commack, RC Engr. Sls.	516-543-3325
OH	Akron, Arkay	216-836-8497

POWER CONTROL, 122 Gamma Dr., Pittsburgh, PA 15238, Tel: 412-782-3120; Empl.: 75

POWER CONTROLS, P.O. Box 5860, San Antonio, TX 78201, Tel: 512-734-7155, Telex: 767222; Empl.: 90; *Sls. Mgr.:* Robert A. McAlister

POWER CONVERSION PRODS., 42 East St., Box 380, Crystal Lake, IL 60014, Tel: 815-459-9100, TWX: 910-634-3356; FSC No.: 31751; Empl.: 130; *Sls. Mgr.:* C. Seyer

POWERCUBE CORP., Sub. Unitrode Corp., 8 Suburban Pk. Dr., Billerica, MA 01821, Tel: 617-667-9500, TWX: 710-347-6792; FSC No.: 31557; Empl.: 140; *Sls. Mgr.:* James A. Ward

POWER DESIGNS, INC., 1700 Shames Dr., Westbury, NY 11590, Tel: 516-333-6200, TWX: 510-222-6561; Empl.: 100; *Sls. Mgr.:* Lillian Kelly .... **3**•1672-1679

Local Sales Offices & Reps

CA	North Hollywood, O'Halloran Assocs.	818-877-0173
CA	Palo Alto, O'Halloran Assocs.	415-326-1493
CA	San Diego, O'Halloran Assocs.	619-224-2824
CT	South Windsor, Addelco Corp.	203-644-1233
FL	Melbourne, Reynolds & Assocs.	305-259-7000
IL	Elk Grove Village, Loren Green & Assocs.	312-593-0282
IN	Indianapolis, Loren Green & Assocs.	317-293-9827
MD	Gaithersburg, Powell Pendergraph	301-921-4200
MA	Needham, Addelco Corp.	617-444-4754
MN	Minneapolis, Loren Green & Assocs.	612-781-1611
NY	Port Chester, Radiation Elctrns.	914-937-2300
PA	Willow Grove, Powell-Pendergraph	215-657-0330
VA	Richmond, Powell-Pendergraph	703-264-2341
WA	Bellevue, Topp Engrg. Sls. Corp.	206-747-5400

POWER DYNAMICS, 177 Valley, S. Orange, NJ 07079, Tel: 201-762-6886, Telex: 666 173, TWX: 136567 (PDI); FSC No.: 60046; *Sls. Mgr.:* James Papianni; *Dist. Mgr.:* Lyle Scott .... **1B**•1286, 1287, 1740; **2**•1544-1546, 1782, 1783

Local Sales Offices & Reps

CA	Laguna Niguel, David Budge & Assoc.	714-831-7720
CA	Mountain View, Bart Budge Assocs.	415-961-0940
CT	Vernon, GM Assoc.	203-646-4443
FL	Coral Springs, E.P.M. Corp.	305-755-5387
GA	Lawrenceville, BTF, Inc.	404-963-9495
IL	Crystal Lake, E. S. Healy & Assocs.	815-459-4386
KY	Louisville, KW Elctrn. Sls.	502-451-1860
MA	Framingham, GM Assoc.	617-872-4871
MI	Ypsilanti, Tamco Inc.	313-572-1950
MN	Minneapolis, R. K. Sls.	612-786-5713
NH	Exeter, GM Assoc.	603-778-7472
NJ	Englewood Cliffs, Ed Glass Assoc.	201-592-0200
NC	Raleigh, BTF, Inc.	919-782-3493
OH	Dayton, KW Elctrn. Sls.	513-890-2150
OH	Shaker Heights, KW Elctrn. Sls.	216-491-9177
OH	Worthington, KW Elctrn. Sls.	614-888-0483
OR	Tigard, Electronic Comp. Sls.	503-245-2342
PA	Allison Park, KW Elctrn. Sls.	412-487-4300
PA	Prospect Park, Elf Sls.	215-534-3340
TX	Dallas, Rem-Air Comps.	214-234-1069
UT	Salt Lake City, Aspen Sls.	801-467-2401
WA	Mercer Island, Electronic Comp. Sls.	206-232-9301

Local Distributors

CA	Burlingame, Rose Elctrns.	415-348-2740
CA	Inglewood, Force Elctrns.	213-670-8570
CA	San Jose, Force Elctrns.	408-943-1324
FL	Ft. Lauderdale, KSM Elctrns.	305-971-5900
FL	Ft. Lauderdale, NRC Elctrns.	305-772-4500
IL	Crystal Lake, Sub-Sem	312-782-3954
MN	St. Paul, Munsee Elctrns.	612-228-0267
NC	Raleigh, Century Elctrns.	919-755-0537
PA	Norristown, Century Elctrns.	215-631-5400
TN	Memphis, Electrotec	901-362-1350
TX	Richardson, Southwest Elctrns.	214-234-3050
TX	Stafford, Southwest Elctrns.	713-491-4900
WA	Redmond, Murphy Elctrns.	206-881-1234

POWER ELCTRNS., 96 Milton Rd., Rochester, NH 03867, Tel: 603-332-3334; Empl.: 125; *Sls. Mgr.:* Robert S. Karstedt

POWER FUNCTIONS ENGRG., 3831 Cavalier Dr., Garland, TX 75042, Tel: 214-278-0996; Empl.: 9

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POWER GENERAL, 152 Will Dr., Canton, MA 02021, Tel: 617-828-6216, TWX: 710-348-0200; Empl.: 200; *Sls. Mgr.:* Steve Dutton; *Dist. Mgr.:* John H. Gallagher .... **3**•1680-1691

Local Sales Offices & Reps

AL	Huntsville, Murcota	205-539-8476
AZ	Scottsdale, TC Electrn. Sls.	602-994-5153
CA	Milpitas, Sales One	408-945-1250
CA	Orange, XBX Sls.	714-998-8200
CA	Redwood City, Sales One	415-367-1188
CO	Englewood, Grimes Mktg.	303-799-6063
CT	Avon, Power Mark	203-678-0123
FL	Melbourne, EMS	305-724-1027
FL	Plantation, EMS	305-587-7146
FL	Sarasota, EMS	813-924-7415
HI	Honolulu, Aloha Assocs.	808-941-1574
IL	Palatine, T-Squared Assoc.	312-991-2144
IA	Cedar Rapids, Palatine Eng. & Sls.	319-365-8071
KS	Mission, Palatine Eng. & Sls.	913-831-0555
MA	Canton, Power General	617-828-6216
MI	Birmingham, Favco	313-644-0173
MI	Grand Rapids, Favco	616-459-4425
MN	Minneapolis, Comtek Sls.	612-888-7011
MO	Hazelwood, Palatine Eng. & Sls.	314-839-0800
NJ	Perth Amboy, AstroRep	201-826-8050
NY	Babylon, AstroRep Inc.	516-422-2500
NY	Babylon, AstroRep Inc.	201-624-4408
NY	DeRuyter, Net Sls.	315-662-7996
NY	Fairport, Net Sls.	716-467-4538
NY	Troy, Net Sls.	518-274-4758
NC	Winston Salem, Murcota	919-722-9445
OH	Columbus, McFadden Sls.	614-459-1280
OR	Lake Oswego, Huntley Assoc.	503-636-7558
TX	Austin, Mech-Tron Mktg.	512-835-0980
TX	Dallas, Mech-Tron Mktg.	214-343-3786
TX	Houston, Mech-Tron Mktg.	713-462-1432
VA	Fairfax, Beacon North	800-572-0405
VA	Falls Church, Beakon North Inc.	703-591-1300
WA	Everett, Huntley Assoc.	206-353-1833

Local Distributors

Intl	Belgium, Gent, Belgium Computer Prods.	
Intl	France, Orsay, Microel	907 08.24
Intl	W. Germany, Muenchen, Fey Elektronik Bauelemente	(089) 184041

POWER GROUP INTERNATIONAL, 1137 Cliff Rd., Burnsville, MN 55337, Tel: 612-890-1360; FSC No.: 25441; Empl.: 500; *Sls. Mgr.:* Hortense M. Rowe .... **3**•1420, 1421

POWER INSTRS., INC., 7352 N. Lawndale Ave., Skokie, IL 60076, Tel: 312-676-2300, TWX: 910-223-0835; Empl.: 45; *Sls. Mgr.:* Tony Ruggiero

POWER INTEGRITY CORP., 1840 Pembroke Rd., P.O. Box 9682, Greensboro, NC 27408, Tel: 919-379-9773; *Sls. Mgr.:* James T. Fesmire

POWER LABS, INC., 5 Towle Ave., Dover, NH 03820, Tel: 603-742-4613; Empl.: 9

POWERMARK, 3855 Ruffin Rd., San Diego, CA 92123, Tel: 619-565-8363; Empl.: 75; *Sls. Mgr.:* Ron Baietto .... **3**•1904-1906

Local Sales Offices & Reps

AL	Birmingham, Sesco	205-988-8304
AK	Anchorage, John P. Bagoy & Assocs.	907-274-8531

AZ	Phoenix, Bob Anderson Co.	602-266-2070
CA	Milpitas, Lee/Allan Assocs.	408-946-8300
CO	Denver, Cleveland Entprs. of Colo.	303-751-3252
FL	St. Petersburg, Sesco	813-576-6991
GA	Atlanta, Sesco	404-458-6423
HI	Honolulu, Ind'l. Elctrns.	808-533-6095
ID	Boise, Underwood-Hanify Assocs.	208-343-5600
IL	Elk Grove Village, Loren Green Assocs.	312-593-0282
IN	Indianapolis, Loren Green Assocs.	317-293-9827
KS	Shawnee, Atech	913-268-9644
LA	Baton Rouge, Sesco	504-928-4951
LA	Metairie, Sesco	504-456-2684
MD	Bethesda, Powell-Pendergraph	301-656-4535
MA	Wellesley, Power Conversion Sys.	617-235-7884
MI	Mt. Clemens, O'Hara Assocs.	313-791-7140
MN	Minneapolis, Loren Green Assoc.	
MO	St. Louis, Atech	314-428-7447
NH	Londonderry, Power Conversion Sys.	603-434-2371
NJ	Ridgewood, Ballou, Inc.	201-444-6990
NY	Clarence, Trott Elctrns.	716-634-8500
NY	Pittsford, Trott Elctrns.	716-586-8251
NC	Cary, Sesco	919-467-7482
NC	Charlotte, Sesco	704-535-4920
OH	Cleveland, Jim Finnegan & Co.	215-238-5905
OK	Tulsa, Sesco	918-622-3868
PA	Brunnerville, J. E. Cuesta & Co.	717-626-2020
PA	Valley Forge, J. E. Cuesta & Co.	215-265-5800
TX	Austin, Sesco	512-892-2490
TX	Dallas, Sesco	214-231-9364
TX	Houston, Sesco	713-999-3510
UT	Salt Lake City, Cleveland Entprs. of Colo	801-355-8424
VA	Richmond, Powell-Pendergraph	804-270-1400
WA	Bellevue, Underwood-Hanify Assocs.	206-451-8223
WA	Vancouver, Underwood-Hanify Assocs.	503-641-4463

POWER/MATE CO., 514 S. River St., Hackensack, NJ 07601, Tel: 201-440-3100, TWX: 710-990-5023; Empl.: 650; *Sls. Mgr.:* J. R. Hoeffler; *Dist. Mgr.:* G. Vardakas

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Local Sales Offices & Reps

AZ	Scottsdale, Thorson Desert States	602-998-2444
CA	Los Angeles, A-F Sls. Engrg.	213-681-5631
CA	Pasadena, A-F Sls. Engrg.	213-681-5631
CA	San Diego, A-F Sls. Engrg.	619-274-2225
CA	San Jose, Richards Assocs.	408-297-3010
CO	Denver, Quorum 3	303-696-8480
FL	Casselberry, Elctrn. Mktg.	305-339-7070
GA	Marietta, ELW Southeast	404-424-1731
IL	Itasca, L-Tec	312-773-2900
IN	Ft. Wayne, J&B Engrg.	219-483-2813
IN	Indianapolis, J&B Engrg.	317-894-8697
IA	Cedar Rapids, Lorenz Sls.	319-377-4666
KS	Overland Park, ATS	913-642-6675
MA	Brockton, Forsberg	617-522-6300
MI	Southfield, L. H. Dickelman	313-353-8210
MN	Minneapolis, Components Grp. Corp.	612-374-1250
MO	St. Louis, ATS	314-227-4448
NE	Lincoln, Lorenz Sls.	402-475-4660
NM	Albuquerque, Thorson Desert States	505-293-8555
NY	Great Neck, Trionic Assocs.	516-466-2300
NY	Pittsford, C. W. Beach	716-586-3200
NY	Syracuse, C. W. Beach	315-446-9587
OH	Columbus, Tom Mulligan Co.	614-457-2242
OK	Tulsa, Advance Tech. Sls.	918-664-0482
OR	Beaverton, W3	503-641-5790
PA	Philadelphia, Eastern Comp. Sls.	215-825-8610
PA	Stewartstown, Eastern Comp. Sls.	800-223-3850
TX	Austin, Advance Tech. Sls.	512-459-1351
TX	Dallas, Advance Tech. Sls.	214-340-1300
TX	Houston, Advance Tech. Sls.	713-440-3888
UT	Sandy, Quorum 3	801-943-9227
VA	Manasas, Eastern Comp. Sls.	703-368-3936
WA	Seattle, W3	206-285-2667
WI	Milwaukee, L-Tec	414-774-1000

Local Distributors

AZ	Phoenix, Arrow Elctrns.	602-968-4800
AZ	Phoenix, Aero Space Southwest	602-861-1785
AZ	Phoenix, PLS Assocs.	602-246-6614
CA	Chatsworth, Diplomat Elctrns.	818-341-4411
CA	Chatsworth, Arrow Elctrns.	213-701-1133
CA	Costa Mesa, FLW	818-989-5237
CA	Los Angeles, Hanex, Inc.	213-556-3807
CA	Newport Beach, Arrow Elctrns.	714-851-8961
CA	San Diego, Diplomat Elctrns.	619-292-5693
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Jose, Compumech Elctrns.	408-289-9171
CA	Sunnyvale, Diplomat Elctrns.	408-734-1900
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CO	Denver, Arrow Elctrns.	303-696-1111
CO	Denver, PLS Assocs.	303-773-1218
CO	Englewood, Diplomat Elctrns.	303-799-8300
CT	Danbury, Diplomat Elctrns.	203-797-9674
CT	Wallingford, Sterling Elctrns.	203-265-9535
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Clearwater, Diplomat Elctrns.	813-443-4514
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Miami, Elctrn. Equip. Co.	305-871-3500
FL	Palm Bay, Arrow Elctrns.	305-725-1480
GA	Norcross, Diplomat Elctrns.	404-449-4133
GA	Norcross, Arrow Elctrns.	404-449-8252
IL	Arlington Heights, C. W. Elctrns.	312-489-9810
IL	Bensenville, Diplomat Elctrns.	312-595-1000
IL	Northbrook, Classic Comps.	312-272-9650
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Advent Elctrns.	317-872-4910
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
KS	Edwardville, C. Tennant & Sons	913-441-1801
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Columbia, Diplomat Elctrns.	301-995-1226
MD	Timonium, Zebra Elctrns.	301-252-6576
MA	Canton, Impact Sales	617-821-1500
MA	Woburn, Arrow Elctrns.	617-933-6770
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Battle Creek, Great Lakes Elctrns.	616-731-4156
MI	Livonia, Reptron	313-525-2700
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minneapolis, Aero Space Computer	612-884-4725
MO	St. Charles, Finnigan Elctrns.	314-946-6201
MO	St. Louis, Arrow Elctrns.	314-567-6888
NE	Omaha, Scott Elctrns.	402-734-6750
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	Moorestown, Arrow Elctrns.	609-235-1900
NJ	Perth Amboy, Sterling Elctrns.	201-442-8000
NJ	Saddle Brook, Arrow Elctrns.	201-797-5800
NJ	Totawa, Diplomat Elctrns.	201-785-1830
NM	Albuquerque, Sterling Elctrns.	505-854-1900
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Mamaroneck, Logicomp Elctrns.	914-698-9332
NY	Melville, Diplomat Elctrns.	516-454-6400
NY	Rochester, Zeller Elctrns.	716-254-8840
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Rochester, CAM/RPC Elctrns.	716-865-2080
NC	Raleigh, Southeastern Elctrns.	919-828-2311
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cincinnati, Applied Data Mgt.	513-579-8108
OH	Cleveland, CAM/RPC Elctrns.	216-461-4700
OH	Columbus, Reptron	614-436-6675
OH	Solon, Arrow Elctrns.	216-248-3990
OK	Tulsa, Sterling Elctrns.	918-663-2410
PA	Lancaster, CAM/RPC Elctrns.	717-392-8141
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Pittsburgh, Alder Tronics	412-821-5565
PA	Pittsburgh, CAM/RPC Elctrns.	412-782-3770
PA	Wayne, Peak Elctrns.	215-293-9000
RI	Warwick, Major Edwards Elctrns.	401-781-3000
TX	Dallas, Sterling Elctrns.	214-243-1600
TX	Dallas, Solid State Elctrns.	214-438-5700
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Houston, Sterling Elctrns.	713-627-9800
TX	Houston, Solid State Elctrns.	713-772-8483
TX	Stafford, Arrow Elctrns.	713-491-4100
UT	Salt Lake City, Diplomat Elctrns.	801-486-4135
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Bellevue, Integrated Elctrns.	206-455-2727
WA	Bellevue, Arrow Elctrns.	206-643-4800
WA	Seattle, Radar Electric	206-282-2511
WI	Oak Creek, Arrow Elctrns.	414-764-6600
EXP	CA, Los Angeles, Hanex, Inc.	213-556-3807

POWER PAC, 32 Meadow St., S. Norwalk, CT 06856, Tel: 203-866-4484; FSC No.: 53998; Empl.: 175; *Sls. Mgr.:* Abe Partner .... 3•1696-1700

Local Sales Offices & Reps

AL	Huntsville, BCI	205-539-4411
CA	Los Altos, AARD Engr.	415-948-5740
CA	Westlake Village, Jayess Co.	213-991-0632
CT	Hamden, Digital Sls. Assoc.	203-248-3641
GA	Chamblee, BCI	403-455-0405
IL	Des Plaines, Synmark Sls. Co.	312-296-0180
MD	Seabrook, W. A. Brown-Equip. Co.	301-577-6105
MA	Waltham, Digital Sls. Assoc.	617-899-4300
MI	Dearborn Hgts., Electro Sls. Assoc.	313-474-7320
MN	Minneapolis, R.J. Inc.	612-866-3661
NJ	E. Hanover, Emtec	201-428-060
NJ	Princeton, Murtronics	609-394-3737
NJ	Teaneck, SGL Sls.	201-837-235
NY	Cazenovia, S.T. Woolard	315-655-814
NY	Melville, Emtec	516-752-163
NC	Raleigh, BCI	919-781-942
OH	Cleveland, Electro Sls. Assoc.	216-261-544
OH	Dayton, Electro Sls. Assoc.	513-426-555
PA	Harrisburg, Beil & Whitaker	717-564-690
TX	Houston, Scientific Sls.	713-666-531
TX	Richardson, Scientific Sls.	214-231-654

Local Distributors

CT	Hamden, Digital Sls. Assoc.	203-248-364
MA	Waltham, Digital Sls. Assoc.	617-899-430

POWER-PAK, INC., 6232 N. Pulaski Rd., Chicago, Il 60646, Tel: 312-286-5566, TWX: 910-221-5928; *Sls Mgr.:* Robert Villari

POWER PRODUCTS DIV., COMPUTER PRODS. INC., See Power Products Group

COMPUTER PRODUCTS™
POWER CONVERSION

OWER PRODUCTS DIV., Computer Products, Inc., 2801 Gateway Dr., Pompano Beach, FL 33060, Tel: 305-974-2442, TWX: 510-956-3098; FSC No.: 62125; Empl.: 700 .... **3**•1438, 1701-1725

OWER-SCIENCE, 7667 Vickers St., San Diego, CA 92111, Tel: 619-292-4322; Empl.: 6; *Sls. Mgr.:* E. Cooper

POWER SONIC
RECHARGEABLE BATTERIES

OWER-SONIC, Box 5242, 3106 Spring St., Redwood City, CA 94063, Tel: 415-364-5001, Telex: 348400; Empl.: 30; *Sls. Mgr.:* B. A. Ender; *Dist. Mgr.:* B. A. Ender .... **3**•1422

Local Sales Offices & Reps

Irvine, English/Damco	714-837-3801
Tampa, SRT Mktg.	813-884-4805
River Forest, Pete Collins	312-366-7076
Natick, Steve Dworkin	617-653-7188
Jackson, Welch & Doby	601-932-5534
Wantagh, Dony Tech. Sls.	516-826-5550
Raleigh, DHR Mktg.	919-876-5450
Media, W. Reeves Assocs.	215-566-6709
Greenville, DHR Mktg.	803-235-3594
Dallas, Power Connection	214-357-8207

Local Distributors

Chatsworth, Mil-Comm Distr.	213-998-3111
Fountain Valley, Components Center	714-979-0433
Mountain View, Cornett Electronics	415-969-5420
Santa Clara, Components Center	408-988-3751
Denver, Hensley Battery	303-455-3643
Westport, Secres Distr.	203-226-7371
Miami, ESL Elctrn. Distr.	305-633-6973
Tampa, Leader Elctrns.	813-870-3315
Atlanta, Allied Elctrns.	404-237-3366
Atlanta, Security Wherehouse	404-955-1006
Chicago, Allied Elctrns.	312-697-8200
Villa Park, Melvin Elctrns.	312-378-7741
Lafayette, Ralph's Elctrns.	318-234-4507
Sharon, Adcour	617-784-3996
Detroit, Alarm Supp.	313-425-2500
St. Louis, Olive Elctrns.	314-426-4500
Albuquerque, Detatron, Inc.	505-344-2381
Ridgewood, J.A. McDermott Corp.	212-456-3606
Tulsa, Radio, Inc.	918-587-9123
Pittsburgh, Triangle Elctrns.	412-441-9659
Austin, Harrison Indl. Elctrns.	512-458-3555
Ft Worth, Allied Elctrns.	817-265-9341
Houston, Harrison Equip.	713-652-4700
San Antonio, Sherman Elctrns.	512-224-1001
Richmond, Sterling Elctrns.	804-226-2190

OWER SYSTEMS, 12 Tobey Rd., Bloomfield, CT 06002, Tel: 203-243-0357, TWX: 710-425-8778; FSC No.: 50463; Empl.: 375; *Sls. Mgr.:* Leon Gedacht .... **3**•1726, 1727

Local Sales Offices & Reps

Phoenix, Tech Sls./Powerhouse	602-246-1614
San Jose, Powerhouse	408-748-1555
Santa Ana, Powerhouse	714-549-9599
Tyngsboro, Comptech	617-649-3030

OWER SYSTEMS & CONTROLS, INC., 3206 Lanvale Ave., Richmond, VA 23230, Tel: 804-355-2803; Empl.: 40

POWER SYS. GRP., Rantec Div., Emerson Elec., 9401 Oso Ave., Chatsworth, CA 91311, Tel: 818-885-8223, TWX: 910-493-1247; FSC No.: 04971; Empl.: 265; *Sls. Mgr.:* Daniel L. Esau

POWERTEC, INC.

POWERTEC, INC., 20550 Nordhoff St., Chatsworth, CA 91311, Tel: 818-882-0004, TWX: 910-494-2092; Empl.: 349 .... **3**•1728-1745

POWERTECH, INC., 0-02 Fairlawn Ave., Fairlawn, NJ 07410, Tel: 201-791-5050, Telex: 130389; FSC No.: 32953; Empl.: 49

Local Sales Offices & Reps

CA	Tarzana, Power Comp. Sls.	213-881-9111

Power Technology Inc.

POWER TECHNOLOGY, INC., P.O. Box 9769, Little Rock, AR 72219, Tel: 501-568-1995, TWX: 910-722-7313; Empl.: 40; *Sls. Mgr.:* Thomas H. Burgess .... **3**•1746

Local Sales Offices & Reps

IN	Ossian, Science Sales, Inc.	219-622-7383
PA	Glenside, Koebert Assoc., Inc.	215-887-2310

POWERTREND, INC., 3139-G Los Feliz Dr., Thousand Oaks, CA 91362, Tel: 805-496-2945; *Sls. Mgr.:* R. Jones

POWER TEN, INC., 486 Mercury Dr., Sunnyvale, CA 94086, Tel: 408-738-5959, Telex: 172588 SNLO; FSC No.: 61987; *Sls. Mgr.:* Vince Mutascio

POWERTRON, See Industrial Test Equipment Co., Inc.

POWERTRON, Contraves Goerz Corp., 3821 Barranger Dr., Charlotte, NC 28210, Tel: 704-525-8962, Telex: 572-444; *Sls. Mgr.:* Sam LoBue

POWR-UPS CORP., 50 Orville Drive, Bohemia, NY 11716, Tel: 516-567-9620; Empl.: 6; *Sls. Mgr.:* Steve Summer .... **1B**•1173

Local Sales Offices & Reps

CA	Fullerton, ESCO	714-879-7260
CA	San Diego, Total Elctrns. Int'l.	619-224-3291
MA	Southborough, Motion Engrg.	617-485-2144
NY	Cazenovia, D & O Engrg.	315-655-8602
OH	Dover, AJ Assocs.	216-343-2224
VA	Roanoke, Engrg. & Mktg. Corp. of Va.	703-986-1410

PPC PRODS., 7516 Central Industrial Dr., Riviera Beach, FL 33404, Tel: 305-848-9606, TWX: 510-952-7611; FSC No.: 33178; Empl.: 50; *Sls. Mgr.:* Nick Ernick

PPD, INC., Hwy. 70W, Resco Ct., P.O. Box 31347, Raleigh, NC 27612, Tel: 919-781-3955; *Sls. Mgr.:* Wm. Bagliani .... **1A**•1173-1179

PPM, INC., 23945 Mercantile Rd., Cleveland, OH 44122, Tel: 216-292-6006; Empl.: 20; *Sls. Mgr.:* A. L. Bletcher .... **3**•1285

Local Sales Offices & Reps

AZ	Phoenix, J. Smith & Assocs.	602-267-0981
CO	Denver, J. Smith & Assocs.	303-597-5343
MI	Ferndale, Tiby Co.	313-547-3550
NM	Albuquerque, J. Smith & Assocs.	505-265-3406
NC	Charlotte, Binco	704-366-5092
OH	Cleveland, Tiby Co.	216-371-5335
OH	Dayton, Tiby Co.	513-277-3822

PRACTICAL AUTOMATION, Trap Falls Rd., Shelton, CT 06484, Tel: 203-929-5381, Telex: 6813310; Empl.: 150; *Sls. Mgr.:* R. M. Banzaca

PRACTICAL TECHNOLOGY, 12 Village Ctr., Box 449, Carmel Valley, CA 93924, Tel: 408-659-3128; FSC No.: 59089; Empl.: 7; *Sls. Mgr.:* Keith Rosburg

PRAGMATIC DESIGNS, INC., 950 Benicia Ave., Sunnyvale, CA 94086, Tel: 408-736-8670, Telex: 17-1627, TWX: Nanet D Suvl; FSC No.: 94-2543110; Empl.: 45

PRD ELCTRNS., DIV. OF HARRIS CORP., see Harris Corp., PRD Electronics Div.

PRECICONTACT, INC., Ultra Precision, 1150 Wheeler Way, Langhorne, PA 19047, Tel: 215-757-1202, Telex: 83-4253; FSC No.: FSCM 60197; *Sls. Mgr.:* Edward W. Swirsky; *Dist. Mgr.:* John Dirado .... **2**•1547, 1892

Local Sales Offices & Reps

AZ	Litchfield Park, G..B. Elctrns.	602-935-3984
CA	Mountain View, Gene C. Woempner Co.	415-964-5454
CA	Orange, Elctrn. Tech. Assoc.	714-998-2901
CO	Englewood, White Sls. Co.	403-694-9555
FL	Orlando, Over & Over	305-857-4057
GA	Norcross, Over & Over	404-449-6205
IL	Rolling Meadows, Heartland Tech. Mktg.	312-577-9222
IN	Indianapolis, Hoster & Sieloff Assoc.	317-842-3700
MD	Gaithersburg, Mechtronics Sls.	301-340-2130
MA	S. Dartmouth, Kentronics	617-999-2188
MA	Wakefield, Kentronics	617-246-0245
MO	Ravtown, Cadon Tech. Sls.	816-356-7685
MO	St. Louis, Cadon Tech Sls. Co.	314-645-8670
NJ	Mountain Lakes, Components for Elctrns.	201-334-2921
NY	Albion, Sys. Hardware Rep.	716-589-4908
NY	Corbettsville, SHR, Inc.	717-967-2607
NY	East Northport, Comps. For Elctrns.	516-266-5020
NY	Kew Gardens, Ayer Business Sys.	212-621-9002
NC	Charlotte, Over & Over	704-527-3070
NC	Raleigh, Over & Over	919-872-2262
OH	Cincinnati, Makin Assoc.	513-871-2424
OR	Portland, Elctrn. Mktg. Grp.	503-289-5320
PA	Hatboro, Jacobsen Assocs.	215-674-2937
PA	Lebanon, Jacobsen Assocs.	717-273-9746
PA	Pittsburgh, Kneip Sls.	412-824-1600; 823-0169
TN	Antioch, Over & Over	615-834-0140
TX	Austin, OM Sls.	512-452-1838
TX	Houston, OM Sls.	713-789-4426
TX	Richardson, OM Sls.	214-690-6746
UT	Salt Lake City, Charles Fields & Assocs.	801-277-4859
WA	Redmond, Elctrn. Mktg. Grp.	206-882-0962
WI	Milwaukee, Heartland Tech. Mktg.	414-931-0606

Local Distributors

AZ	Litchfield Park, GB Elctrns.	602-935-3984
CA	Chatsworth, I.E.C./Jaco	800-423-5731
CA	Fremont, Term. Sls.	415-656-7722
CA	Orange, Elctrn. Connexions Corp.	714-998-2901
CA	San Diego, Park West	619-277-8433
CA	San Jose, Cypress Elctrns.	408-945-8400
CO	Denver, CSID, Inc.	303-292-9594
CT	Norwalk, Park Distrs.	203-853-2010
CT	Wallingford, Cronin Elctrns.	203 265-3134
FL	Clearwater, Elctrn. Precepts of Florida	813-530-9781
FL	Lake Park, Park South	305-863-7275
FL	Pompano Beach, Components South	305-971-0350
IL	Palatine, OHM Elctrns.	312-359-5500
MA	Needham, Cronin Elctrns.	617-449-5000
MA	Westwood, Emtel Elctrns.	617-326-6522
MA	Wilmington, Aved Elctrns.	617-657-8310
NJ	Bellmawr, Mid-Atlantic Elctrns.	609-931-5303
NJ	Berlin, GCI Corp.	609-768-6767
NJ	Englewood, T.E.D./Powell	201-894-0800
NJ	Springfield, Route Elctrns.	201-379-7710
NM	Albuquerque, Connecting Comps. Div. T.M.A. Inc.	505-345-8921
NY	Bohemia, Norelcom Elctrns. Corp.	516-567-8866
NY	Brooklyn, Beryl Elctrns.	212-383-2208
NY	Brooklyn, Connector Resources	212-383-2208
NY	East Syracuse, Future Elctrns.	315-463-6633
NY	Hauppauge, Jaco Elctrns.	516-273-5500
OH	Mansfield, Rush Elctrns.	419-756-2311
OR	Beaverton, Component Resources	503-641-8488
PA	Wayne, Peak Elctrns.	215-293-9000
PA	York, E.C.I.	717-843-8971
TX	Allen, Prime Distrbg. Co.	214-231-0170
TX	Grand Prairie, Dial Supp.	214-647-2371
TX	Richardson, Southwest Elctrns.	214-234-3050
TX	Richardson, Jaco Elctrns.	214-235-9575
TX	Stafford, Southwest Elctrns.	713-491-4900
WA	Bellevue, I.E.C./Jaco	206-455-2727
WA	Seattle, Pacific Elctrns.	206-575-1050

PRECISION COMPONENTS, INC., 1110 W. National Ave., Addison, IL 60101, Tel: 312-543-6400; *Sls. Mgr.:* B. A. Gravens .... **3**•1747

PRECISION ELCTRN. COMPS. LTD., 19 Hafis Rd., Toronto, Ont., Canada M6M 2V6, Tel: 416-249-7103, Telex: 06-969671 .... **1A**•2052

PRECISION ELCTRNS., 9101 King Ave., Franklin Park, IL 60131, Tel: 312-678-5350; Empl.: 25

PRECISION EXTRUSIONS, INC., Box 120, Bensenville, IL 60106, Tel: 312-766-0340; *Sls. Mgr.:* Jim Achen

PRECISION FILTERS, INC.

PRECISION FILTERS, 240 Cherry St., Ithaca, NY 14850, Tel: 607-277-3550, Telex: 646846; FSC No.: 66-II-F & 66-II-I; Empl.: 49; *Sls. Mgr.:* Tom Rockwell ....**1A**•1613-1617; **3**•1016-1020, 1286

Local Sales Offices & Reps

AZ	Tempe, Cleveland Entprs.	602-820-1127
CA	La Crescenta, Beckrep	213-957-1111
CO	Denver, Cleveland Entprs.	303-751-3252
FL	Osprey, Dick Ridgewell Co.	813-966-4401
IL	Park Ridge, Electronic Instr.	312-298-2290
IN	Indianapolis, Electronic Instr.	317-257-7231
MD	Fulton, Gans & Pugh Assocs.	301-953-3724
MN	Eden Prairie, Electronic Instr. Conslts.	612-937-9701
NM	Albuquerque, Cleveland Entprs.	505-265-7893
OH	Cleveland, Comtel Instr.	216-442-8080
OH	Dayton, Comtel Instr.	513-298-7573
OH	Hilliard, Comtel Instr.	614-876-8305
OR	Portland, Topp Engrg. Sls.	503-244-7265
PA	Pittsburgh, Comtel Instr.	412-922-5720
UT	Salt Lake City, Cleveland Entprs.	801-355-8424
VA	Arlington, Gans & Pugh Assocs.	703-527-3262
WA	Bellevue, Topp Engrg. Sls.	206-747-5400

PRECISION LAMP, INC., 480 Aaron Dr., Cotati, CA 94928, Tel: 707-792-0333, Telex: 348498; Empl.: 25

PRECISION LEVEL VIAL CO., Warren Industries Inc., 1800-D Mearns Rd., Warminster, PA 18974, Tel: 215-675-2355; *Sls. Mgr.:* Michael Joyce; *Dist. Mgr.:* Michael Joyce

PRECISION MECHANISMS, 44 Brooklyn Ave., Westbury, NY 11590, Tel: 516-ED3-5955; FSC No.: 08127; Empl.: 26; *Sls. Mgr.:* Leon N. Canick

PRECISION METAL PRODS. CO., Centennial Indl. Pk., Peabody, MA 01960, Tel: 617-532-5500, TWX: 710-347-0123; FSC No.: 86577; Empl.: 54; *Sls. Mgr.:* Robert H. Degnan

PRECISION MICRO IMAGES, Box 1330, Altamonte Springs, FL 32701, Tel: 305-830-7244, Telex: 56-4303; *Sls. Mgr.:* Williams S. Hodges

PRECISION MOLDED PRODUCTS, INC., 582 Meyer Lane, Redondo Beach, CA 90278, Tel: 213-372-7373

PRECISION MONOLITHICS, 1500 Space Dr., Santa Clara, CA 95050, Tel: 408-727-9222, TWX: 910-338-0218; FSC No.: 06665; Empl.: 700; *Sls. Mgr.:* Steve Pass; *Dist. Mgr.:* Mike Dennison

PRECISION RESISTIVE PRODS., INC., P.O. Box 189, Highway 61 South, Mediapolis, IA 52637, Tel: 319-394-9131; Empl.: 90; *Sls. Mgr.:* Oscar Cline; *Dist. Mgr.:* Oscar Cline .... **1A**•1925

Local Sales Offices & Reps

CA	Los Altos, Frauman Assoc.	415-941-0660
CA	San Diego, KCE	619-278-7640
CO	Denver, Williams Assocs.	303-373-4730
CT	Milford, Cuming Assocs.	203-878-3946
FL	Cocoa Beach, Reynolds & Assocs.	305-784-4700
IL	Chicago, Ellinger Sls.	312-763-1570
IN	Greenwood, Valentine Assocs.	317-888-2200
MA	Waltham, Jesco, Inc.	617-893-0094
MI	Warren, DEM Elctrns. Sls.	313-575-9444
MN	Minneapolis, Intl. Sls.	617-831-8423
MO	St. Charles, Chesco	314-946-6677
NJ	Paramus, Design Elctrns.	201-845-6224
NY	Syracuse, Electra Sls. Corp.	315-463-1248
TX	Richardson, Campion Sls. Co.	214-238-8145
WA	Seattle, Arneson Assoc.	206-762-7664

PRECISION RESISTOR CO., INC., 109 U.S. Hwy. 22, Hillside, NJ 07205, Tel: 201-926-3036, Telex: 13-6479-413; FSC No.: 48615; Empl.: 45; *Sls. Mgr.:* R. L. Wright ....**1A**•1926, 1927

PRECISION TECH. SEWING, 921 E. Charleston Rd., Palo Alto, CA 94303, Tel: 415-856-2128

PRECISION TIMER, 13 Westbrook Ind'l. Pk., Westbrook, CT 06498, Tel: 203-399-6253; Empl.: 25; *Sls. Mgr.:* A. Hockert

PRECISION TUBE, Church Rd. & Wissahickon, N. Wales, PA 19454, Tel: 215-699-5801, Telex: 84-6439; FSC No.: 82413; Empl.: 240; *Sls. Mgr.:* William J. McNeil

Local Sales Offices & Reps

CA	Mountain View, Walter Assoc.	415-965-4131
CA	Santa Ana, RMS Assocs.	714-556-4155
CO	Golden, J. R. Hurlbut Co.	303-279-7796
FL	Melbourne, Hanson Assocs.	305-727-7474
IN	Indianapolis, Sukup & Cox	317-253-1215
IA	Cedar Rapids, Snider Sls. Co.	319-362-4410
MA	Burlington, Tri Tek	617-272-4550
MO	St. Charles, Buse Sls. Co.	314-946-6430
NJ	Haddonfield, Sunday-O'Brien	609-429-4013
NY	Huntington, CDB Enterprises	516-692-5200
TX	Garland, Carey McMahill & Zerbe	214-681-1414
UT	Salt Lake City, J. R. Hurlbut Co.	801-973-4443
VA	Fairfax, Schibley Assocs.	703-591-3008
WA	Redwood City, Woodworth Co.	

PREFERRED ELCTRNS., INC., Main Line Dr, P.O. Box 954, Westfield, MA 01086, Tel: 413-568-2301, Telex: 955-339; Empl.: 250; *Sls. Mgr.:* Merton I. Rosenberg

PREMAX PRODS. DIV., Highland & College Aves., Niagara Falls, NY 14305, Tel: 716-285-9186, Telex: 91-531; FSC No.: 74183; Empl.: 350

PREMIER METAL

PREMIER METAL PRODS. CO., 381 Canal Pl., Bronx, NY 10451, Tel: 212-993-9200; Empl.: 75 ....**2**•1044, 1045

Local Sales Offices & Reps

AZ	Phoenix, PLS Assocs.	602-246-6477
CA	City of Industry, Premier Metal	818-336-4534
CA	Garden Grove, West Elctrn. Sls. Co.	714-898-0120
CO	Englewood, PLS Assocs.	303-773-1218
CT	East Haven, Eagle Assocs.	203-467-6542
FL	Lake Worth, Adams & Assocs.	305-588-7630
GA	Marietta, Adams & Assocs.	404-973-0853
IL	Elmhurst, Utronix Sls.	312-834-1100
KS	Overland Park, Delltron Co.	913-649-2078
MD	Burtonsville, Eastern Instrmn.	301-384-8500
MA	Needham, Eagle Assocs.	617-444-3446
MI	Brighton, Electronic Sources	313-227-3598
MN	Minneapolis, J.E.M. Anderson Co.	612-823-6459
MO	St. Louis, Delltron Co.	314-869-4779
NM	Albuquerque, PLS Assocs.	505-255-2330
NY	Mt. Vernon, Sonkin Assocs.	914-668-9809
NY	New Hyde Park, Harris & Aldrich Sls.	516-488-2622
NY	Syracuse, Lewis-Dunnigan Co.	315-446-5522
NC	Greenboro, Adams & Assocs.	919-272-6838
OH	Akron, ImTech Inc.	216-666-1185
PA	Bensalem, Eastern Instrmn.	215-245-6660
TN	Knoxville, Adams & Assocs.	615-577-4241
TX	Arlington, W. Pat Fralia Co. Inc.	817-640-9101
TX	Houston, W. Pat Fralia Co. Inc.	713-772-1572
UT	Salt Lake City, PLS Assocs.	801-466-8729
EXP	FL, Miami, Emec, Inc.	305-871-3124

Local Distributors

AL	Huntsville, Mock Elctrns.	205-539-2401
AL	Opelika, Southern Elctrns.	205-745-5298
AZ	Phoenix, Dalis Elctrns.	602-275-2885
CA	Burlingame, Rose Elctrns.	415-348-2740
CA	San Jose, Quement Elctrns.	408-998-5900
CT	Middletown, Midstate Elctrns.	203-347-5638
CT	Wallingford, Sager Electrical Supp.	203-265-4600
FL	Dania, Summit Elctrns.	305-920-6253
FL	Miami, Electronic Equip. Co.	305-871-3500
IL	Elk Grove Village, GBL/Gould Elctrns.	312-593-3220
IN	Fort Wayne, Graham Elctrns.	219-423-3422
LA	Baton Rouge, Menard Elctrns.	504-355-0323
MD	Baltimore, ASI Elctrns.	301-265-5100
MD	Baltimore, Resco	301-823-0070
MD	Bethesda, Empire Elctrns.	301-656-3300
MA	Hingham, Sager Electrical Supp.	617-749-6700
MA	Newton, Greene-Shaw Co.	617-969-8900
MI	Ann Arbor, Purchase Radio Supp.	313-668-8696
MO	Kansas City, Walters Radio Supp.	816-531-7015
NJ	Cranford, Garden State Indl. Elec.	201-272-6400
NJ	Green Brook, Green Brook Elctrn.	201-968-3500
NJ	Hanover, State Elctrns. PTS	201-887-2550
NJ	Kenilworth, Federated Purchaser	201-272-0505
NY	Albany, E. E. Taylor Co.	518-438-7811
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Hauppauge, Broadline Elec. Dist.	516-231-4100
NY	Hempstead, Davis Elctrn. Corp.	516-483-9200
NY	LIC, H. L. Dalis Inc.	212-361-1100
NY	Lynbrook, Peerless Radio Dist. Corp.	212-523-3456
NY	New York, Martin Audio/Video Corp.	212-541-5900
NY	New York, Argil Elec. LTD	212-691-8111
NY	Port Chester, Wise Comps.	914-939-8600
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Rochester, Simcona Elctrn. Corp.	716-328-3230
NY	Rochester, Summit Elctrns.	716-334-8110
NY	Rockville Centre, Midway Industrial	516-764-2400
NY	Yonkers, Yonkers Elec. Supp.	914-969-6044
NC	Raleigh, Southeastern Radio	919-828-2311
OH	Warren, Rem Elctrns.	814-453-5626
PA	Allentown, Federated Elctrns.	215-437-4481
PA	Braddock, Leff Elctrns.	412-271-7100
PA	Horsham, Toner Cable Equip.	215-675-2053
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
PA	Reading, Barbey Elctrns.	215-376-6116
PA	West Chester, West Chester Elec. Supp.	215-696-7500
RI	Warwick, Edwards Elctrns.	401-732-3200
SC	Charleston, Wholesale Indl. Elec.	803-722-2634
TN	Clarksville, Randolph Hale & Matthews	615-647-2325
TN	Cookeville, Randolph & Parks	615-526-6184
TN	Nashville, Randolph & Rice	615-255-5601
TN	Tullahoma, Randolph Rice & Williams	615-455-4531
TX	Farmers Branch, Summers Elec. Co.	214-748-6533
TX	Ft. Worth, Swieco Inc.	817-335-6521
TX	Houston, Lenert Co.	713-225-1465
VA	Arlington, Arlington Elctrns.	703-524-2412
WA	Seattle, Radar Elec. Co.	206-282-2511

PREMIER MICROWAVE, 35 New Broad St., Port Chester, NY 10573, Tel: 914-939-8900, TWX: 710-569-1609; FSC No.: 15870; Empl.: 60 .... **1A**•1775

Local Sales Offices & Reps

CA	Los Angeles, R.F. Assocs.	213-478-1586
CA	Mountain View, Mark V. Assocs.	415-964-6275
FL	Orlando, BC Elctrns. Sls.	305-894-6071
GA	Smyrna, BC Elctrn. Sls.	404-436-5169
IL	Chicago, L.G.S. Elctrns. Sls.	312-456-9616
MD	Catonsville, Callas Elctrns. Dist.	301-744-771
MA	Natick, Gerald Rosen	617-879-5505
MO	St. Louis, Boweng Tech. Rep.	314-429-7327
NY	Huntington, C.D.B. Entprs.	516-692-522
OH	Dayton, BEK Assocs.	513-278-134
EXP	CA, N. Hollywood, Air Frame Mfg. & Supp.	213-765-260

PREM MAGNETICS, 3521 N. Chapel Hill Rd. McHenry, IL 60050, Tel: 815-385-2700, TWX: 910 642-3763; Empl.: 300; *Sls. Mgr.:* D. Hertel;D. Brooke (Tech.) ....**1A**•2257-225

Local Sales Offices & Reps

AZ	Tempe, Gassner & Clark Co.	602-968-903
CA	Vista, Sado Sls.	714-941-265
CT	Bristol, Texell Co.	203-583-070
IL	McHenry, Mesa, Inc.	815-344-282
IA	Hiawatha, Gassner & Clark Co.	319-393-576
NJ	Springfield, F. F. Sylvester Assoc.	201-376-332
OR	Portland, Components West	503-643-558
PA	W. Conshohocken, Eastern Comps. Sls. Corp.	215-825-861
WA	Renton, Components West	206-271-525

PRES-AIR-TROL CORP., 895 Mamaroneck Ave Mamaroneck, NY 10543, Tel: 914-698-2026, 800-431 2625 (exc NY); Empl.: 6 .... **1B**•174

PRESIDIO COMPS., INC., 7185 Construction Ct San Diego, CA 92121, Tel: 619-578-9390, TWX: 910 335-1254 .... **1A**•118

Local Sales Offices & Reps

AZ	Phoenix, Eltron	602-266-216
CA	La Mirada, Select Elctrns.	714-739-88

A	San Jose, Meade Assocs.	408-446-1991
A	Santa Clara, Meade Advantage	408-748-1991
	Orlando, Micro Mktg.	305-788-0886
	Palantine, R-Tek	312-991-4404
	Fort Wayne, R-Tek	219-432-8783
A	Shrewsbury, Compatible Comps.	617-842-2022
A	W. Boylston, Compatible Comps.	617-835-3614
N	Minneapolis, Peterson Sls. & Assoc.	612-944-0030
Y	Chappaqua, Micrel	914-238-4961
Y	Fair Haven, Feikert Assocs.	315-652-5577
A	Colmar, E & L Assocs.	215-822-2510
	Dallas, Merino Sls.	214-233-6002
	El Paso, EPEC, Inc.	915-593-8481
A	Bellevue, MARS	206-747-3292

Local Distributors

	Richardson, Central States Comps.	214-644-2070

RESS-ON PRODS., 39 Factory Rd., Addison, IL 60101, Tel: 312-628-2255; Empl.: 40; *Sls. Mgr.:* T. Cummins

RESSURE CONTROLS, INC., 681 Main St., Belleville, NJ 07109, Tel: 201-751-5002; Empl.: 15; *Sls. Mgr.:* P. Emmarco

RESSURE SYS., 15 Research Dr., Hampton, VA 23666, Tel: 804-865-1243, Telex: 901406; Empl.: 30; *Sls. Mgr.:* John Whytsell

Local Sales Offices & Reps

L	Birmingham, Hile Controls-Alabama	205-879-2990
Z	Tempe, Trembly Assocs.	602-967-2058
A	Long Beach, Saber Entprs.	213-595-5646
A	Mountain View, Saber Entprs.	415-968-0427
A	San Diego, Saber Entprs.	619-271-1523
O	Lakewood, Trembly Assocs.	303-233-9544
T	Hamden, Applied Measurements	203-288-5288
	Chicago, Comtel-Midwest	312-539-4838
	Indianapolis, RDP Corp.	317-788-4296
	Indianapolis, Comtel-Midwest	317-253-1681
	Cedar Rapids, Comtel-Midwest	319-377-9434
S	Mission, Comtel-Midwest	913-722-1030
E	Waterville, Applied Measurements (Kentrol)	207-873-7741
A	Acton, Applied Measurements	617-263-2766
	Charlotte, RDP Corp.	517-543-6212
N	Wayzata, Comtel-Midwest	612-476-1551
O	St. Louis, Comtel-Midwest	314-991-5363
J	Garwood, E. R. Mertz & Assocs.	201-232-4643
M	Albuquerque, Trembly Assocs.	505-266-8616
C	Charlotte, Zelco Assocs.	704-523-2961
H	Cleveland, RDP Corp.	216-659-3138
H	Dayton, RDP Corp.	513-253-6175
A	Jenkintown, PDC Corp.	215-887-9610
A	Pittsburgh, RDP Corp.	412-487-2217
N	Knoxville, Hile Controls of TN	615-584-0208
X	Houston, T. D. Stringer Assocs.	713-469-9209
T	Salt Lake City, Trembly Assocs.	801-486-5292
T	Bennington, Applied Measurements	802-442-2222
A	Richmond, Hile Controls of VA	804-796-3001
I	New Berlin, Comtel-Midwest	414-544-6042

RESTOLITE WIRE DIV., 3529 24th St., Port Huron, MI 48060, Tel: 313-987-6300

RESTON SCIENTIFIC, 805 E. Cerritos Ave., Anaheim, CA 92805, Tel: 714-776-6400, Telex: 655-321; Empl.: 61; *Sls. Mgr.:* Charles J. McGuire ..... 3•1169

Local Sales Offices & Reps

L	Huntsville, Mo-Co	205-881-5968
Z	Scottsdale, Williams Assocs.	602-947-4297
A	La Crescenta, Beckrep	213-957-1111
A	Santa Clara, PBC Assocs.	408-727-7244
O	Denver, Williams Assocs.	303-289-5647
T	Avon, Power Mark	203-678-0123
L	Orlando, Truex Assocs.	305-859-2160
	Arlington Heights, Coombs Assocs.	312-439-9810
	Ft. Wayne, Coombs Assocs.	219-747-7661
S	Shawnee Mission, Techn. Sls. Assocs.	913-888-3330
D	Greenbelt, Riffe Assocs.	301-474-8600
A	Falmouth, RJC Assocs.	617-540-8832
N	St. Paul, Vikeland Sls.	612-645-4647
O	Ferguson, Techn. Sls. Assocs.	314-725-5361
J	Ridgewood, Hansen/Hughes	201-652-7055
M	Albuquerque, Williams Assocs.	505-255-1638
C	Winston-Salem, Radco	919-722-9671
H	Dayton, Hocker Assocs.	513-298-8638
H	N. Olmsted, Hocker Assocs.	216-734-4433
R	Portland, Sci. Dvcs.	503-292-6934
A	Cheltenham, Stein Instrmn.	215-379-1990
X	Richardson, Lear Assocs.	214-231-5388
X	Spring, Lear Assocs.	713-370-7449
T	Salt Lake City, Williams Assocs.	801-485-6511
A	Bellevue, Sci. Dvcs.	206-747-5169
I	Milwaukee, Coombs Assocs.	414-351-6123

PRIMELINE™
A SOLTEC® PRODUCT

PRIMELINE-SOLTEC DISTBN., Soltec Corp., P.O. Box 818, Sun Valley, CA 91353-0818, Tel: 800-525-5554, 818-764-5400, Telex: 67-4188 Soltec LSA; *Dist. Mgr.:* Byron G. McIntire ..... 3•1387

Local Sales Offices & Reps

AZ	Temple, J. F. Hurlbut	602-968-5962
CA	Mill Valley, Roy Colen Sls.	415-383-8700
CA	Sun Valley, Soltec Distbn.	818-764-5400
CO	Golden, J. F. Hurlbut	303-279-7796
FL	Orlando, Cartwright & Bean Inc.	305-422-4531
IL	Park Ridge, Bob Burns & Assocs.	312-823-9360
MN	Minneapolis, Kodo Assocs.	612-881-1255
NJ	Englewood, Baum & Epstein	201-569-7600
NJ	Medford, Champion Elctr. Sls. Co.	609-983-0932
NC	Raleigh, Rick Burns	919-876-2224
OH	Cleveland, Marlow Assocs.	216-991-6500
OH	Columbus, Marlow Assocs.	614-885-7643
PA	Pittsburgh, Marlow Assocs.	412-367-8886
TX	Irving, Kite Elctrn. Sls. Co.	214-438-9336
UT	Salt Lake City, J. F. Hurlbut	801-973-4443
WA	Redmond, CMS, Inc.	206-885-0278

Local Distributors

AZ	Phoenix, MeterMaster	602-243-4111
CA	Los Angeles, MeterMaster	213-685-4340
CA	Los Angeles, E.I.L. Instrs.	213-685-7020
CA	Santa Clara, E.I.L. Instrs.	408-727-0396
CO	Denver, E.I.L. Instrs.	303-534-4160
CT	Middletown, E.I.L. Instrs.	203-346-6646
FL	Palm Bay, E.I.L. Instrs.	305-725-8300
IL	Bridgeview, E.I.L. Instrs.	312-430-2292
IL	Niles, Joseph Elctrns.	312-297-4200
IN	Indianapolis, E.I.L. Instrs.	317-545-1373
KY	Louisville, E.I.L. Instrs.	502-454-3420
MD	Sparks, E.I.L. Instrs.	301-771-4800
MA	Braintree, Burton Forrester Assoc.	617-848-7234
MA	Burlington, E.I.L. Instrs.	617-272-9450
MA	N. Billerica, AST Servo	617-667-8541
NJ	Pennsauken, E.I.L. Instrs.	609-488-0474
NY	Hauppauge, E.I.L. Instrs.	516-231-6333
NY	Rochester, E.I.L. Instrs.	716-424-5750
NY	Rochester, E.I.C. Elctrns.	716-544-4392
OH	Cleveland, MeterMaster	216-651-4100
OH	Dayton, E.I.L. Instrs.	513-435-2134
PA	Philadelphia, Sunshine Sci. Instr.	215-673-5600
TN	Oak Ridge, R & H Sci.	615-482-1315
TX	Dallas, MeterMaster	214-271-5671
TX	Houston, E.I.L. Instrs.	713-271-3100
WA	Seattle, E.I.L. Instrs.	206-762-0880

PRIME POWER

PRIME POWER, INC., Prime Technology Co., Twin Lakes Rd., P.O. Box 185, N. Branford, CT 06471, Tel: 203-481-5721, TWX: 710-452-3092; *Sls. Mgr.:* J. L. Jamieson ..... 3•1671

Local Sales Offices & Reps

CA	Buena Park, Chuck Cooper Co.	714-739-8526
CT	Washington, Tri-Com Assocs.	2-3-563-2241
GA	Stone Mountain, DTM, Inc.	404-962-2530
MA	Waltham, Betronic Assocs.	617-894-8400
NJ	Fort Lee, FJK Assocs., Inc.	201-592-1002

PRIME TECHNOLOGY, See General Resistance, Inc., Transducers and Systems Inc. and Prime Power, Inc.

PRIMO, 25-1, 6-Chome, Mure, Mitakashi, Tokyo, Japan, Tel: 0422-43-3121, Telex: 2822-326; Empl.: 350; *Sls. Mgr.:* S. Shirota

PRINCETON CASE CO., INC., 667 Lehigh Ave., Union, NJ 07083, Tel: 201-687-1750; Empl.: 60; *Sls. Mgr.:* S. E. Parker

PRINCETON ELCTRN. PRODS., Box 101, North Brunswick, NJ 08902, Tel: 201-297-4448, TWX: 710-380-3832; Empl.: 70; *Sls. Mgr.:* R. Shermister; *Dist. Mgr.:* R. Shermister

PRINCO INSTRS., INC., 1020 Industrial Hwy., Southampton, PA 18966, Tel: 215-355-1500; FSC No.: 48620; Empl.: 66; *Sls. Mgr.:* S. A. Clayton

PROBE MASTER, INC., 4898 Ronson Ct., San Diego, CA 92111, Tel: 619-560-9676, 800-854-1519, 800-772-1519; *Sls. Mgr.:* Dick Press ..... 3•1287

PROBE-RITE, INC., 2725 Lafayette St., Santa Clara, CA 95050, Tel: 408-727-0100, TWX: 910-338-0260; *Sls. Mgr.:* Marilyn Bailey

PROCESS ANALYZERS, INC., 3 Headley Pl., Fallsington Ind'l Pk, Fallsington, PA 19054, Tel: 609-921-7330, TWX: 510-685-9254

PRODUCTS FOR RESCH., 88 Holten St., Danvers, MA 01923, Tel: 617-774-3250, Telex: 940-287; Empl.: 22; *Sls. Mgr.:* Harry Martin

PTS
FREQUENCY SYNTHESIZERS

PROGRAMMED TEST SOURCES, Beaver Brook Rd., Littleton, MA 01460, Tel: 617-486-3008; Empl.: 20 ..... 3•1288

Local Sales Offices & Reps

CA	La Crescenta, Beckrep, Inc.	213-957-1111

PROJECTS UNLTD., 3680 Wyse Rd., Dayton, OH 45414, Tel: 513-890-1918, TWX: 810-450-2523; Empl.: 75; *Sls. Mgr.:* Greg Kimpton

PRO-LOG, 2411 Garden Rd., Monterey, CA 93940, Tel: 408-372-4593, TWX: 910-360-7082; Empl.: 200

PROTEON, INC., 4 Tech Circle, Natick, MA 01760, Tel: 617-655-3340, Telex: PROTEON; Empl.: 50; *Sls. Mgr.:* Barney Strobel

PROTO STAMPING CORP., 850 Charter St., Redwood City, CA 94063, Tel: 415-365-0498, Telex: 709241; *Sls. Mgr.:* David Duncan

PROTO SYSTEMS OF ATLANTA, 11510 N. Fulton Industrial Blvd., Alpharetta, GA 30201, Tel: 404-475-1330, Telex: 469432; *Sls. Mgr.:* John Gregory

PT PROTOTEK INC

PROTOTEK, INC., 25 Standen Dr., Hamilton, OH 45015, Tel: 513-874-5094; FSC No.: 60813 ..... 2•1893

Local Sales Offices & Reps

EXP CT	Litchfield, Intrade, Inc.	800-243-5252

PROTOTYPE TRANSFORMER CORP., 545 N. Arlington Ave, East Orange, NJ 07017, Tel: 201-672-2400; Empl.: 50-75

PSG INDS., 1225 Tunnel Road, Perkasie, PA 18944, Tel: 215-257-3621, Telex: 827361; FSC No.: 18509; Empl.: 150; *Sls. Mgr.:* John Feldermann, Jr.

PTK CORPORATION, 1173 Los Olivos Ave., Los Osos, CA 93402, Tel: 805-528-5858, TWX: 910-351-5802; FSC No.: 60132; Empl.: 114; *Sls. Mgr.:* Wayne Hamari

PTL ELCTRNS., 10211 Vinemont St., Dallas, TX 75218, Tel: 214-327-3180; Empl.: 10

PTS ELECTRONICS INC., Box 272, Bloomington, IN 47401, Tel: 812-824-9331; Empl.: 525; *Sls. Mgr.:* R. W. King; *Dist. Mgr.:* J. Hamilton

PTX-PENTRONIX INC., 1737 Cicotte, Lincoln Park, MI 48146, Tel: 313-388-3100, Telex: 23-0398; Empl.: 21; *Sls. Mgr.:* J. Schultz

PULNIX AMERICA, INC., 453F Ravendale Dr., Mountain View, CA 94043, Tel: 415-964-0955, Telex: 172541 PULNIX AMERICA; *Sls. Mgr.:* Toshi Hori

PULSAR PRODUCTS DIV., 2700 Merced St., San Leandro, CA 94577, Tel: 415-577-7236, TWX: 910-366-7033; Empl.: 24

PULSE ENGRG. INC., A Varian Sub., P.O. Box 12235, San Diego, CA 92112, Tel: 619-268-2400, TWX: 910-335-1527; Empl.: 1200; *Sls. Mgr.:* Leonard M. Luner

Local Sales Offices & Reps

CA	Irvine	714-250-0551
CA	Los Angeles	818-704-1151

CA	San Jose	408-297-6222
FL	Orlando	305-831-2782
IL	Chicago	312-364-0424
MA	Boston	617-449-1242
MN	Minneapolis	612-933-7712
PA	Philadelphia	215-525-4752
TX	Austin	512-451-5721

PULSE INSTRS. CO., 1536 W. 25th St., San Pedro, CA 90732, Tel: 213-548-1327; Empl.: 12; *Sls. Mgr.:* Ron Perry

PYLE INDS., INC., 501 Center St., P.O. Box 620, Huntington, IN 46750, Tel: 219-356-1200; Empl.: 175; *Sls. Mgr.:* Frank Pyle, Jr.; *Dist. Mgr.:* Mark Pyle

PYLE-NATIONAL CO., 1334 N. Kostner Ave., Chicago, IL 60651, Tel: 312-342-6300

PYLON CO., 452 John Dietsch Blvd., Attleboro Falls, MA 02763, Tel: 617-699-7646, TWX: 948095; Empl.: 200; *Sls. Mgr.:* Andy Fontaine

PYROCOM CO., 924 N. 143rd St., Seattle, WA 98133, Tel: 206-365-3535

PYROFERRIC INTL., INC., 200 Madison St., Toledo, IL 62468, Tel: 217-849-3300, TWX: 910-663-0616; Empl.: 50; *Sls. Mgr.:* John A. Roberts

PYROFILM RESISTOR CO., See KDI Pyrofilm

Q-MATIC CORP., 3194-D Airport Loop Dr., Costa Mesa, CA 92626, Tel: 714-545-8233, Telex: 67-8389

Q-S PRODUCTS CO., INC., 3605 S.W. Snoqualmie St., Seattle, WA 98126, Tel: 206-937-5505

Q-SYSTEMS, PO Box 35879, Tucson, AZ 85740, Tel: 602-293-4923, TWX: 910-952-1185; Empl.: 7; *Sls. Mgr.:* M. Lloyd

Q-TECH CORP., 2201 Carmelina Ave., Los Angeles, CA 90064, Tel: 213-820-4921, Telex: 69-6140; FSC No.: 51774; Empl.: 65; *Sls. Mgr.:* H. Phillips ....1A•1410, 1411

Local Sales Offices & Reps

CA	Cupertino, Dura Elctrn. Sls.	408-255-2084
CA	Northridge, Tauber-Dreyer	213-993-0048
FL	Melbourne, Reynolds & Assocs.	305-259-7000
GA	Acworth, Reynolds & Assocs.	404-451-9558
MA	Malden, J-K Assocs.	617-321-2922
NJ	Paramus, Eltech Sls.	201-967-1309
NY	Kings Park, Eltech Sls.	201-967-1309
NC	Winston Salem, Reynolds & Assocs.	919-725-6196
TX	Houston, TCI Elctrns.	713-774-5019

QUADRA SALES CORP., 14825 NE 40th, Suite 340, Redmond, WA 98052, Tel: 206-833-3550

QSI

QUALIDYNE SYS., 2256 Main St., Chula Vista, CA 92011, Tel: 619-429-7440, Telex: 622-43860; FSC No.: 619-429-1011; *Sls. Mgr.:* James J. Louden ....3•1748-1750

Local Sales Offices & Reps

AZ	Phoenix, Thor Engrg.	602-437-1463
CA	Chatsworth, Raltech, Inc.	818-700-0933
CA	San Diego, Power Assocs.	619-275-0641
CA	Santa Clara, Gagner-Toomey Assocs.	408-244-2200
CO	Denver, Grimes Mktg.	303-740-6063
CT	Guilford, O.E.M. Mktg. & Sls.	203-453-5424
FL	Ft. Lauderdale, Beacon Elctrns.	305-491-1054
MN	Burnsville, Electromec Sales	612-894-8200
NH	Salem, O.E.M. Mktg. & Sls.	603-893-0009
NY	Glen Cove, F&F Assoc.	516-671-8900
TX	Dallas, Jim D. Gray & Assocs.	214-341-7190
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RDI/REED DEVICES INC., 525 Randy Rd., Carol Stream, IL 60188, Tel: 312-682-4100, TWX: 910-252-2118; FSC No.: 53337; Empl.: 85; *Sls. Mgr.:* H. J. Roeser .... 2•1548-1551

Local Sales Offices & Reps

AL	Huntsville, Alpha	205-533-0766
AZ	Glendale, Adtek	602-931-9289
CA	Los Angeles, Wiley Co.	213-666-1611
CA	Sunnyvale, Schwerin/Merrill	408-735-7900
FL	Ft. Lauderdale, APM Assoc.	305-565-0056
FL	Longwood, APM Assoc.	305-869-6831
FL	Merritt Island, APM Assoc.	305-453-4322
FL	Tampa, APM Assoc.	813-886-2457
GA	Atlanta, Alpha	404-491-9430
IL	Glen Ellyn, Rockford Controls	312-469-6016
IN	Indianapolis, Rockford Controls	317-248-2518
IA	Cedar Rapids, Palatine Sls.	319-365-8071
KS	Mission, Palatine Sls.	913-831-0555
KS	Rosehill, Palatine Sls.	316-776-0065
KY	Louisville, K W Elctrn. Sls.	502-451-1860
LA	New Orleans, D. Bellew Sls.	504-283-8979
MA	Norwood, Augat Sls.	612-792-3164
MI	Novi, Lektronics	313-349-3304
MN	Minneapolis, HMR	612-831-7400
MO	Hazelwood, Palatine Sls.	314-839-0800
NJ	Pitman, Colrud Corp.	609-589-5866
NJ	Woodcliff Lake, J. Freid & Assoc.	201-391-8091
NY	Albany, H.C. Johnson	518-459-1239
NY	Great Neck, F & F Metro	516-482-4080
NY	Rochester, H.C. Johnson	716-586-0777
NY	Williamsville, H.C. Johnson	716-632-7880
NC	Kernersville, Wallace Elctrn.	919-996-2742
OH	Columbus, K.W. Elec. Sls.	614-888-0483
OH	Dayton, K W Elctrn. Sls.	513-890-2150
OH	Shaker Hts., K.W. Elec. Sls.	216-496-9177
OR	Portland, Eltech	503-238-0805
PA	Allison Park, K.W. Elec. Sls.	412-487-4300
TN	Memphis, D. Bellew Sls.	901-452-1468
TN	Oak Ridge, Alpha Mktg.	615-482-1660
TX	Austin, Barry Sls.	512-836-3616
TX	Houston, Barry Sls.	713-784-5860
TX	Richardson, Barry Sls.	214-234-0255
VA	Reston, Colrud Corp	804-353-6320
WA	Bellevue, Eltech	206-643-4330

Local Distributors

AL	Huntsville, Comp. Dist.	205-883-7501
AZ	Phoenix, Tri-Tek	602-995-9352
AZ	Phoenix, Dalis	602-275-2885
AZ	Tucson, Inland Elec. Supp.	602-889-5301
AR	Little Rock, Southern Elec.	501-372-4196
AR	Little Rock, Carlton-Bates	501-562-9100
CA	Buena Park, Control Des.	714-521-5040
CA	Burlingame, Rose Elec.	415-348-2740
CA	Fremont, Term. Sls.	415-656-7722
CA	Gardena, Calif. Switch & Signal	213-538-9830
CA	Los Angeles, Elec. Switches	213-660-1310
CA	San Carlos, Control Des.	415-592-4808
CA	San Diego, Lectro Comp.	714-578-4290
CA	San Jose, Con. Parts	408-263-9521
CA	Santa Monica, Master Distr.	213-452-1229
CO	Denver, CSID	303-292-9594
CO	Englewood, Indl. Elctrns.	303-694-9444
CT	Stratford, Utronic	203-378-4201
FL	Ft. Lauderdale, Comp. Dist.	305-971-4950
GA	Atlanta, Elctrl. Control Prod.	404-455-1216
GA	Stone Mountain, Control Des.	404-979-3500
IL	Addison, Lectro Comps.	312-543-1680
IL	Arlington Heights, Lo Dan Elctrns.	312-398-5311
IL	Oak Park, Newark Elctrns.	312-524-1800
IL	Rockford, Mid-West Assoc.	815-962-8036
IN	Ft. Wayne, Graham Elec.	219-423-3422
IN	Indianapolis, Control Des.	317-788-4559
IA	Cedar Rapids, Deeco	319-365-7551
KY	Louisville, CED/E & H Elec. Supp. Co.	502-587-0991
LA	Lafayette, Ralph's Indl. Elec.	318-234-4507
LA	New Orleans, Wm. B. Allen Supp.	800-535-9593
LA	Shreveport, Indl. Elctrn. Supp.	318-222-9459
MD	Beltsville, Treeko Sls.	301-937-8260
MA	Burlington, QPL Elec. Dist.	617-229-2424
MA	Middleboro, The Stockroom	617-947-4262
MI	Southfield, Michigan Lectrols	313-353-1350
MN	Minneapolis, Aero-Space Computer Supp.	612-884-4725
MN	Minneapolis, Newark Elec.	612-331-6350
MN	Minneapolis, Control Des.	612-721-1628
MO	St. Louis, Olive Indl.	314-426-4500
MO	St. Louis, Control Des.	314-426-3150
NE	Lincoln, Scott Elctrn.	402-466-8221
NJ	Fairlawn, Relay Specialties	201-797-3313
NJ	Jersey City, Cuny & Gerber	201-653-0222
NY	Buffalo, Summit	716-884-3450
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Mt. Vernon, QAR Indl. Elec. Sls.	914-699-2224
NY	Rochester, R. Baker Elctrns.	716-586-9164
NC	Charlotte, Control Des.	704-588-4410
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, Southeastern Radio	919-828-2311
OH	Akron, Akron Elctrn.	216-762-8818
OH	Cincinnati, URI Elctrns.	513-761-4030
OH	Columbus, Elctrns. Mktg. Co.	614-299-4161
OH	Dayton, ESCO	513-226-1133
OH	Wickliffe, Gateway Megatech	216-944-8565
OK	Tulsa, Radio	918-587-9123
OR	Eugene, Vitus Elec. Supp.	503-484-6333
OR	Portland, Radar	503-232-3404
PA	Malvern, Control Des.	215-296-0150
PA	McKean, Advacom	814-476-7774
PA	Philadelphia, Phila. Elec.	215-568-7400
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Memphis, Brownell Electro	901-795-8487
TX	Dallas, Control Des.	214-358-1441
TX	Dallas, Dallas Meter-Tech.	214-349-6044
TX	Houston, Angie Elctrns.	713-659-8386
TX	Longview, Summers Elec.	214-757-6021
UT	Salt Lake City, Stuart Elctrns. Supp.	801-466-8603
WA	Seattle, Pacific Elctrns.	206-575-1050
WA	Seattle, Radar Elec.	206-282-2511
WV	Redmond, Murphy Elctrns.	206-881-1234
WI	New Berlin, Control Des.	414-784-1015
WI	West Allis, Marsh Elctrns.	414-475-6000

REACTEL, INC.

REACTEL, INC., 687-D Lofstrand La., Rockville, MD 20850, Tel: 301-279-5535; FSC No.: 60458; Empl.: 20; *Sls. Mgr.:* D. E. Claycomb

Local Sales Offices & Reps

CA	North Hollywood, Crown Elctrns.	213-877-3550
CA	Sunnyvale, ESCO Assocs.	408-745-1410
FL	Largo, Electro Craft	813-530-4749
MA	Wakefield, Nerem	617-245-4426
VA	Fairfax, Beacon North	703-591-1300

REAL TIME SYS., 152 S. MacQuesten Pkwy., Mt. Vernon, NY 10550, Tel: 914-667-0425; *Sls. Mgr.:* A. Citrin

REBLING PLASTICS CO., 150 Franklin Drive, Warrington Ind. Park, Warrington, PA 18976

RECORDER SYS. DIV., See Gulton Inds., Inc., Graphic Instrs. Div.

RECOTON CORP., 46-23 Crane St., Long Island City NY 11101, Tel: 212-392-6442, Telex: 236047 RCTN Empl.: 150; *Sls. Mgr.:* George Calvi

REDINGTON COUNTERS, 130 Addison Rd. Windsor, CT 06095, Tel: 203-688-6205, Telex: 64-3390 REDCO WSOR; *Sls. Mgr.:* Alan Schoenhut

REED SWITCH DEV. CO. INC., PO Box 1464 Kerrville, TX 78028, Tel: 512-896-4444; Empl.: 1

RE-EL CIRCUITS, INC., See RCI/Data

REEVE ELCTRNS., 444 N. Orleans, Chicago, Il 60610, Tel: 312-670-0150; Empl.: 25; *Sls. Mgr.* George Elliott

REEVES-HOFFMAN
Division, Dynamics Corporation of America

EEVES-HOFFMAN DIV., 400 W. North St., Carlisle, PA 17013, Tel: 717-243-5929, TWX: 510-650-3510; Empl.: 291; *Sls. Mgr.:* Edward J. Sweeney .... **1A**•1413-1417; **2**•1795-1797

Local Sales Offices & Reps

Z	Phoenix, Chaparral Elctrns.	602-252-0897
A	Culver City, Westaironics	213-641-4123
A	Mountain View, Peninsula Tech. Sls.	415-965-3636
O	Boulder, R.G. Entprs.	303-447-9211
L	Fern Park, EIR Inc.	305-830-9600
A	Kennesaw, BWS Marketing	404-974-5107
)	Boise, N. R. Schultz Co.	208-377-8686
	Chicago, ESCO Assocs.	312-763-0800
S	DeSoto, Midtec Assocs.	913-441-6565
ID	Baltimore, R. A. Wafer Assocs.	301-744-1133
IA	Wakefield, H. Jappe	617-245-9359
IN	Minneapolis, Intl. Elctrns.	612-571-0000
IO	Florissant, Midtec Assocs.	314-837-5200
Y	Huntington, Compar New York Inc.	516-423-5660
C	Winston-Salem, Murcota	919-722-9445
H	Cincinnati, Tri-State Mktg.	513-761-7993
R	Beaverton, N. R. Schultz Co.	503-643-1644
A	Hatboro, Electro Rep Engrg.	215-674-4421
X	Irving, Kite Elctrns. Sls.	214-438-9336
/A	Bellevue, N. R. Schultz Co.	206-454-0300

EFAC ELCTRNS. CORP., P.O. Box 809, Winsted, CT 06098, Tel: 203-379-2731, TWX: 710-449-6464; FSC No.: 28564; Empl.: 80; *Sls. Mgr.:* Chuck Altschul .... **1B**•1094

Local Sales Offices & Reps

L	Huntsville, Montgomery Mktg.	205-830-0498
Z	Scottsdale, Luscombe Engrg.	602-949-9333
A	Campbell, Luscombe Engrg.	408-370-2020
A	Pasadena, Luscombe Engrg.	818-684-2000
A	San Diego, Luscombe Engrg.	619-295-4300
O	Boulder, Luscombe Engrg.	303-772-3342
T	Kensington, Norman Stachelek Co.	203-828-6161
L	Clearwater, Delmac Sls.	813-447-5192
L	Orlando, Delmac Sls.	305-898-4688
L	Palm Bay, Delmac Sls.	605-724-8377
L	Tamarac, Delmac Sls.	305-726-1330
A	Norcross, Montgomery Mktg.	404-447-6124
	Mt. Prospect, Interep	312-577-8899
ID	Baltimore, Burgin-Kreh Assocs.	301-265-8500
IA	Canton, New England Elctrn. Sls.	617-828-4835
II	Madison Heights, Pine Sls.	313-539-0350
IN	Spring Lake Park, Holmgren Assocs.	612-786-7641
IO	Gladstone, Delltron Co.	816-436-6445
IO	St. Louis, Delltron Co.	314-869-4779
IJ	Englewood, Sprung/Nussbaum	201-569-5666
IY	E. Syracuse, Nycom Co.	315-437-8343
IY	Williamsville, Nycom Co.	716-633-9395
IC	Cary, Montgomery Mktg.	919-467-6319
H	Dayton, J. C. Hoffstetter Co.	513-296-1010
H	Medina, J. C. Hoffstetter Co.	216-241-4880
K	Tulsa, Ion Assocs.	918-664-0186
R	Beaverton, Luscombe Engrg.	503-636-6664
A	Pittsburgh, J. C. Hoffstetter Co.	412-356-2305
A	Southampton, Campbell Assocs.	215-322-6630
X	Austin, Ion Assocs.	512-346-7160
X	Grand Prairie, Ion Assocs.	214-647-8225
X	Houston, Ion Assocs.	713-977-4354
A	Lynchburg, Burgin-Kreh Assocs.	804-239-2626
VI	Milwaukee, Interep	414-774-1100

EGDON CORP., 3713 Grand Blvd., Brookfield, IL 60513, Tel: 312-485-5152, TWX: 910-691-2214; FSC No.: 27190; Empl.: 65 .... **1B**•1497

Local Sales Offices & Reps

L	Decatur, Tenn Tech	205-350-0630
A	Los Altos, J. W. Wilhoit	415-961-3660
A	Valencia, DJM Elctrns.	213-362-4309
T	Woodbury, Mark-Rep Assocs.	203-263-3047
L	Fern Park, EIR, Inc.	305-830-9600
A	Clarkston, Tenn Tech	404-292-5368
L	Downers Grove, Richmar Elect. Corp.	312-968-0118
N	Indianapolis, Richmar Elctrns.	317-846-6383
MN	Edina, T.H. Hanson & Co.	612-893-9960
MN	Edina, Wendell Lee & Assoc.	612-831-5056
NH	Atkinson, Mark-Rep Assocs.	603-362-4526
NJ	Livingston, Varrelman-Gorman Co.	201-992-2505
NY	Ilion, NHA	315-894-9943
NY	Pittsford, NHA	716-586-9002
NC	Raleigh, Tenn Tech	919-266-3610
OH	New Lebanon, J. N. Bailey	513-687-1325
PA	Abington, Indl. Mktg. Specialists Co.	215-659-0444
TX	Austin, K & H Sales	512-258-8841
TX	Plano, K & H Sales	214-423-6520
WI	Milwaukee, Richmar Elctrns.	414-781-1730

Local Distributors

CA	Burlingame, Logan Elctrn. Supp.	415-697-6481
MA	Lynn, Land Elctrns.	617-592-2220
NJ	Fairlawn, Relay Specialties	201-797-3313

REGENT CONTROLS, 39 Fanny St., P.O. Box 767, Shelton, CT 06484-0767, Tel: 203-736-2924; *Sls. Mgr.:* Wendell E. Carroll

REHLANDER ASSOCS., 363 Rantoul St., Beverly, MA 01915, Tel: 617-922-5961; *Sls. Mgr.:* Michael Rehlander

REICH ASSOCS., P.O. Box 73, Plano, TX 75074, Tel: 214-424-7904, Telex: 794783, TWX: 910-989-1691; FSC No.: 55916; Empl.: 10

RE • INSTRUMENTS re
Electronics for Test and Communication

RE INSTRUMENTS CORP., 31029 Center Ridge Rd., Westlake, OH 44145, Tel: 216-871-7617, TWX: 810-427-9257; Empl.: 15; *Sls. Mgr.:* B. A. Gravens .... **3**•1291

Local Sales Offices & Reps

CA	Los Gatos, Pacific Coast Mktg.	408-395-7021

REI SLS., 19525 Business Centre Dr., Northridge, CA 91324, Tel: 617-938-0900; Empl.: 5; *Sls. Mgr.:* T. P. Fitzgerald

RELATIONAL MEMORY SYS., 1650 Berry Essa Rd., Ste. B, San Jose, CA 95133-1082, Tel: 408-729-3011, TWX: 910-379-0014

R. E. LAW INSTRU. INC., 7735 W. 112th Pl., Palos Hills, IL 60465, Tel: 312-974-4000; FSC No.: 6685-6695; *Sls. Mgr.:* Harry Booth; *Dist. Mgr.:* R. Gene Law

RELAY SERVICE CO., 1310 N. Pulaski Rd., Chicago, IL 60651, Tel: 312-AL2-2700; Empl.: 30; *Sls. Mgr.:* Chas. H. Badger

Local Sales Offices & Reps

CA	Danville, Stuart Assoc.	415-837-8197
CA	Vista, Sado Sls.	619-941-2654
CT	Bethany, Reps. Corp.	203-393-0024
IL	Woodridge, Trend-Tronics	312-985-0626
MD	Fulton, Samuel A. Jeffries	301-792-7452
MA	Wellesley, Reps. Corp.	617-237-6476
OH	Cincinnati, John O. Olsen	513-574-7711
OH	Cleveland, John O. Olsen	216-662-3454
OR	Tigard, Elctrn. Comp. Sls.	503-245-2342
PA	Narbreth, Samuel A. Jeffries	215-664-8500
PA	Pittsburgh, John O. Olsen	412-279-2550
TX	Dallas, Elctrn. Prod. Reps.	817-467-0377
WA	Mercer Island, Elctrn. Comp. Sls.	206-232-9301

RELAY SPECIALTIES, 1300 Plaza Rd., Fair Lawn, NJ 07410, Tel: 201-797-3313, 800-526-5376, Telex: 642751; Empl.: 48; *Sls. Mgr.:* S. R. Gershberg

Local Sales Offices & Reps

CA	Cypress, The Rep House	213-596-4922
IN	Noblesville, Newton & Assocs.	317-845-4087
MD	Baltimore, Com Tech Assocs.	301-583-1993
TX	Dallas, Art Brawner & Assocs.	214-824-4013

RELCO PRODS., 5594 E. Jefferson Ave., Denver, CO 80237, Tel: 303-756-1143; FSC No.: 14454; Empl.: 7

RELIABILITY INC., 16400 Park Row, P.O. Box 218370, Houston, TX 77218, Tel: 713-492-0550, TWX: 910-881-1739; FSC No.: 54098; Empl.: 350; *Sls. Mgr.:* J. Marcussen .... **3**•1752-1755

Local Sales Offices & Reps

AZ	Phoenix, PLS Assocs.	602-246-6477
CA	Carson, Amasco	213-516-8561
CA	Sunnyvale, Amasco	408-733-8690
CO	Englewood, PLS Assocs.	303-773-1218
CT	Hamden, Digital Sls. Assocs.	203-248-3641
FL	Orlando, Gra-Mar	305-894-3351
IL	Elk Grove, Loren Green & Assocs.	312-593-0282
IN	Ft. Wayne, Jim Finnegan & Co.	219-747-9525
IA	Davenport, Ensco-Rep	319-386-6600
KS	Overland Park, Ensco	913-381-7557
KS	Wichita, Ensco-Rep	316-683-1070
MD	Wheaton, Brim Berg Sls.	301-946-2670
MA	Waltham, Digital Sls. Assocs.	617-899-4300
MO	St. Louis, Ensco-Rep	314-567-3935
NM	Albuquerque, PLS & Assocs.	505-345-5501
NY	Mt. Vernon, Sonkin Assocs.	914-668-9809
NC	Raleigh, Barker & Assocs.	919-876-0282
OH	Cinncinatti, Jim Finnegan & Co.	513-931-1686
OH	Cleveland, Jim Finnegan & Co.	216-238-5905
OH	Mansfield, Jim Finnegan & Co.	419-526-3564
OH	Maumee, Jim Finnegan & Co.	419-893-1052
OK	Tulsa, Advanced Techn. Sls.	918-664-0482
OR	Beaverton, General Elctrns.	503-641-5288
PA	Glenside, Koebert Assocs.	215-887-2310
PA	Pittsburg, Jim Finneagan & Co.	412-561-4687
TX	Austin, Advance Techn. Sls.	512-459-1351
TX	Dallas, Advance Techn. Sls.	214-361-8584
TX	Houston, Advance Techn. Sls.	713-440-8066
UT	Salt Lake City, PLS Assocs.	801-466-8729
WA	Tukwila, General Elctrns.	206-575-4030

Local Distributors

AZ	Phoenix, Weatherford	602-272-7144
CA	Anaheim, Weatherford	714-634-9600
CA	Glendale, Weatherford	213-849-3451
CA	Pomona, Weatherford	713-623-1261
CA	San Diego, Weatherford	619-695-1700
CA	Santa Barbara, Weatherford	805-965-8551
CA	Sunnyvale, Weatherford	408-738-8694
CO	Denver, Weatherford	303-428-6900
CO	Englewood, PLS Assocs.	303-773-1218
CT	Wallingford, Sager Elctrl. Supp.	203-265-4600
IL	Elk Grove, Dot-Tronics	312-593-0282
MD	Baltimore, Whitney Distrs.	301-944-8080
MA	Hingham, Sager Elctrl. Supp.	617-749-6700
MA	Middleboro, Stockroom	617-947-4262
MO	Maryland Heights, Ensco	314-423-3935
NY	Mt. Vernon, Kintronics	800-431-1658
OH	Dayton, Koehlke Comps.	513-435-5435
TX	Austin, S. W. Elctrns.	512-837-8977
TX	Dallas, Weatherford	214-931-7333
TX	Houston, Weatherford	713-688-7406
TX	Richardson, Southwest Elctrn. Supp.	214-234-3050
TX	Stafford, Southwest Elctrn. Supp.	713-491-4900
WA	Seattle, Weatherford	206-575-1340

RELMS, See Relational Memory Systems, Inc.

REMEE PRODS. CORP., 41 Bridge St., Florida, NY 10921, Tel: 914-651-4451, Telex: 64-6715; *Sls. Mgr.:* Joseph R. Fichtl; *Dist. Mgr.:* Joseph R. Fichtl

REMEX, Ex-Cell-O Corp., 1733 Alton St., Irvine, CA 92714, Tel: 714-957-0039, Telex: 681-333, TWX: 910-595-1715; *Sls. Mgr.:* Rich McGowan; *Dist. Mgr.:* Don Schulze

RENBRANDT, INC., 6 Parmelee St., Boston, MA 02118, Tel: 617-445-8910; FSC No.: 99934; Empl.: 25; *Sls. Mgr.:* M. Rogers

RENCO
Division of Electro Craft Corporation
Industrial Automation Group

RENCO, 26 Coromar Dr., Goleta, CA 93017-3094, Tel: 805-968-1525, TWX: 910-334-1180; FSC No.: 34479; Empl.: 110; *Sls. Mgr.:* Don Risk .... **1B**•1874, 1875; **3**•1139

Local Sales Offices & Reps

CA	Garden Grove, Advanced Digital Group, Inc.	714-897-0319
CA	San Jose, Renco/Electrocraft	408-554-0234
CA	Westlake Village, Electro-Craft Corp.	818-889-3631
CO	Englewood, Integrated Motion Sys., Inc.	303-762-1817
CO	Englewood, Renco Corp.	303-762-1754
CT	Vernon, Renco/Electrocraft	203-871-8053
GA	Atlanta, Renco Corp.	404-971-2669
GA	Marietta, Renco/Electrocraft	404-971-2669
IL	Palatine, Renco/Electrocraft	312-991-4570
MI	Troy, Renco/Electrocraft	313-528-2940

MN	Hopkins, Electro-Craft Corp.	612-931-2700
NH	Salem, Electro-Craft Corp.	603-893-5552
NJ	Cherry Hill, Electro-Craft Corp.	609-662-0555
NJ	Monmouth Junction, Renco Corp	201-329-6233
NY	Ballston Lake, Ross Equip. Co., Inc.	518-877-5533
NY	Buffalo, Ross Equip. Co., Inc.	716-634-0990
NY	Elmira, Ross Equip. Co., Inc.	607-734-4175
NY	Rochester, Ross Equip Co.	716-271-5660
NY	Syracuse, Ross Equip. Co., Inc.	315-463-6691
OH	Cincinnati, Renco/Electrocraft	513-474-4171
WA	Bellevue, Sweo Engrg.	206-644-2725

RENCO ELCTRNS., 60 Jefryn Blvd. E., Deer Park, NY 11729, Tel: 516-586-5566, Telex: RCA 220883; Empl.: 70; *Sls. Mgr.:* Ed Rensing ....**1A**•1278-1280, 2260, 2261

Advertisement

For sales and sales service information about RENCO products, please call (516) 586-5566. For engineering assistance please dial our toll-free number (800) 645-5828.

REPCO, 2421 N. Orange Blossom Trail, Box 7065, Orlando, FL 32854, Tel: 305-843-8484, Telex: 56-6536 ....**3**•1065

Local Sales Offices & Reps

CT	Niantic, Northeast Reg. Sls. Off.	203-739-6877
TX	Lewisville, Southwest Reg. Sls. Off.	214-434-1139
WA	Seattle, Western Reg. Sls. Off.	206-542-6500

REPRODUCTION TECHNOLOGIES INC., Dept. EM, P.O. Box 815, Bristol, IN 46507-0518, Tel: 219-848-5233; Empl.: 8 ....**3**•1050, 1051

All sales are factory direct.

REPUBLIC ELCTRNS. CORP., 176 E. 7th St., Paterson, NJ 07524, Tel: 201-279-0300, TWX: 710-988-5908; FSC No.: 93958; Empl.: 125; *Sls. Mgr.:* W. Eisenberger ....**1A**•1182

Local Sales Offices & Reps

CA	Los Angeles, Corcoran Assocs.	213-823-2425
CA	Sunnyvale, W. W. Posey Co.	408-746-0771
CO	Commerce City, Williams Assocs.	303-289-5647
FL	Sunrise, Arnold Milrot & Assoc.	305-748-6446
IL	Chicago, Ropek, Cahill & Vogt	312-631-0070
IN	Ft. Wayne, Given Corp.	219-432-5585
IA	Cedar Rapids, Ard Sales Co.	319-393-6392
MD	Ellicott City, Nelson Elecs.	301-747-7887
MA	Lowell, Underwood Sls. Corp.	617-256-8191
MN	Edina, Grayden & Flemmer	612-941-1120
MO	Grandview, R. R. Burton & Assocs.	816-763-5385
MO	Maryland Hgts., R. R. Burton & Assocs.	314-434-1678
NJ	Hasbrouck Hgts., Comp-Tech Sls.	201-288-7400
NY	Liverpool, Precision Sls.	315-451-3480
NY	New Hyde Park, Comp-Tech Sls.	516-593-2628
NY	Pittsford, Precision Sls.	716-381-2820
NY	Pleasant Valley, Precision Sls.	914-635-3233
NC	Charlotte, Jake Rudisill Assocs.	704-377-6901
OH	Columbus, Tom Mulligan & Assocs.	614-457-2242
OK	Tulsa, Hugh J. Daly Co.	918-627-4159
PA	Lancaster, Electro Rep.	717-299-5877
TX	Houston, Rainwater Reps.	713-376-0442
WA	Seattle, Blum & Assocs.	206-777-6656

Local Distributors

CA	San Fernando, Petell Elctrns.	213-365-9841
IL	Skokie, Kellner Elctrns.	312-677-1120
NJ	Perth Amboy, Metuchen Capacitors	201-442-0500
NY	Hauppauge, Semi Cap Elctrns.	516-582-4400

REPUBLIC ELECTRONICS, INC., 575 Broad Hollow Rd., Melville, NY 11747, Tel: 516-249-1414, Telex: 96-1460; FSC No.: 95750; Empl.: 100; *Sls. Mgr.:* J. Anderson

REPUBLIC PACKAGING CORP., 9160 S. Green St., Chicago, IL 60620, Tel: 312-233-6530, Telex: 25-4621; *Sls. Mgr.:* Hal Grossman; *Dist. Mgr.:* Herb Fasth

RESDEL ENGRG., 300 E. Live Oak Ave., Arcadia, CA 91006, Tel: 213-684-2600, TWX: 910-582-3219; Empl.: 190

RESEARCH, INC., Box 24064, Minneapolis, MN 55424, Tel: 612-941-3300, Telex: 29-0502; Empl.: 250; *Sls. Mgr.:* Brian Callahan

RESEARCH PRODS., 1015 E Washington Ave., Madison, WI 53701, Tel: 608-257-8801, TWX: 910-286-2781

RESISTANCE TECHNOLOGY INC., 1260 Red Fox Rd., St. Paul, MN 55112, Tel: 612-636-9770; *Sls. Mgr.:* Roger H. Falde; *Dist. Mgr.:* Roger H. Falde

RESISTORS, INC., 5226 W. 26th St., Chicago, IL 60650, Tel: 312-652-7555; Empl.: 50 ....**1A**•1937

Local Sales Offices & Reps

CT	Plantsville, Parnetics Co.	203-628-9343
FL	Melbourne, Jerry Williams, Inc.	305-259-7700
IL	Arlington Hgts., Resistance Specialists	312-259-6571
IA	Cedar Rapids, J.R. Sls. Engrg.	319-393-2232
MI	Lathrup Village, R.C. Nordstrom & Co.	313-559-7373
NY	New York City, Symon Assocs.	212-757-3638
OH	Wickliffe, W.J. Brauer & Assocs.	216-943-0601
WI	Milwaukee, Honkamp Sls. Co.	414-463-2530

RES-NET, 110 Route 10, Whippany, NJ 07981, Tel: 201-887-2260, out of state 800-526-0704; FSC No.: 55 877; Empl.: 42; *Sls. Mgr.:* Henry Brandi ....**1A**•1938

Local Sales Offices & Reps

CA	Irvine, Angle Assocs.	714-833-0692
CA	Palo Alto, Mollard Mktg.	415-961-0456
MA	Waltham, Dynasel Assocs.	617-890-6777
NJ	Florham Park, Harry Thaw Sls.	201-992-2711
TX	Houston, Rep Master	713-692-8204

REVERE CORP. OF AMER., 845 N. Colony Rd., Wallingford, CT 06492, Tel: 203-269-7701, Telex: 96-3482, TWX: 710-476-3197; Empl.: 389; *Sls. Mgr.:* J. McGurkin

REXNORD CHEMICAL PRODS. INC., 6120 E. 58th Ave., Commerce City, CO 80022, Tel: 303-289-5651, Telex: 45-0331; *Sls. Mgr.:* Michael P. Manegold

Local Sales Offices & Reps

CA	Glendora, Rexnord Chem. Prods.	818-963-1109
IL	Northfield, Special Elec.	312-446-5113
MI	Roseville, Special Elec. Co.	800-558-0604
MN	Excelsior, JPM Assocs.	612-474-3408
MO	St. Louis, Special Elec. Co.	314-962-1150
OH	Cleveland, Special Elec. Co.	216-441-5244
RI	Lincoln, Special Elec. Co.	401-727-1136
WI	Milwaukee, Special Elec.	414-383-6370

RFD, INC., 5024 Nassau St., Tampa, FL 33607, Tel: 813-872-1502, TWX: 810-876-9146; *Sls. Mgr.:* Thomas W. Facer

RFI CORPORATION, 100 E. Pine Aire Dr., Bay Shore, NY 11706, Tel: 516-231-6400, TWX: 510-227-6233; FSC No.: 13619; Empl.: 250 ....**1A**•1618

Local Sales Offices & Reps

AL	Huntsville, Murcota Corp.	205-539-8476
AZ	Scottsdale, Williams-Assocs.	602-947-4297
CA	Monterey Park, M.W. Riedel Co.	213-283-7694
CA	Mountain View, Peninsula Tech. Sls.	415-965-3636
CO	Denver, Williams-Assocs.	303-373-4730
FL	St. Petersburg, Tech-Rep Assocs.	813-577-2779
IL	North Riverside, J. Popp Sls.	312-447-6124
IN	Ft. Wayne, Denton Mktg., Inc.	219-627-5515
IA	Davenport, Ensco-Rep	319-386-6600
KS	Overland Park, Ensco-Rep	913-381-7557
MD	Rockville, Mechtronics Sls.	301-340-2130
MO	St. Louis, Ensco-Rep	314-423-3935
NH	Hudson, EMC Sls. Inc.	603-880-3671
NJ	Cherry Hill, H.J. White Co.	609-428-4544
NM	Albuquerque, Williams-Assocs.	505-255-1638
NY	Great Neck, Trionic Assocs.	516-466-2300
NC	Winston-Salem, Murcota Corp.	919-722-9445
PA	McKean, Ecco Elctrn. Sls.	814-476-1376
TX	Garland, McBride Sci. Sls.	214-494-5000
WA	Seattle, Granville Gillette Assocs.	206-284-3344

RFL INDS., A Dowty Grp. Co./Comms. Div., Powerville Rd., Boonton, NJ 07005, Tel: 201-334-3100, TWX: 710-987-8352; FSC No.: 49673; Empl.: 300

RFL INDS., A Dowty Grp. Co./Instr. Div., Powerville Rd., Boonton, NJ 07005, Tel: 201-334-3100, TWX: 710-987-8352; FSC No.: 49673; Empl.: 300

RFL INDS., Thermocontrol Div., W. Prospect St., Box 250, Brandon, VT 05733, Tel: 802-247-6811, TWX: 710-987-8352; Empl.: 350; *Sls. Mgr.:* Bob Berman; *Dist. Mgr.:* Bob Berman

RF MONOLITHICS, INC., 4441 Sigma Rd., Dallas, TX 75234, Tel: 214-233-2903, TWX: 910-860-5474; Empl.: 90; *Sls. Mgr.:* William Spurgeon

RHG ELECTRONICS LAB., INC., 161 E. Industry Ct., Deer Park, NY 11729, Tel: 516-242-1100, TWX: 510-227-6083; Empl.: 150; *Sls. Mgr.:* Martin D. Markson

RHOMBUS INDS., 15801 Chemical Ln., Huntington Bch., CA 92649-1595, Tel: 714-898-0960, TWX: 910-596-1826; Empl.: 60

Local Sales Offices & Reps

CA	Irvine, J. V. Earley & Assocs.	714-833-1806
CA	Redwood City, James S. Heaton Co.	415-367-9000
CO	Parker, A-5 Co.	303-841-3651
TX	Irving, Space Elctrns.	214-251-3636

RICHARD-LEE CO., Box 724, New Providence, NJ 07974, Tel: 201-276-0710; Empl.: 8

RICHARDS, ARKLAY S., CO., INC., 72 Winchester St., Newton Highlands, MA 02161, Tel: 617-527-1512; *Sls. Mgr.:* L. K. Richards

RICHCO PLASTIC CO., 5825 N. Tripp Ave., Chicago, IL 60646, Tel: 312-539-4060, TWX: 910-221-1938; Empl.: 400; *Sls. Mgr.:* Craig Richardson; *Dist. Mgr.:* Mike Dornik

RIDGE TOOL CO., Sub. Emerson Elec. Co., 400 Clark St., Elyria, OH 44036, Tel: 216-323-5581, Telex: 0243420

RIFA INC., Greenwich Office Park 3, P.O. Box 3110, Greenwich, CT 06836-3110, Tel: 203-625-7300, TWX: 710-579-2970 ANCONERICS-GRC ....**3**•1756, 1757

RIL ELCTRNS., INC., 125 Titus Ave., P.O. Box H, Warrington, PA 18976, Tel: 215-EL5-1361; Empl.: 25

RIPLEY, 46 Nooks Hill Rd., Cromwell, CT 06416, Tel: 203-635-2200, TWX: 710-428-9567; Empl.: 100; *Sls. Mgr.:* R. S. Clark

RISK, GEORGE, INDS., GRI Plaza, Kimball, NE 69145, Tel: 308-235-4645, TWX: 910-620-9040; FSC No.: 24229; Empl.: 100; *Sls. Mgr.:* J. Fisher; *Dist. Mgr.:* J. Fisher ....**1B**•1792

Local Sales Offices & Reps

AZ	Tempe, Cleveland Entprs. of Ariz.	602-820-1127
CA	Anaheim, Galaxie Sales Int'l.	714-752-1580
CA	Escondido, Cirolia Elctrn. Sls.	619-743-3015
CA	San Carlos, Kafco	415-591-6758
FL	Tamarac, SRT Marketing	305-920-2222
GA	Atlanta, Young & Lawrence	404-255-5450
IL	Wheaton, Chadra-Schilke & Assoc.	312-653-8126
MD	Baltimore, Stemler Assocs.	301-944-8262
MA	Milton, Naton Assocs.	617-698-0670
MN	St. Paul, Countryman Assocs.	612-645-9151
MO	Maryland Heights, Kebco	314-576-4111

Local Distributors

AZ	Phoenix, TRI Tek, Inc.	602-995-9352
CA	Hawthorne, Jade Computers	213-973-7707
CA	Los Angeles, Electric Switches	213-660-1310
CA	Santa Ana, Advanced Computer Prods.	714-558-8813

RLC ELCTRNS., INC., 83 Radio Cir., Mt. Kisco, NY 10549, Tel: 914-241-1334, TWX: 710-571-2103; FSC No.: 12598; *Sls. Mgr.:* Philip H. Wright

RMF PRODS., INC., 1275 Paramount Pkwy., P.O. Box 520, Batavia, IL 60510, Tel: 312-879-0020; Empl.: 11; *Sls. Mgr.:* R. Frieders ....**2**•1785

RMS ELECTRONICS INC., 50 Antin Pl., Bronx, NY 10462, Tel: 212-892-6700; Empl.: 100; *Dist. Mgr.:* Seymour Goldberg

Local Sales Offices & Reps

CA	Santa Ana, RMS Electronics Inc. Western	714-662-1041

MS TECHN., 706 Industry Dr., Hampton, VA 23661, Tel: 804-838-2458; Empl.: 7

OANWELL, 180 Varick St., New York, NY 10014, Tel: 212-989-1090, TWX: 710-581-6555; FSC No.: 82872; Empl.: 200; *Sls. Mgr.:* A. W. Mazzeo; *Dist. Mgr.:* A. W. Mazzeo

Local Sales Offices & Reps

	N. Hollywood, Jewett Co.	818-789-8103

RO ASSOCIATES

O ASSOCS., 246 Caspian Dr., Box 61419, Sunnyvale, CA 94086, Tel: 408-744-1450, TWX: 910-339-9304; Empl.: 90; *Sls. Mgr.:* R. D. Okada .... **3**•1758

Local Sales Offices & Reps

L	Huntsville, Beacon Elctrns.	205-881-5031
Z	Phoenix, Sigma	602-241-1334
R	Little Rock, Beacon Elctrns.	501-224-5449
A	Los Angeles, Amasco	213-516-8561
A	San Francisco, Amasco	408-733-8690
O	Denver, F.G. Mktg.	303-795-9176
C	Washington, Gans & Pugh	703-527-3262
	Melbourne, Beacon Elctrns.	305-724-8010
A	Atlanta, Beacon Elctrns.	404-256-9640
I	Honolulu, Aloha Assoc.	808-941-1574
	Chicago, John Kennaugh & Assoc.	312-980-2570
I	Indianapolis, SAI Mktg.	317-241-9276
S	Shawnee Mission, Midtec	913-441-6565
D	Baltimore, Gans & Pugh	703-527-3262
A	Boston, Intersell	617-273-3844
I	Detroit, SAI Mktg.	313-227-1786
N	Minneapolis, R-J Inc.	612-866-3661
O	St. Louis, Midtec	314-837-5200
M	Albuquerque, Sigma	602-241-1334
Y	Mt Vernon, Sonkin Assoc.	914-668-9809
Y	Utica, B. D. Hummel Co.	315-736-7821
C	Raleigh, Beacon Elctrns.	919-787-9330
H	Cleveland, SAI Mktg.	216-751-3633
H	Columbus, SAI Mktg.	614-454-8942
H	Dayton, SAI Mktg.	513-435-3181
K	Tulsa, Cunningham Components Corps.	918-492-0390
A	Philadelphia, Gans & Pugh	703-527-3262
X	Dallas, Cunningham Comps. Corp.	214-233-4303
X	Houston, Cunningham Comps. Corp.	713-461-4197
A	Seattle, Huntley Assocs.	206-353-1833

OBBINS & MEYERS, INC., Motor & Control Sys. Div., Rte. 4, Bob McCormick Rd., Gallipolis, OH 45631, Tel: 614-446-9868, Telex: 205-427 .... **1B**•1175

OBERT BOSCH CORP., See Bosch, Robert, Corp.

OBINSON-HALPERN, One Apollo Rd., P.O. Box 248, Plymouth Meeting, PA 19462-0248, Tel: 215-825-9200, TWX: 510-660-8637; Empl.: 65; *Sls. Mgr.:* J. Lanza

OBINSON-NUGENT, INC., 800 East 8th St., New Albany, IN 47150, Tel: 812-945-0211, TWX: 810-540-4082; Empl.: 567; *Sls. Mgr.:* Hap Taylor .... **2**•1552-1555

Local Sales Offices & Reps

L	Huntsville, Electronic Mktg.	205-837-7363
Z	Phoenix, Stitzer Dodd	602-944-2237
A	El Monte, Cook Ent.	213-686-2120
A	San Diego, Cook Entprs.	619-584-0936
A	Santa Clara, Logan Sls.	408-496-0660
O	Denver, W. J. Purdy	303-777-1411
L	Boca Raton, Conley Assoc.	305-395-6108
L	Oviedo, Conley Assoc.	305-365-3283
L	Tampa, Conley Assoc.	813-885-7658
A	Atlanta, Elctrn. Mktg.	404-448-1215
L	Park Ridge, Metcom	312-696-1490
N	Indianapolis, Mktg. Engrs.	317-872-5665
A	Cedar Rapids, PMR Corp.	319-362-9177
S	Overland Park, PMR Corp.	913-381-0004
S	Wichita, PMR Corp.	316-684-4141
A	Lexington, John E. Boeing Co.	617-862-2500
N	Minneapolis, Professional Sls. for Ind.	612-944-8545
S	Jackson, Welch and Doby	601-932-5534
O	Maryland Heights, PMR Corp.	314-569-1220
M	Albuquerque, W. J. Purdy	505-266-7959
Y	Manhasset, Win-Cor	516-627-9474
Y	Rochester, Canavan-Scanlon	716-424-1830
NY	Syracuse, Canavan-Scanlon	315-437-1271
NC	Raleigh, Elect. Mktg.	919-847-8800
OH	Beachwood, Electronic Salesmasters	216-831-9555
OR	Silverton, Vantage Corp.	503-873-5090
PA	Broomall, L. D. Lowery	215-356-5300
SC	Greenville, Elect. Mktg.	803-233-4637
TX	Austin, Space Elctrns.	512-451-3173
TX	Houston, Space	713-266-9245
TX	Irving, Space	214-251-3636
UT	Salt Lake City, William J. Purdy Co.	801-486-8557
VA	Charlottesville, L. D. Lowery	804-973-6672
WA	Seattle, Vantage Corp.	206-455-3460
WI	West Allis, Metcom Assocs.	414-476-1300

Local Distributors

AL	Huntsville, Schweber Elctrns.	205-882-2200
AL	Huntsville, RM Elctrns. Co.	205-852-1550
AZ	Phoenix, Schweber Elctrns.	602-997-4874
AZ	Phoenix, Cetec	602-272-7951
AZ	Tempe, Bell Inds.	602-267-7774
AZ	Tempe, Acacia Sls.	602-894-2874
CA	Buena Park, RPS Elctrns.	714-521-5230
CA	Canoga Park, Schweber Elctrns.	213-999-4702
CA	Chatsworth, Diplomat Elctrns.	314-700-8700
CA	Costa Mesa, Diplomat Elctrns.	714-549-8401
CA	Fullerton, Pyramid Elctrns.	714-773-0781
CA	Irvine, Schweber Elctrns.	714-556-3880
CA	Irvine, Cetec Elctrns.	714-250-4141
CA	Manhattan Beach, Prime Electro	213-379-3642
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Sacramento, Schweber Elctrns.	916-929-9732
CA	San Diego, Diplomat Elctrns.	619-292-5693
CA	San Diego, Sigma Elctrn.	619-565-2000
CA	San Diego, Cetec	619-278-5020
CA	San Jose, Anthem Elctrns.	408-946-8000
CA	San Jose, Cetec	408-263-7373
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Santa Clara, Schweber Elctrns.	408-748-4700
CA	South Gate, Cetec	213-773-6521
CA	Sunnyvale, Diplomat Elctrns.	408-734-1900
CA	Sunnyvale, Acacia Sls.	408-745-7200
CO	Denver, Ragon Elctrn. Parts	303-744-3601
CO	Englewood, Diplomat Elctrns.	303-799-8300
CO	Lakewood, Acacia Sls.	303-232-2882
CT	Danbury, Diplomat Elctrns.	203-797-9674
CT	Danbury, Schweber Elctrns.	203-792-3500
CT	Hamden, ALmo Elctrns.	203-288-6556
FL	Altamonte Springs, Schweber Elctrns.	305-331-7555
FL	Clearwater, Diplomat Elctrns.	813-443-4514
FL	Hollywood, Schweber Elctrns.	305-927-0511
FL	Orlando, Hammond Elec.	305-849-6060
GA	Norcross, Diplomat Elctrns.	404-449-4133
GA	Norcross, Schweber Elctrns.	404-449-9170
IL	Bensenville, Diplomat Elctrns.	312-595-1000
IL	Chicago, Nep Elctrns.	312-625-8400
IL	Elk Grove Village, Schweber Elctrns.	312-364-3750
IL	Lombard, RM Elctrns.	312-932-5150
IL	Northbrook, Classic Comps.	312-272-9650
IN	Evansville, Hutch & Son	812-425-7201
IN	Ft. Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, RM Elctrns. Co.	317-247-9701
IN	Indianapolis, Graham Elctrns.	317-634-8202
IA	Cedar Rapids, Schweber Elctrns.	319-373-1417
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
KS	Overland Park, Schweber Elctrns.	913-492-2922
KY	Louisville, P. I. Burks	502-589-3960
MD	Baltimore, Resco	301-823-0070
MD	Beltsville, Resco/Washington	301-937-9100
MD	Columbia, Diplomat Elctrns.	301-995-1226
MD	Gaithersburg, Schweber Elctrns.	301-840-5900
MA	Bedford, Schweber Elctrns.	617-275-5100
MA	Canton, Almo Elctrns.	617-821-1450
MA	Westboro, Future Elctrns.	617-366-2400
MA	Woburn, Diplomat Elctrns.	617-366-2400
MI	Grand Rapids, R-M Michigan	616-531-9300
MI	Livonia, Schweber Elctrns.	313-525-8100
MI	Walled Lake, Ambur Elctrns.	313-669-3710
MN	Fridley, Voyager Elctrns.	612-571-7766
MN	Minneapolis, Schweber Elctrns.	612-941-5280
MO	Earth City, Schweber Elctrns.	314-739-0526
MO	Kansas City, LComp	816-221-2400
MO	Maryland Heights, LComp	314-291-6200
NE	Lincoln, Scott Elec.	402-466-8221
NE	Omaha, Scott Elctrns.	402-734-6750
NH	Hudson, C & H Elctrns.	603-882-1133
NH	Manchester, Schweber Elctrns.	603-625-2250
NJ	Fairfield, Schweber Elctrns.	201-227-7880
NJ	Totowa, Diplomat	201-785-1830
NM	Albuquerque, Bell Inds.	505-292-2700
NY	Bohemia, Car-Lac	516-567-4200
NY	Buffalo, Summit Dist.	716-887-2800
NY	Farmingdale, Harrison Elec.	516-293-7990
NY	Liverpool, Diplomat Elctrns.	315-652-5000
NY	Lynbrook, Peerless Radio Corp.	516-593-2121
NY	Melville, Diplomat Elctrns.	516-454-6400
NY	Mt. Vernon, QAR Elect.	914-699-2224
NY	Rochester, Schweber Elctrns.	716-424-2222
NY	Rochester, CAM/RPC Indl. Electrns.	716-865-2080
NY	Rochester, Summit Elctrns.	716-334-8110
NY	Westbury, Schweber Elctrns.	516-334-7474
NC	Greensboro, Hammond Elec.	919-275-6391
NC	Raleigh, Schweber Elctrns.	919-876-0000
OH	Beachwood, Schweber Elctrns.	216-464-2970
OH	Cleveland, CAM/RPC Indl. Electrns.	216-461-4700
OH	Dayton, Stotts Friedman	513-298-5555
OH	Dayton, Schweber Elctrns.	513-439-1800
OH	Maumee, R S Elctrns.	419-893-0721
OK	Tulsa, Schweber Elctrns.	918-622-8000
OK	Tulsa, Connec-Tek	918-664-8812
OR	Beaverton, Acacia Sls.	503-646-3377
OR	Portland, Radar Elec.	503-232-3404
OR	Wilsonville, Zepher Inds.	503-682-2929
PA	Horsham, Schweber Elctrns.	215-441-0600
PA	Lancaster, CAM/RPC Indl. Electronics	717-392-8141
PA	McKean, Advacom	814-476-7774
PA	Philadelphia, Almo	215-698-4000
PA	Pittsburgh, CAM/PRC Indl. Elctrns.	412-782-3770
PA	Pittsburgh, Schweber Elctrns.	412-782-1600
SC	Columbia, Dixie Elctrn.	803-779-5332
SC	Greenville, Hammond Elec.	803-233-4121
TX	Addison, Connec-Tek	214-239-7552
TX	Austin, Schweber Elctrns.	512-458-8253
TX	Austin, Connec-Tek	512-835-0220
TX	Austin, Southwest	512-837-8971
TX	Dallas, RM Elctrns. Co.	214-263-8361
TX	Dallas, Schweber Elctrns.	214-661-5010
TX	Ft. Worth, Allied	817-336-5401
TX	Houston, Schweber Elctrns.	713-784-3600
TX	Houston, Powerline Prods.	713-578-3222
TX	Richardson, Southwest Elctrns.	214-234-3050
TX	Richardson, Fisher Brownell	214-235-3177
TX	Stafford, Southwest Elctrns.	713-491-4900
TX	Sugar Land, Connec/Tek	713-491-2255
UT	Salt Lake City, Bell Inds.	801-972-6969
UT	Salt Lake City, Diplomat-Alta	801-486-4134
VA	Charlottesville, Virginia Radio	804-296-4184
WA	Kent, Pyramid Elctrns.	206-872-5800
WA	Seattle, Zepher Elctrns.	206-241-1980
WA	Seattle, Radar Elec.	206-282-2511
WI	Brookfield, Schweber Elctrns.	414-784-9020
WI	New Berlin, RM Elctrns. Co.	414-784-4420
WI	New Berlin, Classic Comps. Supply	414-786-5300
WI	New Berlin, NEP Elctrns.	414-785-9100

ROBISON ELECTRONICS, INC.

ROBISON ELCTRNS., P.O. Box Y, San Luis Obispo, CA 93406, Tel: 805-544-8000; FSC No.: 19080; Empl.: 45 .... **2**•1870, 1887

ROCHESTER INSTR. SYS., 255 N. Union St., Rochester, NY 14605, Tel: 716-263-7700, Telex: 978457; Empl.: 330

ROCKBESTOS CO., P.O. Box 1102, New Haven, CT 06504, Tel: 203-772-2250

ROCKLAND INSULATED WIRE & CABLE, 87 Broadway, Haverstraw, NY 10927, Tel: 914-429-3103; FSC No.: 12111

ROCKLAND SYS. CORP., See Wavetek Rockland Inc.

ROCKWELL FILTER PRODS., 2990 Airway Ave., Costa Mesa, CA 92626, Tel: 714-540-7640, Telex: 685532; Empl.: 100; *Sls. Mgr.:* Lee Cornett

ROCKWELL INT'L., 4311 Jamboree Rd., Newport Beach, CA 92660, Tel: 800-854-8099, TWX: 910-591-1654; FSC No.: 34576; Empl.: 1995; *Sls. Mgr.:* K. MacDonald; *Dist. Mgr.:* K. Foster

ROCKWELL INTL., Commercial Elctrns. Opers., 1200 N. Alma Rd., Richardson, TX 75081, Tel: 214-996-5000, Telex: 73-307, 73-2490, TWX: 910-867-4709; Empl.: 15,000

RODALE ELCTRNS. CORP., 603 Chestnut St., Garden City, NY 11530, Tel: 516-222-0050, TWX: 510-222-0274; *Sls. Mgr.:* John B. Clement

RODELCO ELCTRNS. CORP., 356A Comac Rd., Deer Park, NY 11729, Tel: 516-643-5110; Empl.: 28

ROD-L
ELECTRONICS, INC.

ROD-L ELECTRONICS, INC., 1098 Hamilton Ct., Menlo Park, CA 94025, Tel: 415-322-0711, TWX: 296210 .... 3•1292-1295

Local Sales Offices & Reps

AL	Huntsville, Sci. Svcs. SE	205-536-1969
AZ	Phoenix, Venturesearch	602-894-5216
CA	Carson, Amasco	213-516-8561
CA	Sunnyvale, Amasco	408-733-8690
CO	Conifer, Energy Equip. Sls.	303-674-8111
FL	Orlando, Sci. Dvcs. SE	305-841-8180
IL	Elk Grove, Loren Green Assocs.	312-593-0282
IN	Indianapolis, Loren Green Assocs.	317-293-9827
MD	Baltimore, Sci. Reps.	301-321-1411
MA	Reading, Scheinfein Assocs.	617-944-2304
MN	Minneapolis, Instrmn. Svcs. Inc.	612-544-8916
MO	Florissant, Web Elctrns.	314-921-5720
MO	Kansas City, Paloma Sls. Co.	816-358-7272
NJ	Fairfield, Addem Sls.	201-882-0993
NJ	Pennsauken, Sci. Reps.	609-662-5222
NY	De Witt, DB Assocs.	315-446-0220
NC	Winston-Salem, Sci. Dvcs.	919-765-5776
OH	Centerville, Micro Sls.	513-433-8171
OK	Tulsa, Spectra Sls.	919-633-7188
OR	Portland, Control Tek Sls. Limited	503-641-8180
TX	El Paso, Venturesearch	915-594-4094
TX	Houston, Spectra Sls.	713-747-2798
TX	Richardson, Spectra Sls.	214-234-3600
VA	Fairfax, Sci. Reps.	703-385-0600
WA	Spokane, Control Tek Sls. Ltd.	509-922-2971

ROEAN INDUSTRIES, INC., 12970 Branford, Ste. C, Pacoima, CA 91331, Tel: 818-767-7047, Telex: 758630 TGMC FTW; Empl.: 8

ROEDERSTEIN ELCTRNS., INC., P.O. Box 5588, Statesville, NC 28677, Tel: 704-872-8101

ROGAN, 3455 Woodhead Dr., Northbrook, IL 60062, Tel: 312-498-2300, TWX: 910-686-0008; Empl.: 100; *Sls. Mgr.:* D. Pelletier; *Dist. Mgr.:* D. Pelletier .... 2•1786

Local Sales Offices & Reps

AZ	Phoenix, O'Donnell Southwest	602-944-9542
CA	San Diego, O'Donnell Assocs.	619-578-1645
CA	San Jose, O'Donnell Assocs.	408-263-6500
CA	Torrance, O'Donnell Assocs.	213-539-9664
CO	Arvada, Challange Sls.	303-427-3149
IN	Fort Wayne, Aktron Corp.	219-747-3650
IA	Cedar Rapids, Dytronix	319-377-8275
MA	Westwood, Apex Assocs.	617-326-5042
MN	Minneapolis, R. W. Marshall	612-929-0457
MO	Bridgeton, Dytronix	314-731-5799
MO	Independence, Dytronix	816-373-6600
NJ	Pitman, Colrud Co.	609-589-5866
NY	Mount Vernon, Sonkin Assocs.	914-668-9809
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OR	Portland, SD-R2 Prods. & Sls.	503-295-6779
PA	Pittsburgh, J. C. Hofstetter Co.	412-327-1410
TX	Dallas, W. Reese Assocs.	214-638-6575
TX	Houston, W. Reese Assocs.	713-621-3134
WA	Bellevue, SD-R2 Sls.	206-747-2483

Local Distributors

AL	Huntsville, Component Distrs.	205-883-7501
AR	Little Rock, Component Distrs.	501-227-6278
CA	Sunnyvale, Cazco Sls.	408-745-7221
CA	Torrance, Cazco Sls.	213-328-9710
FL	Ft. Lauderdale, Component Distrs.	305-971-4950
IL	Northbrook, Classic Comps.	312-272-9650
IL	Rosemont, Advent Elctrns.	312-297-6200
IA	Cedar Rapids, Advent Elctrns.	319-363-0221
MA	Newton, Greene-Shaw Co.	617-969-8900
MI	Livonia, RS Elctrns.	313-525-1155
NJ	Bellmawr, Mid-Atlantic Elctrns.	609-931-5303
NJ	East Hanover, State Elctrns.	201-887-2550
NC	Raleigh, Component Distrs.	919-781-0177
OH	Medina, Electro-Supply	216-241-4880
TX	Austin, SW Elctrns.	512-837-8971
TX	Richardson, SW Elctrns.	214-234-3050
TX	Stafford, SW Elctrns.	713-494-6021
Can	Pointe Claire, Quebec, Future Elctrns.	514-694-7710

ROGERS CORP., Box 700, Chandler, AZ 85224, Tel: 602-963-4584, TWX: 910-950-1961; Empl.: 400; *Sls. Mgr.:* Paul Anderson

ROGERS CORP., One Technology Dr., Rogers, CT 06263, Tel: 203-774-9605, TWX: 710-448-0047; Empl.: 2500; *Sls. Mgr.:* Paul L. Anderson .... 2•1894

Local Sales Offices & Reps

AL	Huntsville, G. S. Jordan	205-881-7971
AZ	Scottsdale, H.R. Crowder	602-991-8908
AZ	Tempe, M. F. Iosue	602-839-5478
CA	Corona, R. A. Forester	714-734-5881
CA	Granada Hills, W. E. Pollock	213-368-0703
CA	Mission Viejo, A. C. Young	714-859-8028
CA	Palo Alto, R. A. Greenman	408-947-7797
CA	Poway, A.W. Riel	619-487-1065
CA	Redwood City, K. R. Sinisgalli	408-947-7797
CA	San Clemente, W. A. J. Waters	714-496-7305
CA	San Jose, R.H. Jackson	408-947-7797
CA	San Jose, W. J. Stolp	408-947-7797
CA	Van Nuys, D. Bergheimer	213-988-7138
CA	Westminster, D. Bergheimer	714-775-0179
CA	Woodland Hills, A. W. Riel	213-347-7435
CO	Littleton, G. B. Lange	303-795-3600
CT	Bristol, J. F. Witkewicz	203-583-4341
CT	Brooklyn, A. J. Boulia	203-774-0729
CT	Jewett City, G. R. Jessel	203-376-0276
CT	Norwich, G.R. Jessel	203-376-0276
FL	Melbourne Beach, P. R. Pratt	305-725-6105
GA	Roswell, J. N. Anderson	404-992-4307
IL	Chicago, R. E. Albright	312-798-5800
IL	Edwardsville, W. T. Davison	618-288-7786
IL	Hazel Crest, J. R. Menees	312-798-5800
KY	Prospect, G. A. Keibler	502-228-5792
MI	Garden City, L. J. Bradley	313-422-7150
MI	Rochester, Kent & Assocs.	313-651-1890
MN	Minneapolis, E. J. Sandor	612-330-3663
MN	Minneapolis, H. R. Crowder	612-574-7440
MN	Northfield, W. P. Kelly	507-663-1050
NH	Londonderry, W. J. Coyne	603-434-5358
NJ	Pitman, R. M. Neidig	609-582-1666
NJ	Springfield, S. D. Wellen	201-944-7777
NY	Endwell, T. H. Johnston	914-471-4707
NY	Rochester, R. C. Bangs	716-454-6520
NC	Cary, D. C. Reed	919-836-0415
OH	Shaker Hgts., E. R. Perme	216-283-5486
OH	Xenia, J. L. Forte	513-426-8993
PA	Downingtown, T. G. Sleasman	215-873-0180
PA	Hermitage, H. A. Harriman	412-983-3742
SC	Rock Hill, E. E. Wild	803-366-2952
TX	Carrollton, K. W. Norvell	214-446-1095
TX	Round Rock, B.D. Duke	512-244-3074
VA	Lynchburg, L.J. Rodrigue	804-384-9517
VA	Roanoke, J. L. Settles	703-774-8478
WA	Seattle, L. B. Keen	206-575-4175

R-OHM (EASTERN OPER.), 2303 W. Meadowview Rd. #3, Kingston Bldg., Greensboro, NC 27407, Tel: 919-855-0217

ROLM CORP., 1 River Oaks Pl., San Jose, CA 95134, Tel: 408-988-2900, TWX: 910-338-0247; FSC No.: 14345; Empl.: 6240; *Sls. Mgr.:* Dave Pidwell (MSC); R. Nugent (CBX); *Dist. Mgr.:* Ken Batorski (CBX)

ROLYN OPTICS CO., 738 Arrowgrand Cir., Covina, CA 91722-2199, Tel: 818-915-5707/5717, Telex: 67-0380

ROHM CORP., 8 Whatney, Irvine, CA 92714, Tel: 714-855-2131, TWX: 910-595-1721; Empl.: 100; *Sls. Mgr.:* Mike Hammel

ROME CABLE CORP., P.O. Box 71, Rome, NY 13440, Tel: 315-337-3000

RONOR SYSTEMS, 145 N. Plains Ind. Pk. Rd., Wallingford, CT 06492, Tel: 203-265-2110; Empl.: 12

RONTRON ENGINEERING, 25 Rose St., Branford, CT 06405, Tel: 203-488-5020

ROSE

ROSE ENCLOSURES SYS., INC., 12140 Parklawn Dr., Rockville, MD 20852, Tel: 301-984-1783, Telex: 908-107 Resi Rove; *Sls. Mgr.:* Richard Ramsey .... 2•1046

ROSEMONT-NASHVILLE, INC., See Chromalox Instrs. & Controls

ROSS ENGRG. CORP., 559 Westchester Dr., Campbell, CA 95008, Tel: 408-377-4621, TWX: 910-590-8033; FSC No.: 23598; Empl.: 45; *Sls. Mgr.:* Hugh C. Ross .... 1B•1472

Local Sales Offices & Reps

CA	Mountain View, Energy Devices	415-969-0330

ROSTONE CORP., P.O. Box 7497, Lafayette, IN 47903, Tel: 317-474-2421, TWX: 810-342-1887; Empl.: 600

ROTEK INSTR. CORP., 390 Main St., Waltham, MA 02254, Tel: 617-899-4611; *Sls. Mgr.:* Eliot Warner

Local Sales Offices & Reps

AL	Huntsville, Kemp Instrs.	205-837-4304
CA	Calabasas, Max Shovlowsky	805-498-6547
CA	Cupertino, Patterson Control Sys.	408-973-1050
CT	Mount Carmel, Sci. Dev.	203-248-9361
FL	Palm Harbor, Teqspec	813-785-2276
IL	La Grange, PVA Co.	312-579-9300
KS	Wichita, Aero Hill Sls.	316-682-2052
MA	Waltham, Sci. Dev.	617-890-2252
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
NJ	Parlin, JMR Sls.	201-727-5335
NY	Rochester, Sci. Dev.	716-334-2445
NC	Winston-Salem, Radco	919-722-9671
PA	Philadelphia, Techn. Instr. Sls.	215-836-2222
PA	Pittsburgh, Meas. Instr. East	412-459-8090
TX	Dallas, True Techn.	214-691-7870
VA	McLean, Sci. Dev. DC	703-893-6513
WA	Seattle, Eicher Richards	206-523-7888

ROTRON, INC., See EG & G Rotron

ROWE INDUSTRIES, INC., 6225 Benore Rd., P.O. Box 6877, Toledo, OH 43612, Tel: 419-729-9761, TWX: 810-442-1734; FSC No.: 82878; Empl.: 85; *Sls. Mgr.:* D. L. Mang; *Dist. Mgr.:* D. L. Mang .... 2•1556-1558, 2143

Local Sales Offices & Reps

AZ	Chandler, Blackhart Assocs.	602-831-2566
CA	San Jose, V. C. Robinson	415-969-4831
CT	Wethersfield, Underwood Sls.	203-563-3046
FL	Fern Park, EIR, Inc.	305-830-9600
KS	Leawood, Thunderbird	913-642-7220
KS	Wichita, Thunderbird	316-684-3941
MD	Baltimore, R. A. Wafer Assocs.	301-744-1133
MA	Burlington, Don C. Richard	617-272-1595
MA	Lowell, Underwood Sls.	617-256-8191
MI	Holland, Com-Tek Sls.	616-399-5719
MN	Hopkins, KITS Co.	612-933-1888
MO	Maryland, Thunderbird	314-567-6488
NJ	Haddonfield, Mills-Brown Assocs.	609-429-1005
NJ	Middletown, Astrorep	201-826-8050
NJ	Perth Amboy, Astrorep	201-826-8050
NM	Albuquerque, Ron-tek	505-299-4124
NY	Babylon, Astrorep	516-422-2500
NY	Farmingdale, Astrorep	201-624-4408
NC	Charlotte, Dula Assocs.	704-334-7090
NC	Winston-Salem, Dula Assocs.	919-768-7166
OH	Beachwood, RC Assocs.	216-292-4954
OH	Cuyahoga Falls, Lee Tronics	216-928-8584
TX	Richardson, Thunderbird	214-690-0763

RTE AEROVOX INC., P.O. Box B-970, 740 Belleville Ave., New Bedford, MA 02741, Tel: 617-994-9661, TWX: 710-344-6985; FSC No.: 4K459; Empl.: 700; *Sls. Mgr.:* Jack Chmura; *Dist. Mgr.:* Matthew Simon .... 1A•1619-1621

RTE DELTEC CORP., 2727 Kurtz St., San Diego, CA 92110, Tel: 619-291-4211, TWX: 910-335-1246; FSC No.: 52297; Empl.: 200; *Sls. Mgr.:* John J. Waterman .... 3•1907

Local Sales Offices & Reps

AL	Huntsville, FM Assocs., Ltd.	205-882-0689
AK	Soldotna, Air Tek	907-262-5937
AZ	Scottsdale, Barnhill Assocs.	602-947-7841
CA	Los Altos, Jay Stone & Assocs,	415-948-4563
CO	Englewood, Barnhill Assocs.	303-779-3600
CT	Avon, Power Mark	203-678-0123
FL	Jupiter, FM Assocs., Ltd.	305-746-2996
FL	Orlando, FM Assocs., Ltd.	305-851-5710
GA	Atlanta, FM Assocs., Ltd.	404-451-2293
HI	Honolulu, EMC	808-836-1138
IL	Chicago, PoweReP, Inc.	312-641-3321
IN	Indianapolis, Tech Sls. & Mktg.	317-849-6612
IA	W. Des Moines, Data Power Technlg. Corp.	515-255-6113
KS	Lenexa, Engineered Equip. Co.	913-492-9221
LA	Baton Rouge, Barnhill Assocs.	504-924-6826
MN	Golden Valley, JR Assocs.	612-546-4110
MO	St. Louis, Applied Power Sys.	314-383-5858
NE	Omaha, Data Power Technlg. Corp.	402-592-7860
NJ	Lodi, SDM Reps.	201-368-0125
NJ	Pennsauken, Scientific Reps.	609-662-5222
NM	Albuquerque, Barnhill Assocs.	505-299-7658
NY	Rochester, SDM Reps.	716-247-8770
NC	Ramseur, FM Assocs., Ltd.	919-824-2196
OH	Cleveland, Instrumentation Sys.	216-845-8800
OH	Dayton, Instrumentation Sys.	513-294-2838
PA	Pittsburgh, Instrumentation Sys.	412-243-1111
TX	Austin, Barnhill Assocs.	512-451-0217
TX	Houston, Barnhill Assocs.	713-688-9971

	Richardson, Barnhill Assocs.	214-231-2573
	Murray, Barnhill Assocs.	801-262-3000
	McLean, Creative Mktg. Assocs., Ltd.	703-442-9100
A	Seattle, F/M Sales Co.	206-628-9620
I	Milwaukee, PoweReP	414-272-4684
P	CA, San Diego, RTE Deltec Corp.	619-291-4211

Local Distributors

	Huntsville, RTS Distributing	205-882-0689
	Scottsdale, Beta Distrs.	602-947-7841
	Englewood, Beta Distrs.	303-779-4494
	Ridgefield, Data Set Cable Co.	203-438-9684
	Fort Lauderdale, Nabra Entprs.	305-584-9105
	Jupiter, RTS Distributing	305-746-2996
	Orlando, RTS Distributing	305-851-5710
	Atlanta, RTS Distributing	404-451-2293
	Honolulu, EMC Assocs.	808-836-1138
	Baton Rouge, Beta Distrs.	504-924-6826
	Las Vegas, Data Set Cable Co.	702-382-6777
	Lodi, SSI Distribution	201-368-1025
M	Albuquerque, Beta Distrs.	505-299-7658
	Rochester, SSI Distribution	716-247-8770
	Ramseur, RTS Distributing	919-824-2196
	Austin, Beta Distrs.	512-452-0199
	Houston, Beta Distrs.	713-688-9971
	Richardson, Beta Distrs.	214-231-2573
	Murray, Beta Distrs.	801-262-3000

TE POWER/MATE, See Power/Mate Co.

TRON CORP., 7324 Lawndale, Skokie, IL 60076, Tel: 312-679-7180, TWX: 910-223-0810; FSC No.: 19130; *Sls. Mgr.:* R. McLean

Local Sales Offices & Reps

Z	Tucson, J.J. Riley & Assocs.	602-888-4627
A	Redondo Beach, J.J. Riley & Assocs.	213-374-3468
T	Washington, Tri-Com	205-563-2241
A	Burlington, Tri-Com	617-272-8163
	Detroit, R.P. Urban & Assoc.	313-535-2355
	Grand Rapids, R.P. Urban & Assoc.	616-245-0511
N	Brooklyn Center, Northwest Savespro	612-566-0196
J	Plainfield, S. Glassman Assoc.	201-561-3866
Y	Glen Cove, S. Glassman Assoc.	516-676-1039
H	Cincinnati, J. Olsen Co.	513-451-5995
H	Cleveland, J. Olsen Co.	216-662-3454
R	Aloha, Elctrnc. Comp. Sls.	503-245-2342
A	Jenkintown, Arnold Assoc.	215-PI 2-0600
A	Pittsburgh, J. Olsen Co.	412-279-2550
A	Mercer Island, Elctrn. Comp. Sls.	206-232-9301

TS SYSTEMS, INC., Compact Video, Inc., 1100 W. Chestnut St., Burbank, CA 91506, Tel: 818-843-7022, Telex: 194855, TWX: 910-498-4987; Empl.: 40; *Sls. Mgr.:* Bob Tourkow ......**3**•1066

Local Sales Offices & Reps

L	Birmingham, Sonics Assocs.	205-942-9631
L	Birmingham, Gray Comms. Conslt.	205-942-2824
L	Cropwell, Broadcast Sys.	205-525-5467
L	Huntsville, Central Dynamics Corp.	205-837-5180
L	Mobile, Gray Comms. Conslt.	205-343-0662
K	Anchorage, N V S Sys.	907-349-3523
Z	Cottonwood, R I A Corp.	602-634-8065
Z	Phoenix, Siboney Communications Inc. (SCI)	602-252-5992
Z	Tucson, SCI	602-881-5432
A	Berkeley, Curtis M. Karplus, Esq.	415-642-1942
A	Burbank, H N E Inc.	213-508-7543
A	Burbank, Tri Tronics	213-843-2170
A	City of Industry, SCI	213-965-2281
A	El Monte, Cetec Vega	213-442-0782
A	Encino, Everything Audio	213-995-4175
A	Glendale, Paramount Sound Sys. Corp.	213-956-3222
A	Inglewood, Audio Visual Hdqtrs. Corp.	213-419-4040
A	Lawndale, Omega Video	213-679-9021
A	Long Beach, K T Elctrns.	213-424-0979
A	Los Angeles, Acromedia Corp.	213-410-4141
A	Los Angeles, Tourkow & Co.	213-664-8884
A	Los Angeles, Shoreline Ltd.	213-851-1236
A	Los Angeles, Hollywood Sound Sys.	213-466-2416
A	Los Angeles, Skaggs Video Los Angeles	213-556-2133
A	N. Hollywood, Audio Svcs. Corp.	213-980-9891
A	N. Hollywood, Doc Siegel Audio	213-877-2300
A	N. Hollywood, Best Audio	213-763-2378
A	N. Hollywood, Theatre Vision	213-769-0928
A	Newbury Park, Westlake Audio	213-655-0303
A	Nipomo, Broadcast Sys.	805-929-4476
A	Pasadena, Audio Engrg. Assocs.	213-798-9127
A	San Diego, Skaggs Video San Diego	619-578-9640
A	San Diego, SCI	714-578-7777
A	San Diego, Pacific Recorders & Eng. Corp.	619-453-3255
A	San Diego, Centro Corp.	619-560-1578
A	San Francisco, Sound Genesis	415-285-8900
A	Santa Clara, Video Comms. Corp.	408-988-2968
A	Sun Valley, Burns Audio	213-768-1701
CA	Sunnyvale, Video Media	408-733-6500
CA	Walnut, Video Comms. Corp.	714-594-2442
CO	Denver, Film/Video Equip. Svc.	303-778-8616
CO	Denver, R I A Corp.	303-320-5521
CO	Englewood, Skaggs Video Denver	303-740-9031
CT	Shelton, Anton Bauer	203-929-1100
FL	Gainesville, Gray Comms. Conslt.	904-376-2435
FL	Miami, Hubbard Comms.	305-594-0744
FL	Miami, Midwest Corp.	305-592-5355
FL	Miami, Gray Comms. Conslt.	305-591-3637
FL	Orlando, Gray Comms. Conslt.	305-896-7414
FL	St. Petersburg, Hubbard Comms.	813-577-7759
FL	Tampa, SCI	813-985-4687
FL	Tampa, Gray Comms. Conslt.	813-885-1411
GA	Albany, Gray Comms. Conslt.	912-883-2121
GA	Doraville/Atlanta, Gray Comms. Conslt.	404-455-3121
GA	Norcross, SCI	404-441-3300
GA	Norcross/Atlanta, Tech. Video Sys.	404-447-6621
GA	Union City/Atlanta, Allied Broadcast Equip.	404-964-1464
IL	Chicago, Allied Broadcast Equip.	312-794-0224
IL	Elk Grove Vlg., Swiderski Elctrns.	312-364-1900
IL	Harvey, Bridgewater Custom Sound	312-596-0309
IL	Morton Grove, Roscor Corp.	312-539-7700
IL	Quincy, Harris Corp.	217-222-8200
IN	Evansville, Kavco	812-476-6327
IN	Indianapolis, Kavco	317-251-0800
IN	Indianapolis, R C A Corp.	317-273-3547
IN	Indianapolis, Midwest Corp.	317-251-5750
IN	Richmond, Allied Broadcast Equip.	317-962-8596
IA	Davenport, Video Midwest	319-322-1525
IA	Des Moines, Video Midwest	515-244-1447
KY	Edgewood, Midwest Corp.	800-543-1584
KY	Lexington, Midwest Corp.	606-277-4994
KY	Louisville, Midwest Corp.	502-491-2888
LA	Harahan/New Orleans, Gray Comms. Conslt.	504-733-7265
MD	Bethesda, Professional Prods.	301-657-2141
MD	Lanham, Midwest Corp.	301-577-4903
MD	Rockville, Peirce Phelps Inc.	301-984-7979
MA	Boston, Professional Recording & Sound	617-254-2110
MA	Framingham, Landy Assocs.	617-877-9570
MA	Needham Hgts., Capron Lighting & Sound Co.	617-444-8850
MA	Newton, Lake Sys. Corp.	617-244-6881
MI	Ann Arbor, Hy James Audio Professionals	313-994-0934
MI	Oak Park, Midwest Corp.	313-399-6361
MI	Troy/Detroit, Midwest Corp.	313-689-9730
MN	Burnsville, Emmons Assocs.	612-890-8920
MN	Minneapolis, Video Midwest	612-831-2248
MN	Minneapolis, Todd Comms.	612-941-0556
MS	Bay St. Louis, Harris Corp. S. Central Reg.	601-255-3337
MO	Chesterfield, Television Engrg. Corp.	314-532-4700
MO	El Dorado Springs, Broadcast Sys.	417-876-6254
MO	St. Louis, Antech Labs	314-997-5666
NE	Omaha, Todd Comms.	402-341-7600
NV	Las Vegas, Western Media Entprs.	702-873-2014
NV	Las Vegas, Acromedia Corp. Las Vegas	702-362-7552
NJ	Atlantic City, Telemeasurements	609-345-2670
NJ	Cherry Hill, Landy Assocs.	609-424-4660
NJ	Clifton, Telemeasurements	201-473-8822
NJ	Mahwah, Philips Television Sys.	201-529-1550
NJ	Mountain Lakes, Turner Engrg.	201-263-0023
NJ	Northvale, A F Assocs.	201-767-1000
NM	Albuquerque, SCI	505-884-6858
NM	Los Lunas, Dyma Engrg.	505-865-6700
NY	New York, Martin Audio/Video Corp.	212-541-5900
NY	New York, Westec Audio Video	212-586-1662
NY	New York, Tech. Video Sys.	212-580-3104
NY	New York, M P C S Video Inds.	212-586-3690
NY	New York, Adcom Comms.	212-265-1760
NY	New York, Camera Mart	212-757-6977
NC	Charlotte, Reliable Music	704-375-8662
NC	Charlotte, Midwest Corp.	704-399-6336
NC	RTP, Broadcast Sys.	919-851-1956
NC	Raleigh, Southeastern Sight & Sound	919-828-2311
NC	Winston-Salem, Tech. Video Sys.	919-748-0916
OH	Cleveland, Midwest Corp.	216-447-9745
OH	Columbus, Midwest Corp.	614-476-2800
OH	Columbus, Kavco	614-274-0180
OH	Dayton, Kavco	513-898-2003
OH	Dayton, Midwest Corp.	513-275-3339
OH	N. Royalton, Kavco	216-237-1950
OH	Parma Hgts., Reddish Sound	216-885-1222
OK	Claremore, R I A Corp.	918-341-9066
OK	Tulsa, M Z B & Assocs.	918-743-2661
OR	Portland, Baldwin Mktg. Co.	503-234-1359
PA	Allentown, Daveland Co.	215-439-8701
PA	Carnegie, Alpha Video & Elctrns.	412-923-2070
PA	Gibsonia, Midwest Corp.	412-443-6720
PA	King of Prussia, Maris Equip. Corp.	215-275-9300
PA	Philadelphia, Peirce Phelps Inc.	215-879-7205
PA	Philadelphia, Lerro Elctrl. Corp.	215-223-8200
PA	Pittsburgh, R P C Elctrns.	412-782-3770
TN	Knoxville, Gray Comms. Conslt.	615-523-3107
TN	Nashville, Gray Comms. Conslt.	615-883-9175
TN	Nashville, Consolidated Media Sys.	615-244-3933
TX	Amarillo, Magnetic Media Corp.	806-358-2468
TX	Arlington, Midcom	817-640-4573
TX	Austin, SCI	512-454-7194
TX	Austin, M Z B & Assocs.	512-837-7240
TX	Austin, Magnetic Media Corp.	512-451-0138
TX	Austin, Broadcast Sys.	512-836-6014
TX	Corpus Christi, SCI	512-883-6688
TX	Dallas, Video Sys.	214-349-0951
TX	Dallas, Magnetic Media Corp.	214-931-0404
TX	Dallas, M Z B & Assocs.	214-233-5535
TX	El Paso, SCI	915-598-8538
TX	Houston, L D Systems	713-695-9400
TX	Houston, M Z B & Assocs.	713-448-0881
TX	Houston, SCI	713-686-9685
TX	Houston, Magnetic Media Corp.	713-771-9125
TX	Houston, Video Sys.	713-686-9651
TX	Irving, SCI	214-258-8470
TX	Lubbock, Video Sys.	806-792-2325
TX	Madison, SCI	615-865-1980
TX	Plano, Allied Broadcast Equip.	214-423-8667
TX	Plano, Broadcast Sys.	214-867-8775
TX	San Antonio, Video Sys.	512-824-2311
UT	Salt Lake City, R I A Corp.	801-486-8822
UT	Salt Lake City, Skaggs Video Sls.	801-539-1420
UT	Salt Lake City, Skaggs Telecom Svc.	801-539-1420
VA	Richmond, Professional Prods.	804-794-2585
VA	Virginia Beach, Midwest Corp.	804-464-6256
VA	Woodbridge, Broadcast Sys.	703-494-4998
WA	Federal Way, Allied Broadcast Equip.	206-927-4337
WV	Charleston, Midwest Corp. Corporate H/Q	304-343-8874
WV	Nitro/Charleston, Midwest Corp.	304-722-2921
WI	Madison, Full Compass Sys.	608-271-1100

RUSH/HOUSTON, INC., 600 Kealrick, Ste C-40, Houston, TX 77060, Tel: 713-682-5151; *Sls. Mgr.:* Fred Murphy

RUSSELL INDS., 3000 Lawson Blvd., Oceanside, NY 11572, Tel: 516-536-5000; Empl.: 20; *Sls. Mgr.:* H. Russell

RUTHERFORD RESCH. PRODS., Box 249, Rutherford, NJ 07070, Tel: 201-933-2091; Empl.: 4; *Sls. Mgr.:* Dr. A. Blanck; *Dist. Mgr.:* Dr. A. Blanck

RYAN INTL. CORP., 4800 Evanswood Dr., Columbus, OH 43229, Tel: 614-885-3303; Empl.: 26 ......**3**•1219

RYE INDS., INC., 125 Spencer Pl., P.O. Box M, Mamaroneck, NY 10543, Tel: 914-698-0080; Empl.: 50

SABRE COMMS. CORP., 117 Main St., Soiux City, IA 51102, Tel: 712-258-6690; FSC No.: 60348; *Sls. Mgr.:* Bailey Aalfs; *Dist. Mgr.:* Richard Krone

Local Sales Offices & Reps

FL	Coral Springs, SECOM Sys.	305-753-6777
GA	Chamblee, SECOM Sys.	404-455-0672
NC	Kings Mountain, SECOM Sys.	704-739-9297
TN	Bloomington Springs, SECOM Sys.	615-653-4363

Local Distributors

FL	Coral Springs, SECOM Sys.	305-753-6777
GA	Chamblee, SECOM Sys.	404-455-0672
NC	Kings Mountain, SECOM Sys.	704-739-9297
TN	Bloomington Springs, SECOM Sys.	615-653-4363

SABRITEC, 16631 Noyes Ave., Irvine, CA 92714, Tel: 714-549-7350, Telex: 678401; *Sls. Mgr.:* M. J. Bennett

SAFEWAY PRODUCTS, 440 Middlefield St., Middletown, CT 06457, Tel: 203-346-6601, TWX: 710-428-7225; Empl.: 241

SAFT AMERICA INC., Box 1886, Valdosta, GA 31601, Tel: 912-247-2331, Telex: 547620, TWX: 810-786-5866

SAFT AMERICA INC., Advanced Battery Sys. Div., 107 Beaver Ct., Cockeysville, MD 21030, Tel: 301-666-3200

SAFT AMERICA INC., Elctrn. Sys. Div., 2414 W. 14th St., Tempe, AZ 85281, Tel: 602-894-6864

SAFT

SAFT AMERICA INC., Power Sources Div., 711 Industrial Blvd., Valdosta, GA 31601, Tel: 912-247-2331, Telex: 547-620; Empl.: 1300; *Sls. Mgr.:* R. Bartmes ....**3**•1398, 1424-1429

Local Sales Offices & Reps

CA	Chatsworth	818-998-0626
CO	Denver	303-740-7781
FL	Orlando	305-282-2245
IL	Chicago	312-991-6396
MA	Quincy	617-773-7980
MN	Minneapolis	612-770-0082
NC	Winston-Salem	919-765-6690
OH	Columbus	216-861-1877
PA	Philadelphia	215-831-9520
TX	Dallas	214-436-0757
VT	Rutland	802-773-8748

Local Distributors

AL	Montgomery, Aviall	205-284-3001
AK	Anchorage, Standard Aero Ltd.	907-349-9655
AK	Anchorage, Aviall	907-248-4624
AK	Anchorage, Van Dusen Aircraft Supp.	907-561-1644
AZ	Phoenix, Aviall	602-275-4434
AZ	Phoenix, Van Dusen Aircraft Supp.	602-275-4493
AZ	Phoenix, Standard Aero Ltd.	602-273-7451
AR	Little Rock, Aviall	501-376-0379
CA	Burbank, Aero Quality Sls.	818-841-6163
CA	El Cajon, Aviall	619-448-2885
CA	Fresno, Van Dusen Aircraft Supp.	209-292-2222
CA	Long Beach, Standard Aero Ltd.	213-421-8431
CA	S. San Francisco, Van Dusen Aircraft Supp.	415-589-3133
CA	San Jose, Standard Aero Ltd.	408-926-2505
CA	San Leandro, Aviall	415-638-8736
CA	Van Nuys, Van Dusen Aircraft Supp.	818-988-7308
CA	Van Nuys, Aviall	818-997-0242
CO	Broomfield, Aviall	303-457-2461
CO	Denver, Van Dusen Aircraft Supp.	303-393-0813
FL	Hollywood, Aviall	305-925-8330
FL	Miami, Aero Quality Sls.	305-592-5055
FL	Miami Springs, Van Dusen Aircraft Supp.	305-885-3481
FL	Orlando, Aviall	305-277-2191
GA	Atlanta, Van Dusen Aircraft Supp.	404-766-8334
GA	College Park, Aviall	404-997-3935
HI	Honolulu, Van Dusen Aircraft Supp.	808-833-0061
HI	Honolulu, Standard Aero Ltd.	808-833-2447
ID	Boise, Van Dusen Aircraft Supp.	208-384-0030
IL	Elk Grove Village, Van Dusen Aircraft Supp.	312-437-5230
IL	Wheeling, Aviall	312-541-7040
KS	Kansas City, Van Dusen Aircraft Supp.	913-321-4200
KS	Overland Park, Aviall	913-341-2999
KS	Wichita, Van Dusen Aircraft Supp.	316-943-2418
LA	Lafayette, Aviall	318-233-8930
LA	Lafayette, Standard Aero Ltd.	318-269-1111
LA	New Orleans, Van Dusen Aircraft Supp.	504-246-3166
MA	East Boston, Van Dusen Aircraft Supp.	617-567-3000
MA	Stow, Aviall	617-897-3400
MI	Pontiac, Van Dusen Aircraft Supp.	313-666-2240
MI	Romulus, Aviall	313-946-9110
MI	St. Clair Shores, Aero Quality Sls.	313-772-7810
MN	Edina, Van Dusen Aircraft Supp.	612-835-6988
MN	Minneapolis, Standard Aero Ltd.	612-835-9250
MN	Minneapolis, Aviall	612-884-4441
MS	Southaven, Van Dusen Aircraft Supp.	601-393-5500
MO	Chesterfield, Aviall	314-532-3458
MO	Kansas City, Standard Aero Ltd.	816-842-3903
MO	St. Louis, Van Dusen Aircraft Supp.	314-731-1700
MT	Billings, Van Dusen Aircraft Supp.	406-245-2309
NE	Lincoln, Van Dusen Aircraft Supp.	402-474-3512
NV	Las Vegas, Van Dusen Aircraft Supp.	702-739-9322
NJ	Lyndhurst, Aero Quality Sls.	201-288-5510
NJ	Teterboro, Van Dusen Aircraft Supp.	201-288-1500
NY	Bohemia, Aviall	516-567-2002
OH	Cincinnati, Aviall	513-871-6623
OH	Cleveland, Van Dusen Aircraft Supp.	216-473-6711
OH	Vandalia, Van Dusen Aircraft Supp.	513-898-4672
OK	Bethany, Aviall	405-787-4630
OK	Oklahoma City, Van Dusen Aircraft Supp.	405-682-4496
OK	Tulsa, Aviall	918-838-3316
OR	Fairview, Aviall	503-667-5068
PA	New Cumberland, Van Dusen Aircraft Supp.	717-774-3511
PA	Philadelphia, Aviall	215-677-9700
PA	Pittsburgh, Aviall	412-664-4440
TN	Mt. Juliet, Van Dusen Aircraft Supp.	615-754-7700; 800-251-5775
TN	Nashville, Aviall	615-833-7431
TX	Addison, Aviall	214-458-0525
TX	Dallas, Van Dusen Aircraft Supp.	214-352-2611
TX	Dallas, Aviall	214-688-0811
TX	Dallas, Standard Aero Ltd.	214-931-7480
TX	Dallas, Aero Quality Sls.	214-350-8881
TX	Ft. Worth, Aviall	817-626-3795
TX	Houston, Aviall	713-645-3376
TX	Houston, Aero Quality Sls.	713-943-3906
TX	Houston, Van Dusen Aircraft Supp.	713-643-8566
TX	Midland, Van Dusen Aircraft Supp.	915-563-0907
TX	San Antonio, Aviall	512-340-3938
UT	Salt Lake City, Aviall	801-355-2717
UT	Salt Lake City, Van Dusen Aircraft Supp.	801-532-5194
VA	Richmond, Van Dusen Aircraft Supp.	804-222-7287
WA	Bellevue, Standard Aero Ltd.	206-643-4220
WA	Seattle, Standard Aero Ltd.	206-762-0550
WA	Seattle, Aviall	206-763-1350
WA	Seattle, Van Dusen Aircraft Supp.	206-763-1544

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SAGE LABORATORIES, INC., 3 Huron Dr., Natick, MA 01778, Tel: 617-653-0844, TWX: 710-346-0390; FSC No.: 07180; *Sls. Mgr.:* Tony Cieri

SAI TECHNLG. CO., Science Applications Inc., 4060 Sorrento Valley Blvd., San Diego, CA 92121, Tel: 619-452-9150, TWX: 756769; FSC No.: 54779; Empl.: 300

SAMARIUS, INC., 300 Seymour Ave., P.O. Box 377, Derby, CT 06418, Tel: 203-735-7405, TWX: 710-451-2495; FSC No.: 18065; Empl.: 90 ....**1A**•2053

SAMTEC, 810 Progress Blvd., P.O. Box 1147, New Albany, IN 47150, Tel: 812-944-6733, TWX: 810-540-4095; FSC No.: 55322; Empl.: 50; *Sls. Mgr.:* B. Shine; *Dist. Mgr.:* C. Roll

S & EI MFG., Box 832, Northridge, CA 91324, Tel: 818-349-4111, TWX: 910-493-1252; FSC No.: 24152; Empl.: 85

Local Sales Offices & Reps

CA	Sacramento, John Wayner	916-689-1281
CA	San Diego, Qualtronics	619-560-8955
FL	Ft. Lauderdale, Electro Comp. Assocs.	305-491-4141
IL	Chicago, Ropek-Cahill	312-631-0070
KS	Parker, S. W. Wollard Co.	913-898-6552
MA	Boston, TEC Sys.	617-834-4663
MO	St. Louis, Abrams & Assocs.	314-569-0047
NJ	Cherry Hill, Danco Corp.	609-627-2218
OH	Dayton, Berberich & Assocs.	513-433-0342

SANDERS ASSOCS., Flexprint Prods. Div., Grenier Fld., Manchester, NH 03103, Tel: 603-669-4615, TWX: 710-220-9999; FSC No.: 4L 277; Empl.: 500; *Sls. Mgr.:* Martin S. Schwartz

Local Sales Offices & Reps

AL	Huntsville, BJR	205-881-3569
AZ	Tempe, Spectrum Assoc. S.W.	602-966-1788
CA	Downey, Trimarco	213-861-8244
CA	Downey, Trimarco	213-861-8244
CA	Los Altos, El Repco	415-941-4990
CA	San Jose, Cero	408-298-1918
FL	Cocoa Bch., JEPCO	305-783-3037
IL	Downers Grove, Momak Sls.	312-963-6400
MD	Baltimore, R. A. Wafer Assoc.	301-744-1133
MD	Glen Burnie, New Era Sls.	301-768-6666
MA	Burlington, Microwave Mktg. Spec.	617-272-7530
MN	New Brighton, TWC	612-636-1770
NH	Amherst, Callahan & Tremblay	603-883-9000
NJ	Wayne, GT Assocs.	201-694-6040
NY	Great Neck, Phase 4	516-482-1790
PA	Hatboro, Jacobsen Assoc.	215-674-2937
TX	Austin, Kruvand Assoc.	512-441-6777
TX	Dallas, Kruvand Assoc.	214-691-4592

S & H INDUSTRIES, INC.

S & H INDS., 119 Glen Cove Dr., Glen Head, NY 11545, Tel: 516-671-5600; Empl.: 50; *Sls. Mgr.:* R. Smith ....**3**•1767, 1908, 1928

SAN DIEGO INSTR. LAB, See SANLAB

SAN FERNANDO ELEC. MFG., See SFE Techn.

SANFORD-MILLER CORP., 8 John St., Lynbrook, NY 11563, Tel: 516-593-2025, Outside NY 800-645-5900; Empl.: 10

SANGAMO CAPACITOR DIV., Box 128, Pickens, SC 29671, Tel: 803-878-6311, Telex: 57-0441, TWX: 810-397-2496; FSC No.: 00853; *Sls. Mgr.:* J. Kolkowski; *Dist. Mgr.:* J. Kolkowski

SANKEN ELEC. CO., 1-22-8 Nishi-Ikebukuro, Toshima-Ku, Tokyo, Japan, Tel: 03-986-6151, Telex: 272-2323; Empl.: 2,500; *Sls. Mgr.:* K. Imaizumi; *Dist. Mgr.:* S. Muramoto

SANKEN ELEC. U.S.A. CORP., 3848 Carson St., Ste. 105, Torrance, CA 90503, Tel: 213-540-2209, Telex: 181839; Empl.: 5; *Sls. Mgr.:* Mr. Tack Kunimi; *Dist. Mgr.:* Mr. Tack Kunimi

SAN-O INDUSTRIAL CORP., 85 Orville Dr., Bohemia, NY 11716, Tel: 516-567-5556, TWX: 510-228-7701; Empl.: 50; *Sls. Mgr.:* M. Castellano

SANTA BARBARA RESCH. CTR., 75 Coromar Dr., Goleta, CA 93117, Tel: 805-968-3511, Telex: 910-334-1885, TWX: Hacsbar; Empl.: 2025; *Sls. Mgr.:* D.K. Smith

SANTA FE TEXTILES, 3151 W. Adams St., Santa Ana, CA 92704, Tel: 714-751-7733; FSC No.: 31415; Empl.: 20; *Sls. Mgr.:* J. Tressen; *Dist. Mgr.:* J. Abbey

SANYO ELEC. INC., 200 Riser Rd., Little Ferry, NJ 07643, Tel: 201-641-2333, Telex: 134-394; Empl.: 500; *Sls. Mgr.:* H. Matsuoka ....**3**•1430

Local Sales Offices & Reps

CA	Compton	213-537-5830
IL	Schiller Park	312-671-3261
NJ	Little Ferry	201-641-2333

SANYO SEMICONDUCTOR CORP., 7 Pearl Ct., Allendale, NJ 07401, Tel: 201-825-8080, Telex: 135138 SANYOSEMI ALNJ; Empl.: 16; *Sls. Mgr.:* Koichi Takahashi; *Dist. Mgr.:* Aki Goto

SAPHIKON, 51 Powers St., Milford, NH 03055, Tel: 603-673-5831, Telex: 95-3067; Empl.: 45; *Sls. Mgr.:* K. G. Lonie

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SARONIX, 4010 Transport at San Antonio, Palo Alto, CA 94303, Tel: 415-856-6900, Telex: 348465; FSC No.: 61441; Empl.: 24; *Sls. Mgr.:* Michael N. Blewett; *Dist. Mgr.:* Michael N. Blewett ....**1A**•1418, 1419

Local Sales Offices & Reps

AZ	Tempe, Elec Com	602-967-8644
CA	Culver City, Bestronics Inc.	213-870-9191
CA	Fallbrook, Matronix/Chilcote	619-728-7678
CA	Irvine, Bestronics Inc.	714-261-7233
CA	Southern California, Bestronics Inc.	213-704-5616
CA	Woodland Hills, Bestronics Inc.	213-704-5616
CO	Denver, Lindberg Co.	303-758-9033
FL	Orlando, Delmac Sls.	305-898-4688
GA	Marietta, Rick Burns Assoc.	404-951-1181
L	Elk Grove Vlg., John G. Twist Co.	312-593-0200
N	South Bend, Schillinger Assoc. Inc.	219-291-6258
KS	Overland Park, EPI Inc.	314-962-1411
MA	Andover, Richard Purinton	617-475-7055
MN	Bloomington, John G. Twist Co.	612-835-2120
MO	St. Louis, EPI Inc.	314-962-1411
NJ	Cherry Hill, Trinkle Sls.	609-795-4200
NJ	Englewood, Harold Gray Assocs.	201-894-0894
NM	Albuquerque, Lindberg Co.	505-881-1006
NY	Cazenovia, S. T. Woolard Co.	315-655-8145
NC	Raleigh, Rick Burns Assoc.	919-876-2224
OH	Dayton, J. C. Hofstetter	513-296-1010
OH	Medina, J. C. Hofstetter	216-241-4880
TX	Austin, Logic 1 Sls.	512-459-1297
TX	Houston, Logic 1 Sls.	713-462-0641
TX	Richardson, Logic 1 Sls.	214-234-3375
UT	Salt Lake City, Lindberg Co.	801-969-2400
WA	Bellevue, Hood Engrg.	206-953-9375
WI	Brookfield, John G. Twist Co.	414-782-2670
WI	Milwaukee, The John G. Twist Co.	414-782-2670
EXP	CA, Palo Alto, SaRonix	415-856-6900

Local Distributors

AZ	Tempe, Anthem Elctrns.	602-244-0900
CA	Chatsworth, Anthem Elctrns.	213-700-1000
CA	Costa Mesa, Deco Elctrns.	714-754-1322
CA	Manhattan Beach, Prime Electro Prods.	213-379-3642
CA	San Diego, Deco Elctrns.	619-693-1595
CA	San Diego, Anthem Elctrns.	619-279-5200
CA	San Jose, Anthem Elctrns.	408-946-8000
CA	Tustin, Anthem Elctrns.	714-730-8000
CO	Englewood, Anthem Elctrns.	303-790-4500
IN	Indianapolis, MAR Elctrns. Inc.	317-875-4510
MA	Andover, R² Elctrns.	617-475-3777
OR	Lake Oswego, Anthem Elctrns.	503-684-2661
TX	Addison, Active Comp. Technlg.	214-980-1888
TX	Austin, Active Comp. Technlg.	512-452-5254
TX	Houston, Active Comp. Technlg.	713-496-4000
UT	Salt lake City, Anthem Elctrns.	801-973-8555
WA	Redmond, Anthem Elctrns.	206-881-0850
Intl	England, Kent, Electrautom Ltd.	0622 673131
Intl	France, St. Quentin En Yvelines, A S A P	604 7878
Intl	Germany, Munich, LSI-Electronic Vertriebs	089 310-7272
Intl	Switzerland, Duebendorf-Zuerich, Compona	01 821-3737

SAVOY ELCTRNS., P.O. Box 5727, Ft. Lauderdale, FL 33310, Tel: 305-563-1333, 800-327-1282, TWX: 510-955-9766; FSC No.: 59-1672492; Empl.: 60; *Sls. Mgr.:* Lorayne Beardsley

SAWTEK INC., P.O. Box 18000, Orlando, FL 32860, Tel: 305-886-8860, Telex: 514083, TWX: 810-862-0835; FSC No.: 58068; Empl.: 140 ....**1A**•1420, 1565, 1622, 1623

Local Sales Offices & Reps

AL	Huntsville, L&D Inc.	205-837-1469
AZ	Scottsdale, Faser Tech. Sls.	602-948-4404
CA	Los Altos, Cain-White & Co.	415-948-6533
CA	Van Nuys, R-L Assocs.	213-782-7826
FL	Maitland, D. J. Ellis & Assoc.	305-645-1101
GA	Atlanta, L & D	404-455-3483
IL	Palatine, R. Tek	991-222-1830
IN	Fort Wayne, R-Tek	219-432-8783
KS	Overland Park, Barnes-Midwest Sls.	913-341-9317
MD	Burtonsville, Eastern Instrmn. Corp.	301-384-8500
MN	Chanhassen, Barnes Sls. Assocs.	612-934-2907
NH	Amherst, Callahan & Tremblay Inc.	603-883-9000
NJ	East Windsor, Micro-Lambda	609-443-3113
NY	Buffalo, Quality Comps.	716-837-5430
NY	Great Neck, Phase 4 Technical Rep., Inc.	516-482-1790
NY	Manlius, Quality Comps.	315-682-8885
NC	Greensboro, L & D	919-292-3201
NC	Raleigh, L & D	919-876-5301
OH	Fairfield, Selectron Sls. Assocs.	513-829-2251
TX	Richardson, Vector Sls.	214-234-4291

SAWYER INDS., 5649 Peck Rd., Arcadia, CA 91006, Tel: 213-442-5981, TWX: 910-587-3534; FSC No.: 18098; Empl.: 167

SAXTON PRODS., 215 N. Rte. 303, Congers, NY 10920, Tel: 914-268-6848, 800-431-2774, Telex: 13-1538; FSC No.: 16164; Empl.: 130; *Sls. Mgr.:* Bill Cullen; *Dist. Mgr.:* Steve Shelley ....**2**•2144-2149

Local Sales Offices & Reps

CA	Cerritos, Saxton Prod.	213-926-5596
CA	Livermore, Reptronixx	415-443-5343
CA	Pleasanton, Electro Des.	415-846-9257
CA	San Jose, Reptronixx	408-995-6433
CA	Santee, Southwestern Mktg.	619-562-2422
CO	Denver, J & B Sls.	303-698-2211
CT	Guilford, Phil Orzell Assocs.	203-453-6488
GA	Atlanta, Atlanta Cable Sls.	404-448-6311
GA	Marietta, Consumer Mktg.	404-424-9097
IN	Angola, Waid Assocs.	219-833-3523
MA	Milford, Jonel Sales Assocs.	617-478-4650
MA	Sharon, Adcour	617-784-8123
MN	Burnsville, Strong & Assocs.	612-890-3168
MS	Jackson, Welch & Dolby	601-932-5524
NJ	Livingston, Accurate Wire & Cable	201-533-0103
NY	Mohegan Lake, Travano & De Palma Assocs.	914-245-5269; 914-968-1084
OR	McMinnville, Electro Des.	503-472-0481
PA	Collegeville, Steve Linton	215-489-9473
TX	Austin, TPC	512-443-1577
TX	Dallas, TPC	214-357-8207
VA	Arlington, Howard Golen Paul & Assocs.	703-525-5898

Local Distributors

CA	Downey, David Levy Co.	213-869-2539
CA	Montebello, Atlas Wire & Cable	213-723-2401
CA	San Jose, Sundown Sls.	408-995-6433
CT	Manchester, Inventory Mgt. Svs.	203-649-4415
CT	Meriden, New England Insulated Wire	203-204-8927
MS	Hattiesburg, Wright Elctrn.	601-545-2545
NY	Brooklyn, Ceco Comm.	212-646-1617
NC	Greenville, Pair Elctrns.	919-756-8007
PA	Broomall, Omni Cable	215-544-7766
SC	Columbia, Hesco	803-254-4575
VA	Arlington, Arlington Elctrn.	703-524-2412
VA	Leesburg, Elctrn. Wire & Cable	703-777-3551

SCANBE DIV., 3445 Fletcher Ave., El Monte, CA 91731, Tel: 213-579-2300, TWX: 910-587-3437; Empl.: 125

SCANNING DEVICES, 108 Elm St., Waltham, MA 02154, Tel: 617-891-8991; Empl.: 25; *Sls. Mgr.:* Louis Goldenberg

SCHAEVITZ ENGRG., U.S. 130, Union Ave., Pennsauken, NJ 08110, Tel: 609-662-8000, TWX: 710-892-0714; FSC No.: 93190; Empl.: 325; *Sls. Mgr.:* F. R. Pisaro

Local Sales Offices & Reps

AZ	Scottsdale, Dave Menegay Assoc.	602-994-9519
CA	Long Beach, Saber Entprs.	213-595-5646
CA	San Carlos, Elctrn. Engrg.	415-593-2189
CA	San Diego, Saber Entprs.	714-271-1523
CO	Boulder, Meas. Conslts. of CO	303-449-7506
CT	Tolland, R.G. Assoc.	203-875-4201
FL	Orlando, MicroSpec, Inc.	305-299-6508
GA	Lawrenceville, MicroSpec	404-979-3444
IL	Deerfield, Torkelson Assoc.	312-945-8700
IL	Lombard, Patrick & Douglas	312-971-1800
IN	Indianapolis, Torkelson Assoc.	317-244-7867
KS	Mission, Vertec Assoc.	913-677-3200
MI	Farmington Hills, Carter, McCormic & Peirce	313-477-7700
MI	Farmington Hills, Anderson Elctrns.	313-553-7600
MN	Minneapolis, Trask Engrg.	612-537-2434
MO	Manchester, Vertec Assocs.	314-394-6242
NJ	Cherry Hill, Ana Lectro, Inc.	609-424-2883
NM	Albuquerque, Odyssey 1	505-265-6645
NY	Latham, L-Tron Corp.	518-785-5032
NY	Rockaway Park, Metropolitan Sls.	212-634-3100
OH	Columbus, R. D. Cloon Assoc.	614-459-2890
PA	Pittsburgh, Wainwright Tech. Sls.	412-487-5055
SC	Rock Hill, MicroSpec	803-366-3015
TX	Dallas, Measurement Sys. & Sls.	214-243-5782
UT	Salt Lake City, Meas. Conslts. of UT	801-364-3174
WA	Seattle, Brett Assocs.	206-935-8054
WI	Brookfield, Torkelson Assoc.	414-784-7736
WI	Glendale, Stapleman Corp.	414-352-5777

SCHAFFNER EMC INC., Component Div., 825 Lehigh Ave., Union, NJ 07083, Tel: 201-851-0644, Telex: 685-3444; FSC No.: 201-467-1330; *Sls. Mgr.:* Thomas Pate

Local Sales Offices & Reps

AL	Brownsboro, JHU Assoc. Inc.	205-536-7455
AZ	Tuscon, Clemick & Assoc. Inc.	602-749-4003
CA	Burlingame, Jack Logan & Assoc.	415-348-8822
CA	Costa Mesa, Berman Gravley Co., Inc.	714-549-2122
CA	Fallbrook, Martronix	619-728-7678
CO	Westminster, D/Z Assoc. Inc.	303-429-9369
CT	No. Haven, Kitchen & Kutchin Inc.	203-239-0212
FL	Orlando, OEM Mktg. Corp.	305-293-7117
GA	Atlanta, JHU Assoc. Inc.	404-634-1000
MA	Burlington, Kitchen & Kutchin Inc.	617-229-2660
NJ	Teaneck, R T Reid Assoc. Inc.	201-692-0200
OH	Cleveland, Jim Finnegan & Co., Inc.	216-238-5905
OR	Portland, Harry Levinson Co.	503-245-1902
TN	Talbot, JHU Assoc. Inc.	615-581-4141
TX	Richardson, Lone Star Technlg. Inc.	214-238-2709
UT	Salt Lake City, D/Z Assoc. Inc.	801-486-4233
WA	Seattle, Harry Levinson Co.	206-382-1300

SCHAFFNER EMC INC., Instr. Div., 825 Lehigh Avenue, Union, NJ 07083, Tel: 201-851-0644, Telex: 685-3444

Local Sales Offices & Reps

CA	Fullerton, GRU Assoc.	714-738-0903
CO	Boulder, Herb Bass Assoc.	303-530-7509
IL	Elk Grove Village, Loren F. Green Assoc./Cen.	312-593-0282
IN	Indianapolis, Loren F. Green Assoc. of Indiana	317-293-9827
MI	Northville, Micro Sls. Corp.	315-459-1670
MN	Minneapolis, Loren F. Green Assoc. of Minnesota	612-571-6666
OH	Centerville, Micro Sls. Corp.	513-433-8171
OH	N. Olmstead, Micro Sls. Corp.	216-734-3080
OR	Portland, Harry Levinson Co.	503-245-1902
WA	Seattle, Harry Levinson Co.	206-382-1300

SCHAUER MFG., 4500 Alpine Ave., Cincinnati, OH 45242, Tel: 513-791-3030, Telex: 21-4576; Empl.: 195; *Sls. Mgr.:* A. A. Groenewold; *Dist. Mgr.:* Dan Shaw

SCHNEIDER INSTR., 8115 Camargo Rd., Cincinnati, OH 45243, Tel: 513-561-6803; Empl.: 23; *Sls. Mgr.:* C. A. Schneider, Pres.

SCHONSTEDT INSTR. CO., 1775 Wiehle Ave., Reston, VA 22090, Tel: 703-471-1050, TWX: 710-833-9880; Empl.: 45

SCHOTT CORP., 1000 Parkers Lk. Rd., Wayzata, MN 55391, Tel: 612-475-1173, TWX: 910-576-2964; FSC No.: 80023; Empl.: 325; *Sls. Mgr.:* A. Schmitt

SCHOTT ELCTRNS., Hershey Dr., Ansonia, CT 06401, Tel: 203-736-2677, Telex: 170 451 8911; *Sls. Mgr.:* Don Davis

SCHOTT OPTICAL GLASS INC., York Ave., Duryea, PA 18642, Tel: 717-457-7485, TWX: 510-671-4535; FSC No.: 23-169-1403; Empl.: 600; *Sls. Mgr.:* J. Nimmerfroh

SCHRACK NORTH AMERICA CORP., 76 N. Broadway, Irvington, NY 10533, Tel: 914-591-7900, Telex: 646149; Empl.: 4; *Sls. Mgr.:* Zach Zager

Schroff®
19" Systems for Electronics Packaging

SCHROFF INC., 170 Commerce Dr., Warwick, RI 02886, Tel: 401-732-3770, Telex: 952175; *Sls. Mgr.:* Thomas Kennedy ....**2**•1053

Local Sales Offices & Reps

AL	Decatur, Tenn. Tech.	205-350-0630
AZ	Scottsdale, Luscombe Engr.	602-949-9333
CA	Campbell, Luscombe Engr.	408-370-2020
CA	Pasadena, Luscombe Engr.	213-684-2000
CA	San Diego, Luscombe Engr.	619-295-4300
FL	Pompano Beach, EMA	305-943-3732
FL	Winter Park, EMA	305-671-6800
GA	Atlanta, Tenn Tech.	404-622-5784
IL	Berkeley, Cadre Tech. Rep.	312-449-3900
MI	Troy, C. B. Jensen	313-643-0506
MN	Minneapolis, D. A. Case Assoc.	612-869-3700
NH	Salem, Sales Engr.	603-893-5521
NJ	Englewood, Sprung-Nussbaum	201-569-5666
NY	Central Sqare, Bastian Sls.	315-668-2957

NY	Fairport, Bastian Sls.	716-223-0237
NY	Port Crane, Bastian Sls. Agency Inc.	607-722-3421
NC	Raleigh, Tenn Tech.	919-266-3610
OH	Aurora, EMA	216-562-6104
OH	Centerville, EMA	513-433-2800
PA	Huntington Valley, Omega Elctrn. Sls.	215-947-4135
TX	Austin, CMZ	512-255-1663
TX	Garland, CMZ	214-681-1414
TX	Houston, CMZ	713-771-1500

SCHROFF UK LTD., Maylands Ave., Hemel Hempstead, Herts, HP2 4SG, England, Tel: 0442-40471/6, Telex: 825658; *Sls. Mgr.:* Mr. B-U Kaupisch

SCHULZ CONTROLS, INC., P.O. Box 9555, New Haven, CT 06511, Tel: 203-562-2555, 800-243-4570; Empl.: 35; *Sls. Mgr.:* Paula Calabrese; *Dist. Mgr.:* Paula Calabrese

SCHURTER, INC., 1016 Clegg Ct., Petaluma, CA 94952, Tel: 707-778-6311, Telex: 176-084; FSC No.: 61935; *Sls. Mgr.:* Bruno H. Schurter

Local Sales Offices & Reps

CA	Fullerton, Gru Assocs.	714-738-0903
CA	San Jose, Ruppert Sls. & Engrg.	408-998-8717
CO	Lakewood, Cristee-Meade Co.	303-232-0287
FL	Ft. Lauderdale, IMR, Inc.	305-741-2449
IL	Arlington Hgts., MJ Petersen & Assoc., Ltd.	312-577-8200
MN	Minnetonka, Frank Anthony Mktg.	612-934-0773
MS	Jackson, Welch & Doby.	601-932-5534
NH	Nashua, Bell Controls	603-882-6984
NJ	Ho-Ho-Kus, D. J. Fisher Co.	201-652-0090
NJ	Medford, Champion Elctrn. Sls. Co.	609-983-0932
NY	Fairport, TAC Sls, Inc.	716-425-1070
OH	Beachwood, Electronic Salesmasters	216-831-9555
OR	Portland, Dussault & Associates Inc.	503-641-8780
TX	Austin, OM Sls., Inc.	512-452-1838
TX	Dallas, OM Sls., Inc.	214-241-3876
TX	Houston, OM Sls., Inc.	713-789-4426
WA	Seattle, Dussault & Associates Inc.	206-527-5454

Local Distributors

CA	San Jose, Quail Elctrns.	408-995-0812
FL	Clearwater, Elctrn. Hardware for Industry	813-577-2998
IL	Elk Grove Village, Nu-Way Elctrn. Distrbs. Inc.	312-437-7120
MD	Rockville, FIC Corp.	800-638-6594
TX	Dallas, Fuses, Inc.	214-341-6407

SCHWEITZER, DIV., Kimberly Clark Corp., Lee, MA 01238, Tel: 413-243-1000, TWX: 413-243-2121; Empl.: 750

SCIENCE ACCESSORIES CORP., 970 Kings Hwy. W., Southport, CT 06490, Tel: 203-255-1526, Telex: 964300 SAC SPRT; *Sls. Mgr.:* H. A. Cleveland

SCIENCE/ELCTRNS., 1224-26 McCook Ave., Dayton, OH 45404, Tel: 513-228-6011, Telex: 288-004; Empl.: 25; *Sls. Mgr.:* E. E. Pohl; *Dist. Mgr.:* J. Tanksley

SCIENTECH, INC., 5649 Arapahoe Ave., Boulder, CO 80303, Tel: 303-444-1361, 800-525-0522, TWX: 910-940-0994; Empl.: 57

Local Sales Offices & Reps

CA	Hayward, Avionics Liaison	415-783-1131
CA	San Jose, Scientific Spectrum	408-289-9733
CO	Englewood, SCT Sls., Inc.	303-761-2934
GA	Atlanta, Schoonover	404-396-8877
IL	Crystal Lake, Stanmatic Sls.	815-459-1741
MD	Silver Spring, SOC Assocs.	301-439-3200
NH	Deerfield, Kronk Scientific	603-463-7866
NJ	Oakland, Non-Linear Devices	201-337-0666
WA	Seattle, Avionics Liaison	206-767-3870

SCIENTIFIC-ATLANTA, INC., P.O. Box 105600, Atlanta, GA 30348, Tel: 404-441-4000, Telex: 0542898, TWX: 810-766-4912

SCIENTIFIC-ATLANTA, INC., New Jersey Div., Randolph Park W., Rte 10, Randolph Township, NJ 07801, Tel: 201-361-3100, TWX: 710-987-7946; Empl.: 100; *Sls. Mgr.:* E. Stagnitti

SCIENTIFIC-ATLANTA, INC., See Optima Enclosures

SCIENTIFIC COLUMBUS, INC., Esterline Corp., 1900 Arlingate La., Columbus, OH 43228, Tel: 614-274-7160, Telex: 245-426; Empl.: 210; *Sls. Mgr.:* Don Yore; *Dist. Mgr.:* Don Yore ....**1B**•1876, 1877

Local Sales Offices & Reps

AL	Birmingham, Spader & Assocs.	205-879-1366
AZ	Scottsdale, Young of Ariz.	602-991-9191
CA	Glendale, R. A. Young & Co.	213-242-2171
CA	S. San Francisco, Wrathall & Krusi	415-777-0226
CO	Denver, Cliff Beabout Co.	303-831-7259
FL	Orlando, RJC Assocs.	305-894-7371
GA	Decatur, Spader & Assocs.	404-296-3024
HI	Honolulu, Berkley Engrg. & Equip. Co.	808-845-9377
IL	La Grange, PVA Co.	312-579-9300
IN	Nobelsville, C. D. Arnold Co.	317-773-5821
IA	Cedar Rapids, Harry Ferris Co.	319-377-1226
IA	Des Moines, Harry E. Ferris Co.	515-255-5008
KS	Kansas City, Power Equip. Sls. Co.	913-384-3848
LA	Baton Rouge, Mid-South Sls. Co.	504-924-0106
LA	Slidell, Mid-South Sls. Co.	504-641-7480
MA	Needham Heights, Danek Assocs.	617-444-8838
MI	Troy, George R. Peters Assocs.	313-362-1220
MN	Minneapolis, Arjay Sls.	612-854-4972
MO	St. Louis, Ken Way Co.	314-567-0051
NE	Lincoln, Harry Ferris Co.	402-464-6148
NM	Albuquerque, Bryant Co.	505-843-9450
NY	Albany, Robert F. Lamb Co.	518-869-3355
NY	Buffalo, Robert F. Lamb Co.	716-874-4900
NY	Rochester, Robert F. Lamb Co.	716-544-5580
NY	Syracuse, Robert F. Lamb Co.	315-455-2469
NC	Charlotte, Robert W. Chapman & Co.	704-525-2421
NC	Greensboro, Robert W. Chapman & Co.	919-282-0740
NC	Raleigh, Robert W. Chapman & Co.	919-782-2524
OH	Cincinnati, Annett Indl. Sls.	513-271-0030
OH	Cleveland, M. A. Blankenburg & Co.	216-251-7010
OK	Tulsa, C. B. Anderson Elec. Co.	918-836-4661
OR	Portland, McLaren Inc.	503-297-2248
PA	Dylestown, The Gee Co.	215-348-3300
PA	Philadelphia, Gee Co.	215-348-3300
PA	Pittsburgh, Russell F. Clark Co.	412-242-9500
SC	West Columbia, Robert W. Chapman & Co.	803-256-0072
TN	Murfreesboro, Robert W. Chapman & Co.	615-895-1019
TX	Amarillo, C. B. Anderson Electric Co.	806-376-6443
TX	Arlington, Ev Smith Sls. Co.	817-572-2911
TX	Houston, Ev Smith Sls. Co.	713-649-5756
UT	Salt Lake City, Instrumentation Sls.	801-277-2044
VA	Alexandria, Hildenbrand Co.	703-998-0445
VA	Richmond, Robert W. Chaman & Co.	804-744-4848
WA	Bellevue, McLaren Inc.	206-454-3400
WI	Wauwatosa, T. R. Bickler Assocs.	414-784-2600

SCIENTIFIC COMMUNICATIONS, INC., 3425 Kingsley Rd., Garland, TX 75041, Tel: 214-271-3685, TWX: 910-860-5172; *Sls. Mgr.:* Donald G. Luiken

SCIENTIFIC RADIATION CORP., 1201 San Antonio Rd., Mountain View, CA 94043, Tel: 415-965-0910, Telex: 345506; *Dist. Mgr.:* James A. Lazzara

SCIENTIFIC RESEARCH CORP., See TRAK Microwave Corp.

SCIENTIFIC TECHNLG., 1201 San Antonio Rd., Mountain View, CA 94043, Tel: CA 415-965-0910, 800-221-7060, Telex: 34-5506; Empl.: 50

SCOTT AVIATION, Figgie International Inc., 123 East Montecito Ave., Sierra Madre, CA 91024, Tel: 213-355-4281

SCREENPRINT/DOW INDUSTRIES, 271 Ballardvale St., Wilmington, MA 01887, Tel: 617-935-6395, Telex: 948227; *Sls. Mgr.:* W. F. Donovan Jr.

SEABOARD ELCTRNS., 70 Church St., New Rochelle, NY 10805, Tel: 914-235-8073, Telex: 646289; Empl.: 78; *Sls. Mgr.:* Dr. Richard Ader; *Dist. Mgr.:* Dr. R. Ader

SEACLIFF TECHNOLOGY, INC., 320 Judah Street, San Francisco, CA 94122, Tel: 415-661-4800

SEACOR INC.

SEACOR, INC., 123 Woodland Ave, Westwood, NJ 07675, Tel: 201-666-5600, Telex: 135-354; Empl.: 45 ....**1A**•1183

Local Sales Offices & Reps

AZ	Scottsdale, Arcom Sales	602-947-5745
CA	Santa Ana, Seacor West	714-641-4040
IL	Skokie, Mar-Con	312-675-6450
MI	Farmington, Amtech Reps.	313-474-8300
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
NY	Rochester, Sweetco	716-225-2383
NY	Utica, Sweetco Assoc.	315-797-6721
OH	Northfield, Val-Skol Sls.	216-467-1392
PA	King of Prussia, D. Freedman	215-279-5767
TN	Chattanooga, Dimark	615-892-7630
TN	Greenville, Dimark	615-639-0113
TX	Cypress, Wessco Prods.	713-469-7814
TX	Garland, Wessco Prods.	214-530-8857
PR	San Juan, David S. Ternent	809-762-2688

Local Distributors

AZ	Tempe, T.T.I	602-966-1616
CA	Burbank, TAW Elctrns.	213-846-3911
CA	Cypress, On-Line Elect.	714-826-8200
CA	Garden Grove, Natl. Cap. Supp.	800-854-2451
CA	San Diego, Sigma Elctrns.	619-565-2000
CA	Santa Clara, California Capacitor	408-980-8495
CT	Stratford, Utronics	203-378-4201
IL	Chicago, Bell Indus.	312-982-9210
MD	Beltsville, Resco/Wash.	301-937-9100
MA	Burlington, TLC	617-273-0140
MA	N. Chelmsford, Pilgrim Elect.	617-251-8746
MA	Needham, Cronin	617-449-0500
MI	Westland, Westland Elctrns.	
MN	Minneapolis, The Joel Corp.	612-545-5669
NY	Farmingdale, SAI	516-293-2710
NY	Lynbrook, Varitech Elctrns.	516-593-9300
OH	Cleveland, Roberts Elctrns.	
OK	Pryor, Combined Technology	918-825-5715
PA	Philadelphia, Jan Indl. Elec.	215-922-1321
TX	Addison, Captronics	214-980-0123
TX	Austin, Captronics	512-459-4328
TX	Ft. Worth, Allied Elect.	817-336-5401
TX	Ft. Worth, T.T.I	817-831-0441
TX	Houston, Captronics	713-776-2100

SEA DATA CORP., One Bridge St., Newton, MA 02158, Tel: 617-244-3216, Telex: 951107; Empl.: 40; *Sls. Mgr.:* W. Hill

SEALECTRO, 225 Hoyt St., Mamaroneck, NY 10543, Tel: 914-698-5600; Empl.: 1600; *Sls. Mgr.:* T. Lynn; *Dist. Mgr.:* N. Buonanno ....**2**•1561

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Phoenix, M/R Engrg.	602-956-4670
CA	Carlsbad, Addem Elctrns.	619-729-9216
CA	Manhattan Beach, Sealectro West	213-318-3326
CA	Mountain View, Sealectro West	415-965-1212
CO	Denver, Spectrum Sls.	303-696-1601
FL	Orlando, OEM Mktg.	305-299-1000
GA	Norcross, Montgomery Mktg.	404-447-6124
ID	Boise, N. R. Schultz	208-377-8686
IL	Arlington Hgts., Diethert-Angel	312-593-7600
KS	Overland Park, Advanced Tech. Sls.	913-642-6675
MD	Rockville, Mechtronics Sls.	301-340-2130
MO	Ellisville, Advanced Tech. Sls.	314-227-4448
NH	Salem, Sls. Engrg.	603-893-5521
NJ	Marlton, BGR Assocs.	609-428-2440
NY	Mt. Vernon, Friedman-Smith	914-664-4866
NY	Syracuse, I. A. Hotze Assoc.	315-479-6641
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Columbus, McFadden Sls.	614-459-1280
OR	Beaverton, N. R. Schultz	503-643-1644
TX	Dallas, Allied Comps.	214-238-0408
WA	Bellevue, N. R. Schultz	206-454-0300

Local Distributors

AL	Huntsville, Powell Elctrns.	205-539-2731
AL	Huntsville, Pioneer Elctrns.	205-837-9300
AZ	Phoenix, R. V. Weatherford	602-272-7144
CA	Glendale, R. V. Weatherford	213-849-3451
CA	San Jose, Powell Elctrns.	408-943-9020
CA	Sunnyvale, R. V. Weatherford	408-738-8694
FL	Altamonte Springs, Pioneer/Fla.	305-834-9090
FL	Ft. Lauderdale, Powell Elctrns.	305-979-5000
IN	South Bend, Genesis Elctrns.	219-287-2911
IA	Cedar Rapids, Deeco	319-365-7551
KS	Wichita, Radio Supp.	316-267-5213
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Columbia, Powell Elctrns.	301-995-0410
MD	Gaithersburg, Pioneer Elctrns.	301-921-0660
MA	Burlington, Milgray Elctrns.	617-272-6800
MA	Westboro, Powell Elctrns.	617-366-6100
MN	Minneapolis, Indl. Comps.	612-831-2666
MO	Maryland Hgts., L Comp	314-291-6200
NJ	Kenilworth, Federated Purchaser	201-272-0505
NY	Bohemia, Car Lac Elctrns.	516-567-4200
NY	Buffalo, Summit Distrs.	716-884-3450
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Rochester, Summit Distrs.	716-334-8110
NC	Charlotte, Pioneer Elctrns.	704-527-8188
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Solon, Repco Elctrns.	216-248-8900
PA	Horsham, Pioneer/Delaware Valley	215-674-4000
PA	Philadelphia, Powell Elctrns.	215-365-1900
TX	Dallas, Pioneer/Dallas	214-386-7300
TX	Dallas, R. V. Weatherford	214-931-7333
WA	Seattle, R. V. Weatherford	206-575-1340

EALTRON, INC., 9705 Reading Road, Cincinnati, OH 45215, Tel: 513-733-8400

EASTROM MFG. CO., INC., 701 Sonora Ave., Glendale, CA 91201, Tel: 818-245-9121, TWX: 910-497-2271; FSC No.: 86928; Empl.: 75

EATTLE COMPUTER PRODUCTS, INC., 1114 Ind. Dr., Seattle, WA 98188, Tel: 206-575-1830, 800-426-8936; *Sls. Mgr.:* Max Gerdts

ECURITY PLASTICS INC., 14427 N.W. 60th Ave., Miami Lakes, FL 33014, Tel: 305-823-5440, Telex: 803303; Empl.: 350; *Sls. Mgr.:* J. Licht

SEIKO INSTRUMENTS

SEIKO INSTRS. U.S.A., INC., 2990 W. Lomita Blvd., Torrance, CA 90505, Tel: 213-530-8777, TWX: 910-347-7307; *Sls. Mgr.:* John Hawkins, Lee Guio; *Dist. Mgr.:* Lee Guio, John Hawkins .... **1A**•1421; **1B**•1095; **3**•1091

Local Sales Offices & Reps

AL	Huntsville, Electro-Mech	205-533-2100
AZ	Scottsdale, Fred Board Assocs.	602-994-9388
CA	Los Alamitos, Santana Sls.	714-827-9100
CA	San Diego, SR Elctrns.	619-560-8330
CA	Santa Clara, Quorum Tech. Sls.	408-980-0812
CT	Madison, Forsberg Sls.	203-245-4314
FL	Clearwater, Gallagher & Assocs.	813-726-3187
FL	Plantation, Gallagher & Assocs.	305-473-2101
GA	Atlanta, Electro-Mech	404-447-6478
IA	Cedar Rapids, Coombs Assocs.	319-362-4116
KS	Overland Park, Kebco	913-541-8431
KS	Wichita, Kebco	316-733-1301
MD	Annapolis, Vince Iorio Assocs.	301-261-1716
MA	Brockton, Forsberg Sls.	617-522-6300
MI	Grosse Pointe Pk., Greiner Assoc.	313-499-0188
MN	Bloomington, Quantum Sls.	612-884-4700
MO	Maryland Hgts., Kebco	314-576-4111
NM	Albuquerque, Fred Board Assocs.	505-293-1399
NY	Kingston, R. P. Kennedy Co.	914-876-2700
NY	Rochester, R. P. Kennedy Co.	716-271-6322
NY	Rochester, R. P. Kennedy Co.	607-271-6322
OH	Akron, Imtech	216-666-1185
OH	Dayton, Imtech	513-278-6507
OR	Tigard, Components West	503-684-1671
PA	Broomall, TCA Assocs.	215-353-2022
TN	Nashville, Electro-Mech	615-753-5841
TX	Austin, TL Mktg.	512-453-4586
TX	Dallas, TL Mktg.	214-357-1752
WA	Redmond, Components West	206-885-5880

Local Distributors

AL	Huntsville, Contact Elctrns.	205-881-9321
AZ	Phoenix, Sterling Elctrns.	602-268-2121
CA	Santa Ana. Pacesetter Elctrns. USA	714-557-7131
CA	Sunnyvale, Pacesetter Elctrns. USA	408-734-5470
CA	Walnut, A.C.I. Elctrns. Corp.	213-331-0735
CO	Denver, A.C.T.	303-422-9229
CT	Wallingford, Sterling Elctrns.	203-265-9535
LA	Metairie, Sterling Elctrns.	504-887-7610
MD	Middletown, Current Comps.	301-473-5333
MA	Waltham, Sterling Elctrns.	617-894-6200
MA	Woburn, A.C.I. Elctrns. Corp.	617-935-7230
MO	St. Louis, Ric-Tronics	314-576-9816
NJ	Perth Amboy, Sterling Elctrns.	201-442-8000
NM	Albuquerque, Sterling Elctrns.	505-884-1905
NY	Plainview, A.C.I. Elctrns. Corp.	516-293-6630
OK	Tulsa, Sterling Elctrns.	918-663-2410
OR	Lake Oswego, Moore Elctrns.	503-684-3100
TX	Austin, Sterling Elctrns.	512-836-1341
TX	Dallas, Sterling Elctrns.	214-243-1600
TX	Houston, Sterling Elctrns.	713-627-9800
UT	Salt Lake City, A.C.T.	801-487-8131
VA	Richmond, Sterling Elctrns.	804-226-2190
Can	Downsview, Westburne Indl. Entprs.	416-635-2950

SEIKO INSTRUMENTS U.S.A., INC., Robotics/Automation Div., 2990 W. Lomita Blvd., Torrance, CA 90505, Tel: 213-530-8777; *Sls. Mgr.:* John Dudley

SEKAI ELCTRNS. OF AMER., INC., 14700 E. Firestone Blvd., Suite 122, La Mirada, CA 90638, Tel: 714-670-1854, Telex: 685521; FSC No.: 8V398; Empl.: 4; *Sls. Mgr.:* Larry Klementowski

SELCO PRODUCTS CO., 7580 Stage Rd., Buena Park, CA 90621, Tel: 714-521-8673, Telex: 65-5457; Empl.: 18; *Sls. Mgr.:* Bill Wilkinson; *Dist. Mgr.:* Ray McDowell

SELEC-KEY, Microdot, 302 Roma Jean Pkwy., Streamwood, IL 60103, Tel: 312-837-7970; *Sls. Mgr.:* Charles Stelzner

SEL-REX DIV., OMI Intl. Corp., 75 River Rd., Nutley, NJ 07110, Tel: 201-667-5200, Telex: 133-320, TWX: 710-989-1423; Empl.: 250; *Sls. Mgr.:* Larry Price

SEMCO, Rte. 6, No. Windham, CT 06226, Tel: 203-423-6316; *Sls. Mgr.:* Alan Giordano

SEMICOA, 333 McCormick Ave., Costa Mesa, CA 92626, Tel: 714-979-1900, Telex: 678-315, TWX: 910-595-1961; FSC No.: 34156; Empl.: 65; *Sls. Mgr.:* Mark Ellsberry

SEMICON, 10 North Ave., Burlington, MA 01803, Tel: 617-272-9015, TWX: 710-332-1919; Empl.: 550; *Sls. Mgr.:* Tom Le Blanc; *Dist. Mgr.:* L. Le Bow

SEMICONDUCTOR
CIRCUITS, INC.

SEMICONDUCTOR CIRCUITS, 49 Range Rd., Windham, NH 03087, Tel: 603-893-2330, TWX: 710-366-0505; Empl.: 500; *Sls. Mgr.:* Steven Troscianecki; *Dist. Mgr.:* Marc Gauthier .... **3**•1759-1766

Local Sales Offices & Reps

AL	Huntsville, Remco	205-533-3763
AZ	Scottsdale, Sls. Engrg.	602-994-3230
CA	Milpitas, Lee/Allan Assocs.	408-946-8300
CA	San Diego, Tauber & Associates	619-274-7242
CA	Thousand Oaks, SC³	805-496-7307
CA	Tustin, SC³	714-731-9206
CO	Denver, Component Sls.	303-759-1666
CT	Westport, Compass Technology, Inc.	203-222-1787
FL	Ft. Meyers, Rainbow Sales, Inc.	813-332-2210
FL	Melbourne, Rainbow Sls. Inc.	305-259-6692
GA	Atlanta, Remco	404-447-6937
IL	Des Plaines, Janus	312-298-9330
IN	Fort Wayne, Wilson Technical Sales	219-424-5288
IN	Indianapolis, Wilson Tech. Sls.	317-298-3345
IA	Des Moines, The Beams Company	515-255-1148
KS	Shawnee Mission, The Beams Company	913-631-0300
MD	Baltimore, Micro Comp.	301-247-0400
MA	Woburn, Compass Technology, Inc.	617-933-3336
MI	Brighton, A.P. Associates	313-299-6550
MN	Minneapolis, Northstar Comps.	612-553-1888
MO	St. Louis, The Beams Company	314-434-8448
NJ	Livingston, Varrelman-Gorman Co.	201-992-2505
NY	Clark Mills, KLM Garner	315-853-6126
NY	North Syracuse, KLM Garner	315-458-6214
NY	Pittsford, KLM Garner	716-381-8350
NC	Raleigh, Remco	919-847-5079
OH	Dayton, J.C. Hofstetter Co.	513-296-1010
OH	Medina, J.C. Hofstetter Co.	210-241-4880
OK	Tulsa, Southern States Mktg.	918-665-8338
PA	Hickory, J.C. Hofstetter Co.	412-356-2305
PA	King of Prussia, KSI	215-783-6400
TX	Austin, Southern States Mktg.	512-473-2741
TX	Houston, Southern States Mktg.	713-988-0991
TX	Richardson, Southern States Mktg.	214-238-7500
UT	Salt Lake City, Component Sls.	801-466-8623
WA	Maple Valley, Electronic Sls. N.W.	206-432-1002
WI	Milwaukee, Janus	414-476-9104

Local Distributors

CA	Milpitas, Power Systems Distrs.	408-946-8300
GA	Atlanta, Trans-Southern Elctrns.	404-451-4425
IL	Elk Grove Village, GBL/Goold Elctrns.	312-593-3222
IN	Carmel, Altex Elctrns.	317-848-1323
MD	Baltimore, MPI	800-368-2527
MA	Wellesley Hills, Target Elctrn. Supp.	617-235-2545
MI	Brighton, A.P. Sales, Inc.	313-229-6550
NY	Rochester, Simcona Elctrns.	716-328-3230
OR	Lake Oswego, Moore Elctrns.	503-684-3100
TX	Stafford, Southwest Elctrns.	713-240-4000

SEMICONDUCTOR PACKAGING MATLS. CO. INC., 700 Waverly Avenue, Mamaroneck, NY 10543, Tel: 914-698-5353, TWX: 710-566-1103

SEMICONDUCTOR TECHNLG., INC., 3131 S.E. Jay St., Stuart, FL 33494, Tel: 305-283-4500, TWX: 510-953-7511; Empl.: 45

SEMIKRON INTL., INC., 11 Executive Dr., P.O. Box 66, Hudson, NH 03051, Tel: 603-883-8102, TWX: 710-228-1494; FSC No.: 58687; Empl.: 40; *Sls. Mgr.:* Frank Haase

Local Sales Offices & Reps

AL	Huntsville, Remco	205-533-3763
AZ	Phoenix, Trembly Assocs.	602-967-2058
CA	Downey, Trimarco	213-861-8244
CA	Redwood City, Ault Assocs.	415-367-1710
CO	Denver, Trembly Assocs.	303-233-9544
FL	Oldsmar, Boggs & Assocs.	813-855-1812
GA	Atlanta, Remco	404-447-6937
HI	Honolulu, Aloha Assocs.	808-951-1574
IL	Chicago, Ropek, Cahill & Vogt	312-631-0070
KS	Kansas City, Harris-Hanson Co.	816-763-6200
MI	Detroit, Favco	313-644-0173
MN	Eden Prairie, Bohlig & Assocs.	612-944-8404
MO	St. Louis, Harris-Hanson Co.	314-432-3611
NV	Las Vegas, Trembly Assocs.	702-369-8700
NH	Hudson, Eva-Tec Mktg.	603-888-7478
NM	Albuquerque, Trembly Assocs.	505-266-8616
NY	Albany, H.C. Johnson Agencies	518-459-1239
NY	Buffalo, H. C. Johnson Agencies	716-632-7880
NY	Rochester, H. C. Johnson Agencies	716-586-0777
NC	Raleigh, Remco	919-847-5079
OH	Dayton, Cleary Sls. Co.	513-890-8642
OH	Hamilton, B & J Entprs.	513-863-1353
OR	Portland, Doran Sls. Assocs.	503-357-3333
PA	Pittsburgh, Electrosystems Sls.	412-468-8811
TX	Kingwood, Coulomb Elctrns. & Assocs.	713-358-9595
UT	Salt Lake City, Trembly Assocs.	801-486-5292
WA	Seattle, Doran Sls. Assocs.	206-885-1885

Local Distributors

MI	Detroit, Osborne Transformer Co.	313-368-4136
NJ	Roselle, Lectron Inds.	201-245-5858
NC	Gastonia, JMT Elctrns. & Controls	704-867-4401
WA	Seattle, Pacific Elctrns.	206-575-1050

SEMTECH, 652 Mitchell Rd., Newbury Park, CA 91320, Tel: 213-628-5392, TWX: 910-336-1264; FSC No.: 14099; Empl.: 350

SENCORE, 3200 Sencore Dr., Sioux Falls, SD 57107, Tel: 605-339-0100, TWX: 910-660-0300; Empl.: 250

SENSITEK CORPORATION, 1000 Lincoln Drive, Marlton, NJ 08053, Tel: 609-983-3600, TWX: 710-897-1648; *Sls. Mgr.:* E. F. Bickel

Sensitive
Research

SENSITIVE RESEARCH INSTRS., 25 Dock St., Mt. Vernon, NY 10550, Tel: 914-699-9717; FSC No.: 32590; Empl.: 35 .... **3**•1296-1298

Local Sales Offices & Reps

AZ	Scottsdale, Williams Assocs.	602-947-4297
CO	Commerce City, Williams Assocs.	303-289-5647
DC	Washington, Whitcomb Assocs.	202-737-0763
IL	Lincolnwood, Saffro & Assocs.	312-677-9720
KS	Shawnee Mission, Comtel - Midwest	913-722-1030
MD	Baltimore, Whitcomb Assocs.	301-889-1245
MA	Lexington, Zieco	617-861-8300
MI	Southfield, Comtel Instrs. Co.	313-358-2505
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
MO	St. Louis, Comtel - Midwest	314-991-5363
NM	Albuquerque, Williams Assocs.	505-255-1638
NY	Mount Vernon, Elctrl. Instr. Svc.	914-699-9717
OH	Cleveland, Comtel Instrs. Co.	216-442-8080
OH	Dayton, Comtel Instrs. Co.	513-298-7573
OH	Hilliard, Comtel Instrs. Co.	614-876-8305
OK	Tulsa, Data Mktg. Assocs.	918-438-4911
PA	Pittsburgh, Comtel Instrs. Co.	412-922-5720
TX	Austin, Data Mktg. Assocs.	512-451-5174
TX	Dallas, Data Mktg. Assocs.	214-661-0300
TX	Houston, Data Mktg. Assocs.	713-780-2511
TX	San Antonio, Data Mktg. Assocs.	512-342-3031
UT	Salt Lake City, Williams Assocs.	801-532-7701
WI	Lake Mills, Saffro & Assocs.	414-648-2605

SENSOR CORP., Box 140, Scottdale, PA 15683, Tel: 412-887-4080; Empl.: 6

SENSOR ELECTRONICS, INC., 105 Fairway Terrace, Mt. Laurel, NJ 08054, Tel: 609-778-0850; *Sls. Mgr.:* J. M. Langberg; *Dist. Mgr.:* J. M. Langberg

SENSOR SCIENTIFIC, INC., 1275 Bloomfield Ave., Fairfield, NJ 07006, Tel: 201-227-7790; *Sls. Mgr.:* Bob Brinley

SENSOR SYSTEMS, INC., 8929 Fullbright Ave., Chatsworth, CA 91311, Tel: 818-341-5366, Telex: 69-1583; *Sls. Mgr.:* E. Schneider

SENSORTEK, INC., 154 Huron Ave., Clifton, NJ 07013, Tel: 201-779-5577; Empl.: 24

SENSOR TECHN., 21012 Lassen St., Chatsworth, CA 91311, Tel: 213-882-4100, TWX: 910-494-4776; Empl.: 350; *Sls. Mgr.:* Robert Bryden

SENSOTEC INC., 1200 Chesapeake Ave., Columbus, OH 43212, Tel: 614-486-7723, TWX: 810-482-1188; FSC No.: 29927; *Sls. Mgr.:* Jack Feil

SENSYM, INC., 1255 Reamwood Ave., Sunnyvale, CA 94089, Tel: 408-744-1500, Telex: 176376, TWX: 910-339-9625; *Sls. Mgr.:* Joe Fijak; *Dist. Mgr.:* Joe Fijak

SENTRY MFG., Crystal Park, Chickasha, OK 73018, Tel: 405-224-6780, 800-654-8850, TWX: 910-830-6425; Empl.: 150; *Sls. Mgr.:* R. Stephens

SEQUENTIAL INFO. SYS., 249 N. Saw Mill River Rd., Elmsford, NY 10523, Tel: 914-592-5930, TWX: 710-567-1212; Empl.: 90; *Sls. Mgr.:* Murray E. Vinarub

Local Sales Offices & Reps

AL	Jasper, Smith Lake Automation	205-221-2492
CA	Campbell, Sedillo Co.	408-374-5220
CA	Huntington Beach, Wheatcroft Engrg.	714-964-4681
HI	Honolulu, Aloha Assocs.	808-941-1574
IL	Schaumberg, Control Sys. Research	312-228-8061
MA	Bedford, Datasource	617-275-8460
MI	Detroit, Automatic Controls	313-533-8890
MN	Minneapolis, Busch Elctrns.	612-835-2044
MO	St. Louis, Prod. Automation	314-441-6600
NJ	Point Pleasant, A. Ackerman (E. Reg. Sls. Mgr.)	201-295-2737
NY	Elmira, Powertrain	607-962-3291
OH	Cincinnati, J. W. Murray	513-574-8500
OH	Cincinnati, J.W. Murray	513-574-8500
OH	Cleveland, Automatic Controls	216-631-0333
PA	King of Prussia, Freedman & Malta	215-337-9211
TX	Houston, Scientific Sls.	713-460-9170
TX	Richardson, Scientific Sls.	214-231-6541
VA	Springfield, Mid-States Mktg.	703-569-2661
WA	Seattle, Penryn Sls. & Engrg.	203-783-4334
WI	Shorewood, Werking Indl. Sls.	414-964-2225

SERIAL LAB PRODS., INC., 50 Brigham St., P.O. Box 766, Marlboro, MA 01752, Tel: 617-481-1684, Telex: 955318 Attn: SERIAL LAB; Empl.: 12; *Sls. Mgr.:* R. L. Wiedeman; *Dist. Mgr.:* D. Kreck

Local Sales Offices & Reps

CA	San Carlos, Electronic Engrg. Assocs.	415-593-2189
CT	Hamden, Digital Sls. Assocs.	203-248-3641
FL	Indian Rocks Beach, Par Assocs.	813-596-8841
GA	Atlanta, Par Assocs.	404-448-4181
IL	Chicago, Electro Tech Mktg.	312-588-4535
MD	Gaithersburg, Wright Mktg. Co. Ltd.	301-840-1928
MA	Waltham, Digital Sls. Assocs.	617-899-4300
MN	Minneapolis, Deerland Distrs.	612-331-6433
MO	Grandview; Digital Systems Sls.	816-765-3337
TX	Houston, Dalton Systems	713-556-1216
TX	Lewisville, Dalton Systems	214-221-5611
WI	Milwaukee, Deerland Distrs.	414-258-7660

SERMETEL, 155 Limerick Rd., Limerick, PA 19468, Tel: 215-948-5100, Telex: 84-6335, TWX: 710-637-1263; Empl.: 177; *Sls. Mgr.:* Luke McLaughlin

SERVO-INSTRS. CORP., See Valley Electromagnetics

SERVOMETER CORP., 501 Little Falls Rd., Cedar Grove, NJ 07009, Tel: 201-785-4630; FSC No.: 18469; Empl.: 105; *Sls. Mgr.:* D. Walker

SERVO-TEK PRODS. CO., 1086 Goffle Rd., Hawthorne, NJ 07506, Tel: 201-427-3100; Empl.: 86; *Sls. Mgr.:* J. Duffy .... **1B**•1177

Local Sales Offices & Reps

AZ	Fountain Hills, Halbar Assocs.	602-837-2464
CA	Glendale, Halbar Assocs.	213-246-8263
CA	San Mateo, Halbar Assocs.	415-349-4700
CO	Denver, Anderson Controls	303-692-0290
DC	Washington, Automation Indl. Control	301-944-8400
FL	Orlando, Seybert Sls.	305-299-6508
GA	Lawrenceville, MicroSpec	404-979-3444
IL	Hinsdale, Patton Sls.	312-325-2170
IN	Ft. Wayne, Aktron Corp	219-747-3650
MA	Salem, Forbes Engrg Sales	617-744-1693
MN	St. Paul, Northstar Motion & Control	612-770-5311
OH	Chagrin Falls, K. F. Nauerz Co.	216-338-8450
OH	Cincinnati, Drivex Corp.	513-474-5100
OR	Beaverton, Halbar Assoc.	503-226-0451
SC	Rock Hill, Johnson Sls.	803-366-3015
TN	Knoxville, Stephenson Controls & Sys.	615-588-7474
VA	Richmond, Automation Indl. Control	804-741-3253
WA	Redmond, Halbar Assocs.	206-882-0990

SETRA SYSTEMS, INC., 45 Nagog Park, Acton, MA 01720, Tel: 617-263-1400, Telex: 948440; FSC No.: 53367; Empl.: 65; *Sls. Mgr.:* William R. Stern

Local Sales Offices & Reps

AL	Huntsville, Burnette Techno Metrics	205-533-9073
CA	Los Altos, Qcon, Inc.	415-941-5530
CA	Los Angeles, Dynasales Co.	213-268-1175
CO	Westminster, RMS Sls.	303-429-1111
FL	Orlando, Datarep	305-843-5224
GA	Atlanta, Craft Assocs.	404-256-0420
IL	Chicago, Data Elctrns.	312-283-0300
IN	Indianapolis, Data Elctrns.	317-359-5368
LA	Metairie, Slaton & Assocs. Inc.	504-455-3855
MA	Framingham, J. M. Lancaster Co.	617-875-8893
MI	Hazel Park, Tiby Co.	313-547-3550
MN	Plymouth, Data Elctrns.	612-559-1434
MO	St. Louis, Adelphi, Inc.	314-821-1232
NJ	Cedar Grove, KLS Assocs.	201-785-4450
NY	E. Rochester, A&D Devices	716-385-2778
OH	Cleveland, Tiby Co.	216-371-5335
OH	Tulsa, Inotek Corp.	918-622-8570
OR	Portland, McLaren, Inc.	503-297-2248
PA	Cheltenham, Stein Instrumentation	215-379-1990
TX	Dallas, Inotek Corp.	214-243-7000
TX	Houston, Inotek Corp.	713-688-7000
WA	Bellevue, McLaren, Inc.	206-454-3400

SEVEN MOUNTAINS SCI. INC., P.O. Box 650, Boalsburg, PA 16827, Tel: 814-466-6559; Empl.: 4; *Sls. Mgr.:* Josephine Chesworth

SFE TECHNOLOGIES, 1501 1st St., San Fernando, CA 91341, Tel: 213-365-9411, TWX: 910-496-1535; FSC No.: 96733; Empl.: 2000; *Sls. Mgr.:* J. Lucia; *Dist. Mgr.:* J. Lucia

SGL ELECTRONICS, 300 Harvard Ave., Westville, NJ 08093, Tel: 609-456-7300, TWX: 710-944-0758; Empl.: 60; *Sls. Mgr.:* Dan Holdstein

Local Sales Offices & Reps

AZ	Phoenix, Conductors & Dielectrics, Inc.	602-263-0042
CA	S. Pasadena, Deniston/JDA	213-289-2844
CA	San Francisco, Conductors & Dielectrics, Inc.	415-494-1044
FL	St. Petersburg, K-Square	813-381-1893
IL	Hanover Park, J. R. Ripley Assocs.	312-289-5365
MA	Newton Upper Falls, Anchor Engrg. Corp.	617-964-6205
MN	Minneapolis, Charles D. Atwater Assoc.	612-925-1672
NJ	Berkeley Heights, Cambridge Allen	201-464-0203
NY	Camillus, Ontec Elctrn. Mktg. Inc.	315-672-5626
NY	New York, Cambridge Allen Assoc.	212-592-6361
NY	Rochester, Ontec Elctrn. Mktg. Inc.	716-464-8636
NY	Wappingers Falls, Ontec Elctrn. Mktg. Inc.	914-462-7188
NC	Garner, Candor Co.	919-876-4999
OH	Akron, Augnat Assocs.	216-239-1621
OR	Portland, Conductors & Dielectrics, Inc.	503-242-1456
SC	Myrtle Beach, Candor Co.	803-448-8361
TX	Dallas, Southwest Elctrn. Inds.	214-690-9881
TX	Houston, Dunkel Elctrns. Assoc.	713-729-1670
WA	Seattle, Conductors & Dielectrics, Inc.	206-282-5032

SGL HOMALITE, Div. of SGL Inds., 11 Brookside Dr., Wilmington, DE 19804, Tel: 302-652-3686, TWX: 510-666-3450; Empl.: 70; *Sls. Mgr.:* R. L. Quell

SGL INDUSTRIES, 76 Euclid Ave, Haddonfield, NJ 08033

SGL PLASTICS, Route 248, Nazareth, PA 18064, Tel: 215-759-0280; Empl.: 60; *Sls. Mgr.:* W. Tomko

SGL PRINTED CIRCUITS, 827 Black Oak Ridge Rd., Wayne, NJ 07470, Tel: 201-835-2765; Empl.: 34; *Sls. Mgr.:* R. J. Puzo

SGL WABER®

SGL WABER, 300 Harvard Ave., Westville, NJ 08093, Tel: 609-456-5400, 800-257-8384; Empl.: 170; *Sls. Mgr.:* R. C. Waldron .... **2**•1864; **3**•1909

Local Sales Offices & Reps

AL	Huntsville, Hollingsworth & Still	205-859-5562
CA	Burlingame, Carelli-EMA	415-342-5546
CA	Gardena, Ungar Sls. Assocs.	213-538-281
CO	Denver, Walter Engrg.	303-777-558
FL	Miami, Hollingsworth & Still	305-431-163
FL	Orlando, Hollingsworth & Still	305-859-942
FL	Winter Park, Hollingsworth & Still	305-678-285
GA	Norcross, Hollingsworth & Still	404-447-170
HI	Honolulu, Lee Gabor Co.	808-536-245
IL	Northbrook, Wm. M. Linz Assocs.	312-498-960
IN	Indianapolis, Robert Milsk Co.	317-842-340
MD	Silver Spring, David S. Linz Co.	301-593-247
MA	Scituate, K. J. Walsh & Assocs.	617-545-314
MI	Southfield, Robert Milsk Co.	313-354-331
MN	Minneapolis, Hei-Lite Sls.	612-861-605
MO	Blue Springs, Kathrinus-Kelly-Baumhauer	816-229-000
MO	St. Louis, Kathrinus-Kelly-Baumhauer	314-627-240
NM	Albuquerque, C. T. Carlberg & Assocs.	505-888-388
NY	Rochester, Warren Kaufman & Assocs.	716-266-272
NY	Whitestone, Jack Brown Sls.	212-769-197
NC	Kernersville, Hollingsworth & Still	919-996-462
OH	Beachwood, Elctrn. Salesmasters	216-831-955
OR	Beaverton, Wm. J. Purdy Co.	503-641-937
PA	Philadelphia, David S. Linz Co.	215-379-0734
PA	Pittsburgh, Covert & Newman Co.	412-531-200
TX	Dallas, Forner Sls. Co.	214-241-216
WA	Redmond, Wm. J. Purdy Co.	206-882-3144

Local Distributors

AL	Huntsville, Mock Elctrns.	205-539-2401
AZ	Phoenix, Parts Elctrn.	602-258-647
AZ	Tucson, Inland Elect.	602-889-5301
AR	Little Rock, Carlton Bates Co.	501-562-910
CA	Berkeley, Al Lasher's Dealer Elect.	415-843-591
CA	Canoga Park, Sandy's Elctrn. Supp.	213-346-8353
CA	Costa Mesa, MarVac Elctrns.	714-540-3280
CA	El Monte, Claude Michael	213-696-0141
CA	Fullerton, Orvac Elctrns.	714-871-1020
CA	Gardena, California Switch & Signal	213-770-2330
CA	Glendale, Western Elctrns.	213-246-4861
CA	Hollywood, Pacific Radio Exch.	213-462-1393
CA	Hollywood, Yale Radio	213-465-3186
CA	Mountain View, Abacus Elctrns.	415-961-1500
CA	Oakland, Brill Elctrns.	415-834-5888
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Pasadena, Dow Radio	213-793-1195
CA	Riverside, Electronic Supp.	714-836-7300
CA	San Diego, Shanks & Wright	714-239-0176
CA	San Francisco, Zack Elctrns.	415-626-1444
CA	San Jose, Quement Elctrns.	408-998-5900
CA	Sunnyvale, Com-Kyl	408-734-9660
CO	Denver, Denver Wintronics	303-934-2406
CO	Denver, Elctrn. Parts	303-744-1992
CT	Stamford, Mar Le Co.	203-348-2645
CT	Waterbury, Suburban Supp.	203-757-1251
FL	Miami, Elctrn. Equip.	305-871-3500
FL	Miami, ESL Elctrn. Distrs.	305-633-6973
FL	Orlando, Hammond Elctrns.	305-849-6060
FL	Pensacola, Grice Elctrns.	904-434-2481
GA	Atlanta, Ack Radio Supp.	404-351-6340
GA	Atlanta, Specialty Distrib.	404-873-2521
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Elk Grove Village, GBL Elctrns.	312-593-3220
IL	Niles, Joseph Elctrns.	312-297-4200
IL	Northbrook, Classic Comps.	312-272-9650
IL	Palatine, Ohm Elctrns.	312-359-5500
IL	Peoria, Klaus Radio & Elctrns.	309-691-4840
IL	Rockford, Mid-West Associated	815-962-8036
IN	East Chicago, Acro Elctrns.	312-357-1269
IN	Ft. Wayne, Ft. Wayne Elctrns.	219-423-3422
IN	Indianapolis, Meunier Elect.	317-635-3511
IN	Indianapolis, Radio Distrib.	317-257-2231
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Terre Haute, Midwest Supp. Elec.	812-232-0187
KY	Lexington, Radio Elctrn. Equip.	606-255-6661
KY	Louisville, P.I. Burks Co.	502-589-3960
KY	Louisville, Peerless Elctrn. Equip.	502-637-7674
LA	Lafayette, Ralphs of Lafayette	318-234-4507
LA	Shreveport, Industrial Elect.	318-222-9459
MD	Baltimore, Radio Elctrn. Svc. Co.	301-823-0700
MD	Baltimore, ASI Elctrns.	301-265-5100
MD	Gaithersburg, Pioneer/Wash. Elect.	301-948-0710
MD	Rockville, Capitol Radio Whlsrs.	301-881-2270
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Lynn, Land Elec. Supp.	617-592-2220
MA	Needham, You-Do-It Elctrns.	617-449-1005
MA	Newton Upper Falls, In-Stock Prods. Co.	617-964-6200
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	W. Newton, A. W. Mayer Co.	617-965-1111
MI	Ann Arbor, Wedemeyer Elect. Supp	313-665-8611
MI	Detroit, RS Elctrns	313-491-1012
MN	Minneapolis, Stark Elctrns.	612-332-1325
MN	Minneapolis, Electronics Ctr.	612-371-5200
MS	Jackson, Ellington Elect. Supp.	601-355-0561
MO	Kansas City, Electronic Supp. Co.	816-921-0250

O	Kansas City, Walters Radio Supp.	816-531-7015
O	St. Louis, Van Sickle Radio	314-621-5000
O	St. Louis, Olive Indl. Elect.	314-863-7800
E	Lincoln, Scott Elec. Supp.	402-466-8221
E	Omaha, Radio Equip.	402-341-7700
H	Hudson, C & H Elctrns.	603-882-1133
J	Camden, General Radio Supp.	609-964-8560
J	Hanover, State Elctrn. Parts	201-887-2550
J	Springfield, Route Elctrns.	201-467-0166
J	Springfield, Federated Purchaser	201-376-8900
M	Albuquerque, Electronic Parts	505-293-6161
M	Albuquerque, Walker Radio Co.	505-247-2288
Y	Buffalo, Summit Distrib.	716-884-3450
Y	Farmingdale, Fordham Radio	516-752-0500
Y	Hauppauge, Broadline Elctrns.	516-420-8320
Y	Hempstead, Davis Elctrns.	516-483-9200
Y	Long Island City, H. L. Dalis, Inc.	212-361-1117
Y	New York, Argil Elctrns.	212-691-8111
Y	Portchester, Wise Comps.	203-531-4880
Y	Rochester, Simcona Elctrns.	716-328-3230
Y	Rochester, Masline Elctrns.	716-546-5373
Y	Rome, Rome Elctrns.	315-337-5400
Y	Schenectady, Adirondack Elctrns.	518-842-8350
C	Raleigh, Southeastern Radio Supp.	919-828-2311
H	Akron, Akron Elctrn. Supp.	216-762-8818
H	Cincinnati, Hughes-Peters	513-351-2000
H	Cincinnati, United Radio	513-662-2610
H	Cleveland, Pioneer-Standard Elect.	216-587-3600
H	Cleveland, Pattison Supp.	216-441-3000
H	Columbus, Hughes-Peters	614-294-5351
H	Dayton, Stotts-Friedman	513-298-5555
H	Dayton, Becker Elctrns.	513-226-1341
H	Dayton, ESCO, Inc.	513-226-1133
H	Dayton, Pioneer Elctrns.	513-236-9900
H	Solon, Repco	216-248-8900
H	Toledo, Warren Radio	419-248-3364
K	Oklahoma City, Trice Whlsl. Elect.	405-524-4411
K	Tulsa, Radio, Inc.	918-587-9123
R	Portland, EOFF Elec.	503-222-9411
A	Allentown, A. A. Peters	215-434-5237
A	Huntingdon Valley, Shap Elctrns.	215-322-7150
A	Philadelphia, Almo Elctrns.	215-698-4000
A	Philadelphia, Herbach & Rademan	215-426-1700
A	Philadelphia, Philadelphia Elctrns.	215-568-7400
A	Plymouth Meeting, Techni-Tool	215-825-4900
A	Reading, Barbey Elctrns.	215-376-6116
I	Providence, Wm. Dandreta & Co.	401-861-2800
C	Charleston, Wholesale Radio Supp.	803-747-9672
N	Chattanooga, Curle Elctrns.	615-266-4727
N	Kingsport, Radio Elect. Supp.	615-247-8111
N	Nashville, Electra Distrib.	615-329-3971
N	Nashville, Randolph & Rice	615-255-5602
TX	Austin, Harrison Ind. Elctrns.	512-458-3555
TX	Corpus Christi, Douglas Elctrns.	512-883-5103
TX	Dallas, Wallace Elctrns.	214-340-0400
TX	Dallas, KA Elect. Sls.	214-634-7870
TX	Dallas, Wholesale Elect. Supp.	214-824-3001
TX	Ft. Worth, Sweico	817-335-6521
TX	Houston, City Electronic Supp.	713-621-1060
TX	Houston, Electrotex	713-941-7016
TX	Houston, Harrison Ind. Elctrns.	713-652-4700
TX	Houston, Lenert Co.	713-225-1465
TX	San Antonio, Sherman Elect. Supp.	512-224-1001
UT	Salt Lake City, Standard Supp.	801-486-3371
VA	Arlington, Arlington Elctrn.	703-524-2412
VA	Portsmouth, Distributors	804-399-2446
VA	Richmond, Avec Elctrns.	804-359-6071
VA	Roanoke, Peoples Radio & TV Supp.	703-342-8933
WA	Seattle, Radar Elect.	206-282-2511
WI	Madison, Satterfield Elctrns.	608-257-4801
WI	Milwaukee, Marsh Elctrns.	414-475-6000

SGS-ATES SEMICONDUCTOR CORP., 240 Bear Hill Rd, Waltham, MA 02154, Tel: 617-890-6688, Telex: 923495; Empl.: 9000

SHALLCO, Box 1089, Smithfield, NC 27577, Tel: 919-934-3135, TWX: 510-939-1479; Empl.: 35; *Sls. Mgr.:* M. D. Sutton .... **1B**•1744-1747; **3**•1052, 1053

Local Sales Offices & Reps

CA	Chatsworth, WCV/RALTECH	818-700-0933
CA	Santa Clara, Fischer Assocs.	408-733-7350
IL	Northfield, Imex	312-446-8934
IA	Cedar Rapids, S & O Sls.	310-393-1845
KS	Shawnee Mission, Tech. Sls.	913-888-3330
MD	Towson, Holden Engrg. Sls.	301-823-3763
MA	Norwood, MPS Elctrn.	617-769-8700
MN	Minneapolis, R. J. Inc.	612-866-3661
MO	Ferguson, Tech. Sls.	314-725-5361
NY	Lynbrook, HLJ	516-599-2999
NY	Manhattan, Lothar Sanford Corp.	212-757-3881
NY	Pittsfield, D. Hurley Sls.	716-586-6159
OH	Englewood, Allen Nace Co.	513-836-0931

Local Distributors

FL	Jacksonville, Southeast Elctrns.	904-356-3007
MI	Grand Rapids, Audio Distrib.	616-452-1596
NY	Lynbrook, Peerless Radio	516-593-2121
OH	Cincinnati, United Radio	513-761-4030
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
TN	Bristol, Broadcast Equip. & Supp.	615-878-2531
TX	Dallas, Wholesale Elctrns.	214-824-3001
Can	Montreal, Que., Braydon Electro	514-332-5650

SHALLCROSS, INC., See RCL-Shallcross

SHALLTRONIX CORP., Preston St., P.O. Box 235, Selma, NC 27576, Tel: 919-965-6346; FSC No.: 58258; *Sls. Mgr.:* Joe Deans .... **3**•1299

Local Sales Offices & Reps

TX	Arlington, Electronic Prod. Reps.	817-467-0377

SHAPE MAGNETRONICS, INC., 901 DuPage Ave., Lombard, IL 60148, Tel: 312-620-8394, TWX: 910-991-2352; *Sls. Mgr.:* J. Hilgenberg .... **3**•1910, 1911

SHAPIRO SCIENTIFIC INST., 3500 E. Coast Hwy., Corona del Mar, CA 92625, Tel: 714-675-1024; Empl.: 7

SHELLY
associates

SHELLY ASSOCIATES, INC., 2942 Dow Ave., Tustin, CA 92680, Tel: 714-544-9970, TWX: 910-595-1589; FSC No.: 00303; Empl.: 30; *Sls. Mgr.:* Chuck Feeney .... **1B**•1096

Local Sales Offices & Reps

CA	Mountain View, Leddy Assocs.	415-969-6313
CA	Redondo Beach, Vedax, Inc.	213-540-1255
CT	Madison, Eastronix, Inc.	203-421-4514
FL	Ft. Lauderdale, Reynolds & Assocs.	305-581-6611
FL	Melbourne, Reynolds & Assocs. Inc.	305-259-7000
FL	St. Petersburg, Reynolds & Assocs.	813-360-1384
GA	Acworth, Reynolds & Assocs. Inc.	404-451-9558
IL	Downers Grove, Splon Assocs. Inc.	312-963-7011
IN	Ft. Wayne, Scott Elctrns.	219-484-7865
IN	Indianapolis, Scott Elctrns. Inc.	317-897-9976
KS	Shawnee Mission, Florence and Meyer, Inc.	913-722-5210
LA	Covington, HBT Assocs. Inc.	504-892-4045
MA	Bedford, Eastronix	617-275-5775
MI	Lake Orion, C C Elctrns. Inc.	313-338-7400
MN	Edina, Splon Assocs. Inc.	612-927-6744
NJ	Boonton, TMA	201-263-2946
NY	Port Washington, TMA	516-883-2432
NC	Spring Hope, Reynolds & Assocs. Inc.	305-259-7000
OH	Cincinnati, Scott Elctrns.	513-791-2513
OH	Cleveland, Scott Elctrns. Inc.	216-473-5050
OH	Dayton, Scott Elctrns. Inc.	513-294-0539
OH	Reynoldsburg, Scott Elctrns.	614-863-1281
PA	Pittsburgh, Scott Elctrns.	412-963-6116
PA	Wynnewood, Metz-Benham Assocs.	215-896-7300
TX	Dallas, Tag Techn. Sls.	214-986-0568
TX	Irving, Tag Tech. Sls.	214-253-1310
UT	Salt Lake City, Sunbird Inds. Inc.	801-272-1303
VT	Shelburne, Eastronix, Inc.	802-985-3743

Local Distributors

CA	Anaheim, Bisco Inds. Inc.	714-635-0380
CA	San Jose, Bisco Inds. Inc.	408-946-8980
CT	Norwalk, Park Distrs. Inc.	203-853-2010
CT	Wallingford, Midstate Elctrns. Co.	203-265-9900
IL	Franklin Park, Bisco Inds. Inc.	312-451-1230
MA	Chelmsford, Pilgrim Elctrns.	617-251-8746
MA	Woburn, Elctrn. Packaging Comps.	617-935-0400
NJ	Cranford, Garden State Indl. Elctrns.	201-272-6400
NJ	East Brunswick, Brothers Elctrns.	201-238-2200
NJ	Fair Lawn, Relay Specialties	201-797-3313
NJ	Saddle Brook, Tide Elctrns.	201-794-9660
NY	Elmsford, White Plains Elctrl. Supp. Co.	914-592-9555
OH	Strongsville, Roberts Elctrns. Co., Inc.	216-238-1711
OK	Tulsa, Radio, Inc.	918-587-9123
TX	Dallas, Wilkinson Brothers Co.	214-941-9963
WI	Mequon, Lakeview Elctrns.	414-377-8250

SHIELDING TECHNOLOGY, INC., 120 Ethel Rd. West, Piscataway, NJ 08854, Tel: 201-985-8800, TWX: 710-480-6297; *Sls. Mgr.:* Mason Carter

SHINANO KENSHI CORP. (SKC), 7525 Ethel Ave., Ste. 1, N. Hollywood, CA 91605, Tel: 818-764-4266; Empl.: 5; *Sls. Mgr.:* William F. Dowis .... **1B**•1181

Local Sales Offices & Reps

CA	North Hollywood, Shinano Kenshi Corp.	818-764-4266
CA	Santa Clara, Logan Sales	408-496-0660
CO	Denver, Tech Rep Sls. Co.	303-758-7031
CT	Madison, SIR Assocs.	203-245-2242
FL	Orlando, Irby & Connolly Inc.	305-894-8471
IL	Barrington, Richard Fisk Mktg.	312-381-0653
MA	Bedford, SIR Assocs.	617-275-5550
MI	Southfield, Fred Gehrke & Assoc.	313-559-5363
MN	Eagan, J. Jorgenson & Assoc.	612-452-9541
NJ	Hatboro, PA, Electro Rep	215-674-4421
NJ	Oxford, Malin Assocs.	201-689-7398
NY	Rochester, The Robert F. Lamp Co.	716-323-1250
NC	Greenville, Ranico Representatives	615-639-7696
OK	Richardson, TX, Precision Technology Assocs.	214-234-8071
OR	Portland, Intertech Sls.	503-775-7885
TN	Greenville, Lamons Sales Co.	615-639-8711
TX	Austin, Precision Technlg. Assocs.	512-250-0201
TX	Fort Worth, Gene Moody Entprs.	817-572-1068
TX	Houston, Precision Technlg. Assocs.	713-463-6801
TX	Richardson, Precision Technlg. Assoc.	214-234-8071
WA	Seattle, Rep West	206-283-8351

Local Distributors

CA	N. Hollywood, Digilog Devices	818-764-9777

SHOGYO

SHOGYO INTL. CORP., 287 Northern Blvd., Great Neck, NY 11021, Tel: 516-466-0911, Telex: 4758024, TWX: 12218 .... **1A**•2055, 2263; **1B**•1097; **2**•1562-1564, 2150; **3**•1054, 1348, 1349

SHOKAI FAR EAST LTD., 280 North Central Ave., Hartsdale, NY 10530, Tel: 914-681-0700, Telex: 22-4219; Empl.: 362; *Sls. Mgr.:* Martin N. Rubin .... **3**•1055

SHOW 'N TELL PRODUCTS, AMG, Inc., 155 Franklin Street, Dayton, OH 45402, Tel: 513-223-8211; *Sls. Mgr.:* Jon A. Bloyd

SHUGART ASSOCS., 475 Oakmead Pkwy., Sunnyvale, CA 94086, Tel: 408-733-0100, TWX: 910-339-9355; Empl.: 3000; *Sls. Mgr.:* Gary Galusha; *Dist. Mgr.:* Gary Galusha

SHURE BROS., 222 Hartrey Ave., Evanston, IL 60204, Tel: 312-866-2200, Telex: 72-4381, TWX: 910-231-0048; *Sls. Mgr.:* R. T. Murphy, Sales Manager

SHURITE METERS, INC., 577 Grand Ave., P.O. Box 1848, New Haven, CT 06508, Tel: 203-624-1188; Empl.: 30; *Sls. Mgr.:* Joseph V. LeBlanc; *Dist. Mgr.:* Joseph V. LeBlanc

Local Sales Offices & Reps

AZ	Tempe, Gassner & Clark Co.	602-968-9037
CA	Los Angeles, Modco	213-848-2215
CA	Sunnyvale, W. W. Posey Co.	408-746-0771
CO	Denver, Nelson	303-295-1017
FL	Longboat, R. S. Cushing	813-383-1770
IL	Park Ridge, Bob Burns & Assoc.	312-823-9360
IN	Indianapolis, Sukup & Cox	317-253-5501
IA	Des Moines, The Beams Co.	515-255-1148
MI	E. Detroit, Jack M. Thorpe	313-779-6363
MN	Minneapolis, Lestronix	612-926-8466
NJ	Belleville, D. F. Tobias & Co.	201-751-8680
NY	Rochester, H. C. Johnson Agen.	716-586-0777
NC	Raleigh, B. T. Funderburk	919-782-3493
OH	Cincinnati, John O. Olsen	513-574-7711
PA	Ardmore, John Wurtz	215-649-6300
RI	Lincoln, Adams-McGregor	401-726-1300
TX	Dallas, Crockett Sls.	214-350-3377
WA	Seattle, Don Smith Sls.	206-633-3160

SIDEREAL CORP., 9600 S.W. Barnes Rd., Portland, OR 97225, Tel: 503-297-5531, Telex: 36-0640, TWX: 910-464-6139; *Sls. Mgr.:* Jim Miller & Jeff Gretz; *Dist. Mgr.:* Joy Sakata

SIECOR CORP., Box 489, Hickory, NC 28603, Tel: 704-328-2171, Telex: 800-510, TWX: 510-934-1204; Empl.: 600; *Sls. Mgr.:* J. English

SIEMENS COMPS., INC., Optoelectronics Div., 19000 Homestead Rd., Cupertino, CA 95014, Tel: 408-257-7910, Telex: 352084, TWX: 910-338-0022; FSC No.: 50579; Empl.: 1100; *Sls. Mgr.:* Gary Durgin; *Dist. Mgr.:* Merv Stamberger

SIEMENS CORP., 186 Wood Ave., S., Iselin, NJ 08830, Tel: 201-494-1000, TWX: 710-998-0588; Empl.: 800

SIEMENS CORP., Colorado Comps. Div., 800 Hoyt St., Broomfield, CO 80020, Tel: 303-469-2161, Telex: 45-4357; Empl.: 373; *Sls. Mgr.:* Bill Hacker

Sierracin/Magnedyne

SIERRACIN/MAGNEDYNE, 2258 Rutherford Rd., P.O. Box 458, Carlsbad, CA 92008, Tel: 619-438-3321, Telex: 910 322-1391; Empl.: 190 .... **1B**•1178, 1179

Local Sales Offices & Reps

AL	Huntsville, L & D Inc.	205-837-1469
CA	Campbell, Luscombe Engrg. Co.	408-370-2020
CA	Laguna Beach, Comar Co.	619-540-1219
CA	Torrance, Carl J. Aguirre	213-375-9485
CA	W. Los Angeles, Mike McNeil	213-478-6942
FL	Ft. Lauderdale, Electrocomp Assocs.	305-491-4141
GA	Atlanta, L & D Inc.	404-455-3483
IL	Rolling Meadows, KMA Sls. Co.	312-398-5300
MD	Churchville, Atlantic Tech. Sls.	301-879-2236
MN	St. Paul, North Star Motion & Controls	612-770-5311
NJ	Paramus, Carnes Diamond Assocs.	201-967-1309
NY	Centerport, Carnes Diamond Assocs.	516-261-8100
NY	Pittsford, Controlled Motion Prods. Co.	716-381-1933
NC	Greensboro, L & D Inc.	919-292-3201
OH	Cleveland, Servo-Mark	216-871-2353
PA	King of Prussia, Rivco January	215-265-5211
TX	Dallas, Thorson Co.	214-233-5744
WI	Milwaukee, KMA Sls. Co.	414-259-1771

Sierracin/Power Systems

SIERRACIN/POWER SYSTEMS, 20500 Plummer St., Chatsworth, CA 91311, Tel: 818-998-9873, TWX: 910-494-4830; FSC No.: 58999; Empl.: 450; *Sls. Mgr.:* Nick Freyling; *Dist. Mgr.:* Nick Freyling .... **3**•1768-1770

Local Sales Offices & Reps

AZ	Tempe, Chapman Assocs.	602-894-6775
CA	San Diego, Interstate Mktg.	619-292-8117
CA	Santa Clara, Fahner-Miller	408-727-9800
CA	Woodland Hills, Interstate Mktg.	818-883-7606
CT	Guilford, Whitehead Assoc.	203-453-3762
FL	Altamonte Springs, Semtronic Assocs.	305-831-8233
FL	Clearwater, Semtronic Assocs.	813-461-4675
FL	Ft. Lauderdale, Semtronics	305-730-2484
IL	Rolling Meadows, Sumer, Inc.	312-991-8500
IA	Cedar Rapids, Comstrand	319-377-1575
KS	Merriam, Midwest Tech. Sls.	913-236-8555
KS	Wichita, Midwest Tech. Sls.	316-262-7240
KY	Louisville, KW Elctrn. Sls.	502-451-1860
MA	Lynnfield, Whitehead Assoc.	617-246-5070
MI	Novi, Lektronics	313-349-3304
MN	Minneapolis, Comstrand	612-788-9234
MO	St. Charles, Midwest Tech. Sls.	314-441-1012
NJ	Ridgewood, Hansen & Hughes	201-652-7055
NY	Mendon, Tech-Mark, Inc.	716-624-3840
NC	Raleigh, J & B Sls.	919-878-8600
OH	Dayton, K. W. Elctrn. Sls.	513-890-2150
OH	Shaker Heights, K. W. Elctrn. Sls.	216-491-9177
OH	Worthington, K. W. Elctrn. Sls.	614-888-0483
OR	Beaverton, Wm. J. Purdy Co.	503-641-9373
PA	Allison Park, K. W. Elctrn. Sls.	412-487-4300
PA	Huntingdon Valley, Omega Elctrn. Sls.	215-947-4135
TN	Tullahoma, J & B Sls.	615-455-7487
VA	Alexandria, Scott Data	703-765-7901
WA	Seattle, Wm. J. Purdy Co.	206-284-8020
WI	Brookfield, Sumer, Inc.	414-784-6641

Local Distributors

AL	Huntsville, Hall-Mark	205-837-8700
AZ	Phoenix, Hall-Mark	602-243-6601
CA	Chatsworth, Priority One	818-709-5464
CA	Citrus Heights, Hall-Mark	916-722-8600
CA	Costa Mesa, FLW	714-751-7512
CA	El Segundo, Hall-Mark	213-643-9101
CA	San Diego, FLW	619-277-0993
CA	San Diego, Hall-Mark	619-268-1201
CA	Sunnyvale, Hall-Mark	408-773-9990
CA	Tustin, Hall-Mark	714-669-0681
CO	Englewood, Hall-Mark	303-694-1662
FL	Clearwater, Hall-Mark	813-530-4543
FL	Ft. Lauderdale, Hall-Mark	305-971-9280
FL	Orlando, Hall-Mark	305-855-4020
FL	Tampa, Reptron	813-855-4656
GA	Norcross, Hall-Mark	404-447-8000
IL	Arlington Hgts., Reptron Elctrns.	312-593-7070
IL	Bensenville, Hall-Mark	312-860-3800
KS	Lenexa, Hall-Mark	913-888-4747
MD	Columbia, Hall-Mark	301-988-9800
MI	Grand Rapids, Calder Elctrns.	616-949-2900
MI	Livonia, Reptron Elctrns.	313-525-2700
MN	Bloomington, Hall-Mark	612-854-3223
MO	Maryland Hgts., Hall-Mark	314-291-5350
NJ	Cherry Hill, Hall-Mark	609-424-7300
NJ	Fairfield, Hall-Mark	201-575-4415
NY	Ronkonkoma, Hall-Mark	516-737-0600
NC	Raleigh, Hall-Mark	919-872-0712
OH	Cincinnati, Hall-Mark	513-563-5980
OH	Englewood, Argent/Electra	513-836-8633
OH	Solon, Hall-Mark	216-349-4632
OH	Solon, REH Elctrns.	216-248-1636
OH	Westerville, Hall-Mark	614-891-4555
OK	Tulsa, Hall-Mark	918-665-3200
OR	Wilsonville, Zepher Ind.	503-682-2929
PA	Pittsburgh, ATI/Electra	412-821-5565
TX	Austin, Hall-Mark	512-258-8848
TX	Dallas, Hall-Mark	214-341-1147
TX	Houston, Hall-Mark	713-781-6100
WA	Seattle, Zepher Ind.	206-241-1980
WI	Oak Creek, Hall-Mark	414-761-3000

SIERRACIN/THERMAL SYS., 13920 S. Broadway, Los Angeles, CA 90061, Tel: 213-321-4350, TWX: 910-346-6774; FSC No.: 11416; Empl.: 175

SIERRA ELEC., See Pass & Seymour, Inc.

SIGMA INSTRS., 170 Pearl St., Braintree, MA 02184, Tel: 617-843-5000, Telex: 94-0645, TWX: 710-348-1161; Empl.: 1,500

SIGMA INSTRS., Intl. Instr. Div., 88 Marsh Hill Rd., Orange, CT 06477, Tel: 203-795-4711, Telex: 714-465-2897; Empl.: 150; *Dist. Mgr.:* J. Connolly

SIGMA-NETICS, INC., One Washington Ave., Fairfield, NJ 07006, Tel: 201-227-6372

SIGMA PLASTRONICS, 14531-33 Tireman Ave, Dearborn, MI 48126, Tel: 313-846-4410; Empl.: 10; *Sls. Mgr.:* S. J. Hirshfield

SIGMAPOWER, INC., 20790 Leapwood Ave., Carson, CA 90746, Tel: 213-32-Sigma; FSC No.: 55196; Empl.: 61; *Sls. Mgr.:* Bill Adams

SIGMA SYSTEMS CORP., 3163 Adams Ave., San Diego, CA 92116, Tel: 619-283-3193; Empl.: 14; *Sls. Mgr.:* T. Stewart .... **3**•1179

SIGNAL SYS. INTL., P.O. Box 198, Holmdel, NJ 07733, Tel: 201-741-1120; Empl.: 7; *Sls. Mgr.:* D. Roy

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CO	Littleton, Lange Sls.	303-795-360
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FL	Ft. Lauderdale, H.H.P.	305-971-575
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MD	Timonium, Glen White Assocs.	301-252-6360
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NJ	Fairfield, T. J. Saes Inc. of N.J.	201-667-5900
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GA	Gainesville, Simco Co.	404-869-3515
IL	Aurora, Dwight Smith & Assocs.	312-896-9501
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PA	Furlong, Avenir, Inc.	215-348-8290
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GA	Stone Mountain, DTM, Inc.	404-962-2530
IL	Park Ridge, Bob Burns & Assoc.	312-775-1233
IN	Indianapolis, M & L Elctrn. Sls.	317-359-4742
MD	Glen Burnie, Macrotech Assoc.	301-437-5588
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MN	Minneapolis, Loren Green Assoc. of Minn.	612-571-6666
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TN	Nashville, Electro-Mech	615-885-0073
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TX	Houston, Blackburn Assoc.	713-463-1354
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Local Sales Offices & Reps

CA	Los Angeles, Cain Tech.	213-477-9054
CA	Pinole, Ron May	415-724-1203
CA	San Diego, Cain Technology	619-224-6911
CO	Englewood, CM Mktg. Ind.	303-850-9841
FL	Clearwater, Brennan & Assocs.	813-446-5006
IL	Medinah, Wavan Assoc.	312-893-0210
IN	Fort Wayne, John Kilfoil Co.	219-436-7233
IA	Marion, Rep. Assoc.	319-373-0152
KS	Parker, S. W. Wollard Co.	913-898-6552
MA	Malden, J-K Assocs.	617-321-2922
MN	Bloomington, V. J. Gensmer Assocs.	612-888-2492
MO	St. Louis, Abrams & Assoc.	314-569-0447
NJ	Medford, Jack McCoy, Inc.	215-363-0350
NY	Centerport, Bill Carnes	516-261-8100
TX	Austin, Pro-Comp Sls. Co.	817-640-4336
WA	Kirkland, Manon Engrg., Inc.	206-827-7449

GS

SOLA

SOLA ELEC., 1717 Busse Rd., Elk Grove Village, IL 60007, Tel: 312-439-2800, Telex: 280538; *Sls. Mgr.:* Fred Lemke ....**3•**1772, 1773, 1912-1915

SOLAR ELCTRNS. CO., 901 N. Highland, Hollywood, CA 90038, Tel: 213-462-0806; FSC No.: 13222; Empl.: 15

SOLAREX CORP., 1335 Piccard Dr., Rockville, MD 20850, Tel: 301-948-0202, TWX: 710-828-9709; *Sls. Mgr.:* Ted Blumemstock

SOLARTRON INSTRUMENTS, Sangamo Weston Inc., 17972 Sky Park Cir., Ste. F, Irvine, CA 92714, Tel: 714-250-1172, TWX: 910-595-1593; *Sls. Mgr.:* R. F. Fenner

SOLATRON ENTERPRISES, 421 E. Beach Ave., Inglewood, CA 90302, Tel: 213-678-4981; Empl.: 20

SOLDER ABSORBING TECHNOLOGY (SAT), South End Bridge Circle, Agawam, MA 01001, Tel: 800-628-8862, TWX: 710-350-6466; Empl.: 8

SOLDER REMOVAL, 1077 E. Edna Pl., Covina, CA 91724, Tel: 213-967-3681, TWX: 910-584-1820; FSC No.: 34605

SOLID STATE, INC., 46 Farrand St., Bloomfield, NJ 07003, Tel: 201-429-8700, TWX: 710-994-4780; Empl.: 110; *Sls. Mgr.:* T. King

SOLID STATE CIRCUITS, 616 Boonville, Springfield, MO 65806, Tel: 417-869-4678, TWX: 910-775-4762; Empl.: 165; *Sls. Mgr.:* Gary Bollinger

SOLID STATE DEVICES, 14830 Valley View Ave., La Mirada, CA 90638, Tel: 213-921-9660, TWX: 910-583-4807; FSC No.: 30043; Empl.: 100; *Sls. Mgr.:* D. Peden

SOLID STATE ELCTRNS. CORP., 18646 Parthenia St., Northridge, CA 91324, Tel: 818-993-8257; FSC No.: 11911; Empl.: 15

SOLID STATE RELAYS, 213 Eisenhower Lane So., Lombard, IL 60148, Tel: 312-932-1660; *Sls. Mgr.:* D. E. Wienke

SOLID STATE SCIENTIFIC, 3900 Welsh Rd., Willow Grove, PA 19090, Tel: 215-657-8400, Telex: 476-1101, TWX: 510-661-7267; Empl.: 650; *Dist. Mgr.:* David DeLane

Local Sales Offices & Reps

AZ	Phoenix, Sanford Sls. Assoc.	602-957-3570
CA	Fallbrook, Martronix	619-728-7678
CA	Mountain View, Technig. Sls.	415-960-0600
CA	San Jose, Solid State Sci.	408-241-7111
CA	Sherman Oaks, Solid State Sci.	213-995-6666
CA	Woodland Hills, Interstate Mktg. Assoc.	213-883-7606
CO	Englewood, Todd & Fry Assoc.	303-447-9358
CT	Guilford, Datamark	203-453-0575
FL	Coral Springs, Electrocraft	305-753-8666
FL	Largo, Electrocraft	813-530-4749
FL	Tampa, Solid State Sci.	813-935-8203
GA	Clarkston, Electramark	404-292-0369
GA	Lawrenceville, Electramark	404-963-4793
IL	Arlington Hgts., Solid State Sci.	312-255-3883
IL	Rolling Meadows, Hartland Tech. Mktg.	312-577-9222
MD	Towson, Arbotek Assoc. Inc.	301-825-0775
MA	Lexington, Nova Sales	617-861-1820
MA	Waltham, Solid State Sci.	617-891-7530
MN	Eden Prairie, Electronic Innovators	612-941-0830
MO	Blue Springs, KKB & Co.	816-229-0001
MO	St. Louis, KKB & Co.	314-647-2400
NJ	Bellmawr, TAI Corp.	609-933-2600
NY	Camillus, Ontec Inc.	315-672-5626
NY	Commack, ERA Inc.	516-543-0510
NY	Rochester, Ontec Inc.	716-464-8636
NY	Wappinger Falls, Ontec Inc.	914-462-7188
OH	Beachwood, Electronic Salesmaster	216-831-9555
OR	Beaverton, Caruso & Northcutt	503-646-4973
PA	Willow Grove, Solid State Sci.	215-657-8400
TX	Austin, EMA	513-837-0893
TX	Grapevine, EMA	817-481-7502
TX	Houston, EMA	713-498-8120
WA	Bellevue, Caruso & Northcutt	206-454-9699
WI	Milwaukee, J. M. Sales	414-546-0040
WI	Milwaukee, Heartland Technical Mktg.	414-931-0606

SOLID STATE SYSTEMS, 1990 Delk Industrial Blvd., Marietta, GA 30067, Tel: 404-952-9401; Empl.: 140; *Sls. Mgr.:* H. Ivester; *Dist. Mgr.:* J. Schloss

SOLID STATE TESTING, INC., 56 Middlesex Tpke., Burlington, MA 01803, Tel: 617-272-0972, TWX: 710-332-1620; Empl.: 150; *Sls. Mgr.:* James Roberts; *Dist. Mgr.:* James DiGiacomo

SOLITRON DEVICES, 8808 Balboa Ave., San Diego, CA 92123, Tel: 619-278-8780, TWX: 910-335-1221; Empl.: 900

SOLITRON DEVICES, INC., Semiconductor Group, 1177 Blue Heron Rd., Riviera Beach, FL 33404, Tel: 305-848-4311, Telex: 51-3435, TWX: 510-952-7610; FSC No.: 21845; Empl.: 646; *Sls. Mgr.:* John Flynn; *Dist. Mgr.:* Kevin O'Shea

SOLITRON/MICROWAVE, Box 278, Port Salerno, FL 33492, Tel: 305-287-5000, TWX: 510-953-7500; FSC No.: 95077; Empl.: 300; *Sls. Mgr.:* James J. McCann

SOLTEC
CORPORATION

SOLTEC CORP., 11684 Pendelton St., Sun Valley, CA 91352, Tel: 818-767-0044, 800-423-2344, Telex: 67-4188; Empl.: 46; *Sls. Mgr.:* Gary A. Purser ....**3•**1388, 1389

Local Sales Offices & Reps

AL	Huntsville, Saber Assocs.	800-327-0853
AZ	Scottsdale, Barnhill Assocs.	602-947-7841
CA	San Carlos, Elctrn. Engrg. Assocs.	415-593-2189
CA	San Diego, Mesa Engrg.	619-268-3500
CO	Englewood, Barnhill Assocs.	303-779-3600
DE	Wilmington, Elctrn. Mktg. Assocs.	302-652-5333
FL	Melbourne, Saber Assocs.	800-432-6288
GA	Cummings, Saber Assocs.	800-327-0853
IL	Arlington Heights, Dytec/Central	312-394-3380
KS	Mission, Vertec Assocs.	913-677-3200
LA	Baton Rouge, Barnhill Assocs.	504-924-6826
MD	Baltimore, Elctrn. Mktg. Assocs.	301-744-7700
MD	Rockville, Elctrn. Mktg. Assocs.	301-881-5300
MA	Acton, Applied Measurements	617-646-7250
MI	Madison Heights, WKM Assocs.	313-588-2300
MN	Minneapolis, Trask Engrg	612-537-2434
MO	Manchester, Vertec Assocs.	314-394-6242
NJ	Lodi, SDM Reprs.	201-368-0123
NM	Albuquerque, Barnhill Assocs.	505-299-7658
NY	Rochester, SDM Reps	716-247-8770
NC	Clayton, Saber Assocs.	800-327-0853
OH	Dayton, WKM Assocs.	513-434-7500
OH	Independence, WKM Assocs.	216-524-5930
OR	Beaverton, Northwest Test & Meas.	503-646-9966
PA	King of Prussia, Elctrn. Mktg. Assocs.	215-265-1600
PA	Philadelphia, Elctrn. Mktg. Assocs.	215-248-5050
PA	Pittsburgh, WKM Assocs.	412-892-2953
PA	Plymouth Meeting, Elctrn. Mktg. Assocs.	215-828-7400
SC	Columbia, Saber Assocs.	800-327-0853
TX	Austin, Barnhill Assocs.	512-451-0217

X	Houston, Barnhill Assocs.	713-688-9971
X	Richardson, Barnhill Assocs.	214-231-2573
T	Murray, Barnhill Assocs.	801-262-3000
A	Norfolk, Elctrn. Mktg. Assocs.	804-461-8133
A	Richmond, Elctrn. Mktg. Assocs.	804-320-8801
A	Redmond, Northwest Test & Meas.	206-881-8857

ONIC INTERNATIONAL CORP., 2515 N.E. Riverside, Portland, OR 97211, Tel: 503-665-0187, Telex: 36-0325; Empl.: 130

Sonnenschein

ONNENSCHEIN BATTERIES INC., 525 New Britain Ave., Unionville, CT 06085, Tel: 203-677-5846, Telex: 710-4238 723; *Sls. Mgr.:* Robert McCarthy .... **3**•1431

Local Sales Offices & Reps

L	Huntsville, Raycom, Inc.	205-859-2017
A	Anaheim, Impact Elctrns.	714-533-1351
A	Milipitas, Lee-Allan Assoc.	408-946-8300
O	Golden, J. F. Hurlbut Co.	303-279-7796
T	Bethel, G/M Assocs.	203-744-1426
T	Manchester, G/M Assocs.	203-646-4443
L	Melbourne, Raycom, Inc.	305-259-7988
L	Park Ridge, Metcom Assocs. Corp.	312-696-1490
A	Framingham, G/M Assocs.	617-872-4871
I	Southfield, R. C. Merchant & Co.	313-354-4300
I	St. Joseph, R. C. Merchant & Co.	616-983-7378
N	St. Paul, Arkco Sls.	612-777-7454
O	Florissant, Web Assocs/Elctrns.	314-921-5720
H	Exeter, G/M Assocs.	603-778-7472
J	Linden, C. E. Kite Assocs.	201-925-1899
Y	Huntington, Registration Elec. Supp.	516-266-2808
C	Raleigh, Raycom, Inc.	919-847-8276
H	Chesterland, KT/Depko	216-729-3588
X	Austin, Delta Comps.	512-458-4288
X	Seagoville, Delta Comps.	214-287-6333
A	Portland, Harry Levinson Co.	503-245-1902
A	Seattle, Harry Levinson Co.	206-382-1300
I	West Allis, Metcom Assocs. Corp.	414-476-1300

ONICOR INSTRUMENT CORP., 1365 Marconi Blvd., Copiague, NY 11726, Tel: 516-842-3344, Telex: 649494; FSC No.: 31605; *Sls. Mgr.:* Arthur Liers; *Dist. Mgr.:* Arthur Liers

ONOBOND, 200 E. Rosedale Ave., West Chester, PA 19380, Tel: 215-696-4710, Telex: 834511; Empl.: 50; *Sls. Mgr.:* John Harper

ONY CORP. OF AMERICA, Component Prods. Div., 15 Essex Road, Paramus, NJ 07652, Tel: 201-368-5000

ORENSEN CO., 676 E. Island Pond Rd., Manchester, NH 03103, Tel: 603-668-4500, Telex: 94-3459, TWX: 710-220-1339; Empl.: 850; *Sls. Mgr.:* Roy Allman

ORENSON LIGHTED CONTROLS, 75 Locust St., Hartford, CT 06114, Tel: 203-527-3092, TWX: 710-425-4093; Empl.: 100; *Sls. Mgr.:* Tom D'Allesantro .... **1B**•1102, 1103

Local Sales Offices & Reps

A	Anaheim, Galaxie Sls.	714-752-1580
A	Mt. View, Del Bucchia & Assoc.	415-965-8045
T	Hartford, Atlantic Switch Co.	203-527-7705
L	Lakeland, Switch Controls	813-644-7564
L	Wheaton, Chadra-Schilke	312-653-8126
N	Fort Wayne, Menze Sls.	219-747-5616
A	Canton, Comtek Assoc.	617-828-2948
I	Birmingham, Favco	313-644-0173
N	Edina, Monroe/Hanna	612-566-1324
O	Clayton, Mertens Co.	314-993-6600
J	Marlton, Naudain Assoc.	609-596-1562
Y	Great Neck, Pacent Eng. Co.	516-482-4678
Y	Roslyn Heights, November Elctrn. Sls.	516-621-6378
C	Raleigh, Rick Hadley	919-362-4099
X	Dallas, Texaswitch	214-357-1768
A	Mercer Island, Elctrn. Comp.	206-232-9301

Local Distributors

A	Los Angeles, Electric Switches	213-660-1310
A	Tustin, Western Switches	714-731-4333
A	Van Nuys, Pacific Switch Controls	213-873-4802
O	Denver, Waco Elctrns	303-371-4370
T	Hartford, Atlantic Switch Controls	203-527-7705
L	Lakeland, Switch Controls	813-644-7564

GA	Augusta, Dixie Elctrns.	404-722-2055
IL	Wheaton, Conectrix	312-653-1460
MI	St. Clair Shores, Specialties Mfg.	313-771-2700
MN	Minneapolis, Carl Berquist	612-835-2322
NJ	Mt. Laurel, Jersey Switch	609-778-8190
NY	Woodside, Switches Unltd.	212-478-5000
NC	Charlotte, Dixie Elctrns.	704-377-5413
OH	Columbus, Ohio Switch	614-885-0319
SC	Columbia, Dixie Elctrns.	803-779-5332
TX	Dallas, Texaswitch	214-357-1768
EXP	NJ, Ft. Lee, Joseph Gross	201-944-3609

SOSHIN ELEC. CO., 1-18-18 Nakamagome, Ota-Ku, Tokyo, Japan, Tel: (03) 775-2111, Telex: 246-6377; Empl.: 800; *Sls. Mgr.:* N. Hiraide, Exp. & Imp. Dept. .... **1A**•1184

Local Sales Offices & Reps

NY	Commack, Arco Elctrns.	516-864-7000

Local Distributors

CA	Chatsworth, Arco Elctrns.	213-882-8707
NY	Commack, Arco Elctrns.	516-864-7000

SOURIAU, INC., 25158 Avenue Stanford, Valencia, CA 91355, Tel: 805-257-4830, Telex: 4720328, TWX: 910-495-2028; Empl.: 55; *Sls. Mgr.:* Bill Vockerath/Richard Monstein .... **2**•1566, 1567

Local Sales Offices & Reps

AL	Brownsboro, JHU Assocs.	205-536-7455
AZ	Scottsdale, Summit Sls.	602-998-4850
AR	Fort Smith, Electra Reps	501-452-4030
CA	Los Altos, Recht Assocs.	415-964-6321
CA	Los Angeles, Wiley Co.	213-666-1611
CA	San Diego, Wiley Co.	619-571-2881
CO	Westminster, D/Z Assocs.	303-429-9369
FL	Altamonte Springs, Gugel-Tuttle Assoc.	305-788-0845
GA	Atlanta, JHU Assocs.	404-634-1000
IL	Lisle, WG Controls	312-963-5954
IN	Indianapolis, CC Elctrns.	317-255-1508
MD	Ellicott City, Doss Elctrns.	301-465-1336
MA	Stow, Today Comp. Sls.	617-897-7500
MI	Lake Orion, CC Elctrns.	313-338-7400
MO	Raytown, Centech	816-358-8100
NJ	West Caldwell, Grimm Siegel Assoc.	201-575-9300
NY	Poughkeepsie, C.W. Floring & Assoc.	914-471-2973
NY	Scottsville, C.W. Floring & Assoc.	716-271-6865
NY	Syracuse, C.W. Floring & Assoc.	315-478-2149
NC	Greensboro, JHU Assocs.	919-852-9097
OH	Dayton, Dircksen & Assoc. (DESC only)	513-294-3657
OH	Galion, CC Elctrns.	419-468-4817
OR	Aloha, Venture Elctrns.	503-642-9090
PA	Glenside, PWC	215-576-0110
TN	Talbott, JHU Assoc.	615-581-4141
TX	Dallas, Electra Reps	214-387-3594
TX	Houston, Electra Reps	713-530-2208
UT	Salt Lake City, D/Z Assocs.	801-486-4233
WA	Bellevue, Venture Elctrns.	206-454-4594

Local Distributors

AL	Huntsville, Marshall Elctrns.	205-881-9235
AZ	Scottsdale, Contech Elctrns.	602-948-3330
AZ	Tempe, Marshall Elctrns.	602-968-6181
AZ	Tempe, Acacia Sls.	602-894-2874
CA	Anaheim, Compucable	714-635-7330
CA	Canoga Park, Marshall Elctrns.	818-999-5001
CA	El Monte, Marshall Elctrns.	818-442-7204
CA	Fullerton, Pyramid Elctrns. Supp.	714-773-0781
CA	Irvine, Marshall Elctrns.	714-556-6400
CA	Irvine, Acacia Sls.	714-660-0834
CA	San Diego, Marshall Elctrns.	619-578-9600
CA	San Diego, Acacia Sls.	619-565-4365
CA	Santa Ana, Norstan Elctrns.	714-540-4165
CA	Santa Clara, Pyramid Elctrns. Supp.	408-727-9810
CA	Sunnyvale, Acacia Sls.	408-745-7200
CA	Sunnyvale, Marshall Elctrns.	408-732-1100
CA	Van Nuys, Air Electro Supp.	818-988-4400
CO	Denver, Marshall Elctrns.	303-427-1818
CO	Lakewood, Acacia Sls.	303-232-2882
CT	East Haven, J V Elctrns.	203-469-2321
CT	Norwalk, Park Distrs.	203-853-2010
CT	Wallingford, Marshall Elctrns.	203-265-3822
FL	Casselberry, Afcom	305-699-9500
FL	Clearwater, Diplomat Elctrns.	813-443-4514
FL	Orlando, Marshall Elctrns.	305-841-1878
FL	Winter Park, Zebra Elctrns.	305-677-6661
GA	Norcross, Marshall Elctrns.	404-923-5750
IL	Schaumburg, Marshall Elctrns.	312-490-0155
MD	Gaithersburg, Marshall Elctrns.	301-840-9450
MD	Timonium, Zebra Elctrns.	301-252-6576
MD	White Marsh, Resco/Baltimore	301-529-0500
MA	Burlington, Marshall Elctrns.	617-272-8200
MA	Natick, Tec-con Elctrns.	617-655-9333
MI	Livonia, Marshall Elctrns.	313-525-5850
MN	Plymouth, Marshall Elctrns.	612-559-2211
MO	Kansas City, Walters Radio Supp.	816-531-7015
MO	St. Charles, Finnigan Elctrns.	314-946-6201
NJ	Fairfield, Marshall Elctrns.	201-882-0320
NJ	Maple Shade, Zebra Elctrns.	609-779-8073
NJ	Mt. Laurel, Marshall Elctrns.	609-234-9100
NM	Albuquerque, Betatron Elctrns.	505-344-2381
NM	Albuquerque, Connecting Comps.	505-345-8921
NY	Endwell, ASI	607-754-3823
NY	Endwell, Marshall Elctrns.	607-754-1570
NY	Farmingdale, Iris Elctrns.	516-420-8400
NY	Farmingdale, Resource for Elctrns.	516-420-8555
NY	Farmingdale, Midway Indl. Elctrns.	516-293-6800
NY	Hauppauge, Marshall Elctrns.	516-273-2424
NY	Port Washington, Restart Elctrns.	516-883-3500
NY	Rochester, Marshall Elctrns.	716-235-7620
OH	Cincinnati, Schuster Elec.	513-489-1400
OH	Dayton, Marshall Elctrns.	513-236-8088
OH	Solon, Marshall Elctrns.	216-248-1788
OH	Twinsburg, Schuster Elec.	216-425-8134
OK	Oklahoma City, Electro Entprs.	405-427-6591
OR	Beaverton, Acacia Sls.	503-646-3377
PA	Allentown, P.A. Peters	215-434-5237
PA	Norristown, Comp. Entprs.	215-272-7900
TX	Addison, Connec/Tek	214-239-7552
TX	Austin, Marshall Elctrns.	512-458-5654
TX	Dallas, Target Elctrns.	214-788-0761
TX	Dallas, Marshall Elctrns.	214-233-5200
TX	Grand Prairie, Dial Supp.	214-647-2371
TX	Houston, Marshall Elctrns.	713-789-6600
TX	Sugarland, Connec/Tek	713-491-2566
UT	Salt Lake City, Diplomat Elctrns.	801-486-4134
WA	Bellevue, Marshall Elctrns.	206-747-9100
WA	Seattle, Radar Elec.	206-282-2511

SOUTHCO, INC., Concordville, PA 19331, Tel: 215-459-4000, Telex: 83-1485, TWX: 710-760-1715; *Sls. Mgr.:* R. W. Dougherty

SOUTHERN COMPUTER CORP., 3720 N. Stratford Rd. N.E., Atlanta, GA 30342, Tel: 404-231-5363; *Sls. Mgr.:* Raymond F. Marley; *Dist. Mgr.:* Robert Morris

SOUTHERN ELECTRONICS, F-Dyne, 726 So. Flower St., Burbank, CA 91502, Tel: 213-845-2458, TWX: 910-498-5707; Empl.: 100; *Sls. Mgr.:* Ron Head

SOUTH SHORE METAL PRODS., 88 E Allen Blvd., Farmingdale, NY 11735, Tel: 516-249-3322; Empl.: 30; *Sls. Mgr.:* A. G. Bauer

SOUTHWEST TECH PRODS CORP., 219 W. Rhapsody, San Antonio, TX 78216, Tel: 512-344-0242; Empl.: 34

SPACE ELECTRONICS, INC., Box 2166, Meriden, CT 06450, Tel: 203-235-7755; Empl.: 16; *Sls. Mgr.:* Richard Boynton

SPACE POWER ELCTRNS., Jeffrey Lane, RD 1, Glen Gardner, NJ 08826, Tel: 201-537-2184

SP AMERICA INC., Shin-Etsu Polymer, 1754 Technology Dr., Ste. 128, San Jose, CA 95110, Tel: 408-947-0311, TWX: 910-338-2229; *Sls. Mgr.:* R. L. Bucholtz

SPARKOMATIC, Rte. 6 & 209, Milford, PA 18337, Tel: 717-296-6444, TWX: 510-260-2682; Empl.: 300; *Sls. Mgr.:* Robert Schuler

SPEC, INC., 3014 N. Hayden Rd., Ste. 115, Scottsdale, AZ 85251, Tel: 602-994-1511; *Sls. Mgr.:* James J. Edwards

SPECIALIZED ELCTRN. MAGNETIC PRODS., 272 Loudon Ridge Rd. Route 8, Loudon, NH 03301, Tel: (603) 267-6892; *Sls. Mgr.:* Grant D. Avery

SPECIALTY CONNECTOR CO., 2620 Endress Place, Greenwood, IN 46141, Tel: 317-535-5353

SPECO DIV., Components Specialties, Inc., P.O. Box 624, 1172 Rte. 109, Lindenhurst, NY 11757, Tel: 516-957-8700, 800-645-5516, Telex: 96-7754; Empl.: 33; *Sls. Mgr.:* Mel Hulkower; *Dist. Mgr.:* Stan Hulkower

SPECTRACOM, 320 N. Washington St., Rochester, NY 14625, Tel: 716-381-4827; Empl.: 12

SPECTRAGRAPHICS CORP., 10260 Sorrento Valley Rd., San Diego, CA 92121, Tel: 619-450-0611; Empl.: 100

SPECTRAL DYNAMICS DIV., Scientific-Atlanta, Box 671, San Diego, CA 92112, Tel: 619-268-7100, TWX: 910-335-2022; Empl.: 600; *Sls. Mgr.:* Robert N. Saunders

SPECTRA LUX CORP., 12840 N.E. 21 St. Pl., Bellevue, WA 98005, Tel: 206-747-0560; FSC No.: 51896; *Sls. Mgr.:* Ron Bustad

SPECTRAN CORP., Hall Rd., P.O. Box 650, Sturbridge, MA 01566, Tel: 617-347-2261; FSC No.: 6V569; Empl.: 25

SPECTRAN INSTRUMENTS, INC., Box 891, La Habra, CA 90631, Tel: 213-694-3995

SPECTRA SONICS, 3750 Airport Rd., Ogden, UT 84403, Tel: 801-392-7531; Empl.: 35

SPECTRA-STRIP, 7100 Lampson Ave., Garden Grove, CA 92642-0415, Tel: 714-892-3361, TWX: 910-596-1314; Empl.: 300; *Sls. Mgr.:* Jerry Campbell

SPECTRO EQUIPMENT, INC., 6021 Royalton Rd., N. Royalton, OH 44133, Tel: 216-237-8910; Empl.: 25

SPECTROLAB, INC., 12500 Gladstone Ave., Sylmar, CA 91342, Tel: 213-365-4611, TWX: 910-496-1488; Empl.: 250

SPECTROL ELCTRNS., 17070 East Gale Ave., City of Industry, CA 91749, Tel: 818-964-6565, TWX: 910-584-1314; Empl.: 600; *Sls. Mgr.:* R. Shackelford .... **1A•**2056-2062

Local Sales Offices & Reps

AL	Huntsville, Beacon Sls.	205-881-5031
AZ	Phoenix, Thom Luke Sls.	602-941-1901
CA	San Diego, Hadden Assoc.	619-565-9444
CA	Santa Clara, I^2	408-988-3400
CA	Ventura, Astralonics	805-653-5991
CO	Denver, Spectrum Sls.	303-696-1601
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Clearwater, Beacon Sls.	813-796-2378
FL	Ft. Lauderdale, Beacon Sls.	305-491-1054
IL	Downers Grove, Momak Sls.	312-963-6400
IA	Hiawatha, Gassner & Clark	319-393-5763
KS	Shawnee Mission, Lowell-Kangas	913-631-3515
MD	Baltimore, Component Sls.	301-484-3647
MA	Burlington, Kitchen & Kutchin	617-229-2660
MI	Livonia, Luebbe Sls.	313-477-3131
MN	St. Paul, Murnco	612-484-8200
MO	St. Louis, Lowell-Kangas	314-821-4050
NJ	Haddonfield, Sunday-O'Brien	609-429-4013
NY	Commack, E.R.A.	516-543-0510
NY	Liverpool, Precision Sls.	315-451-3480
NY	Syracuse, L Mar	315-437-7779
NC	Raleigh, Beacon Sls.	919-787-0330
OH	Cincinnati, Luebbe Sls.	513-891-5770
OH	Cleveland, Luebbe Sls.	216-333-0425
OH	Columbus, Luebbe Sls.	614-431-0474
OH	Dayton, Luebbe Sls.	513-294-0426
OR	Beaverton, Barrett-Squibb & Assocs.	503-642-1661
PA	Pittsburgh, R. F. Clark	412-242-9500
TX	Dallas, Allied Comps.	214-238-0408
TX	Houston, Allied Comps.	713-988-1600
TX	Hurst, Allied Comps.	817-589-0456
WA	Redmond, Barrett-Squibb & Assocs.	206-885-6991

SPECTRON CORP., 344 New Albany Rd., Moorestown, NJ 08057, Tel: 609-234-5700, Telex: 83-1488, TWX: 710-897-1359

SPECTRONICS CORP., 956 Brush Hollow Rd., Westbury, NY 11590, Tel: 516-333-4840, TWX: 510-222-5877; *Sls. Mgr.:* Henry K. Lee; *Dist. Mgr.:* James J. Weglarz

SPECTRONICS, DIV. HONEYWELL, See Honeywell Optoelctrns.

SPECTRUM CONTROL, INC., 8061 Avonia Rd., Fairview, PA 16415, Tel: 814-474-1571

SPECTRUM CONTROL, INC., 2185 W. 8th St., Erie, PA 16505, Tel: 814-455-0966, TWX: 510-699-6871; FSC No.: 33095; Empl.: 450; *Sls. Mgr.:* R. Greer; *Dist. Mgr.:* C. Pirro .... **1A•**1625-1627; **2•**1569-1573

Local Sales Offices & Reps

CA	Sunnyvale, Spectrum Control	408-735-9015
CA	Valencia, Spectrum Control	805-257-2280
MA	Chelmsford, Spectrum Control	617-256-3565
NJ	Brielle, Spectrum Control	201-528-8420
NJ	Fairfield, Pantronics	201-575-1177
NY	New York, Landseas	212-265-8323
TX	Irving, Spectrum Control	214-251-1669
EXP	PA, Erie, Spectrum Control	814-455-0966

Local Distributors

CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Torrance, Cypress Elctrns.	213-533-6005
FL	Dania, Summit Distrs.	305-920-6253
IL	Chicago, Newark Elctrns.	312-638-4411
NJ	Perth Amboy, Metuchen Capacitors	201-442-0500
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Rochester, Summit Distrs.	716-334-8110
OH	Dayton, Aschbacher	513-252-7785
TX	Addison, Captronics	214-980-0123
TX	Austin, Captronics	512-459-4328
TX	Houston, Captronics	713-776-2100
Intl	Australia, Rifa	03-480 1211
Intl	Denmark, E.V.J. Johanssen Elektronics	01-839022
Intl	Eng., Birmingham, Steatite Insulations	021 454-6961-2
Intl	France, Gentilly, Radio Television Franchise S.A.	664.11.01
Intl	Israel, Tel-Aviv, Landseas, Ltd.	247291-4
Intl	Japan, Tokyo, Jepico	Tokyo (03) 348-0621/0622
Intl	Netherlands, Zaandam, Bodamer Intl. BV	075-351521
Intl	Norway, H.C.A. Melbye/AS	02-106050
Intl	S. Africa, Bryanston, Taltronics Pty. Ltd.	618-2014/5
Intl	Sweden, Farsta, Traco AB	08-93-0960
Intl	Switzerland, Ebmatingen, EME, Ernst Egli	01-980-11-11
Intl	W. Germany, Ettlingen, Bodamer GmbH	(07243) 79263
Intl	W. Germany, Hamburg, Bodamer GmbH	(040) 7111091
Intl	W. Germany, Munchen, Bodamer GmbH	(089) 641801

SPECTRUM TECHNOLOGY, INC., 300 Lopez Rd., Goleta, CA 93116, Tel: 805-964-7791, TWX: 910-334-1163; FSC No.: 32464; Empl.: 100; *Sls. Mgr.:* Wm. L. Bishop .... **1A•**1426, 1427

Local Sales Offices & Reps

AZ	Tempe, Sedco Sls.	602-835-6281
AZ	Tucson, Sedco Sls.	602-298-1758
CA	Culver City, Westaironics	213-641-4122
CA	San Jose, Frequency Control Assocs.	408-446-0200
CT	Milford, Todino Engrg. Sls.	203-874-6643
FL	Ft. Myers, Rainbow Sls.	813-332-2210
FL	Melbourne, Rainbow Sls.	305-727-3305
IL	Elgin, R.K. Elctrns.	312-695-8552
MA	Needham, Todino Engrg. Sls.	617-444-7925
NJ	Haddonfield, Mesa Tech. Assocs.	609-429-9531
NM	Albuquerque, I.M.E.C.	505-883-9010
NY	Huntington, Compar N.Y.	516-423-5660
OK	Tulsa, Ion Assocs.	918-664-0186
TX	Austin, Ion Assocs.	512-458-2108
TX	Grand Prairie, Ion Assocs.	817-640-8282
TX	Houston, Ion Assocs.	713-461-5311
VA	Fairfax, Schibley Assocs.	703-591-3008

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High Voltage Electronics Corporation

SPELLMAN HIGH VOLTAGE ELCTRNS. CORP., 7 Fairchild Ave., Plainview, NY 11803, Tel: 516-349-8686, TWX: 510-221-2155; Empl.: 175; *Sls. Mgr.:* James R. Usher .... **3•**1774-1776

Local Sales Offices & Reps

CA	El Cajun, Atronics	619-444-1501
CA	Woodland Hills, Atronics	213-703-7212
FL	Orlando, Gra-Mar, Inc.	305-894-3351
MA	Concord, Nortech Engrg. Sls.	617-259-0032
MA	Medfield, Nortech Engrg.	617-359-6063
MN	St. Paul, Knox Assocs.	612-488-5402
TX	Dallas, Seaton Corp.	214-380-0414
TX	Houston, Seaton Corp.	713-731-2649

SPEMCO SWITCHES, 23425 Harper, St. Clair Shores, MI 48080, Tel: 800-482-2828; Empl.: 9

A.W. SPERRY INSTRUMENTS INC.

SPERRY, A. W., INSTRS., P.O. Box 9300, Smithtown, NY 11787, Tel: 516-231-7050, Telex: 645104; Empl.: 40; *Sls. Mgr.:* Dennis W. Carroll .... **3•**1304

Local Sales Offices & Reps

AL	Birmingham, Russell Elctrn. Assocs.	205-822-2196
CA	N. Hollywood, Don Starr Co.	213-875-2766
CA	San Francisco, Flair Electro Sls.	415-864-0444
CA	Santa Fe Springs, New West Agency	213-921-6812
CO	Denver, E. O. Sales Co.	303-778-1900
FL	Longwood, Ralph Joyner Mktg.	305-339-0181
HI	Kailua, Don Thomas Assocs.	808-262-4818
IL	Chicago, Ken Levy & Assocs., Ltd.	312-763-5000
IL	Forest Park, J. K. Neuhauser Sls. Co.	312-771-7800
IN	Indianapolis, Blind & Assocs.	317-844-1314
IA	Council Bluffs, Bob Smith Co.	712-322-1233
LA	Mandeville, Corrigan Agency	504-626-5231
MD	Kensington, Forti Assocs.	301-949-1706
MA	Northboro, W. B. Pray Sls.	617-393-3434
MI	Detroit, Burcaw Co.	313-533-7700
MN	Minneapolis, Fruen's Sales	612-546-7173
MO	Kansas City, Johnson Elec. Sls. Co.	816-421-4891
NY	Buffalo, Rudell-Merrifield Assoc.	716-634-4300
NY	Oceanside, Bittan Assocs.	516-678-6222
NY	Syracuse, Electro-Lines	315-455-5701
NC	Charlotte, W. H. Lassiter	704-523-2736
OH	Chagrin Falls, Thomas R. Eby Co.	216-543-8141
OH	Columbus, Mandabach-Lehner	614-235-0265
TX	Dallas, Kopiuitz Co.	214-484-7557
TX	Ft. Worth, Chet Wells & Co.	817-284-0261
WA	Bellevue, Topp Engrg. Sls.	206-747-5400

SPERRY UNIVAC, Mini-Computer Operations, Box C-19504, Irvine, CA 92713, Tel: 714-754-6900, TWX: 910-596-1358; Empl.: 500

SPIRICON INC., 2600 North Main, Logan, UT 84321, Tel: 801-753-3729; Empl.: 5; *Sls. Mgr.:* Carlos Roundy

SPRAGUE ELEC. CO., 481 Marshall St., No. Adams, MA 01247, Tel: 413-664-4411, Telex: 92-6415, TWX: 710-369-1360; FSC No.: 56289; Empl.: 10,500; *Dist. Mgr.:* J. J. Judge

SPRAGUE ELEC. CO., Semiconductor Div., 115 Northeast Cutoff, Worcester, MA 01606, Tel: 617-853-5000, TWX: 710-340-6304; FSC No.: 56289; Empl.: 650

SPRAGUE-GOODMAN ELCTRNS., INC., 134 Fulton Ave., Garden City Pk., NY 11040, Tel: 516-746-1385, Telex: 14-4533; FSC No.: 52769; Empl.: 100; *Sls. Mgr.:* David Taub; *Dist. Mgr.:* David Taub .... **1A•**1185

Local Sales Offices & Reps

AZ	Phoenix, Sanford Sls. Assocs.	602-957-3570
CA	Burlingame, W. J. Purdy Co.	415-347-7701
CA	Los Angeles, R.F. Assocs.	213-478-1586
CA	San Diego, R. D. Miner Inc.	619-566-9891
CO	Denver, W. J. Purdy Co.	303-777-1411
FL	Pompano Beach, Cole-Tek	305-781-8110
GA	Smyrna, Spartech	404-432-3644
IL	Chicago, B.N.I. Elctrns.	312-447-0581
IN	Ft. Wayne, Denton Mktg. Inc.	219-627-5515
IA	Marion, M.S.B. Assoc.	319-377-6261
KS	Shawnee Mission, M.S.B. Assoc.	913-432-2131
MD	Pikesville, Imagitron Sls.	301-521-2020
MA	Southboro, KSA of New England	617-485-9432
MI	Jackson, Sprague Elec. Co.	517-787-3934
MN	Chanhassen, Barnes Sls. Assoc.	612-934-2907
MO	St. Charles, M.S.B. Assoc.	314-946-5577
NJ	Wayne, Richman Salesco - Kagan	201-694-1115
NY	Commack, Richman Salesco	516-543-5532
NY	Utica, Sweetco Assoc.	315-797-6721
OH	Cincinnati, Stegman Blaine Mktg.	513-729-1969
TX	Austin, Delta Comps.	512-458-4288
TX	Seagoville, Delta Comps.	214-287-6333
WA	Seattle, Sprague Elec. Co.	206-632-7761
WA	Vancouver, Sprague Elec.	206-892-0361

Local Distributors

CA	Belmont, Varitech Electronics	415-593-3300
CA	Garden Grove, National Capacitor Corp.	714-892-7749
CA	Santa Ana, Projections Unlimited	714-641-1472
IL	Skokie, Kellner Elctrns.	312-677-1120
MA	Burlington, T.L.C.	617-273-0140
MA	Needham, Cronin Elctrns.	617-449-5000
NY	Hauppauge, Prime Comps.	516-582-6258
NY	Lynbrook, Varitech Elctrns.	516-593-9300
NY	Stony Brook, Bomark Elctrns.	516-689-8999
PA	State College, ALVO Elctrns.	814-238-0505
TX	Addison, Captronics	214-980-0123
TX	Ft. Worth, PATCO Supp.	
WA	Seattle, KAM Elctrns.	206-285-5622

SPRAGUE PRODUCTS CO., 481 Marshall St., No Adams, MA 01247, Tel: 413-664-4481, TWX: 710-369-1363; FSC No.: 56289; *Sls. Mgr.:* J. Judge; *Dist. Mgr.* A. Bascomb, Vice President

SPRINGFIELD MOULDERS, INC., See ITT Thermotech

SPRUCE PINE MICA CO., Mtn. Laurel Dr., Spruce Pine, NC 28777, Tel: 704-765-4241; Empl.: 45; *Sls Mgr.:* Hugh M. Wiseman

Local Sales Offices & Reps

A	Mountain View, Straube Assocs.	415-969-6060
C	Smithfield, Agents & Distrs.	919-934-7592

QUARE D CO., Executive Plaza, Palatine, IL 60067, Tel: 312-397-2600, Telex: 255274; Empl.: 21100; *Sls. Mgr.:* R. A. Hegeman

R ENGINEERING INC., 13961 Nautilus Dr., Dept. E, Garden Grove, CA 92643, Tel: 714-554-4200; FSC No.: 21441; *Sls. Mgr.:* Coleman W. Conrad

Local Sales Offices & Reps

Z	Phoenix, Runyon Co.	602-840-6060
	Cedar Rapids, Howard Brown Sls. Co.	319-366-0635

RS INDUSTRIES, INC., 903 S. Alta Vista Ave., Monrovia, CA 91016, Tel: 213-357-3287, TWX: 910-585-3486; FSC No.: 015362; *Sls. Mgr.:* John B. McCaffery

S A C, Box 395, Liverpool, NY 13088, Tel: 315-622-1000, Telex: 646221, TWX: SSAC LIPL; FSC No.: 16-0985719; Empl.: 220; *Sls. Mgr.:* R. Shutt

TACKBIN CORP., Albion Road, Lincoln, RI 02865, Tel: 401-333-1600; Empl.: 75; *Sls. Mgr.:* J. J. Patterson

TACKPOLE (THE STACKPOLE CORP.), Stackpole St., St. Marys, PA 15857, Tel: 814-781-1234, Telex: 914-514, TWX: 510-693-4511; FSC No.: 78488

TACKPOLE, CARBON DIV., St. Marys, PA 15857, Tel: 814-781-1234, Telex: 914-514, TWX: 510-693-4511; *Sls. Mgr.:* T. M. Eynon

TACKPOLE COMPONENTS CO., 3400 Yonkers Rd., Raleigh, NC 27604, Tel: 919-828-6201, TWX: 510-928-0520, 29; *Sls. Mgr.:* Patrick J. Ryan; *Dist. Mgr.:* Tish Gibson

TACKPOLE COMPONENTS CO., Box M, Farmville, VA 23901, Tel: 804-392-4111, TWX: 510-928-0520/29; *Sls. Mgr.:* P. J. Ryan; *Dist. Mgr.:* Tish Gibson

TACKPOLE, ELECTRONIC COMPONENTS DIV., 201 Stackpole St., St. Marys, PA 15857, Tel: 814-781-1234, Telex: 914-514, TWX: 510-693-4511; *Sls. Mgr.:* D. L. Almquist

TACKPOLE, MAGNET DIV., 700 Elk Ave., Kane, PA 16735, Tel: 814-837-7000, TWX: 510-695-8360; *Sls. Mgr.:* V. D. Venigni

TACO, INC., See Staco Transpower

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TACO ENERGY PRODS. CO., 301 Gaddis Blvd., Dayton, OH 45403, Tel: 513-253-1191, Telex: 288-032, TWX: 810-459-1798; FSC No.: 83008; Empl.: 146; *Sls. Mgr.:* Robert Simpson ....**1A**•2280, 2281

Local Sales Offices & Reps

A	Costa Mesa, Stacoswitch	714-549-3041
A	Santa Clara, Thomas Assocs.	408-988-4484
O	Denver, West, Inc.	303-692-0131
L	Ft. Lauderdale, Hutto-Hawkins-Peregoy	305-917-5750
L	Maitland, Hutto-Hawkins-Peregoy	305-831-2474
A	Atlanta, Millar Elctrn. Sls.	404-261-6160
I	Honolulu, Elctrns. Sls. & Svc.	808-845-8207
L	Evanston, Saffro & Assocs.	312-328-0140
N	Indianapolis, Electronic Mktg.	317-842-4155
A	Folsom, McKinney Sls. Co.	504-796-5861
A	Lexington, Hathaway Elctrns.	617-861-7010
N	St. Paul, SKOR	612-645-6461
O	Kansas City, J. O. Schmitz	816-363-3414
M	Albuquerque, C. T. Carlberg & Assocs.	505-265-1579
Y	Alexander, B. F. Tollefson Assocs.	716-591-1219
Y	Auburn, B. F. Tollefson Assocs.	315-253-4109
Y	Rochester, B. F. Tollefson Assocs.	716-271-4141
Y	Valley Stream, Levison Sls. Co.	516-561-9696
C	Raleigh, Millar Elctrns.	919-787-9564
H	Dayton, Dircksen & Assoc.	513-294-3657
H	Dayton, Rockford Controls	513-898-5452
H	Euclid, Rockford Controls	216-731-5250
OK	Tulsa, McKinney Sls. Co.	918-492-8882
OR	Portland, James J. Backer	503-297-3776
OR	Salem, Jas. J. Backer	503-362-0717
PA	Flourtown, Eastern Comps.	215-836-1616
PA	Stuartstown, Eastern Comps. Sls.	717-993-3288
PA	York, Eastern Comps.	717-764-3114
TX	Bellaire, McKinney Sls. Co.	713-444-3817
TX	Dallas, McKinney Sls. Co.	214-631-9450
VA	Herndon, Eastern Comps.	703-471-1025
WA	Seattle, James J. Backer	206-285-1300
WI	Lake Mills, Saffro & Assocs.	414-648-2605
EXP	FL, Hialeah, West Indes Sls. Co., Ltd.	305-888-1676
EXP	NY, New York, Allied Intl.	212-986-3222

STACOSWITCH, 1139 Baker St., Costa Mesa, CA 92626, Tel: 714-549-3041, TWX: 910-595-1507; FSC No.: 12522; Empl.: 100; *Sls. Mgr.:* D. Sugg

Local Sales Offices & Reps

AL	Huntsville, 20th Century Mktg., Inc.	205-533-9281
CA	San Jose, Snyder Sls.	408-559-4444
CO	Golden, J. F. Hurlbut Co.	303-279-7796
CT	Marion, Sands Co.	203-628-4363
FL	Orlando, EMA, Inc.	305-671-6800
GA	Stone Mountain, 20th Century Mktg., Inc.	404-292-7088
IL	Oak Brook, MSL Assoc.	312-655-8977
IN	Richmond, EMA, Inc.	513-433-2800
IA	Cedar Rapids, H. R. Brown Sls.	319-366-0635
KS	Kansas City, B-C Elctrn. Sls.	913-342-1211
MD	Silversprings, Youth & Nelson	301-598-5740
MA	Woburn, Sands Co.	617-935-7495
MI	Livonia, Lowell-Wendt Mktg. Co.	313-464-2722
MO	St. Louis, B-C Elctrn. Sls.	314-731-1255
NJ	Wayne, G.T. Assocs.	201-694-6040
NY	Syracuse, Lenard Co.	315-479-9191
OH	Cleveland, C.A. Robinson Co.	216-381-9049
OH	Dayton, C.A. Robinson	513-278-7969
OR	Portland, Frank Jackson Assoc.	503-292-2638
PA	Media, W. Reeves Assocs.	215-566-6709
TN	Knoxville, 20th Century Mktg., Inc,	615-690-1618
TX	Austin, Delta Comps.	512-458-4288
TX	Dallas, Delta Comp.	214-358-4288
TX	Houston, Delta Comps.	713-664-6777
UT	Salt Lake City, J. F. Hurlbut Co.	801-973-4443
WA	Redmond, Frank Jackson Assoc.	206-881-7277

STACO
TRANSPOWER

STACO TRANSPOWER, 301 Gaddis Blvd., Dayton, OH 45403, Tel: 513-253-1191, Telex: 288-032, TWX: 810-459-1798; FSC No.: 83008; Empl.: 100; *Sls. Mgr.:* T. D. McNulty ....**1A**•2283

Local Sales Offices & Reps

AL	Huntsville, Remco	205-533-3763
AZ	Scottsdale, Power Specialists	602-996-4100
CA	Buena Park, Chuck Cooper Co.	714-739-8526
CA	Los Altos, Frauman Assoc.	415-941-0660
CT	Natick, Benchmark Assoc.	617-899-3390
GA	Atlanta, Remco	404-447-6937
KY	Cinci, Tri-State Mktg.	513-761-7993
MA	Natick, Benchmark Assocs.	617-655-9333
MI	Southfield, Fred Gehrke & Assocs.	313-559-5363
MN	Arlington Hgts., Diethert-Angel	312-593-7600
MN	Minneapolis, Diethert Angel	612-546-6099
NJ	King of Prussia, Freeman-Malta Assoc.	215-337-9211
NJ	Mountain Lakes, Levison Sls. Co. Inc.	201-334-2921
NY	Illion, Noeth-Honsinger Assoc.	315-894-9943
NY	Pittsford, Noeth-Honsinger Assoc.	716-586-9002
NY	Valley Stream, Levison Sls.	516-561-9698
NC	Raleigh, Remco	919-847-5079
OH	Cleveland, Marlow Assocs.	216-991-6500
OH	Columbus, Marlow Assocs.	614-885-7643
PA	Pittsburgh, Marlow Assocs.	412-367-8886
UT	Salt Lake City, Aspen Sales	801-467-2401
WI	Menomonee Falls, Walter M. Braun & Assocs.	414-251-8685

STAFFALL INC., 7 Woodland St., Providence, RI 02908, Tel: 401-351-8282, TWX: 710-381-6964; Empl.: 25

STAINLESS, INC., 3rd St., N. Wales, PA 19454, Tel: 215-699-4871, TWX: 510-661-8097; Empl.: 80; *Sls. Mgr.:* Jess C. Rodriguez

STANCOR/HAMILTON STANDARD CONTROLS, 131 Godfrey St., Logansport, IN 46947, Tel: 219-722-2244, TWX: 810-295-0699; FSC No.: 80089; *Sls. Mgr.:* Hubert Daubs ....**1A**•2284-2292: **1B**•1474

Local Sales Offices & Reps

AZ	Scottsdale, Thom Luke Sls.	602-941-1901
CA	San Diego, Haddeu Assoc. Inc.	619-565-9444

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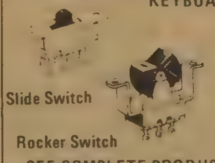

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GA	Atlanta, Beacon Elctrns.	404-256-9640
IL	Glenview, Reigel Assoc.	312-729-3824
IN	Indianapolis, Electronic Reps. Inc.	317-894-1414
IA	Cedar Rapids, Gassner & Clark	319-393-5763
KS	Shawnee Mission, Lowell Kangas & Assoc. Inc.	913-631-3515
MD	Baltimore, Component Sls.	301-484-3647
MA	Needham Heights, Newscott Co., Inc.	617-444-1923
MI	East Detroit, Jack M. Thorpe Co.	313-779-6363
MN	St. Paul, Murnco	301-833-2039
NJ	Haddonfield, Sunday O'Brien	609-429-4013
NY	Commack, Engineering Reps. Assoc.	516-543-0510
NY	Liverpool, Precision	315-451-3480
OH	Cincinnati, Luebbe Sls. Co.	513-891-5770
PA	Pittsburgh, Russell F. Clark Co.	412-242-9500
TX	Dallas, Allied Comps. Inc.	214-238-0408
WA	Bellevue, B & P Sls.	206-454-6571

STANDARD CONDENSER CORP., 1065 W. Addison St., Chicago, IL 60613, Tel: 312-327-5440

STANDARD ENERGY, Div. WBH Scientific, Inc., Rte. 32, Greenville, NY 12083, Tel: 518-966-4197, Telex: 754180 ....**3**•1777-1779

STANDARD ENGRG., 44800 Girmmer, Fremont, CA 94538, Tel: 415-657-7555, TWX: 910-381-6048; Empl.: 40

STANDARD ENVIRONMENTAL SYSTEMS, INC., 383 Minnisink Rd., Totowa, NJ 07512, Tel: 201-256-2200, TWX: 710-988-5722; Empl.: 50

STANDARD GRIGSBY, INC., 920 Rathbone Ave., Aurora, IL 60507, Tel: 312-844-4300, TWX: 910-232-3138; Empl.: 350; *Sls. Mgr.:* Ed Barry; *Dist. Mgr.:* Bob Lynch ....**1B**•1626, 1627

Local Sales Offices & Reps

AL	Huntsville, L. & D., Inc.	205-837-1469
AZ	Tempe, Piper Sls.	602-949-0048
CA	Laguna Hills, Jack Fitch & Assocs.	714-951-0196
CA	Milpitas, Maxim Elctrn. Sls.	408-946-6001
CT	East Haven, Eagle Assocs.	203-467-6542
FL	Casselberry, Southern Elctrn. Mktg.	305-695-3335
FL	Clearwater, Southern Elctrn. Mktg.	813-441-3902
FL	Ft. Lauderdale, Southern Elctrn. Mktg.	305-475-3686
GA	Dunwoody, L. & D., Inc.	404-455-3483
IN	Ft. Wayne, Wilson Tech. Sls.	219-424-5299
IN	Indianapolis, Wilson Tech. Sls.	317-298-3345
IA	Cedar Rapids, Rep Assocs.	319-373-0152
MI	Ann Arbor, R. L. Rowe & Assocs.	313-995-8711
MI	Livonia, Luebbe Sls. Co.	313-477-3131
MN	St. Paul, Murnco	612-484-8200
NJ	Mountain Lakes, Comps. For Elctrns.	201-334-2921
NM	Ithaca, L-Mar Assoc.	607-256-5712
NY	E. Syracuse, L-Mar Assoc.	315-437-7779
NY	East Northport, Comps. for Elctrncs.	516-266-5020
NY	Rochester, L-Mar Assoc.	716-323-1000
NY	W. Seneca, L-Mar Assoc.	716-675-1277
NC	Greensboro, L. & D., Inc.	919-292-3201
NC	Raleigh, L. & D., Inc.	919-876-5301
OH	Cincinnati, Luebbe Sls.	513-891-5770
OH	Cleveland, Luebbe Sls.	216-333-0424
OH	Columbus, Luebbe Sls.	614-431-0464
OH	Dayton, Luebbe Sls.	513-294-0427
OK	Broken Arrow, Design Mktg.	918-258-8656
OR	Aloha, Micro Sls.	513-642-1818
PA	Feasterville, Knowles Assocs.	215-322-7100
PA	Pittsburgh, Luebbe Sls.	412-931-0414
TN	Seymore, L. & D., Inc.	615-557-1549
TX	Conroe, Design Mktg.	713-273-2319
TX	Dallas, Design Mktg.	214-680-9767
TX	Hurst, Design Mktg.	817-268-2004
TX	Round Rock, Design Mktg.	512-255-9896
VA	Richmond, L. & D., Inc.	804-359-0125
WA	Bellevue, Micro Sls.	206-451-0568

Refer to Gordos Corporation, Bloomfield, New Jersey for Authorized Distributor information.

STANDARD GRIGSBY INC., W. Günther GMBH, Virnsberger Strasse 51, D 8500 Nürnberg 51, West Germany, Tel: 0911-65521, Telex: 622351

STANDARD LOGIC, 2215 S. Standard Ave., Santa Ana, CA 92707, Tel: 714-979-4770, TWX: 910-595-1707; Empl.: 150; *Sls. Mgr.:* B. L. Billington

STANDARD MICROSYSTEMS, 35 Marcus Blvd., Hauppauge, NY 11787, Tel: 516-273-3100, TWX: 510-227-8898; Empl.: 310; *Dist. Mgr.:* William Rotoli

STANDARD PNEUMATIC MOTOR, Box 10530, Reno, NV 89510, Tel: 702-329-6311, Telex: 354-467; FSC No.: 53623; Empl.: 125

STANDARD POWER, INC., 1400 S. Village Way, Santa Ana, CA 92705, Tel: 714-558-8512, TWX: 910-595-1760; Empl.: 221; *Sls. Mgr.:* Sydele M. Petch; *Dist. Mgr.:* Sydele M. Petch ....**3**•1780-1783

Local Sales Offices & Reps

AL	Huntsville, Electronic Mfrs. Agts.	205-830-4030
AZ	Phoenix, O'Donnell Assocs.	602-944-9542
CA	San Diego, Martronix	619-728-7678
CA	Sunnyvale, O'Donnell Assocs.	408-263-6500
CA	Torrance, Orion Sls.	213-240-3151
CT	Hartford, Sturgeon Co.	203-249-7800
FL	Altamonte Springs, WMM Assocs.	305-831-4530
FL	Clearwater, WMM Assocs.	813-442-3913
FL	Davie, WMM Assocs.	305-432-2628
FL	Indialantic, WMM Assocs.	305-773-1157
GA	Atlanta, Electronic Mfrs. Agts.	404-329-0503
IL	Elmhurst, Utronix Sls.	312-834-1100
IN	Ft. Wayne, Needler Sls.	219-447-2123
IN	Indianapolis, Needler Sls.	317-255-8056
KS	Shawnee Mission, Lowell-Kangas & Assoc.	913-631-3515
KY	Louisville, Needler Sls.	502-241-4046
MA	Needham Hgts., Sturgeon Co.	617-444-6603
MN	Bloomington, Northport Engrg.	612-854-5556
MO	St. Louis, Lowell-Kangas & Assoc.	314-821-4050
NY	Great Neck, Cooper-Simon & Co.	516-487-1142
NY	Syracuse, T Squared Elctrns.	315-463-8592
NY	Victor, T Squared Elctrns.	716-924-9101
NC	Pineville, Electronic Mfrs. Agts.	704-541-2628
NC	Winston-Salem, Electronic Mfrs. Agts.	919-784-7304
OH	Cleveland, Marlow Assoc.	216-991-6500
OH	Columbus, Marlow Assoc.	614-885-7643
OR	Portland, Westerberg & Assocs.	503-297-1719
PA	Pittsburgh, Marlow Assoc.	412-367-8886
PA	Prospect Park, Elf Sls.	215-534-3340
TN	Donelson, Electronic Mfrs. Agts.	615-883-1414
TX	Houston, Milco Mktg.	713-946-2841
WA	Bellevue, Westerberg & Assocs.	206-453-8881

Local Distributors

AL	Huntsville, Arrow Elctrns.	205-882-2730
AL	Huntsville, R.M. Elctrns.	205-852-1550
AZ	Phoenix, Wyle Distr. Grp.	602-249-2232
AZ	Phoenix, Kachina Elect. Dist.	602-269-6201
AZ	Phoenix, R.V. Weatherford Co.	602-272-7144
CA	Anaheim, R.V. Weatherford Co.	714-634-9600
CA	Burlingame, Rose Elctrns.	415-348-2740
CA	El Segundo, Wyle Distr. Grp.	213-322-8100
CA	Glendale, R.V. Weatherford Co.	213-849-3451
CA	Irvine, Wyle Distr. Grp.	714-641-1600
CA	Los Angeles, Arrow Elctrns.	213-701-7500
CA	Pomona, R.V. Weatherford	714-623-1261
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, Wyle Distr. Grp.	619-565-9171
CA	San Diego, R.V. Weatherford	619-695-1700
CA	San Francisco, Arrow Elctrns.	408-745-6600
CA	Santa Barbara, R.V. Weatherford Co.	805-965-8551
CA	Santa Clara, Wyle Distr. Grp.	408-727-2500
CA	Sunnyvale, R.V. Weatherford Co.	408-738-8694
CA	Tustin, Arrow Elctrns.	714-838-5422
CO	Denver, Arrow Elctrns.	303-758-2100
CO	Denver, R.V. Weatherford Co.	303-428-6900
CO	Thornton, Wyle Distr. Grp.	303-457-9953
CT	Wallingford, Sager Elect.	203-265-4600
CT	Wallingford, Arrow Elctns.	203-265-7741
FL	Ft. Lauderdale, Hammond Elctrns.	305-973-7103
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Melbourne, Arrow Elctrns.	305-725-1480
FL	Orlando, Hammond Elctrns.	305-849-6060
GA	Atlanta, Hammond Elctrns.	404-524-7502
GA	Norcross, Arrow Elctrns.	404-449-8252
HI	Honolulu, Industrial Elctrns.	808-533-6095
IL	Addison, LComp-Chicago	312-628-1400
IL	Chicago, Arrow Elctrns.	312-893-9420
IL	Lombard, RM Elctrns.	312-932-5150
IN	East Chicago, Acro Elctrns.	219-397-8681
IN	Ft. Wayne, Graham Elect. Supp.	219-423-3422
IN	Indianapolis, Advent Elctrns.	317-872-4910
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, RM Elctrns.	317-247-9701
IN	Lafayette, Graham Elect. Supp.	317-423-5564
IA	Cedar Rapids, Iowa Radio Supp. Co.	319-393-4510
IA	Cedar Rapids, Arrow Elctrns.	319-395-7230
KS	Wichita, L Comp Inc.	316-265-5100
KS	Wichita, Radio Inc.	316-264-2798
LA	Marrero, AFG Elctrn. Supp.	504-368-9696
LA	New Orleans, Radio Parts	504-581-5959
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Baltimore, Resco/Baltimore	301-823-0070
MD	Beltsville, Resco	301-937-9100
MD	Beltsville, Treeko Sls.	301-937-8260
MA	Hingham, Sager Elec. Supply	617-749-6700
MA	Woburn, Arrow Elctrns.	617-933-8130
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Grand Rapids, R.S. Elctrns.	616-241-3483
MI	Grand Rapids, RM Elctrns.	616-531-9300
MI	Kalamazoo, R.S. Elctrns.	616-381-5470
MI	Livonia, R.S. Elctrns.	313-525-1155
MI	Roseville, R.S. Elctrns.	313-779-2450
MI	Wynadotte, R.S. Elctrns.	313-282-5880
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minneapolis, Northern Elctrns.	612-944-1167
MO	Kansas City, LComp-Kansas City	816-221-2400
MO	Maryland Hgts., LComp-St. Louis	314-291-6200
MO	St. Louis, Van Sickee Radio Supp.	314-621-5000
MO	St. Louis, Arrow Elctrns.	314-567-6888
NE	Lincoln, Scott Elec. Supp.	402-466-8221
NH	Manchester, Arrow Elctrns.	604-668-6968
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Moorestown, Arrow Elctrns.	609-235-1900
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Farmingdale, Arrows Elctrns.	516-694-6800
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Mt. Vernon, QAR Ind'l. Sls.	914-699-2224
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Rochester, Rochester Radio Supp. Co.	716-454-7800
NY	Syracuse, Arrow Elctrns.	315-652-1000
NC	Greensboro, Hammond Elctrns.	919-275-6391
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Cincinnati, Graham Elctrn. Supp.	513-772-1661
OH	Cincinnati, Hughes-Peters	513-351-2000
OH	Cleveland, CAM/Ohio	216-461-470
OH	Cleveland, Arrow Elctrns.	216-248-3990
OH	Columbus, Graham Elctrn. Supp.	614-895-159
OH	Columbus, Hughes-Peters	614-294-5351
OH	Dayton, Arrow Elctrns.	513-435-556
OH	Dayton, Esco, Inc.	513-226-113
OH	Toledo, R.S. Elctrns.	419-893-0721
OK	Oaklahoma City, Radio Inc.	405-789-0741
OK	Tulsa, Radio Inc.	918-587-912
OR	Lake Oswego, Rose Elctrns.	503-635-882
OR	Portland, Wyle Distr. Grp.	503-640-600
PA	Drexel Hill, Kass Elctrns.	215-449-230
PA	Pittsburgh, CAM/RPC Ind'l. Elctrns.	412-782-377
PA	Pittsburgh, Arrow Elctrns.	415-856-700
SC	Greenville, Hammond Elctrns.	803-233-412
TN	Knoxville, Hammond Elctrns.	615-691-349
TN	Nashville, Graham Elctrn. Supp.	615-242-268
TX	Austin, Arrow Elctrns.	512-835-418
TX	Corpus Christi, Douglas Elctrns.	512-883-510
TX	Dallas, R.V. Weatherford	214-931-733
TX	Dallas, Arrow Elctrns.	214-386-750
TX	El Paso, ERA Elctrns.	915-592-412
TX	Houston, R.V. Weatherford Co.	713-688-740
TX	Houston, Arrow Elctrns.	713-491-410
UT	Salt Lake City, Wyle Distr.	801-974-995
UT	Salt Lake City, Bell Inds.	801-972-696
UT	Salt Lake City, Arrow Elctrns.	801-539-113
WA	Bellevue, Wyle Distr. Grp.	206-453-830
WA	Bellevue, Arrow Elctrns.	206-643-480
WA	Seattle, R.V. Weatherford Co.	206-575-134
WI	Madison, Arrow Elctrns.	608-273-497
WI	Mequon, Taylor Elec. Co.	414-241-432

STANDARD REFERENCE LABS, INC., Coan Pl. Metuchen, NJ 08840, Tel: 201-549-9280, TWX: 710 998-0503; FSC No.: 57114; Empl.: 5; *Sls. Mgr.:* Denni M. Koep; *Dist. Mgr.:* Dennis M. Koep ....**3**•130

Local Sales Offices & Reps

AZ	Scottsdale, Williams Assocs.	602-947-429
CA	San Diego, Mesa Engrg.	619-278-803
CA	Torrance, Cutlas Elctrns.	213-324-736
CO	Commerce City, Williams Assocs.	303-289-564
FL	Winter Haven, Lee Assocs., Florida	813-294-581
IL	Des Plaines, Marsland Assocs.	312-298-262
IN	Indianapolis, Marsland Assocs.	317-924-356
IA	Cedar Rapids, Marsland Assocs.	319-296-803
MD	Wheaton, Brimberg Sls.	301-946-267
MN	Minneapolis, Marsland Assocs.	612-545-448
MO	St. Louis, Marsland Assocs.	314-878-240
NM	Albuquerque, Williams Assocs.	505-255-163
NY	Binghamton, Tae-Rep	607-722-926
NY	Rochester, Tae-Rep	716-586-871
UT	Salt Lake City, Williams Assocs.	801-532-770
WA	Portland, Westcon	503-283-013
WI	New Berlin, Marsland Assoc.	414-786-661

STANDARD WIRE & CABLE CO., 2345 Alask Ave., El Segundo, CA 90245, Tel: 213-536-000 Telex: 65-3423, TWX: 910-340-6758; FSC No.: 0494 Empl.: 125; *Sls. Mgr.:* J. Gaither; *Dist. Mgr.:* Jerr Gaither

STANDEX ELCTRNS., 4538 Camberwell Rd Cincinnati, OH 45209, Tel: 513-871-3777, Tele 212066; Empl.: 1,039; *Sls. Mgr.:* Charles C. Johnso ....**1A**•1628, 1629; **1B**•147

TANFORD APPLIED ENGRG. INC., 3520 De La Cruz Blvd., Santa Clara, CA 95050, Tel: 408-980-1600, TWX: 910-338-0132; Empl.: 1300; *Sls. Mgr.:* Dick Hudspeth; *Dist. Mgr.:* Dick Hudspeth

Local Sales Offices & Reps

Filters/Power Devices

L	Huntsville, K & E Assocs.	205-883-9720
Z	Scottsdale, American Mktg.	602-948-2778
Z	Scottsdale, F. Board Assoc.	602-994-9388
R	Tulsa, Kemp Engrg.	918-663-4501
A	San Diego, Vinco	619-569-6959
A	San Diego, Stanford Applied Engrg.	619-569-6959
A	Santa Ana, Caltronics	714-751-9162
A	Santa Ana, Stanford Applied Engrg.	714-751-9162
A	Santa Clara, Caltronics	408-727-7552
O	Denver, Quorum 3; Sls. Grp.	303-696-8480
O	Englewood, Quorum 3: Sls. Grp.	303-696-8480
L	Osteen, Bolton Assocs.	305-321-3077
L	Pompano Beach, Electrocraft	305-781-5778
A	Doraville, K & E Assocs.	404-448-7025
I	Honolulu, Adtech	808-941-0708
.	Barrington, Stanford Applied Engrg.	312-382-6960
.	Wheeling, P.G. Applied Sls.	312-459-5750
I	Indianapolis, SAI Mktg.	317-241-9276
\	Cedar Rapids, Electromec Sls.	319-362-6413
S	Shawnee, BAKA Corp.	913-268-5065
S	Wichita, Baka	316-262-0179
ID	Ellicot City, Arbotek Assoc.	301-461-1323
IA	Millis, Selmark Assocs.	617-376-2914
II	Brighton, SAI Mktg.	313-227-1786
IN	Burnsville, Electromec Sls.	612-894-8200
IN	Minneapolis, Electromec Sls.	612-894-8200
J	Medford, Component Consits.	609-654-5300
'J	Perth Amboy, Astrorep, Inc.	201-826-8050
J	Teaneck, Norest Techn. Sls.	201-833-0061
:M	Albuquerque, Power Entprs.	505-298-1918
Y	Babylon, Astrorep, Inc.	516-422-2500
Y	Melville, Stanford Applied Engrg.	516-420-8111
Y	North Syracuse, Advanced Comp. Sls.	315-699-2671
Y	Syracuse, Pitronics	315-455-7346
C	Raleigh, K & E Assocs.	919-781-1406
H	Dayton, SAI Mktg.	513-435-3181
H	Shaker Heights, SAI Mktg.	216-751-3633
H	Zanesville, SAI Mktg.	614-454-8942
K	Tulsa, Kemp Engrg.	918-663-4501
R	Beaverton, Huntley Assocs.	503-649-5288
N	Jonesboro, K & E Assocs.	615-753-2921
X	Austin, Mech-Tron Mktg.	512-835-0980
X	Dallas, Mech-Tron Mktg.	214-343-3786
X	Houston, Mech-Tron Mktg.	713-462-1432
T	Salt Lake City, Quorum 3: Sls. Grp.	801-943-7441
/A	Everett, Huntley Assocs.	206-353-1833
/A	Kirkland, Elec. Technical Sls.	206-827-8086

Interconnections & Packaging

L	Huntsville, K & E Assocs.	205-883-9720
Z	Scottsdale, American Mktg	602-948-2778
R	Tulsa, Kemp Engrg.	918-663-4501
A	San Diego, Vinco	619-569-6959
A	Santa Ana, Caltronics	714-751-9162
A	Santa Clara, Caltronics	408-727-7552
O	Boulder, Stanford Applied Engrg.	303-530-1900
O	Denver, Quorum 3: Sls. Grp.	303-696-8480
T	Farmington, Stanford Applied Engrg.	203-677-6046
L	Apopka, Bohman Assocs.	305-886-1882
A	Doraville, K & E Assocs.	404-448-7025
I	Honolulu, Adtech, Inc.	808-941-0708
.	Barrington, Lancastle, Ltd.	312-381-6780
.	Wheeling, P.G. Applied Sls.	312-459-5750
\	Cedar Rapids, Electromec Sls.	319-362-6413
S	Shawnee, Baka	913-268-5065
S	Wichita, Baka	316-262-0179
ID	Ellicott City, Marketing Tech	301-465-5944
IA	Lexington, Circuit Sls. Co.	612-861-0567
IN	Burnsville, Electromec Sls.	612-894-8200
IO	Ferguson, Baka Corp.	314-878-4224
J	Medford, Component Consits.	609-654-5300
J	Perth Amboy, Astrorep, Inc.	201-826-8050
J	Teaneck, Noreast Techn. Sls.	201-833-0061
M	Albuquerque, Power Entprs.	505-298-1918
Y	Babylon, Astrorep, Inc	516-422-2500
Y	North Syracuse, Advanced Comp. Sls.	315-699-2671
C	Raleigh, K & E Assocs.	919-781-1406
H	Beachwood, Electronic Salesmasters	216-831-9555
K	Tulsa Kemp Engrg	918-663-4501
A	Springhouse, Deltatronics	215-542-0250
N	Jonesboro, K & E Assocs.	615-753-2921
X	Austin, Mech-Tron Mktg.	512-835-0980
X	Dallas, Mech-Tron Mktg.	214-343-3786
X	Houston, Mech-Tron Mktg.	713-462-1432
T	Salt Lake City, Quorum 3: Sls. Grp.	801-943-7441
/A	Tukwila, General Elctrns.	206-241-7990

Local Distributors

AL	Huntsville, RM Alabama, Inc.	205-852-1550
AL	Huntsville, Component Distrs.	205-883-7501
AZ	Phoenix, Hieland Elctrns.	602-243-7171
AZ	Phoenix, Arizona Components	602-279-9446
AZ	Tempe, Time Elctrns.	602-967-2000
AZ	Tempe, Bell Industries	602-966-7800
AR	Little Rock, Component Distrs.	501-227-6278
CA	Anaheim, Time Elctrns.	714-937-0911
CA	Chatsworth, Integrated Elctrns.	213-988-2200
CA	Costa Mesa, Escot	714-557-3252
CA	Irvine, Ryno Elctrns.	714-557-5021
CA	Irvine, Ratel Elctrns.	714-549-8611
CA	Los Angeles, Connector Distbn. Corp.	213-670-2266
CA	San Diego, Ryno Elctrns.	619-292-6022
CA	San Jose, Ratel Elctrns.	408-946-4300
CA	Santa Clara, Escot	408-988-4991
CA	Santa Clara, Caltronics	408-727-7552
CA	Sunnyvale, Time Elctrns.	408-734-9888
CA	Torrance, Time Elctrns.	213-320-0880
CO	Broomfield, Escot	303-465-2346
CO	Colorado Springs, Ratel Elctrns.	303-599-9043
CO	Englewood, Industrial Elctrns.	303-694-9444
CO	Wheatridge, Bell Industries	303-424-1985
CT	Bethel, Beilind Elctrns.	203-797-8600
FL	Ft. Lauderdale, Dielco	305-973-8700
FL	Ft. Lauderdale, Time Elctrns.	305-974-4800
FL	Ft. Lauderdale, Component Distrs.	305-971-4950
HI	Honolulu, Adtech, Inc.	808-941-0708
IL	Chicago, Bell Industries	312-982-9210
IL	Lombard, RM Illinois, Inc.	312-932-5150
IL	Mt. Prospect, Magnuson	312-956-0700
IL	Wheeling, Escot	312-459-5750
IN	Indianapolis, RM Indiana, Inc.	317-247-9701
IN	Indianapolis, Magnuson	317-247-5108
MD	Savage, Pyttronic Inds.	301-953-9650
MA	Burlington, Schaal Assocs.	617-272-7940
MA	Burlington, Heilind Elctrns.	617-272-5610
MA	Woburn, Time Elctrns.	617-935-8080
MI	Grand Rapids, RM Michigan, Inc.	616-531-9300
MN	Edina, Northern Elctric. Supply	612-944-1167
MN	St. Paul, Magnuson Elctrns.	612-227-8495
MO	St. Louis, Time Elctrns.	314-391-6444
NH	Hudson, Heilind Elctrns.	603-883-9536
NJ	Oakland, Gordon/Horne Inc.	201-337-5200
NM	Albuquerque, Bell Industries	505-292-2700
NY	Buffalo, Summit Elctrns.	716-884-3450
NY	Hauppauge, Schaal Assocs.	516-234-4600
NY	Hauppauge, Time Elctrns.	516-273-0100
NY	Rochester, Modutex Corp.	716-424-1620
NY	Rochester, Summit Elctrns.	716-334-8110
NY	Rome, Rome Elctrns.	716-337-5400
NC	Raleigh, Component Distrs.	919-781-0262
NC	South Charlotte, Elctrn. Mktg. Corp.	704-394-6195
OH	Columbus, Elctrn. Mktg. Corp.	614-299-4161
OH	Highland Heights, Elctrn. Mktg. Corp.	216-442-3441
OK	Oklahoma City, Radio Inc.	405-789-0741
OK	Tulsa, Radio Inc.	918-587-9123
OK	Tulsa, Altair	918-252-5781
OR	Oswego, Bell Industries	503-241-4115
PA	Broomall, Time Elctrns.	215-359-1200
PA	Montgomeryville, Pyttronic Inds.	215-643-2850
PA	Pittsburgh, Pyttronic Inds.	412-276-6722
TX	Austin, Altair Co.	512-837-4490
TX	Dallas, Heilind Elctrns.	214-351-2058
TX	Dallas, RM Texas, Inc.	214-235-3100
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, Altair Co.	214-231-5166
UT	Midvale, Ratel Elctrns.	810-562-2600
UT	Salt Lake City, Bell Industries	801-972-6969
WA	Bellevue, Bell Industries	206-747-1515
WA	Bellevue, Integrated Elctrns.	206-455-2727
WI	New Berlin, RM Wisconsin	414-784-4420
WI	Waukesha, Bell Industries	414-784-0235

STANFORD TELECOMMUNICATIONS, INC., 2421 Mission College Blvd., Santa Clara, CA 95050, Tel: 408-748-1010, TWX: 910-339-9531; FSC No.: 61362; Empl.: 300; *Sls. Mgr.:* J. A. Kirby

STANLEY/AC INTERFACE, 2925 College Ave., Unit A 1, Costa Mesa, CA 92626, Tel: 714-979-9830, Telex: 655328; *Sls. Mgr.:* R. D. Henwood; *Dist. Mgr.:* R. D. Henwood

STANLEY-VIDMAR, Stanley Works, 11 Grammes Rd., Allentown, PA 18103, Tel: 215-797-6600; *Sls. Mgr.:* Ernie Gitlin

STANPAT PRODS., 366 Main St., Port Washington, NY 11050, Tel: 516-883-8400; Empl.: 25

STANTON MAGNETICS, INC., Terminal Dr., Plainview, NY 11803, Tel: 516-349-0200, TWX: 510-221-1845; Empl.: 300

STANTRON

STANTRON DIV., 6900 Beck Ave., N. Hollywood, CA 91605, Tel: 818-875-0800, TWX: 910-499-2177; FSC No.: 06514; Empl.: 125; *Sls. Mgr.:* G. A. Tessier .... **2**•1055

Local Sales Offices & Reps

AZ	Phoenix, Shefler-Kahn Co.	602-257-9015
CA	Los Angeles, Landa/Minyard	213-879-0770
CA	Pleasanton, Moulthrop Sls.	415-463-0450
CO	Golden, J. F. Hurlbut Co.	303-279-7796
CT	Farmington, Ray Perron & Co.	203-673-4825
CT	Seymour, Ray Perron & Co.	203-888-4849
FL	Pompano Beach, T. G. & Assocs.	305-781-8328
FL	Tampa, T. G. & Assocs.	813-753-5632
GA	Jonesboro, Wallace Elctrn. Sls.	404-471-6297
HI	Honolulu, J.C. Elctrns.	808-841-7477
IL	Chicago, Berndt Assocs.	312-283-0713
IN	Carmel, Berndt Assocs.	317-844-0114
KS	De Soto, Midtec Assoc.	913-441-6565
MD	Ellicott City, Sci-Rep	301-321-1411
MA	Needham, Ray Perron & Co.	617-449-6162, 800-225-4280
MI	Jackson, Norwood Scroggs	517-750-1170
MN	Minneapolis, Berndt Assocs.	612-546-2021
MO	Florissant, Midtec Assocs.	314-837-5200
NH	Dover, Ray Perron & Co.	603-742-2321
NJ	Pennsauken, Sci-Rep	609-662-5222
NJ	Wayne, G.T. Assocs.	201-694-6040
NM	Albuquerque, Shefler-Kahn Co.	505-265-7049
NY	Rochester, Gislason Sls.	716-454-4741
NC	Kernersville, Wallace Elctrn. Sls.	919-996-2742
OH	Cincinnati, J. O. Olsen Co.	513-574-7711
OH	Cleveland, J. O. Olsen Co.	216-662-3454
OK	Tulsa, Barry Sls.	918-749-7775
PA	Pittsburgh, J. O. Olsen Co.	412-279-2550
TN	Chattanooga, Wallace Elctrn. Sls.	615-870-2080
TX	Austin, Barry Sls.	512-837-3616
TX	Houston, Barry Sls. Co.	713-784-5860
TX	Richardson, Barry Sls. Co.	214-234-0255
UT	Salt Lake City, J. F. Hurlbut Co.	801-973-4443
VA	Fairfax, Sci-Rep	703-385-0600
WA	Seattle, D. Smith Sls.	206-633-3160
WI	Milwaukee, Berndt Assocs.	414-545-8400

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COMPONENTS DIVISION

STAR MICRONICS, INC., Components Div., 70-D Ethel Rd. W., Piscataway, NJ 08854, Tel: 201-572-9512; Empl.: 120; *Sls. Mgr.:* R. Messer .... **3**•1056-1059, 1092, 1093

Local Sales Offices & Reps

AZ	Phoenix, MacDonald Assocs.	602-998-1848
CA	Fullerton, Groh Assoc.	714-738-7105
CA	Menlo Pk., G. R. McKnight Co.	408-942-0880
CA	San Diego, Groh Assoc.	714-738-7105
FL	Casselberry, Southern Elctrn. Mktg.	305-695-3334
FL	Fort Lauderdale, Southern Elctrn. Mktg.	
GA	Atlanta, Magaro & Assoc.	404-451-8826
IL	Elk Grove Village, Oasis Sls. Corp.	312-640-1850
IN	Carmel, Shamrock Sls.	317-848-5265
IA	Cedar Rapids, Elctrn. Innovators	319-362-2217
MD	Baltimore, Adcour	301-889-1211
MA	Sharon, Adcour	617-784-8123
MI	Southfield, Component Assoc.	313-557-3232
MN	Eden Prairie, Elctrn. Innovators	612-941-0830
NJ	Sparta, Instr. & Equip.	201-729-4293
NY	Queens, Metropolitan Sls.	212-634-3100
NC	Greensboro, Magaro & Assocs.	919-294-4783
OH	Bedford, A.S.A. Assocs.	216-662-6080
OR	Portland, Controltek Sls.	503-641-0877
TX	Houston, Repmaster-Houston	713-692-8204
TX	Richardson, McCoy Assocs.	214-238-1017
WA	Bellevue, Controltek	206-451-8163

WV	Spokane, Controltek	509-922-2971
WI	Brookfield, Oasis	414-783-6660
EXP	Markham, Lenbrook	416-477-7722

Local Distributors

CA	Costa Mesa, Marvac	714-540-3280
CA	Los Angeles, Elect. Switches	213-660-1301
CA	San Diego, Tauber Elctrns.	619-274-7242
CA	Santa Clara, Waltronics Sls.	408-727-1200
IL	Wheeling, Hawk Elctrns.	312-459-4040
MA	Sharon, Adcour	617-784-8123
MN	Minneapolis, Voyager Elctrns.	612-571-7766
NJ	Sparta, Instrument & Equip.	201-729-4293
NJ	Sparta, Instr. & Equip.	201-447-3525
NJ	Waldwick, Production Supp. & Equip.	201-447-3525
NY	Rockaway Park, Metropolitan Sls.	212-634-3100
OH	Cincinnati, United Radio Inc.	513-761-4030
OR	Portland, United Radio Supp.	503-233-7151
TX	Channelview, R. T. Henry Elctrns.	713-452-4451
TX	Houston, Copper Alarm Supp. Co.	713-868-1794
UT	Dallas, Wholesale Elctrns.	214-824-3001
WA	Bellevue, Solomon Inds.	206-643-5644
EXP	Markham, Ont., Lenbrook Elctrns.	416-477-7722

STAR PORCELAIN, 71 Muirhead Ave., Trenton, NJ 08638, Tel: 609-392-3154; Empl.: 100; *Sls. Mgr.:* Art Hobson

STAR-TRON CORP., 58 Curtis St., Providence, RI 02909, Tel: 401-274-5090, Telex: 929490; FSC No.: 32494; Empl.: 50; *Sls. Mgr.:* Anna Coski

STATEK CORP., 512 N. Main St., Orange, CA 92668, Tel: 714-639-7810, Telex: 67-8394, TWX: 910-593-1355; FSC No.: 51791; Empl.: 100; *Sls. Mgr.:* J. Ownby .... **1A**•1429-1431

Local Sales Offices & Reps

AL	Huntsville, Mackay Smith & Assoc.	205-539-8000
AZ	Phoenix, Eltron	602-266-2164
CA	El Toro, Martronix	714-855-6397
CA	Mountain View, Weseloh/Swanson & Assocs.	415-961-0565
CA	San Diego, Mesa Engrg. & Sls. Assocs.	619-278-8021
CO	Denver, Elcom	303-337-2300
FL	Madeira Beach, MacKay, Smith & Assoc.	813-393-7144
FL	Orlando, MacKay, Smith & Assoc.	305-277-1513
GA	Norcross, MacKay, Smith & Assoc.	404-449-7444
IL	Northbrook, Raines & Assocs.	312-498-0890
IN	Fort Wayne, M/S Sls. & Assocs.	219-484-1904
IN	Indianapolis, M/S Sls. & Assocs.	317-257-8916
KS	Overland Park, Thomas L. Dowell & Assoc.	913-648-7373
MD	Baltimore, Professional Reps.	301-653-3600
MA	Woburn, Radian Assocs.	617-933-7386
MO	St. Louis, Thomas L. Dowell & Assocs.	913-648-7373
NJ	Bellmawr, TAI Corp.	609-933-2600
NJ	Manhasset, Win-Cor Elect. Sales Corp.	516-627-9474
NY	Syracuse, PI' Tronics	315-455-7346
NC	Charlotte, MacKay, Smith & Assoc.	704-372-1188
NC	Raleigh, MacKay, Smith & Assoc.	919-851-5000
OK	Tulsa, Norcom	918-832-7747
TX	Austin, Norcom	512-451-2757
TX	Dallas, Norcom	214-386-4888
TX	Houston, Norcom	713-778-0392
UT	Salt Lake City, Elcom	801-532-7940
WA	Redmond, Halbar Assoc.	206-882-0990
WA	Vancouver, Halbar Assoc.	206-696-0170

Local Distributors

AL	Huntsville, Contact Elctrns.	205-881-9321
CA	Irvine, Ryno Elctrns.	714-261-2500
CA	Mountain View, Target Elctrns.	415-961-1170
CA	San Diego, Ryno Elctrns.	619-292-6022
FL	Longwood, Intertec	305-834-7777
IL	Palatine, OHM Elctrns.	312-359-5500
IN	Indianapolis, Mar Elctrns. Inc.	317-875-4510
MD	Columbia, Aztech Elctrns.	301-995-1760
MA	Woburn, First Frequency	617-935-3885
MO	St. Louis, Olive Elctrns.	314-426-4500
NY	Buffalo, Summit Distrs.	716-884-3450
OR	Lake Oswego, Rose Elctrn. Distrg. Co.	503-635-8823
TX	Richardson, Ewing Elctrns. Inc.	214-231-6725
WA	Seattle, Rose Elctrn. Distrbg. Co.	206-721-4997

STATE OF THE ART, INC., 2470 Fox Hill Rd., State College, PA 16801, Tel: 814-355-8004

STATIC INC., Rte. 113 & Mensch Rd., P.O. Box 80, Skippack, PA 19474, Tel: 215-584-9600, Telex: 846079; Empl.: 50; *Sls. Mgr.:* R. J. Hoffman

STAVER CO., INC., 47 Saxon Ave., Bay Shore, NY 11706, Tel: 516-666-8000, TWX: 510-227-6142; Empl.: 140; *Sls. Mgr.:* Arnold Lazarus .... **1B**•1105

Local Sales Offices & Reps

CA	Woodland Hill, R. H. McDonald & Assocs.	213-348-3766
IL	Lombard, RMP/McBride Corp.	312-932-9090
MA	Scituate, Jack Goss	617-545-6327
MI	Ann Arbor, Elliott Sls.	313-662-4087
MN	St. Louis Park, Lestronix	612-926-8466
NH	Hancock, Eisenbeis Sls.	603-357-4892
NY	East Northport, Levison Sls. Co.	516-266-5020
NY	Manlius, Bowser & Sapecky Assocs.	315-682-8885
NC	Cary, Tom G. Santel	919-467-7595
OK	Tulsa, Jerry Robinson & Assocs.	918-492-0390
OR	Portland, J. J. Backer Co.	503-297-3776
PA	Colmar, Eastern Scientific Mktg.	215-822-0157
PA	Sewickley, T. H. Stewart Co.	412-741-8665
SC	Mauldin, Carl Hart	803-288-2323
TX	Houston, Cunningham Co.	713-461-4197
VA	Portsmouth, F.B.D. Sls.	804-484-3162
WA	Seattle, J. J. Backer Co.	206-285-1300

STD MICROSYSTEMS, 399 Sherman Ave., Palo Alto, CA 94306, Tel: 415-327-6800; *Sls. Mgr.:* Gary Whittaker; *Dist. Mgr.:* Gary Whittaker

STENNING INSTRUMENTS, INC., 671 Enchanted Way, Pacific Palisades, CA 90272, Tel: 213-459-2930; *Sls. Mgr.:* Charles Stenning

STEP ENGINEERING, P.O. Box 61166, Sunnyvale, CA 94088, Tel: 408-733-7837, TWX: 910-339-9506; Empl.: 30; *Sls. Mgr.:* Stan Trumbull

STERLING INSTR., Div. Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040, Tel: 516-328-3300, TWX: 510-223-0642; Empl.: 150

STERLING TRANSFORMER CORP., 510 Driggs Ave., Brooklyn, NY 11211, Tel: 212-782-4200; FSC No.: 97102; Empl.: 45; *Sls. Mgr.:* P. H. Odessey .... **1A**•2293-2297

Local Sales Offices & Reps

OH	Dayton, George Lessis	513-294-1551

STETTNER ELCTRNS., 6135 Airways Blvd., Chattanooga, TN 37421, Tel: 615-892-0291, TWX: 810-573-5224; FSC No.: 52763; *Sls. Mgr.:* Ralph S. Souders

STEVENS-ARNOLD DIV., Computer Prods., Inc., 7 Elkins St., So. Boston, MA 02127, Tel: 617-268-1170, Telex: 95-1465 STEARCO, TWX: 710-339-0855; FSC No.: 80640; Empl.: 300; *Sls. Mgr.:* John T. Parent .... **3**•1705, 1717-1724

Refer to Computer Products, Inc., Pompano Beach, Fl for sales offices and representatives and for distributor listings.

STEVENS PRODUCTS, INC., 128 N. Park St., E. Orange, NJ 07019, Tel: 201-672-2140; Empl.: 50; *Sls. Mgr.:* John Thomson

STEWARD, D. M., MFG. CO., P.O. Box 510, Chattanooga, TN 37401, Tel: 615-867-4100, Telex: 558490; Empl.: 185; *Sls. Mgr.:* Arlin Grant

STOCK DRIVE PRODS., Div. of Designatronics, Inc., 55 S. Denton Ave., New Hyde Pk., NY 11040, Tel: 516-328-0200, TWX: 510-223-0642; Empl.: 210

STOELTING CO., 1350 S. Kostner Ave., Chicago, IL 60623, Tel: 312-522-4500; Empl.: 50; *Sls. Mgr.:* D. A. Peterson

STONE CITY PRODUCTS CO., 1206 Seventh Street, Bedford, IN 47421, Tel: 812-275-3373

STORM PRODUCTS CO., 116 Shore Drive, Hinsdale, IL 60521, Tel: 312-323-9121, TWX: 910-651-0850; *Sls. Mgr.:* John W. Holland

STOW LABS., INC., Kane Ind'l. Dr., Hudson, MA 01749, Tel: 617-562-9347, Telex: 94-8330; Empl.: 15

STRATEGIC SYS. DIV. POWER SYS. OPERATIONS, GTE Prods. Corp. Sylvania Sys. Grp., 520 Winter St., Waltham, MA 02254, Tel: 617-466-3000, Telex: 951-953, TWX: 710-290-0376

STREET ELECTRONICS CORP., 1140 Mark Ave., Carpinteria, CA 93013, Tel: 805-684-4593

STROBE, INC., 897 Independence Ave., Mountain View, CA 94043, Tel: 415-969-5130

STRONGBOX, P.O. Box 84508, Los Angeles, CA 90073, Tel: 213-204-0472; Empl.: 3; *Sls. Mgr.:* Larry Martinek .... **2**•1056, 1057

Advertisement

STRONGBOX Heavy-Duty aluminum Rack-Mount Chassis. EIA-Standard heights, 3½" to 8¾." Available 9½," 12," 19" deep. Extension kits for intermediate, extra-long sizes. All fit 19" racks. Solid or Perforated Covers. Slides, Mounting Panels available. Non-standard heights, depths available. Write/call for free brochure. See catalog, EEM.

Local Sales Offices & Reps

CA	San Diego, Edmonson Co.	714-846-9086
NM	Albuquerque, Betatron	505-344-2381

STRUCTURED DESIGN, INC., 1700 Wyatt Dr. #7, Santa Clara, CA 95054, Tel: 408-988-0725, Telex: 172931; *Sls. Mgr.:* Noel C. Hendricks; *Dist. Mgr.:* Noel C. Hendricks

STRUTHERS-DUNN, Lamb's Rd., Pitman, NJ 08071, Tel: 609-589-7500, TWX: 510-686-7510; FSC No.: 78290; Empl.: 700; *Sls. Mgr.:* W.L. Capewell; *Dist. Mgr.:* A. B. Kinney .... **1B**•1477

Local Sales Offices & Reps

AL	Huntsville, Rep, Inc.	205-881-9270
AZ	Phoenix, Hecht, Henscher & Assoc.	602-275-4411
AR	Little Rock, Controls & Power	501-661-1737
CA	Culver City, DeAngelo, Rothman & Co.	213-827-2202
CA	San Diego, Struthers-Dunn	619-560-9922
CA	Santa Clara, Mollard Mktg.	408-727-2050
CO	Denver, Lindberg Co.	303-758-9033
CT	Bloomfield, Zaslow Sls. Co.	203-242-7781
FL	Miami, Ludlum Assocs.	305-592-6524
FL	Orlando, Ludlum Assocs.	305-894-7761
GA	Tucker, Rep, Inc.	404-938-4358
IL	Glen Ellyn, Rockford Controls Co.	312-469-6016
IA	Bettendorf, BSI, Ltd.	319-355-5623
KS	Wichita, Avionics Engrg.	316-264-6201
LA	Lafayette, Kemp Engrg.	318-269-9452
MI	Southfield, L. H. Dickelman Co.	313-353-8210
MN	Minneapolis, HMR, Inc.	612-831-7400
MO	Maryland Heights, Hitt & Assocs.	314-878-5404
MO	Raytown, E. A. Mais Co.	816-356-0800
NJ	West Caldwell, Grimm, Siegel Assocs.	201-575-9300
NY	Buffalo, H. C. Zang Agency	716-877-3677
NC	Charlotte, J. Rudisill Assocs.	704-377-6901
OH	Cincinnati, Struthers-Dunn	513-772-3108
OH	Strongsville, Struthers-Dunn	216-572-1333
PA	Pittsburgh, R. F. Clark Co.	412-242-9500
TN	Jefferson City, REP, Inc.	615-475-4105
TN	Memphis, Controls & Power	901-332-0036
TX	Arlington, W. Pat Fralia Co.	817-640-9101
TX	Houston, W. Pat Fralia Co.	713-772-1572
WA	Seattle, Eicher-Richards Co.	206-523-7888

ST-SEMICON, 415 N. College Ave., P.O. Box 609 Bloomington, IN 47402, Tel: 812-332-1435, TWX 810-351-1384; Empl.: 100; *Sls. Mgr.:* Robert Muldoan

SUCKLE CORP., 733 Davis St., Dept. EM, Scranton PA 18505, Tel: 717-346-3871; Empl.: 200; *Sls. Mgr.:* M. H. Brenner .... **2**•1058

Local Sales Offices & Reps

GA	Lilburn, R. Panyik Assoc.	404-923-3703
NJ	Cherry Hill, T. Cammaroto	609-772-232
PA	Scranton, J. Castellino	717-346-409

Sullins

ULLINS ELCTRNS. CORP., P.O. Box 189, 801 Mission Rd., San Marcos, CA 92069, Tel: 619-744-0125, TWX: 910-322-1472; Empl.: 100; *Sls. Mgr.*: Chip Bruss; *Dist. Mgr.*: Chip Bruss .... **2**•1574, 1575

Local Sales Offices & Reps

L	Decatur, Tenn Tech, Inc.	205-350-0630
Z	Phoenix, Robert E. Lee Assoc.	602-269-6206
A	Los Angeles, K.C.P. Ent.	213-796-1813
A	Sunnyvale, Schwerin & Merril, Inc.	408-735-7900
O	Arvada, Cluff & Assocs.	303-423-9354
T	Hamden, Impact Sls.	203-281-1331
	Downers Grove, Circuit Sls., Inc.	312-964-9090
	Indianapolis, Sukup & Cox	317-253-5501
	Marion, M-S-B Assoc.	319-377-6261
S	Shawnee Mission, M-S-B Assoc.	913-432-2131
D	Laurel, CSDS, Inc.	301-490-3800
A	Needham, Impact Sls.	617-444-3971
N	Minneapolis, Milt Westlund Assocs.	612-866-5002
O	St. Charles, M-S-B Assoc.	314-946-5577
J	Medford, Comp. Consultants	609-654-5300
Y	Lynbrook, HLJ Comp-Tech	516-599-2999
Y	Syracuse, Lenard Co.	315-479-9191
H	Beachwood, Elctrn. Salesmasters, Inc.	216-831-9555
A	The Fairway Rydal, Espy Sls.	215-576-0780
X	Austin, T.L. Mktg.	512-453-4586
X	Dallas, T.L. Mktg.	214-357-1752
A	Bellevue, Elctrn. Mktg. Grp.	206-746-5915
I	Mequon, Artmor Ltd.	414-241-4040

Local Distributors

L	Birmingham, Forbes Distr. Co.	205-251-4104
L	Decatur, Forbes Distr. Co.	205-353-4762
L	Huntsville, RM Elctrns.	205-852-1550
L	Mobile, Forbes Distr. Co.	205-479-4535
Z	Phoenix, Arizona Comps.	602-279-9446
Z	Phoenix, Kachina Elctrn. Dist.	602-269-6201
A	Burbank, Atwater Elctrns.	818-841-9050
A	Pasadena, Empire Elctrn. Distrs.	213-681-2700
A	San Diego, Patane Avionics, Inc.	619-271-9877
A	San Diego, Sigma Elctrns.	619-565-2000
A	San Jose, Cypress Elctrns.	408-945-8400
A	Simi Valley, Lee Johnson Sls.	213-346-5412
A	Torrance, Cypress Elctrns.	213-530-1900
A	Van Nuys, Mil Conn Dvcs. Inc.	800-824-7885
A	Van Nuys, Patane Avionics, Inc.	818-988-4455
A	Ventura, Bond Electro Sls.	805-653-6487
O	Denver, Integrated Elctrns.	303-292-6121
O	Denver, Denver Wintronics	303-431-7161
O	Ragon, Elctrn. Parts	303-744-3601
L	Miami, Elctrn. Equip.	305-871-3500
L	Pensacola, Forbes Distr. Co.	904-944-5551
A	Atlanta, Ack Radio Supp.	404-351-6340
	Addison, Lectro Comps.	800-323-2282
	Chicago, NEP Elctrns.	312-625-8400
	Melrose Pk., Belford Elctrns.	312-865-2400
	Wheeling, Hawk Elctrns.	312-459-4030
	Ft. Wayne, Graham Elctrns.	219-423-3422
	Indianapolis, RM Elctrns.	317-247-9701
A	Canton, Impact Sls.	617-821-1500
I	Grand Rapids, RM Elctrns.	616-531-9300
I	Walled Lake, Ambur Elctrns.	313-669-3710
J	Audobon, Action Elctrns.	609-858-2450
J	Bellmawr, Mid-Atlantic Elctrns.	609-931-5303
M	Albuquerque, Electronic Parts	505-293-6161
	Charlotte, Southeastern Elctrns.	704-523-1122
	Durham, Southeastern Radio Supp.	919-688-8204
	Raleigh, Southeastern Radio Supp.	919-828-2311
H	Cincinnati, Schuster Electr.	513-489-1400
H	Solon, REH Elctrns.	216-248-1636
H	Twinsburg, Schuster Elec. Co.	216-425-8134
R	Portland, Dunn Elctrns.	503-285-0214
	Chattanooga, Indl. Elctrns. Dist.	615-698-3413
	Knoxville, Indl. Electrns.	615-573-7135
	Dallas, RM Elctrns.	214-235-3100
	Garland, J&S Elctrns.	214-487-8808
	Salt Lake City, Kimball Elctrns.	801-328-2075
A	Seattle, Carlyle Techn. Sls.	206-575-6750
	Mequon, Lake-View Elctrns.	414-377-8250

JMITA OPTICAL GLASS MFG. CO., LTD., P.O. Box 521, Millwood, NY 10546, Tel: 914-762-4959; FSC No.: 914-762-7497; *Sls. Mgr.*: Mike Sumita

SUMMAGRAPHICS CORP., 35 Brentwood Ave., Fairfield, CT 06430, Tel: 203-384-1344, Telex: 964348; *Sls. Mgr.*: Anthony Joyce; *Dist. Mgr.*: Ron McClure

SUMMIT CAD CORP., 5222 FM 1960 W100, Houston, TX 77069, Tel: 713-440-1468, Telex: 792831; *Sls. Mgr.*: Gregg Young; *Dist. Mgr.*: Harold Thornton

SUMMIT ELCTRNS., 750 S. Sherman, Richardson, TX 75081, Tel: 214-231-1456; *Sls. Mgr.*: Jack W. Barry .... **3**•1784, 1785

Local Sales Offices & Reps

AL	Huntsville, Electro-Mech	205-533-2100
AZ	Phoenix, MacDonald Assoc.	602-998-1848
CA	Agoura, Cal Rep	213-991-1940
CA	Sunnyvale, Sourcetronics	408-773-1931
CA	Woodland Hills, Craig Assocs.	213-887-2444
CO	Broomfield, Wescom Mktg.	303-741-4900
FL	Pompano Beach, Electrocraft	
FL	Winter Park, Electrocraft	305-628-4705
GA	Atlanta, Electro-Mech	404-447-6478
IL	Barrington, Omni Elctrns. Mktg.	312-381-9087
IL	Roselle, Omni Elctrns. Mktg.	312-351-2507
IN	Indianapolis, Wilson Tech. Sls.	317-298-3345
MD	Timonium, Heller Sales	301-252-4780
MA	Braintree, R. F. Duffy & Assocs.	617-848-3550
MI	Detroit, Jack M. Thorpe	313-779-6363
MN	Minneapolis, Electro Serve	612-338-3475
MO	Hazelwood, Stone & Assocs.	314-895-4564
NJ	N. Plainfield, T & K Sls.	201-755-2878
NJ	Upper Sadle River, Bob Cameron	201-825-1304
NM	Albuquerque, McDonald & Assoc.	505-883-0500
NY	Smithtown, T & K Sales	516-724-3456
NC	Raleigh, Electro-Mech	919-851-8165
OH	Cleveland, Arthur Baier Co.	216-461-6161
OH	Dayton, Arthur Baier Co.	513-276-4128
OK	Tulsa, Barry Sls.	918-749-7775
PA	Horsham, TMI	215-441-4300
TN	Nashville, Electro-Mech	615-885-0073
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CT	Wethersfield, Underwood Sls.	203-563-3046
FL	Altamonte Springs, Gugel-Tuttle-Assocs.	305-788-0845
KS	Leawood, Thunderbird Tech. Sls. & Serv.	913-642-7220
KS	Wichita, Thunderbird Tech. Sls. & Serv.	316-684-3941
MD	Phoenix, Milk-Brown Assocs.	301-628-4848
MA	Lowell, Underwood Sls.	617-256-8191
MI	Farmington Hills, Elcon Michigan Sls.	313-855-3240
MN	Minneapolis, Marsh Sls.	612-729-9345
MO	St. Louis, Thunderbird Tech. Sls.	314-567-6488
NJ	Haddonfield, Mills-Brown	609-429-1005
NJ	Pompton Plains, T. A. Adamo Sls.	201-835-5344
NY	Kings Park, T. A. Adamo Sls.	516-724-2039
TX	Dallas, E. F. Aymond Co.	214-826-7620
TX	San Antonio, Edward F. Aymond Co.	512-366-1526
WA	Bellevue, Comtec Mktg. & Sls. Eng.	206-453-1188

SUNDSTRAND DATA CONTROL, Overlake Ind'l. Pk., Redmond, WA 98052, Tel: 206-885-3711, Telex: 15-2308; Empl.: 2000

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SUN-FLEX CO., INC., 20 Pimentel Ct., Novato, CA 94947, Tel: 415-883-1221, Telex: 172-208; *Sls. Mgr.*: Frederick Juer; *Dist. Mgr.*: Frederick Juer

SUN RESEARCH INC., Phase-R, Box 210, Old Bay Rd., New Durham, NH 03855, Tel: 603-859-7110, TWX: 510-297-4444; *Sls. Mgr.*: Michael Mathieson

SUNRISE ELECTRONICS, INC., 524 S. Vermont Ave., Glendora, CA 91740, Tel: 818-914-1924, TWX: 910-584-3847; *Sls. Mgr.*: Richard K. Armstrong

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CA	Inglewood, Basic Sys. Corp.	213-673-4300
CA	San Diego, Basic Sys. Corp.	619-268-8000
CA	Santa Clara, Basic Sys. Corp.	408-727-1800
CO	Castle Rock, Odyssey I	303-688-3555
CT	Hamden, Burton Forrester	203-248-4380
FL.	Cocoa Beach, Teqspec	305-783-3444
FL	Hobe Sound, Teqspec	305-746-4987
FL	Palm Harbor, Teqspec	813-785-2276
GA	Atlanta, Teqspec	404-399-6780
IL	Chicago, Berndt Assocs.	312-283-0713
IN	Indianapolis, Carter, McCormic & Peirce	317-844-4175
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MI	Farmington Hills, Carter, McCormic & Peirce	313-477-7700
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MO	Independence, Engrg. Svcs. Co.	816-254-3600
MO	St. Louis, Engrg. Svcs. Co.	314-997-1515
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NJ	Ridgefield, Rical Assocs.	201-945-5250
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NY	Penfield, R. Barthel Entprs., Inc.	716-377-3018
NC	Winston-Salem, Teqspec	919-723-8102
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OH	Englewood, Carter, McCormic & Peirce	513-836-0951
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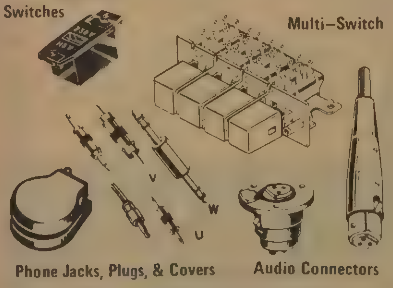

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NY	Rochester, Ross Equip. Co. Inc.	716-271-5660
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NC	Charlotte, Superior Elec.	704-535-7777
OH	Medina, Superior Elec.	216-725-8887
PA	Blue Bell, Superior Elec.	215-825-9123
TX	Dallas, Superior Elec.	214-350-1368
VA	Arlington, Gans & Pugh Assoc., Inc.	703-527-3262
WA	Issaquah, Superior Elec.	206-392-8559

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CA	San Diego, Earle Assocs.	619-278-5441
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CT	Englewood, Ed Glass Assocs.	201-592-0200
FL	Apopka, G. F. Bohman & Assocs.	305-886-1882
IL	Des Plaines, Janus	312-298-9330
IN	Indianapolis, Sai Mktg.	317-241-9276
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Arlington Heights, Thermek Inc.	312-577-6900
Hingham, Northeast Reps., Inc.	617-749-8700
Dearborn	313-582-8754
Haddonfield, G. L. Williams Assocs.	609-428-6060
Manville, Dynorep Inc.	201-685-0135
Albany, H. C. Johnson Agencies, Inc.	518-459-1239
Buffalo, H. C. Johnson Agencies, Inc.	716-632-7880
Rochester, H. C. Johnson Agencies, Inc.	716-586-0777
Raleigh, Rakes Engrg. & Mktg. Corp.	919-847-5079
Dayton	513-223-6227
Portland, SPS Elctrns.	503-297-6919
Glenshaw, H. C. Johnson Agencies, Inc.	412-961-0414
Redmond, SPS Elctrns.	206-323-4140

YLVANIA ELECTRONIC, Box 360, Muncy, PA 17756, Tel: 717-546-3191; Empl.: 395; *Sls. Mgr.:* A. M. Serang; *Dist. Mgr.:* S. R. Sisak

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Decatur, Forbes Distributing Co.	205-353-4762
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East Gadsden, Radio Dist. & Supp. Co.	205-547-1636
Mobile, Specialty Distributing Co.	205-344-0450
Mobile, Electronic Supp. Co.	205-478-0455
Mobile, Forbes Elctrn. Distrs. Inc.	205-479-4535
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Muscle Shoals, Jones Elctrns.	205-383-1241
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Anchorage, Alaska Elctrn. Supp.	907-563-3774
Juneau, Juneau Elctrns.	907-586-2260
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Phoenix, Elctrn. Parts Co. Inc.	602-277-7281
Phoenix, Electronic Distrs.	602-955-8303
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Tucson, Elliott Elctrns., Inc.	602-884-7394
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CA	Vallejo, Associated Radio	707-552-2363
CO	Colorado Springs, Walker Colorado Springs Elect.	303-636-1661
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CT	West Haven, Amerling Co.	203-934-7901
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FL	Ft. Walton Beach, Key Elctrn. Supp.	904-863-2191
FL	Gainesville, Dow Elctrns. Inc.	904-376-3231
FL	Homestead, United Elctrn. Supp. Inc.	305-245-0955
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FL	Jacksonville, The Bay Co.	904-255-2614
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FL	Miami, Walder Elctrn. Distr. Co.	305-379-9393
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FL	Miami, Southeastern Wholesalers Inc., D/B/A Herman Elctrns.	305-634-6591
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FL	Orlando, C & S Elctrn. Supp. Co., Inc.	305-299-4300
FL	Panama City, Central Elctrn. Supp. Co.	904-785-0237
FL	Pensacola, Grice Elctrns. Inc.	904-477-8100
FL	Pensacola, Forbes Elctrn. Distributing Inc.	904-456-7452
FL	Pensacola, Pensacola Elctrns.	904-478-3771
FL	Pensacola, Elctrn. Supp. Co.	904-432-6916
FL	Sarasota, Dow Elctrns.	813-365-3393
FL	St. Petersburg, Dow Elctrns.	813-525-1131
FL	Tallahassee, Dell Elctrns. Inc.	904-224-5145
FL	Tallahassee, Fouraker Elctrns. Inc.	904-224-5101
FL	Tampa, Leader Elctrns. Distrs.	813-870-3315
FL	Venice, Ferguson Elctrns. Co.	813-493-0000
FL	W. Palm Beach, Vance Baldwin Inc.	305-832-5671
FL	W. Palm Beach, Dolphin Elctrn. Supp. Inc.	305-659-7166
GA	Albany, Specialty Distributing Co.	912-435-1711
GA	Athens, Specialty Distributing Co.	404-458-1334
GA	Atlanta, Specialty Distributing Co.	404-873-2521
GA	Atlanta, Wholesale Indl. Elctrns.	404-447-8431
GA	Atlanta, Specialty Distributing Co.	404-458-6341
GA	Augusta, Specialty Distributing Co.	404-722-1526
GA	Brunswick, Specialty Distributing Co.	912-265-1927
GA	College Park, Specialty Distributing Co.	404-763-3828
GA	Columbus, Specialty Distributing Co.	404-327-7414
GA	Macon, Specialty Distributing Co.	912-743-5421
GA	Marietta, Specialty Distributing Co.	404-422-4333
GA	Savannah, Specialty Distributing Co.	912-234-1684
GA	Valdosta, Specialty Distributing Co.	912-242-4910
HI	Honolulu, Admor Distr. Corp.	808-537-4501
HI	Honolulu, Electrical Equip. Co., Ltd.	808-533-3884
HI	Honolulu, Nylen Brothers Co. Ltd.	808-538-1171
HI	Honolulu, Precision Radio Ltd.	808-537-5291
ID	Boise, Kimball Elctrns.	208-342-3559
ID	Pocatello, Kimball Elctrns.	208-232-2201
IL	Alton, Ebinger Radio Co.	618-462-9783
IL	Aurora, Mainline Supp. Co., Inc.	312-892-9026
IL	Benton, Lampley Radio Co.	618-435-8194
IL	Berwyn, B-B & W Inc.	312-749-1710
IL	Chicago, U. S. Electronics	312-925-4111
IL	Chicago, Howard Elctrn. Sls.	312-254-1777
IL	Chicago, Alpha Elctrns.	312-525-2840
IL	Elgin, Mainline Supp. Co., Inc.	312-697-6746
IL	Evergreen, Beaty Elctrns. Inc.	312-423-5500
IL	Geneva, Melvin Elctrns., Inc.	312-232-8050
IL	Harrisburg, Standard Distrs.	618-252-1478
IL	Jacksonville, Baptist Elctrn. Supp. Co., Inc.	217-243-6464
IL	Joliet, Mainline Supp. Co., Inc.	815-436-3900
IL	Kankakee, S&S Elctrn. Supp. Co.	815-933-5595
IL	Mattoon, Mattoon Radio & TV Supp. Co.	217-235-5457
IL	Moline, Lofgren Distributing Co.	309-764-7436
IL	Niles, Joseph Elctrns. Inc.	312-297-4200
IL	Oak Forest, Melvin Elctrns. Inc.	312-687-5050
IL	Peoria, Warren Radio Co.	309-674-5998
IL	Quincy, Show Me Elctrns.	217-223-9880
IL	Rockford, Midwest Associated	815-962-8036
IL	Rockford, Jay-tronics	815-965-8786
IL	Salem, Laco Elctrns. Inc.	618-548-3150
IL	Springfield, Baptist Elctrn. Supp. Co., Inc.	217-753-0111
IL	Villa Park, Melvin Elctrns., Inc.	312-279-5010
IN	Angola, Lakeland Elctrn. Supp.	219-665-6311
IN	Bedford, Elex Mart Inc.	812-275-5941
IN	Bloomington, Stansifer Radio Co.	812-336-6339
IN	Chesterton, Chesterton Elctrn. Supp.	219-926-2109
IN	Elkhart, Warren Radio Co.	219-295-4205
IN	Evansville, Ohio Valley Sound	812-425-6173
IN	Evansville, Hutch & Son, Inc.	812-425-7201
IN	Ft. Wayne, Pembleton Elctrns.	219-426-1812
IN	Ft. Wayne, Warren Radio Co.	219-426-5344
IN	Gary, Calumet Elctrn. Supp. Inc.	219-887-4961
IN	Gary, B&B Elctrn. Supp.	219-980-8200
IN	Indianapolis, Warren Radio Co.	317-634-5566
IN	Indianapolis, Elctrn. Svc. Parts	317-632-8586
IN	Indianapolis, Graham Elctrns. Supp. Inc.	317-634-8202
IN	Kokomo, Television Radio Distr.	317-457-5942
IN	Logansport, Television Radio Distr., Inc.	219-753-2879
IN	Marion, J&W Elctrns. Inc.	317-662-1114
IN	South Bend, Television Supp., Inc.	219-289-7036
IN	Terre Haute, Mid West Supp.	812-232-0187
IA	Ames, Electronic Supp. Inc.	515-232-7020
IA	Burlington, Union Supp. Co.	319-754-5745
IA	Cedar Rapids, Iowa Radio Supp. Co.	319-393-4510
IA	Council Bluffs, Meyerson Distributing Co.	712-328-2351
IA	Davenport, Warren Radio Co.	319-322-5301
IA	Des Moines, Gifford-Brown of Des Moines	515-243-1257
IA	Des Moines, Mid State Distributing Co.	515-244-7231
IA	Mason City, Mid State Distributing Co.	515-423-8012
IA	Sioux City, Molstad Dist.	712-255-8023
KS	Kansas City, Video Elctrn. Supp. Co.	913-371-5731
KS	Salina, RSC Electronics	913-823-6353
KS	Wichita, RSC Electronics	316-267-5213
KY	Ashland, Electronic Supp. Inc.	606-325-1511
KY	Bowling Green, Randolph, Hale & Meredith	502-885-5357
KY	Hopkinsville, Randolph & Hale	502-885-5327
KY	Lexington, Service Elctrn. Supp.	606-254-5786
KY	Louisville, P. I. Burks & Co.	502-589-3960
KY	Newport, Holub Dist. Co.	606-431-4211
KY	Paducah, Warren Radio Co.	502-442-4367
LA	Alexandria, Elctrn. Svc. Supp.	318-443-8483
LA	Baton Rouge, Menard Elctrns.	504-355-0323
LA	Gretna, Pelican Elctrn. Supp. Inc.	504-361-4187
LA	Houma, Pelican Elctrn. Supp. Inc.	504-868-1285
LA	Lafayette, Lafayette Radio Equip.	318-234-2364
LA	Lafayette, Ralph's of Lafayette	318-233-0105
LA	Lake Charles, Wholesale Radio Equip.	318-439-2431
LA	Marrero, AFG Elctrn. Supply Inc.	504-368-9696
LA	Metairie, Pelican Elctrn. Supp.	504-888-4720
LA	Monroe, Martin Elctrns. Inc.	318-388-4224
LA	Monroe, Tri-State Elctrns.	218-387-9711
LA	New Orleans, Wm. B. Allen, Inc.	504-525-8222
LA	New Orleans, Radio Parts	504-581-5959
LA	New Orleans, Southern Radio Supp. Co.	504-524-2343
LA	Opelousas, Opelousas Radio Equip.	318-942-5702
LA	Shreveport, Elctrn. Supp. of Shreveport	318-227-9080
LA	Shreveport, Indl. Elctrn. Supp. Inc.	318-222-9459
LA	West Monroe, Brooks Supp. of La	318-323-0344
ME	Bangor, Maine Elctrns. Distr. Inc.	207-947-7396
ME	Lewiston, Stark Wholesale Elctrns.	207-784-6979
ME	Portland, LAD Elctrns. Distrs.	207-772-2174
MD	Baltimore, Modern Elctrns.	301-282-5300
MD	Baltimore, Tritronics	301-256-4400
MD	Baltimore, Fairway Elctrns. of MD Inc.	301-247-8383
MD	Frederic, Hankey's Radio Inc.	301-662-1381
MD	Hagerstown, Fairway Elctrns. Inc.	301-791-0200
MD	Kensington, Fairway Elctrns. Inc.	301-933-4420
MD	Salisbury, Standard Elctrns. Inc.	301-749-7593
MD	Towson, Radio Elec. Svc. Co.	301-823-0070
MD	Towson, Baynesville Elctrns.	301-823-0082

MA	Boston, Tee Vee Supp. Co.	617-522-9330
MA	Brockton, Ware Radio Supp. Corp.	617-583-0810
MA	Fall River, E. A. Ross Co.	617-673-0921
MA	Hyannis, Capewide Elctrn. Supp Corp.	617-775-3277
MA	Lawrence, Lawrence Elctrn. Distrs.	617-683-0257
MA	Lowell, Frank P. McCartin Co.	617-454-9101
MA	New Bedford, Burns Elctrn. Supp. Co.	617-998-3344
MA	New Bedford, C. E. Beckman Co.	617-994-9674
MA	North Woburn, Abbott Elctrns. Co.	617-935-2040
MA	Norwood, Morrison Elctrn. Supp.	617-769-7280
MA	Peabody, Tee Vee Supp. Co.	617-531-5777
MA	Quincy, Electronic Dists. Corp.	617-328-7800
MA	Springfield, Signal Electr. Ctr. of Springfield	413-739-3893
MA	Waltham, MIL Elctrns. Inc.	617-891-6730
MA	Worcester, Stark Wholesale Elctrns. Inc.	617-756-7136
MI	Adrian, Wedemeyer Elctrn. Supp. Co.	313-263-2925
MI	Ann Arbor, Wedemeyer Elctrns.	313-665-8611
MI	Battle Creek, Warren Radio Co.	616-965-3338
MI	Bay City, Kinde Distributing	517-892-1594
MI	Dearborn, West Side Radio	313-933-6972
MI	Detroit, Elctrn. Parts Co.	313-891-7400
MI	Detroit, S & S Elctrns.	313-521-0588
MI	Flint, Shand Elctrns.	313-743-8940
MI	Grand Rapids, T & W Elctrns.	616-241-3645
MI	Grand Rapids, Warren Radio Co.	616-456-5385
MI	Kalamazoo, Warren Radio Co.	616-381-4203
MI	Lansing, Wedemeyer Elctrns.	517-489-9047
MI	Livonia, Norwest Elctrns.	313-261-4551
MI	Livonia, RS Electronics	313-525-1155
MI	Madison Hgts., Warren Radio Co.	313-588-3327
MI	Muskegon, Fitzpatrick Electric Supp.	616-722-6621
MI	Owasso, Warren Radio Co.	517-723-5239
MI	Pontiac, Joe Coomes	313-334-1526
MI	Port Huron, Port Elctrns.	313-985-6185
MI	Saginaw, Ryder Distributing	517-799-2411
MI	Traverse City, Traverse City Elctrns.	616-946-5153
MN	Minneapolis, Electronic Center	612-371-5230
MN	Minneapolis, Ness Elctrns. Inc.	612-824-2646
MN	Minneapolis, Stark Elctrn. Supp. Co.	612-332-1325
MN	Rochester, Pace Elctrns. Inc.	507-288-1853
MN	St. Paul, Ness Elctrns.	612-224-5411
MS	Biloxi, Hooper Elctrn. Supp. Co.	601-432-0584
MS	Biloxi, Electronic Parts Co.	601-435-3221
MS	Greenville, Tri-State Elctrns. Co.	601-335-3594
MS	Greenwood, Moor Elctrns.	601-453-4241
MS	Hattiesburg, N & H Elctrn. Distr. Co.	601-582-5571
MS	Jackson, Tri-State Elctrns. Co.	601-355-3431
MS	McComb, Risher Radio Supp. Co.	601-684-3731
MS	Meridian, Hooper Elctrn. Supp. Co., Inc.	601-693-2668
MS	Pascagoula, Hooper Elctrn. Supp. Co.	601-762-9383
MO	Columbia, Show-Me Elctrns.	314-449-2944
MO	Flat River, Show-Me Elctrns.	317-431-4816
MO	Jefferson City, Central Missouri Distributing Co.	314-636-3149
MO	Jefferson City, Show-Me Elctrns.	314-636-2191
MO	Kansas City, Elctrn. Supp. Co.	816-931-0250
MO	Rolla, Show-Me Elctrns.	314-364-1515
MO	Sikeston, Baileys Elect. Supp.	314-471-6142
MO	Springfield, Mason Elect. Supp.	417-865-5542
MO	Springfield, Show-Me Elctrns.	417-869-0752
MO	St. John, Ralph Toler Radio Co.	314-426-3260
MO	St. Louis, Olive Elctrns. Inc.	314-426-4500
MO	St. Louis, Deltronics Distributing Co.	314-725-6060
MT	Billings, Television & Elec. Supp. Co.	406-252-7193
MT	Great Falls, The Source Inc.	406-761-2420
MT	Havre, Northern Elctrns.	406-265-5568
NE	Lincoln, Leuck Radio Co.	402-476-2797
NE	Omaha, Radio Equip. Co.	402-341-7700
NE	Scottsbluff, D&H Elctrns. Supp. Inc.	308-632-2181
NV	Reno, Bennett Elctrn. Supp. Co.	702-322-2127
NV	Reno, Dunlap Elctrns.	702-329-1308
NH	Dover, American Radio Corp.	603-742-6800
NH	Manchester, Stark Wholesale Elect. of N.H. Inc.	603-688-7611
NH	Nashua, Tee Vee Supp. Co.	603-889-4171
NJ	Eatontown, Atkinson & Smith Co.	201-542-2447
NJ	Edison, William Elctrn. Supp. Inc.	201-985-3700
NJ	Hillside, Leader Elctrn. Supp. Corp.	201-354-4200
NJ	Pleasantville, Kearns Elctrn. Prods. Co.	609-646-7010
NJ	Raritan, Masters Elctrn. Supp.	201-725-3583
NJ	Trenton, Service Parts & Supp. Co.	609-393-7135
NM	Albuquerque, Southwest Elctrns.	505-345-8611
NM	Albuquerque, Elctrn. Parts Co.	505-293-6161
NM	Albuquerque, North American Module Corp.	505-345-4546
NM	Albuquerque, US Module	505-345-7968
NM	Farmington, Walker Farmington Elctrns. Inc.	505-327-6356
NM	Hobbs, Trice Wholesale Elctrns.	505-393-5107
NM	Santa Fe, Sepco Inc.	505-982-1621
NY	Amherst, Standard Elctrns. Inc.	716-691-3061
NY	Brooklyn, Mill Elctrns. Supp. Co.	212-336-4575
NY	Brooklyn, Ceco Communications	212-646-6300
NY	Brooklyn, Alpha Elctrns., Inc.	212-633-2800
NY	Buffalo, Goldcrest Elctrn. Supp.	716-885-5878
NY	Buffalo, Genesee Radio Parts Co.	716-873-9661
NY	Centereach, GTE Elctrn. Supp.	516-585-8111
NY	Commack, Spartan Elctrns. Inc.	516-499-9500
NY	Corning, Corning Elctrns., Inc.	607-962-0555
NY	Cortland, Cortland Elctrn. Supp.	607-756-2523
NY	Endicott, Standard Elctrns. Inc.	607-754-3102
NY	Hempstead, Davis Elctrns. Corp.	516-483-9200
NY	Hicksville, Elctrn. City	516-938-8330
NY	Horseheads, Southern Tier Elctrns. Inc.	607-734-4138
NY	Jamaica, All Parts Elctrns. Whlers., Inc.	212-291-3388
NY	Jamestown, Warren Radio Co.	716-484-1141
NY	Johnson City, Goldcrest Elctrns. Supp.	607-797-2389
NY	Kingston, Greylock Elctrn. Distrs.	914-338-5300
NY	Lackawanna, Metromill Distrs. Inc.	716-826-2600
NY	Massapequa, A&P Elctrns. Corp.	516-541-4200
NY	New Hyde Park, Electronic City	516-352-7145
NY	New York, United Teletronic Parts Corp.	212-569-2330
NY	New York, Dale Elctrns. Corp.	212-255-3660
NY	New York, Consolidated Radio Sls.	212-865-4900
NY	Olean, Standard Elctrns. Inc.	716-372-1800
NY	Port Chester, Wise Comps.	914-939-3940
NY	Rochester, Goldcrest Elctrns. Supp.	716-546-8464
NY	Rochester, Masline Elctrns. Inc.	716-546-5373
NY	Rochester, Standard Elctrns. Inc.	716-254-7590
NY	Schenectady, Goldcrest Elctrns. Supp.	518-377-6424
NY	Syracuse, Standard Elctrns. Inc.	315-422-0421
NY	Syracuse, Goldcrest Elctrns. Supp.	315-471-7115
NY	Troy, Troy Television	518-235-1521
NY	Utica, Grapac Elctrns. Co.	315-732-4674
NY	Watertown, Gateway Elctrns.	315-788-7251
NC	Burlington, Womack Elc. Supp.	919-227-7485
NC	Charlotte, United Elctrns. Supp.	704-372-2650
NC	Concord, Mac Victor Elctrns.	704-786-4175
NC	Durham, Knight Elctrns.	919-682-9371
NC	Fayetteville, Brantley Elctrns.	919-868-8038
NC	Fayetteville, Eastern Radio Supp.	919-485-2161
NC	Gastonia, JMT Elctrns.	704-867-4401
NC	Goldsboro, Womack Elctrns.	919-734-3221
NC	Greensboro, Guilford Elctrns.	919-275-1385
NC	Greenville, Pair Elctrns.	919-756-2291
NC	High Point, Mac Victor Elctrns.	919-889-8024
NC	Lumberton, Knight Elctrns.	919-739-2870
NC	Raleigh, Knight Elctrns.	919-833-6417
NC	Sanford, Knight Elctrns.	919-776-4249
NC	Statesville, Mills Elctrns. Inc.	704-872-8949
NC	Wilmington, Buck's Elctrns.	919-392-4262
NC	Winston Salem, Electronic Distributing Inc.	919-723-1097
ND	Fargo, Radio & TV Inc.	701-232-8993
ND	Fargo, S/S Elctrns., Inc.	701-237-5003
OH	Akron, Akron Elctrn. Supp., Inc.	216-762-8818
OH	Akron, Warren Radio Co.	216-434-6668
OH	Akron, Main TV Supp. Co.	216-253-8161
OH	Alliance, Glasska Elctrns.	216-823-5780
OH	Canton, Electronic Ctr. Inc.	216-456-7133
OH	Cincinnati, United Radio Inc.	513-761-4030
OH	Cleveland, Winteradio Elctrn. Supp. Corp.	216-621-9383
OH	Cleveland, Warren Radio Co.	216-888-5225
OH	Columbus, Whitehead's	614-224-1186
OH	Columbus, Thompson Elctrn. Supp., Inc.	614-228-6191
OH	Dayton, Srepco Elctrns. Div. Pioneer Standard Elctrns. Inc.	513-224-0871
OH	Dover, TV Specialties, Inc.	216-364-6678
OH	Elyria, EL-A-Co	216-323-1805
OH	Fremont, J & B Elctrns.	419-332-9334
OH	Lancaster, Electronic Supp. Co.	614-653-9344
OH	Lima, Warren Radio Co.	419-228-1691
OH	Lima, LRP Elctrns., Inc.	419-228-1220
OH	Marion, Mid Ohio Elctrns. Co.	614-382-1101
OH	Newark, Turner Wilson Co.	614-349-7454
OH	Parma, Superior Elctrn. Parts Co.	216-842-7940
OH	Portsmouth, Fullers Sound Elctrn. Supplier	614-353-0965
OH	Toledo, Warren Radio Co.	419-248-3364
OH	Willowick, Euclid Radio Parts Co.	216-585-5115
OH	Youngstown, Ross Radio Co.	216-746-8881
OH	Youngstown, Glen Elctrns.	216-743-1119
OK	Ardmore, Trice Wholesale Elctrns.	405-223-8540
OK	Enid, Trice Wholesale Elctrns.	405-234-6078
OK	Enid, Enid Walker Elctrns.	405-234-2218
OK	Lawton, Walker Lawton Elctrns. Inc.	405-355-0603
OK	Lawton, Trice Wholesale Elctrns.	405-223-8540
OK	McAlester, Trice Wholesale Elctrns.	918-423-6716
OK	Muskogee, Sooner Radio & TV Supp.	918-682-1384
OK	Muskogee, Trice Wholesale Elctrns.	918-682-2457
OK	Oklahoma City, Radio Supp. Co.	405-232-6127
OK	Oklahoma City, Trice Wholesale Elctrns.	405-681-4647
OK	Oklahoma City, Miller-Jackson Co.	405-235-8426
OK	Oklahoma City, Trice Wholesale Elctrns.	405-524-4411
OK	Ponca City, Trice Wholesale Elctrns.	405-762-5621
OK	Tulsa, Trice Wholesale Elctrns.	918-585-5718
OR	Eugene, United Radio Supp., Inc.	503-342-3381
OR	Portland, United Radio Supp., Inc.	503-233-7151
OR	Portland, Radar Elec.	503-232-3404
OR	Salem, JW Elctrns.	503-399-8565
PA	Allentown, A. A. Peters, Inc.	215-434-5237
PA	Altoona, Hollenback Radio Supp.	814-944-6171
PA	Ambridge, Television Parts Co.	412-266-7700
PA	Braddock, M Leff Radio Parts Co.	412-351-5000
PA	Butler, Bacher Elctrns.	412-283-2095
PA	Clifton Heights, Lazar Elctrns.	215-284-2440
PA	Drexel Hill, Kass Elctrn. Distr.	215-449-2300
PA	Elkins Park, AG Radio Inc.	215-886-5100
PA	Erie, J. V. Duncombe Co.	814-454-5278
PA	Erie, Warren Radio Co.	814-454-5285
PA	Harrisburg, Cumberland Elctrns.	717-233-5885
PA	Marcus Hook, Linwood Wholesale	215-485-0777
PA	New Brighton, Television Parts Co., Inc.	412-846-3000
PA	Philadelphia, JEM Elctrns.	215-743-3030
PA	Philadelphia, HBF Elctrns. Inc.	215-338-1100
PA	Philadelphia, Arlen Supply Co.	215-472-3810
PA	Pittsburgh, South Hills Elctrns.	412-341-6200
PA	Pottsville, Moyer Elctrn. Supp. Co., Inc.	717-622-7866
PA	Reading, Barbey Elctrns.	215-376-7451
PA	Scranton, Key Radio & Supp. Co.	717-342-0161
PA	State College, University Elctrns.	814-238-3093
PA	Tarentum, Huston Elctrn. Distrs.	412-224-8002
PA	Wayne, Peak Elctrns. Corp.	215-293-9000
PA	Wilkes-Barre, Wallco Inc. Elctrn. Dist.	717-823-6181
PA	Williamsport, Williamsport Radio Supp.	717-326-1534
RI	Providence, A&J Distrs. Inc.	401-421-0991
RI	Providence, William Dandreta & Co.	401-861-2800
RI	Providence, Hope Elctrn. Supp.	401-521-5600
RI	Woonsocket, Lectronic Supp. Co.	401-762-0131
SC	Charleston, Wholesale Indl. Elctrns.	803-722-2634
SC	Charleston, Wholesale Indl. Elctrns.	803-747-9672
SC	Columbia, Wholesale Indl. Elctrns.	803-256-0746
SC	Columbia, Hesco Inc.	803-254-4575
SC	Florence, J&M Supply Co.	803-662-728
SC	Greenville, Sawyer Elctrns.	803-235-0438
SC	Greenville, Wholesale Indl. Elctrns.	803-235-8334
SC	Taylors, Cantrell Wholesale	803-268-1194
SD	Watertown, Burghardt Supp. Co.	605-886-5749
TN	Chattanooga, Specialty Distributing Co.	615-267-9460
TN	Columbia, Randolph & Williams	615-388-7566
TN	Cookeville, Randolph & Parks	615-526-6184
TN	Dyersburg, Warren Radio	901-285-3850
TN	Jackson, Lavender Elctrns. Inc.	901-422-6585
TN	Johnson City, L & S Elctrns.	615-926-302
TN	Kingsport, Radio Elec. Supp. Co.	615-247-811
TN	Knoxville, Roden Electrical Supp. Co.	615-546-8755
TN	Knoxville, Bondurant Bros. Co.	615-573-915
TN	Memphis, Warren Radio	901-274-2460
TN	Memphis, Bluff City Elctrns.	901-345-9500
TN	Memphis, Frank G. Uffer Co.	901-725-6743
TN	Morristown, L & S Elctrns.	615-581-7983
TN	Nashville, Curreys Inc.	615-242-422
TN	Nashville, Randolph & Rice	615-255-5603
TN	Tullahoma, Randolph Vandergriff Inc.	615-455-453
TX	Abilene, R & R Elctrn. Supp. Co.	915-677-2974
TX	Amarillo, Trice Wholesale Elctrns.	806-372-5666
TX	Amarillo, R & R Elctrn. Supp. Co.	806-374-2860
TX	Austin, C&M Elctrns. Inc.	512-451-6593
TX	Austin, Wholesale Elctrn. Supp. Co.	512-478-9564
TX	Beaumont, Ralph's Indl. Elctrns.	713-833-9443
TX	Beaumont, Covington Distr.	713-835-5393
TX	Beaumont, Buddy's Wholesale Elctrn. Inc.	713-842-501
TX	Borger, Trice Wholesale Elctrns.	806-274-528
TX	Bryan, Mid-State Elctrns.	713-779-122
TX	Corpus Christi, Elctrn. Suppliers Inc.	512-993-130
TX	Corpus Christi, Leader Elctrn. Supp. Co.	512-884-552
TX	Dallas, Wholesale Elect. Supp. Co.	214-824-300
TX	Denison, Denison Radio Supp.	214-465-233
TX	El Paso, Midland Specialty Co.	915-533-955
TX	Ft. Worth, Wholesale Elctrn. Supp.	817-336-046
TX	Ft. Worth, Allied Elctrns.	817-336-540
TX	Ft. Worth, Byron's Radio & TV Supp.	817-534-591
TX	Ft. Worth, Trice Wholesale Elctrns.	817-335-951
TX	Greenville, Lavender Elctrns. Inc.	214-455-436
TX	Harlingen, Elctrn. Suppliers, Inc.	512-423-589
TX	Houston, Ralph's Indl. Elctrns.	713-748-490
TX	Houston, Houston Wholesale	713-644-832
TX	Houston, Angie Elctrn. Supp. Co.	713-659-838
TX	Laredo, Guarantee Radio Supp. Co.	512-723-691
TX	Longview, VIDCO Elctrns. Inc.	214-757-491
TX	Lubbock, Trice Wholesale Elctrns.	806-747-288
TX	Lubbock, R & R Elctrns. Supp. Co.	806-765-772
TX	McAllen, Richards Elctrns.	512-682-633
TX	McAllen, Rio Radio Supp. Inc.	512-682-522
TX	Midland, Trice Wholesale Elctrns.	915-563-086
TX	Paris, Lavender Elctrns. Inc.	214-785-171
TX	Port Arthur, Diehl Radio & TV Supp.	713-985-888
TX	Richardson, Trice Wholesale Elctrns.	214-690-464
TX	San Antonio, Sherman Elctrns.	512-224-100
TX	San Antonio, M-Tronics Inc.	512-736-248
TX	Sherman, Lavender Elctrns. Inc.	214-892-915
TX	Sherman, Trice Wholesale Elctrns.	214-893-742
TX	Stafford, Harrison Equip. Co.	713-879-260
TX	Temple, L & M Wholesale Elctrns.	817-778-767

	Texarkana, McCulloch Elctrn. Supp. Co.	214-792-6923
	Texas City, Elctrn. Supp. Co.	713-945-4401
	Tyler, Lavender Elctrns. Inc.	214-597-6315
	Tyler, East Texas Elctrn, Inc.	214-593-8253
	Victoria, Lavender Elctrns. Inc.	512-575-4738
	Waco, L & M Wholesale Elect.	817-754-4644
	Wichita Falls, Trice Wholesale Elctrns.	817-322-2151
	Wichita Falls, Wholesale Elect. Supp. Co.	817-723-8106
	Provo, Central Utah Elctrns.	801-373-7522
	Salt Lake City, Kimball Elctrns.	801-328-2075
	Burlington, Greylock Elctrns.	802-863-3100
	Rutland, Rutland Elctrn.	802-775-4690
	White River Jct., Vermont Appliance	802-295-3143
	Alexandria, Certified Elctrns.	703-548-5115
	Arlington, Arlington Elctrn. Wholesale	703-524-2412
	Charlottesville, Virginia Radio Supp. Co., Inc.	804-296-4184
	Danville, Womack Radio Supp. Co., Inc.	804-793-5131
	Grundy, Rife Wholesale Inc.	703-935-2188
	Lynchburg, Womack Radio Supp. Co., Inc.	804-845-5983
	Martinsville, Womack Radio Supp. Co., Inc.	703-638-2327
	Norfolk, Radio Parts Dist. Co.	804-461-8095
	Portsmouth, Distrs. Inc.	804-399-2446
	Richmond, Banner Elctrns. Inc.	804-321-7255
	Staunton, Southern Elec. Corp.	703-886-6218
A	Bellevue, United Radio Supp.	206-451-9393
A	Bellingham, Seattle Radio Supp.	206-734-3400
A	Everett, JW Electronics	206-258-4339
A	Seattle, Pearl Elctrns.	206-622-6200
A	Seattle, Electronic Supp. Co.	206-632-2222
A	Seattle, Radar Elec.	206-282-2511
A	Seattle, Westlake Elctrn. Supp.	206-622-6600
A	Spokane, Amfac Elec. Supp.	509-534-0611
A	Tacoma, C & G Elctrns.	206-272-3181
A	Tumwater, JW Elctrns.	206-943-1071
A	Yakima, JW Electronics	509-575-1234
V	Beckley, Halley Elctrns.	304-253-2561
V	Charleston, Elctrn. Materials	304-325-3638
V	Fairmont, State Elctrns.	304-366-4520
V	Morgantown, State Elctrns.	304-292-1641
V	Morgantown, Electro Distributing Co.	304-296-5637
	Appleton, Appleton Radio	414-734-5767
	Eau Claire, Indianhead Elctrns.	715-834-3606
	Fond du Lac, Fedco Elctrns. Inc.	414-922-6490
	Green Bay, G. M. Popkey Co.	414-437-5445
	Kenosha, Chester Elctrn. Supp.	414-658-4616
	Madison, Superior Elctrn. Parts Co.	608-257-1477
	Madison, G. M. Popkey Co.	608-257-2266
	Marinette, G. M. Popkey Co.	715-732-0121
	Milwaukee, Marmax Sls. Div. of World Prod., Inc.	414-272-4048
	Milwaukee, G. M. Popkey Co.	414-444-4730
	Racine, Superior Racine, Inc.	414-632-5142
	Wausau, G. M. Popkey Co.	715-845-4255
Y	Casper, Walker Casper Elctrn. Co.	307-237-1943

YLVANIA MINIATURE LIGHTING, W. Main St., Hillsboro, NH 03244, Tel: 603-464-5533, TWX: 710-366-0387; Empl.: 450; *Sls. Mgr.:* Tom Izbicki .... **1B**•1059-1061

Local Sales Offices & Reps

	Laguna Hills, English/Damco	714-837-3801
	Sunnyvale, W.W. Posey Co.	408-746-0771
	Arvada, Cluff & Assocs.	303-425-6604
	No. Haven, Coakley, Boyd & Abbett	800-225-8402
	Ft Lauderdale, Hutto, Hawkins, Peregoy	305-971-5750
	Maitland, Hutto, Hawkins, Peregoy	305-831-2474
	Atlanta, Millar Elctrns.	404-261-6160
	Chicago, I.R.I.	312-647-7755
	Ft. Wayne, R.O. Whitesell & Assocs.	219-432-5591
	Indianapolis, R.O. Whitesell & Assocs.	317-359-9283
	Prairie Village, R.W. Kunz	913-648-3535
	Louisville, R.O. Whitesell & Assocs.	502-426-7696
	Kenner, Cartwright & Bean	504-466-0020
	Needham, Coakley, Boyd & Abbett	617-444-5470
	Grand Rapids, R.O. Whitesell & Assocs.	616-942-5420
	St. Joseph, R.O. Whitesell & Assocs.	616-983-7337
	Minneapolis, Stoss & Assocs.	612-925-2757
	St. Louis, R.W. Kunz	314-966-4977
	Long Valley, Paul A. Sweeney	201-852-1434
	Rochester, Electra Sls.	716-461-5252
	Syracuse, Electra Sls.	315-463-1248
	Raleigh, Millar Elctrns.	919-787-9585
	Cincinnati, R.O. Whitesell & Assocs.	513-521-2290
	Cleveland, R.O. Whitesell & Assocs.	216-447-9020
	Columbus, R.O. Whitesell & Assocs.	614-888-9396
	Dayton, R.O. Whitesell & Assocs.	513-298-9546
	Oklahoma City, Erickson Sls.	405-682-2947
	Tigard, Electronic Sources Inc.	503-684-0040
	Pittsburgh, R.O. Whitesell & Assocs.	412-963-6161
	Trevose, P.S.A. Inc.	215-245-0513

TN	Memphis, Cartwright & Bean	901-276-4442
TX	Dallas, Erickson Sales	214-739-5833
TX	Houston, Erickson Sales	713-980-9606
UT	Salt Lake City, Cluff & Assocs.	801-486-7297
WA	Bellevue, Electronic Sources Inc.	206-451-3500
WI	Milwaukee, F.C. DuBois & Assocs.	414-774-3100

SYLVANIA PARTS, 816 Lexington Ave., Warren, PA 16365, Tel: 814-723-2000, 800-221-3333; Empl.: 1880; *Sls. Mgr.:* R. F. Scalise

SYLVANIA SYS. GRP., Comm. Sys. Div., GTE Prods. Corp., 77 A St., Needham Hgts., MA 02194, Tel: 617-449-2000, Telex: 92-2497; *Sls. Mgr.:* Ken Tong

SYMBEX CORP., 72 Corwin Dr., Box 938, Painesville, OH 44077, Tel: 216-354-0925, TWX: 810-425-2256; Empl.: 130 .... **2**•1586, 1587, 1895

Local Sales Offices & Reps

AL	Huntsville, Elctrn. Sls.	205-533-1735
AZ	Tempe, Elctrn. Dev. and Sls.	602-438-1547
AR	Little Rock, Erickson Sls.	501-225-7379
CA	Anaheim, West Rep.	714-527-2822
CA	Chico, Symbex Corp.	916-891-6410
CA	San Diego, D2 Sls.	619-560-6266
CA	Santa Clara, Symbex Corp.	408-727-5817
CO	Denver, West, Inc.	303-773-8080
CT	Madison, Omni-Rep	203-421-4561
FL	Ft. Lauderdale, Interface Dynamics	305-565-5075
GA	Norcross, Elctrn. Sls.	404-448-6554
IN	Indianapolis, M & L Elctrn. Sls.	317-359-4742
LA	Chalmette, Erickson Sls.	504-271-1976
MD	Baltimore, C.E. Heller Co.	301-256-0245
MA	Burlington, Omni-Rep	617-938-0039
MA	Canton, Symbex Corp.	617-828-8114
MI	Franklin Village, I.E. Hampton & Assocs.	313-851-0820
MI	St. Joseph, I.E. Hampton & Assocs.	616-983-0862
MN	Minneapolis, Parler, Shoap & Assocs.	612-755-6904
MO	Blue Springs, Kathrinus Kelly Baumhauer	816-229-0001
MO	St. Louis, Kathrinus Kelly Baumhauer	314-647-2400
NJ	Englewood, Axelrod, Busch, Sullivan Assoc.	201-871-0020
NJ	Medford, Champion Elctrn. Sls.	609-983-0932
NY	Bainbridge, R.W. Meischer Co.	607-967-7192
NY	Buffalo, R.W. Mitscher Co.	716-633-7970
NY	Pittsford, R.W. Mitscher Co.	716-586-4012
NY	Rochester, R.W. Mitscher Co.	716-227-0839
NY	Syracuse, R.W. Mitscher Co.	315-458-1321
NC	Cary, Elctrn. Sls.	919-467-8486
OH	Painesville, Symbex Corp.	216-354-0925
OH	Rocky River, Norm Case Assocs.	216-333-0400
OK	Oklahoma City, Erickon Sls.	405-682-2947
OR	Falls City, Ecco Mktg.	503-787-3509
PA	Southampton, Symbex Corp.	215-322-8040
TX	Austin, Erickson Sls.	512-244-3068
TX	Dallas, Erickson Sls.	214-739-5833
TX	El Paso, Epec., Inc.	915-593-8481
TX	Euless, Symbex Corp.	817-540-2687
TX	Houston, Erickson Sls.	713-980-9606
UT	Salt Lake City, Meridian West	801-968-4177
WA	Seattle, Ecco Mktg.	206-364-0200
WV	Spokane, Ecco Mktg.	509-924-4410
WI	Colgate, Rep. 1 & Assoc.	414-628-4016

Local Distributors

AZ	Phoenix, Arizona Comps.	602-269-5655
CA	Santa Ana, C.R. Elctrns.	714-556-2040
CT	Danbury, Pilgrim Elctrns	203-792-7274
LA	Shreveport, Indl. Elctrns. Supp.	318-222-9459
MA	Framingham, Now Elctrns.	617-235-9501
MA	Middleboro, Glynn Elctrns.	617-947-4262
MO	St. Charles, Finnigan Elctrns.	314-946-6201
OK	Tulsa, Combined Tech. Comps.	918-582-8242
WA	Seattle, Carlyle Tech. Sls.	206-575-6750
WI	Madison, Schrenk Sls.	608-255-7400
WI	Milwaukee, Marsh Elctrns.	414-475-6000

SYMBICON, 89 Route 101A, Amherst, NH 03031, Tel: 603-673-8898, Telex: 553-059; *Sls. Mgr.:* S. Harrington

SYM-TEK SYS., INC., 3912 Calle Fortunada, San Diego, CA 92123, Tel: 619-569-6800, Telex: 695450; Empl.: 250; *Sls. Mgr.:* Guy Whitlock

Local Sales Offices & Reps

AZ	Phoenix, Scientific Dvs.	602-957-0401
CA	Escondido, Scientific Dvs.	619-480-1287
CA	Los Alamitos, Scientific Dvs.	213-598-7678
CA	San Jose, Scientific Dvs.	408-554-0455
CO	Boulder, Scientific Dvs.	303-449-9466
FL	Longwood, Richard Schoonovier Inc.	305-788-3344
GA	Marietta, More	404-992-5172
MA	Hudson, System Sls.	617-562-9777
NM	Albuquerque, Scientific Devices	505-883-3668
NY	Valley Stream, Levison Sls.	516-266-5020
OH	Brecksville, WRR Assoc.	216-526-2023
TX	Austin, Crockett Southwest	512-250-1776
TX	Dallas, Crockett Southwest	214-251-1776
TX	Houston, Crockett Southwest	713-578-1836

SYMTRON CORP., 2415 E. Charleston Rd., Mountain View, CA 94043, Tel: 415-965-4500, TWX: 910-379-5002; Empl.: 250; *Sls. Mgr.:* Don Atkins .... **2**•1896

Local Sales Offices & Reps

AL	Huntsville, Remco	205-533-3763
AZ	Glendale, Symtron Corp.	602-978-6595
CA	Glendale, Orion Sls.	213-240-3151
CA	San Diego, Hadden Assoc.	619-565-9444
CA	Simi Valley, Symtron Corp.	213-961-4536
CA	Tustin, Orion Sls.	714-832-9687
CO	Golden, Symtron Corp.	303-642-7656
CT	Norwalk, Wendell & Assocs.	203-846-4377
FL	Casselberry, H.A.I.	305-695-8592
FL	Largo, H.A.I.	813-595-8170
GA	Atlanta, Remco	404-447-6937
IL	Lisle, Symtron Corp.	312-420-8100
MD	Rockville, Mechtronics Sls.	301-340-2130
MN	Eden Prairie, Symtron Corp.	612-934-8318
MO	Grandview, Harris-Hanson Co.	816-763-6200
MO	St. Louis, Harris-Hanson Co.	314-432-3611
NH	Seabrook, Symtron Corp.	603-431-6296
NY	Manhasset, Wincor Elctrn.	516-627-9474
NC	Raleigh, Remco	919-847-5079
OH	Cleveland, Arthur H. Baier	216-461-6161
OR	Portland, Component Tech.	503-292-1518
PA	Hatboro, Electro Rep	215-674-4421
TX	Addison, Centurion Mktg.	214-348-0382
TX	Addison, Symtron Corp.	214-233-8991

SYNERGETICS INTL., INC., 6565 Odell Pl., P.O. Box E, Boulder, CO 80306-1236, Tel: 303-530-2020; *Sls. Mgr.:* Mike Sharkey

SYNERTEK, 3001 Stender Way, Santa Clara, CA 95051

SYNTEL DIV., Tegam, Inc., 7230 North Ridge Rd., Madison, OH 44057, Tel: 216-428-7505; Empl.: 15

SYNTEST CORP., 40 Locke Dr., Marlboro, MA 01752, Tel: 617-481-7827, TWX: 710-390-7659; *Sls. Mgr.:* Curtis P. Hoffman .... **3**•1094

Local Sales Offices & Reps

CA	Enceno, King Engrg.	213-981-8677
IN	Columbus, Miltronics	812-376-6321
MD	Silver Spring, Source Assoc.	301-431-0587
MA	Waltham, Digital Assocs.	617-899-4300
NY	Canandaigua, Burt Mamula	716-394-5560
PA	Newtown Square, SWR Assoc	215-356-8550
TX	Dallas, Dean Assocs.	214-458-1321

SYNTRONIC INSTRUMENTS, INC., 100 Industrial Rd., Addison, IL 60101, Tel: 312-543-6444, TWX: 910-651-2191; Empl.: 175; *Sls. Mgr.:* Paul Evans

Local Sales Offices & Reps

CA	Los Altos, Frauman Assocs.	415-941-0660
CA	Woodland Hills, Tronics	213-703-7212
CO	Wheatridge, Waugaman Assocs.	303-423-1020
IA	Davenport, Ensco-Rep	319-386-6600
KS	Overland Park, Ensco-Rep	913-381-7557
KS	Wichita, Ensco-Rep	316-683-1070
MA	Norwood, MPS Elctrns.	617-796-8700
MN	Minneapolis, Torkelson Assocs.	612-835-2414
MO	Maryland Heights, Ensco-Rep	314-423-3935
NJ	Fair Lawn, G. D. Harris Assocs.	201-796-5200
NM	Albuquerque, Waugaman Assocs.	505-294-1436
OR	Portland, Rep-West	503-771-1555
PA	W. Conshohocken, Eastern Comps.	215-825-8610
PA	York, Eastern Comps.	717-764-3114
TX	Austin, Space Elctrns.	512-451-3173
TX	Houston, Space Elctrns.	713-266-9245
TX	Irving, Space Elctrns.	214-251-3636
UT	S. Jordan, Waugaman Assocs.	801-254-0570
VA	Manassas, Eastern Comps.	703-471-1025
WA	Seattle, Rep-West	206-283-8351
EXP	NJ, Fairfield, Pantronics	201-575-1177
EXP	NJ, Oradell, S. Ginsbury Ltd.	201-261-3200

SYRACUSE ELCTRNS., P.O. Box 4770, Syracuse, NY 13221, Tel: 315-488-4911, Telex: 937-232; Empl.: 200

SYSCON INTL., INC., 1108 So. High St., So. Bend, IN 46618-1096, Tel: 219-232-3900, 800-348-2993, TWX: 810-299-2523; Empl.: 40; *Sls. Mgr.:* Les Barney

SYSTEMS FURNITURE CO., 2727 Maricopa St., Torrance, CA 90503, Tel: 213-533-1212, TWX: 910-349-7518; *Sls. Mgr.:* Rick Labowitz

SYSTEMS PLUS, 1120 San Antonio Rd., Palo Alto, CA 94303, Tel: 415-969-7047, TWX: 910-373-2096; Empl.: 35

SYSTEMS RESCH. LABS., INC., 2800 Indian Ripple Rd., Dayton, OH 45440, Tel: 513-426-6000, TWX: 810-450-2621; FSC No.: 14590; Empl.: 1000

SYSTONICS, INC., Box 121, Winchester, MA 01890, Tel: 617-729-4439; Empl.: 11

SYSTRON-DONNER INERTIAL DIV., 2700 Systron Dr., Concord, CA 94518, Tel: 415-682-6161, TWX: 910-481-9478; Empl.: 416

SYSTRON-DONNER INSTR. DIV., 2727 Systron Dr., Concord, CA 94518, Tel: 415-676-5000, Telex: 171996, TWX: 910-481-9472; FSC No.: 52542; Empl.: 1400; *Sls. Mgr.:* Howard W. Mette

SYSTRON-DONNER MICROWAVE DIV., 14844 Oxnard St., Van Nuys, CA 91409, Tel: 818-786-1760, TWX: 910-495-1786; Empl.: 160; *Sls. Mgr.:* Richard Valleroy

SYT, 1220 Barranca, El Paso, TX 79935, Tel: 915-593-1234; Empl.: 70; *Sls. Mgr.:* Larry Crum; *Dist. Mgr.:* John Sullivan

SYTEK, INC., 1225 Charleston Rd., Mountain View, CA 94043, Tel: 415-966-7300; *Sls. Mgr.:* Rhonda St. James

TAB BOOKS, Monterey & Pinola Aves., Blue Ridge Summit, PA 17214, Tel: 717-794-2191; Empl.: 175; *Sls. Mgr.:* B. Sites

TACHTRONIC INSTRUMENTS, INC., New Ulm, MN 56073, Tel: 507-354-3105

TADIRAN BATTERIES, See Plainview Elctrns.

TAFA INC., Dow Rd., Bow, NH 03301, Tel: 603-224-9585, Telex: 94-3424; Empl.: 50; *Sls. Mgr.:* Rick Mitchner; *Dist. Mgr.:* Leon Grant

TA

TA INSTR. CASE CO., 4625 Alger St., Los Angeles, CA 90039, Tel: 213-242-8855, TWX: 910-497-4780; Empl.: 60; *Sls. Mgr.:* Jackie Garrison; *Dist. Mgr.:* Jackie Garrison .... **2•1059**

Local Sales Offices & Reps

AL	Huntsville, Intl. Sci. Instrs.	205-533-6880
AZ	Phoenix, Tri-Fab Sls.	602-265-3341
CA	Mountain View, Connolly & Co.	415-967-6988
CO	Littleton, Omega Ltd.	303-798-7040
CT	Hartford, Sturgeon Co.	203-249-7800
FL	Ft. Lauderdale, Tech-Rep Assocs.	305-968-7792
FL	Melbourne Beach, Tech-Rep Assocs.	305-725-4655
FL	St. Petersburg, Tech-Rep Assoc.	813-577-2779
IL	Chicago, Aktron Corp.	312-658-3538
IN	Ft. Wayne, Aktron Corp.	219-747-3650
IA	Davenport, Ensco-Iowa	319-386-6600
KS	Overland Pk., Ensco-Kansas	913-381-7557
KS	Wichita, Ensco Wichita	316-683-1070
MD	Lanham, Data Sys. Mktg.	301-577-3700
MA	Boston, Sturgeon Co.	617-444-6603
MO	St. Louis, Ensco-Rep	314-423-3935
NJ	Ridgewood, Balloou Inc.	201-444-6990
NM	Albuquerque, C. T. Carlberg Assocs.	505-888-3883
NY	New York, Ballou	212-964-4640
NY	Rochester, Gis Lason Sls.	716-454-4741
PA	Blue Bell, Macron Dynamics	215-643-0400
TX	Arlington, Bell Comps.	817-461-5303
WA	Bellevue, Caruso & Northcutt	206-454-9699

TAKEDA RIKEN IND., 1-32-1 Asahi-cho Nerima-ku, Tokyo 176, Japan, Tel: 930-4111, Telex: 272-2140; Empl.: 800; *Sls. Mgr.:* Hiroshi Yasui

T&B/ANSLEY CORP., Sub. Thomas & Betts, 920 Route 202, Raritan, NJ 08869, Tel: 201-685-1600; Empl.: 250; *Dist. Mgr.:* Roland Kolu

TANO CORP., 4301 Poche Ct., New Orleans, LA 70129, Tel: 504-254-3500, TWX: 810-951-5229; Empl.: 390; *Sls. Mgr.:* T. M. Lowrey, Energy Control Sys.;M. A. Cushman, Marine Sys.

TANSITOR ELCTRNS., West Rd., Bennington, VT 05201, Tel: 802-442-5473, TWX: 710-360-1782; FSC No.: 05079; Empl.: 200; *Sls. Mgr.:* Tom Moore; *Dist. Mgr.:* Tom Moore

TAPECON, INC., 10 Latta Rd., Rochester, NY 14612, Tel: 716-621-8400; Empl.: 80

TAPESWITCH CORP. OF AMERICA, 100 Schmitt Blvd., Farmingdale, NY 11735, Tel: 516-694-6312, Telex: 14-4611; Empl.: 100 .... **1B•1753**

TAPPAN WIRE & CABLE, 256 Oak Tree Rd., Tappan, NY 10983, Tel: 914-359-9300; Empl.: 10; *Sls. Mgr.:* S. Grant

TASKER SYSTEMS, 20131 Sunburst St., Chatsworth, CA 91311, Tel: 213-341-3010, TWX: 910-494-1214; FSC No.: 09017; Empl.: 250; *Sls. Mgr.:* Gary B. Etzler

TAUBER ELCTRNS. INC., 4901 Morena Blvd., Bldg. 314, San Diego, CA 92117, Tel: 619-274-7242; Empl.: 12; *Dist. Mgr.:* Doug Bennett .... **3•1433**

Local Sales Offices & Reps

AL	Huntsville, Macro-Marketing	205-883-9630
AZ	Phoenix, MacDonald & Assocs.	602-998-1848
CA	Fallbrook, Martronix	619-728-7678
CA	Fullerton, Hawk Assocs.	714-773-4152
CA	Northridge, Tauber-Dreyer Assocs.	818-993-0048
CA	San Jose, Al E. Dusseau	408-226-4375
CA	Sunnyvale, GFA Sales	408-738-4751
IL	Wheeling, Ed Joyner & Co.	312-520-1200
OK	Tulsa, Cunningham Comps. Corp.	918-492-0390
OR	Portland, Frank Jackson Assocs.	503-292-2638
TX	Dallas, Cunningham Comps. Corp.	214-233-4303
TX	Houston, Cunningham Comps. Corp.	713-451-4197
WA	Redmond, Frank Jackson Assocs.	206-881-7277

TAURUS CORP., Academy Hill, P.O. Box 278, Lambertville, NJ 08530, Tel: 609-397-2390 .... **3•1095**

Local Sales Offices & Reps

CA	Pasadena, Sci. Sls.	213-793-1244
FL	Clearwater, Brennan Assoc.	813-446-5006
OH	Wickliffe, W. J. Brauer	216-943-0601

TAU-TRON INC., 27 Industrial Ave., Chelmsford, MA 01824, Tel: 617-256-9013, Telex: 951-952; Empl.: 200; *Sls. Mgr.:* Herbert K. Clark

TE Taylor Electronics, Inc.

TAYLOR ELECTRONICS, 401 West Orion, Tempe, AZ 85283, Tel: 602-838-4523; *Sls. Mgr.:* Junius Taylor .... **3•1786**

T·bar INCORPORATED

T-BAR INCORPORATED, Switching Components Div., P.O. Box T, 141 Danbury Rd., Wilton, CT 06897, Tel: 203-834-8227, Telex: 68 19 129, TWX: 710 479 3216; *Sls. Mgr.:* Bill Kruppenbacher .... **3•1308**

Local Sales Offices & Reps

AL	Huntsville, CSR Elctrns.	205-533-2444
CA	Arcadia, Van Gott & Assocs.	213-445-9728
CA	Palo Alto, Horne Electro Sls.	415-494-6777
CT	Wilton, T-Bar, Inc.	203-834-8227
FL	St. Petersburg, Tech-Rep Assocs.	813-577-2779
GA	Atlanta, CSR Elctrns.	404-396-3720
MD	Silver Spring, Carwithen Assocs.	301-589-9040
NY	Mount Vernon, Sonkin Assocs.	914-668-9809
NC	Raleigh, CSR Elctrns.	919-878-9200
TX	Richardson, McCoy Assocs. Co.	214-238-1017

Local Distributors

CA	Chatsworth, Integrated Elctrns.	213-998-2200
IL	Chicago, Newark Elctrns.	312-638-4411
MA	Hingham, Sager Elctrl. Supp. Co.	617-749-6700
NY	Hauppauge, JACO Elctrns.	516-273-5500
TX	Fort Worth, Allied Elctrns.	817-336-5401

TDJ CO., INC., 1154 Morena Blvd., San Diego, CA 92110, Tel: 619-276-5920; Empl.: 6; *Sls. Mgr.:* R. Scherr .... **2•1060, 1061**

TDK CORPORATION OF AMERICA, 4711 Golf Rd., Skokie, IL 60076, Tel: 312-679-8200 .... **1A•1189, 1281, 1567, 1630, 2300; 2•1798, 1799; 3•1061, 1787**

Local Sales Offices & Reps

AL	Birmingham, Robert Warnock Co.	205-879-0576
CA	Cupertino, Thresum Assoc.	408-996-9889
CA	Irvine, English-Damco	714-751-8054
CA	Torrance, TDK Corp. of America	213-539-6631
FL	St. Petersburg, Tech. Rep. Assoc.	813-577-2779
ID	Meridian, Intermountain Techn.	208-888-5708
IL	Palatine, Technology Sls.	312-991-6600
IN	Indianapolis, TDK Corp. of America	317-872-0370
MA	Westwood, Comp. Rep. Assoc.	617-329-3454
MN	Bloomington, Smiley-Scott Assoc.	612-888-5551
NJ	Mount Laurel, Comtek Inc.	609-235-8505
NY	East Syracuse, Nycom Inc.	315-437-8343
NY	Port Washington, TDK Corp. of America	516-625-0100, Ext. 2300
NC	Raleigh, Zucker Assoc.	919-782-8433
OH	Cincinnati, Luebbe Sls. Co.	512-871-4211
TN	Knoxville, Insul-Reps	615-691-7586
TX	Richardson, Logic I Sls.	214-234-0765
WA	Seattle, Harry Levinson Co.	206-285-5622

TEAC CORP. OF AMERICA, Indl. Prod. Div., 7733 Telegraph Rd., Montebello, CA 90640, Tel: 213-726-0303, Telex: 67-7014; Empl.: 200; *Sls. Mgr.:* Al Astor; *Dist. Mgr.:* Al Astor

TEC, 2727 N. Fairview, Box 5646, Tuscon, AZ 85703, Tel: 602-792-2230, TWX: 910-952-1377; Empl.: 400; *Sls. Mgr.:* Barry Hamilton; *Dist. Mgr.:* Barry Hamilton

TECA, THERMOELECTRIC COOLING AMERICA CORP., 448 N. Halsted St., Chicago, IL 60622, Tel: 312-666-1600; Empl.: 50 .... **2•1805**

TECCOR SEMICONDUCTORS

TECCOR ELCTRNS., P.O. Box 619009, Dallas, T 75261-9009, Tel: 214-252-7651, Telex: 79-1600, TWX 910-860-5068; Empl.: 700; *Sls. Mgr.:* Gerry Wiley *Dist. Mgr.:* Don Davis .... **1A•2110, 211**

Local Sales Offices & Reps

AL	Huntsville, Interep Assocs.	205-533-173
AZ	Tempe, System Sls. of Ariz.	602-829-933
CA	San Diego, Sr Electronics	619-560-833
CA	San Jose, Quantum Coefficient	408-942-107
CA	Torrance, O'Donnell Assocs.	213-539-966
CO	Aurora, Electrodyne	303-695-890
CT	Cheshire, Scientific Comps.	203-272-296
FL	Clearwater Beach, Perrott Assocs.	813-443-521
FL	Orlando, Perrott Assocs.	305-298-774
FL	Sunrise, Perrott Assocs.	305-792-221
GA	Norcross, Interep Assocs.	404-449-868
IL	Arlington Heights, MSI	312-956-100
IN	Fort Wayne, Robert O. Whitesell & Assoc.	219-432-559
IN	Indianapolis, Robert O. Whitesell & Assoc.	317-359-928
IN	Kokomo, Robert O. Whitesell & Assoc.	317-457-912
IA	Cedar Rapids, Dy-Tronix	319-377-827
KY	Louisville, Robert O. Whitesell & Assoc.	502-426-769
MD	Towson, C. H. Newson & Assocs.	301-296-22
MA	Walpole, JEF Components	617-668-66
MI	Detroit, Rathsburg Assocs.	313-882-171
MN	Minneapolis, Electric Comp. Sls.	612-933-25
MO	Bridgeton, Dy-Tronix	314-731-57
MO	Independence, Dy-Tronix	816-373-66
NM	Albuquerque, Sys. Sls. of Arizona Inc.	505-881-88
NY	Canandaigua, Bensman/Upstate Assocs.	716-396-24
NY	Jamaica, S-J Assocs.	212-291-32
NY	Johnson City, Bensman/Upstate Assoc.	607-722-22
NC	Raleigh, J & B Sales	919-772-35
OH	Cincinnati, Robert O. Whitesell & Assoc.	513-521-22
OH	Cleveland, Robert O. Whitesell & Assoc.	216-447-90
OH	Columbus, Robert O. Whitesell & Assoc.	614-888-93
OH	Dayton, Robert O. Whitesell & Assoc.	513-298-95
OK	Tulsa, Bonser Philhower Sls.	918-496-32
PA	Flourtown, C. H. Newson & Assocs.	215-248-33
PA	Glenside, CMS Marketing	215-885-51
PA	Pittsburgh, Robert O. Whitesell & Assoc.	412-963-61
TX	Austin, Bonser Philhower Sls.	512-458-35
TX	Houston, Bonser Philhower Sls.	713-495-31

Richardson, Bonser Philhower Sls.	214-234-8438
Salt Lake City, Electrodyne	801-486-3801
Redmond, Quadra Sls.	206-883-3550
Wauwatosa, Larsen Assocs.	414-258-0529

Local Distributors

Huntsville, RM Electronics	205-852-1550
Phoenix, Tri-Tek	602-995-9352
Tempe, Anthem Elctrns.	602-244-0900
Tempe, Bell Inds.	602-966-7800
Burlingame, Rose Elctrns. Dist.	415-348-2740
Chatsworth, Integrated Elctrns.	213-998-2200
Chatsworth, Anthem Elctrns.	213-700-1000
Irvine, Integrated Elctrns.	714-540-5600
San Diego, Anthem Elctrns.	619-279-5200
San Jose, Anthem Elctrns.	408-946-8000
San Leandro, Electro Comp Dist.	415-352-5210
Santee, Mouser Elctrns.	619-449-2220
Tustin, Anthem Elctrns.	714-730-8000
Englewood, Anthem Elctrns.	303-790-4500
Lakewood, Active Comp. Technlg.	303-233-4431
Wheatridge, Bell Inds.	303-424-1985
East Haven, JV Electronics	203-469-2321
Hamden, Almo Elctrns.	203-288-6556
Orange, Milgray Elctrns.	203-795-0711
Longwood, Intertec Distr.	305-834-7777
Winterpark, Milgray Elctrns.	305-647-5747
Hoffman Estates, Inter Comp	312-843-2040
Lombard, RM Electronics	312-932-5150
Rosemont, Advent Elctrns.	312-298-4210
Ft. Wayne, Graham Elctrns.	219-423-3422
Indianapolis, RM Electronics	317-247-9701
Indianapolis, Advent Elctrns.	317-872-4910
Indianapolis, Graham Elctrns.	317-634-8202
Cedar Rapids, Advent Elctrns.	319-363-0221
Overland Park, Milgray Elctrns.	913-236-8800
Baton Rouge, Indl. Elctrns. Supply	504-926-0513
Shreveport, Indl. Elctrns. Supply	318-222-9459
Rockville, Milgray Elctrns.	301-468-6400
Rockville, Almo Elctrns.	301-251-1161
Savage, Pyttronic Inds.	301-792-0780
Burlington, Milgray Elctrns.	617-272-6800
Burlington, Zeus Comps.	617-273-0750
Woburn, ACI Elctrns.	617-935-7230
Farmington Hills, Advent Elctrns.	313-477-1650
Wyoming, RM Electronics	616-531-9300
Minneapolis, Stark Elctrns.	612-332-1325
Lincoln, Scott Elctrns.	402-466-8221
Camden, Gen. Radio Supply	609-964-8560
Marlton, Milgray Elctrns.	609-983-5490
Albuquerque, Bell Inds.	505-292-2700
Buffalo, Summit Distrs.	716-884-3450
Freeport, Milgray Elctrns.	516-546-5600
Jamaica, Archer Indl. Dist.	212-291-3232
Port Chester, Zeus Comps.	914-937-7400
Rochester, Summit Distrs.	716-334-7376
Rochester, Simcona Elctrns.	716-328-3230
Greensboro, Hammond Elctrns.	919-275-6391
Winston-Salem, Almo Elctrns.	919-760-0432
Cincinnati, Graham Elctrns.	513-772-1661
Cleveland, CAM/Ohio Indl. Elctrn.	216-461-4700
Cleveland, Milgray Elctrns.	216-447-1520
Columbus, Graham Elctrns.	614-895-1590
Dayton, Stotts Friedman	513-298-5555
Portland, Radar Elc. Co.	503-232-3404
Enola, Almo Elctrns.	717-732-3681
Mc Kean, Advacom	814-476-7774
Montgomeryville, Pyttronic Inds.	215-643-2850
Philadelphia, Almo Elctrns.	215-698-4000
Pittsburgh, Almo Elctrns.	412-931-5990
Pittsburgh, CAM/RPC Indl. Elctrns.	412-782-3770
Greenville, Hammond Elctrns.	803-233-4121
Chatanooga, Techni-Tronics	615-875-5449
Nashville, Graham Elctrns.	615-242-2682
Austin, Active Comp. Technlg.	512-452-5254
Dallas, Active Comp. Technlg.	214-980-1888
Dallas, RM Electronics	214-235-3100
El Paso, ERA Elctrns.	915-592-4126
Houston, Active Comp. Technlg.	713-496-4000
Salt Lake City, Bell Inds.	801-972-6969
Bellevue, Integrated Elctrns.	206-455-2727
Redmond, Anthem Elctrns.	206-881-0850
Seattle, Radar Elec. Co.	206-282-2511
Milwaukee, Marsh Elctrns.	414-475-6000
New Berlin, RM Electronics	414-784-4420

CHCON SYSTEMS INC., 1059 E. Bedmar St., Carson, CA 90746, Tel: 213-603-8888; Empl.: 25; *Sls. Mgr.:* S. L. Morse

CH-ETCH INC., 45 Aldrin Rd., Plymouth, MA 02360, Tel: 617-747-0300; Empl.: 125; *Sls. Mgr.:* P. A. Thomas

CH LABS., INC., Bergen & Edsall Blvds., Palisades Pk., NJ 07650, Tel: 201-944-2221; FSC No.: 83332; Empl.: 31 .... **1B**•1754, 1755

Local Sales Offices & Reps

CA	Granada Hills, C & W Comp. Sls.	213-368-4032
CA	Palo Alto, Mollard Mktg.	415-961-0456
CT	New Preston, NBS Assoc.	203-868-0501
GA	Atlanta, Grady Duckett Sls.	404-451-3529
IL	Glenview, Crimson Engrg. Co.	312-470-0024
KS	DeSoto, Midtec Assocs.	913-441-6565
MI	Jackson, N. Scroggs Co.	517-750-1170
MO	Florissant, Midtec Assocs.	314-837-5200
NJ	Haddonfield, Gray Assocs.	609-429-5300
NJ	Upper Saddle River, Bob Cameron, Inc.	201-825-1304
NY	Huntington Station, Haner Assocs.	516-242-7855
NY	Pittsford, Net Sls.	716-467-4538
OH	Cincinnati, Patco	513-931-3311
PA	Pittsburgh, VerHill Assocs.	412-241-5202
TX	Dallas, Southwest Elctrns.	214-690-9881
TX	Houston, Southwest Elctrns.	713-729-1670
WA	Seattle, SPS Elctrns.	206-323-4140

TECHMAR CORP., 2232 S. Cotner Ave., Los Angeles, CA 90064, Tel: 213-478-0046, 800-TECHMAR; Empl.: 12; *Sls. Mgr.:* Karena Bennetto .... **2**•1062, 1063

TECH MATERIALS, 5 Wellington Rd., Lincoln, RI 02865, Tel: 401-333-1700, TWX: 710-384-0600; Empl.: 150; *Sls. Mgr.:* C.B. Harlan

TECHNAR INC., 205 N. 2nd Ave., Arcadia, CA 91006, Tel: 818-445-1143; *Sls. Mgr.:* James Rhodes

TECHNIC, INC., Box 965, Providence, RI 02901, Tel: 401-781-6100, Telex: 927514; Empl.: 100; *Sls. Mgr.:* A. A. Amtos

TECHNICAL DEVICES, 560 Alaska Ave., Torrance, CA 90503, Tel: 213-618-8437; FSC No.: 04772; Empl.: 21; *Sls. Mgr.:* J. Cochran; *Dist. Mgr.:* J. Cochran

TECHNICAL PANELS, INC., 9162 La Rosa Dr., Temple City, CA 91780, Tel: 213-285-3105; Empl.: 13; *Sls. Mgr.:* Janlyn Prendic; *Dist. Mgr.:* Douglas Welch

Local Sales Offices & Reps

AZ	Scottsdale, TC Elctrn. Sls. Inc.	602-994-5153
CA	Temple City, HMC, Inc.	213-285-0485
MO	Ellisville, Larco Sls.	314-394-7141

TECHNICAL RESEARCH & MFG., INC., R.F.D. #10, Manchester, NH 03103, Tel: 603-627-6000, TWX: 710-220-6765; Empl.: 25; *Sls. Mgr.:* A. Marin .... **1B**•1014

Local Sales Offices & Reps

AZ	Mesa, RLS Instrs.	602-892-9329
CA	Los Angeles, RF Assoc./L.A.	213-478-1586
CA	Palo Alto, RF Assoc./P.A.	415-494-3331
CO	Greeley, Howard Assocs.	303-426-3499
CT	Norwalk, Neal Cockerham Assocs.	203-853-2618
CT	Stamford, Ashworth & Assocs.	203-968-0656
FL	Orlando, Gra-Mar	305-894-3351
IL	Chicago, Electro-Tech	312-588-4535
MA	Lowell, Matrix Sales	617-458-2096
MA	Reading, Geder Assocs.	617-544-3105
MO	Grandview, R. R. Burton and Assoc.	816-763-5385
NM	Las Cruces, Sierra Tech. Grp.	505-524-8092
NY	Guilderland, Nu-Tekneex	716-741-9138
NY	My Vernon, Friedman-Smith	914-664-4866
NY	White Plains, SCA Intl.	914-761-1042
PA	Lancaster, Electro-Rep	914-664-4866
TX	Arlington, N & W Sls.	817-461-4443
TX	Dallas, Texas Avionics	214-368-3566
VA	Fairfax, Beacon North	703-591-1300
VA	Fairfax, Schibley Assoc.	703-591-3008

TECHNIPOWER, A PENRIL CO., P.O. Box 222, Commerce Pk., Danbury, CT 06810, Tel: 203-748-7001, TWX: 710-456-9280; FSC No.: 13850; Empl.: 135; *Sls. Mgr.:* Ivan Bourgoin; *Dist. Mgr.:* Gerard F. Voity .... **1A**•2301, **3**•1789

Local Sales Offices & Reps

Power Supply Product Line

TX	Houston, Scientific Sls. Co.	713-460-9170
TX	Richardson, Scientific Sls. Co.	214-231-6541

Variac Product Line

TX	Houston, Scientific Sls. Co.	713-460-9170
TX	Richardson, Scientific Sls. Co.	214-231-6541

Local Distributors

Variac Product Line Only

CA	Hollywood, Yale Radio Elctrn.	213-465-3186, 800-421-4144
CA	Los Angeles, Cal-State Elctrns.	213-933-8187
CA	Oakland, N. A. D'Arcy	415-638-7773
CA	Santa Ana, Action Elctrns.	714-547-5169
CT	Old Saybrook, M.L. Elctrns.	203-388-9718
IL	Chicago, Delta Tech. Prods. Co.	312-478-1134
MD	Baltimore, Philadelphia Elctrns.	800-638-4784
MA	Woburn, Abbott Elctrns. Co.	617-935-2040
MI	Dearborn, Indl. Temperature & Control	313-278-2210
MN	St. Paul, Gopher Elctrns. Co.	612-483-3322
MO	St. Louis, Olive Elctrns.	314-426-4500
NY	Amsterdam, Adirondack Radio Supp.	518-842-8350
NY	Rockville Centre, Midway Indl. Elctrns.	516-764-2400
NC	Charlotte, Jenkins Elec. Co.	704-392-7371
OH	Dayton, Esco Inc.	513-226-1133
OK	Oklahoma City, Inotek	405-495-4620
OK	Tulsa, Inotek	918-622-8570
PA	Philadelphia, Phila. Elctrns.	215-568-7400
TX	Dallas, Inotek	214-243-8370
TX	Ft. Worth, Inotek	817-831-2126
TX	Houston, Inotek	713-688-4494
TX	San Antonio, Inotek	512-654-7811

TECHNIQUES, INC., 235 Jackson St., Englewood, NJ 07631, Tel: 201-569-5900; Empl.: 60

TECHNISERV INC., 1560 Teaneck Rd., Teaneck, NJ 07666, Tel: 201-837-0032; *Sls. Mgr.:* L. G. Mansoor

TECHNI-TOOL, 5 Apollo Rd., Box 368, Plymouth Meeting, PA 19462, Tel: 215-825-4990, Telex: 834-763; Empl.: 40

Local Sales Offices & Reps

CA	W. Covina, Electra-Tec	213-964-9772
FL	Ft. Pierce, Hyber-Sem	305-464-0461
IL	Wauconda, Champion & Assoc.	312-526-3700
KS	De Soto, Midtec Assocs.	913-441-6565
LA	Kenner, EDS Assocs.	504-466-7475
MD	Wheaton, Brimberg Sls.	301-946-2670
MA	Hudson, Data Rep	617-481-0333
MI	Detroit, Qualitron Co.	313-534-1511
MO	Florissant, Midtec Assocs.	314-837-5200
NJ	Butler, Genl. Techn.	201-492-1292

Technitrol, Inc.

TECHNITROL, 1952 E. Allegheny, Philadelphia, PA 19134, Tel: 215-426-9105, Telex: 834245; FSC No.: 90095; Empl.: 350; *Sls. Mgr.:* G. Shilling .... **1A**•1568-1574; **1B**•1015-1017

Local Sales Offices & Reps

AL	Huntsville, Murcota	205-539-8476
AZ	Scottsdale, SMS & Assoc.	602-998-0831
CA	San Rafael, Wright Assocs.	415-457-9940
CA	Torrance, Detomasi & Grupp, Inc.	213-327-1775
IL	Wauconda, Cudahy Sls.	312-526-2484
MD	Baltimore, Callas Elctrns.	301-744-7711
MA	Newton, Normell Assoc.	617-969-5478
NY	Fairport, TAC Assoc.	716-425-1070
NY	Jericho, J. Square Mktg.	516-935-3200
NY	Syracuse, Tac Sls.	315-637-9861
NC	Winston-Salem, Murcota	919-722-9445
OH	Galion, Retronics	419-468-4568
PA	Easton, The Kendon Co.	215-253-3100
PA	Pittsburgh, Robert Kneip	412-823-0169
TX	Austin, Elctrns. Mktg. Assoc.	512-837-0893
TX	Grapevine, Elctrns. Mktg. Assoc.	817-481-7502
TX	Houston, Elctrns. Mktg. Assoc.	713-498-8120
WA	Redmond, General Technlg., Inc.	206-881-6456

TECHNO, INC., 14 Crandall Ave., Pompton Lakes, NJ 07442, Tel: 201-839-0740; Empl.: 10; *Sls. Mgr.:* Fredric S. Miller

TECHNO

TECHNO-COMPONENTS CORP., 7803 Lemona, Van Nuys, CA 91405, Tel: 818-781-1642, TWX: 910-495-2015; FSC No.: 17826; Empl.: 135; *Sls. Mgr.:* Vivian Meranda .... **1A**•1939, 2064, 2065

Local Sales Offices & Reps

AZ	Scottsdale, Argus Sls.	602-949-0873
CA	Costa Mesa, Balzer-Wolf Assocs.	714-751-3001

CA	Cupertino, F & F Assocs.	408-446-2349
CA	Sherman Oaks, Clemick-Neenan & Assoc.	818-990-3150
CO	Westminster, Western Region Mktg.	303-430-8883
FL	Casselberry, S-A Assocs.	305-695-6010
GA	Roswell, Edco Sls.	404-587-1886
IL	Crystal Lake, Oak Switch Sys.	815-459-5000
IN	Fort Wayne, Denton Mktg.	219-627-5515
KS	Wichita, Baka Corp.	316-682-8411
MD	Baltimore, Pro Rep	301-653-3600
MA	Newton, Gerber Sls.	617-969-2620
MN	Minnetonka, Gibb Elctrns.	612-935-4600
NJ	Haddonfield, Mills-Brown	609-429-1005
NY	N. Syracuse, Advanced Comps.	315-699-2671
NY	New Hyde Park, R. P. Luce & Co.	516-437-4550
OH	Centerville, E.M.A.	513-433-2800
TX	Bedford, W. Pat Fralia Co.	817-640-9101

Local Distributors

CA	Chatsworth, Shelley Elctrns.	818-998-3333
CA	El Monte, Marshall Elctrns.	213-686-0141
CA	Fullerton, Carden Elctrns.	714-526-7882
CA	San Fernando, Petell Elctrns.	818-365-9841
FL	Tampa, Impala Elctrns.	813-885-4747
MD	Columbia, Aztech Elctrns.	301-995-1760
MA	Burlington, TLC Inc.	617-273-0140
NJ	Oakland, Gordon/Horne	201-337-5200
NY	Farmingdale, Command Elctrns.	516-293-1212
NY	N. Syracuse, ANDCO	315-699-2660
OH	Centerville, I.P.D.	513-435-2086
OH	Dayton, Televox	513-294-4499
TX	Ft. Worth, TTI	817-831-0441
TX	Ft. Worth, Patco Supply	817-429-8596

TECHNOLOGY DYNAMICS inc.

TECHNOLOGY DYNAMICS, 91 E. Carver Ave., Westwood, NJ 07675, Tel: 201-664-7636; Empl.: 36; *Sls. Mgr.:* James Logan .... **3**•1790-1795

Local Sales Offices & Reps

FL	De Barg, DJE Assocs., Inc.	305-668-6827
MA	Westboro, RJC Assocs.	617-366-0399

TECHNOLOGY PRODS., INC., 8900 Eton Ave., Canoga Park, CA 91304, Tel: 213-998-8555; FSC No.: 8K984; *Sls. Mgr.:* N. Lerman

TECHSONICS, Halfway, OR 97834, Tel: 503-742-7475; Empl.: 6

TECH SPRAY, INC., Box 949, Amarillo, TX 79105, Tel: 806-372-8523, Telex: 738450; Empl.: 25; *Sls. Mgr.:* R. G. Russell; *Dist. Mgr.:* Jack Swanson

TCI

TECHTROL CYCLONETICS, INC., 815 Market St., New Cumberland, PA 17070, Tel: 717-774-2746, TWX: 510-650-7003; FSC No.: 4P572; Empl.: 18; *Sls. Mgr.:* James M. Griffith .... **1A**•1432, 1433

Local Sales Offices & Reps

CA	San Carlos, Westronics Assoc.	415-592-1417
CA	Signal Hill, Thorson Co.	213-595-0361
FL	Clearwater, Brennan Assoc.	813-446-5006
MD	Ellicott City, Nelson Elctrns. Inc.	301-747-7887
MA	Topsfield, R F Assoc.	617-887-9762
NY	Brooklyn, Pensky Assocs.	212-763-4936
PA	Ambler, W & M Assocs.	215-643-4119
TX	Dallas, Airep Elctrns.	214-349-4360

TECKNIT a TWP company

TECKNIT (EASTERN FACILITY), 129 Dermody St., Cranford, NJ 07016, Tel: 201-272-5500, Telex: 6853079, TCKNT, TWX: 710-996-5961; FSC No.: 07700; Empl.: 300; *Sls. Mgr.:* Robert Bjornsen (East);James L. Fletcher (West) .... **2**•1588-1591, 1916-1923

Local Sales Offices & Reps

AZ	Tempe, Tempe Assoc.	602-829-1901
CA	Granada Hills, C & W Comp. Sls.	213-368-4032
CA	San Diego, Cerco	619-274-1901
CA	Santa Barbara, Tecknit (Western Facility)	809-963-5811
CA	Santa Clara, Nova-Tronix	408-727-9530
CO	Boulder, Comp. Prod. Sls.	303-530-2800
CO	Westminster, Tecknit	303-428-9169
FL	Boca Raton, Lawrence Assocs.	305-368-7373
FL	Clearwater, Lawrence Assocs.	813-584-8110
FL	Fern Park, EIR	305-830-9600
FL	N. Lauderdale, EIR, Inc.	305-830-9600
FL	West Melbourne, Lawrence Assocs.	305-724-8294
IL	Arlington Hgts., Diethert/Angel	312-593-7600
IL	Chicago, Industrial Reps.	312-647-7755
IN	Eden Prairie, Elctrn. Innovators	612-941-0830
IA	Davenport, Ensco-Rep Inc.	319-386-6600
KS	Overland Park, Ensco-Rep Inc.	913-381-7557
KS	Wichita, Ensco-Rep Inc.	316-683-1070
MD	Pikesville, White & Co.	301-484-5400
MA	Waltham, Com-Sale	617-890-0011
MI	Lavonia, Lowell-Wendt Mktg. Co.	313-464-2722
MN	Eden Prairie, Elctrn. Innovators Inc.	612-941-0830
MN	St. Paul, Repco	612-642-2828
MO	Maryland Heights, Ensco-Rep Inc.	314-423-3935
NH	Hudson, EMC Sales	603-889-5751
NJ	N. Plainfield, Brady Co.	201-753-7988
NJ	Union, Meridian Entprs.	201-687-6220
OH	Columbus, McFadden Sls.	614-459-1280
OH	Dayton, Jay Engrg.	513-253-2151
OH	N. Royalton, Jay Engrg.	216-237-4235
TX	Austin, P. J. Scanlon & Co.	512-258-7717
TX	Dallas, P. J. Scanlon	214-231-4661
TX	Houston, P. J. Scanlon & Co.	713-370-4908
WA	Vancouver, Ray Over Sls.	206-695-6179

TECMAR, INC., 6225 Cochran Rd., Solon, OH 44139, Tel: 216-349-0600; Empl.: 400; *Sls. Mgr.:* Carolyn Alpert

TECNETICS, Box 910, Boulder, CO 80306, Tel: 303-442-3837, TWX: 910-940-3246; Empl.: 225; *Sls. Mgr.:* V.L. Garrison

TECOM INDS., 21526 Osborne St., Canoga Pk., CA 91304, Tel: 213-341-4010, Telex: 69 8476; FSC No.: 59850001; Empl.: 94; *Sls. Mgr.:* Chester E. Rowley

Tecron

TECRON INDUSTRIAL PRODS., Crown Intl., Inc., 1718 W. Mishawaka Rd., Elkhart, IN 46517, Tel: 219-294-5571, Telex: 810-294-2160; Empl.: 300; *Sls. Mgr.:* Howard King .... **3**•1022-1025, 1306, 1307

Local Sales Offices & Reps

CA	Mountain View, IFM Inc.	415-961-2828
CA	Thousand Oaks, HTEC	805-492-2889
CT	Woodbridge, Electronic Marketing Assoc.	203-397-1461
FL	Tampa, Applied Science Mktg.	813-870-0664
IL	Chicago, Berndt Assocs.	312-283-0713
IA	Cedar Rapids, MAI Assocs.	319-396-8030
MI	Livonia, Lowell-Wendt Mktg. Co.	313-464-2722
MN	St. Paul, Skor	612-426-1160
NJ	Wayne, Ramapo, Inc.	201-839-6767
NM	Albuquerque, R. A. Mayes Co.	505-292-2330
NY	Syracuse, Labtronics Inc.	315-455-7314
OH	Brecksville, Audio Mktg. Assoc.	216-526-2426
PA	King of Prussia, Freedman-Malta Assoc.	215-337-9211
WA	Bellevue, Showalter Instrs., Inc.	206-746-7970

TED CORP., 11415 Johnson Dr., Shawnee Mission, KS 66203, Tel: 913-631-6211; FSC No.: 05209; Empl.: 48

TEDEA USA

TEDEA USA, 7800 Deering Ave., Canoga Park, CA 91304, Tel: 818-884-8818, Telex: 67-3382, TWX: 910-494-1951; Empl.: 10; *Sls. Mgr.:* Tony Smalarz .... **1B**•1878; **3**•1172

Local Sales Offices & Reps

AZ	Tempe, Trembly Assocs.	602-967-2058
CA	Carlsbad, Elotek Sys.	714-438-4856
CA	Palo Alto, Gado Instr. Sls.	415-961-2222
GA	Atlanta, Physimetrics	404-955-0155
IL	Hinsdale, I & C Sales	312-323-8201
KS	Shawnee Mission, Tech. Sls. Assocs.	913-888-3330
MA	Lexington, Jodan Technology	617-862-2354
MI	Trenton, I & C Sales	313-671-1320
MN	Minneapolis, CMI	612-566-6930
MO	St. Louis, Tech. Sls. Assocs.	314-725-5361
NJ	Hillsdale, C B Assocs.	201-664-6230
NM	Albuquerque, Trembly Assocs.	505-266-8616
OH	Cincinnati, I & C Sales	513-772-3101
PA	Bethayres, Control Instr. Sls.	215-676-1808
WA	Bellevue, Westerberg & Assocs.	206-453-888
WA	Bothell, Pacific N.W. Controls Inc.	206-821-0448

TEGAM, 7230 N. Ridge Rd., Madison, OH 44057, Tel: 216-428-7505; Empl.: 25

TEGAL SCIENTIFIC, INC., Box 5905, Concord, CA 94524, Tel: 415-827-1054; *Sls. Mgr.:* L. Rigali

TEKA PRODS., 45 Salem, Providence, RI 02907, Tel: 401-785-4110, TWX: 710-582-4946; Empl.: 28; *Sls Mgr.:* Jim Mills; *Dist. Mgr.:* Jim Mills

TEKNATIONAL INDS., INC., 430 S. Clinton Ave. Rochester, NY 14620, Tel: 716-232-1291; FSC No. 24227; Empl.: 15; *Sls. Mgr.:* J. D. Hochheimer

TEKTITE CORP., 4756 Platt Rd., Ann Arbor, M 48104, Tel: 313-971-9379; *Sls. Mgr.:* Jose Padilla

TEKTONE SOUND & SIGNAL, 1331 S. Killian Dr Lake Park, FL 33403, Tel: 305-844-2383, Telex: 51 3438; FSC No.: 59-1500771; Empl.: 50; *Sls. Mgr* Carlos Mira; *Dist. Mgr.:* Carlos Mira

TEKTRONIX, INC., P.O. Box 500, V3-314, Beavertor OR 97077, Tel: 800-547-1512, Oregon only 800-452 1877, TWX: 910-467-8708; FSC No.: 80009; Empl 20000 .... **3**•1376, 137

Local Sales Offices & Reps

AL	Huntsville	205-881-291
AZ	Phoenix	602-268-886
CA	Concord	415-254-535
CA	Irvine	714-660-808
CA	San Diego	619-292-733
CA	Santa Clara	408-496-080
CA	Woodland Hills	213-999-171
CO	Englewood	303-799-10
CT	Milford	203-877-14
DC	Gaithersburg	301-948-71
FL	Ft. Lauderdale	305-973-93
GA	Atlanta	404-449-47
IL	Chicago	312-259-75
IN	Indianapolis	317-545-23
KS	Overland Park	913-341-33
LA	New Orleans	504-466-44
MD	Baltimore	301-628-64
MA	Boston	617-861-68
MI	Detroit	313-478-52
MN	St. Paul	612-484-85
MO	St. Louis	314-429-77
NJ	Woodbridge	201-636-86
NM	Albuquerque	505-265-55
NY	Albany	518-458-72
NY	Long Island	516-364-90
NY	Rochester	716-424-58
NC	Raleigh	919-782-56
OH	Cleveland	216-243-85
OH	Dayton	513-859-36
OK	Oklahoma City	405-943-81
OR	Tigaro	503-620-91
PA	Pittsburgh	412-244-98
TN	Knoxville	615-690-64
TX	Houston	713-933-30
TX	San Antonio	512-496-11
UT	Salt Lake City	801-486-10
VA	Arlington	703-920-77
WA	Seattle	206-575-01

ELAUTOGRAPH, 8700 Bellanca Ave., Los Angeles, CA 90045, Tel: 213-641-3690, TWX: 910-328-6117; Empl.: 300

ELCOM INC., 8027 Leesburg Pike, Vienna, VA 22180, Tel: 703-893-7700, Telex: 89-2321; Empl.: 125; *Sls. Mgr.:* D. Desmond

ELCO PRODUCTS CO., 44 Sea Cliff, Glen Cove, NY 11542, Tel: 516-759-0300; Empl.: 34

ELEBYTE TECHNOLOGY, INC., Remark Datacom Div., 4 Sycamore Dr., Woodbury, NY 11797, Tel: 516-423-3232, TWX: 510-226-0449; Empl.: 10; *Sls. Mgr.:* Curt DeForest

ELECOMMUNICATIONS DEVICES, 2320 Wisconsin Ave., Downers Grove, IL 60515, Tel: 312-971-3460, TWX: 910-695-3222; Empl.: 45; *Sls. Mgr.:* Joel Peterson;Chuck Pokonosky; *Dist. Mgr.:* Theresa Kanaga

Local Distributors

L	Birmingham, American Elctrns.	205-254-3280
H	Cleveland, Pruit Energy Sources	216-566-1545
H	Harrisburg, Cumberland Elctrns.	717-232-5999
H	Solon, Repco	216-248-8900
	Knoxville, Bondurant Bros.	615-573-9151

ELECOMMUNICATIONS TECHNIQUES CORP., 444 N. Frederick Ave., Gaithersburg, MD 20877, Tel: 301-258-5011, Telex: 908736; Empl.: 66; *Sls. Mgr.:* John Farrell

Local Sales Offices & Reps

	Scottsdale, Barnhill Assocs.	602-947-7841
	La Crescenta, Beckrep	818-957-1111
	Mountain View, CSS Telecommunications	415-964-4335
	Englewood, Barnhill Assocs.	303-779-3600
	Indian Harbour Beach, General Technlg.	305-777-1133
	Atlanta, General Technlg.	404-433-0350
	Arlington Heights, Dytec/Central	312-394-3380
	Noblesville, Gerhard & Assocs.	317-877-3710
	Lenexa, Dytec/South	913-888-0215
	Baton Rouge, Barnhill Assocs.	504-924-6826
D	Silver Spring, GT Assocs.	301-949-8060
	Northville, Gerhard & Assocs.	313-348-6560
N	Edina, RAE Assocs.	612-941-3221
O	Maryland Heights, Dytec/South	314-569-2990
	Concord, Concord Coms.	603-224-8602
	Union, Friedman Assocs.	201-946-6200
	Albuquerque, Barnhill Assocs.	505-299-7658
	Greensboro/High Point, General Technlg.	919-883-6523
	Cleveland Heights, Gerhard & Assocs.	216-382-5838
	Columbus, Gerhard & Assocs.	614-488-9751
	Dayton, Gerhard & Assocs.	513-435-7696
	Milwaukee, Control Q	503-654-9295
	Pittsburgh, Gerhard & Assocs.	412-241-6250
	Austin, Barnhill Assocs.	512-451-0217
	Houston, Barnhill Assocs.	713-688-9971
	Murray, Barnhill Assocs.	801-262-3000
	Richardson, Barnhill Assocs.	214-231-2573
A	Redmond, Control Q	206-881-7440

ELECTRO SYS., 96-18 43rd Ave., Corona, NY 11368, Tel: 212-651-8900; Empl.: 75; *Sls. Mgr.:* H. Sussman

ELEDYNE AEROSPACE SYS., 1007 E. 10th St., Fairmont, MN 56031, Tel: 507-235-3355, 507-235-9712, 507-238-9494, TWX: 910-565-2120; FSC No.: 24600; Empl.: 150; *Sls. Mgr.:* Robert L. Johnson

Local Sales Offices & Reps

	Huntsville, Lew Wright	205-536-7961
	Denver, Donohue Sls. Co.	303-458-6384
	Neshanic Station, J & L Assocs.	201-369-3791
	Dallas, R. D. Spooner Co.	214-357-6636
	Shipman, R.P. Assocs	804-263-5981

ELEDYNE ANSONIA, Riverside Dr., Ansonia, CT 06401, Tel: 203-735-9311, Telex: 963408; *Sls. Mgr.:* James Cutler

ELEDYNE CAMERA SYS., 131 N. Fifth Ave., Arcadia, CA 91006, Tel: 213-359-6691, Telex: 675-423; FSC No.: 14440; Empl.: 96; *Sls. Mgr.:* D. Mathews

ELEDYNE-CRYSTALONICS, 147 Sherman St., Cambridge, MA 02140, Tel: 617-491-1670, TWX: 710-320-1196; FSC No.: 12498; Empl.: 185; *Sls. Mgr.:* A. H. Pauk; *Dist. Mgr.:* W. J. Kilgarriff

ELEDYNE/GEOTECH, 3401 Shiloh Rd., Garland, TX 75041, Tel: 214-271-2561, Telex: 73-2394; FSC No.: 99019; Empl.: 440

TELEDYNE GURLEY, 514 Fulton St. P.O. Box 88, Troy, NY 12181, Tel: 518-272-6300, TWX: 710-443-8156; *Sls. Mgr.:* G. S. Gordon

TELEDYNE INET, 2750 W. Lomita Blvd., Torrance, CA 90509, Tel: 213-325-5040, Telex: 67-7228; Empl.: 600

TELEDYNE KINETICS, 410 S. Cedros Ave., Solana Beach, CA 92075, Tel: 619-755-1181, TWX: 910-322-1135; Empl.: 80

TELEDYNE MECCA, Box 36393, Houston, TX 77036, Tel: 713-772-2811, TWX: 913-881-7039; Empl.: 75; *Sls. Mgr.:* T. G. Roach

TELEDYNE MICRONETICS, 7155 Mission Gorge Rd., San Diego, CA 92120, Tel: 619-583-3525, TWX: 910-335-2085; Empl.: 120; *Sls. Mgr.:* S. Amarillas

TELEDYNE MICROWAVE, 1290 Terra Bella Ave., Mountain View, CA 94043, Tel: 415-968-2211, TWX: 910-379-6939; FSC No.: 24022; Empl.: 325

TELEDYNE PHILBRICK, Allied Dr. Rte 128, Dedham, MA 02026, Tel: 617-329-1600, TWX: 710-348-6726; Empl.: 250

TELEDYNE RELAYS, 12525 Daphne Ave., Hawthorne, CA 90250, Tel: 213-777-0077, TWX: 910-321-4610; *Sls. Mgr.:* Tom Garland; *Dist. Mgr.:* Charles Fein

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-0498
AZ	Scottsdale, Arcom Sls.	602-947-5745
CA	San Jose, Teledyne Relays	408-996-9944
CO	Denver, Quorum 3	303-696-8480
CT	Stratford, G. Rosen Co.	203-375-5456
FL	Clearwater, Hutto, Hawkins & Peregoy	813-797-4447
FL	Ft. Lauderdale, Hutto, Hawkins & Peregoy	305-971-5750
FL	Maitland, Hutto, Hawkins & Peregoy	305-831-2474
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Glen Ellyn, Teledyne Relays	312-858-1090
IN	South Bend, Schillinger Asso.	219-282-4570
IA	Cedar Rapids, Stan Clothier Co.	319-395-0245
KS	Olathe, C-Tron	913-829-0073
MD	Towson, Arbotek Assocs.	301-825-0075
MA	Framingham, G. Rosen Co.	617-879-5505
MN	Minneapolis, S. Clothier Co.	612-944-3456
MO	St. Louis, R. F. Carlson Co.	314-961-4485
NJ	Cranford, Teledyne Relays	201-272-0020
NM	Albuquerque, Reptronix	505-292-1718
NY	Mount Vernon, Friedman-Smith Elctrns.	914-664-4866
NY	Syracuse, I.A. Hotze Co.	315-479-6641
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Dayton, J.C. Hofstetter Co.	513-296-1010
OH	Medina, J.C. Hofstetter Co.	216-241-4880
OR	Beaverton, B & P Sls.	503-641-3486
PA	Hickory, J. C. Hofstetter Co.	412-356-2305
PA	Pennsauken, Vantage Sls.	609-663-6660
TX	Austin, Kruvand Assocs.	512-441-6777
TX	Dallas, Kruvand Asso.	214-691-4592
TX	Houston, Kruvand Asso.	713-780-9710
UT	Salt Lake City, Quorum 3	801-943-9227
WA	Renton, B & P Asso.	206-454-6571

Local Distributors

AL	Huntsville, Pioneer Elctrns.	205-837-9300
AZ	Phoenix, Wyle	602-249-2232
AZ	Tempe, Time-Arizona	602-967-2000
CA	Anaheim, Time-Anaheim	714-937-0911
CA	El Segundo, Wyle Dist. Grp.	213-322-8100
CA	Irvine, Wyle Dist. Grp.	714-863-9953
CA	Rancho Cordova, Wyle	916-638-5282
CA	San Diego, Wyle Dist. Grp.	619-565-9171
CA	Santa Clara, Wyle Dist. Grp.	408-727-2500
CA	Sunnyvale, Time-N. Cal.	408-734-9888
CA	Torrance, Time-West	213-320-0880
CO	Englewood, Time-Colorado	303-850-7701
CO	Thornton, Wyle Dist. Grp.	303-457-9953
CT	Orange, Milgray/Conn.	203-795-0711
FL	Altamonte Springs, Pioneer Elctrns.	305-834-9090
FL	Dana, Summit	305-920-6253
FL	Ft. Lauderdale, Time-Florida	305-974-4800
FL	Winter Pk., Milgray/Fla.	305-647-5747
GA	Atlanta, Milgray	404-393-9666
GA	Atlanta, Electro-Air-Georgia	404-351-3545
GA	Norcross, Pioneer	404-448-1711
IL	Elk Grove Village, Pioneer/Chicago	312-437-9680
IN	Indianapolis, Pioneer/Indianapolis	317-849-7300
KS	Overland Pk., Milgray/Kansas City	913-236-8800
MD	Columbia, Time-Maryland	301-964-3090
MD	Gaithersburg, Pioneer/Wash.	301-921-0660
MD	Rockville, Milgray/Wash.	301-468-6400
MA	Burlington, Milgray/New England	617-272-6800
MA	Woburn, Time-New England	617-935-8080
MI	Livonia, Pioneer/Mich.	313-525-1800
MN	Minnetonka, Pioneer	612-935-5444
MO	St. Louis, Time-Mid West	314-391-6444
NJ	Marlton, Milgray/Delaware Valley	609-983-5010
NY	Buffalo, Summit Dist.	716-887-2800
NY	Freeport, Milgray Elctrns.	516-420-9800
NY	Hauppauge, Time-NY	516-273-0100
NY	Pittsford, Milgray	716-385-9330
NY	Rochester, Summit Dist.	716-334-8110
NC	Charlotte, Pioneer	704-527-8188
OH	Cleveland, Milgray/Cleveland	216-447-1520
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Dayton, Pioneer/Dayton	513-236-9900
OR	Hillsboro, Wyle Dist. Grp.	503-640-6000
PA	Broomall, Time-Mid Atlantic	215-359-1200
PA	Horsham, Pioneer/Delaware Valley	215-674-4000
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
TX	Austin, Pioneer	512-835-4000
TX	Dallas, Electro-Air-Southwest	214-385-0566
TX	Dallas, Pioneer Std.	214-386-7300
TX	Houston, Kierulff Elctrns.	713-530-7030
TX	Houston, Pioneer Elctrns.	713-988-5555
TX	Richardson, Wyle-Dallas	214-235-9953
UT	Salt Lake City, Wyle Dist. Grp.	801-974-9953
WA	Bellevue, Electro-Air-Northwest	206-641-3640
WA	Bellevue, Wyle Dist. Grp.	206-453-8300

TELEDYNE ROTOLITE, 150 Mt. Bethel Rd., Warren, NJ 07060, Tel: 201-647-1040, TWX: 710-986-3017; *Sls. Mgr.:* Ted Killeen

TELEDYNE SEMICONDUCTOR, 1300 Terra Bella Ave., Mountain View, CA 94040, Tel: 415-968-9241, TWX: 910-379-6494; FSC No.: 15818; Empl.: 2000; *Sls. Mgr.:* Ralph Granchelli

TELEDYNE WESTERN WIRE & CABLE, 2425 E. 30th St., Los Angeles, CA 90051, Tel: 213-587-7103, Telex: 67-7110; Empl.: 250; *Sls. Mgr.:* W. Drolet, Jr.; *Dist. Mgr.:* M. Ibrahim

TELEFUNKEN, See AEG Telefunken

TELEMET, 185 Dixon Ave., Amityville, NY 11701, Tel: 516-842-2300, TWX: 510-227-9850; Empl.: 60

TELERAM COMMUNICATIONS, 2 Corporate Park Dr., White Plains, NY 10604, Tel: 914-694-9270, Telex: 64-6658; Empl.: 50; *Sls. Mgr.:* R. R. Ansell

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TELETERMINAL CORP., Greenland, NH 03840, Tel: 603-431-1200; Empl.: 13

TELETYPE, 5555 Touhy Ave., Skokie, IL 60076, Tel: 312-982-2000, Telex: 25-4051, TWX: 910-223-3611; FSC No.: 5815; Empl.: 6,000; *Sls. Mgr.:* D. M. Printz

TELEVIDEO SYS., INC., 1170 Morse Ave., Sunnyvale, CA 94086, Tel: 408-745-7760, TWX: 910-338-7633; *Sls. Mgr.:* Steve Tatum (VDT Div.); Chuck Kempton (Sys. Div.)

TELEVISION EQUIP. ASSOCS., Box 393, So. Salem, NY 10590-0393, Tel: 914-763-8893, TWX: 710-575-2600; Empl.: 10

TELEVISION MICROTIME, INC., 1280 Blue Hills Ave., Bloomfield, CT 06002, Tel: 203-242-4242, TWX: 710-425-2390; Empl.: 80

TEL LABS, INC., 154 Harvey Rd., Londonderry, NH 03053, Tel: 603-625-8994, TWX: 710-220-1844; FSC No.: 94322; Empl.: 225 ....**1A**•1941-1943

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrn. Sls.	205-881-5031
AZ	Phoenix, MR Engrg. Sls. Co.	602-956-4670
CA	La Mirada, Select Elec.	714-739-8891
CA	Mountain View, Serra Assoc.	415-964-4300
CO	Aurora, Sage Sales	303-750-3501
FL	Clearwater, Beacon Elec. Sls.	813-796-2378
FL	Ft. Lauderdale, Beacon Elec. Sls.	305-491-1054
FL	Maitland, Beacon Elec. Sls.	305-647-3498
FL	Melbourne, Beacon Elec. Sls.	305-724-8010
GA	Atlanta, Beacon Elec. Sls.	404-256-9640
IL	Downers Grove, Richmar Elec. Corp.	312-968-0118
IN	West Lafayette, Richmar Elec. Corp.	317-846-6383
MD	Randallstown, Precision Mktg.	301-521-5353
MA	Topsfield, RFC Assoc.	617-887-8545
MN	Osseo, Gaffney Sls. Co.	612-425-5484
NJ	Clifton, Ossmann	201-778-8888
NY	Rochester, Ossmann Comps.	716-424-4460
NY	Syracuse, Ossmann Comp.	315-455-6611
NC	Greensboro, Beacon Elec. Sls.	919-275-9997
NC	Raleigh, Beacon Elec. Sls.	919-787-0330
OH	Akron, Augnat Assoc.	216-535-4396
OH	Dayton, Augnat Assoc.	513-298-1507
OK	Tulsa, ION Assoc.	918-664-0186
OR	Aloha, Caruso & Northcutt	503-624-1606
PA	Ardmore, Precision Mktg.	215-649-6301
PA	Pittsburgh, Augnat Assoc.	412-281-8283
TN	Johnson City, Beacon Elec. Sls.	615-282-2421
TX	Austin, ION Assoc.	512-458-2108
TX	Grand Prairie, ION Assoc.	214-647-8225
TX	Houston, ION Assoc.	713-681-6266
UT	Salt Lake City, Sage Sales	801-467-5451
WA	Bellevue, Caruso & Northcutt	206-454-9699
WI	Butler, Richmar Elec. Corp.	414-781-1730

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TELONIC/BERKELEY, 2825 Laguna Canyon Rd., Laguna Beach, CA 92652, Tel: 714-494-9401, Telex: 182720; FSC No.: 04423; Empl.: 75; *Sls. Mgr.:* H. Elmes ....**1A**•1777

Local Sales Offices & Reps

AZ	Phoenix, RLS Instrs.	602-892-9329
CA	Agoura Hills, Relcon	818-991-4221
KS	Overland Park, Advanced Tech. Sls.	913-642-6675
OH	Cincinnati, Delta Sls. Engrg.	513-271-5444
WA	Bellevue, SDR Squared	206-747-9424

TELPAR, INC., P.O. Box 796, 4132 Billy Mitchell Rd., Addison, TX 75001, Tel: 214-233-6631, Telex: 73-2561; Empl.: 28; *Sls. Mgr.:* Wm. Konrad ....**3**•1096

TELTONE, 10801-120 Ave. NE, Kirkland, WA 98033, Tel: 206-827-9626, TWX: 910-449-2862; Empl.: 450; *Sls. Mgr.:* D. E. Johnson; *Dist. Mgr.:* Mike Arndt

TEMESCAL, 2850 Seventh St., Berkeley, CA 94710, Tel: 415-841-5720, TWX: 910-366-7366; Empl.: 300

TEMPIL DIV., Big Three Inds., Hamilton Blvd., S. Plainfield, NJ 07080, Tel: 201-757-8300, Telex: 138-662; Empl.: 38; *Sls. Mgr.:* A. P. Jeanguenin

TEMPO INSTRUMENT, INC., 87 Modular Ave., Commack, NY 11725, Tel: 516-694-4400, TWX: 510-224-6421; FSC No.: 07031; Empl.: 120

TEMPOSONICS, 131 East Ames Ct, Plainview, NY 11803, Tel: 516-349-1950, TWX: 510-226-3787; *Sls. Mgr.:* W. Brenner

TEMPTRONIC, 55 Chapel St., Newton, MA 02158, Tel: 617-969-2501, Telex: 200-119; Empl.: 95; *Sls. Mgr.:* H. P. Mierop

Local Sales Offices & Reps

AZ	Scottsdale, Allen Assocs.	602-994-1305
CA	Santa Clara, Comtronics	408-773-9800
CO	Boulder, Specialty Sls.	303-444-0954
FL	West Palm Beach, PSA, Inc.	305-689-0575
IN	Kokomo, AW, Inc.	317-453-7671
KS	De Soto, Gary Yantis	913-441-6565
MD	Laurel, ARA Electrn. of VA	301-953-1733
MA	Boston, TEC Systems	617-834-4663
MI	Milford, Technical Sls. Assoc.	313-363-1427
MN	St. Paul, Dytec-North Inc.	612-645-5816
MO	Florissant, Midtec Assocs.	314-837-5200
NM	Albuquerque, Allen Assoc.	505-345-4245
NY	New City, RMC Assocs.	914-634-0054
NY	Rochester, Scientific Devices of N. Y.	716-334-2445
NC	Durham, PSA Inc.	919-832-3896
OH	Dayton, Tech. Sls. Assoc.	513-222-1892
OH	Lyndhurst, Technical Sls. Assoc.	216-461-0826
OR	Beaverton, Systems Specialists	503-641-7771
PA	Willow Grove, Harry Nash Assoc.	215-657-2213
TX	Austin, Alphatech	512-458-9179
UT	Salt Lake City, Specialty Sls. Co.	801-561-0222
VA	Richmond, ARA Electrn. of UA	804-285-9309
WA	Mukilteo, System Specialists	206-355-0404

TENCOR INSTR., 2400 Charleston Road, Mountain View, CA 94043, Tel: 415-969-6767; *Sls. Mgr.:* Barry Hart

TENNELEC, 601 Turnpike, Oak Ridge, TN 37830, Tel: 615-483-8405, TWX: 810-572-1018; Empl.: 50

TENNEY ENGRG., 109 Springfield Rd., Union, NJ 07083, Tel: 201-686-7870, TWX: 710-985-4725; Empl.: 204; *Sls. Mgr.:* Jerome Perlstein ....**3**•1181

Local Sales Offices & Reps

AL	Huntsville, Equipment Sales Co., Inc.	205-536-5399
AZ	Phoenix, Jayson Co.	602-867-1964
CA	Sunnyvale, Equip. Sls.	408-739-8011
CA	Van Nuys, Environment Assocs.	213-997-3791
CO	Englewood, Tenney Engrg.	303-798-0955
CT	Hamden, Equip. Sls.	203-281-4578
FL	Altamonte Springs, Equip. Sls.	305-339-2972
FL	Coral Springs, Equip. Sls.	305-781-3522
IL	Des Plaines, Marsland Assocs.	312-298-2620
IN	Indianapolis, Marsland Assocs.	317-293-5437
MD	Wheaton, Brimberg Sls.	301-946-2670
MA	Lowell, Equip. Sls. Co.	617-459-7000
MI	Warren, Dietrich & Assoc.	313-751-4990
MO	Blue Springs, Tenney Engrg., Inc.	816-229-7667
NJ	Mt. Laurel, Dittco	609-235-4565
NJ	Union, Richard Wenke	201-686-7870
NY	Fayetteville, M. P. Andrews	315-637-3144
NC	Raleigh, Equip. Sls.	919-872-8376
OH	Cleveland, Dietrich & Assocs.	216-781-1855
OH	Dayton, Dietrich & Assoc.	513-223-6042
PA	Pittsburgh, Dietrich & Assoc.	412-892-2992
TX	Garland, Carey, McMahill & Zerbe Co.	214-681-1414
TX	Houston, Carey, McMahill & Zerbe Co.	713-771-1500
WA	Redmond, Tenney Engrg., Inc.	206-885-2054
WI	New Berlin, Marsland Assocs., Inc.	414-786-6611

TENOR, 17020 W. Rogers Dr., New Berlin, WI 53151 Tel: 414-782-3800, Telex: 26-706; Empl.: 30; *Sls. Mgr.:* P. Yoblin; *Dist. Mgr.:* P. Yoblin

TENSOLITE, Old Post Rd., Rte. 9A, Buchanan, N 10511, Tel: 914-737-5600, TWX: 710-573-234 Empl.: 350; *Sls. Mgr.:* David Yellin

TENSOR, Box 14843, Austin, TX 78761, Tel: 512-251 4131; Empl.: 15

TEN-TEC, Industrial Park, Sevierville, TN 37862, Te 615-453-7172, Telex: 261337 ACTAUR; Empl.: 11 *Sls. Mgr.:* Daniel Tomcik

TEPRO OF FLORIDA, 2608 Enterprise Rd., Clearwater, FL 33575, Tel: 813-796-1044; FSC No.: 1591 Empl.: 97; *Sls. Mgr.:* Roger C. Mayo; *Dist. Mgr.:* Ol G. Sumner

TERADO, 1068 Raymond Ave., St. Paul, MN 5510 Tel: 612-646-2868; Empl.: 17; *Sls. Mgr.:* Don Munso *Dist. Mgr.:* Fred Munson

TERADYNE, INC., 183 Essex St., Boston, MA 0211 Tel: 617-482-2700, TWX: 710-321-1055; Empl.: 320 *Sls. Mgr.:* D. O'Connell

TERADYNE CONNECTION SYS., 44 Simon S Nashua, NH 03060, Tel: 603-889-5156, TWX: 71 228-1431; FSC No.: 31413; Empl.: 1,400; *Sls. Mgr.:* Murphy

TERMINAL DATA CORP., 11878 Coakley Circ Rockville, MD 20852, Tel: 301-881-7655; Empl.: 1

TERMINAL SYS., See A & B Technical Servic

TERRA TECHNLG. CORP., 3860 148th Ave. N Redmond, WA 98052, Tel: 206-883-7300, Telex: 1 2070; *Sls. Mgr.:* Irl Davis

EST & MEASUREMENT SYSTEMS, INC., 349 Cobalt Way, Ste. 301, Sunnyvale, CA 94086, Tel: 408-720-8877, Telex: 297584 TEAM UR; *Sls. Mgr.:* George Stoeppel

ESTLINE, See Fairchild Test Sys. Grp., Testline Instrs.

ESTOTERM, P.O. Box 111509, Nashville, TN 37211, Tel: 615-834-5082, Telex: 55-5112

EST PROBES, INC., Box 2113, La Jolla, CA 92038, Tel: 619-459-4197, Telex: 697192; *Sls. Mgr.:* Hal Wardein; *Dist. Mgr.:* Hal Wardein ....3•1379

Local Distributors

Huntsville, W. A. Brown Instrs.	205-883-8860
Phoenix, Metermaster	602-243-4111
Hayward, Allied Elctrns.	415-487-5250
Irvine, Western Elctrn. Supp.	714-751-3941
Los Angeles, Metermaster	213-685-7340
Los Angeles, Allied Elctrns.	213-725-7111
Englewood, Beta Distrs.	303-779-4494
Monroe, Connecticut Cal Labs	203-261-9518
Fort Lauderdale, Allied Elctrns.	305-486-0500
Norcross, Metermaster	404-446-0166
Elgin, Allied Elctrns.	312-697-8200
Rolling Meadows, Commodore 1	312-394-5441
Indianapolis, Commodore 1	317-636-3318
Kansas City, Commodore 1	816-842-8585
Baton Rouge, Beta Eistrs.	504-924-6826
Burtonsville, Eastern Instrmn.	301-384-8500
Burlington, Contact East	617-272-5051
Natick, Calcotron	617-879-7650
Royal Oak, The Satullo Co.	313-549-3910
Minneapolis, Commodore 1	612-370-0881
St. Louis, Commodore 1	314-454-0138
Belle Meade, Gestalt Sys.	201-359-0018
Albuquerque, Beta Distrs.	505-299-7658
Bayshore, Caesar Elctrns.	516-242-8477
Great Neck, The Instr. Mart	516-487-7430
Mineola, Allied Elctrns.	516-248-2360
New York City, Advance Elctrns.	212-730-7030
Pineville, E.M.I.S.	704-588-4624
Cleveland, Metermaster	216-651-4100
Willoughby, Allied Elctrns.	216-951-0908
Portland, Westcon	503-283-0132
Bala Cynwood, Allied Elctrns.	215-667-6940
Ft. Worth, Allied Elctrns.	817-336-5401
Garland, Metermaster	214-271-5671
Murray, Beta Distrs.	801-262-3000
Norfolk, Priest Elctrns.	804-855-0105
Seattle, Allied Elctrns.	206-767-5772
Milwaukee, Allied Elctrns.	414-463-2662

TTEX INSTRUMENTS, INC., P.O. Box 281, Fairview Village, PA 19409-0281, Tel: 215-539-6050, Telex: 753-899 TETTEX; Empl.: 100; *Sls. Mgr.:* R. E. Seeberger ....3•1309

XAS INSTRS., INC., Box 225012-MS-84, Dallas, TX 75265, Tel: 214-995-6611, TWX: 910-867-4702; Empl.: 85,000

XAS INSTRS., Data Sys. Group, P.O. Box 2909 MS 2222, Austin, TX 78769, Tel: 214-995-6611, Telex: 73324 TEXINS DAL, TWX: 910-867-4702; Empl.: 80,696

XAS INSTRS., Matls. & Controls Grp., 34 Forrest St., Attleboro, MA 02703, Tel: 617-699-3800, Telex: 92-7708, TWX: 710-346-0566

XAS TRANSFORMER CORP., P.O. Box 220, Plano, TX 75074, Tel: 214-424-1581; *Sls. Mgr.:* David Keeler

Distributor

XASWITCH, INC., 2512 Program Dr., #108, Dallas, TX 75220, Tel: 214-357-1768 ....1B•1742

TEXMATE INC

TEXMATE, INC., 348 S. Cedros Ave., P.O. Box 2000, Solana Beach, CA 92075, Tel: 619-481-7177, TWX: 910-322-1738; Empl.: 36 ....3•1351-1355

Texmate employs no sales reps or local salesmen in the USA. Instead we offer factory direct contact, fast delivery, and lower prices.

Local Distributors

Intl	Australia, Melbourne	(03) 329-8873
Intl	Australia, Sydney	(02) 792-9222
Intl	France, Paris	(1) 575-53-53
Intl	Germany, Darmstadd	0 61 51/2 64 46
Intl	Germany, Dusseldorf	02 11/66 61 45
Intl	Germany, Hanover	05 11/88 6086
Intl	Germany, Munich	089-47 3023
Intl	Germany, Quickborn	041 06/612-1
Intl	Germany, Stuttgart	07 11/73 63 57
Intl	India, Bangalore	812-52321; 812-52322
Intl	Spain, Barcelona	(93) 692-35-19
Intl	Sweden, Stockholm	08-710 06 20
Intl	Taiwan, Taipei	595-7655; 592-3509
Intl	United Kingdom, Walsall	(0922) 27266
Can	Edmonton	403-432-7746
Can	Montreal	514-337-0425
Can	Ottawa	613-238-7077
Can	Toronto	416-238-3193

TEXSCAN INSTRUMENTS, 3169 N. Shadeland, Indianapolis, IN 46226, Tel: 317-545-4196, Telex: 810-341-3184, TWX: 27-2110; FSC No.: 23042; Empl.: 765; *Sls. Mgr.:* Alan Whitlock; *Dist. Mgr.:* Rob Shenlot

TEX-TECHS INTL., 10021 Cayuga, Dallas, TX 75228, Tel: 214-328-6200, Telex: 73-0796 TEX TECH DAL; *Sls. Mgr.:* Rick Prindle

TEXTOOL PRODUCTS, Electronic Products Division/3M, 1410 W. Pioneer Dr., Irving, TX 75061, Tel: 214-259-2676; *Sls. Mgr.:* Marlan Carlson

Local Sales Offices & Reps

AK	Anchorage	907-561-1030
CA	Los Angeles	213-726-6300
CA	So. San Francisco	415-761-1155
GA	Atlanta	404-447-7000
HI	Honolulu	808-422-2721
IL	Chicago	312-496-6500
MA	Boston	617-449-0300
MI	Detroit	313-477-5000
MN	St. Paul	612-733-3300
MO	St. Louis	314-997-8500
NJ	West Caldwell	201-575-2000
NC	High Point	919-889-7181
OH	Cincinnati	513-482-3100
OH	Cleveland	216-362-1700
PA	Philadelphia	215-728-5300
TX	Dallas	214-324-8100
WA	Seattle	206-244-7200

T-F ELCTRNS., 9415 Neils Thompson Dr., Austin, TX 78759, Tel: 512-836-7323, Telex: 77-6427; FSC No.: 50307; Empl.: 55

TGM DETECTORS, INC., 166 Bear Hill Rd., Watham, MA 02154, Tel: 617-890-2090

THERMAL AMER. FUSED QUARTZ, Change Bridge Rd., Montville, NJ 07045, Tel: 201-334-7770, Telex: 136477; Empl.: 65; *Sls. Mgr.:* G.A. Miller

THERMALLOY, INC., 2021 W. Valley View, Dallas, TX 75234, Tel: 214-243-4321, TWX: 910-860-5542; Empl.: 250; *Sls. Mgr.:* L. Tucker

THERMAX WIRE, 32-02 Linden Pl., Flushing, NY 11354, Tel: 212-939-8300, Telex: 645587, TWX: 710-582-2551; FSC No.: 12814; Empl.: 220; *Sls. Mgr.:* R. Prusak

Therm O Disc®

THERM-O-DISC, INC., Sub. Emerson Elec. Co., 1320 South Main St., P. O. Box 3538, Mansfield, OH 44907, Tel: 419-756-5911, Telex: 987455; *Sls. Mgr.:* J. A. Kight ....1B•1823

THERMODYNE INTERNATIONAL LTD., 20850 S. Alameda, Long Beach, CA 90810, Tel: 213-603-1976; *Sls. Mgr.:* Walter Wolf

THERMO ELEC., 109 Fifth St., Saddle Brook, NJ 07662, Tel: 201-843-5800, TWX: 710-990-5108; Empl.: 350; *Sls. Mgr.:* H. Korman

THERMOELECTRICS, See Borg-Warner Thermoelectrics.

THERMOGRAPHICS MEASUREMENTS LTD., 3733 W. 139th St., Hawthorne, CA 90250, Tel: 213-675-9182, Telex: 674432; *Sls. Mgr.:* Andrew Hilbert

THERMOLAB, 13345 Saticoy St., N. Hollywood, CA 91605, Tel: 213-875-0105, Telex: 662494, TWX: 910-499-2156

THERMOMETRICS, INC., 808 U.S. Hwy. #1, Edison, NJ 08817-4695, Tel: 201-287-2870, Telex: 844-387; FSC No.: FSCM 58090; Empl.: 150; *Sls. Mgr.:* Harold Broitman ....1B•1825

Local Sales Offices & Reps

CA	Garden Grove, Elsco Elctrns.	714-891-4621
CA	San Diego, Elsco Elctrns.	619-292-1771
NY	Central Square, Bastian Sls. Agy.	315-668-2957
NY	Fairport, Bastian Sls. Agy.	716-223-0237

THERMONICS, 3350 Scott Blvd., Bldg. 32, Santa Clara, CA 95051, Tel: 408-496-6838, Telex: 172-353; *Sls. Mgr.:* James D. Martin; *Dist. Mgr.:* James D. Martin

THERMOPLASTIC PROCESSES, INC., 1268 Valley Rd., Stirling, NJ 07980, Tel: 201-647-1000, TWX: 710-997-9583; FSC No.: 08230; *Sls. Mgr.:* Robert B. Scheffler; *Dist. Mgr.:* William Kaufman

THERMOSEN, P.O. Box 1254, Stamford, CT 06904, Tel: 203-324-6125, Telex: 965846; FSC No.: 00428; Empl.: 33

Local Sales Offices & Reps

CA	San Carlos, Elctrn. Engrg. Assoc.	415-593-2189
CA	Santa Monica, REP Assoc.	213-393-9666
CO	Denver, Lindberg Co.	303-758-9033
FL	Melbourne, Electro Mechanical Standards	305-724-1027
MA	Newton, Normell Assocs.	617-969-5478
MN	Minneapolis, Intl. Sls. Co.	612-831-8423
NM	Albuquerque, Lindberg Co.	505-881-1006
OH	Cincinnati, John O. Olsen Co.	513-574-7711
OH	Cleveland, John O. Olsen Co.	216-662-3454
OR	Portland, Syscom	503-644-2505
PA	Glenside, Elcom, Inc.	215-885-1715
PA	Pittsburgh, John O. Olsen Co.	412-279-2550
TX	Austin, John B. Guenther, Inc.	512-472-3825
TX	Dallas, John B. Guenther, Inc.	214-691-8500
TX	Houston, John B. Guenther, Inc.	713-974-0383
UT	Salt Lake City, Lindberg Co.	801-467-1794
VT	Bennington, Magyar Assocs.	802-442-5858
WA	Kirkland, Syscom Sls.	206-821-4575

THERMOTECH, See ITT Thermotech.

THETA INSTR. CORP., 24 Dwight Pl., Fairfield, NJ 07006, Tel: 201-227-1700, Telex: 13-8621; Empl.: 85; *Sls. Mgr.:* R. Kemp

THICKFILM INT'L., Rt. 1-Box 85-0, Indian Head, MD 20640, Tel: 301-375-8666, TWX: 710-829-0590; Empl.: 14; *Sls. Mgr.:* P. Gundotra

THIELEX PLASTICS CORP., 201 11th St., Piscataway, NJ 08854, Tel: 201-968-5300, TWX: 710-997-9662; *Sls. Mgr.:* M. A. DeMatteo

THINCO DIV., HULL CORP., Davisville Rd., Hatboro, PA 19040, Tel: 215-672-7800, TWX: 510-665-6822; Empl.: 8; *Sls. Mgr.:* John L. Hull

THIRD DOMAIN, P.O. Box 35400, Tucson, AZ 85740-5400, Tel: 602-293-6310; Empl.: 26; *Sls. Mgr.:* Julia Gerdes

T&B
Electronics Group

THOMAS & BETTS, Electronics Group Hdqtrs., 920 Route 202, Raritan, NJ 08869, Tel: 201-469-4000, Telex: 844372; FSC No.: 59730; Empl.: 2000 .... **2**•1593-1612

Local Sales Offices & Reps

CA	Burbank, T & B Elctrns. Grp.	213-841-9670
CA	San Jose, T & B Elctrns. Grp.	408-248-9111
IL	Naperville, T & B Elctrns. Grp.	312-357-0404
NJ	Flemington, T & B Elctrns. Grp.	201-788-5900

Local Distributors

AL	Huntsville, Hall-Mark	205-837-8700
AZ	Phoenix, Hall-Mark	602-243-6601
AZ	Phoenix, Wyle Labs., Elctrns. Mktg. Grp.	602-249-2232
AZ	Tempe, Time Elctrns.	602-967-2000
CA	Anaheim, Time Elctrns.	714-937-0911
CA	El Segundo, Hall-Mark	213-643-9101
CA	Irvine, Wyle Labs., Elctrns. Mktg. Grp.	714-863-1611
CA	Los Angeles, Wyle Labs., Elctrns. Mktg. Grp.	213-322-8100
CA	Orange County, Hall-Mark	714-669-0662
CA	Riverside, Electronic Supp.	714-683-7300
CA	San Diego, Hall-Mark	619-268-1201
CA	San Diego, Wyle Labs., Elctrns. Mktg. Grp.	619-565-9171
CA	San Fernando, Hall-Mark	818-716-7300
CA	San Jose, Hall-Mark	408-946-0900
CA	Santa Clara, Wyle Labs., Elctrns. Mktg. Grp.	408-727-2500
CA	Sunnyvale, Time Elctrns.	408-734-9888
CA	Torrance, Time Elctrns.	213-320-0880
CO	Denver, Hall-Mark	303-790-1662
CO	Denver, Wyle Labs., Elctrns. Mktg. Grp.	303-457-9953
CT	Wallingford, Marshall Inds.	203-265-3822
FL	Ft. Lauderdale, Time Elctrns.	305-974-4800
FL	Ft. Lauderdale, Hall-Mark	305-971-9280
FL	Orlando, Pioneer	305-834-9090
FL	Orlando, Hall-Mark	305-855-4020
FL	Tampa Bay, Hall-Mark	813-530-4543
GA	Atlanta, Marshall Inds.	404-923-5750
GA	Atlanta, Hall-Mark	404-447-8000
IL	Chicago, Pioneer	312-437-9680
IL	Chicago, Hall-Mark	312-860-3800
IN	Indianapolis, Pioneer	317-849-7300
KS	Kansas City, Hall-Mark	913-888-4747
MD	Baltimore, Hall-Mark	301-988-9800
MD	Columbia, Time Elctrns.	301-964-3090
MD	Gaithersburg, Pioneer/Washington	301-921-0660
MA	Boston, Marshall Inds.	617-272-8200
MA	Burlington, Lionex Corp.	617-272-9400
MA	Woburn, Time Elctrns.	617-935-8080
MI	Livonia, Pioneer	313-525-1800
MN	Minneapolis, Hall-Mark	612-854-3223
MN	Twin Cities, Pioneer	612-935-5444
MO	St. Louis, Hall-Mark	314-291-5350
MO	St. Louis, Time Elctrns.	314-391-6444
NJ	Cherry Hill, Hall-Mark/Philadelphia	609-424-7300
NJ	Fairfield, Lionex Corp.	201-227-7960
NJ	Fairfield, Hall-Mark	201-575-4415
NY	Binghamton, Marshall Inds.	607-754-1570
NY	Farmingdale, Iris Elctrns.	516-420-8400
NY	Hauppauge, Time Elctrns.	516-273-0100
NY	Hauppauge, Lionex Corp.	516-273-1660
NY	Mt. Vernon, QAR Indl. Elctrns.	516-484-9207
NY	Rochester, Simcona Elctrns.	716-328-3230
NY	Rochester, Marshall Inds.	716-235-7620
NC	Charlotte, Pioneer	704-527-8188
NC	Raleigh, Hall-Mark	919-872-0712
OH	Cleveland, Hall-Mark	216-473-2907
OH	Cleveland, Pioneer	216-587-3600
OH	Columbus, Hall-Mark	614-891-4555
OH	Dayton, Pioneer	513-236-9900
OK	Tulsa, Hall-Mark	918-665-3200
OR	Beaverton, Almac Elctrns.	503-641-9070
OR	Portland, Wyle Labs., Elctrns. Mktg. Grp.	503-640-6000
PA	Broomall, Time Elctrns.	215-359-1200
PA	Delaware Valley, Pioneer	215-674-4000
PA	Horsham, Lionex Corp.	215-443-5150
PA	Pittsburgh, Pioneer	412-782-2300
TX	Austin, Hall-Mark	512-258-8848
TX	Austin, Pioneer	512-835-4000
TX	Dallas, Southwest Elctrns.	214-234-3050
TX	Dallas, Pioneer	214-386-7300
TX	Dallas, Hall-Mark	214-341-1147
TX	Houston, Hall-Mark	713-781-6100
TX	Houston, Southwest Elctrns.	713-491-4900
TX	Houston, Pioneer	713-988-5555
UT	Salt Lake City, Wyle Labs., Elctrns. Mktg. Grp.	801-974-9953
WA	Bellevue, Almac Elctrns.	206-643-9992
WA	Seattle, Wyle Labs., Elctrns. Mktg. Grp.	206-453-8300
WI	Milwaukee, Electronic Expeditors	414-228-8100
WI	Milwaukee, Hall-Mark	414-761-3000

THOMAS & SKINNER, Box 150 B, Indianapolis, IN 46206, Tel: 317-923-2501, Telex: 02-7335; Empl.: 250; *Sls. Mgr.:* Sherman Smith

THOMAS ELCTRNS., 100 Riverview Dr., Wayne, NJ 07470, Tel: 201-696-5200, TWX: 710-988-5836; Empl.: 380; *Sls. Mgr.:* Ben Setticase

Local Sales Offices & Reps

CA	Los Altos, Cain-White & Co.	415-948-6533
CO	Wheatridge, Waugaman Assocs.	303-423-1020
MA	Norwood, MPS Elctrns.	617-769-8700
NJ	Fairfield, Pantronics	201-575-1177
OR	Portland, Components West	503-643-5588
PA	Flourtown, Eastern Comps.	215-836-1616
TX	Irving, Space Elctrns.	214-251-3636
VA	Herndon, Eastern Comp.	703-471-1025
WA	Seattle, Components West	206-243-2133
EXP	NJ, Oradell, Sylvan Ginsbury	201-261-3200
EXP	NY, New York, Far East Mercantile (KBK)	212-687-8564

THOMSON-CSF COMPS CORP., Dumont Div., 550 Mt. Pleasant Ave., Dover, NJ 07801, Tel: 201-328-1400

THOMSON-CSF COMPS. CORP., DuMont Div., 750 Bloomfield Ave., Clifton, NJ 07015, Tel: 201-773-2000; FSC No.: 18778; Empl.: 250; *Sls. Mgr.:* George Petro

THOMSON-CSF COMPS. CORP., Electron Tube Div., 301 Route 17 N., Rutherford, NJ 07070, Tel: 201-438-2300, TWX: 710-989-7286; *Sls. Mgr.:* Stephen Barthelmes

THOMSON-CSF COMPS. CORP., Metals & Chemicals Div., 6660 Variel Ave., Canoga Pk., CA 91303, Tel: 213-887-1010, Telex: 69-8481, TWX: 910-494-1954; Empl.: 3; *Sls. Mgr.:* Wm. E. Wheeler

THOMSON-CSF COMPS. CORP., Passive Comp. Div., 6660 Variel Ave., Canoga Park, CA 91303, Tel: 818-887-1010, Telex: 69-8481, TWX: 910-494-1954; Empl.: 250; *Sls. Mgr.:* R. Silverstein; *Dist. Mgr.:* M. St Amant

Local Sales Offices & Reps

AL	Huntsville, E.S.I.	205-533-1735
AZ	Phoenix, Sanford Sls. Assocs.	602-957-3570
CA	Chatsworth, WCV-Raltech	818-700-0933
CA	Mountain View, Gene Woempner Co.	415-964-5454
CO	Englewood, Grimes Mktg. Co.	303-740-6063
FL	Casselberry, Semi	305-695-3334
IL	Itasca, L-Tec, Inc.	312-773-2900
IN	Indianapolis, Frank J. Campisano Co.	317-253-7651
KS	Merriam, Midwest Techn. Sls.	913-236-8557
MA	Framingham, Stone Comp. Sls.	617-875-3266
MI	Bloomfield Hills, Enco Mktg.	313-642-0203
MN	Bloomington, John G. Twist Co.	612-835-2120
NY	Buffalo, Quality Comps.	716-837-5430
NY	Hauppauge, Masin-Esco	516-273-3500
NY	Manlius, Quality Comps.	315-682-8885
NC	Raleigh, DHR Mktg.	919-876-5450
OH	Cincinnati, Frank J. Campisano Co.	513-574-7111
OR	Tigard, Elctrn. Comp. Sls.	206-232-9301
TX	Dallas, Design Mktg.	214-680-9767
WA	Mercer Island, Elctrn. Comp Sls.	206-232-9301

THOMSON-CSF COMPS. CORP., Semiconductor Div., 6660 Variel Ave., Canoga Pk., CA 91304, Tel: 213-887-1010, Telex: 69-8481, TWX: 910-494-1954; *Sls. Mgr.:* Les Kilpatrick; *Dist. Mgr.:* David Johnson

THOMSON-CSF COMPS. CORP., Socapex Div., 6660 Variel Ave., Canoga Pk, CA 91303, Tel: 213-887-0750, Telex: 69-8481, TWX: 910-494-1954

THOMSON-CSF COMPS. CORP., Special Prods. Div., 301 Rte. 17 North, Rutherford, NJ 07070, Tel: 201-438-2300, TWX: 710-989-7286; *Sls. Mgr.:* Hans H. Sandager

THORDARSON

THORDARSON MEISSNER, Electronic Center, Mt Carmel, IL 62863, Tel: 618-262-5121, TWX: 510-525 2254; FSC No.: 96256; Empl.: 600; *Sls. Mgr.:* R. Kea .... **1A**•2302-230

THOR ELCTRNS., 321 Pennsylvania Ave., Linden, N 07036, Tel: 201-486-3300, Telex: 138 968; Empl.: 50 *Sls. Mgr.:* Jack Rose

THORN EMI GENCOM INC., 23 Madison Rd Fairfield, NJ 07006, Tel: 516-433-5900, Telex: 22 1236 TEGI UR; Empl.: 35; *Sls. Mgr.:* L. Lieberman .... **1A**•2366, 236

Local Sales Offices & Reps

AZ	Phoenix, Odessey-1	505-883-401
CA	N. Hollywood, O'Halloran Assocs.	213-877-017
CA	Palo Alto, O'Halloran Assocs.	415-326-149
CO	Denver, Odessey-1	505-883-401
FL	Orange Park, Pulcir	904-264-761
NM	Albuquerque, Odessey-1	505-883-401
PA	Elkins Park, Snow Assocs.	215-379-470
TN	Oak Ridge, Pulcir	615-483-635
TX	Dallas, SW Eng. & Equip.	214-340-174
TX	Houston, SW Eng. & Equip.	713-820-250
WA	Seattle, Underwood Assocs.	206-451-822

THORN EMI TECHNOLOGY INC., 8601 Dunwooc Pl., Atlanta, GA 30338, Tel: 404-587-0017, 800-24 2572, TWX: 810-766-2267 .... **3**•131

Local Sales Offices & Reps

CA	Irvine	714-261-01
CA	Sunnyvale	408-732-90
MA	Framingham	617-875-58
NM	Albuquerque	505-884-05
VA	Reston	703-620-60

THORSON ENGRG. CO., 6225 76th St. S. Snohomish, WA 98290, Tel: 206-334-4214

3D OPTICS, Box 224, 4 Strathmore Cir., Braintre MA 02184, Tel: 617-848-8002; Empl.: 2

3M CO., see listing under letter "M"

THUNDER SCI. CORP., 623 Wyoming S. Albuquerque, NM 87123, Tel: 505-265-8701; Em 26; *Sls. Mgr.:* J. L. Bennewitz

TIDEWATER TECHNOLOGICAL, INC., 611 Indu trial Pk. Dr., Newport News, VA 23602, Tel: 804-87 2800; Empl.: 25

TIF INSTRS., INC., 9101 N.W. 7th Ave., Miami, 33150, Tel: 305-757-8811; *Sls. Mgr.:* Tom Wolff

TII® ELECTRONICS, INC.

TII ELECTRONICS, INC., Div. TII Industries, Terminal Rd., E. Setauket, NY 11733, Tel: 516-7 6066, Telex: 144631; *Sls. Mgr.:* Steven D. Cog (OEM) .... **3**•1796, 17

Local Sales Offices & Reps

CA	Irvine, Quality Peripherals	714-549-8
CA	San Jose, Quality Peripherals	408-559-3
CT	Goshen, Northern Computer Sls. (OEM)	203-491-3
FL	St. Petersburg, Southern Engrg. Assocs.	813-577-7
GA	Marietta, Southern Engrg. Assocs.	404-953-3
MA	Westwood, Northern Computer Sls. (OEM)	617-326-3
MN	St. Paul, ACT Comms.	612-738-7
TX	Bonham, ACT Comms.	214-583-9

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Huntsville, 20th Century Mktg.	205-533-9281
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Anaheim, Westrep	714-527-2822
San Diego, Westrep	714-276-0751
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Hamden, MacArthur & Co.	203-281-5847
Coral Springs, CBC Elctrns.	305-755-1111
Orlando, CBC Electronics	305-831-5380
Stone Mountain, 20th Century Mktg.	404-292-7088
Honolulu, Dougherty Enterprises	808-395-4114
Berkeley, Cadre Technical Reps.	312-449-3900
Indianapolis, Baehr, Greenleaf & Assoc.	317-842-6204
Cedar Rapids, PMR, Inc.	319-362-9177
Overland Park, PMR, Inc.	913-381-0004
Wichita, PMR, Inc.	316-684-4141
Rockville, Mechtronics Sls.	301-340-2130
Burlington, QPL Electronics	617-229-2424
Clinton, F.J. Coleman Co.	617-368-0116
Livonia, Lowell-Wendt Mktg. Co.	313-464-2722
Bloomington, E.S.A.	612-884-8291
Maryland Hgts., PMR, Inc.	314-569-1220
Albuquerque, Lindberg Co.	505-881-1006
Rochester, Electra Sls. Corp.	716-461-5252
Syracuse, Electra Sls. Corp.	315-463-1248
Charlotte, D.G.W., Inc.	704-334-7090
Winston-Salem, D.G.W., Inc.	919-768-7166
Columbus, Baehr, Greenleaf & Assoc.	614-486-4046
Dayton, Baehr, Greenleaf & Assoc.	513-439-0724
Lakewood, Baehr, Greenleaf & Assoc.	216-221-9030
Oklahoma City, Ammon & Rizos	405-942-2552
Tigard, Elctrn. Sources	503-684-0040
Glenside, Griffin Co.	215-576-0110
Pittsburgh, Baehr, Greenleaf & Assoc.	412-765-2330
Knoxville, 20th Century Mktg.	615-966-3608
Austin, Ammon & Rizos Co.	512-454-5131
Dallas, Ammon & Rizos	214-233-5591
Houston, Ammon & Rizos	713-781-6240
Salt Lake City, Lindberg Co.	801-969-2400
Bellevue, Elctrn. Sources	206-643-0400

Local Distributors

Scottsdale, Copper State Cable	602-272-1383
Los Angeles, Radio Hardware	213-679-3381
San Jose, RFI Electronics	408-298-5406
Santa Ana, Republic Elctrn. Sls.	714-540-5703
E. Hartford, E.J. Stephens	203-568-1927
Ft. Lauderdale, KSM Elctrns.	305-971-5900
Orlando, Cablematic	305-293-5729
Beltsville, Vertex Elctrns.	301-937-0180
Gaithersburg, Pioneer/Wash.	301-948-0710
Passaic, Seacoast Elec. Supp.	201-779-5151
Farmingdale, Vertex Elctrns.	516-293-9880
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Folcroft, Delphi Elctrns.	215-534-3900
Montgomeryville, Pyttronics Inds.	215-643-2850
Garland, Vonn Wire & Cable	214-494-0355

TITAN TRANSFORMER CO., 134 Coolidge Ave., Watertown, MA 02172, Tel: 617-923-1200

TITCHENER, E. H., & CO., 1 Titchener Pl., Binghamton, NY 13902, Tel: 607-772-1161, TWX: 510-252-1985; Empl.: 235

TMC SYSTEMS (ARIZ.) INC., See Dale Electronics, Inc.

Distributor

TNR TECHNICAL INC., Saft & Gould/Portable Battery Div., 63 Marine St., Farmingdale, NY 11735, Tel: 516-249-3777; *Sls. Mgr.:* Wayne Thaw p.762

TOBE DEUTSCHMANN LABS., INC., 550 Turnpike St., Canton, MA 02021, Tel: 617-828-3366, Telex: 92-4427; FSC No.: 21966; Empl.: 40; *Sls. Mgr.:* T. Deutschumann, Jr.

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Local Sales Offices & Reps

AL	Huntsville, R. W. Mitscher Co.	205-882-6050
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MO	St. Louis, AME Sls.	314-965-1779
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NM	Albuquerque, PLS Assocs.	505-345-5501
NY	Charlotte, R. W. Mitscher Co.	704-598-8644
NY	E. Syracuse, Nycom	315-437-8343
NC	Raleigh, R. W. Mitscher Co.	919-848-0941
OH	Akron, Imtech, Inc.	216-666-1185
OH	Dayton, Imtech, Inc.	513-278-6507
PA	Pittsburgh, Imtech, Inc.	412-344-0844
TN	Johnson City, R. W. Mitscher Co.	615-929-7258
TX	Austin, J. Clay Co.	512-346-7340
TX	Dallas, J. Clay Co.	214-350-1281
UT	Midvale, PLS Assocs.	801-566-0671
VA	McLean, Creative Mktg. Assocs.	703-442-9100
WA	Bellevue, Venture Elctrns.	206-454-4594

TODD SYSTEMS, 50 Ash St., Yonkers, NY 10701, Tel: 914-963-3400; Empl.: 45; *Sls. Mgr.:* S. Edwards .... **1A**•2308-2311

Local Distributors

AL	Mobile, Irving Ripps Supp.	205-432-3068
CA	San Francisco, Aris Co.	415-433-2021
CA	San Francisco, Delray Distr.	415-397-5855
FL	Miami, Southeastern Wholesalers	305-634-6591
FL	Miami, Electronic Equip.	305-871-3500
FL	Miami, Graybar Elec.	305-325-0910
GA	Savannah, Southern Supp.	912-234-6646
IL	Chicago, Broadway Sls.	312-897-8688
IL	Chicago, Irv. Wolfson Co.	312-267-7828
LA	New Orleans, Trestman Sls.	504-522-9387
MD	Bethesda, Albee Sales	301-897-8088
MD	Bethesda, Empire Elec. Supp.	301-656-3300
NY	Bronx, Rim Elctrns.	212-295-4300
NY	L.I.C., H.L. Dalis Elctrns.	212-361-1100
NY	New York City, Rosetta Elec.	212-247-6430
OH	Lima, Lima Elec. Parts	419-227-7327
PA	Philadelphia, Phila. Elctrns.	215-568-7400
PA	Philadelphia, H & Z Sls.	215-WA2-2500
TX	Houston, Mermaid Sight & Sound	713-921-5613
TX	Houston, Benjamin Distr.	713-923-5334
TX	Houston, Applebaum & Co.	713-695-5866
TX	Houston, Western Sls.	713-869-6671
TX	Houston, Central Supp.	713-224-0033
VA	Norfolk, H. Belkov Co.	804-625-2491
WA	Seattle, Pearl Elctrns.	206-622-6200

TOHOKU METAL INDS., 5-8, 2-Chome, Kitaaoyama Minato-Ku, Tokyo, Japan, Tel: Tokyo 03-402-6161, Telex: 242 2695 TOKIN J; Empl.: 2000; *Sls. Mgr.:* H. Ishihara; *Dist. Mgr.:* T. Ikeda

TOKO AMERICA, INC., 5520 W. Touhy Ave., Skokie, IL 60077, Tel: 312-677-3640, Telex: 230-724372; *Sls. Mgr.:* Greg Dugan .... **1A**•1282, 1575, 1631

Local Sales Offices & Reps

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AZ	Scottsdale, Semi-Systems Arizona, Inc.	602-991-1151
CA	Cupertino, Toko America Inc.	408-996-7575
IL	Chicago, Esco Assocs.	312-763-0800
IL	Skokie, Ultech Assocs.	312-674-3820
IL	Skokie, Toko America Inc.	312-674-3640
MI	Troy, Zimmerman & Sons	313-879-1150
VA	Lynchburg, M&S Mfg.	804-528-0681

TOKYO ELEC. CO., LTD., 1-1 Nishiki-Cho, Kanda, Chiyoda-Ku, Tokyo, 101 , Japan, Tel: (03) 292-1011, Telex: 0222-3575, TWX: S

TOPAZ ELECTRONICS, 9192 Topaz Way, San Diego, CA 92123-1164, Tel: 619-279-0831, TWX: 910-335-1526; FSC No.: 06049; Empl.: 450; *Sls. Mgr.:* Ruxton Tucker; *Dist. Mgr.:* Chuck Roberts

TOPFLIGHT, 160 East 9th Ave., York, PA 17404, Tel: 717-843-9901, TWX: 510-657-4849; Empl.: 250; *Sls. Mgr.:* James Danser

TORAD COIL CO., INC., 283 Linden Rd., Wayne, NJ 07470, Tel: 201-835-6195; *Sls. Mgr.:* Dan Gupta

TORELCO INC., 14 Paine Ave., P.O. Box 108, Irvington, NJ 07111, Tel: 201-374-8641; Empl.: 20; *Sls. Mgr.:* Stewart H. Cook

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MA	Norwood, MacInnis Co.	617-762-8090

TORIN CORP., 100 Franklin Drive, Torrington, CT 06790, Tel: 203-482-4422, Telex: 962-456, TWX: 710-439-2343; Empl.: 1300; *Sls. Mgr.:* Robert S. Sobolewski

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TOROID CORP. OF MARYLAND, 6000 Laurel-Bowie Rd., Bowie, MD 20715-4037, Tel: 301-464-2100, TWX: 710-826-0414; *Sls. Mgr.:* Egil Angeid .... **1A**•2312, 2313

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TOROTEL PRODS. INC., 13402 S. 71 Hwy., Grandview, MO 64030, Tel: 816-761-6314, TWX: 910-777-7037; Empl.: 275; *Sls. Mgr.:* H. Foland .... **1A**•1283-1297, 2314-2320

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AL	Huntsville, L & D Inc.	205-837-1469
AL	Westlake, OH, JN Bailey & Assocs.	216-892-1513
AZ	Tempe, Gassner & Clark Co.	602-968-9037
CA	Redwood City, Hickey Industrial Sls.	415-368-3849
CA	San Diego, California Elctrn. Mktg.	619-692-3551
CA	Santa Ana, Calif. Elctrn. Mktg.	714-835-2702
CO	Broomfield, Ramark	303-469-1758
GA	Atlanta, L & D Inc.	404-455-3483
IL	Schaumburg, Gassner & Clark	312-882-8608
IA	Hiawatha, Gassner & Clark Co.	319-393-5763

KS	Overland Park, AME Sls.	913-262-3971
MD	Towson, Dickison Sls. Co.	301-823-0923
MA	Weston, J. J. Goode Assocs.	617-235-3900
MO	St. Charles, AME Sls.	314-947-0333
NY	Clinton, Advanced Comps.	315-853-6438
NY	Endicott, Advanced Comps.	607-785-3191
NY	Manhasset, Win-Cor Elec. Sls.	516-627-9474
NY	Rochester, Advanced Comps.	716-544-7017
NY	Scottsville, Advanced Comps.	716-889-1429
NY	Syracuse, Advanced Comps.	315-699-2671
NC	Greensboro, L & D Inc.	919-292-3201
NC	Raleigh, L & D Inc.	919-876-5301
OH	New Lebanon, J. N. Bailey Assoc.	513-687-1325
OH	Westlake, JN Bailey & Assocs.	216-892-1513
PA	Birchrunville, Jadelectronic Assocs.	215-296-3800
PA	Philadelphia, Jadelectronics	215-455-0664
TN	Seymour, L & D, Inc.	615-577-1549
TX	Austin, Oeler & Menelaides	512-453-0275
TX	Dallas, Oeler & Menelaides	214-361-8876
TX	Houston, Oeler & Menelaides	713-772-0730

TOROTRON, 230 E. 7th St., Mt. Vernon, NY 10550, Tel: 914-664-2050; Empl.: 14; *Sls. Mgr.:* Lee Abramson .... **3**•1311

TORQ CORP., 32 W. Monroe St., Bedford, OH 44146, Tel: 216-232-4100; Empl.: 135

TORRINGTON CO., 59 Field St., Torrington, CT 06790, Tel: 203-482-9511; *Sls. Mgr.:* N. W. Couch

TORWICO ELCTRNS. INC., Rte. 70, Lakewood, NJ 08701, Tel: 201-364-1800, TWX: 710-723-8343; Empl.: 240 .... **1A**•2322, 2323

Local Sales Offices & Reps

CA	El Cajon, KCE Corp.	619-588-1198
CA	Menlo Park, Long and Assocs.	415-327-1300
FL	Orlando, Gra-Mar	305-894-3351
IN	Noblesville, Patco & Assocs.	317-877-5986
IA	Davenport, Ensco Rep	319-386-6600
KS	Overland Park, Ensco Rep	913-381-7557
KS	Wichita, Ensco Rep	316-683-1070
MD	Riderwood, W. S. Warrington & Assoc.	301-823-8759
MA	Hingham, N.E. Reps.	617-749-8700
MO	Maryland Heights, Ensco Rep	314-423-3935
NJ	Marlton, BGR Assocs.	609-983-1020
NY	Albany, H. C. Johnson	518-459-1239
NY	Buffalo, H. C. Johnson	716-632-7880
NY	Great Neck, Trionic	516-466-2300
NY	Rochester, H. C. Johnson	716-586-0777
OH	Copley, Eljay Assoc.	216-666-3774
OR	Portland, Abacus Sls.	503-777-8111
PA	Glenshaw, H. C. Johnson	412-961-0414
TX	Irving, Kite Elctrns. Sls. Co.	214-438-9336

TOSHIBA CORPORATION, See General Products Corp.

TOWNSEND INDUSTRIES, 51 Carl Rd., Orange, CT 06477, Tel: 203-795-0241, TWX: 710-465-1898; *Sls. Mgr.:* Charles Dorsa

TOYO COMM. EQUIP. CO., LTD., No. 8 Nori Bldg., 20-4, Nichi-Shimbashi, 3-Chome Minato-Ku, Tokyo 105, Japan, Tel: 03-436-2180, Telex: 02423115 Toyocoj.; Empl.: 1800; *Sls. Mgr.:* T. Nagai

TRACEWELL ENCLOSURES, 7032 Worthington Galenda Rd., Columbus, OH 43085, Tel: 614-846-6175, 800-848-4525; Empl.: 30 .... **2**•1065-1067

TRA-CON, INC., 55 North St., Medford, MA 02155, Tel: 617-391-5550; Empl.: 35

Local Sales Offices & Reps

CA	Sunnyvale, K. R. Anderson Co.	408-736-6730
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IN	Indianapolis, Emmtronics Supp. & Engr., Inc.	317-899-2333
NY	Hamburg, W. J. Ferenczy Assocs.	716-648-4193
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TX	Richardson, C. J. Garvey Co.	214-234-3371
UT	Salt Lake City, Technology Mktg., Inc.	801-363-3303
VA	Roanoke, Cox Sls. Co.	703-345-2636
WA	Mukilteo, Krippner & Assoc.	206-743-3579
WI	Milwaukee, Ellsworth Systems	414-352-1230

TRACOR INSTRUMENTS, 6500 Tracor La., Bldg. 27, Austin, TX 78721, Tel: 512-929-2051, TWX: 910-874-1366; Empl.: 7800; *Sls. Mgr.:* Harry L. Thomas; *Dist. Mgr.:* Will Hoover

TRACOR PAKTRONICS, 2441 Northeast Pkwy., Ft. Worth, TX 76106, Tel: 817-625-2311, Telex: 758-273; Empl.: 10; *Sls. Mgr.:* Harold Whittenton

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A TECH-SYM CORPORATION

TRAK MICROWAVE CORP., 4726 Eisenhower Blvd., Dept. E4, Tampa, FL 33614, Tel: 813-884-1411, Telex: 52-827, TWX: 810-876-9140; FSC No.: 12855; *Sls. Mgr.:* Thomas L. Roberts .... **1A**•1778-1783

TRAK MICROWAVE, 735 Palomar Ave., Sunnyvale, CA 94086, Tel: 408-735-9660, TWX: 910-339-9309; FSC No.: 29111; *Sls. Mgr.:* Thomas L. Roberts .... **1A**•1783

TRAK SYSTEMS, Div. TRAK Microwave Corp., 4722 Eisenhower Blvd., Dept. E4, Tampa, FL 33614, Tel: 813-884-1411, Telex: 52-827, TWX: 810-876-9140; FSC No.: 11165; *Sls. Mgr.:* Thomas L. Roberts .... **3**•1097-1102

Local Sales Offices & Reps

AL	Huntsville, Magaro & Assocs.	205-882-0827
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CA	Mountain View, Pacific Tech. Mktg.	415-969-3010
CA	San Diego, L. L. Stoakes, Inc.	619-452-1600
CO	Denver, W. H. Howard Assocs.	303-426-3499
FL	Sarasota, Bass Assocs.	813-922-9538
GA	Atlanta, Magaro & Assocs.	404-451-8862
IN	Ft. Wayne, TX Sales	219-489-4447
MD	Ashton, Blackwood Assocs.	301-924-2858
MA	Cochituate, High-Tech Sls., Inc.	617-653-3838
NM	Albuquerque, Jim Smith Assocs.	505-265-3406
NC	Greensboro, Magaro & Assocs.	919-294-4783
PA	Huntingdon Valley, Rabal Assocs.	215-947-4825
TX	Arlington, J. T. Houston Assocs.	817-265-2931
EXP	CT, Stamford, Dage Corp.	203-324-3123

TRANSAMERICA DELAVAL, Gems Sensors Div., Cowles Rd, Plainville, CT 06062-9990, Tel: 203-677-1311, Telex: 99-306; Empl.: 203; *Sls. Mgr.:* M. W. Brown; *Dist. Mgr.:* M. W. Brown

TRANS AMERICAN TRANSFORMER, 142 Peconic Ave., Medford, NY 11763, Tel: 516-654-1880; Empl.: 23; *Sls. Mgr.:* Joe Latimer .... **1A**•2325

Local Sales Offices & Reps

CT	Washington, Tri-Com Assocs.	203-563-2241
FL	Melbourne, Reynolds & Assocs., Inc.	305-259-7000
GA	Acworth, Reynolds & Assocs., Inc.	404-451-9558
MA	Burlington, Tri-Com Assocs.	617-272-8163
NC	Winston-Salem, Reynolds & Assocs.	919-725-6196
PA	Philadelphia, Technical Instr. Sls. Co.	215-836-2222

TRANSCO PRODS., 4241 Glencoe Ave., Marina del Rey, CA 90291, Tel: 213-822-0800, Telex: 65-2448, TWX: 910-343-6469; Empl.: 400; *Sls. Mgr.:* T. G. Katter

Local Sales Offices & Reps

CA	Marina del Rey, Michael Robinson	213-822-0800
CA	San Jose, Jon Walker	408-244-6150
CA	San Juan Capistrano, Bruce Ridill	714-643-0506
GA	Marietta, John Underhill	404-977-5819
MD	Ellicott City, VPI, Inc.	301-461-2525
MA	Acton, Rollie Merrick	617-275-1247
MO	Ellisville, Hi Grant Wilson	314-227-0737
NY	Bayside, R. L. Diamond Inc.	212-423-7330
PA	Dresher, Joseph Belcher	215-886-4806
TX	Richardson, Ronald B. Patton	214-669-1951
WA	Bellevue, Poggi Assocs., Inc.	206-454-2026

TRANSDUCERS and SYSTEMS

TRANSDUCERS AND SYSTEMS INC., A Prime Technology Company, Twin Lakes Rd., P.O. Box 185, N. Branford, CT 06471, Tel: 203-481-5721, TWX: 710-452-3092; Empl.: 60; *Sls. Mgr.:* J. L. Jamieson .... **1B**•1880

Local Sales Offices & Reps

CA	Huntington Beach, Transducer Sys.	714-840-5357
CA	Palo Alto, Gado Instr. Sls.	415-961-2222
CT	Washington, Tri-Com Assocs.	203-563-2241
FL	Indian Rocks Beach, PAR Assocs.	813-596-8841
GA	Atlanta, PAR Assocs.	404-391-9117
IL	Des Plaines, Marsland Assocs.	312-298-2620
IA	Cedar Rapids, Marsland Assocs.	319-396-8030
MA	Burlington, Tri-Com Assocs.	617-272-8163
MI	Mt. Clemens, O'Hara Assocs.	313-791-7140
MN	Minneapolis, Marsland Assocs.	612-545-4481
MO	St. Louis, Marsland Assocs.	314-991-1399
NY	Binghamton, TAE-REP	607-772-6952
NY	Fishkill, TAE-REP	914-896-6966
NY	Rochester, TAE-REP	716-586-8710
OH	Dayton, RIXAN Assocs.	513-278-4216

TRANSDUCER SYSTEMS, INC., 1510 Delp Dr. Kulpsville, PA 19443, Tel: 215-256-4611, Telex 846078; Empl.: 310 .... **1B**•1879

Local Sales Offices & Reps

CA	Burbank, J. D. Hannam & Assocs.	213-846-9378
CA	Santa Clara, Nelson Elctrn. Sls.	408-980-1950
MI	Madison Heights, L. C. Nyman & Co.	313-543-6520
MN	Mendota, GII Sls.	612-454-3086
OH	Chagrin Falls, K. F. Nauerz Co.	216-338-8450
OH	Cleveland, Staffco	216-331-5100

Transduktor

TRANSDUKTOR INC., 600 Steamboat Rd. Greenwich, CT 06830, Tel: 203-661-5726, Telex 996491 SID; *Sls. Mgr.:* Carl A. Svensson .... **1A**•2326-232

TRANSENE, Rte. 1, Rowley, MA 01969, Tel: 617-948-2501; Empl.: 21; *Sls. Mgr.:* J. Doucette

TRANSFORMATION ELCTRNS. CORP., 17 Wilbur Pl., Bohemia, NY 11716, Tel: 516-563-1117 TWX: 510-222-0972; *Sls. Mgr.:* Ken Isabelle;Davi Baum .... **3**•180

Local Sales Offices & Reps

CA	Pasadena, EMI	213-795-719
CA	Sunnyvale, Schwerin & Merrill	408-735-790
CO	Englewood, Elctrn. Comp. Sys.	303-781-590
FL	Longwood, Boetto Corp.	305-331-177
GA	Norcross, New South Mktg. Ltd.	404-449-114
IL	Downers Grove, Splon Assocs.	312-963-701
KS	Kansas City, BC Elctrns.	913-342-121
MD	Pikesville, Imagitron Sls. Co.	800-638-359
MA	Wakefield, Kentronics	617-246-024
MN	Minneapolis, Bohlig & Assocs.	612-698-692
TN	Morristown, New South Mktg. Ltd.	615-646-015
TX	Arlington, Hite Elctrn. Sls. Co.	817-265-291
WA	Bellevue, Elctrn. Mktg. Grp.	206-746-591
WI	Brookfield, Sumer, Inc.	414-784-664

TRANSFORMER DESIGN, INC., 78th & Clinton Milwaukee, WI 53223, Tel: 414-358-5300

TRANSISTOR DEVICES, 274 S. Salem St Randolph, NJ 07869, Tel: 201-361-6622; Empl.: 35 *Sls. Mgr.:* J. A. Gilson .... **3**•1312, 131

Local Sales Offices & Reps

CA	Costa Mesa, FLW Inc.	714-751-75
CA	Los Altos, Cain-White Co.	415-948-65
GA	Atlanta, Magaro & Assocs.	404-252-66
IL	Elmhurst, Scott Assocs.	312-279-56
MD	Ellicott City, Dyna-Rep Co.	301-992-43
MA	Lexington, E. F. Delfino, Inc.	617-862-11
NJ	Ridgewood, Hansen Assocs.	201-652-70
NY	North Syracuse, Advance Components	315-699-26
OH	Medina, McShane Inc.	216-725-45
OR	Hillsboro, Controlek Sls.	503-640-84
PA	Fort Washington, GCM Inc.	215-646-75
TX	Lewisville, J. Hughes Co.	817-430-16
VA	Alexandria, Dyna-Rep Co.	703-354-12
EXP	NY, New York, Singer Prods.	212-432-14

TRANSKINETIC SYS., 110 Shawmut Rd., Canto MA 02021, Tel: 617-828-3000; Empl.: 7

TRANSMAGNETICS, 210 Adams Blvd., Farmin dale, NY 11735, Tel: 516-293-3100, TWX: 510-22 6420; FSC No.: 17755; Empl.: 40; *Sls. Mgr.:* Fr Haber .... **3**•1170, 11

Local Sales Offices & Reps

CA	Santa Clara, Industrial Modules, Inc.	408-988-19
TX	Bellaire, Seaton Corp.	713-731-26
TX	Carrollton, Seaton Corp.	214-380-04

TRANSMET CORP., 4290 Perimeter Dr., Columb OH 43228, Tel: 614-276-5522, 800-245-5253, TW 810-482-1016; *Sls. Mgr.:* Ronald A. Crossman; *D Mgr.:* Robert M. Simon

RANS-MET ENGRG., 601 S. Palm St., La Habra, CA 90631, Tel: 213-691-2266; Empl.: 25; *Sls. Mgr.:* Robert J. Powers

RAN-SPECTRA, INC., Rte. 1-Box 27A, Greenfield, TN 38230, Tel: 901-235-2218; Empl.: 50; *Sls. Mgr.:* D. Cole

RANS-TECH, 12 Meem Ave., Gaithersburg, MD 20760, Tel: 301-948-3800, Telex: 898-303, TWX: 710-828-0549; FSC No.: 14591; Empl.: 74; *Sls. Mgr.:* Blair W. Stiles; *Dist. Mgr.:* Blair W. Stiles

RANS-TECH, INC., Alpha Inds., Inc., 20 Sylvan Rd., Woburn, MA 01801, Tel: 617-935-5150, Telex: 949436, TWX: 710-396-1236; FSC No.: 17540; *Sls. Mgr.:* Blair Stiles

RANS-TEK, P.O. Box 338, Rte. 83, Ellington, CT 06029, Tel: 203-872-8351, Telex: 99207; FSC No.: 27109; Empl.: 35; *Sls. Mgr.:* William R. Padin

RAN-TEC, Box 1044, Columbus, NE 68601, Tel: 402-564-2748; Empl.: 46; *Sls. Mgr.:* Cliff Schroeder

Local Sales Offices & Reps

Redwood City, Woodworth Co.	415-365-0252
Tustin, Sierra-Pacific Engrg. Co.	714-731-3411
Golden, Pierce-Robbins Assocs.	303-399-6618
Winter Park, Russell Assocs.	813-526-1134
Atlanta, Russell Assocs.	404-225-8422
Indianapolis, Scott Elctrns, Inc.	317-897-9976
Cedar Rapids, Ard Sls. Co.	319-366-8733
Bel Air, Russell Assocs.	301-879-9180
Wakefield, H.C. Jappe Co.	617-245-9359
Fair Haven, Russell Assocs.	201-747-0600
Bay Shore, Russell Assocs.	516-666-6500
Cazenovia, Naylor Electric Co.	315-655-8174
Cleveland, D. Steffen & Assocs.	216-461-8333
Dallas, Russell Assocs.	214-699-0383
Bellevue, Russell Assocs.	206-455-3694

AN-TROL CO., 2525 N. Alvernon Way, C-6, Tucson, AZ 85712, Tel: 602-795-8008

RENDATA/STANDARD MEMORIES, 3400 W. Segerstrom, Santa Ana, CA 92704, Tel: 714-540-3605, TWX: 910-595-1596; Empl.: 200; *Sls. Mgr.:* M.S. Efron

ENT, INC., 201 Leverington Ave., Philadelphia, PA 19127, Tel: 215-482-5000; Empl.: 55

IAD POWER SYSTEMS, 10362 Miller Road, Dallas, TX 75238, Tel: 214-341-8700; FSC No.: 214-341-1804; *Sls. Mgr.:* Jack Conn

Local Sales Offices & Reps

Acton, Array Prods., Inc.	617-263-1128
Bethesda, Powell-Pendergraph	301-656-4535
Detroit, Datacenter Power	313-592-1082
Piermont, Elctrl. Information Svcs.	914-359-4909
Oklahoma City, Computer Power of Oklahoma	405-521-1163
Tulsa, Computer Power of Oklahoma	918-252-5406
Willow Grove, Powell-Pendergraph	215-657-0330
Houston, SGA & Assocs., Inc.	713-688-6159
San Antonio, Environmental & Power Sys. Inc.	512-699-0684
Richmond, Powell-Pendergraph	804-270-1400

TRIAD-UTRAD

Standard Products

IAD-UTRAD, 1124 E. Franklin St., Huntington, IN 46750, Tel: 219-356-6500, TWX: 810-333-1532; Empl.: 750; *Dist. Mgr.:* Dave N. Miller .... **1A**•2330-2337; **3**•1918, 1919

Local Sales Offices & Reps

Anchorage, H.J. Lang & Assocs.	907-279-5741
Phoenix, Steve Fisher Assocs.	602-247-7865
Little Rock, J. Y. Schoonmaker Co.	501-375-2168
Chino. Tracy Elec. Sls.	714-591-4736
Santa Clara, Logan Sls.	408-496-0660
Denver. West Inc.	303-692-0131
Guilford, A&M Elctrn. Reps.	203-453-1612
Maitland. Hutto-Hawkins-Peregoy	305-831-2474
Atlanta, Effective Mktg. Force	404-948-6023
Honolulu, Hawaii Elctrn. Svc.	808-845-8207
Wilmette, J. Wasserman Assocs.	312-256-3566
Overland Park, T.L. Dowell, Inc.	913-648-7373
Little Rock, J. Y. Schoonmaker	501-375-2168
Needham, A&M Elctrn. Reps.	617-444-8170

MN	Minneapolis, Elec. Comp. Sls.	612-933-2594
MO	St. Louis, T.L. Dowell, Inc.	314-849-4234
NJ	Medford, Champion Elctrn. Sls.	609-654-0475
NY	Rochester, Marchese, Marsey, Barden	716-544-4300
NY	Rockville Centre, Schmitt Industrial Mktg.	516-486-3510
OH	Cincinnati, F.E. Kahsar Sls.	513-922-3133
OH	Hudson, F.E. Kahsar Sls.	216-650-1089
OK	Tulsa, J.Y. Schoonmaker	918-936-1423
OR	Portland, J.J. Backer Co.	503-297-3777
OR	Salem, J. J. Backer Co.	503-362-0717
TX	Dallas, J. Y. Schoonmaker Co.	214-349-1650
WA	Seattle, J.J. Backer Co.	206-285-1300
EXP	Westbury, N.Y., Minthorne Int'l.	516-546-4700

Local Distributors

AL	Birmingham, Forbes Distributing	205-251-4104
AZ	Phoenix, Dalis Elctrn. Supply	602-275-2885
AR	Little Rock, Carlton Bates Co.	501-562-9100
CA	Glendale, R. V. Weatherford	213-849-3451
CA	Mountain View, Abacus Elctrns.	415-961-1500
CA	Palo Alto, Zack Elctrns.	415-326-5432
CA	Riverside, Elctrn. Supply	714-683-7300
CO	Denver, Integrated Elctrns.	303-534-6121
FL	Ft. Lauderdale, Peerless Radio Corp. of Florida	305-973-4141
GA	Atlanta, Ack Radio Supply	404-351-6340
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Chicago, Bell Inds.	312-982-9210
IN	Lafayette, CWY Elctrns.	317-448-1611
IA	Cedar Rapids, Deeco, Inc.	319-365-7551
KY	Louisville, P. I. Burks Co.	502-589-3960
LA	New Orleans, William B. Allen Co.	504-525-8222
MD	Rockville, Capitol Radio Whls.	301-881-2270
MA	Burlington, Marshall Wilshire Elctrns.	617-272-8200
MA	Wilmington, Cronin Elctrns.	617-449-0500
MI	Grand Rapids, S-F Elctrns.	616-459-0216
MI	Livonia, R. S. Elctrns.	313-525-1155
MN	St. Paul, Gopher Elctrns.	612-483-4450
MO	St. Louis, Olive Industrial Elctrn.	314-426-4500
NE	Lincoln, Scott Elctrn. Supp. Corp.	402-466-8221
NH	Hudson, C & H Elctrns.	603-882-1133
NJ	Camden, General Radio Supp.	215-922-7037
NJ	Springfield, Route Elctrns.	201-379-7710
NM	Albuquerque, Electronic Parts Co.	505-293-6161
NY	Hauppauge, Broadline Elctrn. Distr.	516-231-4100
NY	Rochester, Simcona	716-328-3230
NY	Rockville Centre, Midway Indl. Elctrns.	516-764-2400
NY	Rome, Rome Elctrns.	315-337-5400
NC	Greensboro, Hammond Elctrns.	919-275-6391
OH	Cleveland, Pioneer Standard Elctrns.	216-587-3600
OH	Dayton, Pioneer/Dayton	513-236-9900
OK	Tulsa, Combined Technlgs.	918-582-8242
OR	Portland, United Radio Supply	503-233-5346
PA	Philadelphia, Almo Electronics	215-698-4000
RI	Warwick, W. H. Edwards Elctrns.	401-781-8000
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Memphis, Bluff City Elctrns.	901-345-9500
TX	Dallas, Sterling Elctrns.	214-243-1600
TX	Houston, Altair Co.	713-462-3029
UT	Provo, Omega Elctrns.	801-375-4664
WA	Seattle, Almac	206-643-9992
WI	New Berlin, RM/Wisconsin	414-784-4420

TRI-COM, INC., 7304 Grove Rd., Frederick, MD 21701, Tel: 301-694-6666, Telex: 64828 TRICOM; Empl.: 35; *Sls. Mgr.:* Marc Vivori

TRIDAK, 1120 Federal Rd., Brookfield, CT 06804, Tel: 203-775-1287, TWX: 710-456-1372; Empl.: 20; *Sls. Mgr.:* Alan Boucher; *Dist. Mgr.:* F.C. Herot

TRI-DATA CORP., 505 E Middlefield Rd., Mountain View, CA 94043, Tel: 415-969-3700, Telex: 910-379-6978; Empl.: 173

TRILOG, 17391 Murphy Ave., Irvine, CA 92714, Tel: 714-549-4079, TWX: 910-595-2798; Empl.: 35; *Sls. Mgr.:* Jack Rice

TRIMM, INC., Div. of Newton Instr. Co., 400 W. Lake St., Box 489, Libertyville, IL 60048, Tel: 312-362-3700; Empl.: 90; *Dist. Mgr.:* H. Lewis

TRIM-TRONICS, INC., 67 Albany St., Cazenovia, NY 13035, Tel: 315-655-9528, TWX: 710-541-1530; Empl.: 20; *Sls. Mgr.:* James E. Dowd

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Minneapolis	(612) 332-6117
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Cleveland	(216) 651-4100
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Houston	(713) 733-9814
WISCONSIN	
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TRINETICS INC., 55807 Currant Rd., Mishawaka, IN 46545-4899, Tel: 219-259-8535; Empl.: 100; *Sls. Mgr.:* T. J. Dawson

Local Sales Offices & Reps

AZ	Phoenix, Bill Earl & Assocs.	602-994-3813
CA	N. Hollywood, Bert Moore & Assocs.	818-877-5455
CA	San Rafael, Wright Assocs.	415-457-9940
FL	Tampa, J. R. Controls	813-961-9478
IL	Chicago, Jerry Golten Co.	312-792-1991
IN	Ft. Wayne, Walter W. Bieberich	219-432-2537
IN	New Albany, Walter W. Bieberich	812-945-3187
LA	Metairie, Automation Supplies	504-831-2183
MA	Hopkinton, Berkshire Elctrns.	617-435-9356
MI	Sturgis, Kesler Assocs.	616-651-7619
MO	St. Louis, Hill & Co.	314-432-1136
NJ	Burlington, V.D.E. Elctrn. Sls.	609-387-9331
NY	Rochester, V.D.E. Elctrn. Sls.	716-473-5015
OH	Cincinnati, Stegman Blaine Mktg.	513-729-1969
OH	Vandalia, Stegman Blaine Mktg.	513-890-7975

TRIO LABS., 80 Dupont St., Plainview, NY 11803, Tel: 516-349-0400, TWX: 510-221-1861; FSC No.: 00638; Empl.: 60; *Sls. Mgr.:* John Crawford

TRIO-TECH INTL., 2040 N. Lincoln St., Burbank, CA 91504, Tel: 818-846-9200, Telex: 194811; Empl.: 266

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.... **3**•1314, 1315, 1320, 1356, 1357

Local Sales Offices & Reps

AZ	Phoenix, Shefler-Kahn	602-257-9015
CA	Burlingame, Polach & Bensinger	415-697-2525
CA	Costa Mesa, Berman-Gravley, Inc.	714-549-2122
CO	Arvada, Cluff & Associates	303-423-9354
CO	Aurora, R & R Instrmn.	303-364-8325
FL	Lighthouse Pt., Jack Krutek & Assocs.	305-941-6544
FL	Maitland, Jack Krutek & Assocs.	305-628-4837
GA	Atlanta, Millar Elctrns.	404-261-6160
IL	Berkeley, G. Petitt Co.	312-449-8000
IN	Ft. Wayne, W. Bieberich	219-432-2537
IN	New Albany, W. Bieberich	812-945-3187
KS	Olathe, SPS Associates Ltd	913-764-4460
MD	Baltimore, Sunshine Sci. Inst.	301-661-5900
MD	Reisterstown, Massey Assoc.	301-833-2039
MI	Grosse Point Woods, A & D Elctrn. Sls.	313-884-1956
MN	Minneapolis, Hei-Lite Sls.	612-861-6051
NJ	Englewood Cliffs, Masin Esco	201-569-8868
NY	Hauppauge, Masin Esco	516-273-3500
NY	Rochester, Marchese, Marsey & Barden	716-544-4300
NC	Charlotte, Brownell-Electro Inc.	704-597-1270
NC	Raleigh, Millar Elctrns.	919-787-9564
OH	Centerville, Dolfuss-Root	513-433-6776
OH	Strongsville, Dolfuss-Root	216-238-0300
OR	Portland, J.J. Backer	503-297-8744
PA	Bridgeville, Dolfuss-Root	412-221-4420
PA	Trevose, PSA	215-245-0513
RI	Lincoln, Adams-McGregor	401-726-1300
RI	West Warwick, Adams McGregor Inc.	401-822-0896
TX	Dallas, Forner Sls.	214-241-2166
WA	Seattle, J.J. Backer	206-285-1300

Local Distributors

AL	Birmingham, Brownell-Electro	205-322-3374
AL	Mobile, Brownell-Electro	205-479-8581
AZ	Phoenix, Metermaster Div.	602-243-4111
CA	Glendale, Western Elctrn. Supp.	213-245-1226
CA	Irvine, Meter Craft/Larson	714-261-7135
CA	Los Angeles, Metermaster Div.	213-685-4340
CA	Los Angeles, E.I.L. Instrs.	213-685-7020
CA	Palo Alto, Metermaster Div.	415-968-0313
CA	San Diego, Metermaster Div.	619-560-4841
CA	Santa Clara, Dynametron	408-727-6531
CA	Santa Clara, Fisher/Brownell	408-988-6041
CO	Denver, Meter-master	303-722-5766
CT	Middletown, E. I. L. Instruments	203-346-6646
FL	Hialeah, Kimball Elctrn. Lab.	305-822-5792
FL	Miami, Brownell-Electro	305-591-3215
FL	Orlando, Brownell-Electro	305-843-6770
GA	Atlanta, Brownell-Electro	404-762-5181
GA	Atlanta, Process Measurement Control	404-696-7481
HI	Honolulu, Kems, Inc.	808-845-6402
IL	Bridge View, E I L. Instrs.	312-430-2292
IL	Elk Grove Village, Metermaster	312-593-8650
IL	Elk Grove Village, Meter-Makers	312-439-5050
IL	Oak Park, Pacific Indicator	312-261-1330
IN	Evansville, Electro-Lab Svcs.	812-423-5211
IN	Indianapolis, E.I.L. Instrs.	317-545-1373
KS	Overland Park, Brooks Elec.	913-648-3131
KY	Louisville, E. I. L. Instr.	502-454-3432
LA	New Orleans, Indl. Instr. Works	504-733-8355
MD	Gaithersburg, Pioneer/Instrumentation	301-921-0660
MD	Savage, Pyttronic	301-792-0780
MD	Sparks, E.I.L.	301-771-4800
MA	Burlington, E. I. L. Instr.	617-272-9450
MA	Waltham, Calibron	617-894-6440
MI	Ferndale, Ram Meter	313-398-6767
MN	Minneapolis, Instr. Control	612-871-2514
MO	St. Louis, ISL Corporation	314-535-5760
NJ	Belleville, Marshall Inst.	201-751-1190
NJ	N. Caldwell, Hosica Labs	201-256-7724
NY	Clarence, Trott Elctrns.	716-634-8500
NY	L.I.C., Metermod Instr.	212-726-4850
NC	Charlotte, Brownell-Electro	704-597-1270
NC	Raleigh, Brownell-Electro Inc.	919-876-6524
NC	Raleigh, Meter-Meterics, Div. of I.T.R.	919-872-5456
NC	Raleigh, Speed Instr. Div. Owen-Barbot	919-876-4919
OH	Cleveland, Pioneer/Instrumentation	216-587-3600
OH	Cleveland, Weschler Elec.	216-238-2550
OH	Dayton, Pioneer/Dayton	513-236-9900
OK	Tulsa, Tri-State Instr.	918-836-0286
PA	Philadelphia, Sunshine Sci.	215-673-5600
PA	Pittsburgh, E.I.L.	412-731-5230
PA	Pittsburgh, CAM/RPC	412-963-188
TN	Knoxville, Brownell-Electro	615-966-344
TN	Memphis, Instrument Repair Service	901-278-076
TN	Memphis, Brownell-Electro	901-795-848
TN	Nashville, Brownell-Electro	615-889-823
TX	Beaumont, Straughn Elec.	409-838-456
TX	Dallas, Ultra Instr.	214-357-029
TX	Garland, Metermaster	214-271-567
TX	Houston, Meters & Instrs.	713-644-163
TX	Houston, Quality Instr.	713-524-052
TX	Odessa, Whitlock Instr.	915-337-341
VA	Richmond, Meter Metrics (I.T.R.)	804-275-143
WA	Seattle, E&L Instrs. Inc.	206-762-088
WA	Seattle, Eicher-Richards	206-523-788
WI	Milwaukee, E-M Instrs.	414-272-779

TRIPP-LITE, 500 No. Orleans, Chicago, IL 60610, Te 312-329-1777; Empl.: 80; *Sls. Mgr.:* Priscilla Galgan *Dist. Mgr.:* Priscilla Galgan

TRI-STAR ELCTRNS., INC., 362 Main Street # Venice, CA 90291, Tel: 213-823-5779, Telex: 18205 Tristarel Vnce, TWX: 910-343-7448; FSC No.: 593 5999, 5120, 5280; *Sls. Mgr.:* Tom Magdalik

TRITON MFG. CO., P.O. Box 361, East Haddam, C 06423, Tel: 203-838-4666, Telex: 955439; FSC No 54195; *Sls. Mgr.:* Jack Spangler

TRI-TRONICS CO. INC., 13420 Wright Cir., Tamp FL 33624, Tel: 813-855-4453; Empl.: 27; *Sls. Mg* Robert A. Warner

TRIVEX, 3180 Redhill Ave., Costa Mesa, CA 9262 Tel: 714-546-7781, TWX: 910-595-2589; Empl.: 180 *Sls. Mgr.:* R. Martin

TRO DYNE CORP., 900 Corporate Dr., Mahwah, 07430, Tel: 201-529-1800, TWX: 710-988-2138; FS No.: 17346; Empl.: 55; *Sls. Mgr.:* T. Mazzaccaro

TROMPETER ELECTRONICS, INC., 89 Comanche, Chatsworth, CA 91311, Tel: 818-88 1020, TWX: 910-494-1210; FSC No.: 14949; Emp 95; *Sls. Mgr.:* Paul Cox; *Dist. Mgr.:* E. Fischle

Local Sales Offices & Reps

AL	Huntsville, Currie, Peak and Frazier	205-536-15
AZ	Phoenix, Aztec Entprs.	602-944-91
CA	Los Angeles, Trompeter Elctrns.	818-882-10
CA	Menlo Park, Long & Assocs.	415-327-13
CO	Littleton, Aztec Entprs.	303-795-02
CT	Wethersfield, Underwood Sls.	203-563-30
FL	Orlando, Currie, Peak & Frazier	305-855-08
GA	Norcross, Currie, Peak & Frazier	404-449-76
IL	Wheeling, Engineering Prods	312-537-48
IN	Indianapolis, Engrg. Prods. Assoc.	317-894-71
IA	Iowa City, Engineering Prods. Assoc.	319-354-53
MD	Silver Spring, Sel-Tronics	301-589-33
MA	Lowell, Underwood Sls.	617-256-81
MN	Edina, Engineering Prods. Assoc.	612-835-90
NJ	Elmwood Park, L & M Assoc. Eng. Rep.	201-797-04
NM	Albuquerque, Aztec Entprs.	505-262-16
NY	Binghamton, T.A.E. Rep.	607-772-69
NY	New York, L & M Assocs. Eng. Rep.	212-243-61
NY	Rochester, T A E Reps	716-586-87
NC	Greensboro, Currie, Peak & Frazier	919-373-03
OH	Cleveland, Geotronix	216-526-25
OH	Trotwood, Geotronix	513-854-59
PA	Andalusia, L & M Assocs.	215-245-66
TX	Lewisville, Milestek	214-436-15
UT	Ogden, Aztec Entprs.	801-621-16
WA	Lynnwood, Blum & Assocs.	206-775-66

TRUE DATA, 17092 Pullman St. #B, Irvine, CA 927 Tel: 714-979-4842, TWX: 910-595-1917; Empl.: 37

TRULINE CORP., P.O. Box 1469, Visalia, CA 932 Tel: 209-625-3237; *Sls. Mgr.:* Charlie Torres

TRW CAPACITOR DIV., 301 West "O" St., Ogalla NE 69153, Tel: 308-284-3611, TWX: 910-620-03 *Sls. Mgr.:* Dennis Lienemann; *Dist. Mgr.:* R Hollmann .... **1A**•1191-11

Local Sales Offices & Reps

AL	Huntsville, TRW/ECG	205-533-7
AZ	Scottsdale, TRW/ECG	602-994-0
CA	Los Angeles, ISDS	213-478-0
CA	Mountain View, Straube Assocs.	415-969-6
CA	San Diego, ISDS	619-571-1
CA	Santa Ana, ISDS	714-973-2
CA	Woodland Hills, ISDS	213-883-7
CO	Westminster, Straube Assocs.	303-426-0
CT	Rowayton, TRW/ECG	203-853-4
FL	Ft. Lauderdale, TRW/ECG	305-772-3

Orlando, TRW/ECG	305-857-3650
Norcross, TRW/ECG	404-447-6154
Chicago, TRW/ECG	312-693-7730
Ft. Wayne, R. O. Whitesell & Assocs.	219-432-5591
Indianapolis, R. O. Whitesell & Assocs.	317-359-9283
Kokomo, R. O. Whitesell & Assocs.	317-457-9127
Cedar Rapids, C. H. Horn & Assoc.	319-393-8703
De Soto, Midtec Assoc.	913-441-6565
Louisville, R. O. Whitesell & Assocs.	502-426-7696
Columbia, TRW/ECG	301-964-9110
Framingham, TRW/ECG	617-620-0625
Grand Rapids, R. O. Whitesell & Assocs.	616-942-5420
Southfield, R. O. Whitesell & Assocs.	313-559-5454
St. Joseph, R. O. Whitesell & Assocs.	616-983-7337
Minneapolis, TRW/ECG	612-854-6616
St. Louis, John G. Macke Co.	314-432-2830
Panama, Norris Stricker	402-788-2700
Rochester, TRW/ECG	716-425-3775
Greensboro, TRW/ECG	919-852-4676
Cincinnati, R. O. Whitesell & Assocs.	513-521-2290
Cleveland, R. O. Whitesell & Assocs.	216-447-9020
Columbus, R. O. Whitesell & Assocs.	614-888-9396
Dayton, R. O. Whitesell & Assocs.	513-298-9546
Tigard, TRW/ECG	503-620-5032
Bala Cynwyd, TRW/ECG	215-667-3400
Pittsburgh, R. O. Whitesell & Assocs.	412-963-6161
Greeneville, R. O. Whitesell & Assocs.	615-639-6154
Austin, Technlg. Sls. Co.	512-346-9940
Dallas, TRW/ECG	214-248-8000
El Paso, TRW/ECG	915-594-8259
Houston, TRW/ECG	713-772-5541
Salt Lake City, Straube Assocs.	801-263-2640
Richmond, TRW/ECG	804-288-8334
Bellevue, TRW/ECG	206-641-9996
Brookfield, TRW/ECG	414-784-7773

Local Distributors

Huntsville, Hall-Mark Elctrns.	205-837-8700
Phoenix, Hall-Mark Elctrns.	602-243-6601
Phoenix, R. V. Weatherford Co.	602-272-7144
Tempe, Arrow Elctrns.	602-968-4800
Chatsworth, Arrow Elctrns.	213-701-7500
Gardena, Bell Inds.	213-515-1800
Glendale, R. V. Weatherford Co.	213-849-3451
San Diego, Hall-Mark Elctrns.	619-268-1201
Sunnyvale, Arrow Elctrns.	408-745-6600
Sunnyvale, Hall-Mark Elctrns.	408-773-9990
Sunnyvale, Bell Inds.	408-734-8570
Aurora, Arrow Elctrns.	303-696-1111
Denver, R. V. Weatherford Co.	303-428-6900
Wallingford, Arrow Elctrns.	203-265-7741
Clearwater, Hall-Mark Elctrns.	813-530-4543
Ft. Lauderdale, Arrow Elctrns.	305-776-7790
Ft. Lauderdale, Hall-Mark Elctrns.	305-971-9280
Orlando, Hall-Mark Elctrns.	305-855-4020
Palm Bay, Arrow Elctrns.	305-725-1480
Norcross, Hall-Mark Elctrns.	404-447-8000
Norcross, Arrow Elctrns.	404-449-8252
Bensenville, Hall-Mark Elctrns.	312-860-2678
Schaumburg, Arrow Elctrns.	312-397-3440
Indianapolis, Arrow Elctrns.	317-243-9353
Lenexa, Hall-Mark Elctrns.	913-888-4747
Baltimore, Arrow Elctrns.	301-247-5200
Columbia, Hall-Mark Elctrns.	301-988-9800
Norwood, Gerber Radio Supp. Co.	617-769-6000
Woburn, Hall-Mark Elctrns.	617-935-9777
Woburn, Arrow Elctrns.	617-933-8130
Ann Arbor, Arrow Elctrns.	313-971-8220
Bloomington, Hall-Mark Elctrns.	612-854-3223
Edina, Arrow Elctrns.	612-830-1800
Maryland Hgts., Hall-Mark Elctrns.	314-291-5350
St. Louis, Arrow Elctrns.	314-567-6888
Manchester, Arrow Elctrns.	603-668-6968
Cherry Hill, Hall-Mark Elctrns.	609-424-7300
Fairfield, Hall-Mark Elctrns.	201-575-4415
Fairfield, Arrow Elctrns.	201-575-5300
Marlton, Arrow Elctrns.	609-596-8000
Albuquerque, Arrow Elctrns.	505-243-4566
Hauppauge, Arrow Elctrns.	516-231-1000
Liverpool, Arrow Elctrns.	315-652-1000
Lynbrook, Peerless Radio	516-593-2121
Rochester, Arrow Elctrns.	716-427-0300
Charlotte, Elctrns. Mktg. Corp.	704-394-6195
Raleigh, Arrow Elctrns.	919-876-3132
Raleigh, Hall-Mark Elctrns.	919-872-0712
Winston-Salem, Arrow Elctrns.	919-725-8711
Centerville, Arrow Elctrns.	513-435-5563
Columbus, Elctrn. Mktg.	614-299-4161
Solon, Arrow Elctrns.	216-248-3990
Solon, Hall-Mark Elctrns.	216-349-4632
Westerville, Hall-Mark Elctrns.	614-891-4555
Tulsa, Hall-Mark Elctrns.	918-665-3200
Monroeville, Arrow Elctrns.	412-856-7000
Philadelphia, Phila. Elctrn.	215-568-7400
Austin, Arrow Elctrns.	512-835-4180

TX	Austin, Hall-Mark Elctrns.	512-258-8848
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Dallas, Hall-Mark Elctrns.	214-341-1147
TX	Houston, Arrow Elctrns.	713-530-4700
TX	Houston, Hall-Mark Elctrns.	713-781-6100
UT	Salt Lake City, Arrow Elctrns.	801-539-1135
WA	Seattle, R. V. Weatherford Co.	206-575-1340
WI	Oak Creek, Hall-Mark Elctrns.	414-761-3000
WI	Oak Creek, Arrow Elctrns.	414-764-6600

TRW/CINCH-GRAPHIK, 200 S. Turnbull Canyon Rd., City of Industry, CA 91744, Tel: 213-333-1201, TWX: 910-584-1861; *Sls. Mgr.:* James Kirby

TRW CONNECTOR DIV., TRW Electronic Components Grp., 1501 Morse Ave., Elk Grove Village, IL 60007, Tel: 312-981-6000, TWX: 910-222-1796; *Sls. Mgr.:* B. Walthall; *Dist. Mgr.:* Jim Hartranft Jr. .... **2**•1613-1715

Local Sales Offices & Reps

AL	Huntsville, TRW/ECG	205-533-7600
AZ	Scottsdale, TRW/ECG	602-994-0441
CA	Los Angeles, IS DS	213-478-0183
CA	Mountain View, Straube Assocs.	415-969-6060
CA	San Diego, IS DS	619-571-1544
CA	Santa Ana, IS DS	714-973-2162
CA	Woodland Hills, IS DS	213-883-7130
CO	Westminster, Straube Assocs.	303-426-0890
CT	Rowayton, TRW/ECG	203-853-4466
FL	Ft. Lauderdale, TRW/ECG	305-772-3000
FL	Orlando, TRW/ECG	305-857-3650
GA	Norcross, TRW/ECG	404-447-6154
IL	Chicago, TRW/ECG	312-693-7730
IN	Fort Wayne, R. O. Whitesell & Assocs.	219-432-5591
IN	Indianapolis, R. O. Whitesell & Assocs.	317-359-9283
IN	Kokomo, R. O. Whitesell & Assocs.	317-457-9127
IA	Cedar Rapids, C. H. Horn & Assocs.	319-393-8703
KS	De Soto, Midtec Assocs.	913-441-6565
KY	Louisville, R. O. Whitesell & Assocs.	502-426-7696
MA	Framingham, TRW/ECG	617-620-0625
MI	Grand Rapids, R. O. Whitesell & Assocs.	616-942-5420
MI	Southfield, R. O. Whitesell & Assocs.	313-559-5454
MI	St. Joseph, R. O. Whitesell & Assocs.	616-983-7337
MN	Minneapolis, TRW/ECG	612-854-6616
MO	St. Louis, J. G. Macke Co.	314-432-2830
NM	El Paso, Straube Assocs.	915-594-8259
NY	Fairport, TRW/ECG	716-425-3775
NC	Greensboro, TRW/ECG	919-852-4676
OH	Cincinnati, R. O. Whitesell & Assocs.	513-521-2290
OH	Cleveland, R. O. Whitesell & Assocs.	216-447-9020
OH	Columbus, R. O. Whitesell & Assocs.	614-888-9396
OH	Dayton, R. O. Whitesell & Assocs.	513-298-9546
OR	Tigard, TRW/ECG	503-620-5032
PA	Bala Cynwyd, TRW/ECG	215-667-3400
PA	Pittsburgh, R. O. Whitesell & Assocs.	412-963-6161
TN	Greeneville, R. O. Whitesell & Assocs.	615-639-6154
TX	Austin, TRW/ECG	512-345-2331
TX	Dallas, TRW/ECG	214-248-8000
TX	El Paso, TRW/ECG	915-594-8259
TX	Houston, TRW/ECG	713-772-5541
UT	Salt Lake City, Straube Assocs.	801-263-2640
VA	Richmond, TRW/ECG	804-288-8334
WA	Bellevue, TRW/ECG	206-641-9996
WI	Brookfield, TRW/ECG	414-784-7773

Local Distributors

AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AL	Huntsville, Hamilton/Avnet Elctrns.	205-837-7210
AZ	Phoenix, Hall-Mark Elctrns.	602-243-6601
AZ	Phoenix, Kierulff Elctrns.	602-243-4101
AZ	Phoenix, R. V. Weatherford Co.	602-272-7144
AZ	Tempe, Fisher-Brownell	602-967-1464
AZ	Tempe, Arrow Elctrns.	602-968-4800
AZ	Tempe, Hamilton/Avnet Elctrns.	602-231-5100
AR	Ft. Smith, Carlton Bates Co.	501-646-8201
AR	Little Rock, Carlton Bates Co.	501-562-9100
CA	Alhambra, Fisher-Brownell	213-289-0255
CA	Anaheim, R. V. Weatherford Co.	714-634-9600
CA	Chatsworth, Arrow Elctrns.	213-700-8668
CA	Costa Mesa, Avnet Elctrns.	714-754-6088
CA	Costa Mesa, Hamilton Electro Sls.	714-641-4100
CA	Culver City, Hamilton Electro Sls.	213-558-2121
CA	El Segundo, Hallmark Elctrns.	213-643-9101
CA	Glendale, R. V. Weatherford Co.	213-849-3451
CA	Los Angeles, Newark Elctrns.	213-671-7066
CA	Los Angeles, Kierulff Elctrns.	213-725-0325
CA	Newport Beach, Arrow Elctrns.	714-851-8961
CA	Palo Alto, Kierulff Elctrns.	415-968-6292
CA	Pomona, R. V. Weatherford Co.	714-623-1261
CA	Riverside, Elctrn. Supp.	714-787-9220
CA	Sacramento, Hamilton/Avnet Elctrns.	916-920-3150
CA	San Diego, Fisher-Brownell	619-560-8545
CA	San Diego, Hall-Mark Elctrns.	619-268-1201
CA	San Diego, Hamilton/Avnet Elctrns.	619-571-7510
CA	San Diego, Kierulff Elctrns.	619-278-2112
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, R. V. Weatherford Co.	619-695-1700
CA	San Francisco, Zack Radio Supp.	415-626-1444
CA	Santa Clara, Fisher-Brownell	408-988-6041
CA	Santa Clara, Wyle Dist. Grp.	408-727-2500
CA	Sunnyvale, Hall-Mark Elctrns.	408-773-9990
CA	Sunnyvale, Hamilton/Avnet Elctrns.	408-743-3355
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Tustin, Kierulff Elctrns.	714-731-5711
CO	Denver, Kierulff Elctrns.	303-371-6500
CO	Denver, Newark Elctrns.	303-757-3351
CO	Denver, Arrow Elctrns.	303-758-2100
CO	Denver, Integrated Elctrn.	303-292-6121
CO	Englewood, Hall-Mark Elctrns.	303-790-1662
CO	Englewood, R. V. Weatherford Co.	303-770-9762
CO	Englewood, Hamilton/Avnet Elctrns.	303-779-9998
CO	Thornton, Wyle Dist. Grp.	303-457-WYLE
CT	Danbury, Hamilton/Avnet Elctrns.	203-797-2800
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Ft. Lauderdale, Kierulff Elctrns.	305-463-4940
FL	Ft. Lauderdale, Hall-Mark Elctrns.	305-971-9280
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Ft. Lauderdale, Hamilton/Avnet Elctrns.	305-971-2900
FL	Largo, Lodan Elctrns.	813-586-2851
FL	Orlando, Hall-Mark Elctrns.	305-855-4020
FL	Palm Bay, Arrow Elctrns.	305-725-1480
FL	St. Petersburg, Kierulff	813-576-1966
FL	St. Petersburg, Hamilton/Avnet Elctrns.	813-576-3930
GA	Norcross, Kierulff Elctrns.	404-447-5252
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
GA	Norcross, Hamilton/Avnet Elctrns.	404-447-7507
GA	Norcross, Arrow Elctrns.	404-449-8252
HI	Honolulu, Precision Radio Ltd.	808-537-5291
IL	Bensenville, Hamilton/Avnet Elctrns.	312-860-7780
IL	Bensenville, Hall-Mark Elctrns.	312-860-3800
IL	Champaign, Klaus Radio	217-356-1896
IL	Chicago, Electronic Connector	312-767-2200
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Chicago, Bell Elctrns.	312-982-9210
IL	Elk Grove Village, Kierulff Elctrns.	312-640-0200
IL	Elk Grove Village, Pioneer/Chicago	312-437-9680
IL	La Salle, Klaus Radio	815-223-7400
IL	Palatine, Ohm Elctrns.	312-359-5500
IL	Peoria, Klaus Radio	309-691-4840
IL	Quincy, Klaus Radio	217-223-7560
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Ft. Wayne, Graham Elctrn.	219-423-3422
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, Hamilton/Avnet Elctrns.	317-844-9333
IN	Indianapolis, Graham Elctrns.	317-634-8202
IN	Indianapolis, Pioneer/Ind.	317-849-7300
IA	Cedar Rapids, Arrow Elctrns.	319-395-7230
IA	Cedar Rapids, DEECO, Inc.	319-365-7551
IA	Eldridge, Klaus Radio	319-285-8484
KS	Lenexa, Hall-Mark Elect.	913-888-4747
KS	Overland Park, Hamilton/Avnet Elctrns.	913-888-8900
LA	Baton Rouge, Indl. Elctrn. Supp.	504-926-0513
LA	Lafayette, Ralph's of Lafayette	318-234-4507
LA	Shreveport, Indl. Elctrn. Supp.	318-222-9459
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Baltimore, Hall-Mark Elctrns.	301-796-9300
MD	Columbia, Powell Elctrn.	301-621-4070
MD	Columbia, Hamilton/Avnet Elctrns.	301-995-3500
MD	Gaithersburg, Pioneer/Washington	301-948-0710
MD	Rockville, Capitol Radio Whlsrs.	301-881-2270
MD	Timonium, Zebra Elctrns.	301-252-6576
MA	Billerica, Kierulff Elctrns.	617-935-5134
MA	Hingham, Sager Elec. Supp.	617-749-6700
MA	Norwood, Gerber Radio Supp.	617-329-2400
MA	Woburn, Hall-Mark Elctrns.	617-935-9777
MA	Woburn, Arrow Elctrns.	617-933-8130
MA	Woburn, Hamilton/Avnet Elctrns.	617-935-9700
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Ann Arbor, Wedemeyer Elec. Supp.	313-665-8611
MI	Grand Rapids, Hamilton/Avnet Elctrns.	616-243-8805
MI	Livonia, Pioneer/Michigan	313-525-1800
MI	Livonia, R.S. Elect. Corp.	313-525-1155
MI	Livonia, Hamilton/Avnet Elctrns.	313-522-4700
MI	Oak Park, Newark Elctrns.	313-967-0600
MN	Bloomington, Hall-Mark Elect.	612-854-3223
MN	Edina, Kierulff Elctrns.	612-941-7500
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minneapolis, Newark Elctrns.	612-331-6350
MN	Minnetonka, Hamilton/Avnet Elctrns.	612-932-0600
MN	St. Paul, Gopher Elctrns.	612-483-3322
MO	Earth City, Hamilton/Avnet Elctrns.	314-344-1200
MO	Maryland Hgts., Kierulff Elctrns.	314-739-0855
MO	Maryland Hgts., Hall-Mark Elect.	314-291-5350
MO	St. Louis, Arrow Elctrns.	314-567-6888
MO	St. Louis, Olive Indl. Elctrns.	314-426-4500
NE	Lincoln, Scott Elctrn. Supp.	402-466-8221
NE	Omaha, Scott Elctrn. Supp.	402-734-6750
NH	Manchester, Arrow Elect.	603-668-6968
NJ	Cherry Hill, Hall-Mark Elctrns.	609-424-0880
NJ	Cherry Hill, Hamilton/Avnet Elctrns.	609-424-0100

NJ	Fairfield, Hall-Mark Elctrns.	201-575-4415
NJ	Fairfield, Kierulff Elctrns.	201-575-6750
NJ	Fairfield, Hamilton/Avnet Elctrns.	201-575-3390
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Hanover, State Elec. Parts Corp.	201-887-2550
NJ	Marlton, Arrow Elctrns.	609-596-8000
NJ	Moorestown, Arrow Elect.	609-235-1900
NM	Albuquerque, Intl. Elctrns.	505-345-8127
NM	Albuquerque, Hamilton/Avnet Elctrns.	505-765-1500
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	Binghamton, Harvey Elctrns.	607-748-8211
NY	Buffalo, Summit Dist.	716-884-3450
NY	East Syracuse, Hamilton/Avnet Elctrns.	315-437-2641
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Hauppauge, Jaco Elect.	516-273-5500
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Lynbrook, Peerless Radio	516-593-2121
NY	Melville, Hamilton/Avnet Elctrns.	516-454-6060
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Rochester, Simcona Elctrns. Corp.	716-328-3230
NY	Rochester, Hamilton/Avnet Elctrns.	716-475-9130
NY	Rochester, Rochester Radio Supp.	716-454-7800
NY	Ronkonkoma, Hall-Mark Elctrns.	516-737-0600
NY	Ronkonkoma, Conco Elctrns. Corp.	516-467-8200
NC	Cary, Powell Elctrns.	919-467-1212
NC	Greensboro, Kierulff Elctrns.	919-852-9440
NC	Greensboro, Hammond Elec. of Carolina	919-275-6391
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Raleigh, Hamilton/Avnet Elctrns.	919-829-8030
NC	Raleigh, Hall-Mark Elctrns.	919-872-0712
NC	Winston-Salem, Arrow Elect.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cincinnati, Hall-Mark Elctrns.	513-563-5980
OH	Cincinnati, Hughes Peters, Inc.	513-351-2000
OH	Cleveland, Newark Elctrns.	216-447-8860
OH	Cleveland, Hamilton/Avnet Elctrns.	216-831-3500
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Columbus, Elctrns. Mktg. Corp.	614-299-4161
OH	Columbus, Hughes Peters, Inc.	614-294-5351
OH	Dayton, Hamilton/Avnet Elctrns.	513-433-6010
OH	Dayton, Stotts-Friedman	513-298-5555
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Highland Hgts., Hall-Mark Elctrns.	216-473-2907
OH	Solon, Hall-Mark Elctrns.	216-349-4632
OH	Solon, Arrow Elctrns.	216-248-3990
OH	Westerville, Hall-Mark Elctrns.	614-891-4555
OK	Oklahoma City, Trice Wholesale Elctrns.	405-524-4411
OK	Tulsa, Hall-Mark Elctrns.	918-665-3200
OR	Lake Oswego, Hamilton/Avnet Elctrns.	503-635-8157
OR	Portland, Kierulff Elctrns.	503-641-9150
OR	Tigard, Arrow Elctrns.	503-684-1690
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Philadelphia, Almo Elctrns. Corp.	215-698-4000
PA	Philadelphia, Powell Elctrns.	215-365-1900
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
PA	Pittsburgh, CAM/RPC	412-782-3770
PA	Wayne, Peak Elect.	215-293-9000
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Austin, Hall-Mark Elect.	512-258-8848
TX	Austin, Hamilton/Avnet Elctrns.	512-837-8911
TX	Dallas, Kierulff Elctrns.	214-343-2400
TX	Dallas, Intl. Elctrns.	214-233-9323
TX	Dallas, R. V. Weatherford Co.	214-980-1110
TX	Dallas, Hall-Mark Elctrns.	214-341-1147
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	El Paso, Intl. Elctrns.	915-778-9761
TX	Garland, Newark Elctrns.	214-494-5911
TX	Houston, Hamilton/Avnet Elctrns.	713-780-1771
TX	Houston, R. V. Weatherford Co.	713-688-7406
TX	Houston, Hall-Mark Elctrns.	713-781-6100
TX	Irving, Hamilton/Avnet Elctrns.	214-659-4111
TX	Richardson, Fisher Brownell	214-235-3177
TX	Stafford, Harrison Equip.	713-879-2729
TX	Stafford, Arrow Elctrns.	713-491-4100
UT	Salt Lake City, Kierulff Elctrns.	801-973-6913
UT	Salt Lake City, Arrow Elctrns.	801-539-1135
UT	Salt Lake City, Hamilton/Avnet Elctrns.	801-972-4300
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
WA	Bellevue, Arrow Elctrns.	206-643-4800
WA	Bellevue, Hamilton/Avnet Elctrns.	206-643-3950
WA	Bellevue, Wyle Dist. Grp.	206-453-8300
WA	Bellevue, Almac/Stroum Elctrns.	206-643-9992
WA	Seattle, R. V. Weatherford Co.	206-243-6340
WA	Tukwila, Kierulff Elctrns.	206-575-4420
WI	Madison, Arrow Elctrns.	608-273-4977
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Milwaukee, Elctrn. Expeditors	414-228-8100
WI	New Berlin, Hamilton/Avnet Elctrns.	414-784-4510
WI	Oak Creek, Hall-Mark Elctrns.	414-761-3000
WI	Oak Creek, Arrow Elctrn.	414-764-6600

TRW CYLINDRICAL CONNECTOR DIV., TRW Electronic Components Grp., 8821 Science Center Dr., Minneapolis, MN 55428, Tel: 612-537-1010, TWX: 910-576-2748; *Sls. Mgr.:* Gene Schmidt; *Dist. Mgr.:* Gene Schmidt .... **2•**1716-1735

Local Sales Offices & Reps

AL	Huntsville, TRW/ECG	205-533-7600
AZ	Scottsdale, TRW/ECG	602-994-0441
CA	Los Angeles, ISDS	213-478-0183
CA	Mountain View, Straube Assocs.	415-969-6060
CA	San Diego, ISDS	714-571-1544
CA	Santa Ana, ISDS	714-973-2162
CA	Woodland Hills, ISDS	213-883-7130
CO	Westminster, Straube Assocs.	303-426-0890
CT	Rowayton, TRW/ECG	203-853-4466
FL	Ft. Lauderdale, TRW/ECG	305-772-3000
FL	Orlando, TRW/ECG	305-857-3650
GA	Norcross, TRW/ECG	404-447-6154
IL	Chicago, TRW/ECG	312-693-7730
IN	Ft. Wayne, R. O. Whitesell & Assocs.	219-432-5591
IN	Indianapolis, R. O. Whitesell & Assocs.	317-359-9283
IN	Kokomo, R. O. Whitesell & Assocs.	317-457-9127
IA	Cedar Rapids, C. H. Horn & Assocs.	319-393-8703
KS	De Soto, Midtec Assocs.	913-441-6565
KY	Louisville, R. O. Whitesell & Assocs.	502-426-7696
MA	Framingham, TRW/ECG	617-620-0625
MI	Grand Rapids, R. O. Whitesell & Assocs.	616-942-5420
MI	Southfield, R. O. Whitesell & Assocs.	313-559-5454
MI	St. Joseph, R. O. Whitesell & Assocs.	616-983-7337
MN	Minneapolis, TRW/ECG	612-854-6616
MO	St. Louis, J. G. Macke Co.	314-432-2830
NY	Rochester, TRW/ECG	716-424-2830
NC	Greensboro, TRW/ECG	919-852-4676
OH	Cincinnati, R. O. Whitesell & Assocs.	513-521-2290
OH	Cleveland, R. O. Whitesell & Assocs.	216-447-9020
OH	Columbus, R. O. Whitesell & Assocs.	614-888-9396
OH	Dayton, R. O. Whitesell & Assocs.	513-298-9546
OR	Tigard, TRW/ECG	503-620-5032
PA	Bala Cynwyd, TRW/ECG	215-667-3400
PA	Pittsburgh, R. O. Whitesell & Assocs.	412-963-6161
TN	Greeneville, R. O. Whitesell & Assocs.	615-639-6154
TX	Austin, TRW/ECG	512-345-2331
TX	Dallas, TRW/ECG	214-248-8000
TX	El Paso, TRW/ECG	915-594-8259
TX	El Paso, Straube Assocs.	915-594-8259
TX	Houston, TRW/ECG	713-772-5541
UT	Salt Lake City, Straube Assocs.	801-263-2640
VA	Richmond, TRW/ECG	804-288-8334
WA	Bellevue, TRW/ECG	206-641-9996
WI	Brookfield, TRW/ECG	414-784-7773

Local Distributors

CA	Brea, Aeroflite	714-773-4251
CA	Chatsworth, Arrow Elctrns.	213-701-7500
CA	Newport Beach, Arrow Elctrns.	714-851-8961
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CO	Denver, Arrow Elctrns.	303-758-2100
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Palm Bay, Arrow Elctrns.	305-725-1480
GA	Norcross, Arrow Elctrns.	404-449-8252
IL	Chicago, Electronic Connector	312-767-2200
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IA	Cedar Rapids, Arrow Elctrns.	319-395-7230
MD	Baltimore, Arrow Elctrns.	301-247-5200
MA	Woburn, Arrow Elctrns.	617-933-8130
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MN	Edina, Arrow Elctrns.	612-830-1800
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Moorestown, Arrow Elctrns.	609-235-1900
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Ronkonkoma, Conco	516-467-8200
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Solon, Arrow Elctrns.	216-248-3990
PA	Monroeville, Arrow Elctrns.	412-856-7000
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Dallas, Hall-Mark	214-341-1147
TX	Houston, Hall-Mark	713-781-6100
TX	Stafford, Arrow Elctrns.	713-491-4100
UT	Salt Lake City, Arrow Elctrns.	801-539-1135
WA	Bellevue, Arrow Elctrns.	206-643-4800
WI	Madison, Arrow Elctrns.	608-273-4977
WI	Oak Creek, Arrow Elctrns.	414-764-6600

TRW, Dynalco Controls Div., 5200 NW 37th, P.O. Box 8187, Ft. Lauderdale, FL 33310, Tel: 305-739-4300, Telex: 514833; Empl.: 125; *Sls. Mgr.:* Kurlin Wilson; *Dist. Mgr.:* Joe Stephens

TRW ELECTRONIC COMPONENTS GRP., 2525 E. El Segundo Blvd., El Segundo, CA 90245, Tel 213-536-0600

TRW FIBER OPTIC PRODS., CONNECTOR DIV. TRW Elctrn. Comps. Grp., 401 N. Broad St. Philadelphia, PA 19108, Tel: 215-922-8900, TWX 710-670-2286; *Sls. Mgr.:* James Finnerfock .... **2•**1693, 169

TRW INDUCTIVE PRODUCTS DIV., 150 Varick St., New York, NY 10013, Tel: 212-255-3500, TWX 710-581-2722; Empl.: 325; *Sls. Mgr.:* A. Profeta .... **1A•**1298-1305, 1642, 2338-236

Local Sales Offices & Reps

AL	Huntsville, TRW/ECG	205-533-760
AZ	Scottsdale, TRW/ECG	602-994-044
CA	Los Angeles, Integrated Sls.	213-478-018
CA	Mountain View, Straube Assocs.	415-969-606
CA	San Diego, Integrated	619-571-154
CA	Santa Ana, Integrated	714-973-216
CA	Woodland Hills, Integrated Sls.	213-883-713
CO	Westminster, Straube Assocs.	303-426-089
CT	Rowayton, TRW/ECG	203-853-446
FL	Fort Lauderdale, TRW/ECG	305-772-300
FL	Orlando, TRW/ECG	305-857-365
GA	Norcross, TRW/ECG	404-447-615
IL	Chicago, TRW/ECG	312-693-773
IN	Fort Wayne, R.O. Whitesell Assoc.	219-432-559
IN	Indianapolis, R.O. Whitesell Assoc.	317-359-928
IN	Kokomo, R.O. Whitesell Assoc.	317-457-912
IA	Cedar Rapids, C.H. Horn & Assocs.	319-393-870
KS	DeSoto, Midtec Assocs.	913-441-656
KY	Louisville, R.O. Whitesell Assoc.	502-426-769
MD	Columbia, TRW/ECG	301-964-911
MA	Framingham, TRW/ECG	617-620-062
MI	Grand Rapids, R.O. Whitesell Assoc.	616-942-542
MI	Southfield, R.O. Whitesell Assoc.	313-559-545
MI	St. Joseph, R.O. Whitesell Assoc.	616-983-733
MN	Minneapolis, TRW/ECG	612-854-661
MO	St. Louis, John G. Macke Co.	314-432-283
NJ	Rowayton, TRW/ECG	203-853-446
NM	El Paso, S.W. Sales	915-594-825
NY	Fairport, TRW/ECG	716-425-377
NY	Rowayton, Conn., TRW/ECG	203-853-446
NC	Greensboro, TRW/ECG	919-852-467
OH	Cincinnati, R.O. Whitesell Assoc.	513-521-229
OH	Cleveland, R. O. Whitesell Assoc.	216-447-902
OH	Columbus, R.O. Whitesell Assoc.	614-888-939
OH	Dayton, R.O. Whitesell Assoc.	513-298-954
OR	Portland, TRW/ECG	503-620-50
PA	Bala Cynwyd, TRW/ECG	215-667-34
PA	Pittsburgh, R.O. Whitesell Assoc.	412-963-61
TN	Greeneville, R.O. Whitesell Assoc.	615-639-61
TX	Austin, Technology Sls. Co.	512-345-23
TX	Dallas, TRW/ECG	214-248-80
TX	El Paso, S.W. Sls.	915-594-82
TX	Houston, TRW/ECG	713-772-55
UT	Salt Lake City, Straube Assocs.	801-263-26
VA	Richmond, TRW/ECG	804-288-83
WA	Bellevue, TRW/ECG	206-641-99
WI	Brookfield, TRW/ECG	414-784-77
EXP	PR, Rio Piedras, Elctrn. Sls. Assocs.	809-769-29

Local Distributors

AZ	Tempe, Arrow	602-968-48
CA	Chatsworth, Arrow	213-701-75
CA	El Segundo, Hall-Mark	213-643-91
CA	Garden Grove, Bell	714-220-06
CA	San Diego, Arrow	619-565-48
CA	San Diego, Weatherford	619-695-17
CA	San Diego, Hall-Mark	619-268-12
CA	San Jose, Hall-Mark	408-946-09
CA	San Jose, Irvine	714-540-56
CA	Sunnyvale, Arrow	
CA	Sunnyvale, Weatherford	408-738-86
CO	Denver, Weatherford	303-428-69
CT	Wallingford, Arrow	203-265-77
FL	St. Petersburg, Hall-Mark	813-576-86
IL	Schaumburg, Arrow	312-397-34
IN	Indianapolis, Pioneer/Indiana	317-849-73
IN	Indianapolis, Arrow	317-243-93
MD	Columbia, Hall-Mark	301-988-98
MD	Gaithersburg, Pioneer/Washington	301-921-06
MA	Hall-Mark, Woburn	617-935-97
MN	Minneapolis, Newark	612-331-63
NJ	Cherry Hill, Hall-Mark	609-424-7
NJ	Fairfield, Hall-Mark	201-575-44
NJ	Fairfield, Arrow	201-575-5
NJ	Malton, Arrow	609-596-8
NM	Albuquerque, International Elctrns.	505-345-8
NY	Rochester, Newark	716-473-6
NC	Charlotte, Pioneer/Carolina	704-527-8
NC	Hall-Mark, Arrow	919-872-0
NC	Raleigh, Arrow	919-876-3

	Centerville, Arrow	513-435-5563
	Valley View, Newark	216-447-8860
	Westerville, Hall-Mark	614-891-4555
	Tigard, Arrow	503-684-1690
	Addison, Weatherford	214-931-7333
	Austin, Arrow	512-835-4180
	Austin, Hall-Mark	512-258-8848
	Dallas, Hall-Mark	214-341-1147
	El Paso, International Elctrns.	915-598-3406
	Garland, Newark	214-487-8144
	Bellevue, Arrow	206-643-4800

RW LSI PRODUCTS, PO Box 2472, La Jolla, CA 92038, Tel: 619-457-1000, Telex: 697957, TWX: 910-335-1571; Empl.: 400; *Sls. Mgr.:* Doug Turnage; *Dist. Mgr.:* Ron Courtois

RW MICROWAVE, 825 Stewart Dr., Sunnyvale, CA 94086, Tel: 408-732-0880, TWX: 910-339-9207; FSC No.: 21847; Empl.: 600; *Sls. Mgr.:* J. Moore

RW MOTOR DIVISION, Industrial/Commerical Products, Napierfield Road, Postal Route 6, Box M-30A, Dothan, AL 36303, Tel: 205-983-3542, Telex: 810-744-1000; *Sls. Mgr.:* Dave Hall .... **1B**•1120

RW MOTOR DIV. (MILITARY), 2275 Stanley Ave., Dayton, OH 45404, Tel: 513-228-3171, Telex: 288-224, TWX: 810-459-1642; Empl.: 580; *Sls. Mgr.:* Bill Pelfrey; *Dist. Mgr.:* Tom Coyle .... **1B**•1186-1204; **2**•1852, 1853

Local Sales Offices & Reps

Huntsville, TRW/ECG	205-533-7600
Scottsdale, TRW/ECG	602-994-0441
Los Angeles, Integrated Sls.	213-478-0183
Mountain View, Straube Assocs.	415-969-6060
San Diego, Integrated Sls.	619-571-1544
Santa Ana, Integrated Sls.	714-973-2162
Woodland Hills, Integrated Sls.	213-883-7130
Westminster, Straube Assocs.	303-426-0890
Rowayton, TRW/ECG	203-853-4466
Ft. Lauderdale, TRW/ECG	305-772-3000
Orlando, TRW/ECG	305-857-3650
Norcross, TRW/ECG	404-447-6154
Chicago, TRW/ECG	312-693-7730
Ft. Wayne, R. O. Whitesell & Assocs.	219-432-5591
Indianapolis, R. O. Whitesell & Assocs.	317-359-9283
Kokomo, R. O. Whitesell & Assocs.	317-457-9127
Cedar Rapids, C. H. Horn & Assocs.	319-393-8703
De Soto, Midtec Assoc.	913-441-6565
Louisville, R. O. Whitesell & Assocs.	502-426-7696
Baltimore, TRW/ECG	301 964-9110
Framingham, TRW/ECG	617-620-0625
Grand Rapids, R. O. Whitesell & Assocs.	616-942-5420
Southfield, R. O. Whitesell & Assocs.	313-559-5454
St. Joseph, R. O. Whitesell & Assocs.	616-983-7337
Minneapolis, TRW/ECG	612-854-6616
St. Louis, John G. Macke Co.	314-432-2830
Fairport, TRW/ECG	716-425-3775
Greensboro, TRW/ECG	919-852-4676
Cincinnati, R. O. Whitesell & Assocs.	513-521-2290
Cleveland, R. O. Whitesell & Assocs.	216-447-9020
Columbus, R. O. Whitesell & Assocs.	614-888-9396
Dayton, R. O. Whitesell & Assocs.	513-298-9546
Tigard, N. R. Schultz Co.	503-620-5032
Bala Cynwyd, TRW/ECG	215-667-3400
Pittsburgh, R. O. Whitesell & Assocs.	412-963-6161
Greeneville, R. O. Whitesell & Assocs.	615-639-6154
Austin, Technlg. Sls.	512-346-9940
Dallas, TRW/ECG	214-248-8000
El Paso, TRW/ECG	915-594-8259
Houston, TRW/ECG	713-772-5541
Salt Lake City, Straube Assocs.	801-263-2640
Richmond, TRW/ECG	804-288-8334
Bellevue, TRW/ECG	206-641-9996
Brookfield, TRW/ECG	414-784-7773

Local Distributors

	Huntsville, Hamilton/Avnet Elctrns.	205-837-7210
	Huntsville, Arrow Elctrns.	205-882-2730
	Huntsville, Hallmark Elctrns.	205-837-8700
	Phoenix, Hallmark Electronics	602-243-6601
	Tempe, Fisher Brownell	602-967-1464
	Tempe, Arrow Elctrns.	602-968-4800
	Tempe, Hamilton/Avnet Elctrns.	602-231-5100
	Alhambra, Fisher Brownell	213-289-0255
	Chatsworth, Arrow Elctrns.	213-701-7500
	Chatsworth, Avnet Elctrns.	213-700-2600
	Costa Mesa, Avnet Elctrns.	714-754-6111
	Culver City, Hamilton/Avnet Elctrns.	213-558-2252
	El Segundo, Hallmark Elctrns.	213-643-9101
	Sacramento, Hamilton/Avnet Elctrns.	916-925-2216
	San Diego, Hallmark Elctrns.	619-268-1201
	San Diego, Fisher Brownell	619-560-8545
	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, Hamilton/Avnet Elctrns.	619-571-7510
CA	San Jose, Hallmark Elctrns.	408-946-2575
CA	Santa Clara, Fisher Brownell	408-988-6041
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Hallmark Elctrns.	408-946-0900
CA	Sunnyvale, Hamilton/Avnet Elctrns.	408-743-3355
CA	Tustin, Arrow Elctrns.	714-838-5422
CO	Aurora, Arrow Elctrns.	303-696-1111
CO	Englewood, Hallmark Elctrns.	303-790-1662
CO	Englewood, Hamilton/Avnet Elctrns.	303-740-1000
CT	Danbury, Hamilton/Avnet Elctrns.	203-797-2800
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Clearwater, Hallmark Elctrns.	813-530-4543
FL	Ft. Lauderdale, Hamilton/Avnet Elctrns.	305-971-2900
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Ft. Lauderdale, Hallmark Elctrns.	305-971-9280
FL	Orlando, Hallmark Elctrns.	305-855-4020
FL	Palm Bay, Arrow Elctrns.	305-725-1480
FL	St. Petersburg, Hamilton/Avnet Elctrns.	813-576-3930
FL	Winter Park, Hamilton/Avnet Elctrns.	305-628-3888
GA	Norcross, Hamilton/Avnet Elctrns.	404-447-7507
GA	Norcross, Hallmark Elctrns.	404-447-8000
GA	Norcross, Arrow Elctrns.	404-449-8252
IL	Bensenville, Hamilton/Avnet Elctrns.	312-860-7700
IL	Bensenville, Hallmark Elctrns.	312-860-3800
IL	Elk Grove Village, Pioneer/Chicago	312-437-9680
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Carmel, Hamilton/Avnet Elctrns.	317-844-9333
IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, Pioneer/Indiana	317-849-7300
KS	Lenexa, Hallmark Elctrns.	913-888-4747
KS	Overland Park, Hamilton/Avnet Elctrns.	913-888-8900
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Bethesda, Arrow Elctrns.	301-564-3000
MD	Columbia, Hallmark Elctrns.	301 988-9800
MD	Columbia, Hamilton/Avnet Elctrns.	301-995-3500
MA	Woburn, Hallmark Elctrns.	617-935-9777
MA	Woburn, Arrow Elctrns.	617-933-8130
MA	Woburn, Hamilton/Avnet Elctrns.	617-273-7500
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Grand Rapids, Hamilton/Avnet Elctrns.	616-243-8805
MI	Livonia, Pioneer/Michigan	313-525-1800
MI	Livonia, Hamilton/Avnet Elctrns.	313-522-4700
MN	Bloomington, Hallmark Elctrns.	612-854-3223
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minnetonka, Pioneer/Twin Cities	612-935-5444
MN	Minnetonka, Hamilton/Avnet Elctrns.	612-932-0600
MO	Earth City, Hamilton/Avnet Elctrns.	314-344-1200
MO	Maryland Heights, Hallmark Elctrns.	314-291-5350
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-688-6968
NJ	Cherry Hill, Hallmark Elctrns.	609-424-7300
NJ	Cherry Hill, Hamilton/Avnet Elctrns.	609-424-0100
NJ	Fairfield, Hamilton/Avnet Elctrns.	201-575-3390
NJ	Fairfield, Hallmark Elctrns.	201-575-4415
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Marlton, Arrow Elctrns.	609-596-8000
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NM	Albuquerque, Hamilton/Avnet Elctrns.	505-765-1500
NY	E. Syracuse, Hamilton/Avnet Elctrns.	315-437-2641
NY	Hauppauge, Jaco Elctrns.	516-273-5500
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Hauppauge, Hamilton/Avnet Elctrns.	516-434-7421
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Rochester, Hamilton/Avnet Elctrns.	716-475-9130
NY	Rochester, Arrow Elctrns.	716-427-0300
NY	Ronkonkoma, Hallmark Elctrns.	516-737-0600
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Raleigh, Hallmark Elctrns.	919-872-0712
NC	Raleigh, Hamilton/Avnet Elctrns.	919-878-0819
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cincinnati, Hallmark Elctrns.	513-563-2980
OH	Cleveland, Hamilton/Avnet Elctrns.	216-831-3500
OH	Cleveland, Pioneer/Cleveland	216-587-3600
OH	Dayton, Pioneer/Dayton	513-236-9900
OH	Dayton, Hamilton/Avnet Elctrns.	513-443-0610
OH	Solon, Arrow Elctrns.	216-248-3990
OH	Solon, Hallmark Elctrns.	216-349-4632
OH	Westerville, Hallmark Elctrns.	614-891-4555
OK	Tulsa, Hallmark Elctrns.	918-665-3200
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OR	Tigard, Arrow Elctrns.	503-684-1690
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Pittsburgh, Pioneer/Pittsburgh	412-782-2300
TX	Austin, Arrow Elctrns.	512-835-4180
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TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Dallas, Hall-Mark Elctrns.	214-343-5000
TX	Houston, Hamilton/Avnet Elctrns.	713-780-1771
TX	Houston, Hallmark Elctrns.	713-781-6100
TX	Houston, Arrow Elctrns.	713-530-4700
TX	Irving, Hamilton/Avnet Elctrns.	214-659-4111
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UT	Salt Lake City, Hamilton/Avnet Elctrns.	801-972-2800
WA	Bellevue, Hamilton/Avnet Elctrns.	206-643-3950
WA	Bellevue, Arrow Elctrns.	206-643-4800
WI	New Berlin, Hamilton/Avnet Elctrns.	414-784-4510
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AL	Huntsville, TRW/ECG	205-533-7600
AZ	Scottsdale, TRW/ECG	602-994-0441
CA	Los Angeles, Integrated Sys. & Device Sls.	213-478-0183
CA	Mountain View, Straube Assocs.	415-969-6060
CA	San Diego, Integrated Sys. & Device Sls.	619-571-1544
CA	Santa Ana, Integrated Sys. & Device Sls.	714-973-2162
CA	Woodland Hills, Integrated Sys. & Device Sls.	213-883-7130
CO	Westminster, Straube Assocs.	303-426-0890
CT	Rowayton, TRW/ECG	203-853-4466
FL	Ft. Lauderdale, TRW/ECG	305-772-3000
FL	Orlando, TRW/ECG	305-857-3650
GA	Norcross, TRW/ECG	404-447-6154
IL	Chicago, TRW/ECG	312-693-7730
IN	Ft. Wayne, Robert O. Whitesell	219-432-5591
IN	Indianapolis, Robert O. Whitesell	317-359-9238
IN	Kokomo, Robert O. Whitesell	317-457-9127
IA	Cedar Rapids, C. H. Horne & Assocs.	319-393-8703
KS	DeSoto, MIDTEC Assocs.	913-441-6565
KY	Louisville, Robert O. Whitesell	502-426-7696
MD	Columbia, TRW/ECG	301-964-9110
MA	Framingham, TRW/ECG	617-620-0625
MA	Maynard, Byrne Assoc.	617-897-3131
MI	Farmington Hills, TRW/ECG	313-478-7210
MI	Grand Rapids, Robert O. Whitesell	616-942-5420
MI	Southfield, Robert O. Whitesell	313-559-5454
MI	St. Joseph, Robert O. Whitesell	616-983-7337
MN	Minneapolis, TRW/ECG	612-854-6616
MO	St. Louis, John G. Macke Co.	314-432-2830
NM	Albuquerque, S. W. Sales	505-883-1388
NY	Fairport, TRW/ECG	716-425-3775
NC	Greensboro, TRW/ECG	919-852-4676
OH	Cincinnati, Robert O. Whitesell	513-521-2290
OH	Cleveland, Robert O. Whitesell	216-447-9020
OH	Columbus, Robert O. Whitesell	614-888-9396
OH	Dayton, Robert O. Whitesell	513-298-9546
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PA	Bala Cynwyd, TRW/ECG	215-667-3400
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TN	Greenville, Robert O. Whitesell	615-639-6154
TX	Austin, Technology Sls. Co.	512-346-9940
TX	Dallas, TRW/ECG	214-248-8000
TX	El Paso, S.W. Sls.	915-594-8259
TX	Houston, TRW/ECG	713-772-5541
UT	Salt Lake City, Straube Assoc.	801-263-2640
VA	Richmond, TRW/ECG	804-288-8334
WA	Bellevue, TRW/ECG	206-641-9996
WI	Brookfield, TRW/ECG	414-784-7773
PR	Rio Piedras, Electronics Sls. Assoc.	809-769-2911

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AL	Huntsville, Hamilton-Avnet	205-837-7210
AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AL	Huntsville, Pioneer Elctrns.	205-837-9300
AZ	Phoenix, Hall-Mark Elctrns.	602-243-6601
AZ	Tempe, Fisher/Brownell	602-967-1464
AZ	Tempe, Hamilton-Avnet	602-231-5100
AZ	Tempe, Arrow Elctrns.	602-968-4800
CA	Alhambra, Fisher/Brownell	213-289-0255
CA	Chatsworth, Anthem Elctrns.	213-700-1000
CA	Chatsworth, Arrow Elctrns.	213-701-7500
CA	Chatsworth, Integrated Elctrns. Corp.	213-998-2200
CA	Costa Mesa, Avnet Elctrns.	714-754-6111
CA	Costa Mesa, Hamilton Electro Sls.	714-641-4100
CA	Culver City, Hamilton Electro Sls.	213-558-2121
CA	El Segundo, Hall-Mark Elctrns.	213-643-9101
CA	Garden Grove, Bell Inds.	714-220-0681
CA	Gardena, Bell Inds.	213-515-1800
CA	Manhattan Beach, Prime Electro	213-379-3642

CA	Sacramento, Hamilton-Avnet	916-925-2216
CA	San Diego, Hamilton-Avnet	619-571-7510
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	San Diego, Anthem Elctrns.	619-279-5200
CA	San Diego, Hall-Mark Elctrns.	619-268-1201
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CA	Santa Ana, Pacesetter Elctrns.	714-557-7131
CA	Santa Clara, Fisher/Brownell	408-988-6041
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Sunnyvale, Hamilton-Avnet	408-743-3355
CA	Sunnyvale, Pacesetter Elctrns.	408-734-5470
CA	Sunnyvale, Hall-Mark Elctrns.	408-773-9990
CA	Tustin, Anthem Elctrns.	714-730-8000
CA	Tustin, Arrow Elctrns.	714-851-8961
CA	Woodland Hills, Avnet Elctrns.	213-883-0000
CO	Aurora, Arrow Elctrns.	303-696-1111
CO	Englewood, Hamilton-Avnet	303-740-1000
CO	Englewood, Hall-Mark Elctrns.	303-790-1662
CO	Wheatridge, Bell Inds.	303-424-1985
CT	Danbury, Hamilton-Avnet	203-797-2800
CT	Wallingford, Arrow Elctrns.	303-740-1000
FL	Altamonte Spring, Pioneer Elctrns.	305-834-9090
FL	Clearwater, Hall-Mark Elctrns.	813-530-4543
FL	Ft. Lauderdale, Pioneer Elctrns.	305-771-7520
FL	Ft. Lauderdale, Hall-Mark Elctrns.	305-971-9280
FL	Orlando, Hall-Mark Elctrns.	305-855-4020
FL	Orlando, Chip Supp. Co.	305-298-7100
FL	Palm Bay, Arrow Elctrns.	305-725-1480
FL	Winter Park, Hamilton-Avnet	305-628-3888
GA	Norcross, Pioneer Elctrns.	404-448-1711
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
GA	Norcross, Hamilton-Avnet	404-447-7507
GA	Norcross, Arrow Elctrns.	404-449-8252
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IL	Bensenville, Hamilton-Avnet	312-860-7700
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IN	Indianapolis, Arrow Elctrns.	317-243-9353
IN	Indianapolis, R M Elctrns.	317-247-9701
IA	Cedar Rapids, Arrow Elctrns.	319-395-7230
KS	Lenexa, Hall-Mark Elctrns.	913-888-4747
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MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Columbia, Hamilton-Avnet	301-995-3500
MD	Columbia, Hall-Mark Elctrns.	301-988-9800
MD	Gaithersburg, Pioneer Elctrns.	301-921-0660
MA	Newton, Greene-Shaw Elctrns.	617-969-8900
MA	Norwood, Gerber Elctrns.	617-769-6000
MA	Woburn, Hall-Mark Elctrns.	617-935-9777
MA	Woburn, Arrow Elctrns.	617-933-8130
MA	Woburn, Hamilton-Avnet	617-273-7500
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MI	Grand Rapids, Hamilton-Avnet	616-243-8805
MI	Livonia, Hamilton-Avnet	313-522-4700
MI	Livonia, Pioneer Elctrns.	313-525-1800
MI	Wyoming, R M Elctrns.	616-531-9300
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MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minnetonka, Hamilton-Avnet	612-932-0600
MN	Minnetonka, Pioneer Elctrns.	612-935-5444
MO	Earth City, Hamilton-Avnet	314-344-1200
MO	Maryland Hts., Hall-Mark Elctrns.	314-291-5350
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-668-6968
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NJ	Cherry Hill, Hall-Mark Elctrns.	609-424-7300
NJ	Fairfield, Hall-Mark Elctrns.	201-575-4415
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Fairfield, Hamilton-Avnet	201-575-3390
NJ	Marlton, Arrow Elctrns.	609-235-1900
NM	Albuquerque, Intl. Elctrns.	505-345-8127
NM	Albuquerque, Hamilton-Avnet	505-765-1500
NM	Albuquerque, Bell Inds.	505-292-2700
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	East Syracuse, Hamilton-Avnet	315-437-2641
NY	Hauppauge, Arrow Elctrns.	516-231-1000
NY	Liverpool, Arrow Elctrns.	315-652-1000
NY	Melville, Arrow Elctrns.	516-694-6800
NY	Melville, Hamilton-Avnet	516-454-6060
NY	Port Chester, Zeus Comps.	914-937-7400
NY	Rochester, Rochester Radio Supp.	716-454-7800
NY	Rochester, Hamilton-Avnet	716-475-9130
NY	Rochester, Arrow Elctrns.	716-275-0300
NY	Ronkonkoma, Hall-Mark Elctrns.	516-737-0600
NC	Charlotte, Pioneer Elctrns.	704-527-8188
NC	Raleigh, Hall-Mark Elctrns.	919-872-0712
NC	Raleigh, Hamilton-Avnet	919-878-0819
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Cincinnati, Hall-Mark Elctrns.	513-563-5980
OH	Cleveland, Pioneer Elctrns.	216-587-3600
OH	Cleveland, Hamilton-Avnet	216-831-3500
OH	Dayton, Hamilton-Avnet	513-433-0610
OH	Dayton, Pioneer Elctrns.	513-237-9900
OH	Highland Heights, Hall-Mark Elctrns.	216-473-2907
OH	Solon, Arrow Elctrns.	216-248-3990
OH	Westerville, Hall-Mark Elctrns.	614-891-4555
OK	Tulsa, Hall-Mark Elctrns.	918-665-3200
OK	Tulsa, Quality Comps.	918-664-8812
OR	Lake Oswego, Hamilton-Avnet	503-635-8157
OR	Lake Oswego, Bell Inds.	503-241-4115
OR	Tigard, Arrow Elctrns.	503-684-1690
PA	Dallas, Arrow Elctrns.	214-386-7500
PA	Horsham, Pioneer Elctrns.	215-674-4000
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Pittsburgh, Pioneer Elctrns.	412-782-2300
TX	Addison, Quality Comps.	214-387-4949
TX	Austin, Hall-Mark Elctrns.	512-258-8848
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Austin, Pioneer Elctrns.	512-835-4000
TX	Austin, Quality Comps.	512-835-0220
TX	Austin, Hamilton-Avnet	512-837-8911
TX	Dallas, Hall-Mark Elctrns.	214-341-1147
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TX	Dallas, Intl. Elctrns.	214-233-9323
TX	El Paso, Intl. Elctrns.	915-598-3406
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TX	Houston, Arrow Elctrns.	713-530-4700
TX	Houston, Pioneer Elctrns.	713-988-5555
TX	Houston, Hall-Mark Elctrns.	713-781-6100
TX	Irving, Hamilton-Avnet	214-659-4111
TX	Richardson, Fisher/Brown	214-235-3177
TX	Sugarland, Quality Comps.	713-491-2255
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UT	Salt Lake City, Arrow Elctrns.	801-539-1135
UT	Salt Lake City, Bell Inds.	801-972-6969
VA	Richmond, Arrow Elctrns.	804-282-0413
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WA	Bellevue, Arrow Elctrns.	206-653-4800
WA	Bellevue, Bell Inds.	206-747-1515
WI	New Berlin, Classic Comps.	414-786-5300
WI	New Berlin, Hamilton-Avnet	414-784-4510
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AZ	Scottsdale, TRW/ECG	602-994-0441
CA	Los Angeles, Integrated Sls.	213-478-0183
CA	Mountain View, Straube Assocs.	415-969-6060
CA	San Diego, Integrated Sls.	619-571-1544
CA	Santa Ana, Integrated Sls.	714-973-2162
CA	Woodland Hills, Integrated Sls.	213-883-7130
CO	Westminster, Straube Assocs.	303-426-0890
CT	Rowayton, TRW/ECG	203-853-4466
FL	Ft. Lauderdale, TRW/ECG	305-772-3000
FL	Orlando, TRW/ECG	305-857-3650
GA	Norcross, TRW/ECG	404-447-6154
IL	Chicago, TRW/ECG	312-693-7730
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IN	Indianapolis, R. O. Whitesell & Assocs.	317-359-9283
IN	Kokomo, R. O. Whitesell & Assocs.	317-457-9127
IA	Cedar Rapids, C. H. Horn & Assocs.	319-393-8703
KS	De Soto, Midtec Assocs.	913-441-656
KY	Louisville, R. O. Whitesell & Assocs.	502-426-769
MD	Columbia, TRW/ECG	301-964-911
MA	Framingham, TRW/ECG	617-620-062
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MN	Minneapolis, TRW/ECG	612-854-661
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NY	Fairport, TRW/ECG	716-425-377
NC	Greensboro, TRW/ECG	919-852-467
OH	Cincinnati, R. O. Whitesell & Assocs.	513-521-229
OH	Cleveland, R. O. Whitesell & Assocs.	216-447-902
OH	Columbus, R. O. Whitesell & Assocs.	614-888-939
OH	Dayton, R. O. Whitesell & Assocs.	513-298-954
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AL	Huntsville, Arrow Elctrns.	205-882-27
AZ	Phoenix, R. V. Weatherford	602-272-71
AZ	Phoenix, Hamilton/Avnet	602-231-51
AZ	Phoenix, Kierulff	602-243-41
AZ	Tempe, Arrow Electronics	602-968-48
AZ	Tempe, Bell Inds.	602-966-78
AZ	Tucson, Kierulff	602-624-99
CA	Chatsworth, Arrow Elctrns.	213-701-750
CA	Gardena, Bell Inds.	213-515-180
CA	Glendale	213-849-345
CA	Glendale, R. V. Weatherford	213-849-345
CA	Los Angeles, Avnet	213-558-234
CA	Los Angeles, Hamilton	213-558-212
CA	Los Angeles, Kierulff	213-725-032
CA	Orange County, Hamilton	714-641-41
CA	Orange County, Arrow Electronics	714-838-54
CA	Orange County, Avnet	714-754-611
CA	Sacramento, Arrow Electronics	916-925-74
CA	Sacramento, Hamilton/Avnet	916-925-22
CA	San Diego, Hamilton/Avnet	619-571-75
CA	San Diego, Arrow Elctrns.	619-565-48
CA	San Fernando Valley, Hamilton	213-558-23
CA	San Fernando Valley, Avnet	818-700-26
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CA	Sunnyvale, Bell Inds.	408-734-85
CA	Sunnyvale, Arrow Elctrns.	408-745-66
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	Norcross, Arrow Elctrns.	404-449-8252
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	Chicago, Bell Inds.	312-982-9210
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	Indianapolis, Hamilton/Avnet	317-844-9333
	Indianapolis, Arrow Elctrns.	317-243-9353
	Indianapolis, Graham Elctrns.	317-634-8202
	Cedar Rapids, Arrow Elctrns.	319-395-7230
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	Kansas City, Hamilton/Avnet	913-888-8900
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	Edina, Arrow Elctrns.	612-830-1800
	Minneapolis, Hamilton/Avnet	612-932-0600
	Minneapolis, Newark Elctrns.	612-331-6350
	St. Louis, Hamilton/Avnet	314-344-1200
	St. Louis, Arrow Elctrns.	314-567-6888
	Lincoln, Hamilton/Avnet	800-255-6702
	Omaha, Hamilton/Avnet	800-255-6702
	Manchester, Arrow Elctrns.	603-668-6968
	Windham, Newark Elctrns.	603-893-6100
	Cherry Hill, Hamilton/Avnet	609-424-0100
	Fairfield, Arrow Elctrns.	201-575-5300
	Fairfield, Hamilton/Avnet	201-575-3390
	Hanover, State Elctrns.	201-887-2550
	Marlton, Arrow Elctrns.	609-596-8000
	Mountainside, Enox Resistors	201-654-7600
	Albuquerque, Hamilton/Avnet	505-765-1500
	Albuquerque, Intl. Elctrns.	505-345-8127
	Albuquerque, Arrow Elctrns.	505-243-4566
	Hauppauge, Arrow Elctrns.	516-231-1000
	Hauppauge, Jaco Elctrns.	516-273-5500
	Liverpool, Arrow Elctrns.	315-652-1000
	Melville, Hamilton/Avnet	516-454-6060
	Melville, Arrow Elctrns.	516-694-6800
	Rochester, Hamilton/Avnet	716-475-9130
	Rochester, Arrow Elctrns.	716-275-0300
	Rochester, Rochester Radio	716-454-7800
	Syracuse, Hamilton/Avnet	315-437-2641
	Raleigh, Hamilton/Avnet	919-878-0810
	Raleigh, Resco/Raleigh	919-781-5700
	Raleigh, Arrow Elctrns.	919-876-3132
	Winston-Salem, Arrow Elctrns.	919-725-8711
	Centerville, Arrow Elctrns.	513-435-5563
	Cleveland, Hamilton/Avnet	216-831-3500
	Columbus, Electronic Mktg.	614-299-4161
	Dayton, Bell Inds.	513-434-8231
	Dayton, Hamilton/Avnet	513-433-0610
	Kettering, Elctrns. Mktg. Corp.	513-439-4711
	Solon, Arrow Elctrns.	216-248-3990
	Valley View, Newark Elctrns.	216-447-8860
	Tulsa, Arrow Elctrns.	918-665-7700
	Portland, Hamilton/Avnet	503-635-8831
	Philadelphia, Hamilton/Avnet	215-831-1300
	Philadelphia, Philadelphia Elctrns.	215-568-7400
	Pittsburgh, Hamilton/Avnet	800-321-6890
	Pittsburgh, Arrow Elctrns.	412-351-4000
	Wayne, Peak Elctrns.	215-293-9000
	Columbia, Hamilton/Avnet	800-334-1597
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Austin, Hamilton/Avnet	512-837-8911
TX	Dallas, Hamilton/Avnet	214-659-4111
TX	Dallas, Intl. Elctrns.	214-233-9323
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Dallas, R. V. Weatherford	214-980-1110
TX	El Paso, Intl. Elctrns.	915-598-3406
TX	Garland, Newark Elctrns.	214-494-5911
TX	Houston, Arrow Elctrns.	713-530-4700
TX	Houston, Hamilton/Avnet	713-780-1771
TX	Houston, R. V. Weatherford	713-688-7406
TX	Richardson, Jaco Elctrns.	214-235-9575
UT	Salt Lake City, Hamilton/Avnet	801-972-2800
UT	Salt Lake City, Arrow Elctrns.	801-539-1135
VA	Richmond, Arrow Elctrns.	804-282-0413
WA	Bellevue, Arrow Elctrns.	206-643-4800
WA	Seattle, Hamilton/Avnet	206-453-5844
WA	Seattle, Robert E. Priebe Co.	206-682-8242
WV	Charleston, Hamilton/Avnet	800-543-4783
WV	Huntington, Hamilton/Avnet	800-543-4783
WI	Madison, Arrow Elctrns.	608-273-4977
WI	Milwaukee, Hamilton/Avnet	414-784-4510
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Oak Creek, Arrow Elctrns.	414-764-6600

TRW, RF Devices Div., 14520 Aviation Blvd., Lawndale, CA 90260, Tel: 213-536-0888, TWX: 910-325-6206; Empl.: 1000; *Sls. Mgr.:* D. Faigenblat; *Dist. Mgr.:* G. Vegvari

TRW UTC TRANSFORMERS, See TRW Inductive Products Div.

T S PRODUCTS, 12455 Brandford St., Unit 22, Arleta, CA 91331, Tel: 818-896-6676; *Sls. Mgr.:* Wm. Denzel; *Dist. Mgr.:* Wm. Denzel ....**3**•1119

TTE, INC., 2214 S. Barry Ave., Los Angeles, CA 90064, Tel: 213-478-8224; FSC No.: 07766; *Sls. Mgr.:* S. J. Sodaro ....**1A**•1632-1641

Local Sales Offices & Reps

CA	Culver City, Sodaro	213-478-7733

TTS-TELECOM TERMINAL SYSTEMS, 3877 Grandview Blvd., Los Angeles, CA 90066, Tel: 213-390-9494, Telex: 182405, TWX: 910-343-6453; Empl.: 18; *Sls. Mgr.:* L. Winters

TUCKER ELCTRNS., Box 461060, Garland, TX 75046, Tel: 214-348-8800, 800-527-4642, Telex: 79-1726; Empl.: 45; *Sls. Mgr.:* Clay Aclin

TUNGSTONE BATTERIES, INC., 18 Billings St., Sharon, MA 02067, Tel: 617-784-2000, Telex: 951908; Empl.: 8; *Sls. Mgr.:* J. McMahon

TURNER DESIGNS, 2247 Old Middlefield Way, Mountain View, CA 94043-2489, Tel: 415-965-9800; Empl.: 16; *Sls. Mgr.:* John Griffin

Local Sales Offices & Reps

CA	Garden Grove, Advanced Digital Grp.	714-897-0319
CA	Santa Clara, MANCO	408-496-6611
CO	Wheat Ridge, Active Component Technlg.	303-422-9229
MD	Baltimore, Rep-Tron, Inc.	301-799-7490
MA	North Reading, Martindale Assocs.	617-942-0514
NY	Fayetteville, Martin P. Andrews	315-637-5291
TX	Addison, Active Component Technlg.	214-980-1888
TX	Austin, Active Component Technlg.	512-452-5254

TUSONIX, INC., 7741 N. Business Park Drive, P.O. Box 37144, Tucson, AZ 85740-7144, Tel: 602-744-0400, Telex: 102-299640, TWX: 310-299640; FSC No.: 59660; *Sls. Mgr.:* Robert H. Jones; *Dist. Mgr.:* John Hohlrich ....**1A**•1201-1207

Local Sales Offices & Reps

AZ	Tucson, Tusonix, Inc.	602-744-0400
CA	N. Hollywood, Tusonix	818-509-0449
CA	Redwood City, James S. Heaton Co.	415-367-9000
FL	Winter Park, Tusonix	305-647-2936
IA	Cedar Rapids, J.R. Sls. Engrg.	319-393-2232
MA	Andover, Richard Purinton Inc.	617-475-7055
NY	Rochester, Tusonix, Inc.	716-328-4070
NC	Greensboro, Tusonix	919-292-4286
OR	Portland, Components West	503-643-5588
WA	Renton, Components West	206-271-5252

Local Distributors

AL	Huntsville, Powell Elctrns.	205-539-2731
AZ	Tempe, Powell Elctrns.	602-967-7538
AZ	Tempe, Arrow Elctrns.	602-968-4800
CA	Chatsworth, Arrow Elctrns.	213-701-7500
CA	Costa Mesa, Powell Elctrns.	714-754-1717
CA	Inglewood, Newark Electrns.	213-678-0441
CA	San Diego, Arrow Elctrns.	619-565-4800
CA	Sunnyvale, Powell Elctrns.	408-739-4321
CA	Sunnyvale, Arrow Elctrns.	408-745-6600
CA	Tustin, Arrow Elctrns.	714-838-5422
CO	Aurora, Arrow Elctrns.	303-696-1111
CO	Denver, Newark Elctrns.	303-423-7941
CT	Wallingford, Arrow Elctrns.	203-265-7741
FL	Dania, Summit	305-920-6253
FL	Ft. Lauderdale, Arrow Elctrns.	305-776-7790
FL	Ft. Lauderdale, Newark Elctrns.	305-587-2372
FL	Ft. Lauderdale, Powell Elctrns.	305-979-5000
FL	Palm Bay, Arrow Elctrns.	305-725-1480
GA	Norcross, Arrow Elctrns.	404-449-8252
IL	Chicago, Newark Elctrns.	312-638-4411
IL	Schaumburg, Arrow Elctrns.	312-397-3440
IN	Indianapolis, Arrow Elctrns.	317-243-9353
MD	Baltimore, RESCO	301-529-0500
MD	Baltimore, Arrow Elctrns.	301-247-5200
MD	Beltsville, RESCO	301-937-9100
MD	Beltsville, Powell Elctrns.	301-937-4030
MA	Westborough, Powell Elctrns.	617-366-6100
MA	Woburn, Arrow Elctrns.	617-933-8130
MI	Ann Arbor, Arrow Elctrns.	313-971-8220
MN	Edina, Arrow Elctrns.	612-830-1800
MN	Minneapolis, Newark Electrns.	612-331-6350
MO	St. Louis, Arrow Elctrns.	314-567-6888
NH	Manchester, Arrow Elctrns.	603-668-6968
NJ	Englewood, Powell Elctrns.	201-894-0800
NJ	Fairfield, Arrow Elctrns.	201-575-5300
NJ	Moorestown, Arrow Elctrns.	609-235-1900
NM	Albuquerque, Arrow Elctrns.	505-243-4566
NY	Bohemia, Key Comps.	516-567-7500
NY	Buffalo, Summit	716-884-3450
NY	Hauppauge, Arrow Elctrns.	315-652-1000
NY	Hauppauge, Fairmont Elctrns. Sls.	516-231-3313
NY	Liverpool, Arrow Elctrns.	516-694-6800
NY	Melville, Arrow Elctrns.	516-694-6800
NY	Rochester, Summit	716-334-8110
NY	Rochester, Arrow Elctrns.	716-275-0300
NC	Gary, Powell Elctrns.	919-467-1212
NC	Raleigh, RESCO	919-781-5700
NC	Raleigh, Arrow Elctrns.	919-876-3132
NC	Winston-Salem, Arrow Elctrns.	919-725-8711
OH	Centerville, Arrow Elctrns.	513-435-5563
OH	Solon, Arrow Elctrns.	216-248-3990
OK	Tulsa, Altair	918-252-5781
PA	Monroeville, Arrow Elctrns.	412-856-7000
PA	Philadelphia, Powell Elctrns.	215-365-1900
TX	Austin, Arrow Elctrns.	512-835-4180
TX	Dallas, Arrow Elctrns.	214-386-7500
TX	Houston, Arrow Elctrns.	713-530-4700
TX	Houston, Altair	713-462-3029
TX	Irving, Powell Elctrns.	214-350-4186
TX	Richardson, Altair	214-231-5166
WA	Bellvue, Arrow Elctrns.	206-643-4800
WI	Oak Creek, Arrow Elctrns.	414-764-6600

TUSTIN ELCTRNS. CO., 1431 E. Saint Andrews Pl., Santa Ana, CA 92705, Tel: 714-549-0391; FSC No.: 7025-0010; *Sls. Mgr.:* Saul Tunkelrott

TWP, INC., 2133 4th St., Berkeley, CA 94710, Tel: 415-548-4434, Telex: 717-267; Empl.: 10; *Sls. Mgr.:* R. Moreno

TYCO INSTR. DIV., See Data Instrs.

TYTON CORP., Box 23055, 7930 N. Faulkner Rd., Milwaukee, WI 53223, Tel: 414-355-1130, TWX: 910-262-3094; *Sls. Mgr.:* Tom Bednar

Local Sales Offices & Reps

CA	Encinitas	619-692-3144
CA	Manhattan Beach	714-581-3334
CA	Palmdale	818-343-3527
CO	Denver	303-447-2141
FL	Lake Mary	305-323-0120
GA	Smyrna	404-433-8818
IL	Homewood	312-964-6225
IL	Plano	312-964-6225
IN	Noblesville	317-872-9573
MA	Sekonk	617-376-2166
MI	Holly	313-647-7399
MI	Ypsilanti	313-647-7399
MO	Grandview	314-344-9237
NJ	Middletown	201-671-7034
NY	E. Islip	516-277-6098
NY	Liverpool	315-422-7539
NC	Charlotte	704-376-5269
OH	Elyria	216-888-2800
PA	Drexel Hill	215-853-3330
TN	Nashville	615-747-5888
TX	Dallas	214-253-6611
TX	Humble	713-525-1713
WA	Alderwood Manor	206-622-3195
WI	Milwaukee	414-355-1130

UBER GRAFIC INSTRS., Box 4, Palo Alto, CA 94302, Tel: 415-327-4732; Empl.: 2

UCE, INC., 24 Fitch St., Norwalk, CT 06855, Tel: 203-838-7509; Empl.: 20; *Sls. Mgr.:* Richard Eicher

UID SWITCHES INC., Sub. of ITW, 6615 W. Irving Park Rd., Chicago, IL 60634, Tel: 312-282-4040, Telex: 4330130, TWX: 910-221-0275; *Sls. Mgr.:* R. Schmidt; *Dist. Mgr.:* R. Scrivner

ULTRA CARBON, Box X-747, Bay City, MI 48707, Tel: 517-894-2911, TWX: 810-265-1222; Empl.: 200; *Sls. Mgr.:* R. J. Anthony

ULTRONIX, INC., P.O. Box 1090, Grand Junction, CO 81502, Tel: 303-242-0810, TWX: 910-929-6965; FSC No.: 05347; Empl.: 220; *Sls. Mgr.:* Gerald Krebill; *Dist. Mgr.:* Gerald Krebill .... **1A**•1992-1999

Local Sales Offices & Reps

AL	Huntsville, Remco	205-533-3763
AZ	Phoenix, Howe & Howe Sls.	602-264-7971
CA	Anaheim, Westrep	714-527-2822
CA	San Diego, Westrep	619-276-0751
CA	Santa Clara, Westrep	408-988-8833
CO	Denver, West Inc.	303-692-0131
FL	Orlando, Donato & Assocs.	305-352-0727
FL	Palm Harbor, Donato & Assocs.	813-785-3327
GA	Atlanta, Remco	404-447-6937
IL	Elk Grove Village, Parcom	312-228-6360
IN	Ft. Wayne, Giesting & Assocs.	219-486-1912
IA	Cedar Rapids, Stan Clothier Co.	319-395-0245
KS	Parker, S. W. Wollard Co.	913-893-6552
MD	Beltsville, Applied Engrg. Consultants	301-792-2211
MA	Newton Upper Falls, Anchor Engrg.	617-964-6205
MI	Coloma, Giesting & Assoc.	616-468-4200
MI	Novi, Giesting & Assoc.	313-348-3811
MN	Minneapolis, S. Clothier Co.	612-944-3456
MO	St. Louis, Abrams & Assoc.	314-569-0447
NJ	Cherry Hill, Danco Corp.	609-424-5590
NY	Jericho, J-Square Mktg.	516-935-3200
NY	Rochester, Apex Assocs.	716-254-6050
NC	Raleigh, Remco	919-847-5079
OH	Cincinnati, Giesting & Assoc.	513-521-8800
OH	Mentor, Giesting & Assocs.	216-942-3407
PA	Pittsburgh, Giesting & Assocs.	412-963-0727
TX	Austin, O. M. Sls.	512-452-1838
TX	Dallas, O. M. Sls.	214-241-3876
TX	Houston, O. M. Sls.	713-789-4426
UT	Salt Lake City, West Inc.	801-466-5739
WA	Bellevue, Vantage Corp.	206-455-3460
WA	Kent, R & R Assoc.	206-251-5396
EXP	CT, Stamford, Dage Corp.	203-324-3123

Local Distributors

CA	Chatsworth, IEC/JACO	213-998-2200
CA	North Hollywood, T.T.I., Inc.	213-982-0201
CA	Orange, IEC/JACO	714-540-5600
CA	Sacramento, IEC/JACO	916-424-5297
CA	San Fernando, Petell Electronics	213-365-3984
CA	San Jose, IEC/JACO	408-263-1100
CO	Denver, IEC/JACO	303-292-6121
FL	Orlando, Hammond Elctrns.	305-849-6060
FL	Orlando, T.T.I-2	305-859-1000
FL	Tampa, Impala Elctrns.	813-885-4747
IL	Chicago, IEC/JACO	312-843-2040
MD	Columbia, Azteck Elctrns.	301-995-1760
MA	Burlington, TLC Elctrns.	617-273-0140
MA	Woburn, T.T.I., Inc.	617-938-8800
NY	Bohemia, T.T.I., Inc.	516-567-1500
NY	Farmingdale, SAI, Inc.	516-293-2710
NY	Hauppauge, JACO	516-273-5500
NY	Valley Stream, L&S Elctrns.	800-645-2235
OH	Dayton, Electro-Line	513-461-5683
TX	Fort Worth, Allied Elctrns.	817-336-5401
TX	Fort Worth, T.T.I., Inc.	800-433-7092
UT	Salt Lake City, IEC/JACO	801-298-1868
WA	Bellevue, Integrated Elctrns. Corp.	206-455-2727
WA	Kent, Shannon Ltd.	206-763-0545
WA	Seattle, IEC/JACO	206-455-2727

ULVAC NORTH AMERICA, P.O. Box 890, Kennebunk, ME 04043, Tel: 207-985-7169, TWX: 510-299-0007; Empl.: 600; *Sls. Mgr.:* C. Carman

UNARCO-ROHN, See UNR-Rohn

UNDERWRITERS SAFETY DEVICE, An Allied Co., 7300 W. Wilson Ave., Chicago, IL 60656, Tel: 312-867-4600, TWX: 910-221-3474; Empl.: 200; *Sls. Mgr.:* J. A. VanCura; *Dist. Mgr.:* R. S. Heyne

UNGAR, Div. Eldon Inds., Inc., 100 W. Manville St., Compton, CA 90224-6005, Tel: 213-774-5950, Telex: 4720750 Eldon; FSC No.: 78976; Empl.: 140; *Sls. Mgr.:* George Mellevold

Local Sales Offices & Reps

AZ	Scottsdale, R.F. Rich & Assoc.	602-941-1475
CA	Gardena, Ungar Sls. Assocs.	213-538-2811
CA	Hawthorne, Eldon Inds.	213-642-7716
CA	Los Altos, Ewing-Foley	415-941-4525
CO	Colorado Springs, MID-MTI-REP	303-598-1369
CT	Woodstock, Neff Co.	203-974-1281
FL	Lauderdale Lakes, Seacom Sls.	305-486-0260
HI	Compton, Ungar	213-774-5950
IL	Chicago, Restronics	312-960-1205
IN	Indianapolis, Robert Milsk Co.	317-842-3400
KS	Kansas City, Thomas L. Dowell & Assoc.	913-648-7373
MA	Boston, Neff Co.	617-582-4216
MI	Southfield, R. Milsk Co.	313-354-3310
MN	Minneapolis, Restronics	612-941-9135
MO	St. Louis, Thomas L. Dowell & Assocs.	314-849-4234
NJ	Marlton, Fahy Mktg. Assocs.	609-983-2366
NY	Oceanside, Bittan Assocs.	516-678-6222
TX	Houston, Rich Sls.	713-695-9240
TX	Rockwall, Rich Sls.	214-257-0761
WA	Seattle, Sproul & Assoc.	206-789-3300
EXP	Inglewood, Eldon Industries, Inc.	213-642-7716

UNHOLTZ-DICKIE CORP., 6 Brookside Dr., Wallingford, CT 06492, Tel: 203-265-3929, Telex: 643802; Empl.: 49

unibox® PACKAGING SYSTEM

UNIBOX, Div. of Amerex, P.O. Box 2815, Riverside, CA 92516, Tel: 714-686-1400; *Sls. Mgr.:* Roger Orton .... **2**•1005

UNICO, 3725 Nicholson Rd., Franksville, WI 53126-0505, Tel: 414-886-5678, TWX: 910-271-2385; Empl.: 175; *Sls. Mgr.:* A. L. Engle

UNICORN ENGRG. CO., Membrane Keyboard Div., 6201 Harwood Ave., Oakland, CA 94618, Tel: 415-428-1626; *Sls. Mgr.:* Steve Gensler

UNICORP, 291 Cleveland St., Orange, NJ 07050, Tel: 201-674-1700; FSC No.: 04729; Empl.: 50; *Sls. Mgr.:* B. Levine .... **2**•1868

Local Sales Offices & Reps

CT	Milford, Todino Engrg. Sls.	203-874-6643
CT	Stamford, George Reiss	203-348-0007
FL	Melbourne Beach, Brennan Assoc.	305-724-0854
IL	Palatine, Claeson Assocs.	312-359-7230
IN	Indianapolis, M&L Elctrn. Sls.	317-359-4742
MA	Needham Hgts., Todino Engrg. Sls.	617-444-7925
MI	Farmington, Amtech Rep.	313-474-8300
MN	Bloomington, Termatech	612-854-2001
OR	Portland, Frank Jackson Assocs.	503-292-2638
TX	Richardson, Precision Techn. Assocs.	214-234-8071
TX	Round Rock, Precision Techn. Assocs.	512-250-0201
WA	Seattle, Frank Jackson Assocs.	206-523-6300

UNIFORM TUBES, Collegeville, PA 19426, Tel: 215-539-0700, Telex: 84-6428, TWX: 510-660-6107; FSC No.: 93306; Empl.: 400; *Sls. Mgr.:* Lloyd Deery

UNILATOR TECHNICAL CERAMICS INC., 6290 Sunset Blvd., Ste. 1126, Los Angeles, CA 90028, Tel 213-463-5618, TWX: 910 321-2903; *Sls. Mgr.* Norman R. Sutherland

Local Sales Offices & Reps

AL	Lake Guntersville, Kelley Sys.	205-582-8677
AZ	Tempe, Qualtech	602-967-4655
CA	Los Angeles, Yarbrough Sls. Co.	213-254-5101
FL	Tampa, APM Assocs.	813-886-245
IL	La Grange Park, Bierhaus Sls.	312-354-510
KS	Wichita, Electro Mechanical Assocs.	316-682-943
MD	Baltimore, Stitzer Assocs.	301-823-260
MA	Waltham, Carlisle Tech. Sls.	617-890-145
MI	Union Lake, Ashby Assocs.	313-363-110
MO	Bridgeton, Electro Mechanical Assocs.	314-291-866
NH	Amherst, Carlisle Tech. Sls.	603-673-469
NJ	Ridgewood, Ballou Inc.	212-964-464
NM	Albuquerque, Qualtech	505-243-560
NY	Rochester, R. P. Kennedy Co.	716-271-632
OH	Dayton, Ashby Assocs.	513-252-562
OH	Lyndhurst, Ashby Assocs.	216-461-082
PA	Paoli, Stitzer Assocs.	215-644-550
TX	Richardson, Eagle Mktg. Inc.	214-238-538
WI	Elm Grove, Bierhaus Sls.	414-784-521

UNIMAX SWITCH CORP., Ives Rd., Wallingford, C 06492, Tel: 203-269-8701, Telex: 96-3485, TWX: 710 476-1397; FSC No.: 80207; Empl.: 300; *Dist. Mgr* Richard Brache .... **1B**•175

Local Sales Offices & Reps

AZ	Phoenix, Mercury Engrg. Sls., Inc.	602-244-012
CA	Brea, M. A. Stolaroff Co.	714-529-086
CA	Los Altos, Ewing-Foley	415-941-452
CA	Los Angeles, M. A. Stolaroff Co.	213-295-778
CA	Santee, M. A. Stolaroff Co.	
CA	Simi Valley, M. A. Stolaroff Co.	
CO	Englewood, CompuTech Marketing	303-773-298
CT	Ansonia, Zaslow Sls.	203-735-958
CT	Bloomfield, Zaslow Sls.	203-242-778
FL	Tampa, J. R. Controls	813-961-947
IL	Lisle, Wasson-Gallagher	312-963-595
IN	Ft. Wayne, O. H. Bromberg & Assocs.	219-744-163
KY	Louisville, O. H. Bromberg & Assocs.	502-245-891
LA	Metairie, Automation Supps.	504-831-218
MD	Silver Spring, NKA, Inc.	301-585-614
MD	Silver Spring, L. G. White & Co.	301-434-155
MA	Northboro, Zaslow Sls.	617-393-815
MA	Waltham, Zaslow Sls.	617-894-839
MA	Watertown, Zaslow Sls. Co.	617-823-811
MI	Grosse Pointe Park, Greiner Assoc.	313-499-018
MN	Minneapolis, Jos-Co. Sls. Engrg.	612-861-334
MO	Creve Coeur, Hill & Co.	314-432-113
NH	Londonderry, Zaslow Sls.	603-432-89
NJ	West Caldwell, Grimm, Siegel Assoc.	201-575-93
NY	Ballston Lake, Nycom	518-899-41
NY	E. Syracuse, Nycom	315-437-83
NY	Williamsville, Nycom	
NC	Winston-Salem, L. G. White & Co.	919-725-36
OH	Cincinnati, O. H. Bromberg & Assocs.	513-771-93
OH	Dayton, O. H. Bromberg & Assocs.	513-434-87
OH	Medina, J. C. Hofstetter Co.	216-241-48
PA	Broomall, White-Whiddett	215-353-63
PA	Hickory, J. C. Hofstetter Co.	412-356-23
SC	Greenville, Sunbelt Sls.	803-877-07
SC	Greenville, L. G. White & Co.	803-271-06
TN	Taft, Sunbelt Sls.	615-425-61
TX	Arlington, W. Pat Fralia Co.	817-640-91
VA	Richmond, L. G. White & Co.	804-740-70
WA	Mercer Island, J. H. Andersen	206-232-04

Local Distributors

AL	Decatur, Forbes Distr. Co.	205-353-47
AL	Montgomery, Southern Controls	205-277-50
AZ	Phoenix, Continental Light & Supp.	602-263-60
AZ	Phoenix, Electro Comps.	602-258-26
AR	Fort Smith, Southern Elec.	501-646-55
CA	Belmont, Lodan Elctrns.	415-592-46
CA	Belmont, Arndt Elctrns.	415-592-67
CA	Covina, Selecta Switch	213-915-3409; 213-967-41
CA	Fountain Valley, Components Ctr.	213-582-06
CA	Gardena, California Switch & Signal	213-538-98

Los Angeles, Master Distrs.	213-829-4956
Riverside, Electronic Supp.	714-683-7300
Sacramento, Dunlap Elctrns.	916-442-5801
Santa Clara, Cypress Elctrns.	408-727-7080
Santa Monica, Master Distrs.	213-452-1229; 213-829-4656
Van Nuys, Pacific Switch	213-873-4802
Denver, Fistell's Elec. Supp.	303-629-1312
East Haven, J.V. Elctrns.	203-469-2321
Manchester, Economy Elec. Supp.	203-646-2830
W. Hartford, Atlantic Switch Controls	203-525-6907
Hialeah, Atlas Elec. Supp.	305-885-8941
Lakeland, Switch Controls	813-644-7564
Largo, Lodan Elctrns.	813-586-2851
Miami, Electronic Equip.	305-871-3500
Arlington Hgts., LoDan	312-398-5311
Chicago, Newark Elctrns.	312-638-4411
Lombard, R.M. Elctrns.	312-932-5150
Wheaton, Connectrix	312-653-1460; 800-323-9431
West Des Moines, Ramco	515-225-6933
Louisville, Main Elect. Equip.	502-587-6511
Marrero, AFG Elctrns.	504-368-9696
New Orleans, William B. Allen Supp.	504-525-8222
Portland, Rockingham Elect. Supp.	207-772-4614
Hingham, Sager Elec. Supp.	617-749-6700
Augusta, Great Lakes Elctrns.	616-731-4156
St. Claire Shores, Specialties Mfg. Co.	313-771-2700
Minneapolis, Joel Co.	612-545-5669
Maryland Hgts., Western Extralite	314-432-4560
Fair Lawn, Relay Specialities	201-797-3313
Mt. Laurel, Jerseyswitch	609-778-8190
Paterson, Feldman Brothers Elec. Supp.	201-742-7330
Bohemia, Key Comps.	516-567-7500
Buffalo, Summit Distrs.	716-884-3450
Geneva, Gersh	315-789-4505
Hempstead, Elctrn. Equip.	516-538-5510
Rochester, Summit Elctrns.	716-334-8110
Sodus, AED Distrs.	315-483-6561
Woodside, Switches Unltd.	212-478-5000
Charlotte, Dixie Elctrns.	704-377-4348
Winston-Salem, Kirkman Elect.	919-722-9131
Cincinnati, Cartessa Corp.	513-385-7700
Cincinnati, Rilco	513-231-3400
Columbus, Ohio Switch	614-885-0319
Tulsa, Radio, Inc.	918-587-9123
Portland, Johnstone	503-231-4833
Philadelphia, Herbach & Rademan	215-426-1700
Pittsburgh, Alder-tronics	412-821-5565
Columbia, Dixie Elctrns.	803-779-5332
Dallas, Texaswitch	214-357-1768
El Paso, Ideal Indl. Elctrn. Supp.	915-779-6647
San Antonia, Purvis Bearing	512-299-1010
Waco, Purvis Bearing	
Waco, Hargis Co.	817-754-5667
Alexandria, Techn. Distrs.	703-971-8979
Roanoke, Peoples Elctrn. Supp.	703-342-8933
Mequon, Taylor Elec.	414-241-4321

EVEREADY ENERGIZER®

UNION CARBIDE CORPORATION

UNION CARBIDE CORPORATION, Battery Prods. Div., Old Ridgebury Rd., Danbury, CT 06817, Tel: 203-794-5300 .... **3**•1434, 1435

Local Sales Offices & Reps

San Francisco	415-765-1000
Danbury, Military & Govt. App. Only	203-794-7547
Norcross	404-446-2400
Itasca	312-773-3444
Saddle Brook	201-845-5400
Middleburg Hgts.	216-826-4444
Dallas	214-241-9100

UNION CARBIDE CORP., ELCTRNS. DIV., Component Dept., Box 5928, Greenville, SC 29606, Tel: 803-963-6348, Telex: 57-0496, TWX: 810-287-2536; FSC No.: 31433; *Sls. Mgr.:* C. E. Volpe; *Dist. Mgr.:* J. A. Bruorton .... **1A**•1096-1118

Refer to Kemet, Union Carbide Corp., Elctrns. Div. for sales office information and for distributor listings.

UNION CARBIDE CORPORATION, Elctrns. Div., Crystal Prods. Dept., 9320 Chesapeake Dr., Ste. 104, San Diego, CA 92123, Tel: 619-279-4500, Telex: 695-465; Empl.: 125; *Sls. Mgr.:* J. J. Beeman

UNION ETCHANTS INTL., INC., 8-10 Green St., Bldg. G, Woburn, MA 01801, Tel: 617-935-8878

UNIQUE OPTICAL CO., Diversified Optical Corp., P.O. Box 585, Farmingdale, NY 11735, Tel: 516-420-0288, TWX: 510-224-6598

UNITED CHEMI-CON UNITED CHEMI-CON

UNITED CHEMI-CON INC., 9801 W. Higgins Rd., Rosemont, IL 60018, Tel: 312-696-2000, Telex: 28-3557, TWX: 910-253-2964; Empl.: 50; *Sls. Mgr.:* Joe Tanney .... **1A**•1208, 1209

Local Sales Offices & Reps

AL	Huntsville, R. D. Whitesell	205-883-5110
AZ	Scottsdale, Thorson Desert States, Inc.	602-998-2444
CA	Culver City, DeAngelo, Rothman Co.	213-827-2202
CA	Mountain View, Straube Assocs.	415-969-6060
CA	San Diego, De Angelo, Rothman Co.	619-758-8129
CO	Westminster, Straube Assocs. Mountain States, Inc.	303-426-0890
FL	Altamonte Springs, Semtronic Assocs., Inc.	305-831-8233
FL	Clearwater, Semtronic Assocs., Inc.	813-461-4675
FL	Ft. Lauderdale, Semtronic Assocs., Inc.	305-731-2484
ID	Boise, Cascade Comps., Inc.	208-343-9886
KY	Louisville, R. D. Whitesell	502-426-7696
MD	Baltimore, Pro-Rep, Inc.	301-653-3600
MA	Lexington, John E. Boeing Co., Inc.	617-862-2500
MN	Bloomington, Twist Co.	612-835-2120
NJ	Medford, Mack McCoy Inc.	609-953-0770
NM	Albuquerque, Straube Assocs. Mountain States, Inc.	303-426-0890
NY	Jamaica, S-J Assocs., Inc.	212-291-3232
NY	Pittsford, Franklin Sls. Corp.	716-248-8251
OH	Cincinnati, Makin Assoc.	513-871-2424
OH	Cleveland, Makin & Assocs.	216-921-0080
OH	Columbus, Makin Assoc.	513-871-2424
OK	Tulsa, ION Assocs., Inc.	918-664-0186
OR	Portland, Earl & Brown	503-245-2283
PA	Dowington, Jack McCoy Inc.	215-363-0350
TN	Greeneville, R. D. Whitesell	615-639-6154
TX	Austin, ION Assocs., Inc.	512-346-7160
TX	Grand Prairie, ION Assocs., Inc.	214-647-8225
TX	Houston, ION Assocs., Inc.	713-977-4354
UT	Salt Lake City, Straube Assocs. Mountain States, Inc.	801-263-2640
WA	Seattle, Earl & Brown	206-284-1121
WI	Wauwatosa, Twist Co.	414-782-2670

Local Distributors

AL	Huntsville, Contact Elctrn. Inc.	205-881-9321
CA	Mountain View, Cornett Elctrns.	415-969-5420
CA	San Diego, Cetec Elctrns.	619-278-5020
CA	San Jose, Cetec Elctrns.	408-263-7373
CA	Santa Ana, National Electro Sls.	714-541-6184
CA	Santa Ana, Projections Unltd., Inc.	714-641-1472
CA	Santa Clara, Intl. Standard Comps., Inc.	408-496-0411
CA	South Gate, Cetec Elctrns.	213-773-6521
CA	Van Nuys, National Electro Sls.	213-781-0505
FL	Orlando, Hammond Elctrns., Inc.	305-849-6060
GA	Norcross, Hammond Elctrns., Inc.	404-524-7502
IL	Northbrook, Classic Comps. Supp., Inc.	312-272-9650
MA	Hopkinton, Interface Elctrns. Corp.	617-435-6858
MA	Middleboro, Glynn Elctrns.	617-947-4262
MN	Minneapolis, The Joel Co.	612-545-5669
NJ	Clifton, J-Mar Elctrns., Inc.	201-772-6400
NC	Greensboro, Hammond Elctrns., Inc.	919-275-6391
OR	Lake Oswego, Bell Inds.	503-241-4115
PA	Exton, VSH	215-876-8654
PA	Philadelphia, Philadelphia Elctrns.	215-568-7400
SC	Greenville, Hammond Elctrns., Inc.	803-233-4121
TX	Austin, Captronics, Inc.	512-459-4328
TX	Dallas, Captronics, Inc.	214-340-3592
WA	Bellevue, Bell Inds.	
WI	New Berlin, Classic Comps. Supp., Inc.	414-786-5300

UNITED DETECTOR TECH., 12525 Chadron Ave., Hawthorne, CA 90250, Tel: 213-978-0516, Telex: 18-2458; FSC No.: 50486; Empl.: 200; *Sls. Mgr.:* Michael Feeney; *Dist. Mgr.:* Al Seck

UNITED ELEC. CONTROLS, 85 School St., Watertown, MA 02172, Tel: 617-WA6-1000, Telex: 92 2445; Empl.: 420; *Dist. Mgr.:* Susan Janes

UNITED FOAM PLASTICS, 172 E. Main St., Georgetown, MA 01833, Tel: 617-352-2200, TWX: 710-347-0315; FSC No.: 55900; Empl.: 163

Local Sales Offices & Reps

CT	Pawcatuck	203-599-1242
FL	Orlando	305-843-7075
GA	Fairburn	404-964-5888
NJ	Somerset	201-560-9550

UNITED SOLDER WRAP INC., 2608 Electronic La., Ste 509, Dallas, TX 75220, Tel: 214-350-4978, Telex: 79-1535; Empl.: 80; *Sls. Mgr.:* Perry L. Gross

UNITED STATES CRYSTAL CORP., 3605 McCart St., Ft. Worth, TX 76110, Tel: 817-921-3014, TWX: 910-893-4084; FSC No.: *; Empl.: 75

UNITED STATES TESTING CO., INC., 1415 Park Ave., Hoboken, NJ 07030, Tel: 800-631-3096, 201-792-2400, Telex: 126493, TWX: 219504; FSC No.: 93282; *Sls. Mgr.:* R. Donohue

UNITED TECHNOLOGIES, Terminal Prods., 1230 Sabine St., Huntington, IN 46750, Tel: 219-356-2700, Telex: 23-2461, TWX: 810-332-1519; Empl.: 465

UNITED WIRE & CABLE, 425 Shrewsbury St., Worcester, MA 01604, Tel: 617-757-3872, TWX: 710-340-0635; FSC No.: 51348; Empl.: 10; *Sls. Mgr.:* T. P. Andrews

UNIT INDS., 1140 E. Valencia Dr., Fullerton, CA 92631, Tel: 714-871-4161; Empl.: 40

UNITRACK DIV., Calabro Inds., Inc., Goshen Corp. Pk., P.O. Box 1927, 1372 Enterprise Dr., West Chester, PA 19380, Tel: 215-692-0800, TWX: 510-663-0000; Empl.: 25 .... **2**•1068

Local Sales Offices & Reps

AZ	Phoenix, Finn-Pat Co.	602-954-0301
CA	Agoura, Robert A. Borden	213-991-1940
CA	Sunnyvale, Ruby Sls.	408-224-0881
CO	Aurora, Delltron Co.	303-373-0300
FL	Coral Springs, H.A., Inc.	305-752-7520
GA	Atlanta, Magaro & Assoc.	404-252-6609
IL	Des Plaines, Lincoln, Hodges & Assoc.	312-297-3810
IN	Ft. Wayne, Aktron Corp.	219-747-3650
MA	Northboro, Henik Assoc.	617-393-3127
MI	Grand Rapids, C.A. Geer Co.	616-534-9449
MN	St. Paul, Countrymen Assoc.	612-645-9151
MO	Blue Springs, Chesco	816-229-1404
NJ	Lebanon, Churchill Assocs.	201-735-8971
NY	Melville, Jarms	516-752-0404
NY	Syracuse, Lenard Co.	315-479-9191
OH	Akron, Augnat Assocs.	216-273-1211
PA	King of Prussia, Rivco January	215-265-5211
TX	Houston, Milco Mktg.	713-946-2841
TX	Richardson, Air Quip/Robleyco	214-234-3285
VA	Herndon, Eastern Comps.	703-471-1025
WA	Bellevue, Eltech	206-643-4330

Local Distributors

CA	Los Angeles, El-Com	213-404-2961
CO	Denver, Integrated Elctrns.	303-534-6121
MA	Northboro, Papi Supp.	617-393-3127
MA	Woburn, Rush Indus.	617-935-2400
MI	Grand Rapids, S-F Elctrn. Supp. Co.	616-459-0216
NC	Winston-Salem, Kirkman Elctrns.	919-724-0541
OH	Dayton, ESCO	513-226-1133
TX	Richardson, Air Quip/Robleyco	214-234-3285

UNITRODE CORP., 5 Forbes Rd., Lexington, MA 02173, Tel: 617-861-6540, Telex: 95-1064, TWX: 710-326-6509; Empl.: 2,000; *Sls. Mgr.:* Frederick Myers; *Dist. Mgr.:* John Flannery .... **1A**•1681-1683

UNITRODE CORP., Capacitor Div., 11494 Sorrento Valley Road, San Diego, CA 92121, Tel: 619-453-8020

Unitron
INCORPORATED

UNITRON INC., 2826 W. Kingsley Rd., Dept. G, Box 472159, Garland, TX 75041, Tel: 214-271-4531, Telex: 73-0644; FSC No.: 6130; Empl.: 95; *Sls. Mgr.:* R. L. Beutel .... **3**•1831, 1832

Local Sales Offices & Reps

CA	Sunland, Unitron (Jim Crevier)	818-352-7348
GA	Byron, Unitron (Joe Joiner)	912-956-2866
PA	Landsdowne, Unitron (Douglas S. Feisler)	215-622-4811

UNITRONIX CORP., 197 Meister Ave., Somerville, NJ 08876, Tel: 201-231-9400, Telex: 833184; Empl.: 35; *Sls. Mgr.:* Frank Zimmer; *Dist. Mgr.:* Joseph Murawski

Local Sales Offices & Reps

FL	Winter Park, Unitronix Corp.	305-671-9600
NJ	Somerville, Unitronix Corp.	201-231-9400

UNIVERSAL AD-YU ELCTRNS., INC., 2517 E. Norwich St., Milwaukee, WI 53207, Tel: 414-482-4100; FSC No.: 90101; Empl.: 10

UNIVERSAL CAPACITORS, See TRW/Capacitor Div.

UNIVERSAL ELECTRONICS INC., 3475 A. Victor St., Santa Clara, CA 95050, Tel: 408-970-0455, Telex: 3719249 UNIVESAL; FSC No.: 94-2845455; *Sls. Mgr.:* Paul Shieh

UNIVERSAL INSTRS., P.O. Box 825, Binghamton, NY 13902, Tel: 607-775-1102, TWX: 510-252-1990; Empl.: 1,600

UNIVERSAL INSTRS. CORP., MECHANIZED ELCTRN. ASSEMBLY (MEA) DIV., See Mechanized Elctrn. Assembly Div., Universal Instrs. Corp.

UNIVERSAL MFG. CO., INC., 1168 Grove St., Irvington, NJ 07111, Tel: 201-374-9800, TWX: 710-995-4647; Empl.: 70; *Sls. Mgr.:* M. Mayer

UNIVERSAL SHIELDING CORP., 20 W. Jefryn Blvd., Deer Park, NY 11729, Tel: 516-667-7900, Telex: 221213 TTC UR; Empl.: 35

UNIVERSAL VOLTRONICS, 27 Radio Circle Dr., Mt. Kisco, NY 10549, Tel: 914-241-1300, TWX: 710-571-2142; Empl.: 135; *Sls. Mgr.:* Bob Pampin .... **3**•1803

Local Sales Offices & Reps

FL	Winter Park, McMahan Assocs.	305-645-0463
IL	Chicago, Ropek, Cahill & Vogt	312-631-0070
MI	Detroit, EQS	313-961-3042
MN	Minneapolis, R.J. Sls.	612-866-3661
NM	Albuquerque, Fry Gates Co.	505-262-1525
NY	Commack, RC Engrg. Sls.	516-543-3325
OH	Chesterland, EQS	216-729-2222
OH	Dayton, EQS	513-294-2476
PA	Audubon, Holmes Assocs.	215-666-0636
TX	Richardson, Spectra Sls.	214-234-3600

UNIVERSITY COMPUTING CO., UCC Tower Exchange Park, Dallas, TX 75235, Tel: 214-688-7100, TWX: 910-861-4990; Empl.: 700 (U.S.), 900 (Europe)

UNIVERSITY SOUND, 9500 W. Reno, Oklahoma City, OK 73126, Tel: 405-354-5311, Telex: 748-510

UNIVERSITY SOUND, Altec Corp., 1250 N. Red Gum St., Anaheim, CA 92806, Tel: 714-632-7117, Telex: 655415; Empl.: 200; *Sls. Mgr.:* G. H. Rilling

UPSYSTEMS, INC., 15737 Garfield Ave. Bldg. #18, Paramount, CA 90723, Tel: 213-634-0621, TWX: 910-346-7814; FSC No.: 3698; *Sls. Mgr.:* Howard Pendleberry

URBAN ELCTRNS., P. O. Box 456, Dover, MA 02030, Tel: 617-329-4068, TWX: 710-325-1579; Empl.: 50; *Sls. Mgr.:* G. Urban

U S CAPACITOR CORP., See U S Microtek Components

DIGITAL

U.S. DIGITAL, 12371 Kensington Rd., Los Alamitos, CA 90720, Tel: 213-594-0094 .... **1B**•1881

Local Distributors

MA	Waltham, SSC Instrmn. Inc.	
Intl	UK, Bedford, Control Transducers, Ltd.	

USECO DIV., Litton Inds, 13536 Saticoy St, Van Nuys, CA 91409, Tel: 213-786-9388, TWX: 910-495-1700; Empl.: 250

U.S. INSTR. RENTALS, 2988 Campus Dr., San Mateo, CA 94403, Tel: 415-572-6600; Empl.: 300; *Sls. Mgr.:* David G. Fletcher

U S MICROTEK COMPONENTS CORPORATION, 11144 Penrose St., Sun Valley, CA 91352, Tel: 818-767-6770, TWX: 910-498-4998; FSC No.: 59942; Empl.: 180; *Sls. Mgr.:* Donald F. Hosmer .... **1A**•1211

Local Sales Offices & Reps

AZ	Tucson, Clemick & Assocs.	602-749-4003
CA	Cupertino, F & F Assocs.	408-446-2349
CA	San Diego, Clemick-Neenan & Assoc.	619-268-8540
CA	Sherman Oaks, Clemick-Neenan & Assoc.	818-990-3150
CO	Denver, High Plains Mktg.	303-751-7150
FL	Coral Springs, EPM Corp.	305-755-5387
FL	Orlando, EPM Corp.	305-425-6149
GA	Roswell, Edco Sls.	404-587-1886
IL	Schaumburg, Gassner & Clark	312-882-8608
IA	Marion, MSB Assocs. Inc.	319-377-6261
KS	Shawnee Mission, MSB Assocs. Inc.	913-532-2131
MA	Needham, Hatch Assocs.	617-444-3310
MN	Bloomington, Merrill Franklin Co.	612-854-9446
MO	St. Charles, MSB Assocs. Inc.	314-946-5577
NY	Cazenovia, S. T. Woolard	315-655-8145
NY	Commack, Kaelber & Mack	516-499-2924
OH	Cleveland, Baehr, Greenleaf & Assocs.	216-221-9030
OH	Columbus, Baehr, Greenleaf & Assocs.	614-486-4046
OH	Dayton, Baehr, Greenleaf & Assocs.	513-439-0724
OR	Hillsboro, Gentech	503-640-6324
PA	Broomall, Sapinosa Assocs.	215-353-7267
TX	Austin, OM Sales Co., Inc.	512-452-1838
TX	Dallas, OM Sales Co., Inc.	214-241-3876
TX	Houston, OM Sales Co., Inc.	713-789-4426
UT	Salt Lake City, High Plains Mktg.	801-968-9456
WA	Redmond, Gentech	206-881-6456

U.S. SCIENTIFIC INSTRS., 61 North Beacon St., Boston, MA 02134, Tel: 617-787-2411; Empl.: 50; *Sls. Mgr.:* S. Eric Kondi

U.S. TERMINALS, 7502 Camargo Rd., Cincinnati, OH 45243, Tel: 513-561-8145, TWX: 810-461-2290; FSC No.: 12615; *Sls. Mgr.:* G.L. Stepp

Local Sales Offices & Reps

AZ	Phoenix, Gramer & Co.	602-995-9455
FL	Melbourne, Jerry Williams, Inc.	305-259-7700
IL	Chicago, L-Tec, Inc.	312-773-2900
IA	Cedar Rapids, J.R. Sls. Engrg., Inc.	319-393-2232

U.S. TOYO FAN CORPORATION

U.S. TOYO FAN CORP., 4915 Walnut Grove Ave., San Gabriel, CA 91776, Tel: 213-287-5297, TWX: 910-589-1540; Empl.: 20; *Sls. Mgr.:* R. L. Rosenthal; *Dist. Mgr.:* R. L. Rosenthal .... **2**•1854, 1855

Local Sales Offices & Reps

AL	Huntsville, Par Mktg.	205-837-6534
AZ	Tempe, Delta Elctrn. Sls.	602-224-1601
CA	San Diego, Noo Rep Tech Sls.	619-483-4861
CA	San Gabriel, U.S. Toyo Fan Corp.	213-287-5297
CA	Santa Clara, U.S. Toyo Fan Corp.	408-984-2618
CO	Denver, Troy Sls./Wintronics	303-934-2406
FL	Clearwater, WMM Assoc.	813-442-3913
GA	Marietta, Par Mktg.	404-953-4168
ID	Boise, Quest Mktg.	208-343-9969
IL	Elk Grove, Martec Assoc.	312-956-8090
KS	DeSoto, Midtec Assoc.	913-441-6565
MA	Westboro, Tech. Mktg. Svcs. Co.	617-366-6655
MN	Osseo, Gaffney Sls. Co.	612-425-5484
MO	Florissant, Midtec Assoc.	314-837-5200
NH	Windham, Tech. Mktg. Svcs. Co.	603-434-2716
NJ	Madison, Livera-Polk Assoc.	201-377-3220
NY	Cooperstown, Fitzelle Assoc.	607-547-9333
NY	Glen Head, Livera-Polk Assoc.	516-759-9300
NC	Raleigh, Par Mktg.	919-872-2726
OH	Cleveland, Geotronix	216-526-2535
OH	Trotwood, Geotronix	513-854-5939
OR	Beaverton, Quest Mktg.	503-644-8077
PA	Horsham, Dalbrook Corp.	215-441-8380
TX	Richardson, Zonk Assoc.	214-238-7651
WA	Renton, Quest Mktg.	206-223-1541

Local Distributors

AZ	Phoenix, Aero-Space Southwest	602-861-1785
CA	Fremont, Terminal Sls. Corp.	415-656-7722
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Santa Ana, Pacesetter Elctrns.	714-557-7131
CA	Torrance, Cypress Elctrns.	213-530-1900
CA	Tustin, Added Value Elctrns. Distrib.	714-730-5848
CO	Denver, Wintronics	303-934-240
FL	Longwood, Intertec Comps.	305-834-777
IL	Elk Grove, Martec Assoc.	312-956-809
MA	Westboro, TMSC Elctrns. Supp.	617-366-846
NV	Las Vegas, Kiesub Corp.	702-733-388
NJ	Collingswood, Index	609-429-405
NJ	Middleville, Allegri Comps.	201-383-008
NY	Elmsford, Multimeterics	914-347-366
NY	Glen Head, Livera-Polk Assoc.	516-759-930
OH	Cleveland, Alpha Distr. Corp.	216-526-371
OR	Beaverton, Hansen Elctrns.	503-642-445
TX	Dallas, Cypress Elctrns.	214-869-143
TX	Richardson, Zec Sales	214-238-765
WA	Kent, Shannon Ltd.	206-763-054

USUS, INC., UCSD Pascal Sys. User's Society
P.O. Box 1148, La Jolla, CA 92038

UTE MICROWAVE, 3500 Sunset Ave., Asbury Park NJ 07712, Tel: 201-922-1009, Telex: 13-2461; FS No.: 23261; Empl.: 20

Local Sales Offices & Reps

AZ	Phoenix, Sigma Eng. Sls.	602-997-182
CA	Goleta, Thorson Co.	805-964-875
CA	Palo Alto, R-V Assocs.	415-967-599
FL	Melbourne, EMS Assocs.	305-724-102
MA	Wakefield, Nerem	617-245-442
NY	Commack, Richman Sls.	516-543-553
OH	Dayton, Fred Ohmer Assocs.	513-434-145
TX	Dallas, Airep Elctrns.	214-349-436
VA	Annandale, Q.T. Elctrn.	703-941-424
EXP	FL, Boca Raton, Microwave Intl. Corp.	305-391-747

UTI INSTRUMENTS CO., 325 N. Mathilda Ave Sunnyvale, CA 94086, Tel: 408-738-3301, TWX: 91 339-9546; Empl.: 80; *Sls. Mgr.:* Jim Nicholson

UVP, INC., 5100 Walnut Grove Ave., P.O. Box 150 San Gabriel, CA 91778, Tel: 818-285-3123, Tele 688-461; Empl.: 100; *Sls. Mgr.:* Paul Gilchrist

VACO PRODS., 1510 Skokie Blvd., Northbrook, 60062, Tel: 312-564-3300, TWX: 910-686-065 Empl.: 250; *Sls. Mgr.:* Fred Grede

VACTRONIC LAB. EQUIP., 65 Brightside Ave., Northport, NY 11731, Tel: 516-AN1-2660; Empl.: 1

VALHALLA SCIENTIFIC, 7576 Trade St., San Dieg CA 92121, Tel: 619-578-8280, Telex: 18175 VALHALLA SDG; Empl.: 30; *Sls. Mgr.:* Kerry Clark

VALIDYNE ENGRG. CORP., 8626 Wilbur Ave Northridge, CA 91324, Tel: 818-886-2057, Telex: 6 1303; Empl.: 200; *Sls. Mgr.:* Max J. Kopp

VALLEY ELECTROMAGNETICS CORP., P. Box 557, Crystal Lake, IL 60014, Tel: 815-459-308 Telex: 72-2417

VALLEY ELECTROMAGNETICS, P.O. Box 13 Spring Valley, IL 61362, Tel: 815-664-2348; Empl.: 7 *Sls. Mgr.:* G. Adair

VALOR ELECTRONICS, INC., 2950 Airway Ave Bldg. C-5, Costa Mesa, CA 92626, Tel: 714-540-926 TWX: 910-595-2480; FSC No.: 15003; *Sls. Mgr.:* T. Kasabali

VALPEY-FISHER, 75 South St, Hopkinton, M 01748, Tel: 617-435-6831, Telex: 94-8332; Empl.: 16 *Sls. Mgr.:* Donald Elliott .... **1A**•1434-14

Local Sales Offices & Reps

AL	Huntsville, Montgomery Mktg.	205-830-04
AZ	Scottsdale, Verein Corp.	602-948-35
CA	Carlsbad, Addem	714-695-20
CA	Cupertino, F & F Assocs.	408-446-23
CA	Orange, ETA/Cen-Tec Sales Corp.	714-998-92
CT	Hamden, Impact Sls.	203-281-13
FL	Altamonte Springs, WMM Assocs.	305-831-45
FL	Clearwater, WMM Assocs.	813-422-39
FL	Davie, WMM Assocs.	305-581-70
FL	Indialantic, WMM Assocs.	305-773-11
GA	Norcross, Montgomery Mktg.	404-447-61
IL	Chicago, Indl. Reps.	312-647-77
IN	Ft. Wayne, Dillon Sls.	219-486-18
KS	Overland Park, Jones Mktg. Co.	913-649-30
MA	Canton, Impact Sls.	617-821-15
NJ	Cherry Hill, Danco Elctrns	609-424-55
NM	Albuquerque, Reptronix, Ltd.	505-881-80
NY	Hicksville, J. Square Mkt	516-935-32
NY	Rochester, Eiss Assocs.	716-328-30
NC	Cary, Montgomery Mktg.	919-467-63
OH	Rocky River, Norm Case Assoc.	216-333-04
TX	Austin, Sundance Sls.	512-250-03

X	Plano, Sundance Sales	214-867-0592
X	Stafford, Sundance Sls.	713-499-9671
WA	Blaine, O.E.M. Sls. Inc.	206-621-7249
WI	Milwaukee, Indl. Reps.	414-259-0965

VALTEC, Sub. of U.S. Philips, 99 Hartwell St., West Boylston, MA 01583, Tel: 617-835-6082, Telex: 92-0355; FSC No.: 8N865; Empl.: 220; *Sls. Mgr.:* Pieter M. deBruijn

VAMISTOR CORP., 115 Industrial Park, Sevierville, TN 37862, Tel: 615-453-0001, Telex: 810-570-4931; Empl.: 49; *Sls. Mgr.:* George Hebner; *Dist. Mgr.:* George Hebner

VANGUARD ELCTRNS. CO., 1480 W. 178th St., Gardena, CA 90248, Tel: 213-323-4100, TWX: 910-346-7067; FSC No.: 03550; Empl.: 250; *Sls. Mgr.:* T.A. Crawford; *Dist. Mgr.:* T. A. Crawford **1A**•1276

Local Sales Offices & Reps

AZ	Tempe, Piper Sales	602-949-0048
FL	Coral Springs, EPM Corp.	305-752-0054
L	Franklin Park, Dekotech	312-455-5100
N	Ft. Wayne, TX Sls., Indiana	219-489-4447
A	Cedar Rapids, S&O Sls.	319-393-1845
MA	Lexington, JESCO	617-863-1598
MA	Topsfield, R. F. Assoc.	617-887-9762
MN	St. Paul, Murnco	612-484-8200
NJ	Wayne, SHL Assoc.	201-790-1714
NY	Cazenovia, ST Woolard Co.	315-655-8145
TX	Dallas, Tritex	214-350-1927

Local Distributors

MD	Baltimore, Radio Elec. Service Co.	301-823-0070

VANGUARD RELAY CORP., 225 Cortland St., Lindenhurst, NY 11757, Tel: 516-226-5000; *Sls. Mgr.:* B. S. Gilman

VI VANN INSTRUMENTS

VANN INSTRUMENTS, 1200 Schofield La., Farmington, NM 87401, Tel: 505-326-7557; *Sls. Mgr.:* Michael E. Vann **3**•1316

VARIAN ASSOCS., Indl. Equip. Grp., 611 Hansen Way, Palo Alto, CA 94303, Tel: 415-493-4000, TWX: 910-373-1731; Empl.: 1500

VARIAN ASSOCS., Instr. Grp., 611 Hansen Way, Palo Alto, CA 94303, Tel: 415-493-4000, TWX: 910-373-1731

VARIAN ASSOCIATES, INC., Microwave Tube Div., 611 Hansen Way, Palo Alto, CA 94303, Tel: 415-493-4000, Telex: 910-373-1731; *Sls. Mgr.:* Frank Rich

VARIAN CANADA, INC., 45 River Drive, Georgetown, ON , Canada, Tel: 416-877-0161

VARIAN DATA MACHINES, See Sperry Univac, Mini-Comp. Opers.

VARO, INC., Electron Devices Div., 2203 W. Walnut St., Garland, TX 75040, Tel: 214-272-3561, TWX: 910-860-5093; FSC No.: 27777; Empl.: 250; *Sls. Mgr.:* Lon Hodge

VARO SEMICONDUCTOR, INC., 2800 W. Kingsley Dr., Garland, TX 75046, Tel: 214-271-8511, TWX: 910-860-5178; Empl.: 550; *Sls. Mgr.:* Charlie Merz; *Dist. Mgr.:* Mike Hawkins **1A**•2112

Local Sales Offices & Reps

AL	Huntsville, Rep, Inc.	205-881-9270
AZ	Scottsdale, SMS & Assocs.	602-998-0831
CA	Los Angeles, Corcoran Assocs.	213-823-4589
CA	Sunnyvale, W. W. Posey Co.	408-746-0771
CO	Parker, Technology Mktg. Assocs.	303-841-3435
CT	North Haven, Comp Rep Assocs.	203-239-9762
FL	Orlando, OEM Mktg. Corp.	305-299-1000
GA	Tucker, Rep, Inc.	404-938-4358
L	Chicago, D. Dolin Sales Co.	312-286-6200
N	Frankfort, C-S Electronic Sls.	317-659-1874
KS	Overland Park, Electri-Rep	913-649-2168
MD	Baltimore, Professional Rep.	301-653-3600
MD	Towson, DG Representatives	301-583-1360
MA	Westwood, Comp Rep Assocs.	617-329-3454
MI	Farmington, Amtech Reps.	313-474-8300
MN	Minneapolis, Electric Comp. Sls.	612-933-2594
MO	St. Louis, Electri-Rep	314-878-8209
NY	Great Neck, Cooper-Simon & Co.	516-487-1142
NY	Ithaca, Bob Dean, Inc.	607-257-1111
NC	Raleigh, Rep, Inc.	919-851-3007
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OK	Oklahoma City, Ammon & Rizos Co.	405-942-2552
OR	Hillsboro, Western Tech. Sls.	503-640-4621
PA	Huntingdon Valley, Knowles Assocs.	215-322-7100
PA	Pittsburgh, J. C. Hofstetter Co.	412-356-2305
TN	Jefferson City, Rep, Inc.	615-475-9012
TX	Austin, Ammon & Rizos Co.	512-454-5131
TX	Dallas, Ammon & Rizos Co.	214-644-5591
TX	Houston, Ammon & Rizos Co.	713-781-6240
UT	Salt Lake City, Technology Mktg. Assocs.	801-364-3296
WA	Bellevue, Western Tech. Sls.	206-641-3900
WA	Spokane, Western Tech. Sls.	509-922-7600
WI	Milwaukee, D. Dolin Sales Co.	414-482-1111

Local Distributors

AL	Huntsville, Resistacap	205-883-4270
AZ	Tempe, Bell Inds.	602-966-7800
AZ	Tempe, Anthem Elctrns.	602-244-0900
CA	Chatsworth, Anthem Elctrns.	213-700-1000
CA	Garden Grove, Bell Inds.	714-220-0681
CA	Gardena, Bell Inds.	213-515-1800
CA	Hayward, Allied Elctrns.	415-487-5250
CA	San Diego, Bell Inds.	619-268-1277
CA	San Diego, Anthem Elctrns.	619-279-5200
CA	San Jose, Anthem Elctrns.	408-946-8000
CA	Sunnyvale, Bell Inds.	408-734-8570
CA	Tustin, Anthem Elctrns.	714-730-8000
CO	Denver, Integrated	303-292-6121
CO	Wheat Ridge, Bell Inds.	303-424-1985
CT	Hamden, Allied Elctrns.	203-248-8900
CT	Orange, Milgray Elctrns.	203-795-0711
FL	Winterpark, Milgray Elctrns.	305-647-5747
GA	Atlanta, Milgray Elctrns.	404-393-9666
IL	Elgin, Allied Elctrns.	312-697-8200
IL	Elk Grove Village, Pioneer Std.	312-437-9680
IL	Palatine, OHM Elctrns.	312-359-5500
IL	Peoria, Klaus Radio	309-691-4840
IN	Fort Wayne, Graham Elctrns.	219-423-3422
IN	Indianapolis, Graham Elctrns.	317-634-8202
IA	Cedar Rapids, Deeco	319-365-7551
KS	Overland Park, Milgray Elctrns.	913-236-8800
MD	Rockville, Milgray Elctrns.	301-468-6400
MA	Burlington, J. V. Elctrns.	617-273-4300
MA	Burlington, Milgray Elctrns.	617-272-6800
MI	Wyoming, RM Elctrns.	616-531-9300
MN	Minnetonka, Pioneer Std.	612-935-5444
NJ	Marlton, Milgray Elctrns.	609-983-5010
NY	Buffalo, Summit Distrs.	716-887-2800
NY	Farmingdale, Milgray Elctrns.	516-391-3000
NY	Pittsford, Milgray Elctrns.	716-385-9330
NC	Greensboro, Hammond Elctrns.	919-275-6391
OH	Cincinnati, Graham Elctrns.	513-772-1661
OH	Cleveland, Milgray Elctrns.	216-447-1520
OH	Cleveland, Pioneer Std.	216-587-3600
OH	Dayton, Pioneer Std.	513-236-9900
OH	Dayton, Stotts Friedman	513-298-5555
OR	Lake Oswego, Bell Inds.	503-241-4115
PA	Pittsburgh, Pioneer Std.	412-782-2300
SC	Greenville, Hammond Elctrns.	803-233-4121
TN	Memphis, Bluff City Elctrns.	901-345-9500
TX	Dallas, Pioneer Std.	214-386-7300
TX	Fort Worth, Allied Elctrns.	817-336-5401
TX	Houston, Altair Co.	713-462-3029
TX	Richardson, Altair Co.	214-231-5166
UT	Salt Lake City, Standard Supply	801-486-3371
UT	Salt Lake City, Bell Inds.	801-972-6969
WA	Bellevue, Bell Inds.	206-747-1515
WA	Seattle, Priebe Elctrns.	206-682-8242
WI	Milwaukee, Marsh Elctrns.	414-475-6000
WI	Waukesha, Bell Inds.	414-547-8879

VARTA BATTERIES, INC., 150 Clearbrook Rd., Elmsford, NY 10523, Tel: 914-592-2500, Telex: 996-548; *Sls. Mgr.:* Dominick Isola **3**•1436

Local Sales Offices & Reps

AL	Huntsville, 20th Century Mktg.	205-533-9281
CO	Denver, Moss Mktg.	303-455-7205
IL	Palatine, Technology Sls.	312-991-6600
KS	Shawnee Mission, K & M Sls.	913-262-1444
NY	Glen Head, Livera-Polk	201-377-3239
PA	Broomall, TCA Assocs.	215-353-2022

Local Distributors

CA	La Mirada, Energy Devices	213-921-8775
GA	Atlanta, Falcon Batteries	404-953-3500
IL	Downers Grove, Telecommunications Dvcs.	312-971-3460
MA	Sharon, Adcour	617-784-8123
NY	Commack, Brentronics	516-499-5155

VECTOR CABLE CO., 555 Industrial Rd., Sugarland, TX 77478, Tel: 713-240-9196

VECTOR ELECTRONIC CO., INC., 12460 Gladstone Ave., Dept. EP, Box 4336, Sylmar, CA 91342, Tel: 818-365-9661, TWX: 910-496-1539; FSC No.: 82893; Empl.: 140; *Sls. Mgr.:* F. L. Hill **2**•1069, 1094, 1095; **3**•1117

VECTROL, Division of Westinghouse Elec. Corp., 110 Douglas Rd, Oldsmar, FL 33557, Tel: 813-855-4621, Telex: 803784; Empl.: 120; *Sls. Mgr.:* G. Lierman

VECTRONICS MICROWAVE CORP., 276 Lincoln Blvd., Middlesex, NJ 08846, Tel: 201-356-2377, Telex: 833560; FSC No.: 32846; *Sls. Mgr.:* John G. Vogler

Local Sales Offices & Reps

CA	N. Hollywood, Crown Elctrns.	818-877-3550
IL	Palatine, R-Tek, Inc.	312-991-4404
MA	Woburn, Microwave Comp. Mktg.	617-273-3106
NJ	Moorestown, Stern Assocs.	609-234-0661
TX	Garland, Tesco Elctrn. Sls. Co.	214-681-1376
VA	Fairfax, Schibley Assocs.	703-591-3008

VECTRON LABS., 166 Glover Ave., Norwalk, CT 06850, Tel: 203-853-4433, TWX: 710-468-3796; FSC No.: 27802; Empl.: 275; *Sls. Mgr.:* Larry Jawitz **1A**•1438-1442

Local Sales Offices & Reps

AZ	Phoenix, Fetty/Schoenduve	602-241-9009
CA	El Segundo, Fetty/Schoenduve	213-322-4991
CA	Mountain View, Fetty/Schoenduve	415-962-8330
CA	San Diego, Fetty/Schoenduve	619-292-5136
CO	Parker, Techn. Mktg. Assocs.	303-841-3435
CT	Cheshire, Meco	800-225-3409
FL	Melbourne, Saber Assocs.	800-432-6288
FL	Pensacola, Saber Assocs.	800-327-0853
GA	Atlanta, Saber Assocs.	800-327-0853
IL	Bannockburn, Heth, Inc.	312-295-8440
IN	Indianapolis, Ihrig Assocs.	317-783-7630
KS	OLATHE, C-Tron Inc.	913-829-0073
LA	Metairie, Automation Supplies	504-831-2183
MA	Reading, Meco	617-944-6660
MI	Detroit, R. P. Urban Assocs.	313-535-2355
MI	Grand Rapids, R. P. Urban Assocs.	616-245-0511
MN	Burnsville, Heth, Inc.	612-435-7876
MO	St. Louis, AME Sales	314-965-1779
NJ	Woodcliff Lake, F & F Assoc.	201-391-6792
NM	Albuquerque, J. Smith & Assocs.	505-265-3406
NY	Great Neck, F & F Assoc.	516-482-4080
NY	Syracuse, Rep Tech	315-437-2845
NC	Clayton, Saber Assocs.	800-327-0853
NC	North Hills, Saber Assocs.	800-327-0853
OH	Englewood, A. Nace Co.	513-836-0931
OH	Richfield, A. Nace Co.	216-659-7178
PA	Newtown Sq., SWR Assocs.	215-356-8550
PA	Pittsburgh, A. Nace Co.	412-922-7225
SC	W. Columbia, Saber Assocs.	800-327-0853
TX	Dallas, Texas Avionics	214-363-6324
UT	Salt Lake City, Techn. Mktg. Assocs.	801-364-3296
VA	Springfield, Tech-Reps	703-569-6868
WA	Seattle, Datacom	206-285-2525

VEECO INSTRS. INC., 370 San Aleso Ave., Sunnyvale, CA 94086, Tel: 408-733-3700, TWX: 910-339-9263; Empl.: 95; *Sls. Mgr.:* T. McKee

VEECO INSTRUMENTS INC., Terminal Dr., Plainview, NY 11803, Tel: 516-349-8300; *Sls. Mgr.:* Tony Carrozzo

VEEDER-ROOT, 70 Sargeant St., Hartford, CT 06102, Tel: 203-527-7201, Telex: 9-9219; Empl.: 1200; *Sls. Mgr.:* J. R. Garrison; *Dist. Mgr.:* K. Boyle

VEETRONIX, INC., Sub. Reach Electronics, Box 480, Lexington, NE 68850, Tel: 308-324-4600; Empl.: 25; *Sls. Mgr.:* Robert M. Wallace **1B**•1757

Local Sales Offices & Reps

CA	Arcadia, Van Gott & Assocs., Inc.	213-445-9728
CA	San Jose, Ruby Sls.	408-224-0881
CO	Denver, Moss Mktg.	303-455-7205
CT	Bethany, The Rep. Corp.	203-393-0024
MA	Wellesly, Reps. Corp.	617-237-6476
NM	Albuquerque, Moss Mktg.	505-292-7505
PA	Albrightsville, Centurion Linear	717-722-0166
UT	Bountiful, Moss Mktg.	801-292-8660

VEGA PRECISION LABS., 800 Follin La., Vienna, VA 22180, Tel: 703-938-6300, Telex: 89-2521; Empl.: 350; *Sls. Mgr.:* W. E. Kinsley

Local Sales Offices & Reps

CA	Camarillo	805-484-8584
FL	Ft. Walton Beach	904-863-2994

VELONEX, DISPLAY PRODS., 560 Robert Ave., Santa Clara, CA 95050, Tel: 408-727-7370, TWX: 910-338-0114; Empl.: 60; *Sls. Mgr.:* Douglas Greenwood .... **3**•1359

Local Sales Offices & Reps

AL	Huntsville, Pen-Tech	205-881-9298
AZ	Phoenix, R. A. Mayes Co.	602-279-5243
CA	Los Altos, Hoeke-Reeser	415-941-4080
CA	Pasadena, Beckrep	213-957-1111
CO	Denver, R. A. Mayes Co.	303-893-2264
FL	Melbourne, Saber Assoc.	305-724-0920
GA	Griffin, Saber Assoc.	404-228-2084
IL	Chicago, K. W. Meyers Co.	312-882-4808
IN	Indianapolis, K. W. Meyers Co.	317-243-6681
MD	Rockville, Electronic Mktg.	301-744-7700
MA	Needham, Addelco	617-444-4554
MN	Minneapolis, K. W. Meyers Co.	612-920-7080
NM	Albuquerque, R. A. Mayes Co.	505-292-2330
NY	Smithtown, PAF Assoc.	516-360-0940
OH	Medina, McShane, Inc.	216-725-4568
TX	Dallas, R. A. Mayes Co.	214-235-3043
TX	Houston, R. A. Mayes Co.	713-783-3856
WA	Lynnwood, Indl. Electrics	206-775-3516
WI	Brookfield, K. W. Meyers Co.	414-784-3790

VELONEX, INSTR. DIV., 560 Robert Ave., Santa Clara, CA 95050, Tel: 408-727-7370, TWX: 910-338-0114; Empl.: 60 .... **3**•1359

Local Sales Offices & Reps

AZ	Phoenix, R. A. Mayes Co.	602-279-5243
CA	S. Pasadena, Beckrep	213-957-1111
CA	Sunnyvale, Kousen Sls.	408-249-5858
CO	Denver, R. A. Mayes Co.	303-893-2264
DC	Washington, Electronic Mktg.	301-881-5300
FL	Orlando, Saber Assocs.	305-869-8417
GA	Atlanta, Saber Assocs.	404-945-1398
IL	Schaumberg, K. W. Meyers Co.	312-882-4808
IN	Indianapolis, K. W. Meyers Co.	317-243-6681
MD	Baltimore, Electronic Mktg.	301-744-7700
MA	Needham, Addelco	617-444-4754
MI	Detroit, Hocker Assocs.	313-549-3910
MN	Minneapolis, K. W. Meyers Co.	612-920-7080
NJ	Bloomingdale, Eastern Metro	201-492-1747
NM	Albuquerque, R. A. Mayes Co.	505-292-2330
NY	Plainview, Eastern Metro Assocs.	516-931-1414
NC	Clayton, Saber Assocs.	919-553-5564
OH	Cleveland, Hocker Assocs.	216-235-6504
OH	Dayton, Hocker Assocs.	513-298-8638
PA	Plymouth Meeting, Electronic Mktg.	215-828-7400
TX	Houston, R. A. Mayes Co.	713-783-3856
TX	Richardson, R. A. Mayes Co.	214-235-3043
WA	Lynnwood, Indl. Elctrn.	206-775-3516

VEMALINE PRODS. DIV., 487 Jefferson Blvd., Warwick, RI 02886, Tel: 401-739-7600, Telex: 927573; FSC No.: 08730; Empl.: 30; *Sls. Mgr.:* Paul Vamvaketis; *Dist. Mgr.:* Paul Vamvaketis

VENABLE INDUSTRIES, INC., 3555 Lomita Blvd., Torrance, CA 90505, Tel: 213-539-2522, Telex: 752421; Empl.: 20; *Sls. Mgr.:* Wayne H. Tuttle; *Dist. Mgr.:* Shelley Scott

VENT-RAK DIV., P.O. Box 39100, Indianapolis, IN 46239-9632, Tel: 317-897-7000, Telex: 27-2169; Empl.: 150; *Sls. Mgr.:* J. Bradford .... **2**•1034, 1035

Local Sales Offices & Reps

AZ	Phoenix, Synder Eng.	602-279-2010
CA	Fullerton, Groh Assocs.	714-964-7105
CA	Mountain View, G. C. Woempher Co.	415-964-5454
CO	Boulder, R. F. Mayo Assoc.	303-499-2155
CT	North Haven, Coakley, Boyd & Abbett	203-481-2828
FL	Maitland, J. Krutek & Assoc.	305-628-4837
FL	North Miami, J. Krutek & Assoc.	305-941-6544
IL	Glencoe, Howard Benjamin Assoc.	312-835-0150
IN	Noblesville, Century Elctrns.	317-849-2026
KS	Shawnee Mission, Lowell-Kangas & Assoc.	913-631-3515
MA	Needham, Coakley, Boyd & Abbett	617-444-5470
MI	Plymouth, J. Plass Assoc.	313-455-8262
MN	Bloomington, Northport Engrg.	612-854-5556
MO	St. Louis, Lowell-Kangas & Assoc.	314-821-4050
NH	Plaistow, Coakley, Boyd & Abbett	617-444-5470
NJ	Mountainside, H. G. Richter	201-233-4615
NY	Fayetteville, H. G. Richter	315-637-6713
OH	Cincinnati, Comp.	513-866-0661
OH	Cleveland, Comp.	216-243-9200
OK	Tulsa, Advance Tech. Sls.	918-664-0482
PA	Doylestown, Monteiro & Assoc.	215-345-5855
PA	Pittsburgh, Components	412-824-1600
TX	Austin, Advance Tech. Sls.	512-459-1351
TX	Dallas, Advance Tech. Sls.	214-340-1300
TX	Houston, Advance Tech. Sls.	713-440-3888
WA	Olympia, Bergford & Assoc.	206-866-2001
EXP	IN, Indianapolis, General Devices Co.	317-897-7000

VENUS

VENUS SCIENTIFIC, INC., 399 Smith St., Farmingdale, NY 11735, Tel: 516-293-4100, TWX: 510-224-6492; Empl.: 450; *Sls. Mgr.:* Jack Reilly .... **3**•1805

Local Sales Offices & Reps

AZ	Scottsdale, Venus Scientific Inc.	602-991-9684
MA	Norwood, MPS Electronics Inc.	617-769-8700

VERBATIM CORP., 323 Soquel Way, Sunnyvale, CA 94086, Tel: 408-245-4400, Telex: 940-692, TWX: 910-339-9381; Empl.: 1800; *Sls. Mgr.:* S.P. Cochran; *Dist. Mgr.:* Earl Liebich

VERMONT AUTOMATION CO., INC., 18 Morse Dr., Essex Junction, VT 05452, Tel: 802-879-7571; Empl.: 7; *Sls. Mgr.:* J. Littlefield

VERMONT PRECISION RESISTOR, Box 1170, Stowe, VT 05672, Tel: 802-253-8567; Empl.: 5

VERMONT RESCH. CORP., Precision Pk., N. Springfield, VT 05150, Tel: 802-886-2256, TWX: 710-363-6533; Empl.: 175; *Sls. Mgr.:* Richard Simmons

Local Sales Offices & Reps

CA	Encinitas	619-942-5820
IL	Northfield	312-441-5811
PA	Lansdale	215-362-6440
VT	North Springfield	802-886-2256

VERNAY LABORATORIES, INC., S. College St., Yellow Springs, OH 45387, Tel: 513-767-7261; Empl.: 600; *Sls. Mgr.:* Alex Le Pera

VERNITECH, 300 Marcus Blvd., Deer Pk., NY 11729, Tel: 516-586-5100, TWX: 510-227-6079; Empl.: 250; *Sls. Mgr.:* S. Wexler .... **1A**•2066, 2067; **1B**•1019, 1206, 1207, 1882, 1883; **3**•1934

Local Sales Offices & Reps

AL	Huntsville, Remco	205-883-9260
AZ	Fountain Hills, Halbar Assocs.	602-837-2464
CA	Glendale, Halbar Assocs.	213-246-8263
CA	San Mateo, Halbar Assocs.	415-349-4700
CO	Parker, Techn. Mktg. Assoc.	303-841-3435
CT	Cheshire, Selmark Assocs.	203-272-8764
FL	Maitland, MYR Assocs.	305-724-0350
GA	Atlanta, Remco	404-447-6937
IL	Glencoe, Howard Benjamin Assocs.	312-835-0150
IA	Cedar Rapids, Dytronix	319-377-8275
MD	Baltimore, R.P. Luce & Co.	301-752-8200
MA	Millis, Selmark Assocs.	617-376-2914
MA	Norwell, Bordewieck Eng. Sls.	617-659-4915
MI	Farmington Hills, C.P.&P. Inc.	313-477-7700
MN	St. Paul, Vikeland Sls.	612-645-4747
MO	Bridgeton, Dytronix	314-731-5799
MO	Independence, Dytronix	816-373-6600
NH	Concord, Selmark Assocs.	603-623-5774
NJ	Cherry Hill, Lanson Assocs.	609-424-4670
NM	Albuquerque, Technology Mktg.	505-265-5661
NY	Endicott, Tech-Mark	607-748-7473
NY	Melville, Comtronic Engrg. Sls.	516-249-0505
NY	Pittsford, Net Sls. Co.	716-467-4538
NC	Raleigh, Remco	919-847-5079
OH	Dayton, Rixan Assocs.	513-278-4216
OH	Dayton, George Lessis	513-294-1551
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OR	Beaverton, Halbar Assocs.	503-226-0451
PA	Philadelphia, R.P. Luce & Co.	215-884-8365
TX	Bellaire, Seaton Corp.	713-731-2649
TX	Dallas, Seaton Corp.	214-380-0414
UT	Sandy, TMA, Inc.	801-254-6410
VA	Powhatan, R.P. Luce & Co.	804-598-4804
WA	Redmond, Halbar Assocs.	206-882-0990
WA	Seattle, G.M. Gillette & Assoc.	206-284-3344
WA	Vancouver, Halbar Assocs.	206-696-0170

VERNITRON CORP., Control Comps. Div., 1601 Precision Park La., San Diego, CA 92073, Tel: 619-428-5581, TWX: 910-322-1862; *Sls. Mgr.:* S. W. Silverman .... **1B**•1208, 1209

Local Sales Offices & Reps

AZ	Fountain Hills, Halbar Assocs.	602-837-2464
CA	Glendale, Halbar Assocs.	213-246-8263
CA	San Mateo, Halbar Assocs.	415-349-4700
CO	Parker, Techn. Mktg. Assocs.	303-841-3435
CT	North Haven, Kitchen & Kutchin	203-239-0212
FL	Ft. Lauderdale, Electrocomp Assocs.	305-491-4141
FL	St. Petersburg, Electrocomp Assocs.	813-327-9677
IL	Glencoe, Howard Benjamin Assocs.	312-835-0150
MD	Baltimore, Callas Elctrns.	301-744-7711
MA	Burlington, Kitchen & Kutchin	617-229-2660
MI	Lathrup Village, R. C. Nordstrom Co.	313-559-7373
MN	Edina Prairie, Techco Ltd.	612-929-9497
NJ	Cherry Hill, Lanson Assocs.	609-424-4670
NJ	Harrington Park, Metro Tech. Sls.	201-768-8495
NY	Fairport, NET Sls.	716-467-4538
NY	Jericho, Metro Tech. Sls.	516-935-3330
OH	Dayton, Rixan Assocs.	513-222-0011
TX	Dallas, M. Kruvand Co.	214-691-4592
TX	Houston, Kruvand Assocs.	713-780-9710
WA	Redmond, Halbar Assocs.	206-882-0990

VERNITRON ELEC. COMPS., See Beau Prods. Div.

VERNITRON PIEZOELECTRIC DIV., 232 Forbes Rd., Bedford, OH 44146-5478, Tel: 216-232-8600, TWX: 810-427-2274; Empl.: 120; *Sls. Mgr.:* William K. Dorn .... **1A**•1437

Local Sales Offices & Reps

CA	Fullerton, GRU Assocs.	714-738-0903

VERSALOGIC, 87070 Dukhobar Rd., Eugene, OR 97402, Tel: 503-485-8575

VERTEL INC., P.O. Box 535, 125 Ellsworth St., Clifton, NJ 07012, Tel: 201-472-1331, TWX: 710-989-7021; *Sls. Mgr.:* Ron Byer

VERTOX CO., 9252 Garden Grove Blvd. #22, Garden Grove, CA 92644, Tel: 714-530-4541, Telex: 678401 TAB IRIN; FSC No.: 53688; *Sls. Mgr.:* Steve Hacker

VIABLE SYSTEMS INC., Box 438, Needham, MA 02192, Tel: 617-449-4570; Empl.: 15

VIBRAC, 1 Columbia Dr., Amherst, NH 03031, Tel: 603-882-6777; Empl.: 35; *Sls. Mgr.:* R. Searle

VIBRA-METRICS, 385 Putnam Ave., Hamden, CT 06517, Tel: 203-288-6158, TWX: 710-465-0169; Empl.: 25

Local Sales Offices & Reps

AZ	Scottsdale, Dave Menegay Assocs.	602-994-9591
CA	Long Beach, Saber Enterprises	213-595-5646
CA	Palo Alto, Gado Instr. Sls.	415-961-2222
CO	Boulder, Measurement Consultants	303-449-7506
CT	Hamden, JBL Assoc.	203-281-3161
FL	Ft. Lauderdale, Elctrn. Devices & Controls	305-974-2500
IL	Chicago, Comtel-Midwest	312-539-4838
IN	Indianapolis, Comtel Corp.	317-253-1681
IA	Cedar Rapids, Comtel Corp.	319-377-9434
KS	Shawnee Mission, Comtel Corp.	913-722-1030
MD	Rockville, Farrel Assocs.	301-424-9460
MA	Bedford, Claflin Assocs.	617-275-7428
MI	Southfield, Comtel Instrs.	313-358-2505
MN	Wayzata, Comtel Corp.	612-476-1551
MO	St. Louis, Comtel Corp.	314-991-5363
NJ	Basking Ridge, Blejwas Assocs.	201-221-1440
NM	Albuquerque, Measurement Consits.	505-265-6471
NY	Baldwinsville, Oshex Assocs., Inc.	315-635-6027
NC	Raleigh, Lee-Carolinas	919-848-8818
OH	Cleveland, Comtel Instrs.	216-442-8080
OH	Dayton, Comtel Instrs.	513-298-7573
OH	Hilliard, Comtel Instrs.	614-876-8305
PA	Pittsburgh, Comtel Instrs.	412-922-5720
TN	Knoxville, Mace Instr. Co.	615-938-3773
TX	Richardson, Scientific Sls. Co.	214-231-6541
UT	Salt Lake City, Measurement Consits.	801-364-3174
WA	Bellevue, Scientific Devices-NW	206-747-5169
WI	New Berlin, Comtel Corp.	414-544-6042

VIBRATION INSTRS. CO., 1614 Orangethorpe Way, Anaheim, CA 92801, Tel: 714-879-6085, Telex: 692433; FSC No.: 32102; Empl.: 21; *Sls. Mgr.:* L. Rothberg

VIBRO-METER CORP., 1 Progress Rd., Billerica, MA 01821, Tel: 617-663-7322, Telex: 948145, TWX: 710-320-1872; FSC No.: 617-667-1944; Empl.: 50; *Sls. Mgr.:* Carl Nicolino .... **1B**•1885

Local Sales Offices & Reps

AL	Huntsville, Currie, Peak & Frazier	205-536-1506
AK	Anchorage, Arctic Technlg.	907-277-6418
AK	Anchorage, Harry J. Lang & Assocs.	907-279-5741
CA	Costa Mesa, FLW Inc.	714-751-7512
CA	San Carlos, W. I. Carsons & Assocs.	415-591-8616
CA	San Diego, FLW Inc.	619-277-0993
CT	North Haven, Pat Jenks Assocs.	203-239-6201
FL	Maitland, Meagher & Assocs.	305-645-3063
HI	Honolulu, EMC Corp.	808-836-1138
IL	Cary, J.E.M. Entprs.	312-639-1770
IN	Indianapolis, Loren Green Assocs.	317-293-9827
MD	Towson, MRT Co.	301-685-7425
MA	Woburn, Pat Jenks Assocs.	617-938-0488
MI	Mt. Clemens, R. J. O'Hara Assocs.	313-791-7140
MN	St. Paul, Resource Technlg.	612-644-3064
MO	St. Louis, Ozark Elctrn. Mktg.	314-423-7200
NJ	Cedar Grove, KLS Assoc.	201-785-4450
NY	Dewitt, D. B. Assocs.	315-446-0220
NC	Greensboro, Currie, Peak & Frazier	919-373-0380
OH	Columbus, R.D. Cloon Assoc.	614-459-2890
PA	Radnor, Roberts Engrg. Sls.	215-688-6526
TX	Dallas, Griffin Sls.	214-234-5013
WA	Monroe, Envirotest	206-794-6640

VICLAN, 7373A Engineers Rd., San Diego, CA 92138, Tel: 619-292-1411, TWX: 910-335-1264; FSC No.: 51959; Empl.: 250; *Sls. Mgr.:* Bob Goodman

VICON INDS., 125 E Bethpage Rd., Plainview, NY 11803, Tel: 516-293-2200, Telex: 144581; Empl.: 320

VICTOREEN, INC., Component Div., 10101 Woodland Ave., Cleveland, OH 44104, Tel: 216-795-8200, TWX: 810-421-8287 .... **1A**•2000-2003

Local Sales Offices & Reps

AZ	Tuscon, Shelley Elctrns.	602-622-2226
CA	Chatsworth, Shelley Elctrns.	818-998-3333
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Jose, Shelley Elctrns.	415-969-1820
CO	Boulder, Shelley Elctrns.	303-442-2718
MD	Gaithersburg, Axis Elctrns.	800-368-2815
MA	Boston, Precision Sls.	617-969-4905
MA	Newton, Precision Sls.	617-969-0594
OH	Cleveland, Pruitt Energy Sources	216-566-1545
WA	Edmonds, EDCO Sls.	206-776-8922

Local Distributors

AZ	Tuscon, Shelley Elctrns.	602-622-2226
CA	Chatsworth, Shelley Elctrns.	818-998-3333
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Jose, Shelley Elctrns.	415-969-1820
CO	Boulder, Shelley Elctrns.	303-442-2718
MD	Gaithersburg, Axis Elctrns.	800-368-2815
MA	Boston, Precision Sls.	617-969-4905
OH	Cleveland, Pruitt Energy Sources	216-566-1545
WA	Edmonds, EDCO Sls.	206-776-8922

VICTOR ELEC. WIRE & CABLE, 618 Main St., W. Warwick, RI 02893, Tel: 401-821-1700, SALES 401-821-7800, Telex: 952122, TWX: 710-382-1534; Empl.: 900; *Sls. Mgr.:* E. M. Colasanto

VICTOR WIRE & CABLE CORP., 3601 Holdrege Ave., Los Angeles, CA 90016, Tel: 213-870-9933; Empl.: 30

VICTORY ENGRG. CORP., Victory Rd., Springfield, NJ 07081, Tel: 201-379-5900, TWX: 710-983-4430; Empl.: 300; *Sls. Mgr.:* J. Bacek

VIDAIRE ELCTRNS., 150 Buffalo Ave., Freeport, NY 11520, Tel: 516-623-6696; Empl.: 20

VIDCO, P.O. Box 25452, Portland, OR 97225, Tel: 503-292-4104; Empl.: 4; *Sls. Mgr.:* Tom Inloes

VIDEO AUTOMATION SYSTEMS, Upper Shad Rd., Pound Ridge, NY 10576, Tel: 914-764-4613; Empl.: 5

VIDEO LOGIC CORP., 597 No. Mathilda Ave., Sunnyvale, CA 94086, Tel: 408-245-8622, Telex: 35-7400

VIDEO MONITORS, INC., 3833 N. White Ave., Eau Claire, WI 54703, Tel: 715-834-7785; *Sls. Mgr.:* J. Carpentier

VIKING CONNECTORS, 21001 Nordhoff St., P.O. Box 2379, Chatsworth, CA 91311, Tel: 818-341-4330, TWX: 910-494-2094; FSC No.: 05574; Empl.: 500; *Sls. Mgr.:* Bob Ploudre .... **2**•1737

Local Sales Offices & Reps

AZ	Scottsdale, Southwest Mktg. Sys.	602-998-0831
CA	Los Gatos, Landia Sls. Grp.	415-490-5651
CA	Milpitas, Viking Connectors	408-943-0888
CA	San Diego, La Playa Co.	619-223-6580
CA	Tarzana, Viking Connectors	818-881-9980
CO	Castle Rock, Romulus Elctrns.	303-688-5753
FL	Casselberry, Elctrn. Mktg. Corp.	305-339-7070
FL	Lake Worth, Elctrn. Mktg. Corp.	305-969-0097
GA	Stone Mtn., Mountain Electro Prods.	404-469-0603
HI	Honolulu, Indl. Elctrns.	808-533-6095
ID	Boise, N. R. Schultz Co.	208-377-8686
IL	Lisle, W G Controls	312-963-5954
IL	Palatine, Viking Connectors	312-934-1278
IN	Indianapolis, C C Elctrns.	317-255-1508
KS	Merriam, Midwest Techl. Sls.	913-236-8557
KS	Wichita, Midwest Techl. Sls.	316-262-7240
KY	Louisville, KW Elctrn. Sls.	502-451-1860
MD	Phoenix, Chesapeake Mktg. Assoc.	301-628-4848
MA	Brockton, Forsberg Sls.	617-522-6300
MA	Wakefield, Viking Connectors	617-245-4110
MI	Livonia, Elctrn. Salesmasters	313-591-2433
MN	Minneapolis, D E Beck-Hats Assoc.	612-835-3610
MN	Minneapolis, Viking Connectors	612-925-9889
MN	St. Charles, Midwest Techl. Sls.	314-441-1012
NJ	Wayne, G. T. Assocs.	201-694-6040
NY	Syracuse, Leonard D. Allen, Inc.	315-437-8387
NC	Durham, Mountain Electro Prods.	919-286-7737
OH	Benchwood, Elctrn. Salesmasters	216-831-9555
OH	Dayton, KW Elctrn. Sls.	513-890-2150
OH	Shaker Heights, KW Elctrn. Sls.	216-491-9177
OH	Worthington, KW Elctrn. Sls.	614-888-0483
OR	Beaverton, N. R. Schultz Co.	503-643-1644
PA	Allison Park, KW Elctrn. Sls.	412-487-4300
PA	New Cumberland, La Playa Co.	717-938-2439
PA	Prospect Park, Elf Sls.	215-534-3340
TX	Arlington, Pro-Comp Sls.	817-640-4336
TX	Dallas, Viking Connectors	214-680-9931
WA	Bellevue, N. R. Schultz Co.	206-454-0300
WA	Seattle, La Playa Co.	206-524-1111
PR	Rio Piedras, Klamco Elctrns.	809-752-6169

Local Distributors

AL	Huntsville, Hall-Mark Elctrns.	205-837-8700
AZ	Phoenix, Sterling Elctrns.	602-258-4531
AZ	Phoenix, Sterling Elctrns.	602-268-2122
AZ	Tempe, Richey Western	602-894-9251
AZ	Tempe, Time Elctrns.	602-967-2000
AZ	Tempe, Acacia Sls.	602-894-2874
CA	Anaheim, Time Elctrns.	714-937-0911
CA	Belmont, LoDan Elctrns.	415-592-4600
CA	Citrus Heights, Hall-Mark Elctrns.	916-722-8600
CA	Irvine, Acacia Sls.	714-660-0834
CA	Los Angeles, Richey Western	213-820-3777
CA	San Diego, Richey Western	619-271-4511
CA	San Diego, Acacia Sls.	619-565-4365
CA	Santa Clara, Richey Western	408-727-7411
CA	Sun Valley, Richey Western	213-768-3800
CA	Sunnyvale, Acacia Sls.	408-745-7200
CA	Torrance, Time Elctrns.	213-320-0880
CO	Englewood, Hall-Mark Elctrns.	303-694-1662
CO	Lakewood, Acacia Sls.	303-232-2882
CT	New Canaan, Richey Western	203-972-1458; 203-972-1165
CT	Stratford, Utronics	203-378-4201
CT	Wallingford, Sterling Elctrns.	203-265-9535
FL	Clearwater, Hall-Mark Elctrns.	813-530-4543
FL	Ft. Lauderdale, Time Elctrns.	305-974-4800
FL	Ft. Lauderdale, Hall-Mark Elctrns.	305-971-9280
FL	Largo, LoDan Elctrns.	813-595-5811
FL	Orlando, Hall-Mark Elctrns.	305-855-4020
GA	Atlanta, Electro Air Corp.	404-351-3545
GA	Norcross, Hall-Mark Elctrns.	404-447-8000
IL	Arlington Hgts., LoDan Elctrns.	312-398-5311
IL	Bensenville, Hall-Mark Elctrns.	312-860-3800
IN	Indianapolis, MAR Elctrns.	317-875-4510
IN	Indianapolis, MAR Elctrns.	317-875-4510
KS	Lenexa, Hall-Mark Elctrns.	913-888-4747
LA	Metarie, Sterling Elctrns.	504-887-7610
MD	Columbia, Time Elctrns.	301-964-3090
MD	Columbia, Hall-Mark Elctrns.	301-988-9800
MA	North Chelmsford, Pilgrim Elctrns.	617-251-8746
MA	Waltham, Sterling Elctrns.	617-894-6200
MA	Woburn, Time Elctrns.	617-935-8080
MI	Livonia, LWC Dists.	313-464-7700
MN	Bloomington, Hall-Mark Elctrns.	612-854-3223
MN	Minneapolis, Indl. Comps.	612-831-2666
MO	Maryland Heights, Hall-Mark Elctrns.	314-291-5350
MO	St. Louis, Time Elctrns. Mid-West	314-391-6444
NJ	Bellmawr, Mid Atlantic Elctrns.	609-931-5303
NJ	Cherry Hill, Hall-Mark Elctrns.	215-355-7300
NJ	Fairfield, Hall-Mark Elctrns.	201-575-4415
NJ	Perth Amboy, Sterling Elctrns.	201-442-8000
NM	Albuquerque, Betatron	505-344-2381
NM	Albuquerque, Sterling Elctrns.	505-884-1900
NY	Buffalo, Summit Dists.	716-887-2800
NY	Hauppauge, Time Elctrns.	516-273-0100
NY	Plainview, Landmark Elctrns.	516-293-7441
NC	Raleigh, Hall-Mark Elctrns.	919-872-0712
OH	Cincinnati, Hall-Mark Elctrns.	513-563-5980
OH	Dayton, Electro Line, Inc.	513-461-5683
OH	Solon, Hall-Mark Elctrns.	216-349-4632
OH	Westerville, Hall-Mark Elctrns.	614-891-4555
OK	Tulsa, Hall-Mark Elctrns.	918-665-3200
OK	Tulsa, Sterling Elctrns.	918-663-2410
OR	Beaverton, Acacia Sls.	503-646-3377
PA	Broomall, Time Elctrns.	215-359-1200
TX	Austin, Sterling Elctrns.	512-836-1451
TX	Austin, Hall-Mark Elctrns.	512-258-8848
TX	Dallas, Hall-Mark Elctrns.	214-343-5000
TX	Dallas, Sterling Elctrns.	214-243-1600
TX	Dallas, Target Elctrns.	214-788-0761
TX	Houston, Sterling Elctrns.	713-627-9800
TX	Houston, Hall-Mark Elctrns.	713-781-6100
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Bellvue, Electro Air	206-641-3640
WA	Seattle, Richey Western	206-575-1910
WI	Oak Creek, Hall-Mark Elctrns.	414-761-3000

VIKING ELECTRONICS, Industrial St., Hudson, WI 54016, Tel: 715-386-8861; Empl.: 24; *Sls. Mgr.:* Bill Wiese

VIKING LABS., INC., 440 Bernardo Ave., Mountain View, CA 94043, Tel: 415-969-5500, TWX: 910-379-6555; Empl.: 90; *Sls. Mgr.:* Jack Eagan, Prod. Reliability; *Dist. Mgr.:* M. J. Marchman, Comp. Test

Distributor

VILLARREAL ELECTRONICS, Box 43A, RD 2, South Rd., Millbrook, NY 12545, Tel: 914-677-3447 .... **2**•1064

V.I.P. INDS. INC., 246 Knickerbocker Ave., Paterson, NJ 07503, Tel: 201-345-5800; *Sls. Mgr.:* John M. Sonatore

VIRGINIA PANEL, 1400 New Hope Rd., Waynesboro, VA 22980, Tel: 703-949-8376, TWX: 710-839-0406; Empl.: 225; *Sls. Mgr.:* Jeff Stowers

VIRGINIA PLASTICS CO., P.O. Box 4577, Roanoke, VA 24015-0577, Tel: 703-985-3811, TWX: 710-870-0440; FSC No.: 59608; Empl.: 120; *Sls. Mgr.:* Charles Bogese .... **2**•1738-1740, 2151

Local Sales Offices & Reps

AZ	Tempe, General Comps. Grp.	602-829-8124
CA	Granada Hills, C&W Comps.	213-368-4032
CA	San Jose, Pitts Sls. Assocs.	408-252-6177
CO	Parker, Mikro Sls. Co.	303-841-4131
CT	Middletown, Gerber Sls.	203-347-3000
CT	Old Saybrook, Gerber Sls.	203-388-4386
FL	Ft. Lauderdale, APM Assocs.	305-565-0056
FL	Longwood, APM Assocs.	305-869-6831
FL	Merritt Island, APM Assocs.	305-453-4322
FL	Tampa, APM Assocs.	813-886-2457
GA	Stone Mountain, H & H Mktg.	404-296-9830
IL	Palatine, Claeson Assocs.	312-359-7230
MD	Silver Spring, Carwithen Assocs.	301-589-9040
MA	Newton, Gerber Sls.	617-969-2620
MN	Minneapolis, Northstar Comps.	612-553-1888
NJ	Haworth, Kay Sls.	201-384-3261
NY	Syracuse, Canavan-Scanlon Assocs.	315-437-1271
PA	Southampton, Campbell Assocs.	215-322-6630
TX	Houston, AID Elctrns.	713-955-6204
TX	Irving, Aid Elctrns.	214-259-4761

Local Distributors

MA	Newton, Atlantic Comps.	617-969-2620
MN	Minneapolis, K&H Elctrn. Distributing	612-553-1312

VIRTIS CO., Rte. 208, Gardiner, NY 12525, Tel: 914-255-5000, Telex: 926474; Empl.: 92; *Sls. Mgr.:* J. D. Schmidt

VISHAY
...to be precise®

VISHAY RESISTIVE SYS. GRP., 63 Lincoln Hwy., Malvern, PA 19355, Tel: 215-644-1300, TWX: 510-668-8944; Empl.: 500 .... **1A**•2004-2015, 2070

Local Sales Offices & Reps

AL	Huntsville, Montgomery Marketing	205-830-0498
AZ	Phoenix, Compass Mktg: & Sls.	602-266-5400
CA	Cupertino, Vishay Resistive Sys. Grp.	408-730-1292
CA	La Habra, Vishay Resistive Sys. Grp.	714-738-1581
CO	Denver, Comps. Sls. Inc.	303-759-1666
CT	North Haven, Comp Rep Assocs.	203-239-9762
FL	Altamonte Springs, Semtronic Assocs.	305-831-8233
FL	Clearwater, Semtronic Assocs.	813-461-4675
FL	Ft. Lauderdale, Semtronic Assocs.	305-731-2404
GA	Norcross, Montgomery Mktg.	404-447-6124
IL	Elk Grove Village, Oasis Sls. Corp.	312-640-1850
IN	Carmel, Shamrock Elctrn. Sls.	317-848-5265
MD	Lutherville, J. A. Dougherty Sls. Co.	301-321-7890
MA	Westwood, Comp Rep Assocs.	617-329-3454
MI	Bloomfield Hills, Enco Mktg.	313-642-0203
MN	St. Paul, Proud Inds.	612-646-9428
NJ	Flanders, K & R Engrg. Sls.,Co.	201-584-5235
NY	E. Syracuse, L-Mar Assocs.	315-437-7779
NY	Rochester, L-Mar Assocs.	716-544-8000
NC	Cary, Montgomery Mktg.	919-467-6319
OH	Aurora, EMA, Inc.	216-562-6104
OH	Centerville, EMA, Inc.	513-433-2800
TX	Dallas, Vishay Resistive Sys. Grp.	214-245-7306
TX	Houston, Vishay Resistive Sys. Grp.	713-550-0568
WA	Bellevue, SDR^2	206-747-9424
WI	Brookfield, Oasis Sls. Corp.	414-782-6660
EXP	Mayaguez, Comp Rep Assocs.	809-832-9529

Local Distributors

AZ	Tempe, Shelley Elctrns.	602-894-2058
CA	Chatsworth, Shelley Elctrns., Inc.	213-998-3333
CA	Los Alamitos, Semi-Dice, Inc.	213-594-4631
CA	North Hollywood, TTI, Inc.	213-982-0201
CA	San Diego, Shelley Elctrns., Inc.	619-453-7133
CA	San Jose, Shelley Elctrns., Inc.	408-942-9111
CA	San Jose, TTI, Inc.	408-943-9155
CA	Santa Clara, Semi-Dice, Inc.	408-980-9777
CO	Boulder, Shelley Elctrns., Inc.	303-442-2718
FL	Orlando, TTI, Inc.	305-859-1000
FL	Tampa, Impala Elctrns., Inc.	813-885-4747; 800-237-7777
IL	Palatine, Ohm Elctrns.	312-359-5500
MD	Beltsville, RESCO/Washington	301-937-9100
MD	Whitemarsh, RESCO/Baltimore	301-529-0500; 800-638-1242
MA	Canton, Semi-Dice, Inc.	617-821-0070
MA	Framingham, Cavalier Comps., Inc.	617-875-2000
MA	Woburn, TTI, Inc.	617-938-8800
NJ	Fairfield, CHPS, Inc.	201-882-0997
NJ	Flanders, VKR Svcs., Inc.	201-584-5235; Outside NJ 800-631-9362
NY	Bohemia, TTI, Inc.	516-567-1500
NY	Farmingdale, Command Elctrns. Corp.	516-293-1212
OH	Dayton, Micro Mil Div.	513-434-8231
PA	Royersford, Hybrid Service Lab	215-948-6880
TX	Fort Worth, TTI, Inc.	817-831-0441
TX	Houston, The Cunningham Co.	713-468-3882

VIZ

AUTHORIZED DISTRIBUTORS

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VISHAY-MANN, Vishay Resistive Systems Group, 63 Lincoln Hwy., Malvern, PA 19355, Tel: 215-644-1300, Telex: 510-668-5812 ..**1A**•2014, 2015

Please refer to sales representatives listed under Vishay Resistive Systems Group

Please see distributors listed under Vishay Resistive Systems Group.

VISHAY ANGSTROHM, 1 Precision Pl., Hagerstown, MD 21740, Tel: 301-739-8722, TWX: 710-853-6834; FSC No.: 17745; Empl.: 250; *Sls. Mgr.:* John Kinnaw; *Dist. Mgr.:* Jeff Reed ....**1A**•2011-2013

VISION ENGRG. INC., 570 Danbury Rd., New Milford, CT 06776, Tel: 203-355-3776, Telex: 643769; Empl.: 15; *Sls. Mgr.:* R. N. Gable

VISTAR CORP., 13740 McCormick Dr., Tampa, FL 33625, Tel: 813-855-6611; Empl.: 25; *Sls. Mgr.:* J. Looney ....**3**•1317

Local Sales Offices & Reps

AL	Huntsville, Synergetic Reps.	205-882-1691
CT	North Haven, Pat Jenks Assocs.	203-239-6201
FL	Largo, Synergetic Reps.	813-586-2871
GA	Lawrenceville, Synergetic Reps.	404-963-0968
IL	Rolling Meadows, Commodore I	312-394-5441
MD	Silver Springs, Sel-Tronics	301-589-3391
MA	Woburn, Pat Jenks Assocs.	617-938-0488
NY	Port Chester, Radiation Elctrns.	914-937-2300
NY	Syracuse, Labtonics, Inc.	315-455-7314
NC	Greensboro, Synergetic Reps.	919-272-9303
OH	Euclid, Bradcor Elctrns. Co.	216-261-0888
OR	Portland, Scientific Devices	503-292-6934
PA	Mechanicsville, John Bell Assocs.	215-794-7075
TX	Richardson, Scientific Dvcs.	214-231-8106
WA	Bellevue, Scientific Dvcs.	206-747-5169

VISUAL COMMUNICATIONS CO., P.O. Box 986, El Segundo, CA 90245, Tel: 213-822-4727; Empl.: 9; *Sls. Mgr.:* J. Savage ....**1B**•1106-1108

Local Sales Offices & Reps

AL	Huntsville, Remco	205-553-3763
AZ	Phoenix, Bob Anderson Co.	602-266-2070
CA	Mountain View, Westech Sls.	415-961-1422
CA	San Diego, Harvey King Inc.	619-566-5252
CA	Torrance, Assoc Reps.	213-328-6708
FL	Melbourne, Beacon Elctrns.	305-724-8010
GA	Atlanta, Remco	404-447-6937
IL	Elmhurst, Utronix Sls.	312-834-1100
MA	Peabody, Eastern Natl. Assoc.	617-535-5536
MI	Jenison, R. C. Nordstrom & Co.	616-457-5762
MI	Lathrup Village, R. C. Nordstrom & Co.	313-559-7373
MN	Eden Prairie, Bohlig & Assoc.	612-944-8404
NY	New York, Robert Smith Assocs.	212-541-4885
NY	Plainview, Robert Smith Assocs.	516-681-3155
NY	Spring Valley, Robert Smith Assocs.	914-354-6067
NC	Raleigh, Remco	919-847-5079
OH	Dayton, Dynel Co.	513-434-6467
PA	Philadelphia, Rayco Sls.	215-757-1899
TX	Austin, J B Guenther	512-472-3825
TX	Dallas, J. B. Guenther	214-691-8500
TX	Houston, J. B. Guenther	713-974-0383
VA	Fairfax, Beacon No.	703-591-1300
VA	Forest, Beacon North	804-239-8486
WA	Redmond, Elctrn. Mktg. Grp.	206-882-0962
EXP	CT, Litchfield, Intrade	203-567-5901

Local Distributors

AL	Huntsville, Component Distr.	205-883-7501
AZ	Tempe, Anjon Entprs.	602-894-1332
AR	Little Rock, Component Distr.	501-227-6278
CA	Costa Mesa, Orange County Comps.	714-979-3597
CA	Los Angeles, Electric Switch	213-660-1310
CA	San Jose, Cypress Elctrns.	408-945-8400
CA	Torrance, WBC Electro Supp.	213-328-6871
CO	Englewood, Industrial Elctrns. Inc.	303-694-9444
FL	Ft. Lauderdale, Component Distr.	305-971-4950
GA	Norcross, Component Distrs.	404-441-3320
MA	Lynn, Land Elctrn. Supp.	617-592-2220
MI	Grand Rapids, S. F. Elctrns. Supp.	616-459-0216
MN	Blaine, Chris Elctrn. Distr.	612-757-6341
NJ	Bellmawr, Midatlantic Elctrns.	609-931-5303
NY	Elmsford, Ancar Elctrn. Supp.	914-592-7100
NY	Plainview, Plainview Elctrns.	516-249-6677
NC	Raleigh, Component Distr.	919-834-9465
OH	Aurora, IPD	216-562-8113
OH	Centerville, IPD	513-435-2086
TX	Houston, Solid State Elctrns.	713-772-8483
TX	Irving, Solid State Elctrns.	214-438-5700
VA	Falls Church, Component Distr.	703-241-8227
WA	Redmond, Paccom	206-883-9200
EXP	CT, Litchfield, Intrade	203-567-5901

VISUAL INFO. INSTITUTE, Box 33, Xenia, OH 45385, Tel: 513-376-4361; FSC No.: 27432; Empl.: 45

Local Sales Offices & Reps

CA	San Diego, DRF Assocs.	619-292-9431
CA	San Diego, Perspective Meas.	619-278-8931
CA	San Jose, Fox Marketing	408-984-2221
CO	Bailey, Scientific Sys.	303-838-4615
FL	Melbourne, EME III, Inc.	305-259-2711
GA	Decatur, EME II, Inc.	404-325-0165
MA	Clemsford, Meritron Corp.	617-250-1774
NC	High Point, EME, Inc.	919-869-3335
VA	Williamsburg, EME IV, Inc.	804-253-0171

VITEK ELCTRNS., 4 Gladys Ct., Edison, NJ 08817, Tel: 201-287-3200; *Sls. Mgr.:* Joe Griffin

VITRAMON N.A., P. O. Box 544, Bridgeport, CT 06601, Tel: 203-268-6261, TWX: 710-450-3640; Empl.: 606; *Sls. Mgr.:* Paul Davis; *Dist. Mgr.:* S Judt

VIZ TEST EQUIPMENT, Div. VIZ Mfg., 335 E. Price St., Philadelphia, PA 19144, Tel: 215-844-2626, TWX: 710-670-2626; Empl.: 500

Local Sales Offices & Reps

CA	N. Hollywood, MCS Marketing	213-980-1188
CA	Sunnyvale, W. W. Posey	408-746-0771
CO	Denver, Mountain Reps.	303-623-0972
FL	Ft. Lauderdale, Unirep, Inc.	305-587-7481
GA	Roswell, Henry W. Phillips Co.	404-992-3070
IL	Park Ridge, Bob Burns & Assoc.	312-775-1233
IN	Carmel, Midwest Reps. & Assoc.	317-844-4555
MD	Columbia, Par-Nell Sls. Co.	301-992-5454
MA	Milford, Jonel Sls.	617-478-4650
MI	Ferndale, Hilltronics	313-398-5556
MN	White Bear Lake, Yore Co.	612-770-9760
MO	Raytown, Marty Taraski Sls. Co.	816-358-1442
NJ	Fort Lee, TMC Sls. Corp.	201-944-8340
NY	Grand Island, L. J. McTaggart Assocs.	716-773-9222
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TX	Dallas, Crockett Sls. Co.	214-350-3377

VLSI TECHNOLOGY, INC., 1101 McKay Dr., San Jose, CA 95131, Tel: 408-942-1810, Telex: 278807; Empl.: 450; *Sls. Mgr.:* Ronald C. Kasper

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CA	San Jose	408-942-1810
IL	Arlington Heights	312-358-8000
MA	Burlington	617-229-6555
TX	Dallas	214-231-6716

VOICE IDENTIFICATION, Box 714, Somerville, NJ 08876, Tel: 201-526-3408; Empl.: 7

VOICE MACHINE COMMS., INC., KTI, 1000 S. Grand Ave., Santa Ana, CA 92705, Tel: 714-541-0454; *Sls. Mgr.:* Rod Runge; *Dist. Mgr.:* Rod Runge

VOLITION SYSTEMS, P.O. Box 1236, Del Mar, CA 92014, Tel: 619-481-2286, Telex: 695000 COMEX SDG; Empl.: 7; *Sls. Mgr.:* Joe Caporaletti

VOLTAGE MULTIPLIERS, INC., 8711 W. Roosevelt Ave., Visalia, CA 93291, Tel: 209-651-1402, Telex: 176-559; FSC No.: 60211; Empl.: 40; *Sls. Mgr.:* Ken Haag ....**1A**•2113

Local Sales Offices & Reps

AZ	Phoenix, High Voltage Sls., Inc.	602-861-9043
CA	Milpitas, Voltage Multipliers, Inc.	408-946-1254

CA Tarzana, High Voltage Sls. 213-881-9194
CO Castle Rock, Romulus Elctrns., Ltd. 303-688-5127
GA Stone Mountain, Mountain Electro Prods., Inc. 404-469-0603
IL Arlington Heights, M. J. Petersen & Assoc., Ltd. 312-577-8200
IN Fort Wayne, Walter W. Bieberich, Inc. 219-432-2537
MD Glen Burnie, Macrotech Assoc., Ltd. 301-437-5588
MA Chelmsford, Encotronics 617-256-4207
MO St. Louis, Robert J. Ruzicka Co. 314-353-7378
NY Hicksville, J-Square Mktg., Inc. 516-935-3200
NY Rochester, Robert F. Lamb Co. Inc. 716-323-1250
NY Syracuse, Robert F. Lamb Co. Inc. 315-455-2469
OH Dayton, L. D. Bruno Co. 513-434-1847
OK Tulsa, Cunningham Comps. Corp. 918-492-0390
OR Portland, Electronic Comp. Sls. 503-245-2342
PA Washington Crossing, DVS Co. 215-493-4642
TX Dallas, Cunningham Comps. Corp. 214-233-4303
TX Houston, Cunningham Comps. Corp. 713-461-4197
WA Mercer Island, Electronic Comp. Sls. 206-232-9301

VOLTAMPERE CORP., 146 Horton Ave., Lynbrook, NY 11563, Tel: 516-887-9443; FSC No.: 7U805; Empl.: 10

VOLTARC TUBES, 176 Linwood Ave., Fairfield, CT 06430, Tel: 203-255-2633, Telex: 96-4337; Empl.: 180; *Sls. Mgr.:* Albert H. Katz

VOLTEX, 3460 Great Neck Rd., Amityville, NY 11701, Tel: 516-842-2772; Empl.: 55; *Sls. Mgr.:* S. Vogel ....**3**•1806

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CT Milford, Cumming Assocs. 203-878-3946
MA Randolph, Bengal Assocs. 617-961-4120
NJ Oxford, Malin Assocs. 201-689-7398
NM Albuquerque, RLS Instrs. Co. 505-293-7931
NY Fulton, Jones Sudders, Inc. 315-598-3838

VOLTRONICS, West St., P.O. Box 366, E. Hanover, NJ 07936, Tel: 201-887-1517, TWX: 710-986-8253; FSC No.: 18736; Empl.: 70; *Sls. Mgr.:* Richard J. Newman

VOTAN, 4487 Technology Dr., Fremont, CA 94538, Tel: 415-490-7600; *Sls. Mgr.:* Robert Russo

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AL Brownsboro, JHU Assoc. 205-536-7455
AZ Tempe, System Sls. of Az. 602-829-9338
CA Alhambra, MW Riedel & Co. 213-283-7694
CA Cupertino, Thresum Assoc. 408-996-9889
CA San Diego, D2 Sls. 619-560-6266
CO Boulder, Front Range Mktg. 303-443-4780
CT Stratford, Gerald Rosen Co. 203-375-5456
FL Boca Raton, Lawrence Assoc. 305-368-7373
FL Clearwater, Lawrence Assoc. 813-584-8110
GA Atlanta, JHU Assoc. 404-634-1000
IL Downers Grove, Circuit Sls. 312-964-9090
IN Fort Wayne, Ro Whitesell & Assoc. 219-432-5591
IN Indianpolis, Ro Whitesell & Assoc. 317-359-9283
IN Kokomo, Ro Whitesell & Assoc. 317-457-9127
KS Merriam, MTS 913-236-8557
KY Louisville, Ro Whitesell & Assoc. 502-426-7696
MA Framingham, Gerald Rosen Co. 617-879-5505
MI Grand Rapids, Ro Whitesell & Assoc. 616-942-5420
MI Southfield, Ro Whitesell & Assoc. 313-559-5454
MI St. Joseph, Ro Whitesell & Assoc. 616-983-7337
MN Minneapolis, PSI 612-944-8545
NM Albuquerque, Sys. Sls. of Alb. 505-881-8877
NY Buffalo, Quality Comps. 716-837-5430
NY Great Neck, Mos Assoc. 516-487-3966
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NC Greensboro, JHU Assoc. 919-852-9097
OH Cincinnati, Ro Whitesell & Assoc. 513-521-2290
OH Cleveland, Ro Whitesell & Assoc. 216-447-9020
OH Columbus, Ro Whitesell & Assoc. 614-888-9396
OH Dayton, Ro Whitesell & Assoc. 513-298-9546
OK Broken Arrow, Genzel Sls. 918-258-8656
OR Tigard, Elctrn. Sources 503-684-0040
PA Broomall, LD Lowery 215-528-5170
PA Hummelstown, LD Lowery 717-533-7095
PA Pittsburg, Ro Whitesell & Assoc. 412-963-6161
TN Talbott, JHU Assoc. 615-581-4141
TX Austin, TL Mktg. 512-453-4586
TX Dallas, TL Mktg. 214-357-1752
UT Salt Lake City, Front Range Mktg. 801-364-6481
VA Charlottesville, LD Lowery 804-973-6672
VA Lanexa, LD Lowery 804-966-5455
WA Bellevue, Elctrn. Sources 206-451-3500

Local Distributors

CA Chatsworth, IEC/JACO 213-998-2200
CA Gardena, Bell Inds. 213-515-1800
CA Manhattan Beach, Prime Electro Prods. 213-772-1724
CA San Diego, Bell Inds. 619-268-1277
CA San Fernando, Petell Elec. 213-365-9841
CA San Jose, Cypress Elctrns. 408-945-8400
CA Sunnyvale, Bell Inds. 408-734-8570
CO Denver, Denver-Wintronics 303-431-7161
CT Norwalk, Cobra Comps. 203-847-6442
CT Wallingford, Sager Elctrl. Supp. 203-265-4600
FL Ft. Lauderdale, Dielco 305-973-8700
FL Ft. Lauderdale, NRC Elctrns. 305-772-4500
FL Orlando, TTI Inc. 305-849-1000
FL Tampa, Impala Elctrns. 813-885-4747
IL Addison, Lectro Comps. 312-543-1680
IL Chicago, Bell Inds. 312-982-9210
IA Cedar Rapids, Deeco 319-365-7551
ME Woburn, TTI Inc. 617-938-8800
MD Rockville, M S Elctrns. 301-340-6400
MA Hingham, Sager Elctrl. Supp. 617-749-6700
MI Farmington Hills, Advent Elctrns. 313-477-1650
MN Minneapolis, Aero-Space 612-884-4725
MN Minneapolis, Merit Elctrns. 612-546-5383
NJ East Hanover, State Elctrns. 201-887-2550
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NY E. Syracuse, Add Elctrns. Corp. 315-437-0300
NY Farmingdale, Pride Elctrns. 516-293-4020
NY Farmingdale, Command Elctrns. Corp. 516-293-1212
NY Hauppauge, Jaco Elctrns. 516-273-5500
NY Hauppauge, Fairmont Elec. Sls. 516-231-3313
NY Huntington Station, Sherburn Elctrns. 516-231-4300
NY Rochester, Rochester Radio Supp. 716-454-7800
NY Valley Stream, L & S Elctrns. 516-561-2474
NC Charlotte, Elctrns. Mktg. 704-394-6195
OH Columbus, Elctrns. Mktg. 614-299-4161
OH Dayton, Bell Micro-Mil 513-434-8231
OK Tulsa, Radio 918-587-9123
PA Montgomeryville, Pyttronic Inds. 215-643-2850
PA Philadelphia, TRW Elctrn. Supp. 215-923-8230
PA Philadelphia, Philadelphia Elctrns. 215-568-7400
TX Ft. Worth, TTI Inc. 817-831-0441
VA Charlottesville, Virginia Radio 804-296-4184
WA Bellevue, Bell Inds. 206-747-1515
WA Seattle, Robert E. Priebe Co. 206-682-8242
WI Milwaukee, Marsh Elctrns. 414-475-6000

VTM MICROWAVES, INC., 4975 W. 80 Ave., Westminster, CO 80030, Tel: 303-426-6866; Empl.: 15

V-TRON ELCTRNS. CORP., 84 Fountain St., Pawtucket, RI 02860, Tel: 401-728-6140; Empl.: 250; *Sls. Mgr.:* Richard E. French

VU-DATA, 7122 Convoy Ct., San Diego, CA 92111, Tel: 619-279-6572, TWX: 910-335-1586; FSC No.: 34160; Empl.: 15

WABASH, First & Webster Sts., Wabash, IN 46992, Tel: 219-563-3111, TWX: 810-333-1533; Empl.: 400; *Sls. Mgr.:* Stan Kalin

WABASH RELAY & ELCTRNS., First & Webster Sts., Wabash, IN 46992, Tel: 219-563-2191, TWX: 810-290-2722; Empl.: 250; *Sls. Mgr.:* David L. Snodgrass ....**1B**•1478, 1479

Local Sales Offices & Reps

AL Huntsville, 20th Century Mktg. 205-533-9281
AZ Phoenix, M/R Engrg. Sls. Co. 602-956-4670
CA Glendale, Halbar 213-246-8263
CA San Mateo, Halbar 415-349-4700
CO Aurora, Mountain View Mktg. 303-360-9641
DE Medford, Comp. Conslt. 609-654-5300
FL Ft. Lauderdale, APM Assocs. 305-565-0056
FL Longwood, APM Assocs. 305-869-6831
FL Tampa, APM Asocs. 813-886-2457
GA Stone Mountain, 20th Century Mktg. 404-292-7088
IL Arlington Hgts., M. J. Petersen Assocs. 312-577-8200
IN Fort Wayne, M/S Sales 219-484-1904
KS De Soto, Midtec Assoc. 913-441-6565
MD Glen Burnie, Macrotech Assocs. Ltd. 301-437-5588
MA Andover, Crawford Assocs. 617-470-2122
MI Novi, Lektronics 313-349-3304
MN Edina, PWC Inc. 612-831-5999
MO Florissant, Midtec Assoc. 314-837-5200
NJ Watchung, Dolan Assocs. 201-753-2671
NY Penfield, Upstate Comp. Sls. 716-381-6070
NC Raleigh, Tingen Tech. Sls. 919-781-1100
OH Dayton, KW Elctrn. Sls. 513-890-2150
OH Shaker Heights, KW Elctrn. Sls. 216-491-9177
OH Worthington, KW Elctrn. Sls. 614-888-0483
PA Medford, Comp. Consultants 609-654-5300
TN Knoxville, 20th Century Mktg. 615-690-1618
TX Dallas, Stevens Sls. Co. 214-350-2476
VA Glen Burnie, Macrotech Assocs. Ltd. 301-437-5588
WA Redmond, Halbar Assocs. Inc 206-882-0990
WA Vancouver, Halbar Assocs. 206-696-0170

Local Distributors

IL Elk Grove Village, Nu-Way Elctrn. Distrs. 800-323-7957

WABER ELECTRIC, See SGL Waber Electric.

WADSWORTH ELEC., 20 W. 11th St., Covington, KY 41011, Tel: 606-431-0900; *Sls. Mgr.:* D. W. Phillips

WAGNER ELECTRIC CORP., Tung-Sol Div., 100 Misty Lane, Parsippany, NJ 07054, Tel: 201-386-9300

WAGO CORP., 6657 N. Sidney Pl., Milwaukee, WI 53209-3217, Tel: 414-352-1035, Telex: 260123; *Sls. Mgr.:* Michael A. Lane

WAHL INSTRUMENTS, INC., 5750 Hannum Ave., Culver City, CA 90230, Tel: 213-822-6144, TWX: 910-343-6867; Empl.: 48

WALDES KOHINOOR, 47-16 Austel Pl., Long Island City, NY 11101, Tel: 212-392-3100, Telex: 126-829; Empl.: 450

WALDOM ELCTRNS., 4301 W. 69th St., Dept. EEM, Chicago, IL 60629, Tel: 312-585-1212, Telex: 25-4604; FSC No.: 92219; Empl.: 143; *Sls. Mgr.:* E. R. Beutler

WALKER SCIENTIFIC, Rockdale St., Worcester, MA 01606, Tel: 617-852-3674, Telex: 92-0489; Empl.: 83; *Sls. Mgr.:* B. Langley

WALL, A. T., CO., 55 Service Ave., Warwick, RI 02886, Tel: 401-739-0740, TWX: 710-382-1535; Empl.: 75; *Sls. Mgr.:* Carl Gibbs; *Dist. Mgr.:* R. Huntsman

WALL-ABLE MANUFACTURING CORP., 1800 N. Clybourn Ave., Chicago, IL 60614, Tel: 312-440-1000; Empl.: 100; *Sls. Mgr.:* Dennis O'Brien ..**2**•1742, 1743

Local Sales Offices & Reps

IL Wheeling, AL&W Sls. Co. 312-541-9080
MA Norwell, Carl Morris & Assoc. 617-659-2968
NY Dobbs Ferry, L. J. Valle, Inc. 914-693-5089

WALL INDS., 2 Franklin, Lawrence, MA 01840, Tel: 617-688-1287; Empl.: 55; *Sls. Mgr.:* Mark P. Aiello

WALL LENK, Box 3349, Dept. EEM-71, Kinston, NC 28501, Tel: 919-527-4186; Empl.: 60; *Sls. Mgr.:* Richard W. Cooper

Local Sales Offices & Reps

CA Laguna Hills, Kendall Mktg. 714-581-9951
CO Aurora, S.O.S. Mktg. 303-366-7667
FL Tampa, SRT Mktg. 813-884-4805
GA Stone Mountain, Advanced Elctrns. Equip. 404-289-6100
IN Noblesville, R & D Electronics 317-849-2026
MA Rochdale, Robert L. May Assoc. 617-885-4370
MI Brighton, A. P. Assocs. 313-229-6550
MN Minneapolis, John Anderson Co. 612-823-6459
MO Kansas City, W. D. Burt & Assoc. 816-931-2384
NY Guilderland, The Solder Pot 518-355-1829
NC Raleigh, South States Mktg. 919-781-3220
TX Houston, Natl. Mktg. Assoc. 713-460-0989
UT Ogden, Johnson Co. 801-393-1202

WAMCO, INC., 11555-A Coley River Cir., Fountain Valley, CA 92708, Tel: 714-545-5560, Telex: 678-459; *Sls. Mgr.:* Gordon R. Calvert; *Dist. Mgr.:* Sheila A. Sherman

WARD LEONARD ELEC., 31 South St., Mt. Vernon, NY 10550, Tel: 914-664-1000, TWX: 710-562-0144; FSC No.: 63743; Empl.: 600; *Dist. Mgr.:* Barry Daly

WARREN COMMS., 101 Okner Pkwy., Livingston, NJ 07039, Tel: 201-992-6200, Telex: 139-384, TWX: 710-994-4852; Empl.: 200; *Sls. Mgr.:* William Vandertulip

Local Sales Offices & Reps

CA Santa Ana, Comm. Prods. 714-730-1220
NJ Glen Ridge, Michael Ostella 201-429-9377

Local Distributors

AZ	Phoenix, Dortan Enterprises	602-944-2947
CA	Los Angeles, M. A. Stolaroff Co.	213-295-7781
CA	San Diego, Masco Inc.	619-234-6905
CA	San Francisco, Blach & Bensinger	415-697-2525
FL	Indian Rocks Bch., Tech-Reps Assocs.	813-577-2779
IL	S. Elgin, R. K. Elctrns.	312-695-8552
MN	Minneapolis, HMR, Inc	612-831-7400
NJ	Westfield, Erich Maertz, Inc.	201-232-4643
NY	Rochester, R. P. Kennedy Co.	716-271-6322
TX	Carollton, Seaton Corp.	214-380-0414
VA	Alexandria, TDI	703-971-8982

WARREN-KNIGHT INSTR. CO., Warren Inds.; Inc., 2045 Bennett Rd., Philadelphia, PA 19116, Tel: 215-464-9300; Empl.: 50; *Sls. Mgr.:* Richard M. Marron

WAVETEK ROCKLAND SCI., 245 Livingston St., Northvale, NJ 07647, Tel: 201-767-7100, TWX: 710-991-9619; Empl.: 200; *Sls. Mgr.:* Howard Siegerman

WASATCH HIGH VOLTAGE, P.O. Box 9027, Salt Lake City, UT 84109, Tel: 801-466-9561; Empl.: 9; *Sls. Mgr.:* T. J. Bruzenak

Local Sales Offices & Reps

CA	Encino, King-way Assocs.	213-788-4124

WATERS MFG., Longfellow Ctr., Wayland, MA 01778, Tel: 617-358-2777, Telex: 948441; Empl.: 125; *Sls. Mgr.:* Ralph Pietro

WATKINS-JOHNSON CO., 3333 Hillview Ave., Palo Alto, CA 94304, Tel: 415-493-4141, Telex: 34-8415, TWX: 910-373-1253; FSC No.: 14482; Empl.: 2800

WATKINS-JOHNSON CO., Stewart Div., 440 Mount Herman Road, Scotts Valley, CA 95060, Tel: 408-438-2100

WATT-CLOCK CORP., P.O. Box 697, Stratford, CT 06497, Tel: 203-378-2500; Empl.: 5; *Sls. Mgr.:* M. Dee

WAVECOM, 9036 Winnetka Ave., Northridge, CA 91324, Tel: 818-882-3010, TWX: 910-493-2172; FSC No.: 28979; Empl.: 93

WAVELINE, Box 718, W. Caldwell, NJ 07006, Tel: 201-226-9100, TWX: 710-734-4324; FSC No.: 00443; Empl.: 95; *Sls. Mgr.:* R. A. Powell

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrn. Assocs.	205-881-5031
AZ	Scottsdale, Territorial Mktg.	602-994-8665
CA	Mt. View, Pacific Technical Mktg.	415-969-3010
CA	Tarzana, Midwin & Olifson	213-996-9093
FL	Ft. Lauderdale, Beacon Elctrn.	305-491-1054
FL	Maitland, Beacon Elctrn. Assn.	305-647-3498
GA	Atlanta, Beacon Elctrn.	404-256-9640
KY	Ft. Mitchel, GW. Thelen	606-341-8181
MD	Glen Arm, Hodgins Assocs.	301-592-7047
MA	Needham Hgts., O'Sullivan & Murphy	617-449-4141
NY	Hartsdale, Spectrum Sls.	914-472-8600
NY	Skaneateles, Robtron	315-685-5731
NC	Raleigh, Beacon Elctrns.	919-780-0330
OH	Medina, GW Thelen	216-723-1293
TX	Arlington, N&W Sls.	817-461-4443
WA	Seattle, Rep-West	206-283-8351
EXP	NJ, Oradell, Sylvan Ginsbury	201-261-3200

WAVETEK INDIANA, INC., 5808 Churchman, Beech Grove, IN 46107, Tel: 317-787-3332, TWX: 810-341-3226; FSC No.: 34280; Empl.: 900; *Sls. Mgr.:* Dick Koerner .... **1A**•1784, 1785; **3**•1318

Local Sales Offices & Reps

AL	Huntsville, W. A. Brown Instrs.	205-883-8660
AZ	Scottsdale, Barnhill Assoc.	602-947-7841
CA	Redondo Beach, Ward/Davis	213-973-7772
CA	San Diego, Ward/Davis	619-292-1000
CA	Santa Clara, Ward/Davis	408-245-3700
CO	Englewood, Barnhill Assoc.	303-779-3600
CT	No. Haven, P. Jenks Assoc.	203-239-6201
FL	Ft. Lauderdale, W. A. Brown Instrs.	305-776-4800
FL	Melbourne, W. A. Brown Instrs.	305-723-0766
GA	Norcross, W. A. Brown Instrs.	404-441-2980
HI	Honolulu, EMC Corp.	808-836-2044
IL	Arlington Hgts., Dytec Central	312-394-3380
IN	Indianapolis, Dytec Central	317-247-1316
KS	Lenexa, Dytec South	913-888-0215
LA	Mandeville, W. A. Brown Instrs.	504-626-9701
MA	Woburn, P. Jenks Assoc.	617-938-0488
MI	Madison Hgts., WKM Assocs.	313-588-2300
MN	St. Paul, Dytec North	612-645-5816
MO	Maryland Hgts., Dytec South	314-569-2990
NM	Albuquerque, Barnhill Assoc.	505-299-7658
NY	Fairport, Naco Elctrns.	716-223-4490
NY	N. Syracuse, Naco Elctrns.	315-699-2651
NY	Utica, Naco Elctrns.	315-732-1801
NC	Durham, W.A. Brown Instrs.	919-682-2383
OH	Dayton, WKM Assocs.	513-434-7500
OH	Independence, WKM Assocs.	216-524-5930
OK	Tulsa, Data Mktg. Assoc.	918-496-1457
OR	Beaverton, Northwest Test & Meas.	503-646-9966
PA	Bensalem, Eastern Instrmn.	215-245-6660
PA	Pittsburgh, WKM Assocs.	412-892-2953
SC	Columbia, W. A. Brown Instrs.	803-798-8070
TN	Oak Ridge, W. A. Brown Instrs.	615-482-5761
TX	Austin, Data Mktg. Assocs.	512-451-5174
TX	Dallas, Data Mktg. Assoc.	214-661-0300
TX	Houston, Data Mktg. Assoc.	713-780-2511
TX	San Antonio, Data Mktg. Assoc.	512-342-3031
UT	Murray, Barnhill Assoc.	801-262-3000
VA	McLean, Creative Mktg. Assoc.	703-442-9100
WA	Redmond, Northwest Test & Meas.	206-881-8857

WAVETEK ROCKLAND SCIENTIFIC, INC., 10 Volvo Dr., Rockleigh Indl. Pk., Rockleigh, NJ 07647, Tel: 201-767-7900, TWX: 710-991-9852; Empl.: 100

Local Sales Offices & Reps

AL	Huntsville, W. A. Brown Instr.	205-883-8660
AZ	Scottsdale, Barnhill Assoc., Inc.	602-947-7841
CA	Irvine, Wavetek Rockland Sci.	714-261-8600
CA	Redondo Beach, Ward/Davis Assoc.	213-643-6977
CA	San Diego, Ward/Davis Assocs.	619-292-1000
CA	San Jose, Wavetek Rockland Sci.	408-286-8040
CA	Santa Clara, Ward/Davis Assoc.	408-245-3700
CO	Englewood, Barnhill Assoc., Inc.	303-779-3600
CT	N. Haven, Pat Jenks Assocs.	203-239-6201
FL	Fort Lauderdale, W. A. Brown Instr.	305-776-4800
FL	Melbourne, W. A. Brown Instr.	305-723-0766
FL	Orlando, W. A. Brown Instrs.	305-425-5505
FL	Tampa, Wavetek Rockland Sci.	813-626-6333
GA	Atlanta, W. A. Brown Instrs.	404-455-2035
GA	Norcross, W. A. Brown Instr.	404-441-2980
GA	Tucker, Wavetek Rockland Sci.	404-491-7614
HI	Honolulu, EMC Corp.	808-836-1138
IL	Arlington Hgts., Dytec/Central	312-394-3380
IN	Indianapolis, Dytec/Central	317-247-1316
IA	Iowa City, Dytec/South	319-683-2282
KS	Lenexa, Dytec/South	913-888-0215
LA	Mandeville, W. A. Brown Instr.	504-626-9701
MA	Burlington, Wavetek Rockland Sci.	617-273-4557
MA	Woburn, Pat Jenks Assocs.	617-938-0488
MI	Madison Hgts., WKM Assocs.	313-588-2300
MN	St. Paul, Dytec/North	612-645-5816
MO	Maryland Hgts., Dytec/South	314-569-2990
NM	Albuquerque, Barnhill Assoc., Inc.	505-299-7658
NY	Fairport, Naco Elec. Corp.	716-223-4490
NY	Great Neck, RTI	516-829-3770
NY	N. Syracuse, Naco Elec. Corp.	315-699-2651
NY	Utica, Naco Elec. Corp.	315-732-1801
NC	Durham, W. A. Brown Instr.	919-683-1580
OH	Dayton, WKM Assocs.	513-434-7500
OH	Independence, WKM Assocs.	216-524-5903
OH	Worthington, Wavetek Rockland Sci.	614-888-6060
OK	Tulsa, Data Mktg. Assocs.	918-496-1457
OR	Beaverton, Northwest Test & Meas.	503-646-9966
PA	Bensalem, Eastern Instrmn.	215-245-6660
PA	Montgomeryville, Wavetek Rockland Sci.	215-822-7001
PA	Pittsburgh, WKM Assocs.	412-892-2953
SC	Columbia, W. A. Brown Instr.	803-798-8070
TN	Oak Ridge, W. A. Brown Instr.	615-482-5761
TX	Austin, Data Mktg. Assocs.	512-451-5174
TX	Dallas, Data Mktg. Assocs.	214-661-0300
TX	Houston, Data Mktg. Assocs.	713-780-2511
TX	San Antonio, Data Mktg. Assocs.	512-828-0937
UT	Murray, Barnhill Corp.	801-262-3000
VA	McLean, Wavetek Rockland Sci.	703-442-0600
VA	McLean, Creative Mktg. Assoc.	703-442-9100
WA	Redmond, Northwest Test & Meas.	206-881-8857

WAVETEK SAN DIEGO, Div. of Wavetek, 9045 Balboa Ave., P.O. Box 85265, San Diego, CA 92123, Tel: 619-279-2200, TWX: 910-335-2007; Empl.: 470; *Sls. Mgr.:* Sam Lewis

WAYNE KERR, INC., W.K.R. Ltd., 400 West Cummings Pk., Woburn, MA 01801, Tel: 617-938-8390, Telex: 6817257 WKERR WOBN; *Sls. Mgr.:* Ken Berquist

WAYNE TRANSFORMER CO., INC., 99 Hazel St., Paterson, NJ 07503, Tel: 201-278-7674; *Sls. Mgr.:* Fred DeMauro .... **1A**•2365

WECKESSER CO. INC., 4444 W. Irving Park Rd., Chicago, IL 60641, Tel: 312-282-8626; Empl.: 90

WECO

WECO ELCTRL. CONNECTORS INC., Weco Wester, Ebbinghaus & Co., P.O. Box 84, Ste. Anne DeBellevue P.Q., Canada H9X3L4, Tel: 514-457-3648, Telex: 05-821840; *Sls. Mgr.:* Heiner Kammann; *Dist. Mgr.:* Heiner Kammann .... **2**•1745-1747

Local Sales Offices & Reps

CA	Fullerton, ISI Mktg. Co.	714-773-0411
CO	Littleton, Protronics Grp.	303-973-3096
FL	Coral Springs, HAI Elctrns.	305-752-7520
IL	Carol Stream, Lectro Comps.	312-690-0520
NH	Nashua, Bell Controls Inc.	603-882-6984
OR	Portland, SPS Elctrns.	503-297-6919
WA	Redmond, SPS Elctrns.	206-323-4140

Local Distributors

CA	Fullerton, ISI Mktg. Co.	714-773-0411
IL	Carol Stream, Lectro Comps.	312-690-0520

WEED INSTR. CO., INC., 707 Jeffrey Way, P.O. Box 300, Round Rock, TX 78664-0300, Tel: 512-255-7043, Telex: 776492; Empl.: 110; *Sls. Mgr.:* Tom Kurys

WEI CORP., 1405 S. Village Way, Santa Ana, CA 92705, Tel: 714-834-9333, TWX: 910-595-1709; FSC No.: 51272; Empl.: 50; *Sls. Mgr.:* R. H. Thomason

WEIDMULLER TERMINATIONS, 821 Southlake Blvd., Richmond, VA 23236, Tel: 804-794-2877, Telex: 828376; Empl.: 31; *Sls. Mgr.:* James G. Dunn; *Dist. Mgr.:* Mort Gelfand .... **2**•1748

Local Sales Offices & Reps

AZ	Scottsdale, Bill Earl Assoc.	602-994-3813
CA	Huntington Beach, Weidmuller Terminations	714-960-9264
CA	Lamesa, Weidmuller Terminations	619-466-5644
CA	Santa Clara, DC Elctrns.	408-980-1199
CA	Woodland Hills, Weidmuller Terminations	213-716-8929
CO	Denver, Weidmuller Terminations	303-753-1499
CT	Trumbull, Weidmuller Terminations	203-268-1496
FL	Apopka, Weidmuller Terminations	305-889-2791
GA	Marietta, Weidmuller Terminations	404-971-6472
IL	Barrington, R. Fisk Mktg.	312-381-0653
IL	Crete, Weidmuller Terminations	312-672-4460
LA	Baton Rouge, General Power & Control	504-924-3919
MA	Revere, Weidmuller Terminations	617-289-2122
MI	Highland, Holly & Upleger	313-363-8800
NJ	Port Reading, Weidmuller Terminations	201-636-7021
NY	E. Syracuse, L-Mar Assoc.	315-437-7779
NY	Rochester, L-Mar Assoc.	716-323-1000
NY	West Hempstead, Schmitt Indl. Mktg.	516-486-5510
OH	Cincinnati, J. W. Murray & Assoc.	513-574-8500
OH	Mentor, Weidmuller Terminations	216-255-1990
OK	Tulsa, Electrotech Sys.	918-496-2021
PA	Philadelphia, Weidmuller Terminations	215-698-8285
TX	Grapevine, Electrotech Sys.	817-481-1583
TX	Houston, Weidmuller Terminations	713-870-1515
TX	Missouri City, Weidmuller Terminations	713-437-2011
UT	Salt Lake City, Control Agency	801-320-4305
WA	Issaquah, Weidmuller Terminations	206-392-4333
WI	Milwaukee, Weidmuller Terminations	414-444-9441

WEINSCHEL ENGRG., One Weinschel La., Gaithersburg, MD 20877, Tel: 301-948-3434, 800-638-2048, Telex: ITT 440702, TWX: WU 89-8352; FSC No.: 93459; Empl.: 325; *Sls. Mgr.:* Ron Bastien .... **1A**•1787; **3**•1319

Local Sales Offices & Reps

AL	Huntsville, Beacon Elctrns. Assoc.	205-881-5031
AZ	Tempe, Sierra Tech. Grp.	602-894-2335
AR	Little Rock, Beacon Elctrns. Assoc.	501-224-5449
CA	Malibu, G. McNamara	213-457-4563
CA	Rodondo Beach, Ward Davis Assoc.	213-643-6977
CA	San Diego, Ward Davis Assoc.	619-292-1000
CA	Santa Clara, Ward Davis Assoc.	408-245-3700
CO	Englewood, Sierra Tech. Grp.	303-790-1700
FL	Clearwater, Beacon Elctrns. Assoc.	813-796-2378
FL	Ft. Lauderdale, Beacon Elctrns. Assoc.	305-491-1054
FL	Maitland, Beacon Elctrns. Assoc.	305-647-3498
FL	Melbourne, Beacon Elctrns. Assoc.	305-724-8010
GA	Atlanta, Beacon Elctrns. Assoc.	404-256-9640
IL	Arlington Heights, Dytec Central	312-394-3380
IN	Indianapolis, Dytec Central	317-247-1316
KS	Lenexa, Dytec South	913-888-0215
MA	Burlington, R. J. Sickles Assoc.	617-862-5100
MN	St. Paul, Dytec North	612-645-5816

MO	Maryland Hgts., Dytec South	314-569-2990
NJ	Hackensack, Tech. Mktg.	201-342-4008
NM	Las Cruces, Sierra Tech. Grp.	505-524-8092
NY	Fairport, Naco Elctrns.	716-223-4490
NY	No. Syracuse, Naco Elctrns.	315-699-2651
NY	Utica, Naco Elctrns.	315-732-1801
NC	Raleigh, Beacon Elctrns. Assoc.	919-787-0330
OR	Portland, Arva-Hudson	206-455-0773
PA	Bensalem, Eastern Inst.	215-245-6660
TX	Austin, Sci. Dvcs.-Southwest, Inc.	512-442-6215
TX	El Paso, Sierra Tech. Grp.	915-591-5890
TX	Houston, Scientific Dvcs. - Southwest	713-864-1711
TX	Richardson, Scientific Dvcs. - Southwest	214-231-8106
TX	San Antonio, Ashcraft Assocs.	512-681-0477
UT	Salt Lake City, Sierra Tech. Grp.	801-322-3069
VA	McLean, Creative Mktg. Assocs.	703-442-9100
WA	Bellevue, Arva-Hudson	206-455-0773

WELLMAN THERMAL SYS., 1 Progress Rd, Shelbyville, IN 46176, Tel: 317-398-4411, TWX: 810-260-2616; FSC No.: 4S017; Empl.: 600; *Sls. Mgr.:* E. W. Abel; *Dist. Mgr.:* W. L. McNamee

WELLS ELCTRNS., 1701 S. Main St., South Bend, IN 46613, Tel: 219-287-5941, Telex: 25-8325; Empl.: 180; *Sls. Mgr.:* Michael Myers .... 2•1750-1755

Local Sales Offices & Reps

AL	Huntsville, Southeastern Mktg.	205-882-1633
AZ	Tempe, Foley, Tallent & Lee, Inc.	602-894-2345
CA	Los Angeles, EESCO	213-242-8823
CA	San Jose, Western Indl. Network	408-559-8118
CO	Denver, Foley, Tallent & Lee, Inc.	303-973-4934
CT	Wethersfield, Com/Pak, Inc.	203-563-4784
FL	Maitland, Lobo Mktg. Assocs., Inc.	305-628-8911
IL	Glencoe, Howard Benjamin Assocs. Inc.	312-835-0150
IN	Greenfield, France Entprs., Inc.	317-462-6098
IA	Davenport, Electro Tech Assocs.	319-386-1134
MA	Woburn, Com/Pak, Inc.	617-938-8580
MI	Ypsilanti, TAMCO, Inc.	313-572-1950
MN	Minneapolis, Electro-Tech Assocs.	612-927-5878
MO	St. Louis, KKB & Co.	314-647-2400
NJ	Berkeley Heights, Cambridge Allen and Assocs.	201-464-7987
NJ	Haddonfield, Sunday-O'Brien	609-429-4013
NY	Syracuse, T-Squared Elctrns. Co., Inc.	315-463-8592
NC	Raleigh, Tingen Tech. Sls., Inc.	919-781-1100
OR	Beaverton, Caruso & Northcutt, Inc.	503-646-4973
TX	El Paso, EPEC, Inc.	915-593-8481
TX	Irving, AID Elctrns., Inc.	214-259-4761
WA	Bellevue, Caruso & Northcutt, Inc.	206-454-9699
WI	Colgate, Rep 1 & Assocs.	414-628-4016

Local Distributors

AZ	Tempe, Waltronic Sls.	602-967-1020
CA	Anaheim, A To Z Elctrns., Inc.	714-634-3620
CA	North Hollywood, Elctrn. Hardware, Ltd.	213-982-6100
CA	San Jose, Cypress Elctrns., Inc.	408-945-8400
CO	Denver, CSID, Inc.	303-292-9594
FL	Pompano Beach, Comps. South	305-971-0350
IL	Chicago, Semiconductor Specialists, Inc.	312-279-1000
MA	Burlington, Schaal Assocs.	617-272-7940
MA	Mendon, Add Elctrn. Corp.	617-478-4200
MI	Southfield, L.S.I. Mktg.	313-356-7002
MN	Minneapolis, Semiconductor Specialists, Inc.	612-854-8841
MO	Kansas City, Semiconductor Specialists, Inc.	816-452-3900
NH	Hampstead, Astrum Elctrns.	603-329-5656
NJ	Bellmawr, Mid-Atlantic Elctrns. Corp.	609-931-5303
NY	East Syracuse, Add Elctrn. Corp.	315-437-0300
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Hauppauge, Schaal Assocs.	516-234-4600
NC	Charlotte, Elctrns. Mktg. Corp.	704-394-6195
OH	Columbus, Elctrns. Mktg. Corp.	614-299-4161
OR	Tigard, Moore Elctrns. Inc.	503-684-3100
PA	Pittsburgh, Semiconductor Specialists, Inc.	412-963-7241
TX	Houston, Kent Elctrns. Inc.	713-780-7770
TX	Richardson, Kent Elctrns. Inc.	214-669-2600

WELTEK INTL., INC., 760 W. Cotter St., South Bend, IN 46613, Tel: 219-232-5400, Telex: 23-3131; Empl.: 28; *Sls. Mgr.:* Tom Gerschoffer

Local Sales Offices & Reps

CA	Fremont, HJR Entprs.	415-490-7911
CO	Littleton, Production Equip. Sls.	303-795-5022
DC	Washington, Harry Wise & Co.	202-363-9417
FL	Lake Worth, GRY Associates	305-965-5111
IN	Noblesville, King Sls	317-842-1035
KS	Prairie Village, Dougherty & Assoc.	913-649-3515
MA	Tewksbury, Hunt Assocs.	617-851-9042
MI	Royal Oak, Murray Percival & Co.	313-548-1971
MN	Edina, PEC/LEVI	612-94-8540
MO	St. Louis, John E. Metz Co.	314-993-1979
NY	Fair Haven, Feikert Assoc., Inc.	315-947-5994
NC	Cary, Interbit, Inc.	919-467-3200

WESCO ELECTRICAL CO., 201 Munson St., Greenfield, MA 01301, Tel: 413-774-4358; FSC No.: 12673; Empl.: 190; *Sls. Mgr.:* James R. DeSanty .... 1A•1212-1217

Local Sales Offices & Reps

CA	Costa Mesa, Electro-Mech Sls. Co.	714-642-2390
CA	La Jolla, Southwest Tech. Sls.	619-454-2034
CA	Santa Clara, Gagner-Toomey Assocs.	408-244-2200
CT	Milford, Cuming Assoc.	203-878-3946
FL	Fern Park, EIR Inc.	305-830-9600
IL	Addison, Banner Tech. Sls.	312-279-6070
IN	Columbus, J. H. Weaver Co.	812-372-3625
MA	Framingham, Bengal Assocs.	617-877-2639
MA	Randolph, Bengal Assocs.	617-961-4120
MN	Bloomington, Electronic Sls. Agcy.	612-884-8291
NJ	Madison, Livera-Polk Assocs.	201-377-3220
NY	Glen Head, Livera-Polk Assocs.	516-759-9300
NC	Raleigh, Leigh Sls.	919-872-1484
OH	Wickliffe, W. Brauer & Assoc.	216-943-0601
OR	Beaverton, L-D Elctrns.	503-649-6177
PA	Pittsburgh, W. Brauer & Assoc.	412-921-3213
TX	Dallas, Blackburn Assocs.	214-692-8885
WA	Snohomish, L-D Elctrns.	206-568-0511

WESCOM, PO Box 1458, Downers Grove, IL 60515, Tel: 312-985-9000, Telex: 253656, TWX: 910-695-4735; *Sls. Mgr.:* R. Don Webster

WESCORP ANTISTATIC PRODS., 144 S. Whisman Rd., Mountain View, CA 94041, Tel: 415-969-7717, Telex: 345507; Empl.: 15; *Sls. Mgr.:* Lourdes Rivera

Distributor

WES-GARDE COMPONENTS GROUP, INC., 190 Elliott St., Hartford, CT 06114, Tel: 203-525-6907 .... 1B•1742

WESTAMP, 1542 15th St., Santa Monica, CA 90404, Tel: 213-393-0401, TWX: 910-343-7443; Empl.: 90

WESTBERG MFG., INC., 3400 Westach Way, Sonoma, CA 95476, Tel: 707-938-2121; *Sls. Mgr.:* R. R. Westberg

WEST-CAP ARIZONA, Sub. of San Fernando Electric Mftg. Co., 2201 East Elvira Road, Tucson, AZ 85706, Tel: 602-294-2646

WEST COAST ELEC. MFG., 14045 Garfield Ave, Paramount, CA 90723, Tel: 213-633-1010; FSC No.: 81823; Empl.: 25; *Sls. Mgr.:* W. E. Seal

WESTCODE SEMICONDUCTORS, INC., 0-02 Fair Lawn Ave., Fair Lawn, NJ 07410, Tel: 201-791-3020, Telex: 130389; *Sls. Mgr.:* E. Hultz, Jr.

Local Sales Offices & Reps

CA	Long Beach, Megawatt Corp.	213-634-9731
FL	Oldsmar, Boggs & Assocs.	813-855-1812
NY	Kings Park, JL Sales Assocs.	516-979-9086
OH	Cleveland, Electronic Salesmasters	216-831-9555
TX	Dallas, Delta Comps.	214-287-6333
WI	New Berlin, Reko, Inc.	414-784-3430

WESTEMP CORP., Box 767, Cardiff, CA 92007, Tel: 619-942-9800; Empl.: 20; *Sls. Mgr.:* J. Huston

WESTERN DIGITAL CORP., 2445 McCabe Way, Irvine, CA 92714, Tel: 714-557-3550, TWX: 910-595-1139; *Dist. Mgr.:* Ron Weaver

WESTERN ELECTRIC CO., INC., 222 Broadway, New York, NY 10038, Tel: 212-669-2345

WESTERN ELCTRN. PRODS., 107 Los Molinos, San Clemente, CA 92672, Tel: 714-492-4677; FSC No.: 13988

WESTERN ELECTRO. MECH. CO. INC., 300 Broadway, Oakland, CA 94607, Tel: 415-452-1936; *Sls. Mgr.:* W. J. Foster

WESTERN GEAR CORP., Applied Tech. Div., 14724 E. Proctor, City of Industry, CA 91744, Tel: 818-968-6525, TWX: 910-584-4856; Empl.: 1125; *Sls. Mgr.:* D. Waite

WESTERN GRAPHTEC, 12 Chrysler St., Irvine, CA 92714, Tel: 714-770-6010, 800-854-8385

WESTERN RESERVE ELCTRNS., 2150 Highland Rd., Twinsburg, OH 44087, Tel: 216-425-4951; Empl.: 45; *Sls. Mgr.:* Robert Rhodes

WESTINGHOUSE ELECTRIC CORP., Aerospace Electrical Div., P.O. Box 989, Lima, OH 45802, Tel: 419-226-3121

WESTINGHOUSE ELECTRIC CORP., Electronic Tube Div., P.O. Box 284, Elmira, NY 14902, Tel: 607-796-3211

WESTINGHOUSE ELEC. CORP., Lamp Div., Parts Sls., 1 Westghse Plaza, Bloomfield, NJ 07003, Tel: 201-429-3325

WESTINGHOUSE ELEC. CORP., Semiconductor Div., Armbrust Rd., Youngwood, PA 15697, Tel: 412-925-7272, TWX: 510-468-2840; Empl.: 600; *Sls. Mgr.:* D. E. Rieth; *Dist. Mgr.:* P. DelPalazzo

Local Sales Offices & Reps

AL	Huntsville, JWL Assocs.	205-536-8410
AZ	Tempe, Quatra Assocs.	602-894-2808
CA	Agoura, Westpower Co.	818-706-0550
CA	Laguna Hills, Westpower Co.	714-380-0277
CA	Los Angeles, Westpower Co.	818-579-8230
CA	Mountain View, Westinghouse Elec.	415-949-0610
CA	Santa Clara, Engineering Assoc. Corp.	408-988-5001
CO	Denver, Lindberg Co.	303-758-9033
CT	Madison, HV Engrg.	203-401-4561
FL	Altamonte Springs, Semtronic Assoc.	305-831-8233
FL	Clearwater, Semtronic Assoc.	813-461-4675
GA	Atlanta, JWL Assocs.	404-429-8010
IL	Chicago, L & W Power Corp.	312-887-8909
IL	Wheaton, Westinghouse	312-462-0404
IA	Cedar Rapids, Dy-Tronix	319-377-8275
MD	Baltimore, Westinghouse Elect.	301-792-8857
MA	Boston, Westinghouse Elec.	617-237-6950
MA	Ludlow, Gerber Sls.	413-589-9837
MA	Newton Upper Falls, Gerber Sls.	617-969-2620
MI	Livonia, L & W Power, Corp.	313-525-1380
MN	Minneapolis, Comstrand	612-788-9234
MO	Independence, Dy-Tronix	816-373-6600
MO	St. Louis, Dy-Tronix	314-731-5799
NJ	Basking Ridge, Eastpower Co.	201-766-7886
NM	Albuquerque, Lindberg Co.	505-881-1006
NY	Ithaca, Bob Dean, Inc.	607-257-1111
NC	Charlotte, JWL Assocs.	704-523-3001
NC	Raleigh, JWL Assocs.	919-787-4826
OH	Cincinnati, J. R. Thornberry Co.	513-874-0236
OH	Kettering, L & W Power, Corp.	513-293-3482
OH	South Euclid, J.R. Thornberry Co.	216-321-3328
PA	Pittsburgh, Covert & Newman Co.	412-531-2002
PA	Youngwood, Westinghouse	412-925-7272
TX	Austin, NOVA Mktg.	512-835-1733
TX	Dallas, Nova Mktg.	214-750-6082
TX	Houston, Nova Mktg.	713-988-6082
UT	Salt Lake City, Lindberg Co.	801-969-2400
WI	Milwaukee, L & W Power Corp.	414-786-0260

WEST INSTRS, Gulton Inds, M. C. S. Div., Gulton Indl Pk, E. Greenwich, RI 02818, Tel: 401-884-6800, TWX: 710-387-1500; Empl.: 400; *Sls. Mgr.:* W. Hunt; *Dist. Mgr.:* W. Hunt

WESTLAKE CAPACITORS INC., 5334 Sterling Center Dr., Westlake Village, CA 91361, Tel: 818-889-4120, TWX: 910-494-4779; Empl.: 210; *Sls. Mgr.:* F. G. Edge; *Dist. Mgr.:* D. Lawrence

WESTON CONTROLS/POTS DIV., Div. Fairchild Weston Sys., Inc., Archbald, PA 18403, Tel: 717-876-1500, Telex: 83-1873, TWX: 510-656-2902; FSC No.: 94271; Empl.: 1077; *Sls. Mgr.:* J. Cousins .... 1A•2071-2084

Local Sales Offices & Reps

AZ	Phoenix, Sanford Sls. Assoc.	602-957-3570
CA	Carlsbad, Addem/San Diego	619-729-9216
CA	Mountain View, Westmark Assocs.	415-969-1700
CA	Van Nuys, Wes-K Assocs.	213-989-3070
CO	Denver, Quorum 3 Sls. Group	303-696-8480
CT	Ridgefield, Phoenix Sls. Co.	203-438-9644
FL	Clearwater Beach, Perrott Assocs.	813-443-5214
FL	Orlando, Perrott Assocs.	305-298-7748
FL	Sunrise, Perrott Assocs.	305-792-2211
GA	Stone Mountain, DTM, Inc.	404-962-2530
IL	Skokie, Marcon Assocs.	312-675-6450
KS	Olathe, Rush & West	913-764-2700
KS	Wichita, Repco	316-263-4238
MD	Baltimore, B. White & Co.	301-484-5400
MA	Stow, Today Comp. Sls. Corp.	617-897-7500
MI	Warren, DEM Elctrn. Sls.	313-575-9444
MN	St. Paul, Repco	612-642-2828
MO	Ballwin, Rush & West Assoc., Inc.	314-394-7271

MO	Independence, Repco	816-254-3410
NJ	Fairfield, Addem Sls.	201-882-0993
NY	Albany, Reagan/Compar	518-489-4777
NY	Endwell, Reagan/Compar	607-723-8743
NY	Endwell, Reagan/Compar	607-754-8946
NY	Fairport, Reagan/Compar	716-271-2230
NY	New Hartford, Reagan/Compar	315-732-3775
OH	Dayton, J. C. Hofstetter Co.	513-296-1010
OH	Medina, J. C. Hofstetter Co.	216-241-4880
OR	Beaverton, LD Elctrns.	503-649-6177
PA	Hickory, J. C. Hofstetter Co.	412-356-2305
PA	Rydal, ESPY Sls.	215-576-0780
TX	Austin, Delta Comps.	512-458-4288
TX	Seagoville, Delta Comps.	214-287-6333
UT	Salt Lake City, Quorum 3 Sls. Grp.	801-943-9227
WA	Snohomish, LD Elctrns.	206-568-0511
WA	Spokane, LD Elctrns.	509-922-4883

Local Distributors

AZ	Phoenix, TTI	602-861-0222
AZ	Phoenix, Arizona Comps.	602-269-5655
AZ	Tempe, Circuit Specialists, Inc.	602-966-2878
CA	Belmont, Arndt	415-592-6718
CA	Chatsworth, Diplomat Elctrns.	213-700-8700
CA	Chatsworth, Integrated Elctrns.	213-998-2200
CA	Chatsworth, Shelley Elctrns.	213-998-3333
CA	Costa Mesa, Diplomat Elctrns.	714-549-8401
CA	Garden Grove, Hi Rel Distr. Sls.	213-594-9571
CA	Gardena, Bell Inds.	213-515-1800
CA	Irvine, Kelex, Inc.	714-863-1230
CA	Irvine, Integrated Elctrns.	714-540-5600
CA	San Diego, DECO	619-693-1595
CA	San Diego, Diplomat Elctrns.	619-292-5693
CA	San Diego, Park West Distrs.	619-277-8433
CA	San Diego, Bell Inds.	619-268-1277
CA	San Diego, Shelley Elctrns.	619-453-7133
CA	San Fernando, Petell Elctrns.	213-365-9841
CA	San Jose, Shelley Elctrns.	415-969-1820
CA	Santa Clara, Pyramid Elctrns.	408-727-9810
CA	Santee, Mouser Elctrns.	619-449-2222
CA	Sunnyvale, Diplomat Elctrns.	408-734-1900
CA	Van Nuys, Elctrn. Expediters	213-781-1910
CO	Denver, Ragon Elctrns.	303-744-3601
CO	Englewood, Diplomat Elctrns.	303-740-8300
CT	Danberry, Diplomat Elctrns.	203-797-9674
CT	Norwalk, Park Dist.	203-853-2011
CT	Orange, Milgray	203-795-0711
FL	Clearwater, Diplomat Elctrns.	813-443-4514
FL	Longwood, Intertec	305-834-7777
FL	Miami, Electronic Equip.	305-871-3500
FL	Orlando, TTI II	305-859-1000
FL	Tampa, Shelley Elctrns.	813-884-0946
FL	Tampa, Impala Elctrns.	813-885-4747
FL	Winter Park, Milgray	305-647-5747
GA	Norcross, Diplomat Elctrns.	404-449-4133
ID	Spirit Lake, AI Elctrns.	208-623-3111
IL	Bensenville, Diplomat Elctrns.	312-595-1000
IL	Chicago, Bell Inds.	312-982-9210
IL	Elk Grove Village, GBL/Goold Elctrns.	312-593-3220
IL	Skokie, Marcon Assocs., Inc.	312-675-6450
IN	Indianapolis, Meunier Elctrn. Supp.	317-635-3511
IN	Indianapolis, Graham Elctrns.	317-634-8202
KS	Overland Park, Milgray/Kansas City	913-236-8800
KY	Louisville, Peerless Elctrn. Equip. Co.	502-637-7674
MD	Columbia, Diplomat Elctrns.	301-995-1226
MD	Rockville, Milgray	301-468-6400
MD	Timonium, Zebra Elctrns.	301-252-6576
MA	Burlington, Milgray	617-272-6800
MA	Canton, Impact Sls.	617-821-1500
MA	N. Chelmsford, Pilgrim Elctrns.	617-251-8746
MA	Woburn, Diplomat Elctrns.	617-935-6611
MI	Grand Rapids, RM Elctrns.	616-531-9300
MN	St. Paul, Ragon Elctrns.	612-642-2828
MO	St. Louis, Olive Elctrns. Inc.	314-426-4500
NJ	Audubon, Action Elctrns.	609-858-2450
NJ	Marlton, Milgray	609-983-5010
NJ	Mountainside, Enox	201-654-7600
NJ	Nutley, Vantage Elctrns.	201-667-1840
NJ	Totowa, Diplomat	201-785-1830
NY	Bohemia, TTI	516-567-1500
NY	Bohemia, Justin Elctrns.	516-589-4000
NY	Buffalo, Summit Distr.	716-884-3450
NY	Dobbs Ferry, Gemini Elctrn. Co.	914-693-6363
NY	East Farmingdale, Tri-Start Elctrns. Inc.	516-293-0400
NY	Farmingdale, Pride Elctrns.	516-293-4020
NY	Farmingdale, Command Elctrns.	516-293-1212
NY	Farmingdale, Milgray Elctrns.	516-420-9800
NY	Hauppauge, JACO	516-273-5500
NY	Hauppauge, Fairmont Elctrn. Sls.	516-231-3313
NY	Liverpool, Diplomat Elctrns.	315-652-5000
NY	Melville, Diplomat Elctrns.	516-454-6400
NY	New York City, Centaur Elctrns.	212-695-6984
NY	Rochester, Masline Elctrns.	716-546-5373
NY	Valley Stream, L&S Elctrns.	516-561-2474
NY	West Babylon, Delmar Elctrns.	516-420-1234
OH	Cincinnati, Hughes Peters	513-351-2000
OH	Cleveland, Pruitt Energy Sources	216-566-1545
OH	Cleveland, Milgray/Cleveland	216-447-1520
OH	Dayton, Stotts Friedman	513-298-5555
OH	Dayton, Micro-Mil	513-434-8231
PA	Montgomeryville, Pyttronic Inds.	215-643-2850
PA	Philadelphia, Encore Elctrns. Inc.	215-676-7200
PA	Philadelphia, Shap Elctrns.	215-969-3300
PA	Philadelphia, Herbach & Rademan	215-426-1700
PA	Pittsburgh, Alder-Tronics	412-821-5565
PA	Willow Grove, RESCO Elctrns.	215-659-4575
PA	York, Elctrn. Comps. for Inds.	717-843-8971
TX	Austin, Southwest Elctrns.	512-837-8971
TX	El Paso, Intl. Elctrns.	915-778-9761
TX	Ft. Worth, TTI	817-831-0441
TX	Ft. Worth, Allied Elctrns.	817-336-5401
TX	Richardson, Southwest Elctrns.	214-234-3050
TX	Richardson, JACO Elctrns.	214-235-9575
TX	Stafford, Southwest Elctrns.	713-491-4900
UT	Salt Lake City, Diplomat Elctrns.	801-486-4134
UT	Salt Lake City, Standard Supp.	801-486-3371
VA	Charlottesville, Virginia Radio	804-296-4184
WA	Bellevue, Integrated Elctrns.	206-455-2727
WA	Seattle, Pacific Elctrns.	206-575-1050

WESTREX, 1140 Bloomfield Ave., W. Caldwell, NJ 07006, Tel: 201-227-7290, Telex: 64-1490, TWX: 710-734-4323; Empl.: 180; *Sls. Mgr.:* J. C. Murray

WESTREX OEM PRODUCTS, Litton Inds., 51 Penn St., Fall River, MA 02724, Tel: 617-676-1016, Telex: 651490-WNJW, TWX: 710-341-3099; *Sls. Mgr.:* J. C. Murray; *Dist. Mgr.:* Ed Cunnie

Local Sales Offices & Reps

CA	Granada Hills, Westrex OEM Prods.	818-363-7419
NJ	Iselin, Westrex OEM Prods.	201-634-5492

WESTRONICS INC. OF TEXAS, 2441 Northeast Pkwy., Box 4619, Ft. Worth, TX 76106, Tel: 817-625-2311, Telex: 75-8273; Empl.: 250; *Sls. Mgr.:* Paul Schultz

WEST-TRONICS, INC., 215 Park St., Bensenville, IL 60106, Tel: 312-860-3560; *Sls. Mgr.:* Will Allen

WHEDCO, INC., 6107 Jackson Rd., Ann Arbor, MI 48103, Tel: 313-665-5473; *Sls. Mgr.:* K. V. Chilton

WHEELOCK SIGNALS, INC., 273 Branchport Ave., Long Branch, NJ 07740, Tel: 201-222-6880, TWX: 710-722-6510; Empl.: 200; *Sls. Mgr.:* Brian Van Horn

WHITMOR WIRE & CABLE, 13161 Sherman Way, Bldg. B, N. Hollywood, CA 91605, Tel: 818-764-6296, Telex: 194479; FSC No.: 15851; Empl.: 29; *Sls. Mgr.:* Michael Weiss; *Dist. Mgr.:* Mark Lee

Local Sales Offices & Reps

CA	Sunnyvale, Wirenetics Co.	408-745-6673

Local Distributors

CA	Sunnyvale, Wirenetics Co.	408-745-6673
CA	Valencia, Wirenetics Co.	805-257-2400

WHITSO, 9326 Byron St., Schiller Pk., IL 60176, Tel: 312-678-5200; Empl.: 200; *Sls. Mgr.:* A. Paloian

WHITTAKER CORP., 10880 Wilshire Blvd., Los Angeles, CA 90024, Tel: 213-475-9411, Telex: 674891; Empl.: 17,000

WHITTAKER CORP., Electronic Resources Div., 100 E. Tujunga Ave., Burbank, CA 91502, Tel: 818-843-5770, TWX: 910-498-2751; FSC No.: 72152

WHITTAKER CORP., Providence Chemicals Div., King Philip Rd., E. Providence, RI 02914, Tel: 401-434-1770, Telex: 92-7652; Empl.: 42

WIDE BAND ENGRG. CO., INC., Box 21652, Phoenix, AZ 85036, Tel: 602-254-1570; Empl.: 10

WIDE RANGE ELCTRNS. CORP., 2119 Schultz Rd., St. Louis, MO 63141, Tel: 314-567-5366, Telex: 44-2560; Empl.: 16; *Sls. Mgr.:* Otto Rauhut

WILBRECHT ELCTRNS., 240 Plato Blvd., St. Paul, MN 55107, Tel: 612-222-2791, TWX: 910-563-3679; Empl.: 300

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WILCO CORP., 4030 W. Tenth St., Indianapolis, IN 46222, Tel: 317-241-2516 ....**1A**•1306, 1307

WR

WILCOXON RESEARCH

WILCOXON RESCH., P.O. Box 5798, Bethesda, MD 20814, Tel: 301-770-3790, Telex: 898-342; Empl.: 26; *Sls. Mgr.:* W. Wilcoxon ....**1B**•1886

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WILKINSON, P.O. Box 4558, Westlake Village, CA 91359, Tel: 818-889-0050, 800-822-4653, Telex: 698213; Empl.: 34; *Dist. Mgr.:* R. Cook

WILMAR ELCTRNS., INC., 2430 Amsler St., Torrance, CA 90505, Tel: 213-326-6668, Telex: 182417; FSC No.: 25248; Empl.: 25; *Sls. Mgr.:* Zev Heifetz

WILMORE ELCTRNS. CO., Box 1329, Hillsborough, NC 27278, Tel: 919-732-9351, Telex: 292617; Empl.: 48; *Sls. Mgr.:* J. L. Harris ...**3**•1807-1809, 1920, 1921

WILSON, H.F., ENGRG. CO., 475 Taft Ave., Glen Ellyn, IL 60137, Tel: 312-469-8473, Telex: 72-1438; Empl.: 18; *Sls. Mgr.:* H. Wilson; *Dist. Mgr.:* R. Carroll

WILSON, H. M., CO., 11501 Chimney Rock Rd., Houston, TX 77035, Tel: 713-729-1183; Empl.: 3; *Sls. Mgr.:* H. M. Wilson

WILSON ELECTRONICS, PO Box 19000, Las Vegas, NV 89119, Tel: 702-739-1931, Telex: 684-522; Empl.: 175; *Sls. Mgr.:* J. Flatt; *Dist. Mgr.:* Mac Harrison

WILTRON, 805 E. Middlefield Rd., P.O. Box 7290, Mountain View, CA 94042-7290, Tel: 415-969-6500, TWX: 910-379-6578; FSC No.: 20944; Empl.: 500; *Sls. Mgr.:* W. Baxter

WINSLOW INTL., 2471 E. Bayshore #520, Palo Alto, CA 94303, Tel: 415-856-0552, TWX: 910-373-2060; Empl.: 8; *Sls. Mgr.:* G. Hall; *Dist. Mgr.:* M. Niland

WINTEK CORP., 1801 South St., Lafayette, IN 47904-2993, Tel: 317-742-8428, Telex: 70-9079; Empl.: 7; *Sls. Mgr.:* Stephen E. Belter ....**3**•1118

Local Sales Offices & Reps

CA	Santa Clara, PBC Assocs.	408-727-7244
CO	Parker, Western Mktg. Assocs.	303-841-2788
IL	Downers Grove, Physics Equip.	312-960-4053
UT	Logan, Western Mktg. Assocs.	801-753-0073

WIRE GRAPHICS, 215 B. Central Ave., Farmingdale, NY 11735, Tel: 516-293-1525; Empl.: 43; *Sls. Mgr.:* Nat Stettin

WIREMOLD COMPANY, W. Hartford, CT 06110, Tel: 203-233-6251, TWX: 710-425-6281; Empl.: 800; *Sls. Mgr.:* F. F. Keating

WONDER CORP OF AMERICA, 22 Elizabeth St., South Norwalk, CT 06856, Tel: 203-866-3033, Telex: 965838; Empl.: 140; *Sls. Mgr.:* Peter Schub

WOODWARD MEASUREMENT INSTRS. LTD., 236 Wineva Ave., Toronto, ON M4E 2T4, Canada

WORKMAN ELCTRN. PRODS., Box 3828, Sarasota, FL 33578, Tel: 813-371-4242, TWX: 810-864-0401; Empl.: 150; *Sls. Mgr.:* Frank Pounds

"WORLD" ENTERPRISES, INC., 550 N. Bayard Ave., Waynesboro, VA 22980, Tel: 703-942-4159; *Sls. Mgr.:* B. F. Baber

WORLD STORAGE TECHNOLOGY, LTD., 14251 Franklin Ave., Tustin, CA 92680, Tel: 714-838-1491, Telex: 182727; Empl.: 250; *Sls. Mgr.:* Richard McGowan

WOVEN ELCTRNS., Box 189, Mauldin, SC 29662, Tel: 803-963-5131, TWX: 810-287-2091; Empl.: 180; *Sls. Mgr.:* E. A. Ross Jr.

WRIGHT CAPACITORS, 3000 So. Orange, Santa Ana, CA 92707, Tel: 714-546-2490; Empl.: 25; *Sls. Mgr.:* Curtiss Wright

WYCO METAL, See Stantron

XANADU CONTROLS, Electroid Corp., 45 Fadem Rd., Springfield, NJ 07081-3189, Tel: 201-467-8100, Telex: 139241; FSC No.: 57841; *Sls. Mgr.:* Peter Mesniaeff; *Dist. Mgr.:* Peter Mesniaeff

XCP INC., 8 W. Main St., Dryden, NY 13053, Tel: 607-844-9143; *Sls. Mgr.:* Mary Dove

XEDAR CORP., 2500 Central Ave., Boulder, CO 80301, Tel: 303-443-6441, Telex: 910-940-2512; *Sls. Mgr.:* Carol Hill

XENON CORP., 66 Industrial Way, Wilmington, MA 01887, Tel: 617-658-8940, Telex: 951142; Empl.: 45; *Sls. Mgr.:* Louis R. Panico

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Local Sales Offices & Reps

AL	Huntsville, Conley & Assocs.	205-882-0316
AZ	Scottsdale, Williams Assoc.	602-947-4297
CA	Goleta, Thorson Co.	805-964-8751
CA	Los Angeles, Thorson Co.	213-595-0361
CA	San Diego, Robert Posten	619-744-3346
CA	Sunnyvale, RDP Instr.	408-735-9040
CO	Commerce City, Williams Assoc.	303-289-5647
CT	Canton, Bell Controls	203-693-8926
FL	Boca Raton, Conley & Assocs.	305-395-6108
FL	Oveido, Conley & Assocs.	305-365-3283
FL	Tampa, Conley & Assocs.	813-885-7658
GA	Atlanta, Conley & Assocs.	404-447-6992
IL	Chicago, Berndt & Assocs.	312-283-0713
IN	Carmel, Berndt Assocs.	317-844-0114
MD	Gaithersburg, Beacon North	703-591-1300
MI	Southfield, Fred Gehrke & Assoc.	313-559-5363
MN	Minneapolis, Berndt Assocs.	612-546-2021
MO	Grandview, R. R. Burton	816-763-5385
NH	Nashua, Bell Controls	603-882-6984
NJ	Haddonfield, Tritek Sls.	215-627-0149
NM	Albuquerque, Williams Assoc.	505-255-1638
NY	East Syracuse, Nycom	315-437-8343
NY	Hartsdale, Spectrum Sls.	914-472-8600
NC	Raleigh, Conley & Assocs.	919-876-9862
OH	Cleveland, Geotronix	216-526-2535
OH	Trotwood, Geotronix	513-854-5939
OR	Beaverton, Huntley Assocs.	503-649-5308
TX	Dallas, Allied Comps.	214-238-0408
TX	Houston, Allied Comps.	713-988-1600
TX	Round Rock, Allied Comps.	512-244-1166
UT	Salt Lake City, Williams Assoc.	801-485-6511
VA	Fairfax, Beacon North	703-591-1300
WA	Everett, Huntley Assocs.	206-353-1833
WI	Milwaukee, Berndt Assocs.	414-545-8400

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XSIS ELECTRONICS, INC., 12620 W. 63rd St., Shawnee, KS 66216, Tel: 913-631-0448, Telex: 437227; FSC No.: 57051; *Sls. Mgr.:* Jerry Dehnert .... 1A•1443

Local Sales Offices & Reps

AL	Huntsville, Murcotá Corp.	205-539-8476
AZ	Phoenix, Anderson Co.	602-266-2070
CA	Culver City, Westaironics Inc.	213-641-4122
CA	Sunnyvale, Loeswick's	408-745-6751
CO	Loveland, Morbak Mktg.	303-669-8900
IL	Rolling Meadows, Sieger Assoc.	312-991-6161
KY	Ft. Mitchell, G. W. Thelen Co.	606-341-8181
MD	Ellicott City, VPI Inc.	301-461-2525
MA	Norwood, MPS Elctrns.	617-769-8700
MN	Eden Prairie, Aldridge Assoc. Inc.	612-944-8433
NJ	Fairfield, Addem Sls.	201-882-0993
NY	Fayettville, R. D. Sherman	315-637-9861
TX	Houston, Repmaster	713-692-8204
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EXP	NY, Great Neck, Ad Auriema	516-487-0700

XYCOM, 750 N. Maple Rd., Saline, MI 48176, Tel: 313-429-4971, TWX: 810-223-8153; Empl.: 225; *Sls. Mgr.:* Dan Lewis; *Dist. Mgr.:* Bill Nemeth

XYLOG CORP., 150 Tillman St., Westwood, NJ 07675, Tel: 201-664-7997; Empl.: 25; *Sls. Mgr.:* Milton Frank .... 3•1813, 1922

YARDNEY BATTERY DIV., Yardney Elec. Corp., 82 Mechanic St., Pawcatuck, CT 02891, Tel: 203-599-1100, Telex: 6813114, TWX: 710-470-0260; FSC No.: 87362; Empl.: 300; *Sls. Mgr.:* Herman G. Lewis, Jr.

YELLOW SPRINGS INSTR., Box 279, Yellow Springs, OH 45387, Tel: 513-767-7241, Telex: 205437; Empl.: 375; *Sls. Mgr.:* R. Heggemann

Local Sales Offices & Reps

AZ	Tempe, Elec-Com Assoc.	602-967-8023
CA	Costa Mesa, FLW, Inc.	714-751-7512
CA	Hayward, FLW, Inc.	415-487-2222
CA	Van Nuys, FLW, Inc.	213-989-5238
CO	Boulder, Grady Moore & Assocs.	303-494-3351
GA	Atlanta, Craft Assoc.	404-256-0420
GA	Marietta, FLW, Inc.	404-424-1731
IL	Lansing, Van Meter Inst.	312-474-3580
IN	Indianapolis, RDP Corp.	317-788-4296
MA	Norwell, Bordewieck Engrg.	617-659-4915
MI	Farmington Hills, Anderson Elctrns.	313-553-7600
MN	Minneapolis, Trask Engrg.	612-537-2434
NJ	Scotch Plains, RJM Sls.	201-322-7880
NM	Albuquerque, Elec-Com Assoc.	505-898-6101
NY	Syracuse, Labtronics	315-455-7314
OH	Cleveland, RDP Assoc.	216-659-3138
OH	Dayton, RDP Assocs.	513-253-6175
PA	Pittsburgh, RDP Assoc.	412-487-5055
TX	Houston, American Analog	713-941-7265
TX	Lewisville, Milestek	214-436-1597
VA	Richmond, Advance Control Equip.	804-270-7182
WA	Bellevue, Topp Engrg Sls.	206-747-5400

Local Distributors

MN	Minneapolis, Trask Engrg.	612-537-2434
NJ	Scotch Plains, RJM Sls.	201-322-7880
NY	Syracuse, Labtronics	315-455-7314
OH	Dayton, RDP Corp.	513-253-6175
TX	Lewisville, Milestek	214-436-1597

YEW CORP., See Yokogawa Corp. of America

YOKOGAWA CORP. OF AMERICA, 2 Dart Rd., Shenandoah, GA 30265, Tel: 404-253-7000, TWX: 714-567-1256; Empl.: 70; *Sls. Mgr.:* J. V. Stegenga

YORK METAL PRODUCTS, INC., 34-20 12th St., Long Island, NY 11367, Tel: 212-932-3660; *Sls. Mgr.:* Harold Miller

ZECO, INC., 2075 H Bering Dr., San Jose, CA 95131, Tel: 408-286-8856; *Sls. Mgr.:* Conie Johnson; *Dist. Mgr.:* Conie Johnson

YORK TECHNOLOGY, INC., 1101 State Rd., Bldg. O, Princeton, NJ 08540, Tel: 609-924-7676; *Sls. Mgr.:* Geoffrey R. Gamble

BATTERY YUASA

YUASA BATTERY (AMERICA), INC., 9728 Alburtis Ave., Santa Fe Springs, CA 90670, Tel: 213-949-4266, Telex: 696272; Empl.: 5,000; *Sls. Mgr.:* Les Biggins .... 3•1437

Local Sales Offices & Reps

AZ	Tempe, Elec-Com	602-967-8644
CA	Diablo, Main Engrg. & Mktg. Assocs.	415-837-2193
CA	Garden Grove, West Elctrn Sls.	213-493-5569
CO	Englewood, Grimes Mktg.	303-740-6063
CT	Horth Haven, Kitchen & Kutchin	203-239-0212
FL	Ft. Lauderdale, QXI, Inc.	305-485-6030
FL	St. Petersburg, QXI, Inc.	813-821-2281
IL	Cary, Ellinger Sls.	312-639-1850
IA	Des Moines, Beams Co.	515-255-1148
KS	Shawnee Mission, Beams Co.	913-631-0300
MD	Baltimore, S. K. Macdonald Co.	301-254-3380
MA	Burlington, Kitchen & Kutchin	617-229-2660
MN	St. Paul, SKOR	612-426-1160
NJ	Berkeley Hgts., Cambridge Allen & Assocs.	201-464-0203
NJ	Fairfield, Yuasa Battery (Amer.) E. Reg. Off.	201-575-5848
NC	Asheville, Edco Sls.	704-253-1594
OH	Columbus, McFadden Sls.	614-459-1280
PA	Philadelphia, S. K. Macdonald Co.	215-545-1205
TX	Houston, Barry Sls.	713-784-5860
TX	Richardson, Barry Sls.	214-234-0255

ZAMBRE CO., INC., 2134 Old Middlefield Way, Mountain View, CA 94043, Tel: 415-968-9176

ZAX CORP., 2572 White Rd., Irvine, CA 92714, Tel: 714-474-1170, 800-421-0982, Telex: 183829; Empl.: 25; *Sls. Mgr.:* Hal Horrocks

ZEHNTEL, INC., 2625 Shadelands Dr., Walnut Creek, CA 94598, Tel: 415-932-6900, TWX: 910-385-6300; Empl.: 480; *Sls. Mgr.:* N. Vinson; *Dist. Mgr.:* N. Vinson

ZENDEX CORP., 6700 Sierra La., Dublin, CA 94566, Tel: 415-828-3000, TWX: 910-389-4009; *Sls. Mgr.:* James F. Bairey

ZENITH COMPONENTS & SYS. GRP., Zenith Radio Corp., 1000 Milwaukee Ave., Glenview, IL 60025, Tel: 312-391-7733; *Sls. Mgr.:* Norm Berkowitz

ZENITH CONTROLS, 830 West 40th St., Chicago, IL 60609, Tel: 312-247-6400, Telex: 25-3703; Empl.: 125; *Sls. Mgr.:* V. Helford

ZENITH TRANSFORMER CO., INC., 1728 West 130th St., Gardena, CA 90249, Tel: 213-321-4551

ZENITH CRT & COMPONENTS OPERATIONS, 1000 Milwaukee Ave., Glenview, IL 60025, Tel: 312-391-7733; *Sls. Mgr.:* Norm Berkowitz

ZENRAD CIRCUITS CO., 529 E. Gutierrez St., Santa Barbara, CA 93103, Tel: 805-963-3527; FSC No.: 33180; Empl.: 10; *Sls. Mgr.:* A. Radford

ZERO CORPORATION

ZERO CORP., 777 Front St., Burbank, CA 91503, Tel: 213-846-4191, TWX: 910-498-2237; Empl.: 1400; *Sls. Mgr.* J. J. Roderer .... 2•1070-1079

Local Sales Offices & Reps

AZ	Phoenix, Howe & Howe Sls., Inc.	602-264-7971
CA	Burbank, Zero-West Div.	213-846-4191

CA	Palo Alto, Northern Cal. Sls. Off.	415-964-7700
CA	San Diego, San Diego Sls. Off.	619-271-7221
CO	Boulder, Component Prod. Sls. Co. Inc.	303-530-2800
FL	Clearwater, Richard Straker	813-531-8991
IL	Elk Grove Village, Carlson Elctrns. Sls.	312-956-8240
IN	Indianapolis, L.M. DeVoe Co.	317-842-3245
IA	Cedar Rapids, Carlson Elctrn. Sls.	319-377-6341
LA	Metairie, Automation Supplies	504-831-2183
MD	Baltimore, R. P. Luce & Co.	301-752-8200
MA	Monson, Zero-East Div.	413-267-5561
MI	Grosse Pointe Park, Greiner Assoc. Inc.	313-499-0188
MN	Bloomington, Elctrn. Sls. Agcy.	612-884-8291
MO	Raytown, Cadon Tech. Sls.	816-356-7685
MO	St. Louis, Cadon Techn. Sls.	314-645-8670
NJ	Piscataway, R.P. Luce & Co.	201-752-8750
NM	Albuquerque, Fry-Gates	505-262-1525
NY	East Syracuse, Fountain Young & Co.	315-437-7733
NY	New Hyde Park, R.P. Luce & Co.	516-437-4550
NC	Wilson, Diemer Assoc.	919-237-8217
OH	Columbus, Tom Mulligan & Assocs.	614-457-2242
OR	Wilsonville, RTS, Inc.	503-638-5670
PA	Boswell, B.E. Gibson	814-629-6772
PA	Huntingdon Valley, Inacker Sls.	215-947-5660
SC	Greenville, Sunbelt Sls.	803-877-9088
TX	Dallas, J. Gibbs & Assocs.	817-430-1861
TX	Fort Worth, J. Gibbs & Assocs.	817-237-1455
TX	Houston, Milco Mktg.	713-946-2841
UT	Salt Lake City, Effective Sls.	801-266-9617
VA	Powhatan, R. P. Luce & Co	804-598-2095
WA	Vashon, RTS, Inc.	206-285-1316

Local Distributors

AL	Huntsville, Powell Elctrns.	205-539-2731
AZ	Phoenix, R.V. Weatherford	602-272-7144
AZ	Phoenix, Dalis Elctrn Supp.	602-275-2885
AZ	Tucson, Inland Elctrn Supp.	602-294-2628
CA	Anaheim, R. V. Weatherford Co.	714-634-9600
CA	Burlingame, Rose Elctrn. Distr.	415-348-2740
CA	Glendale, R.V. Weatherford Co.	213-849-3451
CA	Pomona, R.V. Weatherford Co.	714-623-1261
CA	San Diego, R. V. Weatherford Co.	714-695-1700
CA	Santa Barbara, Weatherford	805-965-8551
CA	Sunnyvale, R. V. Weatherford Co.	408-738-8694
CO	Denver, R. V. Weatherford Co.	303-428-6900
CT	Stratford, Utronics	203-378-4201
FL	Miami, Elctrn. Equip.	305-871-3500
IL	Addison, L-Comp	312-628-1400
IN	Indianapolis, Genesis Elctrns.	317-637-5571
LA	New Orleans, Wm. B. Allen Supp.	504-525-8222
MD	Beltsville, Treeko Sls., Inc.	301-937-8260
MD	Savage, Pyttronic Inds.	301-792-0780
MA	Westboro, Future Elctrns.	617-366-2400
MA	Winchester, Rush Inds., Inc.	617-729-5800
MI	Clawson, Empire Elect. Inc.	313-435-0460
MI	Wyoming, R.M. Elctrns.	616-531-9300
MN	Minneapolis, Indl. Comps.	612-831-2666
MO	Kansas City, L-Comp	816-221-2400
MO	Maryland Hghts, L-Comp	314-291-6200
NJ	Englewood, Technical Elctrns. Distr.	201-894-0800
NM	Albuquerque, Int'l. Elctrns.	505-345-8127
NY	Bohemia, CAR-LAC Elctrn. Inds. Sls.	516-567-4200
NY	Endwell, ASI Elctrns., Inc.	607-754-3823
NC	Winston-Salem, Kirkman Elctrns.	919-722-9131
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OH	Columbus, Hughes-Peters Inc.	614-294-5351
OH	Middleburg Heights, Prehler Elect.	216-243-5510
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OR	Salem, Zepher Elctrns.	503-399-8503
PA	McKean, Advacom	814-476-7774
PA	Montgomeryville, Pyttronic Inds.	215-643-2850
PA	Wayne, Peak Elctrns.	215-293-9000
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TX	Dallas, Solid State Elctrns. Co. of Texas	214-438-5700
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TX	Houston, R. V. Weatherford	713-688-7406
TX	Houston, Solid State Elctrns.	713-772-8483
UT	Salt Lake City, Standard Supp. Co.	801-486-3371
VA	Richmond, Sterling Elctrns.	804-226-2190
WA	Seattle, R.V. Weatherford	206-575-1340
WA	Seattle, Zepher Elctrn. Sls. Corp.	206-241-1980

ZERO-EAST DIV., 288 Main St., Monson, MA 01057

ZETA LABS., 3265 Scott Blvd., Santa Clara, CA 95051, Tel: 408-727-6001, TWX: 910-338-7336; FSC No.: 31260; Empl.: 195; *Sls. Mgr.:* C. W. Frank

ZEUS INDL. PRODS. INC., P.O. Box 298, Raritan, NJ 08869, Tel: 201-526-0800, 800-526-3842, TWX: 710-480-9346; FSC No.: 32039; Empl.: 110; *Sls. Mgr.:* John Worley; *Dist. Mgr.:* Arthur M. Silverman ....2•1871

ZEXCO, 7661 Densmore, #8, Van Nuys, CA 91406, Tel: 818-997-7895

ZIATECH, 3433 Roberto Ct., San Luis Obispo, CA 93401, Tel: 805-541-0488, Telex: 4992316; Empl.: 25; *Sls. Mgr.:* Jim Eckford

ZIERICK MFG. CORP., 44 Radio Circle, Mt. Kisco, NY 10549, Tel: 914-666-2911, TWX: 710-571-2143; Empl.: 120; *Sls. Mgr.:* L. T. Noyes

ZIPPERTUBING CO., P.O. Box 61129, Los Angeles, CA 90061, Tel: 213-321-3901, TWX: 910-346-6713; Empl.: 120; *Sls. Mgr.:* Terry Plummer

ZI-TECH INSTR. CORP., 2151 Park Blvd., Box 60490, Palo Alto, CA 94306, Tel: 415-326-2151, Telex: 334-447; Empl.: 15; *Sls. Mgr.:* J. Ziman

ZYMOS CORP., 477 N. Mathilda Ave., Sunnyvale, CA 94086, Tel: 408-730-8800, 408-730-5400, TWX: 910-339-9530; *Sls. Mgr.:* Jeff Jacobsen

eem FILE SYSTEM

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Microphones, Omnidirectional
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Networks, Crossover, Attenuator (Audio)
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Speakers, Public Address
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Coils, Antenna (Incl. Loading Type)
Coils, Broadcast
Coils, Chip
Coils, Degaussing
Coils, Field
Coils, Focusing
Coils, Foil Wound
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Coils, Hybrid & Repeater
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Coils, Metallized Glass
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Concentrators, Communications
Controllers, Error
Converters, Frequency Shift Keying
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Couplers, Antenna
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Diplexers, Antenna
Discriminators
Duplexers, Nonmicrowave
Earth Stations, TV, Receive Only
Encoders, Tone
Equalizers, Delay
Equalizers, Phase
Facsimile Equipment, Receive Only
Facsimile Equipment, Send/Receive
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Generators, Baud Rate
Isolators, Antenna
Keyers, Tone
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Modems, Communications, Line Receivers
Modems, Communications, Long Haul
Modems, Communications, Short Haul (Limited Distance)
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Modulators, FM
Modulators, Phase
Modulators, RF
Monitors, Data Link
Monitors, Error Rate
Monitors, Line & Program
Monitors, Video
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Multiplexers, Frequency Division
Multiplexers, Statistical
Multiplexers, Time Division
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Multiplexers, Video
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Multipliers, Diode
Networks, Directional Antenna Phasing
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Oscillators, Telemetry
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Transmitters, Tone
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Cards, Linear Function
Cards, Logic
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Character Recognition Equip., Optical
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Controllers, Card Reader/Punch, Standalone
Controllers, Floppy Disk Drive, Add-in
Controllers, Floppy Disk Drive, Standalone
Controllers, Hard Disk Drive, Add-in
Controllers, Hard Disk Drive, Standalone
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Controllers, Magnetic Tape Drive, Standalone
Controllers, Memory Device, Add-in
Controllers, Memory Device, Standalone
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Controllers, Printer, Standalone
Controllers, Protocol, Communications
Controllers, Terminal, Add-in
Controllers, Terminal, Standalone
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Converters, CRT Display
Converters, Digital to Paper Tape
Converters, Graphic to Digital
Converters, Paper Tape to Magnetic Tape
Converters, Serial to Parallel/Parallel to Serial
Converters, Tape to Card
Data Collection Equipment, Hand Held
Data Collection Equipment, Modular
Data Collection Equipment, Portable
Data Compressors, Digital
Data Links, Optical
Digitizers, Audio
Digitizers, Pencil Follower (Incl. Coordinate & Graphic)
Digitizers, Video
Disks, Magnetic, 5¼" Flexible
Disks, Magnetic, 8" Flexible
Disks, Magnetic, Front-loading Cartridge
Disks, Magnetic, Pack
Disks, Magnetic, Sub-4"
Disks, Magnetic, Top-loading Cartridge
Disks, Magnetic, Winchester Module
Displays, Graphic Systems
Drives, Disc, Flexible and Rigid
Drives, Subsystems, Disk, 8" Diskette
Drives/Subsystems, Core Disk Emulator
Drives/Subsystems, Disk, 14" Winchester
Drives/Subsystems, Disk, 3½ " Diskette
Drives/Subsystems, Disk, 5¼" Diskette
Drives/Subsystems, Disk, 5¼" Winchester
Drives/Subsystems, Disk, 8" Winchester
Drives/Subsystems, Disk, Fixed
Drives/Subsystems, Disk, Fixed/Removable
Drives/Subsystems, Magnetic Tape, Cassette
Drives/Subsystems, Magnetic Tape, Reel-to-Reel
Drives/Subsystems, Magnetic Tape, ¼" Cartridge
Drives/Subsystems, Semiconductor Emulator
Encoders, Proof
Generators, Time Code
Generators, Timing, Digital
Input/Output Equipment, Voice
Interfaces, Computer/Peripheral
Light Pens
Mark Recognition Equipment, Optical
Matrices, Switching-Also See Boards, Programming
Memory Devices/Controllers, Bipolar, Add-in
Memory Devices/Controllers, Bipolar, Add-on
Memory Devices/Controllers, Bubble, Add-in
Memory Devices/Controllers, Bubble, Add-on
Memory Devices/Controllers, CCD, Add-in
Memory Devices/Controllers, CCD, Add-on
Memory Devices/Controllers, Magnetic Core, Add-in
Memory Devices/Controllers, Magnetic Core, Add-on
Memory Devices/Controllers, MOS, Add-in
Memory Devices/Controllers, MOS, Add-on
Memory Systems, Bubble
Memory Systems, Core
Memory Systems, Delay Line
Memory Systems, Disk
Memory Systems, Disk, Flexible
Memory Systems, Semiconductor
Memory Systems, Tape
Microfilm, Computer Output (COM) Equipment
Modulator/Demodulators, Data
Networks, Computer, Local Area
Networks, Hybrid
Networks, RC
Paper Tape Equipment, Punch
Paper Tape Equipment, Reader
Paper Tape Equipment, Reader/Punch
Paper, Thermal
Perforators, Paper Tape (Electrically Powered)
Plotters/Hard-Copy Devices
Printer/Plotters
Printers, Daisywheel
Printers, Digital
Printers, Dot Matrix Impact
Printers, Page
Printers, Serial
Printers, Thermal
Processors, Image
Processors, Remittance
Programmers, Punched Card
Programmers, Tape
Readers, Badge
Readers, Bar Code
Readers, Character
Readers, Magnetic Card
Readers, Magnetic Stripe Card
Readers, Punched Card
Readers, Punched Tape
Readers, Static Card
Readers, Time Code
Recognition Equipment, Speech
Recorders, Computer Data
Recorders, Magnetic Tape
Recorders, Program Loading
Scanners, Bar Code
Tape Search Equipment
Tape Winders
Tapes, Magnetic, Digital Cassette
Tapes, Magnetic, ½", 2400' Reel
Tapes, Magnetic, ½", 3600' Reel
Tapes, Magnetic, ¼", 140' Cartridge
Tapes, Magnetic, ¼", 300' Cartridge
Terminal Equipment, Digital
Terminals, Credit Authorization
Terminals, Data Display (including Alphanumeric & Graphic)
Terminals, Data Entry, Multimedia
Terminals, Display
Terminals, Financial
Terminals, Intelligent/Programmable, Batch
Terminals, Intelligent/Programmable, Interactive
Terminals, Intelligent/Programmable, Multiprogramming

Terminals, Intelligent/Programmable, Multiuser
Terminals, Intelligent/Programmable, Real Time
Terminals, Intelligent/Programmable, Transaction Processing
Terminals, Point-of-Sale
Translators, Time Code
Transmission Systems, Data
Transports, Tape (all kinds).

2025 COMPUTERS (MINI/MICRO)

(Volume 3)

Array Processors
Board Computers & Subassemblies, Multibus Compatible
Board Computers & Subassemblies, Q Bus/Unibus Compatible
Board Computers & Subassemblies, S100 Bus Compatible
Board Computers & Subassemblies, STD Bus Compatible
Computers, Analog
Computers, CAD, CAM, & CAD/CAM
Computers, Digital, Micro
Computers, Digital, Mini
Computers, Hybrid, Analog/Digital
Computers, Mainframe
Computers, Micro
Computers, Mini, High End
Computers, Mini, Low End
Computers, Mini, Midrange
Computers, Personal
Computers, Small Business
Services, Computer Systems Integration
Word Processors, Shared Logic Systems
Word Processors, Standalone Systems

2050 COMPUTER SOFTWARE

(Volume 3)

Services, Computer Programming
Services, Computer Systems, Builders
Services, Computer Systems, Consulting
Services, Computer Systems, Integrators
Services, Computer Systems, Turnkey
Services, Data Processing, Consulting
Software, Applications
Software, Communications
Software, Compilers/Languages
Software, Computer Performance Measurement
Software, Data Base Management
Software, Data Base Management Dictionaries
Software, Data Base Query Language
Software, Data Communications Control
Software, Disk/Tape File Utilities
Software, Emulation/Simulation
Software, Information Storage & Retrieval
Software, Job Scheduling/Accounting
Software, Librarians
Software, Operating Systems
Software, Operating Systems Enhancement
Software, Program Translators
Software, Programming/Systems Development Aids
Software, Report Generators
Software, Security
Software, Sort/Merge
Software, Spoolers
Software, Utilities

2100 CONNECTORS, TERMINALS, & SOCKETS

(Volume 2)

Caps, Connector
Clips, Alligator
Clips, Battery
Clips, Fahnestock
Clips, Test
Connector Adapters
Connector Backshells
Connector Blocks, Mother Board
Connectors & Terminals, Push-on, Quick Disconnect
Connectors, Audio
Connectors, Battery
Connectors, Cable
Connectors, Circular, MS/AN
Connectors, D Subminiature
Connectors, DIN
Connectors, Elastomeric
Connectors, Filtered
Connectors, Flat Cable (Incl. Flexible)
Connectors, Fused
Connectors, Heavy Duty, Power
Connectors, Hermetically Sealed, Pressurized, or Waterproof
Connectors, High Voltage (1,000 Volts & Over)
Connectors, LCD
Connectors, Magnetron
Connectors, Miniature, Subminiature & Microminiature
Connectors, Plug-in, Program Board
Connectors, Printed Circuit (Other than Card Edge)
Connectors, Printed Circuit, Card Edge
Connectors, Rack & Panel
Connectors, RF, Coaxial & Triaxial
Connectors, Solderless
Connectors, Stripline
Connectors, Test
Connectors, Thermocouple
Connectors, Wirewrap (Z-3 Level)
Connectors, Zero & Low Insertion Force
Cords, Patch
Holders & Carriers, Chip (Capacitor, IC, LSI)
Jack Adapters (All Types)
Jack Covers
Jacks (All Types)
Jumpers, Bonding
Jumpers, Circuit Board
Kits, Connector
Kits, Terminal
Pads, Transistor Mounting
Panels, Jack
Pins, Electrically Conductive
Plug & Jack Sets
Plug Adapters
Plug Caps & Shells
Plugs, Electrical (All Types)
Plugs, Fused
Posts, Binding
Socket Adapters
Sockets, Capacitor
Sockets, Crystal
Sockets, Diode
Sockets, DIP and DII
Sockets, Integrated Circuit
Sockets, Leadless Carrier
Sockets, LIF & ZIF
Sockets, Relay
Sockets, SIP
Sockets, Test
Sockets, Transistor
Sockets, Tube
Terminal Blocks (Incl. Barrier Types)
Terminal Boards
Terminal Strips (Including Barrier Types)
Terminals, Ferrule, Cable-End
Terminals, Lug (All Types)
Terminals, Miniature & Subminiature
Terminals, Printed Circuit Board
Terminals, Solderless
Terminals, Standoff
Terminals, Threaded
Terminals, Turret
Terminals, Wirewrap

2200 CONTROL SYSTEMS & COMPONENTS

(Volume 3)

Alarms & Alarm Systems
Annunciators
Bells, Buzzers, Gongs, Sirens & Aural Warning Devices
Clocks, Time Keeping — Also See Oscillators, Clock
Controllers, Energy Conservation
Controllers, Programmable
Controls, Audio System Consoles
Controls, Capacitance Operated
Controls, Counting & Sorting
Controls, Density
Controls, Fluid Conductivity
Controls, Fluid Flow
Controls, Frequency
Controls, Gas
Controls, Humidity
Controls, Ignitron Firing
Controls, Lamp Dimming, Flashing
Controls, Level, Dry Material
Controls, Level, Liquid
Controls, Machine Tool
Controls, Motor Speed
Controls, Oscillator
Controls, Photoelectric
Controls, Pressure
Controls, Proportional
Controls, Proximity-Also See Controls, Capacitance Operated
Controls, Remote
Controls, Run, Shutdown Command, Start
Controls, SCR
Controls, Sensing/Monitoring-Voltage, Phase, Frequency
Controls, Stepping Motor
Controls, Temperature
Controls, Torque, Electronic
Controls, Vibrator
Counters, Bidirectional
Counters, Coil Winding
Counters, Decade
Counters, Directional
Counters, Electromagnetic
Counters, Event
Counters, Mechanical
Counters, Photoelectric
Counters, Preset
Counters, Printing
Counters, Pulse
Counters, Revolution
Current Sensors-Also See Transducers, Volt, etc
Demodulators, Magnetic
Energy Management Systems
Flashers
Gyros (All Types)
Indicators, Directional
Indicators, Elapsed Time
Indicators, Liquid Level
Indicators, Positioning
Integrators, Mechanical & Electromechanical
Measuring Equipment, Fiber Optic, Attenuation & Bandwidth
Meters, Fluid Flow
Modulators, Magnetic
Modules, Control & Switching
Monitors, Current
Monitors, Laser Energy
Monitors, Phase Sequence & Loss
Monitors, Power Failure
Monitors, Power, AC & DC
Multipliers, Magnetic Analog
Process Control Systems
Programmers, Cam & Drum
Sensors, Acoustic
Sensors, Chemical
Sensors, Proximity
Timers, Counting
Timers, Cycle & Reset
Timers, Delay
Timers, Electrolytic Cell
Timers, Interval
Timers, Programmed
Timers, Sequence
Timers, Solid State
Totalizers, Digital
Trackballs, XY Positioning

2300 CRYSTALS, OSCILLATORS, CRYSTAL & PIEZOELECTRIC FILTERS

(Volume 1A)

Crystal Blanks
Crystals, Frequency Control
Crystals, Microprocessor
Crystals, Piezoelectric
Crystals, Quartz
Crystals, Quartz, for Watches
Crystals, Semiconductor (Ingots & Wafers)
Crystals, YIG
Detectors, Crystal
Filters, Crystal (Incl. Monolithic Devices)
Filters, Tuning Fork
Holders, Crystal
Modules, Oscillator
Mounts, Crystal
Oscillators, Audio (Module)
Oscillators, Beat Frequency (BFO)
Oscillators, Bias
Oscillators, Cavity
Oscillators, Clock
Oscillators, Crystal Controlled (Module)
Oscillators, LC
Oscillators, Low Frequency (Module)
Oscillators, Oven
Oscillators, Power (Module)
Oscillators, Pulse (Module)
Oscillators, RC (Module)
Oscillators, Reed
Oscillators, RF (Module)
Oscillators, Sinusoidal (Module)
Oscillators, Square Wave (Module)
Oscillators, Temperature Compensated
Oscillators, Tuning Fork Controlled
Oscillators, UHF/VHF (Module)
Oscillators, Ultrasonic (Module)
Oscillators, Voltage Controlled (Module)
Ovens, Crystal & Component
Piezoelectric Ceramics
Resonators, SAW
Timing Systems, Oscillators
Tuning Forks

2325 DATA ACQUISITION/ HANDLING SYSTEMS & ACCESSORIES

(Volume 3)

Cameras, Data Recording
Cameras, Infrared
Converters, Analog to Digital
Converters, Analog to Pulse
Converters, ASCII to Baudot
Converters, ASCII to BCD
Converters, BCD to ASCII
Converters, Binary to BCD
Converters, Binary to Decimal
Converters, DC to Sine/Cosine
Converters, DC to Synchro
Converters, Digital to Analog
Converters, Digital to Resolver
Converters, Digital to Synchro
Converters, Frequency to Voltage
Converters, Multiplying, Analog to Digital & Digital to Analog
Converters, Polar to Rectangular Coordinates
Converters, Rectangular to Polar
Converters, Resolver to Digital
Converters, Synchro to Digital
Converters, Synchro to Linear DC
Converters, Synchro to Sine/Cosine
Converters, Voltage to Frequency
Data Acquisition & Reduction Systems-Also See Modules, Data Acquisition
Data Loggers
Generators, Character
Integrators, Electronic
Modules, Data Acquisition
Multiplexers, Analog
Multiplexers, Digital
Multipliers, Analog
Multipliers, Channel Electron
Scalers, Binary, Decade
Scramblers, Data
Security Systems, Data
Shift Registers
Signal Systems, Fiber Optic
Speech Compression & Synthesis Equipment
Spoolers, Printer Buffers
Switches, Data, Manual
Switches, Data, Programmable
Synthesizers, Speech
Translators, Data

2350 DELAY LINES

(Volume 1A)

Delay Lines, All Types
Delay Lines, Cable
Delay Lines, Digital
Delay Lines, Distributed, Constant (Fixed)
Delay Lines, Distributed, Constant (Variable)
Delay Lines, Glass & Quartz
Delay Lines, Liquid
Delay Lines, Lumped Constant (Electrically Variable)
Delay Lines, Lumped Constant (Fixed)
Delay Lines, Lumped Constant (Mechanically Variable)
Delay Lines, Magnetostrictive
Delay Lines, Miniature & Subminiature-Also See Specific Types Of Delay Lines
Delay Lines, Programmable
Delay Lines, Strip
Delay Lines, Trimmer
Delay Lines, Ultrasonic
Delay Lines, Waveguide
Standards, Delay Line
Surface Acoustic Wave Devices
Surface Acoustic Wave, Delay Line
Synthesizers, Delay Line

2400 PANEL HARDWARE (BEZELS, DIALS, KNOBS, ETC.)

(Volume 2)

Bezels, Shielded & Unshielded
Cords & Cable, Dial Drive
Couplings, Shaft, Rigid & Flexible
Decalcomania-Also See Labels, Pressure Sensitive
Dials, Instrument, Metal, Plastic, etc.
Dials, Turns Counting
Drives & Drive Mechanisms (Dial)
Escutcheons
Kits, Marking (Dial, Instrument, Equipment, etc.)
Knobs & Dials
Knobs, Limit Stop
Knobs, Locking, Control Shaft
Knobs, Slip Clutch
Knobs, Torque, Incremental, Ratio Drive
Labels, Pressure Sensitive, Adhesive
Locks, Dial & Shaft
Pointers, Dial
Scales, Dial

2440 MILITARY COMPONENTS

(Volume 1B)

Adapters, RF (MIL)
Antennas (MIL)
Arresters, Electrical Surge/Lightning (MIL)
Attenuators (MIL)
Attenuators (MIL), Inductive
Cable & Assemblies (MIL)
Cable (MIL), Flat
Cable (MIL), RF
Capacitors (MIL)
Caps (MIL)
Chassis (MIL), Electrical
Chokes (MIL)
Choppers (MIL)
Circuit Breakers, Boxes, Panel Boards, Enclosures (MIL)
Clamps (MIL), Cable
Clips (MIL), Electrical
Coils (MIL), RF
Connectors (MIL), Flat Cable
Connectors (MIL), Power
Connectors (MIL), Printed Circuit
Connectors (MIL), RF
Contactors (MIL)
Contacts (MIL), Assemblies & Holders
Couplers (MIL), Directional
Crystals (MIL)
Current Limiters (MIL)
Diodes (MIL)
Dummy Loads (MIL), RF
Electrostatic Discharge (MIL)
Fiber Optics (MIL)
Filters (MIL), Electrical & Networks
Flanges (MIL), Waveguide
Flashers (MIL)
Fuses, Fuseholders, Boxes & Panels (MIL)
Hardware (MIL), Connector
Headsets (MIL)
Heat Sinks (MIL)
Inductors (MIL)
Jacks (MIL)
Line Assemblies (MIL), RF Transmission
Magnets (MIL), Permanent
Meters (MIL)
Microcircuits (MIL)
Microcircuits (MIL), Linear
Microcircuits (MIL), Low Power Schottky
Microcircuits (MIL), Memories, CMOS, Hybrids
Microcircuits (MIL), TTL, Schottky, Microprocessor
Microphones (MIL)
Modules (MIL), Electronic
Modules (MIL), Standard Electronic
Oscillators (MIL), Crystal & Ovens
Oscillators (MIL), VCO, Solid State, RF
Plugs (MIL)
Potentiometers (MIL)
Printed Circuits & Printed Circuit Materials (MIL)
Reactors (MIL)
Rectifiers (MIL), Semiconductor
Relays (MIL)
Resistors (MIL)
Sockets (MIL)
Soldering (MIL)
Solenoids (MIL)
Speakers (MIL)
Switches (MIL), Non-RF
Switches (MIL), RF
Synchros & Resolvers (MIL)
Test Methods (MIL)
Thyristors (MIL)
Transformers (MIL), Audio, Power, RF
Transformers (MIL), Pulse & Variable
Transistors (MIL)
Transmission Lines (MIL), RF
Tubes (MIL), Indicator & Pickup
Tubes (MIL), Microwave
Tubes (MIL), Power & Gas, Planar
Tubes (MIL), Receiving, & Tube Shields
Waveguides (MIL)
Wire (MIL)
Wire, Airframe

2450 DISPLAYS, READOUTS, LAMPS, & LIGHTS

(Volume 1B)

Boards, Display, Graphic
Caps, Lenses, Indicator Light
Displays, Dot Matrix
Displays, Edge Lighted & Back Lighted
Displays, Electroluminescent
Displays, Electromagnetic
Displays, Electromechanical
Displays, Fiber Optic
Displays, Graphic
Displays, Indicator Lights
Displays, Laser
Displays, Light-emitting Diode (LED)
Displays, Lighted Segment
Displays, Liquid Crystal (LCD)
Displays, Planar Gas Discharge
Displays, Plasma
Displays, Projection Type (CRT; Electromechanical; Film; Light Valve)
Displays, Status
Displays, Touch Sensitive (Infrared & Membrane)
Displays, Vacuum Fluorescent
Drivers & Decoders For Readouts
Filters, Color, Panel Light
Filters, Display
Indicators, Circuit Condition, On, Off, etc. (Electromechanical)-Also See Indicators, Instrument, Flag, Pointer, etc.
Indicators, Instrument, Flag, Pointer, etc.
Lamp Adapters
Lamp Assembly Color Filters, Lens Mountable
Lamp Drivers
Lamps, Arc
Lamps, Edge Lighting, Panel
Lamps, Electroluminescent
Lamps, Exciter, Photographic
Lamps, Flashtube
Lamps, Fluorescent
Lamps, Incandescent
Lamps, Infrared
Lamps, Mercury Vapor
Lamps, Miniature & Subminiature
Lamps, Neon
Lamps, Oil Tight
Lamps, Press-to-Test
Lamps, Projection
Lamps, Stroboscopic Source
Lamps, Tritium (Hydrogen 3) Powered
Lamps, Tungsten Halogen
Lamps, Ultraviolet
Lamps, Xenon
Lenses, Readout & Display
Lights, Indicator
Nameplates
Panels, Back Lighted & Edge Lighted
Panels, Electroluminescent
Sockets, Lamp & Lamp Assemblies

2475 FIBER OPTIC EQUIPMENT & ACCESSORIES

(Volume 1B)

Adapters, Fiber Optic
Attenuators, Fiber Optic
Cable, Fiber Optic
Connectors, Fiber Optic
Couplers, Fiber Optic
Data Links, Fiber Optic
Emitters, Fiber Optic-Also See Diodes, Laser
Encoders, Fiber Optic
Joints, Rotary, Fiber Optic
Kits, Fiber Optic
Light Sources, Fiber Optic
Multiplexers, Fiber Optic
Receivers, Fiber Optic
Scanners, Fiber Optic
Sensors, Fiber Optic
Splicers, Fiber Optic
Switches, Fiber Optic
Terminations, Fiber Optic
Test Equipment, Fiber Optic

2500 MECHANICAL COMPONENTS (BEARINGS, CORES, MAGNETS, ETC.)

(Volume 2)

Bearings
Belts, Drive
Bobbins, Winding, Coil & Transformer-Also See Coil Assemblies & Forms
Bushings, Glass, Plastic, Metal, Rubber, etc.
Cans, Capacitor, Relay, Semiconductor, Transformer, etc
Cores, Ceramic
Cores, Magnetic, Ferrite, L, E, etc.
Cores, Magnetic, Ferrite, Pot/Cup
Cores, Magnetic, Ferrite, Slug
Cores, Magnetic, Ferrite, Toroid
Cores, Magnetic, Ferrite, Yoke Section
Cores, Magnetic, Metal Alloy (Other Than Silicon & Nickel-Iron)
Cores, Magnetic, Nickel-Iron, L, EE, F, & Ring Laminations
Cores, Magnetic, Nickel-Iron, Toroid
Cores, Magnetic, Powdered Iron, Pot/Cup
Cores, Magnetic, Powdered Iron, Slug
Cores, Magnetic, Powdered Iron, Toroid
Cores, Magnetic, Powdered Permalloy, Toroid
Cores, Magnetic, Silicon C
Cores, Magnetic, Silicon EI, EE, & F Laminations
Cores, Magnetic, Silicon, Toroid
Couplings, Quick-disconnect, Liquid or Gas
Feedthrus & Seals, Environmental
Ferrite Material & Parts
Foil, Magnetic
Gears & Gear Mechanisms (Precision)
Glass Parts
Graphite Parts
Headers, Relay & Transformer
Headers, Shrouded
Headers, Transistor & Diode
Holders, Diode
Honeycomb Sheets, Panels, etc.
Laminates, Metal Clad (Including Copper)
Laminates, Plastic Impregnated (Unclad)
Limit Stops, Mechanical
Magnets (Lab. Type)
Magnets, Permanent

Magnets, Superconducting
Materials, Shock, Noise, & Vibration Control
Mounts, CRT & Accessories
Pulleys
Quartz, Fused
Rings, Retaining
Seals, Ceramic To Metal
Seals, Glass To Metal
Seals, Hermetic-Also See Services, Hermetic Sealing
Seals, Pressure Sensitive
Silica, Fused
Springs (All Types)
Tubing, Ceramic
Tubing, Glass
Tubing, Metal
Windows, Sapphire

2550 ENVIRONMENTAL TEST EQUIPMENT
(Volume 3)

Chambers, Altitude
Chambers, Environmental
Chambers, Explosion
Chambers, Fluid Conditioner
Chambers, Humidity
Chambers, Pressure
Chambers, Radiation
Chambers, Shock
Chambers, Temperature
Chambers, Vacuum
Chambers, Vibration
Clean Room Equipment & Supplies
Controls, Environmental Test Equipment
Ovens, Aging, Burn-in, Life Test
Refrigerators, Environmental Test
Simulators, Motion
Testers, Burn-in, Aging
Testers, Heat, Manual
Testers, Life, Component
Testers, Material
Testers, Shock

2600 FANS, BLOWERS, COOLING EQUIPMENT, & HEAT EXCHANGERS
(Volume 2)

Air Cleaners & Filters (Shielded & Unshielded)
Air Conditioners (For Equipment)
Blowers, Centrifugal
Dehumidifiers (For Equipment)
Fans, Axial
Heat Exchangers & Systems
Heat Sinks, Semiconductor

2700 FILTERS (EXCL. CRYSTAL & PIEZO FILTERS)
(Volume 1A)

Filters, Active (All Types)
Filters, AF
Filters, Antenna
Filters, Band Elimination
Filters, Bandpass
Filters, Bandpass, SAW (Surface Acoustic Wave)
Filters, Ceramic
Filters, Coaxial
Filters, Comb
Filters, Continuously Variable
Filters, Digital
Filters, EMI/RFI
Filters, Equalizer
Filters, Harmonic
Filters, High Pass
Filters, Hybrid
Filters, IF
Filters, LC
Filters, Linear Phase
Filters, Low Pass
Filters, Mechanical
Filters, Miniature, Subminiature, Microminiature — Also see specific types of filters
Filters, Optical
Filters, RF
Filters, Single Sideband
Filters, Synchronous Tracking
Filters, Tone, Telegraph
Filters, UHF & VHF
Filters, Variable
Filters, Vestigial Sideband
Filters, Video
Hum Eliminators
Networks, LC
Networks, Phase
Networks, Pulse Forming
Networks, Video
Resonators, Ceramic
Suppressors, Noise
Surface Acoustic Wave, Filter

2800 HARDWARE (ELECTRONIC/ELECTRICAL)
(Volume 2)

Capacitor Hardware
Clamps & Clips, Cable-Also See Wire & Cable Ties
Clamps, Synchro & Servo
Connector Boxes & Strips, Power Outlet
Contacts, Electrical
Grommets & Bushings
Resistor Hardware
Retainers, Battery
Rods, Ground
Strain Reliefs, Cable & Wire

Substrates, Ceramic
Substrates, Flexible
Substrates, Glass
Substrates, Metallic
Substrates, Sapphire
Switch Hardware
Switch Seals, Environmental
Terminals, Feedthru
Terminations, Antenna-Also See Dummy Loads
Tubing, Fiberglass
Tubing, Heat Shrinkable-Also See Caps, Forms & Tapes, Heat Shrinkable
Tubing, Paper
Tubing, Plastic-Also See Tubing, Spaghetti
Tubing, Spaghetti
Tubing, Spiral Wrap
Wire Nuts

2825 HARDWARE (MECHANICAL)
(Volume 2)

Bolts
Bumpers
Clamps & Clips, Component
Clamps & Clips, Ground
Eyelets
Fasteners, Metal
Fasteners, Nonmetallic
Ferrules, Cable-end
Hinges
Mounts, Shock & Vibration
Nuts, Metal
Pins, Cotter, Dowel, Taper, etc.
Pins, Mechanical
Plug Buttons
Preforms, Precious Metal
Rivets
Screws, Fastening
Sound Absorbing Materials
Spacers
Washers, Lock
Washers, Plain
Wire & Cable Ties

2900 INSTRUMENTS, TEST & MEASURING
(Volume 3)

Analyzers, AF
Analyzers, Antenna Pattern
Analyzers, Digital Signal
Analyzers, Harmonic
Analyzers, Impedance
Analyzers, Interference
Analyzers, Intermodulation
Analyzers, Logic
Analyzers, Magnetic
Analyzers, Modulation
Analyzers, Network
Analyzers, Noise
Analyzers, Phase & Voltage
Analyzers, Protocol
Analyzers, Pulse
Analyzers, Signature
Analyzers, Sonic & Subsonic
Analyzers, Spectrum
Analyzers, Transfer Function
Analyzers, Transient
Analyzers, Ultrasonic
Analyzers, Vibration
Analyzers, Waveform
Analyzers, Wow & Flutter
Blackbody Radiation Sources
Bolometers, Infrared
Bolometers, Microwave
Bridges, Admittance
Bridges, Audio
Bridges, Calorimeter
Bridges, Capacitance
Bridges, Deviation
Bridges, Impedance
Bridges, Inductance
Bridges, Kelvin
Bridges, LCR
Bridges, Power, RF
Bridges, Q
Bridges, Resistance
Bridges, RF
Bridges, Strain Gauge
Bridges, Synchro & Resolver
Bridges, Temperature
Bridges, Wheatstone
Cable Fault Locators
Calibrators, Accelerometer
Calibrators, Attenuation
Calibrators, Crystal
Calibrators, Current
Calibrators, Frequency
Calibrators, LVDT
Calibrators, Magnetic Field
Calibrators, Sound Level
Calibrators, Synchro
Calibrators, Time Base
Calibrators, Transducer
Calibrators, Voltage
Calibrators, VSWR
Calorimeters, Microwave
Clips, Logic Test
Collimators
Comparators, Digital
Comparators, Frequency
Comparators, Optical
Comparators, Phase
Comparators, Voltage
Controllers, IEEE 488 (GPIB) Bus
Counter/Timers
Counters, Frequency
Counters, Particle
Counters, Universal
Decade Boxes, Capacitance
Decade Boxes, Inductance
Decade Boxes, Resistance
Decade Boxes, Transformer

Detectors, Air Flow
Detectors, AM/FM
Detectors, Coaxial
Detectors, Flaw & Defect
Detectors, Phase Sensitive
Detectors, Radiation
Detectors, RF
Detectors, Standing Wave
Detectors, Synchronous
Detectors, Ultraviolet
Detectors, Video
Detectors, Voltage
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Dividers, Voltage-Also See Networks, Resistance; Transformers, Voltage Dividing
Dummy Loads, Electronic
Dummy Loads, Microwave
Dummy Loads, Power
Dummy Loads, Resistive
Electrodes, High Voltage
Electrostatic Discharge Guns — Also See Generators, ESD
Emulators, RTS
Gauges, Humidity
Gauges, Ionization
Gauges, Pressure-Also See Transducers, Pressure
Gauges, Temperature
Generators, AM
Generators, AM/FM
Generators, Arbitrary Waveform
Generators, Audio
Generators, Bar, Dot & Crosshatch
Generators, Color Bar
Generators, Electrostatic Discharge — Also See Electrostatic Discharge Guns
Generators, FM
Generators, FM/Stereo
Generators, Function
Generators, Gating/Timing
Generators, Harmonic
Generators, Light Pulse
Generators, Low Frequency
Generators, Marker
Generators, Noise, Random (Electrical)
Generators, Phase
Generators, Programmable, Function
Generators, Programmable, Pulse
Generators, Programmable, Synthesizers
Generators, Pulse
Generators, Pulse, Nuclear Instrumentation Module (NIM)
Generators, RF
Generators, Signal-Also See Generators, Specific Type
Generators, Sweep
Generators, Tone
Generators, Tone Burst
Generators, UHF/VHF
Generators, Ultrasonic
Generators, White Noise
Generators, Word
Holders, Test Lead
Imagers, Thermal
Indicators, Null
Insertion Loss Measurement Systems
Instruments, Test & Measuring, GPIB (IEEE 488) Compatible
Leads, Test & Adapters
Loads, Electronic, Variable-Also See Dummy Loads
Locators, Open Short
Magnetometers
Meters, Acceleration
Meters, Admittance
Meters, Ampere Hour
Meters, Ampere, AC
Meters, Ampere, DC
Meters, Ampere, RF
Meters, Ampere, True RMS
Meters, Attenuation
Meters, Audio Level
Meters, Capacitance, Inductance
Meters, Clamp-on
Meters, Conductance
Meters, Counting Rate, Nuclear
Meters, Decibel Indicating
Meters, Deviation
Meters, Digital ESR
Meters, Distortion & Noise
Meters, Electrometer
Meters, Field Strength
Meters, Flux
Meters, FM Deviation
Meters, Frequency
Meters, Frequency Deviation
Meters, Galvanometer
Meters, Gauss
Meters, Hand Held
Meters, Humidity
Meters, Impedance
Meters, Kilovolt
Meters, Light (Nonphotographic)
Meters, Megohm
Meters, Microwave
Meters, Modulation
Meters, Multifunction (Analog)
Meters, Multifunction (Digital)
Meters, Noise & Sound Level
Meters, Ohm
Meters, Peak Power
Meters, PH
Meters, Phase
Meters, Power
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Meters, Power, RF
Meters, Q
Meters, Ratio
Meters, Reflectometer
Meters, RFI
Meters, S Unit
Meters, Standing Wave Ratio
Meters, Temperature (Contacting)
Meters, Temperature, Infrared
Meters, Thermal Transfer
Meters, Vacuum Tube Volt (VTVM)
Meters, VAR
Meters, Vibration
Meters, Volt, AC

Meters, Volt, DC
Meters, Volt, Digital
Meters, Volt, Potentiometric
Meters, Volt, RF
Meters, Volt, Sampling
Meters, Volt, True RMS
Meters, VU
Meters, Watt
Meters, Watt Hour
Meters, Watt, RF Directional
Meters, Wave
Microscopes, Measuring
Monitors, Frequency
Monitors, Modulation
Monitors, Phase & Phase Angle
Monitors, Power, Microwave
Monitors, Power, RF
Monitors, Response Time
Multipliers, Meter
Oscillators, Bridge (Test)
Oscillators, Decade (Test)
Prescalers
Probes, High Voltage (1,000 Volts & Over)
Probes, Logic Test
Probes, RF
Probes, Temperature
Probes, Test Lead
Pulsers, Logic Test
Pyrometers, Infrared
Pyrometers, Recording
Radiometers
Receivers, AM/FM (Incl. Precision Test)
Receivers, Fixed Frequency
Receivers, NBS
References, DC Voltage
RFI Measuring Equipment
Scanners, Infrared
Scanners, Instrument, Input/Output
Scanners, Optical
Scanners, Reed
Shunts, Meter
Signal Averagers
Simulators, Data
Simulators, Power Failure
Simulators, Powerline Disturbance
Simulators, Solar
Spectrometers
Standards, Atomic Beam
Standards, Capacitance
Standards, Current
Standards, Frequency
Standards, Inductance
Standards, Noise
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Standards, Temperature
Standards, Time
Standards, Voltage
Standards, Voltage Ratio
Switching Systems, Test & Measurement
Synthesizers, Frequency
Synthesizers, Waveform
Test Equipment, Closed Circuit TV-Also See Television Systems & Equipment, Closed-Circuit
Test Equipment, Color TV
Test Equipment, Mechanical Impedance
Test Equipment, Memory Systems, Disk
Test Equipment, Rental-Also See Services, Electrical Measurement & Test
Test Fixtures, ATC
Test Systems, Automatic DC
Test Systems, Board
Test Systems, Component
Test Systems, Computer Controlled (Automatic)
Test Systems, Functional
Test Systems, IC
Testers, Armature
Testers, Battery
Testers, Bit Rate
Testers, Cable
Testers, Capacitor
Testers, Coil & Transformer
Testers, Communication Equipment (Automatic)
Testers, Component Linearity
Testers, Corona
Testers, Diode
Testers, Electrical Parameter
Testers, Encoder
Testers, Fiber Optic
Testers, Insulation Breakdown
Testers, Integrated Circuit (Automatic)
Testers, Integrated Circuit (Manual)
Testers, Interface
Testers, LED & LED Arrays
Testers, Logic Card
Testers, Loopback
Testers, Magnetic Core
Testers, Magnetic Medium
Testers, Magnetron
Testers, Memory Board
Testers, Meter
Testers, Microwave
Testers, Modem
Testers, Motor
Testers, Potentiometer
Testers, Power Supply
Testers, Pulse Jitter
Testers, Relay
Testers, Resistivity
Testers, Resistor
Testers, Signal Tracing
Testers, Synchro/Resolver
Testers, Thickness (all types)
Testers, Thyristor
Testers, Tracking & Erosion Resistance (Insulation)
Testers, Transistor
Testers, Transmission & Delay
Testers, Tube
Testers, Vibration-Also See Services, Environmental Test
Testers, Voltage
Testers, Voltage Breakdown
Thermal Platforms
Thermographs
Thermometers, Resistance

Time Delays, Precision
Timer/Counters
Tracers, Curve

2950 PANEL METERS (ANALOG & DIGITAL)
(Volume 3)

Meters, Bar Graph
Meters, Digital, 2-wire, 4-20 mA Current Loop
Meters, Edgewise
Meters, Illuminated Scale
Meters, Moving Coil
Meters, Moving Iron
Meters, Moving Scale
Meters, Null
Meters, Panel (Analog)
Meters, Panel (Digital)
Meters, Taut Band

2975 OSCILLOSCOPES
(Volume 3)

Cameras, Oscilloscope
Hoods, Oscilloscope
Oscilloscope Plug-ins
Oscilloscopes, Digital
Oscilloscopes, General Purpose
Oscilloscopes, High Frequency (Above 200 MHz)
Oscilloscopes, Low Frequency (DC to 3 MHz)
Oscilloscopes, Mid Frequency (DC to 200 MHz)
Oscilloscopes, Multibeam
Oscilloscopes, Multiple Channel
Oscilloscopes, Portable, Battery Operated
Oscilloscopes, Programmable
Oscilloscopes, Sampling
Oscilloscopes, Storage
Oscilloscopes, Triggered Sweep
Probes, Oscilloscopes
Viewing Hoods, Cathode Ray Tube

3000 INSTRUMENTS, GRAPHIC RECORDING
(Volume 3)

Graphic Recording Paper & Supplies
Oscillographs, Direct Writing
Paper, Graphic Recording
Plotters, X-Y, & Accessories
Printers, Event
Recorders, Electrostatic
Recorders, Event/Multievent
Recorders, Polar
Recorders, Strip Chart
Recorders, Transient
Recorders, Vibration

3100 INSULATORS & INSULATING MATERIALS
(Volume 2)

Caps, Forms & Tapes, Heat Shrinkable-Also See Tubing, Heat Shrinkable
Coatings, Insulating
Compounds, Insulating
Films, Masking (Incl. Photographic)
Insulation Materials
Insulation Parts, Fabricated
Insulators, Antenna
Insulators, Clip, Test & Battery
Insulators, Mica
Tapes, Electrical Insulation

3130 INTEGRATED CIRCUITS, HYBRID CIRCUITS, & FUNCTION MODULES
(Volume 1A)

Circuits, Hybrid, Custom
Circuits, Hybrid, Thick Film
Circuits, Hybrid, Thin Film
Dividers, Analog
Erasing Equipment, EPROM
Generators, Sine/Cosine Function (Module)
Holders & Carriers, IC, LSI (Packaged)
Hybrid Voltage Regulators
Integrated Circuits, Custom/Semicustom
Integrated Circuits, Digital
Integrated Circuits, Interface
Integrated Circuits, Linear
Integrated Circuits, Memory
Integrated Circuits, Microprocessor
Integrated Circuits, Silicon Monolithic, Unpackaged Chips
Microcomputer Boards
Microprocessor Development Systems
Modules, Amplifier-Also See Amplifiers, Specific Types
Modules, Analog Multiplier
Modules, Analog-to-Digital Conversion
Modules, Digital-to-Analog Conversion
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Modules, I/O Relay
Modules, Logic-Also See Cards; Circuits; Networks
Modules, RMS-to-DC Conversion
Modules, Sample & Hold
Networks, Hybrid Substrates
Packages, Integrated Circuit
Programmers, PROM & Logic Array

3200 INTERCONNECTION SYSTEMS (BACKPANELS, CARD HOLDERS, & PACKAGING SYSTEMS)

(Volume 2)

Backpanel Interconnect Systems
Bars, Shorting
Boards, Plug-in
Boards, Plug-in, Extender
Boards, Plug-in, Interface
Boards, Plug-in, Memory
Boards, Prewired, High Density
Boards, Programming
Bus Bars & Systems
Integrated Circuit Interconnect Systems
Panels, Power BUS for ICs

3400 MICROWAVE SYSTEMS & EQUIPMENT

(Volume 3)

Absorbers, Microwave
Amplifiers, Klystron
Amplifiers, Microwave
Amplifiers, Parametric
Analyzers, Microwave
Coders, Transponder
Communications Systems, Microwave
Comparators, Attenuation
Detectors, Microwave
Down Converters
Duplexers, Microwave
Generators, Microwave
Impedance Converters, Microwave
Modulators, Microwave
Modulators, Pulse
Receivers, Microwave

3450 MICROWAVE COMPONENTS

(Volume 1A)

Adapters, Waveguide
Antenna Feed Systems
Attenuators, Coaxial
Attenuators, Fixed
Attenuators, Impedance Matching
Attenuators, Logarithmic
Attenuators, Microwave
Attenuators, Programmable
Attenuators, Turret
Attenuators, Variable
Attenuators, Voltage Controlled
Bends & Twists, Microwave
Cavities, Microwave
Chokes, Waveguide
Circulators, Ferrite
Couplers, Directional
Couplers, Microwave
Couplers, Rotary
Detectors, GaAs
Dividers, Frequency
Dividers, Power (LF, HF, VHF, UHF)
Dividers, Power, Microwave
Drivers, Switch
Filters, Microwave
Filters, Waveguide
Flanges, Waveguide
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Mixers, Microwave
Mixers, RF
Mounts, Microwave
Multipliers, Frequency
Oscillators, Microwave
Preselector-Mixers
Probes, Microwave
Radar System Components
Radomes & Windows, Microwave
Seals, Waveguide
Shifters, Phase, Microwave
Shifters, Phase, RF
Shutters, Microwave
Slotted Lines, Microwave
Strip-Line Components, Microwave
Switches, Diode
Tees, Coaxial
Tees, Waveguide
Terminations, Microwave
Tubing, Waveguide
Tuners, Microwave
Waveguide-Coax Adapters
Waveguides

3475 MILITARY SYSTEMS & EQUIPMENT

(Volume 3)

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Acoustic Systems (MIL)
Analyzers (MIL), Antenna Pattern
Analyzers (MIL), Pulse
Analyzers (MIL), Spectrum
Antenna Groups (MIL)
Antenna Groups (MIL), Elint
Antenna Sets (MIL), DF
Antenna Systems (MIL)
Antenna Systems (MIL), DF
Antennas (MIL), DF
Antennas (MIL), ECM
Antennas (MIL), EW
Antennas (MIL), Multibeam
Antennas (MIL), Phased Array
Chaff Systems (MIL)
Chambers, Space Simulation
CM Sets (MIL), Conformal plus RWR
CM Sets (MIL), Internal
CM Sets (MIL), Mobile
Collection Systems (MIL)
Communications Intelligence (Comint) Systems (MIL)
Computer Sets (MIL), Digital Data
Computer Systems (MIL)
Connectors, Missile (Umbilicals, Interstage, Post Boost)
Consoles (MIL), ECCM
Control Systems, Air Traffic
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Converters (MIL), Frequency
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Detection & Ranging Systems (MIL)
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Detection Systems (MIL), Submarine
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Detectors (MIL), Radar
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ECM Sets (MIL), Shipboard
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ECM Systems (MIL), Deceptive
ECMs (MIL), Torpedo Defense
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Electronic Countermeasures (ECM) (MIL), Cruise Missiles
Electronic Intelligence (Elint) (MIL)
Electronic Support Measures (ESM) Sets (MIL)
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Emitter Location & Identification System (MIL), Automatic Ground Transportable
ESM (MIL), Digitally Controlled
ESM (MIL), Ships
ESM Suites (MIL)
ESM Systems (MIL), Automated
ESM Systems (MIL), IFM Receiver
EW Sets (MIL), Ground Multitarget
EW Sets (MIL), Portable
EW Suites (MIL), Ships
EW Systems (MIL), Advanced Airborne Multitarget
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Flare Sets (MIL), ECM
Generator Groups (MIL), Signal
Generators (MIL), Deception
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Indicators (MIL), Fault Locating
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Jamming Systems (MIL), Multipurpose
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3500 MOTORS, DRIVES, & ROTATING EQUIPMENT

(Volume 1B)

Brakes, Magnetic
Brakes, Mechanical
Brushes & Brush Assemblies
Clutches, Friction
Clutches, Magnetic
Clutches, Positive
Commutators
Gearheads & Speed Reducers
Indicators, Speed
Motor & Generator Armatures, Rotors, Stators
Motors, Brushless, DC
Motors, Clock & Timing
Motors, Control
Motors, DC Timing
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Motors, Fractional Horsepower
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Motors, Induction
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Motors, Squirrel Cage
Motors, Stepping
Motors, Synchronous
Motors, Torque (Incl. Torquers)
Motors, Universal, AC or DC Operation
Reducers, Speed-Also See Gears & Gear Mechanisms
Shafts & Adapters-Also See Couplings, Shaft, Rigid & Flexible
Slip Rings & Assemblies
Steppers, Indexing, Motor

3700 ELECTRO-OPTICAL EQUIPMENT (EXCLUDING FIBER OPTICS)

(Volume 1B)

Alarms, Controls, Photoelectric
Cells, Photoconductive
Cells, Photoemissive
Cells, Photovoltaic
Detectors, Fiber Optic-Also See Diodes, PIN
Detectors, Infrared
Diode Arrays (Incl. Photo)
Diodes, Light Emitting (LEDs)
Diodes, Liquid Crystal (LCDs)
Diodes, Photoelectric
Heads, Reflective
Isolators, Optoelectronic
Laser Components & Laser Accessories
Lenses, Filters, Windows, Infrared
Lenses, Optical & Camera
Light Choppers
Light Sources, Photoelectric
Light Sources, Stroboscopic
Light Sources, Ultraviolet
Microscopes
Modulator/Demodulators, Laser
Modulators, Light
Optical Component Mounts & Accessories
Photodetectors, GaAs
Sensors, Light
Switches, Photoelectric
Transistors, Photo (Incl. Arrays)
Transmitters, Fiber Optic
Transmitters, Laser

3800 PACKING, SHIPPING, & STORAGE CONTAINERS & MATERIALS

(Volume 2)

Bins, Part Storage
Carts & Dollies, Instrument & Equipment
Containers, Storage
Covers, Protective (Incl. Dustcovers)
Enclosures, Shipping, Metallic & Nonmetallic
Packaging Materials, Antistatic
Packaging Materials, Foam & Plastic
Storage Equipment, Disk
Storage Equipment, Flexible Disk
Storage Equipment, Magnetic Card
Storage Equipment, Media Transport
Storage Equipment, Microform
Storage Equipment, Multifunctional
Storage Equipment, Paper Tape
Storage Equipment, Printout
Storage Equipment, Punched Card
Storage Equipment, Reel-to-Reel Tape
Storage Euipment, Cartridge/Cassette

3900 BATTERIES

(Volume 3)

Batteries, Alkaline Manganese
Batteries, Carbon Zinc
Batteries, Gelled Electrolyte
Batteries, Lead Acid
Batteries, Lead Dioxide
Batteries, Lithium
Batteries, Lithium Manganese Dioxide
Batteries, Lithium Thionyl Chloride
Batteries, Mercury
Batteries, Mercury Oxide
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Batteries, Rechargeable
Batteries, Silver Cadmium
Batteries, Silver Oxide
Batteries, Silver Zinc
Batteries, Standard Cell
Batteries, Thermal
Batteries, Zinc Air
Batteries, Zinc Carbon
Batteries, Zinc Chloride

4000 POWER SUPPLIES, DC

(Volume 3)

Chargers, Battery
Converters, DC to DC, 30 to 300 VDC Output
Converters, DC to DC, 300 to 1,000 VDC Output
Converters, DC to DC, Greater Than 1,000 VDC Output
Converters, DC to DC, Less Than 30 VDC Output
Converters, Frequency to DC-Also See Power Supplies, AC Input, DC Output
Current Sources
Discharge Systems, Energy
Flashlights & Lanterns
Generators, Electrical Power
Motor Generator Sets
Power Supplies, AC Input, 301 to 1,000 VDC Output
Power Supplies, AC Input, 31 to 300 VDC Output
Power Supplies, AC Input, Greater than 1,000 VDC Output
Power Supplies, AC Input, Up to 30 VDC Output
Power Supplies, AC to DC Adapter
Power Supplies, Bipolar
Power Supplies, Constant Current
Power Supplies, Encapsulated
Power Supplies, Enclosed
Power Supplies, Ferroresonant
Power Supplies, Isolated
Power Supplies, Lab (Including Metered Units)
Power Supplies, Linear
Power Supplies, Multiple Output
Power Supplies, Open Frame
Power Supplies, Plug In
Power Supplies, Printed Circuit Card
Power Supplies, Programmable
Power Supplies, Standby (Emergency)
Power Supplies, Submodular
Power Supplies, Switching
Power Supplies, Switching, Battery Backup
Power Supply Interfaces & Accessories
Regulators & Stabilizers, Voltage-Also See Transformers, Voltage Regulating: Hybrid Voltage Regulators
Regulators, Current
Voltage Sources

4050 POWER SUPPLIES, AC

(Volume 3)

Alternators
Choppers-Also See Light Choppers
Converters, Frequency, Logarithmic
Converters, Phase
Converters, Power Frequency, Electronic
Converters, Power Frequency, Rotary
Isolators, Line
Line Conditioners
Power Supplies, AC Output
Power Supplies, Uninterruptable (UPS)
Regulators, Frequency
Shifters, Phase 60/400 Hz
Stabilizers, Line Impedance
Vibrators

4100 PRODUCTION EQUIPMENT & MANUFACTURING SERVICES

(Volume 3)

Antistatic Devices, Blowers, Guns, etc.
Baths, Controlled Temperature (Air & Liquid)
Cleaners, Ultrasonic
Comparators, Dimension Calibrators
Controls, Dimension
Controls, Positioning
Dehydrators
Deposition Equipment, Vacuum & Accessories-Also See Evaporation Equipment, Electron Beam
Detectors, Vacuum
Dielectric Heating Equipment
Electroplating Equipment & Supplies
Evaporation Equipment, Electron Beam
Furnaces, Electric
Furnaces, Gas (Production)
Furnaces, Vacuum
Handlers, Integrated Circuit (Automatic)
Heaters, Immersion
Holders, Circuit Board (Production Type)
Installation Equipment, Fiber Optic
Instrumentation, Fiber Optic
Jigs And Fixtures, Chassis & Circuit Board
Lamps, Magnifying, Inspection
Laser Systems
Machines & Accessories, Semiconductor Manufacturing
Machines, Cleaning & Degreasing-Also See Cleaners, Ultrasonic
Machines, Coil Winding
Machines, Component Handling, Feeding, Insertion & Sorting
Machines, Hermetic Sealing
Machines, Induction Heating (Electronic)
Machines, Lead Cutting & Forming
Machines, Marking & Numbering
Machines, Mask Alignment & Exposure
Machines, Plastic Molding
Machines, Plating
Machines, Printed Circuit Drilling, Etching & Punching
Machines, Terminal Installing
Machines, Ultrasonic Bonding
Machines, Wire Marking, Manual & Automatic
Machines, Wire Measuring & Cutting
Magnetizers
Magnifying Glasses, Inspection
Microcircuit Production Equip.
Ovens, Vacuum
Positioning Systems, Multiple Axis, Computer Guided
Probe Cards, Semiconductor Testing
Pumps, Vacuum
Scribers, Wafer-Also See Machines & Accessories, Semiconductor Manufacturing
Sealing Equipment, Metal to Glass/Ceramic
Semiconductor Wafer Fabrication, Assembling (Packaging)
Semiconductor Wafer Fabrication, Designing (Topological)
Semiconductor Wafer Fabrication, Maskmaking (Tooling)
Semiconductor Wafer Fabrication, Processing
Semiconductor Wafer Fabrication, Testing
Services, Assembly & Fabrication (Incl. R&D)
Services, Backplane Wiring
Services, Calibration & Instrument Repair
Services, Coating (All Types)
Services, Crimping
Services, Custom Molding, Plastics
Services, Decapsulation
Services, Electrical Measurement & Test
Services, EMI/RFI Testing
Services, Encapsulation
Services, Environmental Testing
Services, Hermetic Sealing
Services, High Vacuum
Services, Instrument Design (Industrial)
Services, Metal Etching, Engraving
Services, Metal Parts Fabrication
Services, Metallizing (Incl. Electroforming)
Services, Microprocessor
Services, Molding
Services, Packaging
Services, Photographic
Services, Plastics Fabrication
Services, Plating
Services, Precious Metal Refining
Services, Precious Metal Resmelting
Services, PROM & Array Programming
Services, Silk Screening
Services, Training/Education
Services, Vibration Surveys
Services, Wire Cutting & Stripping
Services, Wirewrapping-Also See Services, Backplane Wiring
Soldering Equipment, Induction Heating
Soldering Equipment, Printed Circuit
Soldering Equipment, Resistance
Soldering Equipment, Ultrasonic
Soldering Systems, Temperature Controlled
Testers, Solderability
Ultraviolet Inspection Lighting-Also See Microscopes, Ultraviolet
Valves, Vacuum
Wire Strippers, Automatic
X-ray Inspection Equipment

4200 PROTOTYPE BOARDS, KITS, & DESIGN AIDS

(Volume 2)

Boards, Plug-in, Prototype
Breadboard Assemblies
Calculators, Electronic, Desk Top
Calculators, Electronic, Hand Held
Clips, Breadboard
Drafting Machines
Drafting Symbols, Dry Transfer, Pressure Sensitive, etc (Incl. Lettering)
Integrated Circuit Design Aids

Add Dept. EM to address to tell them you saw it in EEM.

Kits, Breadboarding (For Engineers)
Kits, Programming Board
Kits, Training Aid
Services, Computer Aided Design (CAD) Also See Computers, CAD, CAM, & CAD/CAM
Technical Books

4300 PROTECTIVE COMPONENTS (FUSES, CIRCUIT BREAKERS, ETC.)
(Volume 1B)

Circuit Breakers
Clips & Holders, Fuse-Also See Panels, Fuse
Detectors, Ground Fault
Fuse Elements
Fuses
Fuses, Failure Indicating
Fuses, Thermal
Interrupters, Ground Fault
Interrupters, Power
Interrupters, Vacuum
Limiters, Current
Limiters, Surge
Panels, Fuse
Protectors, Brownout
Protectors, Surge-Also See Suppressors, Transient Voltage
Resistors, Fuse
Spark Gaps
Suppressors, Transient Voltage (All Types)
Warning Systems, Lightning

4500 RELAYS
(Volume 1B)

Relay, Solid State
Relays, Cradle
Relays, Crystal Can, 1/2 Crystal Can
Relays, Current-Sensing
Relays, Differential
Relays, Frequency Selective
Relays, General Purpose
Relays, High Voltage (500 Volts & Over)
Relays, Hybrid
Relays, Latching
Relays, Mercury-Wetted Contacts
Relays, Meter
Relays, Motor Start
Relays, Phase Sensing
Relays, Plug-in
Relays, Power
Relays, Printed Circuit Mounting (Including Transistor & DIP Case Types)
Relays, Programmable
Relays, Reed
Relays, RF (Incl. Antenna & Coaxial)
Relays, Sealed
Relays, Sensitive
Relays, Stepping
Relays, Telephone
Relays, Thermal
Relays, Time Delay
Relays, Vacuum
Relays, Voltage Sensitive
Retainers, Relay

4525 SHIELDS & SHIELDING
(Volume 2)

Chambers, Magnetic, Degaussing Coil
Conductive Elastomers
Conductive Plastic Materials & Parts
Contact Strips, Finger
Demagnetizers
Fabrics, Conductive
Gaskets, Shielding, RF-Also See Shields, RF
Kits, Shielding
Shielding Beads, Ferrite
Shielding, EMI/RFI
Shields, Cathode-Ray Tube
Shields, Coil
Shields, Corona
Shields, Indicator Light
Shields, Magnetic
Shields, Photomultiplier
Shields, RF-Also See Gaskets, Shielding, RF
Shields, Transformer
Shields, Tube
Static Eliminating Materials, Devices, & Equipment
Tapes, Films & Foils, Pressure Sensitive
Wire Shielding-Also See Braid, Cable

4550 SOLENOIDS
(Volume 1B)

Drivers, Solenoid
Solenoids, Linear
Solenoids, Proportional
Solenoids, Rotary
Valves, Solenoid

4600 SOLDERING & DESOLDERING EQUIPMENT
(Volume 2)

Flux, Brazing & Soldering Materials
Heat Sinks, Soldering
Solder (All Types)
Solder Pots & Baths
Soldering Accessories
Soldering Guns, Irons & Desoldering Tools
Torches, Soldering, Welding & Accessories

4700 RESISTORS
(Volume 1A)

Films, Resistance
Networks, Ladder
Networks, Resistance
Resistors, Adjustable-Also See Potentiometers; Rheostats
Resistors, Ballast (Incl. Tube & Solid State Devices)
Resistors, Bulk Ceramic
Resistors, Carbon Film
Resistors, Ceramic Core
Resistors, Ceramic Metal (Cermet)
Resistors, Chip (For Microcircuits)
Resistors, Composition, Carbon
Resistors, Decade
Resistors, Deposited Carbon
Resistors, Disk, Rod & Tube
Resistors, Film, Metallized & Nonmetallized
Resistors, Flame Retardant
Resistors, Flux Sensitive
Resistors, Foil, Ultraprecision
Resistors, Glass
Resistors, High Frequency
Resistors, High Megohm (Over 22 Megohms)
Resistors, High Temperature (Over 125°C)
Resistors, High Voltage (1,000 Volts & Over)
Resistors, Hot Molded
Resistors, Integral Heat Dissipator
Resistors, Low Temperature Coefficient
Resistors, Metal Glazed
Resistors, Microwave
Resistors, Negative Temperature Coefficient
Resistors, Noninductive
Resistors, Oil Filled
Resistors, Plug-in
Resistors, Positive Temperature Coefficient
Resistors, Power
Resistors, Precision
Resistors, Pressure Sensitive
Resistors, Rectilinear
Resistors, Strip
Resistors, Suppressor
Resistors, Surge
Resistors, Tapped
Resistors, Tin Oxide
Resistors, Voltage Sensitive
Resistors, Wirewound

4750 POTENTIOMETERS, TRIMMERS, CONTROLS, & RHEOSTATS
(Volume 1A)

Attenuators, Audio (T, L, LL Pads)
Kits, Potentiometer, Rheostat
Potentiometer Elements
Potentiometers, Carbon Ceramic
Potentiometers, Carbon Film
Potentiometers, Ceramic Metal (CERMET)
Potentiometers, Composition, Carbon
Potentiometers, Conductive Plastic
Potentiometers, Hot Molded
Potentiometers, Hybrid
Potentiometers, Lab Type
Potentiometers, Linear
Potentiometers, Metal Film
Potentiometers, Motorized
Potentiometers, Multiturn
Potentiometers, Nonlinear
Potentiometers, Rectilinear
Potentiometers, Servo Mount
Potentiometers, Trimmer
Potentiometers, Wirewound
Rheostats

4800 DISCRETE SEMICONDUCTORS
(Volume 1A)

Bridge Rectifiers, Silicon-Also See Rectifiers, Bridges & Assemblies
Bridges, Silicon Cell
Diacs
Diodes, Avalanche
Diodes, Backward
Diodes, Chip, Unpackaged
Diodes, Electroluminescent (Radiating)
Diodes, Frequency Multiplier
Diodes, Germanium
Diodes, Gunn
Diodes, High Voltage (1,000 Volts & Over)
Diodes, Hot Carrier
Diodes, Impatt
Diodes, Laser
Diodes, Limiting
Diodes, Matched Pairs
Diodes, Matched Quads
Diodes, Microwave Detector
Diodes, Microwave Mixer
Diodes, Noise
Diodes, PIN
Diodes, Schottky
Diodes, Silicon
Diodes, Step Recovery
Diodes, Switching
Diodes, Temperature Compensating
Diodes, Tunnel
Diodes, Varactor
Diodes, Zener & Stabistors (Forward Reference Diodes)
Doublers, Voltage-Also See Rectifiers, Bridges & Assemblies
Magnetoresistors, Hall
Multipliers, Hall
Probes, Hall
Rectifiers, Bridges & Assemblies
Rectifiers, Copper Oxide
Rectifiers, Copper Sulfide
Rectifiers, Germanium
Rectifiers, Selenium
Rectifiers, Silicon
Regulators & References, Silicon-Also See Diodes, Zener & Stabistors
Thyristors (Incl. Silicon Controlled Rectifiers)
Transistor Arrays
Transistors, Bipolar-Also See Transistors, Silicon
Transistors, Chip, Unpackaged
Transistors, Darlington
Transistors, Dual
Transistors, Field Effect
Transistors, Germanium
Transistors, Low Noise, GaAs, FETs — Also See Transistors, Microwave
Transistors, Microwave
Transistors, Power
Transistors, Power, Bipolar
Transistors, Power, FET
Transistors, Pressure Sensitive
Transistors, RF
Transistors, Silicon
Transistors, Switching
Transistors, Unijunction
Triacs

4900 SERVOMECHANISMS & ROBOTIC EQUIPMENT
(Volume 3)

Actuators, Servo, Linear
Actuators, Servo, Rotary
Amplifiers, Servo
Amplifiers, Synchro
Analyzers, Servo
Arms & Manipulators, Robotic
Control Systems, Robotics
Controls, Servo System
Dampers, Servo
Indicators, Servo
Motors, Servo
Multipliers, Servo
Repeaters, Servo
Resolvers, Synchro
Servo Systems
Synchro Transmitters, Solid State
Synchros
Tachometers, Generator
Tachometers, Pulse
Tachometers, Stroboscopic

5100 SWITCHES
(Volume 1B)

Steppers, Indexing, Switch
Switches, Backup
Switches, Cam
Switches, Coded
Switches, Decade
Switches, DIP
Switches, Foot Pedal, Mat, Ribbon, etc.
Switches, Hall Effect
Switches, High Voltage (Over 250 Volts)
Switches, Interlock
Switches, Key Lock
Switches, Lever
Switches, Limit
Switches, Matrix
Switches, Mercury Displacement
Switches, Momentary Action
Switches, Multiposition
Switches, Paddle Handle
Switches, Peripheral
Switches, Port Sharing
Switches, Power
Switches, Pressure
Switches, Program
Switches, Proximity
Switches, Pushbutton, Illuminated
Switches, Pushbutton, Nonilluminated
Switches, Reed
Switches, RF
Switches, Rocker
Switches, Rotary
Switches, Sealed
Switches, Slide
Switches, Snap Action (All Types)
Switches, Solid State
Switches, Step Type
Switches, Thumbwheel
Switches, Toggle
Switches, Touch Actuated

5150 KEYBOARDS & KEYPADS
(Volume 1B)

Keyboard Legends and Symbols
Keyboards, Address Encoded
Keyboards, Capacitive
Keyboards, Ferrite Core
Keyboards, Full Travel
Keyboards, Hall Effect
Keyboards, Hard Contact
Keyboards, Low Profile
Keyboards, Membrane
Keyboards, Modular
Keyboards, Pad
Keyboards, Photo-optical
Keyboards, Reed
Keyboards, Solid State
Keypads
Switches, Keyboard
Switches, Membrane

5300 THERMAL COMPONENTS
(Volume 1B)

Bimetals, Thermostatic
Cooling/Heating Modules, Thermoelectric
Heaters & Heating Elements (For Components & Equipment)-Also See Ovens
Heating Elements, Infrared
Indicators, Temperature (Not Meter Type)
Labels, Coatings, Crayons, Pellets, etc., Temperature Indicating
Laminates, Plastic (With Integral Heating Elements)
Monitors, Temperature-Also See Controls, Temperature
Mounts, Thermistor
Pyrometers, Optical, Noninfrared
Switches, Thermally Actuated
Thermistors
Thermocouples, Elements & Accessories
Thermostats-Also See Switches, Thermally Actuated; Controls, Temperature

5400 TOOLS (MANUAL & POWER)
(Volume 2)

Abrasive Belts, Compounds, Cords, Powders, etc.
Alloys, Brazing
Awls
Burnishers, Contact
Cutters, Wire, Manual
Drills & Accessories, Manual & Power
Drivers, Nut
Extractors, DIP, IC, & Pin Grid Array
Gauges, Displacement, Linear
Heat Guns, Production
Pliers
Pullers, Circuit Board
Pullers, Tube
Punches, Chassis
Reamers
Scissors
Screwdrivers
Scribers
Seizers
Splicers, Coaxial Cable
Splicers, Wire (Incl. Butt & Cap Types)
Splicing Equipment, Fiber Optic
Tool Kits & Sets
Tools & Kits, Contact Insertion/Removal
Tools, Alignment & Tuning
Tools, Cable Tie
Tools, Connector
Tools, Crimping & Swaging
Tools, Heat Sealing
Tools, Lead Bending & Insertion
Tools, Magnetic Pickup
Tools, Marking, Numbering, Engraving
Tools, Parts Handling, Vacuum Operated
Tools, Relay Servicing
Tools, Wire Wrapping
Tweezers, Manual & Vacuum
Vises
Welding Equipment & Accessories (Excl. Equipment for Semiconductor Devices)
Wire Strippers, Manual
Wire Strippers, Thermal
Wire Twisters, Automatic
Wire Twisters, Manual
Wrenches

5500 TRANSDUCERS & ENCODERS
(Volume 1B)

Accelerometers
Cells, Load
Encoders, Displacement, Linear
Encoders, Magnetic Strip
Encoders, Shaft Angle, Contacting
Encoders, Shaft Angle, Magnetic
Encoders, Shaft Angle, Optical
Gauges, Strain
Generators, Hall
Indicators, Angle-Also See Encoders, Shaft Position
Indicators, Azimuth
Transducer Elements
Transducers, Audio
Transducers, Ceramic
Transducers, Displacement
Transducers, Flow
Transducers, Force
Transducers, Magnetic Pickup
Transducers, Piezoelectric
Transducers, Position, Linear
Transducers, Position, Rotary
Transducers, Pressure
Transducers, Proximity
Transducers, Sonic
Transducers, Strain Gauge
Transducers, Temperature
Transducers, Torque
Transducers, Ultrasonic
Transducers, Velocity
Transducers, Vibration
Transducers, Volt, Watt, Current VAR, Power Factor, Frequency
Transmitters, Pressure & Flow

5600 TRANSFORMERS
(Volume 1A)

Reactors, Charging
Reactors, Filter
Reactors, Loading
Transformers, 400 Hz
Transformers, Audio
Transformers, Autotransformer
Transformers, Chopper
Transformers, Constant Voltage
Transformers, Converter, DC To DC
Transformers, Decade
Transformers, Differential
Transformers, Discriminator
Transformers, Driver
Transformers, Ferroresonant
Transformers, Filament
Transformers, Flyback
Transformers, High Voltage (1,000 Volts & Over)
Transformers, Horizontal Sweep
Transformers, Hybrid
Transformers, IF
Transformers, Input
Transformers, Instrument
Transformers, Interstage
Transformers, Inverter
Transformers, Isolation
Transformers, Line
Transformers, Magnetic Amplifier
Transformers, Matching
Transformers, Microminiature
Transformers, Microphone
Transformers, Mixing
Transformers, Modulation
Transformers, Output
Transformers, Plate
Transformers, Power
Transformers, Power Distribution
Transformers, Printed Circuit Mounting
Transformers, Programmable Ratio
Transformers, Pulse
Transformers, Rectifier
Transformers, Reference
Transformers, RF
Transformers, Rotary
Transformers, Scott T
Transformers, Servo
Transformers, Split Bobbin
Transformers, Synchro Control
Transformers, Telephone Coupling
Transformers, Toroidal
Transformers, Transistor
Transformers, Variable
Transformers, Voltage Dividing
Transformers, Voltage Regulating-Also See Regulators & Stabilizers, Voltage
Transformers, Wideband

5700 ELECTRON TUBES
(Volume 1A)

Displays, CRT
Intensifiers, Image
Photomultiplier Tube Housings
Pin Straighteners, Tube
Retainers, Tube
Tube Heat Dissipators
Tubes, Backward Wave
Tubes, Cathode Ray, General Purpose
Tubes, Cathode Ray, Special Purpose
Tubes, Counting
Tubes, Electrometer
Tubes, Electron Multiplier
Tubes, Flash
Tubes, Gas
Tubes, Ignitron
Tubes, Image Converter
Tubes, Microwave
Tubes, Noise Source
Tubes, Photomultiplier
Tubes, Readout (CRT, Cold-Cathode, Vacuum Fluorescent, Incandescent, etc.)
Tubes, Receiving
Tubes, Rectifying
Tubes, Switching
Tubes, Transmitting
Tubes, TV Camera Pickup
Tubes, Voltage Reference or Regulating
Tubes, X-ray

6000 WIRE & CABLE
(Volume 2)

Braid, Cable-Also See Wire Shielding
Cable Assemblies & Harnesses
Cable Assemblies, Microwave
Cable, Audio
Cable, Battery Booster
Cable, Coaxial
Cable, FEP Insulated
Cable, Flame Retardant
Cable, Flat
Cable, Heater
Cable, High Temperature (Over 125°C)
Cable, High Voltage (1,000 Volts & Over)
Cable, Instrumentation & Control
Cable, Irradiated
Cable, Low Capacitance
Cable, Microphone
Cable, Multiconductor
Cable, Plenum
Cable, Power
Cable, Security
Cable, Shielded
Cable, Telephone
Cable, TFE Insulated
Cable, Thermocouple
Cable, Transmission Line
Cable, Triaxial
Cable, TV (Incl. Camera)
Cable, Twisted Pair
Cable, Woven Conductor
Conduit, Electrical
Cords & Cord Sets, International
Cords & Tapes, Lacing
Cords, Line & Set, Extension
Cords, Line, Resistance
Cords, Retractile
Ducts, Wiring
Lead Assemblies, High Voltage-Also See Connectors; Cable Assemblies & Harnesses
Posts, Harness Board
Strips, Marker & Fanning
Tubing, Zipper
Wire Markers (All Types)-Also See Strips Marker & Fanning
Wire Ways
Wire, Antenna (All Types)
Wire, Bare, Copper
Wire, Bare, Nickel
Wire, Bare, Nickel-Chrome
Wire, Braid (Excluding Shielding)
Wire, Ceramic Insulated
Wire, Clad (All Types)
Wire, Flame Retardant
Wire, Glass Insulated
Wire, Guy
Wire, High Temperature (Over 125°C)
Wire, High Voltage (1000 Volts & Over)
Wire, Hookup (All Types)
Wire, Irradiated
Wire, Lead-in & Ground
Wire, Litz
Wire, Magnet
Wire, Plated (All Types)
Wire, Radiation Resistant
Wire, Resistance
Wire, Ribbon
Wire, Semiconductor Lead
Wire, Shielded
Wire, Strain Gauge
Wire, Test Lead
Wire, TFE Insulated
Wire, Thermocouple

Add Dept. EM to address to tell them you saw it in EEM.

NEED MORE INFORMATION?

USE ONE OF THE NEW

EEMEDIATE ACTION CARDS

INSIDE THE BACK COVER OF
VOLUMES 1A, 1B & 2

NEED MORE INFORMATION?

USE ONE OF THE NEW

EEMEDIATE ACTION CARDS

INSIDE THE BACK COVER OF
VOLUMES 1A, 1B & 2

New generation of high quality enclosures... available from stock

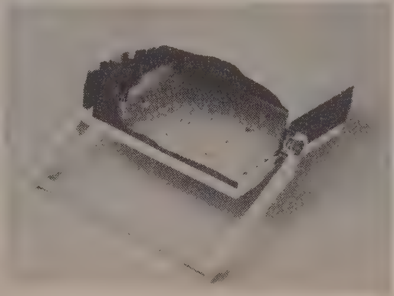
PacTec enclosures can save anywhere from 1/3 to 1/2 the cost of custom metal or molded enclosures.

- **Attractive appearance**
- **Durable construction**
- **Over 50 models • Low cost**
- **Inexpensive front panels**
- **Standard features and options**
- **Prototyping kits**
- **Off-the-shelf availability**

Now you can package your product in an attractive, custom enclosure built from standard, stocked parts and accessories. PacTec enclosures are constructed of durable, impact-resistant ABS material, ensuring long life and attractive appearance.

PacTec enclosures are easy to use, easy to set-up, easy to assemble

The unique system of mounting bosses, rails, and card guides makes PacTec enclosures very versatile. You select the size enclosure you need, and choose the hardware and options to customize your enclosure. You can even order a prototyping kit that contains everything necessary to build an enclosure for your application.



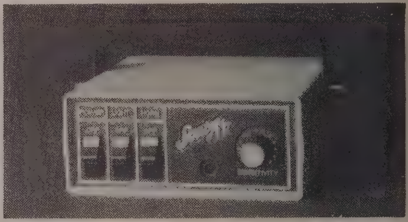
Standard features and options include:

(not all available in every case size)

Choice of standard colors (black, tan, blue, grey); optional special colors and combinations; custom trim; special finish; handle; tilt stand; mounting rails; card guides; swivel mount; mounting bracket; shoulder strap; strap handle, wrist strap; belt clip; extended rear panels; sloped top or bottom covers; EMI/RFI shielding; UL listed materials; cord wrap; custom front panels.

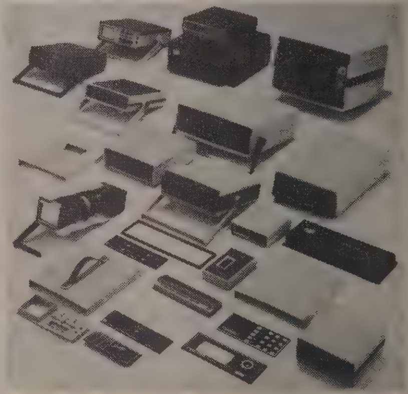
Inexpensive, custom front panels

Create an attractive, custom appearance with a three-dimensional front panel which can incorporate raised copy and production advantages such as posts, clips, slots, etc.



Wide range of standard features and low-cost options

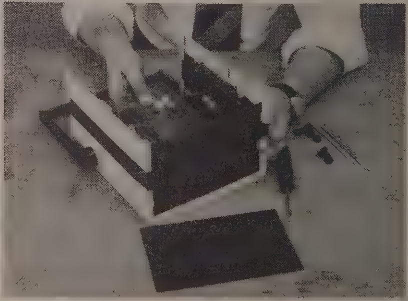
You can customize your enclosure with unlimited variations.



Prototyping kits available

You can build an attractive enclosure for your prototype model—and at the same time design your production unit.

See how easy-to-use the PacTec system is—order an inexpensive kit from the chart on page 2•1042.



See pages 2•1042 and 2•1043 for further details.

CABINETS

Manufacturer	EEM Page No.	Consoles			Cabinets					Turrets		Racks		Special		Characteristics		
		Desktop	Free Standing	Systems	Bench	Desktop	Instrument	Rack	Portable	Bench	Desktop	Equipment	Kits	Stands, Printer/Terminal/Instrument	Desks and Workstations	Composition	19 in. Standard	Shielded
AMCO Engrg.	2•1006*		●	●	●	●	●								●	Aluminum Frame	●	●
	2•1007*			●		●										Aluminum	●	●
Amerex/Unibox	2•1005							●								ABS	●	
Ango Electronics	2•1008					●		●								Aluminum and/or Steel	●	
Axis	2•1010					●							●			Aluminum	●	
Cabtron	2•1020				●	●	●	●		●	●					Vinyl Finish	●	
Compac	2•1023							●				●				Metal	●†	
Emcor	2•1030		●	●	●		●	●			●				●		●	●
Equipto	2•1031	●	●	●	●	●	●	●				●		●	●		●	●
Hammond	2•1036		●					●				●				Frames	●	
Interlok	2•1039	●				●										Aluminum	●	
Lindgren	2•1041								●						Work Room		●	●
Premier Metal	2•1044	●	●	●	●	●	●	●				●			●	Welded Units	●	
	2•1045	●	●	●		●	●	●	●		●	●						
Rose Enclosures	2•1046															Aluminum Polyester Poly-carbonate	●†	
Schroff	2•1053	●	●	●	●	●	●	●				●					●	
Scientific-Atlanta/Optima	2•1047-2•1052	●	●	●	●	●	●	●				●			●	Steel Aluminum Zinc Plating	●	
Stantron	2•1055	●	●	●	●	●		●				●			●	Steel	●	
TDJ Co.	2•1060						●						●			Aluminum	●	
Techmar	2•1063	●						●								ABS	●	
Tracewell	2•1065		●			●		●									●	●
Vent Rak	2•1034*	●					●	●								Metal and Formica		
	2•1035				●		●	●				●		●	●	Metal and Formica	●	
Zero	2•1070				●			●				●			●	Aluminum	●	

* Mil. Spec.
† Custom

CHASSIS/TRACKS

Manufacturer	EEM Page No.	Chassis	Tracks
Barnes Engrg.	2•1011	●	●
Chassis Trak	2•1032	●	●
Electro-Space	2•1029	●	●
Strongbox	2•1057	●	●
Suckle	2•1058	●	

CASES

Manufacturer	EEM Page No.	Type									Characteristics		
		Benchtop	Data Display	Desktop	Keyboard	Kits	Instrument	Portable	Transit	Equipment (General)	Composition	19 In. Standard	Shielded
Axis	2•1010					●					Aluminum	●	
Buckeye	2•1019	●		●							Metal	●	
Compac	2•1023						●			●	Metal	●	●
Hammond	2•1037			●	●						Plastic & Diecast	●	
Interlok	2•1038						●	●			Aluminum	●	
	2•1039			●							Aluminum	●	
Lansing	2•1040						●				Aluminum & Sheet Metal	●	
PacTec	2•1042		●	●	●	●						●	
Premier Metal	2•1045											●	
Rose Enclosures	2•1046										Aluminum Polyester Polycarbonate	●	
Schroff	2•1053											●	
Scientific-Atlanta/Optima	2•1048-2•1049	●		●			●			●	Aluminum & Foam	●	
Skydyne	2•1054							●	●		Fiberglass & Foam Econoglass	●	
TA Instr.	2•1059*						●	●	●			●	
TDJ Co.	2•1060					●					Aluminum	●	
Tracewell	2•1065			●			●			●	Aluminum	●	
Vent Rak	2•1034						●			●		●	
Zero	2•1070							●	●	●	Aluminum	●	

* Mil. Spec.

PCB MOUNTING

Manufacturer	Card Cages/Frames	Card Files	Card Guides	Vertical Card Guides	Retainers
Amerex/Unibox	2•1005		2•1005	2•1005	
Atlee	2•1009		2•1009		
Birtcher	2•1015		2•1015		2•1015
Bivar	2•1018		2•1018	2•1018	2•1018
Buckeye	2•1019		2•1019		2•1019
Calmark	2•1021		2•1021		2•1021
Compac	2•1023		2•1023		2•1023
Electro-Space	2•1028		2•1028		2•1028
Interlok	2•1038		2•1038	2•1038	2•1038
Premier Metal	2•1045			2•1045	2•1045
Strongbox	2•1057				
Suckle	2•1058		2•1058		2•1058
Techmar	2•1062		2•1062		2•1062
Unitrack/Calabro	2•1068	2•1068	2•1068		
Vector	2•1069		2•1069		

UNIBOX® PACKAGING SYSTEM

MANUFACTURED BY:
amerex

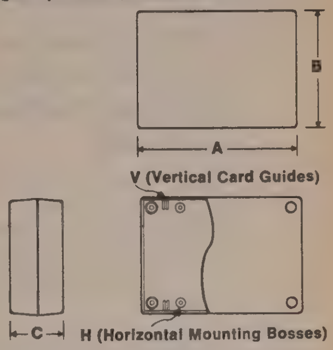
P.O. Box 2815, Riverside, CA 92516
(714) 686-1400

STANDARD ENCLOSURES — 100 Series

UNIBOX enclosures are the heart of the UNIBOX Packaging System. Designed to stand alone or to be complimented with a variety of UNIBOX accessory items, the UNIBOX enclosure offers the professional approach to electronic packaging. Enclosures are molded of high impact ABS, with an attractive grain finish that resists scuffing and scratching. Unlike metal components, UNIBOX enclosures can be easily modified with common hand tools. Custom designed to accept a variety of accessory items, the enclosures offer many useful features to simplify project construction. UNIBOX enclosures have internal mounting bosses for horizontal circuit boards, as well as card guides for vertical mounting of circuit boards. These features are engineered for a precision fit with UNIBOX accessory boards, but will also accommodate custom circuit boards or other components. UNIBOX window and panel accessories provide easy installation of readouts, displays, switches, and connectors. Each unit is provided complete with assembly hardware.

P/N	Dimensions (Inches) A	B	C	Circuit Board Mounts H	V	Colors
110	2.77	2.07	1.25	4 PLACES	—	**Stock Colors:** Two-tone Brown, Two-tone Gray, Blue, Orange Avocado, Black, White. **Special Colors Available.**
120	3.75	2.65	1.50	8 PLACES	2 POSITIONS	
130	4.37	3.25	1.50	8 PLACES	3 POSITIONS	
133	4.37	3.25	2.00	8 PLACES	3 POSITIONS	
140	5.30	4.00	1.50	12 PLACES	4 POSITIONS	
144	5.30	4.00	2.00	12 PLACES	4 POSITIONS	

MATERIAL:
High Impact ABS, U.L. Listed



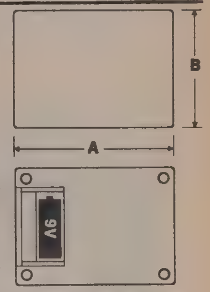
BATTERY COMPARTMENT ENCLOSURES — 170 Series

Battery compartment enclosures offer all the versatility of the standard UNIBOX enclosure. Available in standard two-tone gray and two-tone brown, they also feature a scratch resistant finish. All four of the UNIBOX battery compartment enclosures were designed to accommodate a standard 9 volt battery and feature a snap lock lid. These enclosures accept the same UNIBOX accessory items as the standard enclosure.

Assembly Hardware Provided With Each Unit.

P/N	Dimensions (Inches) A	B	C	Circuit Board Mounts H	V	Colors
171	4.37	3.25	1.50	8 PLACES	2 POSITIONS	**Stock Colors:** Two-tone Brown, Two-tone Gray. **Special Colors Available.**
172	4.37	3.25	2.00	8 PLACES	2 POSITIONS	
175	5.30	4.00	1.50	10 PLACES	2 POSITIONS	
176	5.30	4.00	2.00	10 PLACES	2 POSITIONS	

MATERIAL:
High Impact ABS,
U.L. Listed

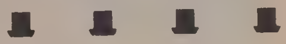


ACCESSORY ITEMS — 200 Series

UNIBOX enclosures become even more versatile with the option of molded enclosure feet, or the unique wall mount adapters. Resilient enclosure feet add a perfect finishing touch for bench or table top applications. Wall mount adapters permit access to internal components while the enclosure base remains permanently attached to any flat surface.

P/N	Description	Material	Application
200	Enclosure Feet (set of 4)	Nylon	Fits All Enclosure Models
231	Wall Mount Adapters (set of 4)	Elastomer	

P/N 200

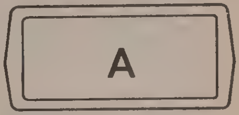


P/N 231

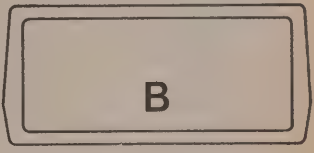
WINDOWS AND PANELS — 200 Series

Designed to compliment the UNIBOX enclosure, accessory windows and panels offer an attractive addition to the UNIBOX line. Transparent red and smoke gray windows are ideal for use with readouts and indicators. The clear version was designed primarily for use with LCD displays. UNIBOX windows are molded from a tough, scratch resistant acrylic and are available in 2 sizes. The UNIBOX system also offers opaque gray panels in 2 sizes. Ideal for mounting switches, controls, and connectors, UNIBOX panels add a clean finished look to your enclosure package. All windows and panels are supplied with detailed instructions for easy installation in the side or end of most UNIBOX enclosures. The ease of installation plus professional styling provide unmatched versatility and good looks in an enclosure system.

P/N	Description	Size	Compatible Enclosure P/N's
201 202 203	Red Window Smoke Gray Window Clear Window	A A A	120, 130, 133, 140, 144, 171, 172, 175, 176
211 212 213	Red Window Smoke Gray Window Clear Window	B B B	133, 144, 172, 176
221	Opaque Gray Panel	A	120, 130, 133, 140, 144, 171, 172, 175, 176
222	Opaque Gray Panel	B	133, 144, 172, 176



Size A
Useful Flat Area: .80″ x 2.06″

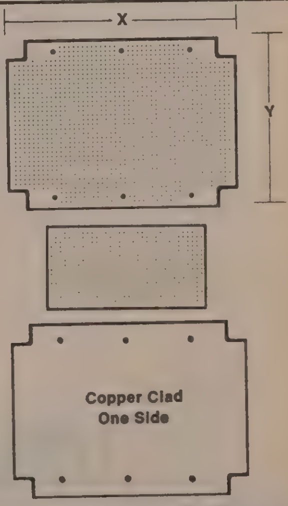


Size B
Useful Flat Area: 1.12″ x 2.70″

CIRCUIT BOARDS — 300 Series

Gridboards and Cladboards provide the professional solution to circuit construction and component mounting. The choice of circuit assembly method is yours — Gridboards feature standard .042 diameter holes spaced on a .100 x .100 grid pattern. They are designed to accommodate a variety of standard components including wire-wrap sockets and posts, switches, readouts, and connectors to name only a few. Cladboards are designed to simplify the construction of custom etched circuit boards. All circuit boards are fabricated from .062 thick, premium epoxy-glass material. Custom designed to utilize all available space inside the UNIBOX enclosures, gridboard and cladboard installation requires no modification to either boards or enclosures — all hardware is supplied.

P/N	Description	Application	Dimensions X	Y	Compatible Enclosure P/N's
301	Gridboard	Horizontal	2.30	1.60	110
302	Gridboard	Horizontal	3.30	2.20	120
303	Gridboard	Horizontal	3.90	2.80	130, 133, 171, 172
304	Gridboard	Horizontal	4.90	3.60	140, 144, 175, 176
311	Gridboard	Vertical	2.29	1.25	120
312	Gridboard	Vertical	2.80	1.25	130, 133, 171, 172
313	Gridboard	Vertical	2.80	1.75	133, 172
314	Gridboard	Vertical	3.55	1.25	140, 144, 175, 176
315	Gridboard	Vertical	3.55	1.75	144, 176
321	Cladboard	Horizontal	2.30	1.60	110
322	Cladboard	Horizontal	3.30	2.20	120
323	Cladboard	Horizontal	3.90	2.80	130, 133, 171, 172
324	Cladboard	Horizontal	4.90	3.60	140, 144, 175, 176

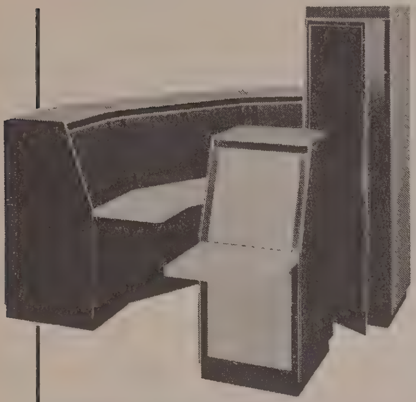


AMCO Enclosures

AMCO's extensive electronic enclosure lines, styling systems, cooling devices and popular accessories give you the freedom to design effectively and creatively.

AMCO's variety of products allows you the freedom to create functional and attractive enclosure arrangements for your electronic equipment. Ordering is easy with AMCO's simplified selection of ***many*** *enclosure sizes, configurations, components and accessories. With AMCO color and styling options, design combinations are unlimited. You have the convenience of ordering all your enclosure needs from the complete source—AMCO—with the added assurance that all components will fit and work together.*

For more specialized applications, AMCO offers military and commercial EMI cabinets, heavy-duty aluminum structural frame assemblies and special custom designs. Initial consultations are always without charge. A one-year limited warranty is provided on all AMCO products.

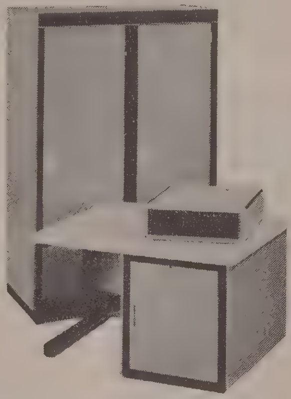


Create functional, versatile and attractive enclosures with AMCO F and FX Series Console Systems

Design your own console system with AMCO modular F and FX Series assemblies—the largest selection of standard heights, widths and depths from any single source. The unique AMCO "Interface 33" program provides a simple, yet extensive, styling selection system, allowing an infinite variety of design possibilities when combined with the many standard color, texture and inlay options. AMCO's new step-by-step ordering guide simplifies the selection process in developing your complete console arrangement.

The rugged FX Series provides superior structural integrity in both series mounted and free standing applications. FX consoles are available in vertical, sloped front and low silhouette configurations. F Series consoles are built to conserve space in series mounted applications and are offered in vertical or sloped front configurations.

Request free 56-page Catalog 310.



Fast Delivery With AMCO's 5-Day Enclosure Program

The AMCO 500-A Series:

- *Vertical Consoles*
- *Sloped Front Consoles*
- *Low Silhouette Consoles*
- *Computer Desks*
- *Desk Top Cabinets*
- *Blowers*
- *Accessories & Hardware*

AMCO's newly expanded 500-A Series combines structural integrity with refinement in style in this quick-delivery enclosure program. Generous standard features with many optional sizes allow flexibility in designing ***over a thousand assemblies.*** *Complementing these combinations is a large selection of optional accessories, including blowers. All consoles and desks feature an attractive textured finish with black frames and light blue panels. Easy ordering system allows selection of an entire console (with options) using only a single order number.*

Plus...every credit or C.O.D. approved order is shipped from stock within 5 work-days!

Request free 36-page Catalog 500-A.

New Commercial EMI Cabinets From AMCO Help Comply with FCC Radiated Emissions Regulations

Commercial EMI cabinets manufactured by AMCO Engineering Co. can help computing and other electronic systems comply with the recent FCC imposed regulations on radiated emissions. AMCO's heavy-duty military EMI cabinets meet the most demanding shielding, shock, vibration and seismic requirements for specialized applications. Many size, styling, color and accessory options are available. Attenuation values are established from certified testing.

Since 1962, when AMCO developed the first modular EMI cabinet for NASA, our engineering excellence in the EMI field has provided manufacturers, military and government agencies with unique solutions to difficult shielding problems. Because of the many variables involved with EMI, including environmental, we recommend initial free consultation with AMCO at the early design concept stage to determine the most economical approach in meeting your EMI requirements.

Request free 4-page Commercial EMI Catalog 650-A.

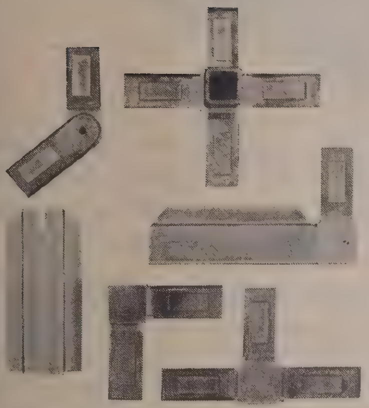
Request free 16-page Military EMI Catalog 204.

AMCO

"Quality Is No Accident"

AMCO Engineering Co., 3801 North Rose Street, Schiller Park, IL 60176, Phone: 312/671-6670, TWX: 910-227-3152

AMCO Enclosures

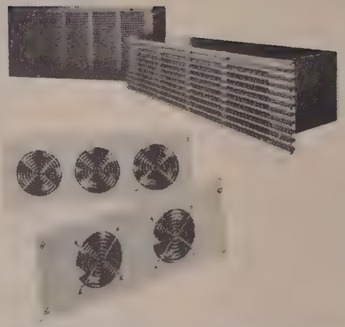


Rugged Aluminum Structural System Reduces Design and Construction Costs

AMCO's heavy-duty aluminum structural system offers a simple method of designing and building enclosure frames to special size and high strength requirements while significantly reducing your design cost. AMCO's unique system features a selection of 1½" O.D. aluminum extrusions with 14 mounting flange combinations and 8 types of cast corners. These structural frame components provide the versatility to create odd-shaped and non-standard sizes and configurations. When reinforced with standard bolt-on gussets, the frame assembly can meet MIL-E-5272C shock and vibration requirements. AMCO's gusseting technique is stronger than welding. Complete aluminum enclosure assemblies can also be provided by AMCO, often saving additional costs by using standard panel components, doors and accessories.

Keep a small inventory of AMCO's aluminum components on hand for an inexpensive and versatile method to prototype designs. The aluminum system is especially suited for environmental, mobile, anti-magnetic, military and commercial applications. Components are readily available preassembled or unassembled from AMCO's inventory.

Request free 16-page Catalog 203.



AMCO Cooling Devices Feature Maximum Air Delivery with Minimum Noise

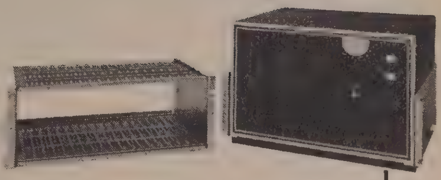
AMCO's new line of attractive cooling devices is designed for quality performance, providing safety and confidence in the operation of your electronic equipment.

Choose from a wide selection of individual fans, tandem assemblies or fans premounted on panels to simplify mounting to enclosure frames. A new line of quiet centrifugal blowers provide greater air flow per space occupied.

AMCO panel mounted fans and blowers feature many choices of attractive, high tech finishes to enhance the aesthetics of your system. Variable speed controls are also offered as standard on many cooling devices. A broad range of accessories and hardware provides many mounting and cosmetic options. All AMCO fans and blowers are UR recognized. Fans are also CSA listed.

Air flow (SCFM) and noise level (dB) ratings are available for all AMCO cooling devices. These documented test results were obtained in AMCO's Cooling System Laboratory which is equipped to also solve problems for more sophisticated cooling needs. We invite you to discuss your special cooling requirements with our experienced laboratory personnel.

Request free 16-page Catalog 803.



AMCO's Special Services Division Meets Your Special Needs

Your special needs for custom electronic enclosures or packaging can be met by AMCO's Special Services Division (SSD). Pictured above are examples of custom projects designed and manufactured for SSD customers—a plated card rack and a desktop cabinet with option for internal panel mounting, complete with provisions for convection air cooling and modified rear panel to accommodate wiring.

We recommend the initial step towards a design solution is to meet and become familiar with your requirements and applications in order to determine the most cost efficient approach to filling your request. Often, modifications to standard AMCO products and special finishes are all that are necessary to accomplish the task. Once a solution to your need is agreed upon, AMCO will provide a complete price and delivery quotation.

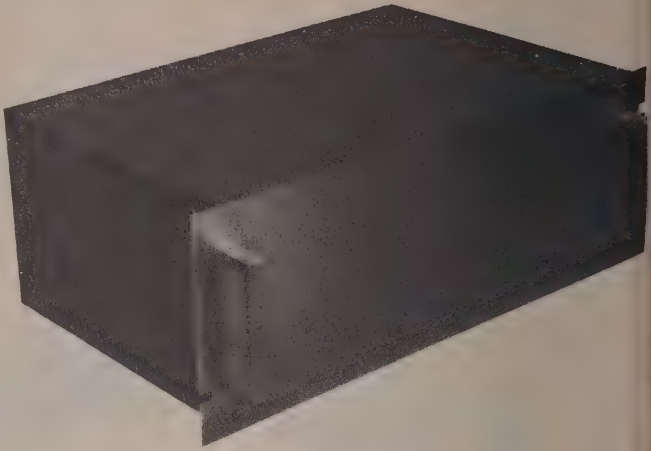
AMCO's SSD is equipped to handle most special design problems with extensive experience in environmental, shock, vibration, seismic and EMI problems encountered in various military programs, ground support, airborne and shipboard applications. Your inquiry for a special design is welcome—initial consultations are without charge.

AMCO

"Quality Is No Accident"

AMCO Engineering Co., 3801 North Rose Street, Schiller Park, IL 60176, Phone: 312/671-6670, TWX: 910-227-3152

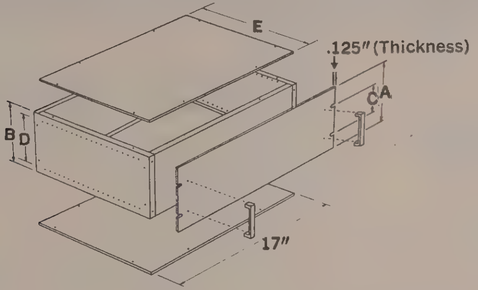
10 + 1* Reasons Why You Should Buy STANDARD ENCLOSURES™



- **QUALITY.** Made with heavy gauged aluminum and/or steel.
- **PRECISION.** Tolerance as small as ±0.03″.
- **SIX HEIGHT COMBINATIONS.** From 1 to 6 EIA panel height.
- **FOUR DEPTH DIMENSIONS.** 8″, 12″, 14″, and 20″.
- **EXCELLENT FINISH.** Front brushed aluminum panel is anodized in black or metallic.
- **LOW PRICE.** Save as much as 70% on same quality enclosures.
- **FREE RACK MOUNT HANDLES.** Aluminum handles at no extra charge.
- **IMMEDIATE DELIVERY.** Most orders shipped within 24 hours.
- **ACCESSORIES.** Supporting rails available for easy assembly.
- **CUSTOM SIZES.** We manufacture for private label or special sizes.

* **SATISFACTION GUARANTEED.** Our long list of satisfied customers speaks for itself.

EIA Standard 19″ Rack Mount Chassis



Series 10 and 11, with steel top and bottom covers, are 0.04″ thick and grilled for excellent heat dissipation. The aluminum back cover, with a thickness of 0.05″, facilitates the making of holes.

Series 12 and 13 are top-of-line enclosures made with heavy gauged aluminum. All surfaces are anodized. Additional front panels for mounting meters or switches are included at no extra charge.

Description	Rack Unit	Dimension (Inch)					Side Panel Thickness (inch)	Black		Metallic		Shipping Weight (lb)
		A	B	C	D	E		Stock No.	Price	Stock No.	Price	
Steel—Side, Top, and Bottom Panels Aluminum—Back and Front Panels	1	1.75	1.50	1.25	0.50	8.00	.04	10-19082	36.60	11-19082	34.50	5
	2	3.50	3.00	3.00	2.00	14.00	.04	10-19143	47.75	11-19143	47.00	8
	3	5.25	4.75	2.25	3.75	14.00	.04	10-19145	55.80	11-19145	55.20	9
	4	7.00	6.50	4.00	5.50	20.00	.04	10-19207	66.50	11-19207	65.10	13
All Aluminum Anodized All Surface	1	1.75	1.50	1.25	.50	12.00	.05	12-19122	65.50	13-19122	63.70	4
	2	3.50	3.25	3.00	2.25	12.00	.05	12-19123	73.10	13-19123	72.10	5
	3	5.25	5.00	2.25	4.00	12.00	.05	12-19125	84.00	13-19125	82.20	6
	4	7.00	6.75	4.00	5.75	12.00	.05	12-19127	91.75	13-19127	89.90	7
Extra Heavy Gauged All Aluminum	5	8.75	8.50	5.75	5.50	12.00	.06	12-19129	121.20	13-19129	119.80	10
	6	10.50	10.25	7.50	7.25	12.00	.06	12-19120	134.50	13-19120	133.20	12
Blank Panels Anodized Aluminum	1	1.75	—	1.25	—	—	—	150-1902	3.95	151-1902	3.90	½
	2	3.50	—	3.00	—	—	—	150-1903	5.85	151-1903	5.50	1
	3	5.25	—	2.25	—	—	—	150-1905	7.75	151-1905	7.50	1½
	4	7.00	—	4.00	—	—	—	150-1907	9.95	151-1907	9.75	2
	5	8.75	—	5.75	—	—	—	150-1909	11.00	151-1909	10.75	2½
	6	10.50	—	7.50	—	—	—	150-1910	12.95	151-1910	12.50	3
Support Rail Passivated Steel	—	—	—	—	—	—	.05	—	—	130-1901	4.95	½

For free catalog, detailed drawings, quantity discount, or other products, please call

(212) 685-6336 or (201) 483-7116.

Specifications and prices are subject to change without notice.

ANGO ELECTRONICS CORPORATION

P. O. BOX 112, HARRISON, NJ 07029
TEL.: 212-685-6336 ● TLX.: 421531
THE TECHNOLOGICAL INNOVATOR

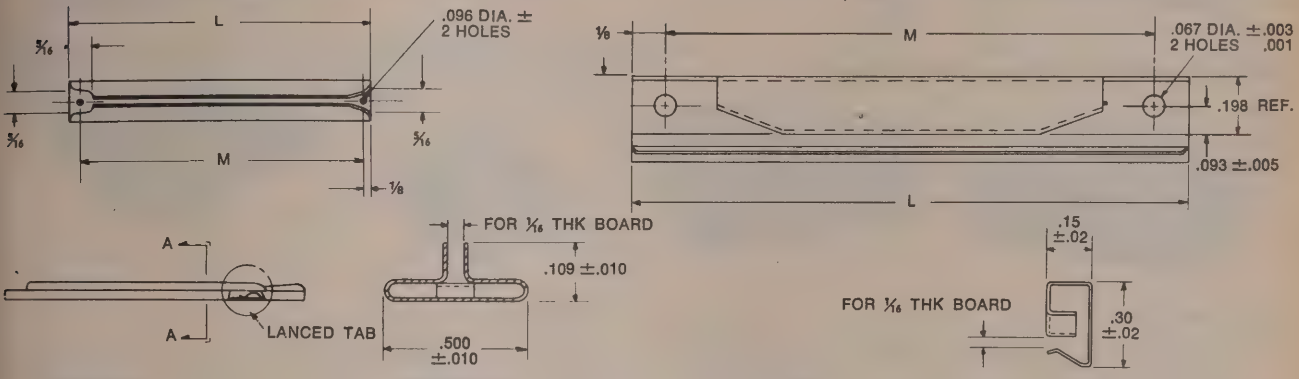
ATLEE CARD GUIDES

FEATURES

- High retention of printed circuit board under severe shock and vibration.
- Easily installed by welding or riveting.
- Quick and simple board insertion and withdrawal.
- Rigidly mounted printed-circuit board in racks and other types of assemblies.

MATERIAL: *beryllium copper, .010 thick, alloy 25, per QQ-C-533a, condition ¼ hard.

PLATING: .0003 thick cadmium per QQ-P-416a, type II, class 2.


L
.096 DIA. ±
2 HOLES
5/16
5/16
5/16
M
1/8
A
A
LANCED TAB
FOR 1/16 THK BOARD
.109 ±.010
.500 ±.010
1/8
M
.067 DIA. ±.003 .001
2 HOLES
.198 REF.
.093 ±.005
L
.15 ±.02
FOR 1/16 THK BOARD
.30 ±.02

SECTION AA

*** 11903-300**

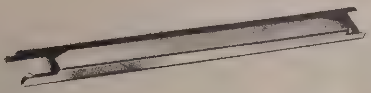
	L ±.02	M ±.005		L ±.02	M ±.005
2	2½	2.250	7	5	4.750
3	3	2.750	8	5½	5.250
4	3½	3.250	9	6	5.750
5	4	3.750	10	6½	6.250
6	4½	4.250	11	7	6.750

* Standard in beryllium copper.

*** 11909-300**

	L ±.02	M ±.005		L ±.02	M ±.005
1	2	1.750	6	4½	4.250
2	2½	2.250	7	5	4.750
3	3	2.750	8	5½	5.250
4	3½	3.250	9	6	5.750
5	4	3.750			

* Standard in beryllium copper.

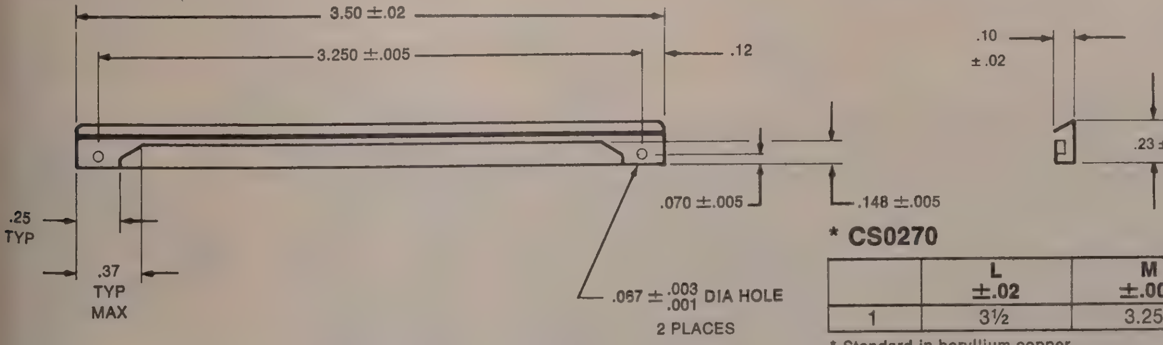


FEATURES

- High retention of printed circuit board under severe shock and vibration.
- Easily installed by welding or riveting.
- Quick and simple board insertion and withdrawal.
- Rigidly mounted printed circuit board in racks and other types of assembiles.

MATERIAL: *beryllium copper, .005 thick, alloy 25, per QQ-C-533a, condition ¼ hard.

PLATING: .0003 thick cadmium per QQ-P-416a, type II, class 2.


3.50 ±.02
3.250 ±.005
.12
.10 ±.02
.23 ± .02
.070 ±.005
.148 ±.005
.25 TYP
.37 TYP MAX
.067 ± .003 .001 DIA HOLE
2 PLACES

*** CS0270**

	L ±.02	M ±.005
1	3½	3.250

* Standard in beryllium copper.

- Card guides available for 1/32 and 3/32 thick printed circuit boards.
- Flared card guides also available.
- Refer to Atlee Cross Reference for additional card guides we manufacture.
- Card guides designed and manufactured to your specifications.

Please consult factory for additional card guide requirements.

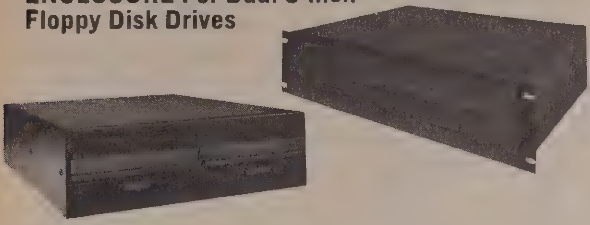
ATLEE

1 GILL STREET, WOBURN, MA 01801 • (617) 933-3510 • TELEX 949407

AXIS, INC. 7825 Engineer Road, Suite 208, San Diego, CA 92111, (619) 560-7737

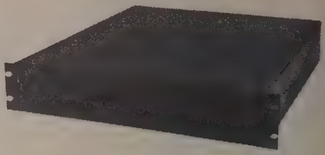
AXIS' COMPLETE LINE OF 5¼ AND 8-INCH DISK DRIVE AND CARD CAGE ENCLOSURES AND ACCESSORIES OFFER HIGH RELIABILITY IN ANY ENVIRONMENT AT AN ECONOMICAL PRICE

ENCLOSURE For Dual 8-inch Floppy Disk Drives

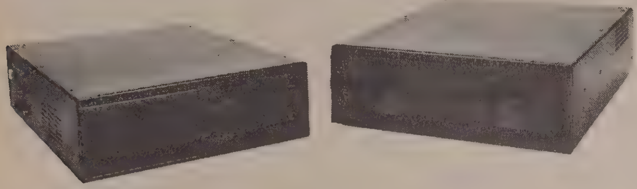


ENCLOSURE For 8-inch Winchester Disk Drives

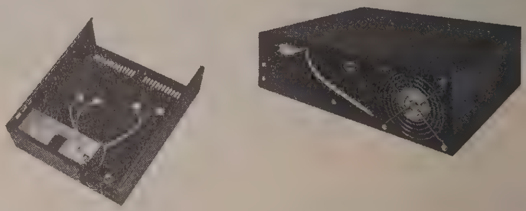
ENCLOSURE For Dual 8-inch Half-Height Floppy Disk Drives



ENCLOSURE for 5¼-Inch Disk Drives



Inside and Rear View



FEATURES

- Horizontal-mount enclosure for dual half-height or standard floppies or winchester and floppy combination with controller mounted inside enclosure (optional)
- Available in 19-inch rack mount or table top models
- Back panel is designed for mounting power supply, fan, fan guard or air filter, fuses, power switch, and power cord. Slot for interface cable is also provided
- Provides dust-free, air-cooled environment
- Accommodates both single-sided and double-sided floppy disk drives
- Aluminum cabinet with scratch-resistant texture paint
- Cover is easily removable for installation and maintenance
- Available in kit form or completely wired and tested

PACKAGE TYPES AVAILABLE

Enclosure Assembly

- Cabinet
- Power supply
- Fan
- Fan guard
- Fan cord
- Power switch
- Power cord with bushing
- Power connectors
- Fuseholders
- Power wiring harness
- Mounting hardware
- Completely wired and tested

Enclosure Kit

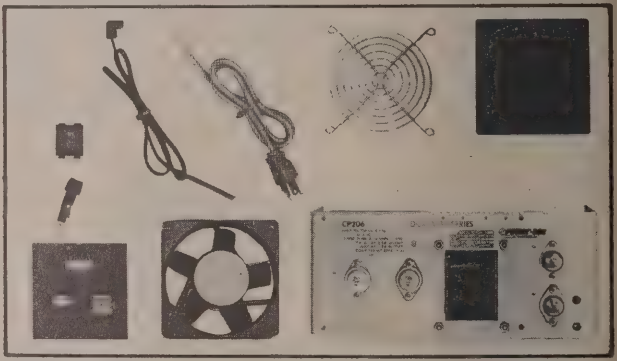
- Cabinet
- Power supply
- Fan
- Fan guard
- Fan cord
- Power switch
- Power cord with bushing
- Power connectors
- Fuseholders
- Mounting hardware
- Power wire not included

Enclosure Only

- Cabinet
- Mounting hardware

SPECIFICATIONS

- Black texture paint (other colors available)
- Three piece, all aluminum cabinet
- Designed to mount in a standard 19-inch rack or on a table top
- Enclosure for half-height 8″ floppies is 3½″ high
- Enclosure for standard 8″ floppies is 5¼″ high
- Enclosure for 8″ hard disks and controller is 7″ high
- Enclosure for 5¼″ disks is 3¾″ high



WARRANTY All parts and workmanship are guaranteed to be free of defects for a period of one year.

ORDERING INFORMATION

	Rack Mount Model Product Number	Table Top Model Product Number
Enclosure Assembly		
8″ Dual floppies	8001	8002
8″ Dual half-height floppies	8041	8042
8″ Winchester and floppy	8011	8012
8″ Winchester and controller	8021	8022
8″ Winchester, floppy and controller	8031	8032
5¼″ Dual floppies	—	8056
5¼″ Winchester and floppy	—	8054
5¼″ Card cage and dual floppies	—	8052
Enclosure Kit		
8″ Dual floppies	6001	6002
8″ Dual half-height floppies	6041	6042
8″ Winchester and floppy	6011	6012
8″ Winchester and controller	6021	6022
8″ Winchester, floppy and controller	6031	6032
5¼″ Dual floppies	—	6056
5¼″ Winchester and floppy	—	6054
5¼″ Card cage and dual floppies	—	6052
Enclosure Only		
8″ Dual floppies	1008	1009
8″ Dual half-height floppies	1048	1049
8″ Winchester and floppy	1018	1019
8″ Winchester and controller	1028	1029
8″ Winchester, floppy and controller	1038	1039
5¼″ Dual floppies	—	1055
5¼″ Winchester and floppy	—	1057
5¼″ Card cage and dual floppies	—	1059

Options	Option Number
220V/50Hz operation	001
Double-sided 8″ floppies	002
Air filter (delete fan guard)	003
Reversed air flow (air flows out)	004
European power cord	005

Parts and accessories may be purchased separately.

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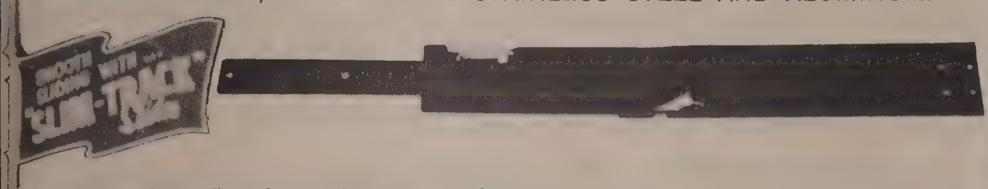
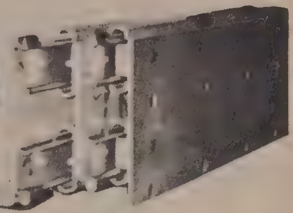
ALL STEEL, BALL, ROLLER BEARING AND SOLID BEARING SLIDES FOR INDUSTRIAL AND MILITARY USES; AVAILABLE IN STAINLESS STEEL AND ALUMINUM.





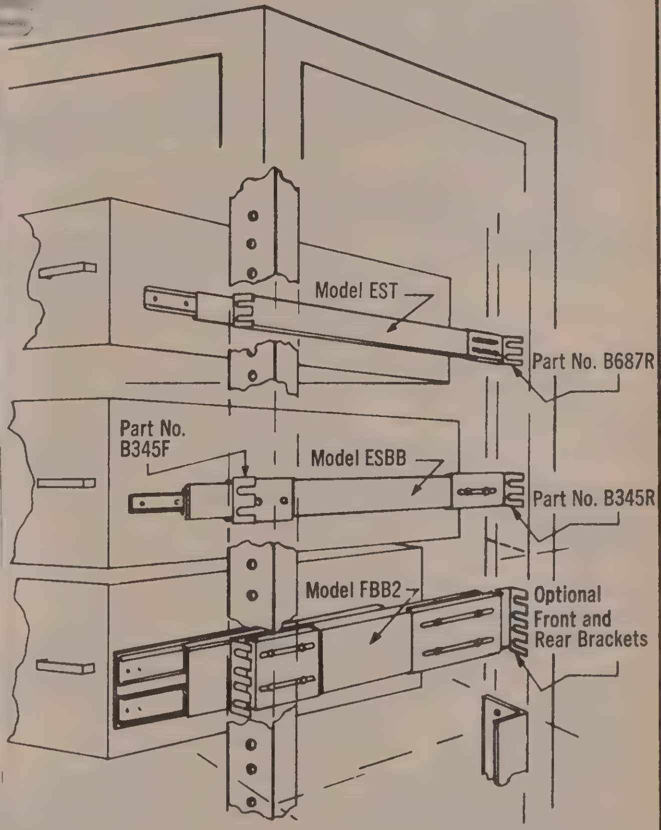
Call BARNES the first time and get your project on the right track . . . SLIM TRACK!

- BALL BEARING
- ROLLER BEARING
- SOLID BEARING
- CABLE CARRIERS

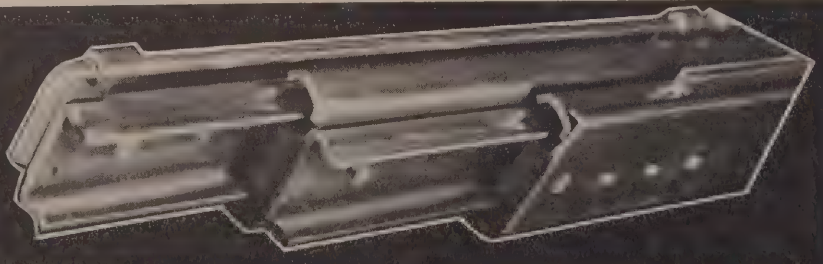
Space savings, high strength, high load capacity slides. All steel ball bearing and solid bearing models. The most extensive variety of slide channels in the industry. Barnes Engineering Company's applications engineering department can solve the toughest linear motion problems.

With a combination of precision formed members, "fail-safe" locks, slimmest design and quality control at its finest, along with the most modern, high-speed, precision production methods, "Slim-Track" slides are "Product engineered" to be the most competitively priced quality slides on the market.

Let us solve your Chassis Slide Problems! Why? Because BARNES ENGINEERING has probably already designed your "Tough" suspension job and has it filed under a standard slide series.



Barnes Engineering Co. has the widest variety of all types of slides and are the most versatile designers of slide mechanisms IN THE INDUSTRY.



B E

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1645 SO. CLAUDINA WAY, ANAHEIM, CALIFORNIA 92805

"SLIM TRACK" SLIDES

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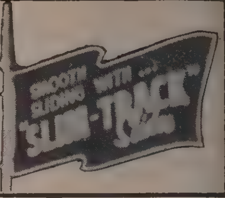

SMOOTH SLIDING WITH ... SLIM-TRACK SLIDES

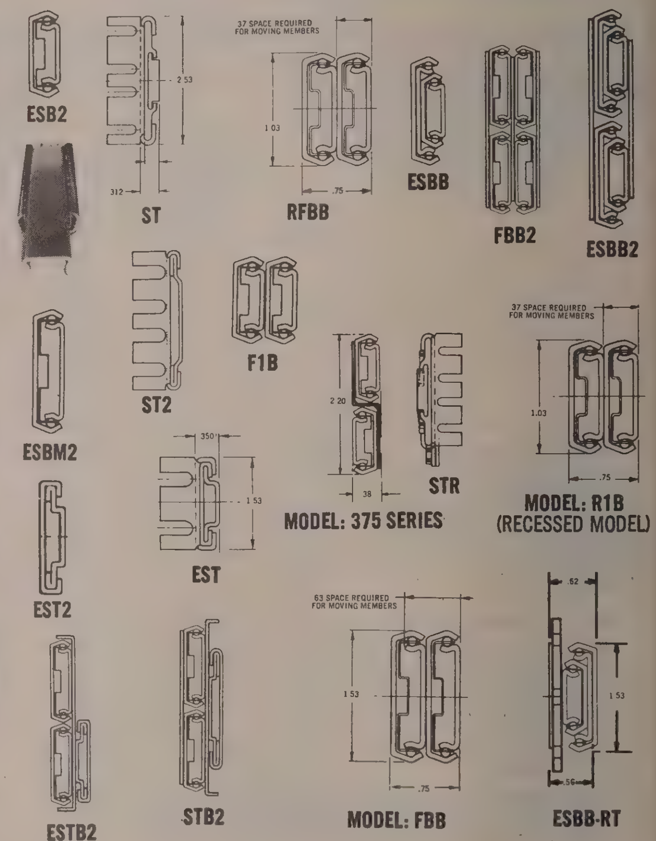
PRECISION LINEAR MOTION MECHANISMS ON OUR WAY TO NO. 1 IN THE SLIDE INDUSTRY
IT'S SMOOTH SLIDING WITH "SLIM-TRACK" CHASSIS SLIDES
MOST VARIETY OF SLIDE CHANNELS IN THE INDUSTRY

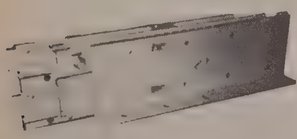
MODEL SELECTION CHART

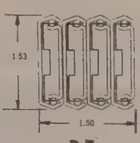
PAGE	MODEL	SPACE REQUIRED FOR MOVING MEMBERS	HEIGHT	DESCRIPTION	*NOMINAL LOAD
1	ESBB	.410	1.53	3 Section Ball Bearing	125 #
2	ESBB-RT	.56	1.53	3 Section Ball Bearing, Rotating	100 #
3	RFBB	.375	1.53	3 Section Ball Bearing, Recessed	100 #
4	FBB	.630	1.53	3 Section Ball Bearing	150 #
5	RFBB-RT	.520	1.53	3 Section Ball Bearing, Rotating Recessed	100 #
6	FBB-RT	.77	1.53	3 Section Ball Bearing, Rotating	150 #
7	R1B	.375	1.03	3 Section Ball Bearing, Recessed	100 #
8	F1B	.630	1.03	3 Section Ball Bearing	150 #
9	ESBM2	.26	1.53	2 Section Ball Bearing, ¾ Travel	120 #
10	ESB2	.26	1.03	2 Section Ball Bearing, ¾ Travel	120 #
11	ESTB-2	.67	3.38	Ball Bearing, ⅔ Travel Solid Bearing for Maintenance, Full Travel	200 #
12	STB-2	.37	3.38	Ball Bearing, ⅔ Travel Solid Bearing for Maintenance, Full Travel	200 #
13	FBB2	.75	3.13	3 Section Ball Bearing	300 #
14	EST	.29	1.53	3 Section Solid Bearing	75 #
15	EST-RT	.43	1.53	3 Section Solid Bearing, Rotating	75 #
16	EST2	.30	1.53	2 Section Solid Bearing, ¾ Travel	100 #
17	ST2	.25	2.53	2 Section Solid Bearing, ¾ Travel	100 #
18	ST	.25	2.53	3 Section Solid Bearing	175 #
19	ST-RT	.38	2.53	3 Section Solid Bearing, Rotating	125 #
20	STR-RT	.38	2.53	3 Section Roller Bearing, Rotating	150 #
21	STR	.25	2.53	3 Section Roller Bearing	175 #
22	STBF	.50	2.53	3 Section Solid Bearing	200 #
23	375 Series	.38	2.20	3 Section Ball Bearing	100 #
24	ESBB2	.48	3.13	3 Section Ball Bearing	275 #
25	HD3B	1.32	2.00	Heavy-Duty 3 Sec. Ball Bearing	1000 #
26	HD2B	.57	2.00	Heavy-Duty 2 Sec. Ball Bearing	400 #
27	HD2B2	.67	4.20	Heavy-Duty 2 Sec. Stacked Ball Bearing	1000 #
28	HD3B2	1.53	4.20	Heavy-Duty 3 Sec. Stacked Ball Bearing	2300 #
29	HD-STR	.41	3.25	Heavy-Duty 3 Sec. Roller Bearing	250 #
30	DR	.26	1.53	2 Sec. Ball Bearing Detent Roller, ¾ Travel	120 #
31	DT	1.38	1.53	5 Sec. Ball Bearing Double Extension	75 #

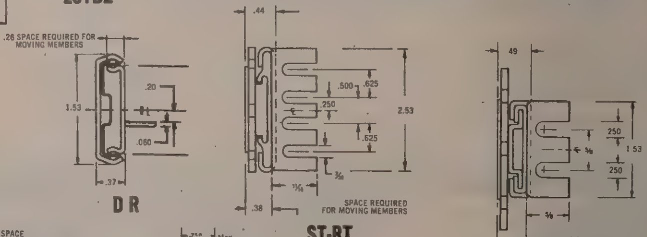
* Slide Load Rating can be designed from standard members or to specific application requirements.
* All 3-section Slides have full extension.

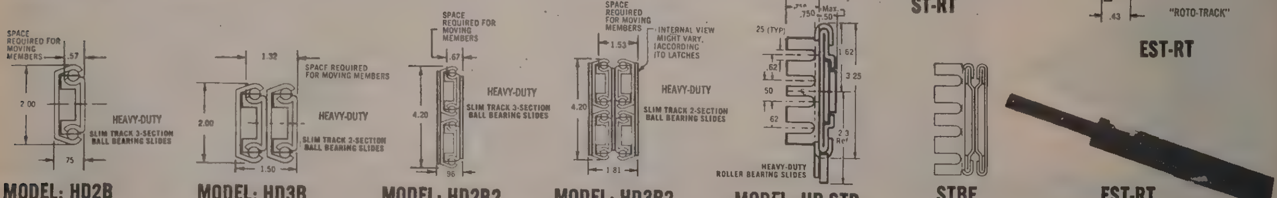
Depicted below are the Cross-Sectional views of some of our most popular SLIDE Models


ESB2
ST
2.53
.312
37 SPACE REQUIRED FOR MOVING MEMBERS
1.03
.75
RFBB
ESBB
FBB2
ESBB2
ST2
F1B
ESBM2
2.20
.38
STR
MODEL: 375 SERIES
37 SPACE REQUIRED FOR MOVING MEMBERS
1.03
.75
MODEL: R1B (RECESSED MODEL)
.350
1.53
EST
EST2
63 SPACE REQUIRED FOR MOVING MEMBERS
1.53
.75
.62
1.53
.56
ESTB2
STB2
MODEL: FBB
ESBB-RT






.26 SPACE REQUIRED FOR MOVING MEMBERS
1.53
.20
.060
.37
DR
.44
.500
.625
.250
2.53
.625
.38
SPACE REQUIRED FOR MOVING MEMBERS
ST-RT
.49
.250
1.53
.250
.43
"ROTO-TRACK"
EST-RT


SPACE REQUIRED FOR MOVING MEMBERS
.57
2.00
.75
HEAVY-DUTY
SLIM TRACK 3-SECTION BALL BEARING SLIDES
1.32
SPACE REQUIRED FOR MOVING MEMBERS
2.00
1.50
HEAVY-DUTY
SLIM TRACK 2-SECTION BALL BEARING SLIDES
SPACE REQUIRED FOR MOVING MEMBERS
.67
4.20
.96
HEAVY-DUTY
SLIM TRACK 3-SECTION BALL BEARING SLIDES
SPACE REQUIRED FOR MOVING MEMBERS
1.53
INTERNAL VIEW MIGHT VARY, ACCORDING TO LATCHES
4.20
1.81
HEAVY-DUTY
SLIM TRACK 2-SECTION BALL BEARING SLIDES
.750
Max. .50
25 (TYP)
.62
50
62
1.62
3.25
2.3 Ref
HEAVY-DUTY ROLLER BEARING SLIDES

MODEL: HD2B **MODEL: HD3B** **MODEL: HD2B2** **MODEL: HD3B2** **MODEL: HD-STR** **STBF** **EST-RT**

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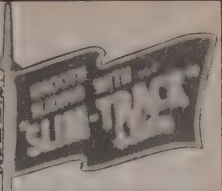

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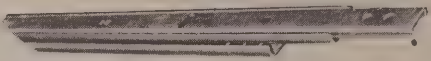
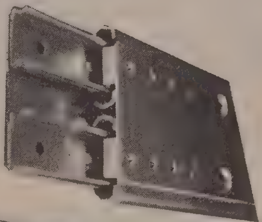
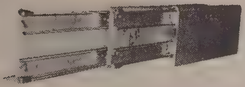
MOST VARIETY OF SLIDE CHANNELS IN THE INDUSTRY

THINNEST SLIDES IN THE WORLD! ST SERIES CAN BE MANUFACTURED TO A TOTAL OVERALL THICKNESS OF ¼" (.250)
ESBM2 AND ESB2 SERIES CAN BE MANUFACTURED TO A TOTAL OVERALL THICKNESS OF .340

MODEL: STR

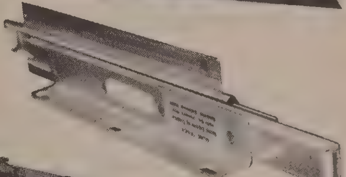


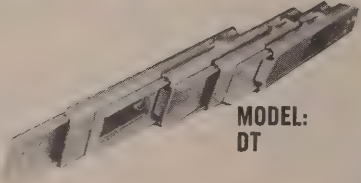


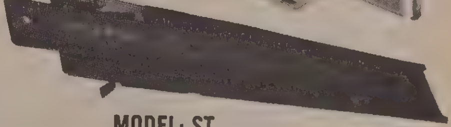

MODEL: FBB2

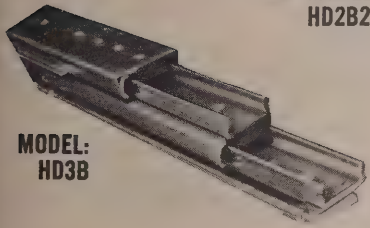
MODEL: EST2

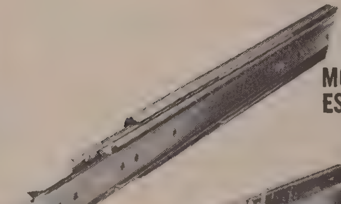
MODEL HD2B2



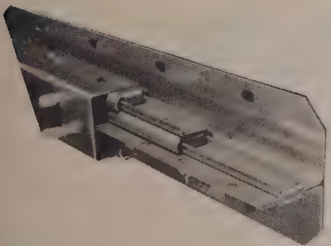

MODEL: DT

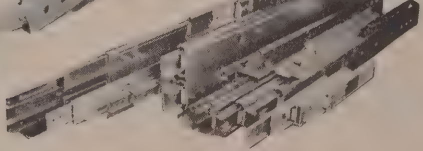

MODEL: ST


MODEL: HD3B

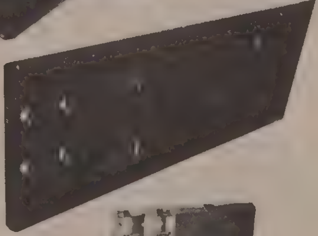

MODEL: ESBB

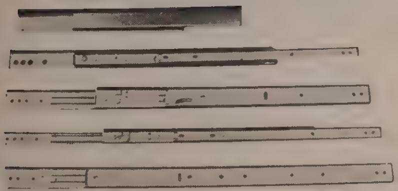
MODEL: HD2B

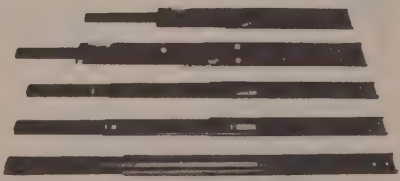




MODEL: HD-STR







MODEL: HD3B2

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COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A

AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire guage

B

BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction code
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C

CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D

D/A digital to analog
DAC digital to analog converter
DC direct current
DIL dual in-line
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E

EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EPROM electrically programmable ROM
ESR equivalent series resistance

F

FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G

GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H

HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I

IC integrated circuit
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J

JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K

kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L

LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LSI large scale integration
LVDT linear velocity displacement transformer

M

MATV master antenna television
μF microforad
MHz megahertz
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N

NBS National Bureau of Standards
NIM nuclear instrumentation module
NOR not OR

O

OEM original equipment manufacturer
OR a logical operator

P

pF picofarad
PC printed circuit
PCB printed circuit board
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PPI plan position indicator
PROM programmable read only memory
PUT programmable unijunction transistor

Q

QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R

RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S

SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic

T

TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TTL transistor-transistor logic
TTY teletypewriter

U

UHF ultra high frequency (300 MHz to 3 GHz)
UL Underwriters Laboratory
UPS uninterruptible power supply

V

VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W

WPS word processing software

Y

YIG yttrium iron garnet

BIRTCHER

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INDUSTRIAL PRODUCTS
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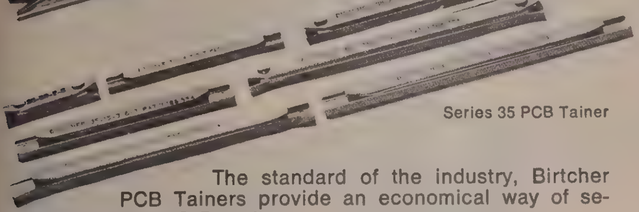
PCB TAINERS

Series 15-20 PCB Tainer



Series 35 PCB Tainer

The standard of the industry, Birtcher PCB Tainers provide an economical way of securely fastening PC Boards.

Birtcher PCB Tainers come in standard or made-to-spec versions. They are made of cold rolled steel or beryllium copper for rivet, weld or adhesive bonding installation. They provide heat dissipation, electrical grounding, retention in shock and vibration applications and they accept PC boards from 1/32″ to 1/8″ in thickness. Finishes are available in cadmium, zinc, nickel, copper, gold, silver or ebanol and they may also be heat treated.

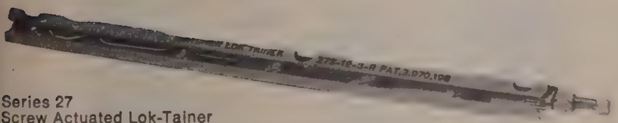
SERIES 15 THRU 20
Flared entry guides
Material .010 thick
2″ to 10″ lengths, .50 wide

SERIES 21
Flared entry guide designed for
high density applications
Material .006 thick
1″ to 6″ lengths, .190 wide

SERIES 35
With or without flared entry
Material .005 and .008 thick
2″ to 6″ lengths, .27 and .36 wide

LOK-TAINERS

Series 24
Lever Actuated
Lok-Tainer



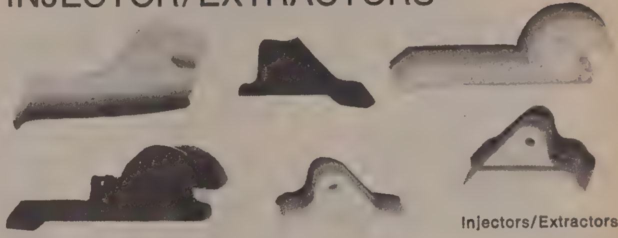
Series 27
Screw Actuated Lok-Tainer

Lok-Tainers are designed to provide extremely high resistance to heavy shock and vibration while maintaining maximum contact for heat dissipation. In unlocked position there is no resistance to insertion or removal of the PC board. This minimizes destruction of board surfaces.

SERIES 24 AND 25
Level actuated

SERIES 27, 28 AND 29
Screw actuated
Material .024 thick housing
Left or right hand
3″ to 12″ lengths

EXTRACTORS AND INJECTOR/EXTRACTORS



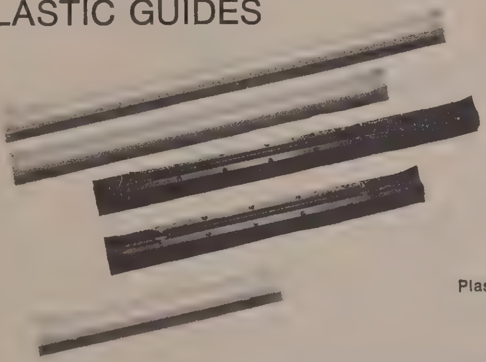
Injectors/Extractors

Extractors provide for quick, damage free, removal of PC cards. Injector/Extractors function in two directions allowing the card to be easily inserted into the connector as well as providing quick removal.

SERIES 60, 61, 64, 80, 82, 83, 84, 87
Material A.B.S. plastic and nylon
Available for 1/32″ to 1/8″ boards
Hot stamp identification and
colors available on special
order

SERIES 71 AND 73
For heavy duty application
Material of .063 aluminum alloy
5052-H32
Available for 1/32″ to 1/8″ boards

PLASTIC GUIDES



Series 26
Plastic Guides

The nylon Nylo-Guide provides retention for the PC card and its components through a unique gripping action. It is self-lubricating, non conductive with superior strength and durability.

SERIES 26
One guide fits 1/32″, 1/16″, 3/32″ PCB's
Identical ends
Easy snap-in style installation

3″ to 6″ lengths
Rigid nylon per MIL-M-20693A,
Type IV A

Other hardware manufactured by Birtcher includes component clips and clamps in a number of different configurations and finishes to meet each customer's requirements.

BIRTCHER

IF YOU HAVE A DESIGN PROBLEM,
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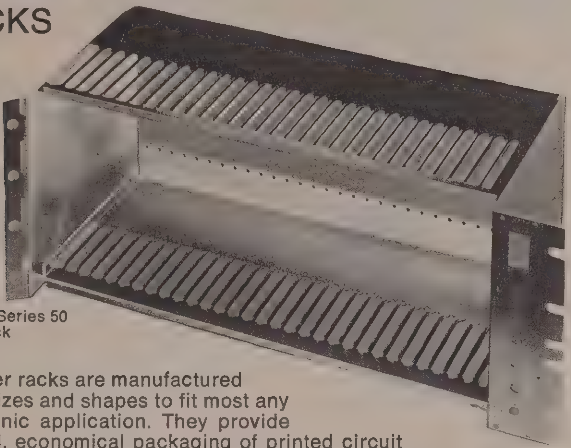
(818) 575-8144/TELEX 4720899 BIRTCHER ELM

RACKS



Custom Series 50 PCB Rack

Birtcher racks are manufactured in all sizes and shapes to fit most any electronic application. They provide rugged, economical packaging of printed circuit boards and motherboards with complete design flexibility at minimal cost. Standard finishes include zinc or cadmium plate on steel racks and chem film or anodized on aluminum racks. Available in both standard and custom configurations.

SERIES 50
Sheet metal construction of low carbon steel or aluminum with formed louvers as card guides. Louver size selection is available.

SERIES 53
Similar to Series 50, these racks are constructed of steel or aluminum with a formed guide plate which utilizes Series 64, 73 or 87 injector/extractors.

SERIES 50N
This rack is the same as the 50 Series except is nylon coated for applications requiring circuit insulation.

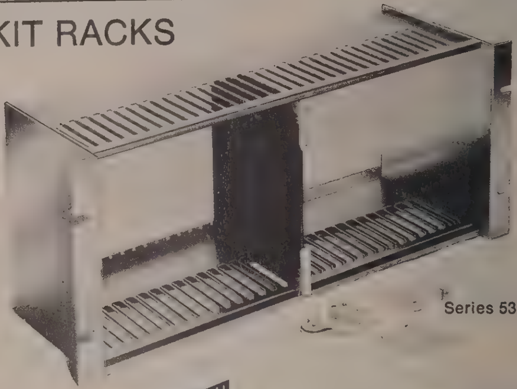
SERIES 52
Economical packaging for applications requiring non-conductive guides. Fabricated in aluminum or cold rolled steel, these racks utilize Series 26 snap-in Nylo-Guides.

SHEET METAL CAPABILITIES

Available to all Birtcher customers are the combined resources of the Birtcher facilities and broad spectrum of technical and manufacturing knowledge.

Our fully equipped 106,000 square-foot plant with its top-of-the-line equipment enables us to fill almost any customer requirement including design, shearing, piercing, bending, milling, welding, chemical finishing and painting, silk screening and assembly of hardware.

KIT RACKS



Series 53 PCB Rack

Series 54 PCB Rack

Birtcher's "kit" racks are available in certain sizes from stock in knocked down kit form for assembly in your plant. Refer to the Birtcher Engineering Guide for details on available sizes and configurations.

SERIES 53N
Same as Series 53 except with nylon coating.

SERIES 54
Constructed of high strength extruded aluminum, these card racks utilize non-conductive Series 26 snap-in Nylo-Guides. Three standard spacing sizes of .500, .600 and .750 are offered. Mounting and connector rails are available in 6″ to 48″ lengths and are supplied with punched holes for 4-40 self-threading screws.

SERIES 57
A universal style rack designed to mount all Birtcher PCB Tainers and Lok-Tainers. These racks, constructed of extruded aluminum, offer infinite flexibility in selection of guides for any application.

SERIES 58
An economical extruded aluminum rack utilizing non-conductive Series 26 snap in Nylo-Guides.. Front extrusion provides recess for injector/extractors.

CUSTOM FABRICATION

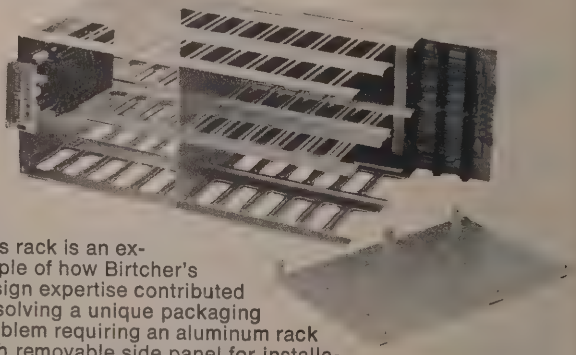
POWER SUPPLY CHASSIS

This custom power supply chassis is fabricated from cold rolled steel and perforated sheet complete with formed metal guides, weld studs, press nuts, grommets, spring clips, hinges and a zinc plated finish. This chassis is manufactured at a rate of 400 per week utilizing sophisticated numerically controlled punch press and brake production plus welding, stamping, machining and plating capabilities.

IF YOU HAVE A
DESIGN PROBLEM,
CALL BIRTCHER

BIRTCHER

SHELF FOR DUAL CARD MODULES



This rack is an example of how Birtcher's design expertise contributed to solving a unique packaging problem requiring an aluminum rack with removable side panel for installation of the motherboard. After assembly, twenty-four dual-card modules must insert with perfect indexing into the card edge connectors in the motherboard.

BIRTCHER CORPORATION
INDUSTRIAL PRODUCTS
4501 N. ARDEN DRIVE/EL MONTE, CA 91731
(818) 575-8144/TELEX 4720899 BIRTCHER ELM

SERIES 24 LOK-TAINER

ZERO
ENTRY FORCE

PATENT NO. 3,970,198

24-SERIES LOK-TAINER designed for heavy shock and vibration is now available with our equally new 71 SERIES EXTRACTOR.

1. In engaged position provides:
   - A. Extremely high resistance to shock and vibration.
   - B. Maximum contact intimacy for heat dissipation.
2. In released position it provides:
   - A. Zero entry for minimal insertion and removal force of P.C. Boards into connectors.
   - B. Minimizes destruction of P.C. Board surfaces.

MATERIAL: .024 thick cold rolled steel or beryllium copper (housing)

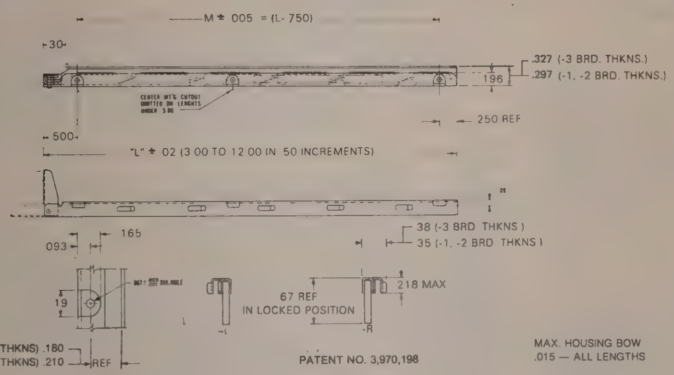
WEIGHT: .116 ounces per inch (steel)

MOUNTING HOLES: Center mtg. hole and cutout is eliminated on lengths under 5 inches.

RIVETS: Any .065" normal diameter rivet or eyelet may be used for installing retainers. Normal factory assembly utilizes our P/N 180-000 Eyelet (manufactured by United Shoe Company P/N S-5994.

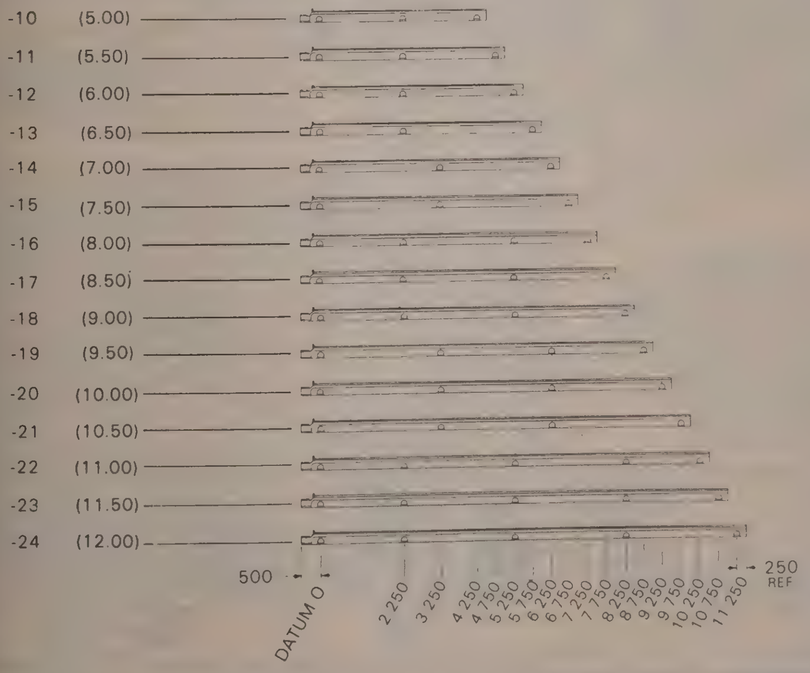
DESIGNED FOR HEAVY SHOCK AND VIBRATION REQUIREMENTS

DIMENSIONS


M ± 005 = (L- 750)
30
.327 (-3 BRD. THKNS.)
.297 (-1, -2 BRD. THKNS.)
196
CENTER MT'G CUTOUT OMITTED ON LENGHTS UNDER 5 00
250 REF
500
"L" ± 02 (3 00 TO 12 00 IN 50 INCREMENTS)
01
093
165
38 (-3 BRD THKNS)
35 (-1, -2 BRD THKNS)
19
218 MAX
67 REF
IN LOCKED POSITION
-L
-R
(-1, -2 BRD. THKNS) .180
(-3 BRD. THKNS) .210
REF
PATENT NO. 3,970,198
MAX. HOUSING BOW
.015 — ALL LENGTHS

MOUNTING HOLE DIMENSIONS

NOTE: -6 (3.00) THRU -9 (4.50) MOUNTING HOLE DIMS. AS PER .500 DATUM & .250 REF. AS NOTED BELOW


-10 (5.00)
-11 (5.50)
-12 (6.00)
-13 (6.50)
-14 (7.00)
-15 (7.50)
-16 (8.00)
-17 (8.50)
-18 (9.00)
-19 (9.50)
-20 (10.00)
-21 (10.50)
-22 (11.00)
-23 (11.50)
-24 (12.00)
500
DATUM O
2 250
3 250
4 250
4 750
5 250
5 750
6 250
6 750
7 250
7 750
8 250
8 750
9 250
9 750
10 250
10 750
11 250
250 REF

BOARD THICKNESS

DASH NO.	BOARD THICKNESS
-1	1/32
-2	1/16
-3	3/32

For optimum clamping action and heat transfer, the printed circuit board thickness should be a minimum of .062 inches and a maximum of .067 inches.

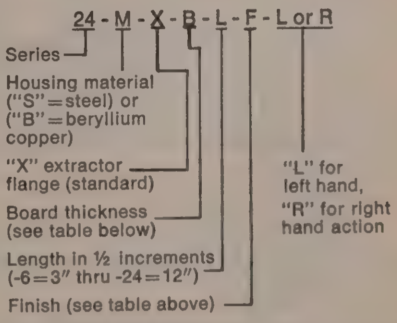
FINISH TABLE

DASH	FINISH
None	Silver plate per QQ-S-365, Type III, GR. A
-1	None
-2	Ebanol: Per Mil F-495 for 75429-BH- Per Mil-C-13924 for 75429-S
-3	Cad. plate per QQ-P-416, Type II, CL. 2
-4	Copper plate per MIL-C-14550, CL. 2
-5	Gold plate per Mil-G-45204, Type I, CL. 1
-6	Nickel plate per QQ-N-290, CL. 2, .0002 min. thk. bright
-7	Zinc pl. clear chromate per QQ-Z-325, Type II, CL. 2
-8	Zinc pl. yel. chromate per QQ-Z-325, Type II, CL. 2

MATERIALS TABLE

CODE LETTER	MATERIAL
Standard B	Beryllium copper per QQ-C-533
Standard S	Steel per QQ-S-698

Housing: Steel or be. cu.
Cam: Be. cu.
Lever: Steel


24 - M - X - B - L - F - L or R
Series
Housing material ("S"=steel) or ("B"=beryllium copper)
"X" extractor flange (standard)
Board thickness (see table below)
Length in ½ increments (-6=3" thru -24=12")
Finish (see table above)
"L" for left hand, "R" for right hand action

Bivar Electronic Packaging Aids for Components and PCB Assembly

OVER 4000 LOW-COST STANDARD PRODUCTS ARE NOW AVAILABLE FROM STOCK THROUGH YOUR AUTHORIZED BIVAR DISTRIBUTOR.

Now, Bivar's complete family of low cost time saving aids for electronic component assembly and printed circuit board packaging is available through direct distribution.

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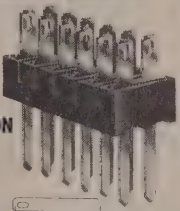
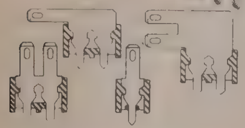
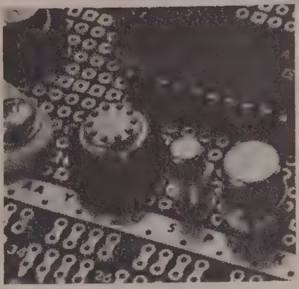
A NEW CONCEPT IN MINIATURE PROGRAMABLE INTERCONNECTION TERMINALS





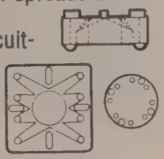
- Miniature Size for High-Density, Space Savings.
- Up to 10 Circuit Terminations/Inch; Maximum of 40 Stations Per Unit. Vertical or 90° styes.
- .200″ Pin Spacing Fits Standard .100″ PCB Grid Patterns.
- Programable by PCB Circuitry, Jumpers, Bussing or Terminal Changes.
- Low Unit Cost; Even Greater Cost Savings with No Special Hardware or Tools Required for Quick Assembly.



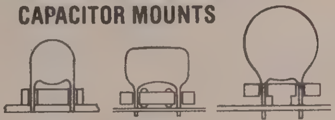
PERMANENT MOUNTS/SPACERS

Over 3400 standard low cost styles and sizes from stock . . .

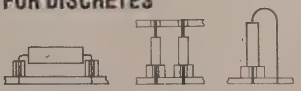
TO-18 mounts/spreaders
TO-5 mounts
Integrated circuit-
  Mounts
  Spreaders
  Converters



DISCRETE COMPONENT AND CAPACITOR MOUNTS



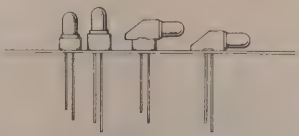
UNIVERSAL SPACERS FOR DISCRETES



Dual in-line mounts
TO-5/TO-18 covers and shields

NYLON L.E.D. MOUNTS/90° L.E.D. MOUNTS

984 standards in heights from .030″ through 1.250″ in .005″ increments.



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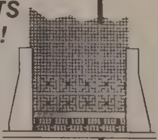
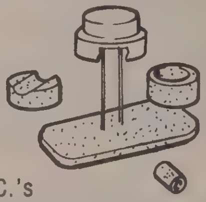


WASH-AWAY SPACERS

Over 400 standard sizes . . .



For I.C.'s
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  Cordwood assemblies

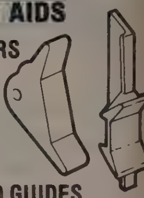
For Capacitors
  Dual in-line components
  Axial components

A complete selection of general purpose tubular & solid spacers

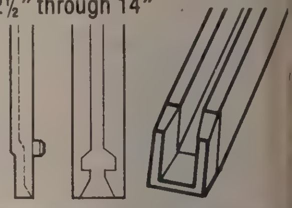
PRINTED CIRCUIT BOARD PACKAGING AIDS

CARD EJECTORS
18 standard & locking styles

3 PCB Handles



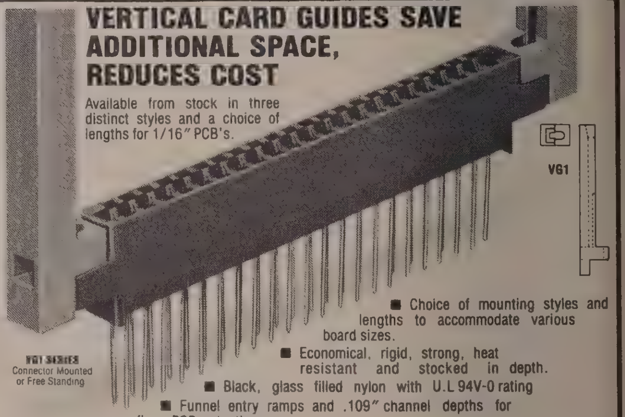
SNAP-IN CARD GUIDES
52 standard sizes; lengths from 2½″ through 14″



DEEP CHANNEL CARD GUIDES

VERTICAL CARD GUIDES SAVE ADDITIONAL SPACE, REDUCES COST

Available from stock in three distinct styles and a choice of lengths for 1/16″ PCB's.

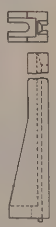


- Choice of mounting styles and lengths to accommodate various board sizes.
- Economical, rigid, strong, heat resistant and stocked in depth.
- Black, glass filled nylon with U.L 94V-0 rating
- Funnel entry ramps and .109″ channel depths for firm PCB retention

VG2 SERIES

Available from stock in 7 lengths, the VG2 series is designed to be used in pairs and is easily mounted with standard #6 fasteners.

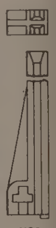
- Rigidly reinforced and heat resistant.
- Easily installed with standard #6 fasteners. Built-in anti-rotation device.
- Funnel entry ramps with .109″ channel depths.
- 7 standard lengths stocked in depth.

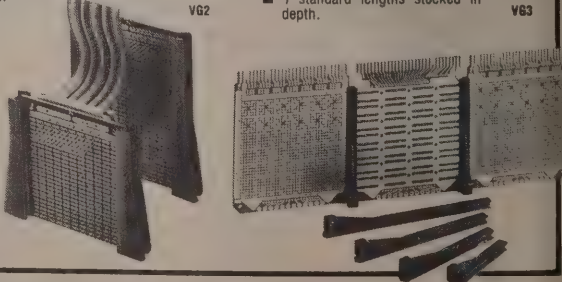


VG3 SERIES

These double sided guides are available from stock, may be used in pairs or in tandem for maximum economy and are easily mounted with standard #6 fasteners.

- Can be used in tandem for maximum density and economy.
- Easily installed with standard #6 fasteners. Built-in anti-rotation device.
- Funnel entry ramps with .109″ channel depths.
- 7 standard lengths stocked in depth.





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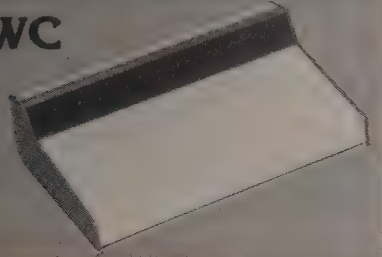
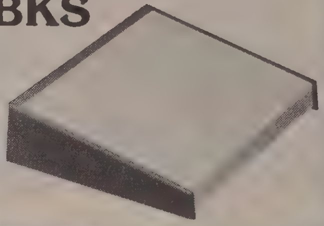
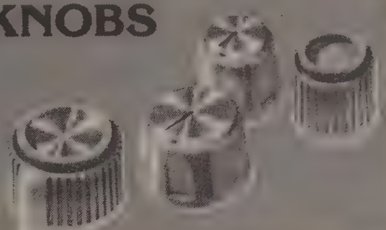
DWC



BKS

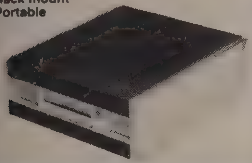


KNOBS

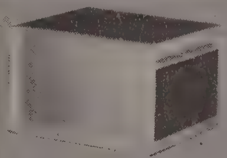


FP FLEX-I-PAK™

Bench use
Rack mount
Portable



DSCB

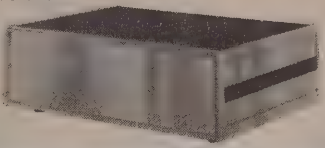


RP

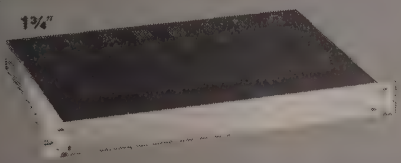
Bench use
Rack mount
Portable

DSC

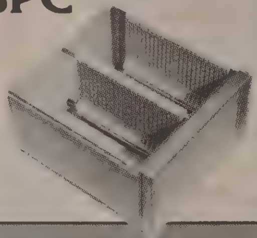
Bench use
Rack mount
Portable



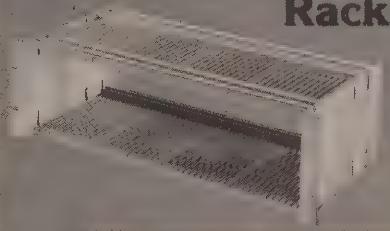
FC 1¾"



BPC

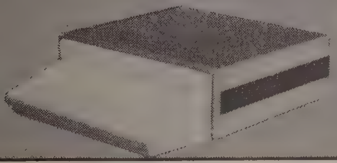


Racks



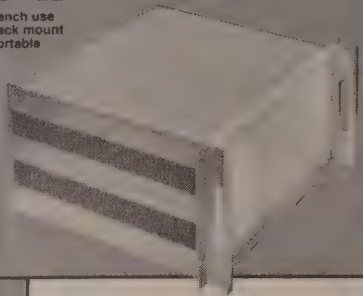
KT

KEYBOARD
TERMINAL
ENCLOSURES

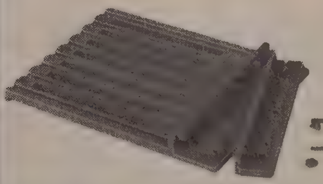


D-II

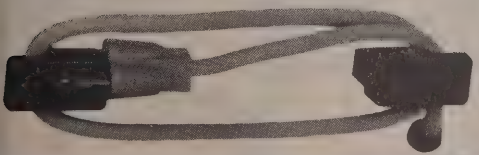
Bench use
Rack mount
Portable



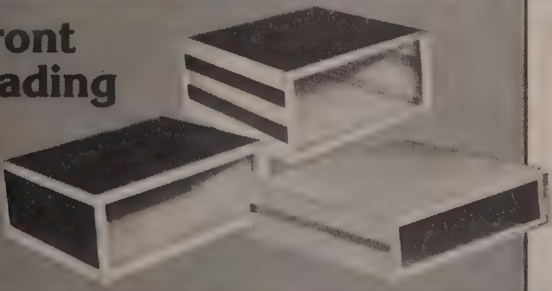
MODULAR CARD **Guides**



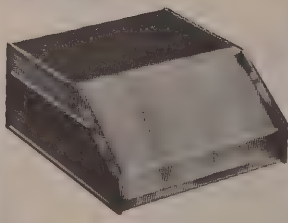
cord-wrap POWER CORD STORAGE.



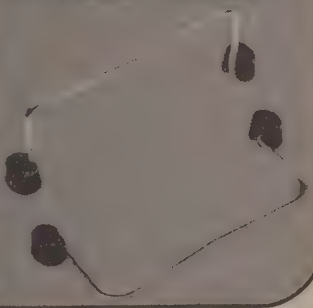
Front loading



KBS



BAILS RETRACTABLE TILT-STANDS



Buckeye

CASES•CABINETS•RACKS•COMPONENTS

A separate catalog, promotional and/or spec-data sheet is available on each of the products listed.
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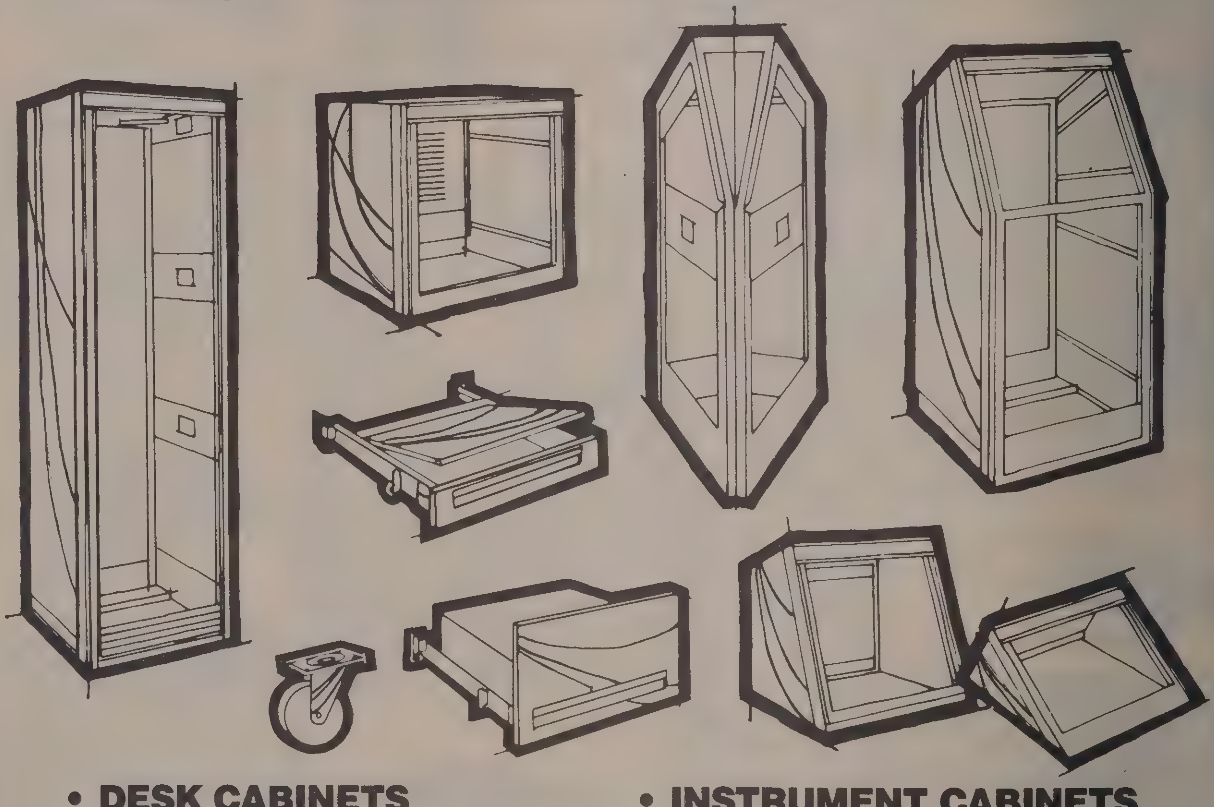

- **DESK CABINETS**
- **RACK CABINETS**
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- **INSTRUMENT CABINETS**
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- **DESK TURRETS**
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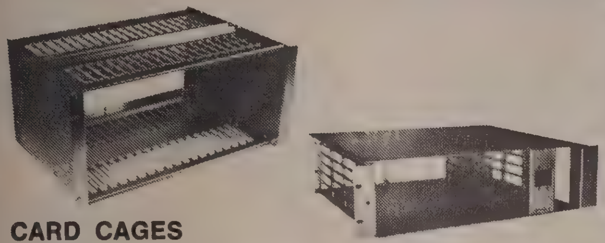
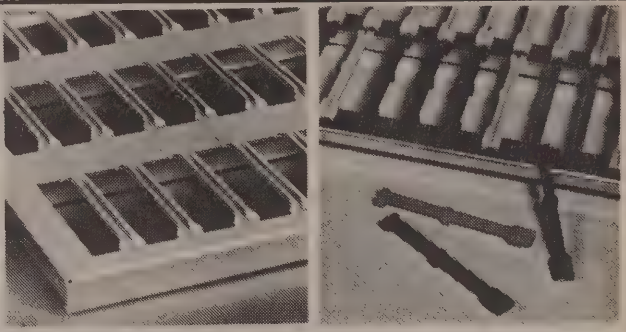
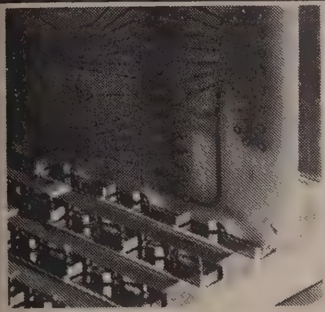


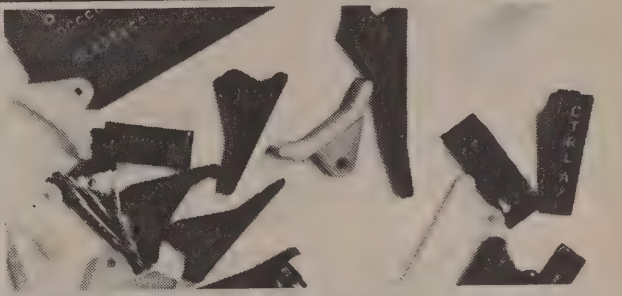
CARD CAGES
Custom designed and fabricated to meet customer requirements.



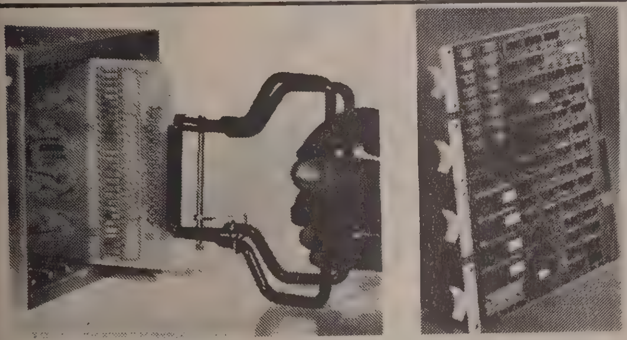
CARD GUIDES
Metal louver and nylon snap-in.



CARD RETAINERS
CARD-LOKS
Excellent thermal and electrical conductivity, plus protection against shock and vibration.



CARD INSERTERS & EXTRACTORS
For easy insertion and extraction of PC cards.
- Available in colors for coding.
- Generous area for hot stamp making.
- U.L. Approved
- Available with pre-started assembly pins.

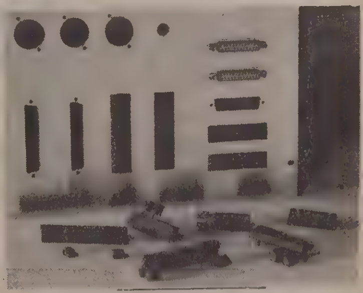


CARD PULLERS
For easy PC card extraction.

CONNECTOR ACCESSORIES
For "D"-subminiature rectangular connectors.

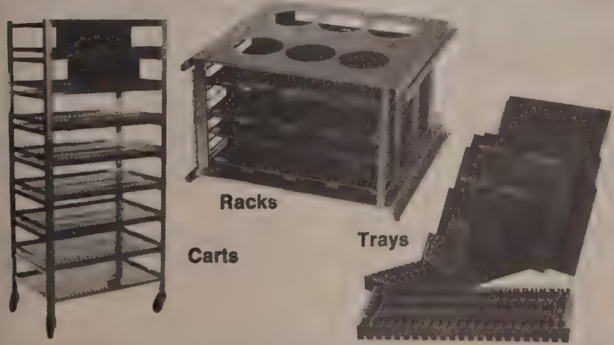
Backshells

Available with EMI/RFI shielding.



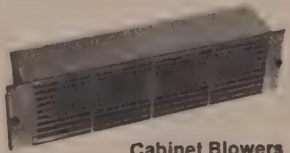
Cutout Covers

PCB HANDLING PRODUCTS
Trays, Racks, and Carts for safe and efficient handling, transport, and storage of PC boards during all stages of production. Available with static resistant material.



ELECTRONIC COOLING PRODUCTS
Fan Tray Assemblies offer standard mounting with multiple and adjustable fan locations. Cabinet Blowers for cooling of electronic rack equipment. For Special Applications Calmark will design an airmover to meet specific requirements.

Fan Trays



Cabinet Blowers

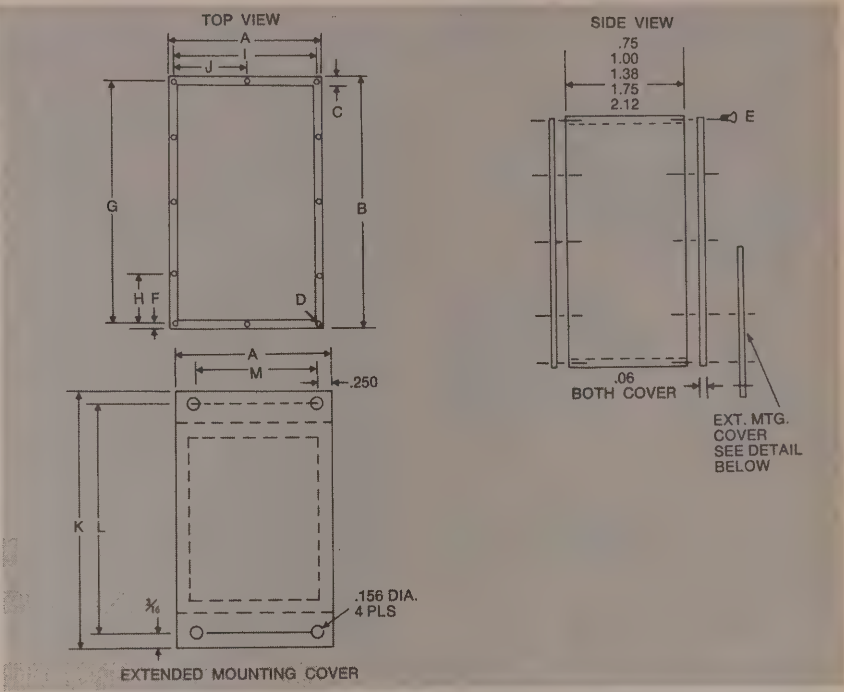
FOR COMPLETE CUSTOM CAPABILITY, CONTACT FACTORY DIRECT

EEM PRODUCT SELECTION GUIDES

There are 33 Guides in this edition of EEM. See page 2 (1A•2, 1B•2, 2•2, 3•2) of each volume to locate the Product Selection Guides that pertain to your needs.

COMPAC™

RFT SERIES



- ☐ Compac's RFT Series Enclosures have shielding capabilities to 60 dB at 3 GHz
- ☐ Independent access from either side
- ☐ Greater Interior Acreage Construction Specs: Case — AL 6063T3 Covers — AL 5052-H32 finish chemical film per MIL C 5541 Class 1 A Conformance to MIL 45208A

	A	B	C	D*	E	F	G	H	I	J	K	L	M
R51080	1.00	1.00	.125	4	0-80	.070	.860	—	.860	—	1.75	1.375	.50
R51090	1.25	1.25	.125	4	0-80	.070	1.110	—	1.110	—	2.00	1.625	.75
R51095	1.25	2.50	.125	6	0-80	.070	2.360	1.180	1.110	—	3.25	2.875	.75
R51100	1.50	1.50	.125	6	0-80	.070	1.360	.680	1.360	—	2.25	1.875	1.00
R51110	1.50	2.00	.125	6	0-80	.070	1.860	.930	1.360	—	2.75	2.375	1.00
R51120	1.50	2.50	.125	6	0-80	.070	2.360	1.180	1.360	—	3.25	2.875	1.00
R31125	1.50	3.25	.125	6	0-80	.070	3.110	1,555	1.360	—	4.00	3.625	1.00
R51130	1.50	6.00	.125	10	0-80	.070	5.860	1.465	1.360	—	6.75	6.375	1.00
R51140	1.75	1.75	.125	6	0-80	.070	1.610	.805	1.610	—	2.50	2.125	1.25
R31150	1.75	3.00	.125	6	0-80	.070	2.860	1.430	1.610	—	3.75	3.375	1.25
R31160	2.00	2.00	.125	8	0-80	.070	1.860	.930	1.860	.930	2.75	2.375	1.50
R51170	2.00	3.00	.125	8	0-80	.070	2.860	1.430	1.860	.930	3.75	3.375	1.50
R51180	2.00	4.00	.125	10	0-80	.070	3.860	1.286	1.860	.930	4.75	4.375	1.50
R51190	2.00	5.00	.125	12	0-80	.070	4.860	1.215	1.860	.930	5.75	5.375	1.50
R51200	2.00	6.00	.125	12	0-80	.070	5.860	1.465	1.860	.930	6.75	6.375	1.50
R51205	2.50	2.50	.125	8	0-80	.070	2.360	1.180	2.360	1.180	3.25	2.875	2.00
R51210	3.00	3.00	.125	8	0-80	.070	2.860	1.430	2.860	1.430	3.75	3.375	2.50
R51220	3.00	5.00	.125	12	0-80	.070	4.860	1.215	2.860	1.430	5.75	5.375	2.50
R51225	3.00	5.00	.188	12	2-56	.094	4.812	1.203	2.812	1.406	5.75	5.375	2.50
R51230	3.00	6.00	.188	12	2-56	.094	5.812	1.453	2.812	1.406	6.75	6.375	2.50
R51250	5.00	6.00	.188	14	2-56	.094	5.812	1.453	4.812	1.604	6.75	6.375	4.50

* D = Number of cover screws

Specifications subject to change without notice

HOW TO ORDER:

R-51110 — 138 — 0 (N)

CASE PART NO.

CASE HEIGHT
075 - 0.75
100 - 1.00
138 - 1.38
175 - 1.75
212 - 2.12

COVER TYPE
0 - Standard flush
1 - Extended

ADD FOR NICKEL PLATE

CUSTOM
FROM COMPAC'S RFT SERIES

Compac will modify our RFT Series Enclosures to meet your needs.

- Drilling
- Tapping
- Milling
- "D" Punching
- Cut Outs for Subminiature Connections
- Silk Screening, Painting

Work is done from your prints or to your specifications.

For your convenience Compac has included on page 5 a request for quote with a rendering of a Compac Case to depict your modifications.

R51110 — 138 — 0 — (N)/MOD/XXX

CASE PART NO.

CASE HEIGHT
075 - 0.75
100 - 1.00
138 - 1.38
175 - 1.75
212 - 2.12

COVER TYPE
0 - Standard flush
1 - Extended

ADD FOR NICKEL PLATE

YOUR PRINT #

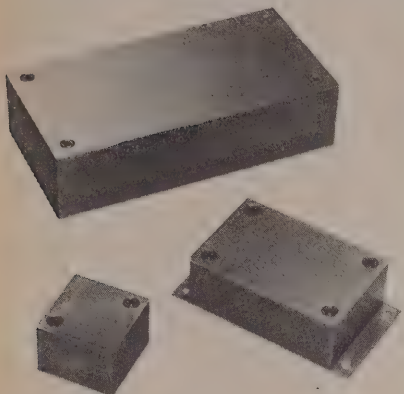
TO ORDER

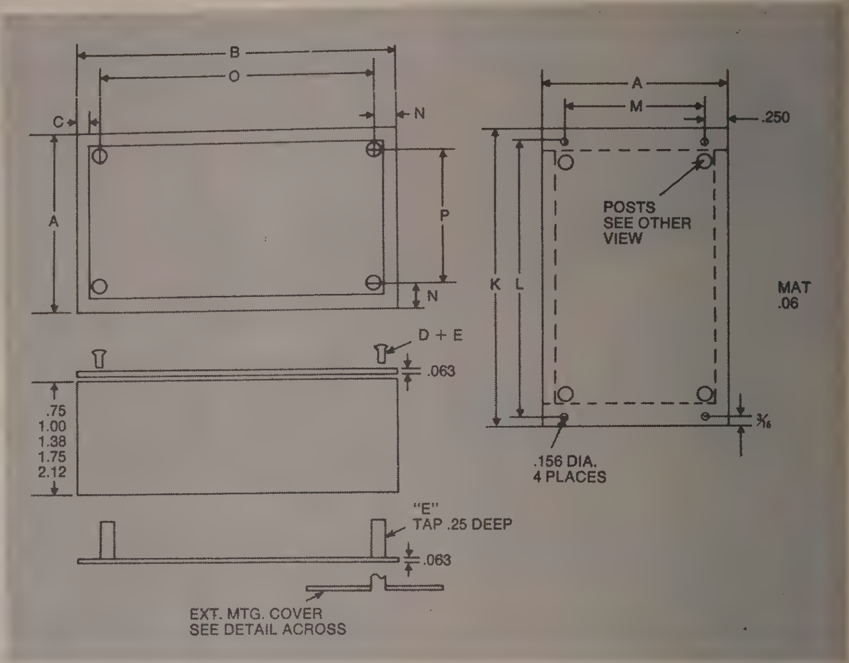
Select a case size from the RFT series, send a drawing and include: overall height, feedthru location, type (plain Teflon or filter) connector location etc. Our expertise in shielded cases can give you a truly CUSTOM design, limited only by your requirements.

COMPAC
279 SKIDMORE ROAD
DEER PARK, NEW YORK 11729
TELEPHONE 516/667-3933
TWX 510-227-1064

COMPAC™

BLANK SERIES





- ☐ Compac Blank Series Enclosures provide up to 100 dB shielding effectiveness at 100 MHz
- ☐ Easy access and assembly
- ☐ Off-the-shelf availability

CONSTRUCTION SPECS

Frames: 6063-T5QQA200 Extruded Aluminum
Covers: 5052-H32-Aluminum
Standard Finishes
Irridite Chemifilm per MIL C 5541 CL 1 A Conformance to MIL Spec 45208A

	A	B	C	D	E	K	L	M	N	O	P
51080	1.00	1.00	.125	2	4-40	1.75	1.375	.50	.250	.50	.50
51090	1.25	1.25	.125	2	4-40	2.00	1.625	.75	.250	.75	.75
51095	1.25	2.50	.125	4	4-40	3.25	2.875	.75	.250	2.00	.75
51100	1.50	1.50	.125	2	4-40	2.25	1.875	1.00	.250	1.00	1.00
51110	1.50	2.00	.125	4	4-40	2.75	2.375	1.00	.250	1.50	1.00
51120	1.50	2.50	.125	4	6-32	3.25	2.875	1.00	.250	2.00	1.00
51125	1.50	3.25	.125	4	6-32	4.00	3.625	1.00	.250	2.75	1.00
51130	1.50	6.00	.125	4	6-32	6.75	6.375	1.00	.250	5.50	1.00
51140	1.75	1.75	.125	4	6-32	2.50	2.125	1.25	.250	1.25	1.25
51150	1.75	3.00	.125	4	6-32	3.75	3.375	1.25	.250	2.50	1.25
51160	2.00	2.00	.125	4	6-32	2.75	2.375	1.50	.250	1.50	1.50
51170	2.00	3.00	.125	4	6-32	3.75	3.375	1.50	.250	2.50	1.50
51180	2.00	4.00	.125	4	6-32	4.75	4.375	1.50	.250	3.50	1.50
51190	2.00	5.00	.125	4	6-32	5.75	5.375	1.50	.250	4.50	1.50
51200	2.00	6.00	.125	4	6-32	6.75	6.375	1.50	.250	5.50	1.50
51205	2.50	2.50	.125	4	6-32	3.25	2.875	2.00	.250	2.00	2.00
51210	3.00	3.00	.125	4	6-32	3.75	3.375	2.50	.250	2.50	2.50
51220	3.00	5.00	.125	4	6-32	5.75	5.375	2.50	.250	4.50	2.50
51225	3.00	5.00	.188	4	6-32	5.75	5.375	2.50	.310	4.38	2.38
51230	3.00	6.00	.188	4	6-32	6.75	6.375	2.50	.310	5.38	2.38
51250	5.00	6.00	.188	4	6-32	6.75	6.375	4.50	.310	5.38	4.38

Specifications subject to change without notice

HOW TO ORDER:

51110 — 138 — 0 — (N)

CASE PART NO.

CASE HEIGHT
075 - 0.75
100 - 1.00
138 - 1.38
175 - 1.75
212 - 2.12

COVER TYPE
0 - Standard flush
1 - Extended

ADD FOR NICKEL PLATE

CUSTOM FROM COMPAC'S BLANK SERIES

Compac will modify our Blank Series to meet your needs and specifications.

- Drilling
- Tapping
- Milling
- Punching
- Traps for Subminiature Connections
- Silk Screening/Painting

Work is done from your print to your specifications.

For your convenience Compac has included on page 5 a request for quote with a rendering of a Compac Case to depict your modifications.

51110 — 138 — 0 (N)/MOD/XXX

CASE PART NO.

CASE HEIGHT
075 - 0.75
100 - 1.00
138 - 1.38
175 - 1.75
212 - 2.12

COVER TYPE
0 - Standard flush
1 - Extended

ADD FOR NICKEL PLATE

YOUR PRINT #

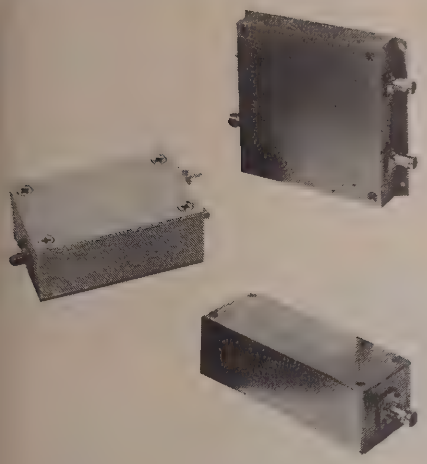
TO ORDER

Select a case size from the BLANK Series, send a drawing and include: overall height, feedthru location, type (plain Teflon or filter) connector location; etc. Our expertise in shielded cases can give you a truly CUSTOM design, limited only by your requirements.

COMPAC
279 SKIDMORE ROAD
DEER PARK, NEW YORK 11729
TELEPHONE 516/667-3933
TWX 510-227-1064

COMPAC™

STANDARD SERIES



Compac Standard Series offers 31 off-the-shelf case configurations. In addition, you can choose either Blank or RFT construction and flush or extended bottom covers. A choice of four-hole flange-mounted female connectors (SMA, TNC, N, BNC) designed to meet MIL C-39012 are available as well as optional filters. (For connector and filter specs please refer to pages and of this catalog.)

Compac Standard Series lends itself to your engineering stock room. Cases and connectors can be interchanged to fit your requirements.

HOW TO ORDER:

BASIC PART NUMBER

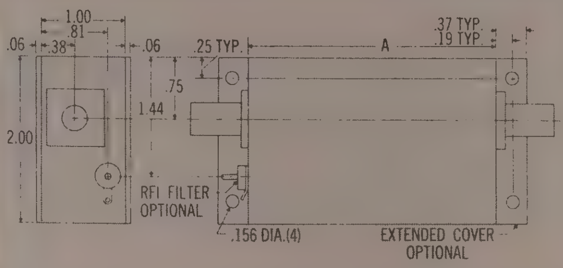
6000 — 00000 — 0 — 0

CASE TYPE
- R - RFT
- B - Blank

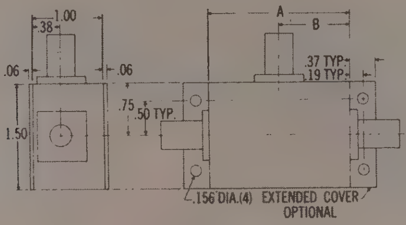
RFI FILTER TYPE
- 0 - No Filter
- 1 - Plain Teflon Feed Thru
- 2 - Filter Feed Thru

CONNECTOR TYPE
- 1 - SMA Female
- 2 - BNC Female
- 3 - TNC Female
- 4 - N Female

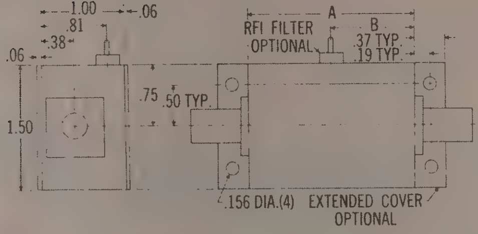
COVER TYPE
- 0 - Standard flush
- 1 - Extended


1.00
.81
.06
.38
.06
.25 TYP.
A
.37 TYP.
.19 TYP.
.75
1.44
2.00
RFI FILTER OPTIONAL
.156 DIA.(4)
EXTENDED COVER OPTIONAL

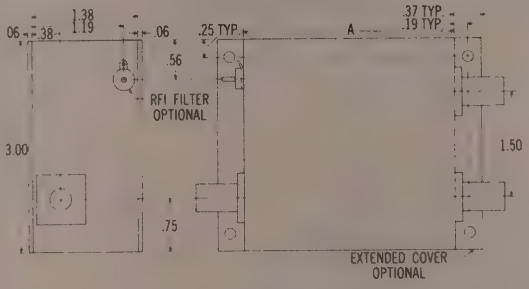
	A
6200-51170	3.00
6201-51170	3.00
6202-51170	3.00
6200-51180	4.00
6201-51180	4.00
6202-51180	4.00
6200-51190	5.00
6201-51190	5.00
6202-51190	5.00
6200-51200	6.00
6201-51200	6.00
6202-51200	6.00


1.00
.38
.06
.06
A
B
.37 TYP.
.19 TYP.
.75
.50 TYP.
1.50
.156 DIA.(4)
EXTENDED COVER OPTIONAL

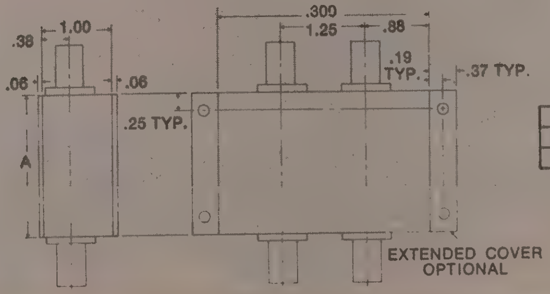
	A	B
6300-51100	1.50	.75
6300-51110	2.00	1.00


1.00
.81
.38
.06
.06
RFI FILTER OPTIONAL
A
B
.37 TYP.
.19 TYP.
.75
.50 TYP.
1.50
.156 DIA.(4)
EXTENDED COVER OPTIONAL

	A	B
6200-51100	1.50	.75
6201-51100	1.50	.75
6202-51100	1.50	.75
6200-51110	2.00	1.00
6201-51110	2.00	1.00
6202-51110	2.00	1.00


1.38
1.19
06
.38
.06
.25 TYP.
A
.37 TYP.
.19 TYP.
.56
RFI FILTER OPTIONAL
3.00
1.50
.75
EXTENDED COVER OPTIONAL

	A
6300-51210	3.00
6301-51210	3.00
6302-51210	3.00
6300-51220	5.00
6301-51220	5.00
6302-51220	5.00
6300-51230	6.00
6301-51230	6.00
6302-51230	6.00


.38
1.00
.06
.06
.300
1.25
.88
.19 TYP.
.37 TYP.
.25 TYP.
A
EXTENDED COVER OPTIONAL

	A
6400-51170	2.00
6400-51210	3.00

* All dimensions are in inches. For case size and spec (L x W) please refer to charts on pages 3 or 4.

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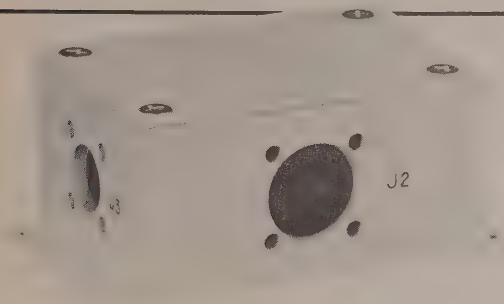
279 SKIDMORE ROAD
DEER PARK, NEW YORK 11729
TELEPHONE 516/667-3933
TWX 510-227-1064

COMPAC™

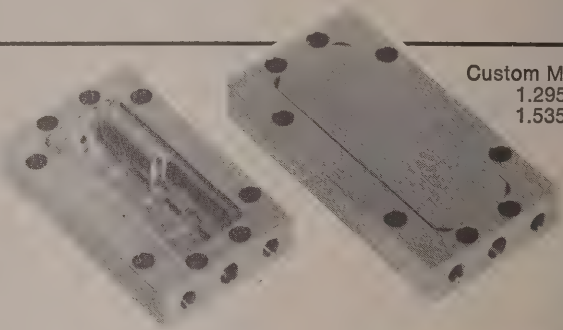
CUSTOM SERIES

Compac's unique product line can easily be tailored to meet your many custom specifications. But if our RFT or Blank Series do not fit your basic requirements, Compac can build a totally custom enclosure quickly and inexpensively. Compac's versatility converts your design into a finished product ready for assembly and installation. All you have to do is supply circuitry!

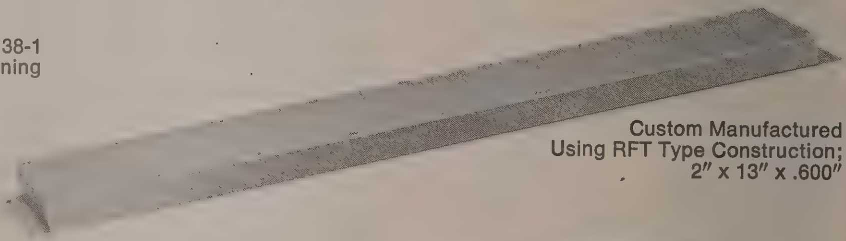
— Print or Detailed Drawings Required —



Manufactured from 51170-138-1
with Custom Drilling, Painting, and Silk Screening



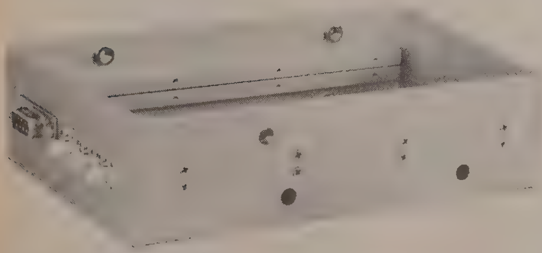
Custom Milled Enclosures,
1.295″ x .765″ x .225″
1.535″ x .765″ x .225″



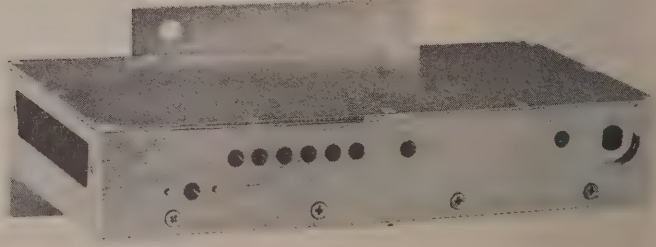
Custom Manufactured
Using RFT Type Construction;
2″ x 13″ x .600″

IF MONITOR
VAR OUT
IF IN
REF IN

Manufactured from R51210-075-1 with
Custom Drilling, Tapping, and
Silk Screening



Custom Manufactured
Using RFT Type Construction, 4.00″ x 7.00″ x 2.00″
Showing Mounting Bars, Custom Drilling for
Hardware and Connectors



Manufactured from R51230-100-0(N)
Showing Custom Mounting Plate
Drilling, Milling and "D" Punching

COMPAC
279 SKIDMORE ROAD
DEER PARK, NEW YORK 11729
TELEPHONE 516/667-3933
TWX 510-227-1064

Not Limited To
Examples Shown; COMPAC
Can Build To Your Specifications

COMPAC™

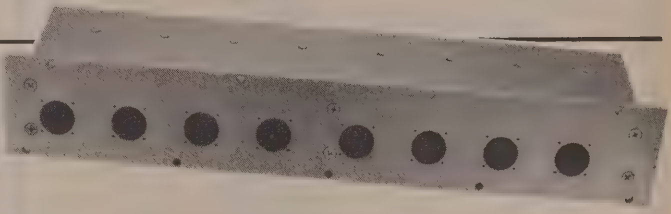
CUSTOM SERIES

SERVICES

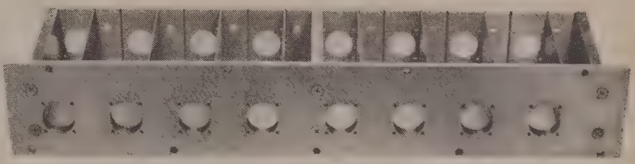
Milling — Enclosures, Channel, Grooves, as Required
Holes — Drilled or Punched
Material Thickness — To Your Specifications
Silk Screening or Painting
Construction Methods — Extrusion, Die Cast, Brazed, or Milled
Covers — To Your Specifications

ADVANTAGES OF A CUSTOM ENCLOSURE

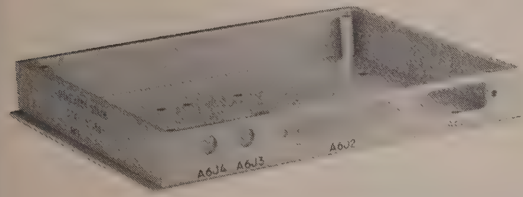
— Low Cost
— To your Exacting Specifications
— Short Lead Times
— Prototype to Production Quantity
— Finished Product Ready for Assembly
— With or Without Connectors & Filters



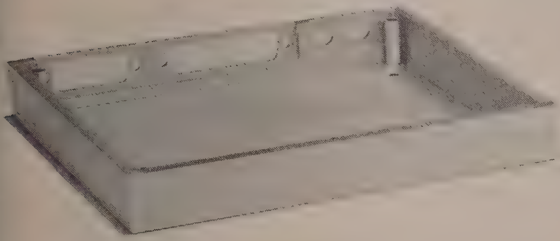
Custom Manufactured to
Customer Spec's 19.00" x 4.00" x 6.00"



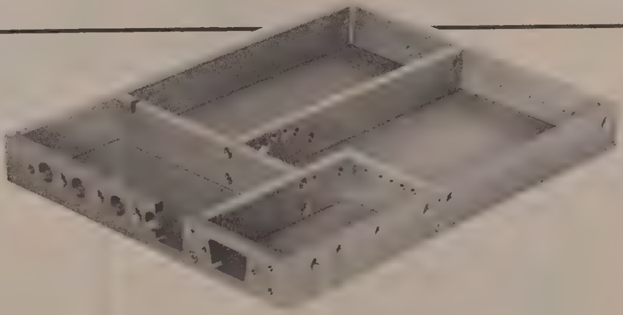
View of above Enclosure Showing Interior and Partitions



Custom Manufactured
Blank Series Construction, 5.00" x
6.00" x .75" Flat and Parallel to .001" with
Custom Milling, Drilling, "D" Punching and Silk Screening



View of Above Enclosure
Showing Interior Milling



Custom Manufactured using RFT Construction
6.00" x 8.00," x .75", Show Custom Drilling, Milling,
Counter Sinking, and Custom Partitions

Quantities from 1 pc thru production

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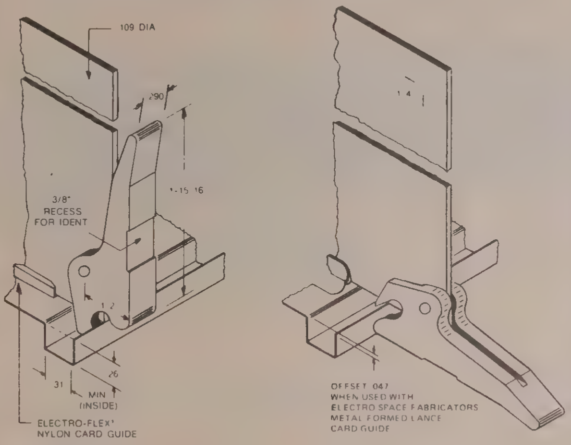
279 SKIDMORE ROAD
DEER PARK, NEW YORK 11729
TELEPHONE 516/667-3933
TWX 510-227-1064

ESF Electro-Space Fabricators, Inc.

ELECTRO-SPACE Packaging Accessories

Injector/Ejectors

Unique devices function in two directions . . . utilizing both surfaces of a single blade. Design eliminates the need for very close tolerances.

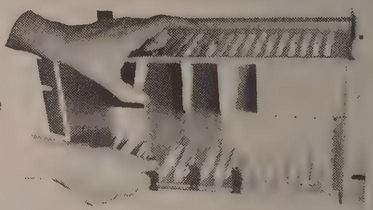

109 DIA
.290
1-15/16
3/8" RECESS FOR IDENT
1/2
.26
.31
MIN (INSIDE)
ELECTRO-FLEX' NYLON CARD GUIDE
1/4
OFFSET .047 WHEN USED WITH ELECTRO SPACE FABRICATORS METAL FORMED LANCE CARD GUIDE

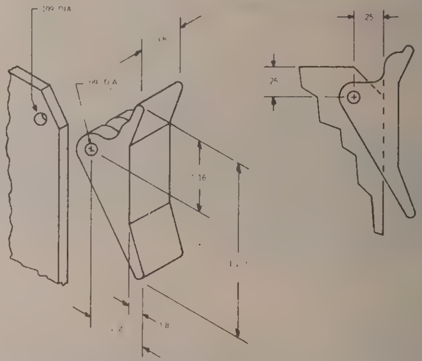
PART NO.	CARD	COLOR
NE-3001-W	1/16	White
NE-3001-B		Black
NE-3003-W	1/8	White
NE-3003-B		Black

Includes .093 dia. stainless steel roll pin.
Material: 20V Nylon
per MIL-M-20693A, Composition A, Type 1.
Temp Rating: − 40°C
to + 105°C UL APPROVED

Ejectors

Improved lever action and greater strength for quick, damage-free extraction.




.109 DIA
.109 DIA
16
18
25
25

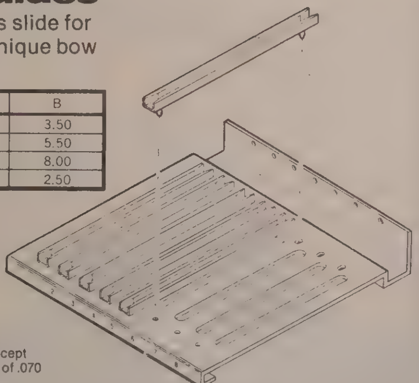
PART NO	CARD	SLOT	COLOR
EJ - 2001 - W	1/16	.072	White
EJ - 2001 - R			Red
EJ - 2002 - W	3/32	.100	White
EJ - 2002 - R			Red
EJ - 2003 - W	1/8	.135	White
EJ - 2003 - R			Red

Includes .093 dia. stainless steel roll pin.
Material: 20V Nylon
per MIL-M-20693A, Composition A, Type 1.
Temp Rating: − 40°C
to + 105°C UL APPROVED

Nylon Guides

Smooth, effortless slide for board insertion; unique bow feature.

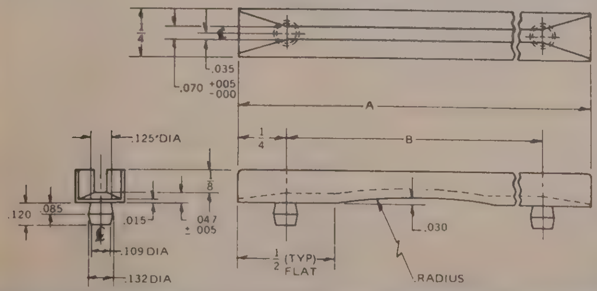
A-42870-	A	B
−1	4.00	3.50
−2	6.00	5.50
−3	8.50	8.00
−4	3.00	2.50



NOTE:
1. 1/64 Radius — All edges except bottom of guide and inside of .070 slot.
2. 20V Nylon MIL-M-20693A, composition A, Type I. Temp. Rating: − 40°C to + 105°C. UL Approved.
3. Color — White

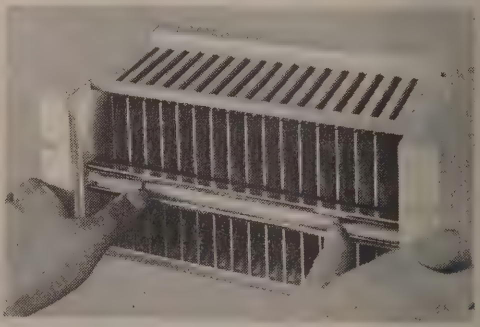
MOUNTING HOLES:
.125 dia. hole (front)
.120 x .218 slot (rear);
material range .048 to .080

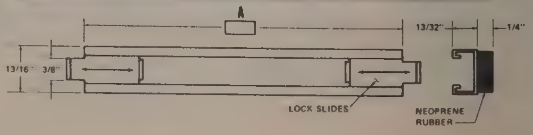
INSTALLATION:
Sharp impact, snap-in.
No special tools or hardware required.


1/4
.035
.070 +005 -000
A
.125 DIA
1/4
B
1/8
.120
.085
.015
.047 ± .005
.030
.109 DIA
.132 DIA
1/2 (TYP) FLAT
RADIUS

Retaining Bars

Quick, low cost solution for PC board retention and shipping problems.




A
13/32"
1/4"
13/16"
3/8"
LOCK SLIDES
NEOPRENE RUBBER

HOW TO SPECIFY AND ORDER

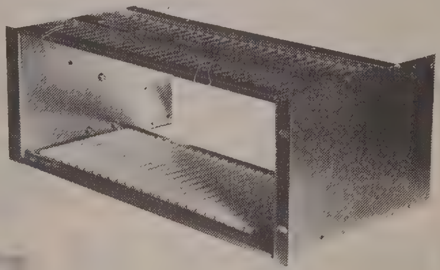
1. Deduct 1/8" from the inside dimension of your PC card enclosure. This is the "A" dimension shown above.
2. Develop part number by expressing the "A" dimension in three-place decimal form and writing it after the prefix RB-__________. (Example: A = 16-7/8". Part number is RB-16875.)
3. Use this part number in ordering. Specify clear or yellow zinc plate.

Electro-Space Fabricators, Inc. ESF

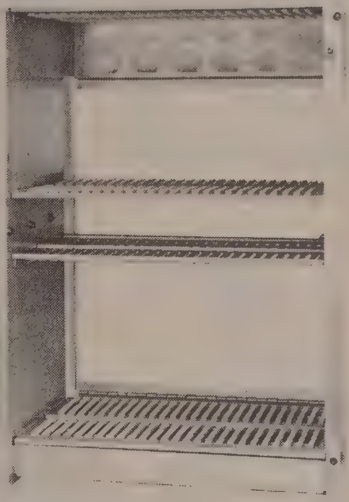
FREE Value Analysis of Your Enclosure

Improved card rack design begins with in-depth value analysis. And that's a free service of the ELECTRO-SPACE design group...aimed at delivering greater strength and better tolerances at lower unit cost. Our packaging techniques place no limitations on size, card spacing, special holes and hardware, connector or back plane mounting.

If your rack requirements are 50 or 100, 500 or 5000, why not draw upon our expertise? Our present customers have done so and enjoyed significant savings, both in unit cost and on their production lines. Send us your sketches, prints or sample rack at no obligation. Or, call and ask for one of our qualified design engineers.

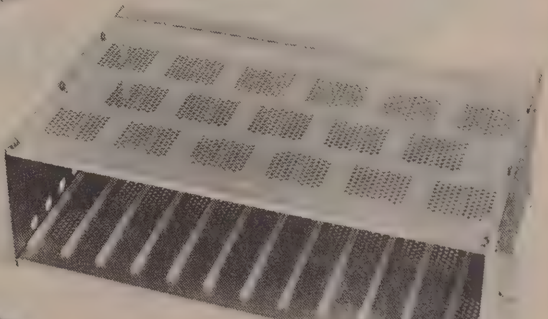


Stiffening hat section for greater strength.



Double bay enclosure with fan mounting tray.

ESF 80 standard rack design with low cost flexibility.



Perforated guide plate with RF shielding.

Desk top unit with cover.

ESF
Electro-Space Fabricators, Inc.
Engineers' Design Manual

The Engineers' Design Manual is a compilation of the latest technology and most commonly asked questions concerning card enclosure design. Send for your free copy today.

ESF
Electro-Space
Fabricators, Inc.
300 W. High St.•P.O. Box 67•Topton, PA 19562-0067
(215) 682-7181

Six Emcor Lines...

Units pictured are from our ESQ Series.

One high standard of quality.

Choose from these product lines:

Emcor I
Emcor's original concept and broadest product line is available in vertical, slope front, low silhouette, desk height and turret configurations.

Emcor II
This top-of-the-line series features seamless construction and handsome, contemporary styling.

Emcor ESQ
Designed to combine the economy of Emcor I with the styling of Emcor II. This is currently Emcor's most popular product line.

10 Series
Emcor's newest and most rigid product line — available in vertical, desk height and slope front configurations with a full complement of accessories.

EMI/RFI Enclosures
This new line of shielded enclosures is designed to help you keep EMI/RFI emissions to the levels required by FCC Docket 20780.

CompuDesk
Emcor's computer support furniture is available in two heights, two depths, four widths and in three different top styles. More than 500 models available.

And when you need it fast, there's Instant Emcor
775 items — available for shipment in just five working days, with option of color on selected items in ten working days.

Crenlo, Inc.
Emcor Products

EMCOR

For catalog or more information, please contact:

Emcor Products
1600 Fourth Avenue N.W. • Rochester, Minnesota 55901 • (507) 289-3371

Electronic Enclosures:

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Electronic Desks
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You'll find there are Equipto enclosures to fit every size need . . . every budget! Phone or write us.

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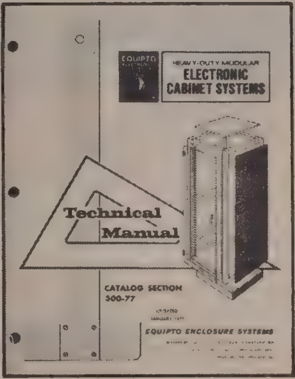
#170 Heavy Duty Enclosures

CHALLENGER
MODULAR ELECTRONIC CABINETS

#800 Challenger System Modular Enclosures, Fans & Blowers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EQUIPTO ENCLOSURE SYSTEMS

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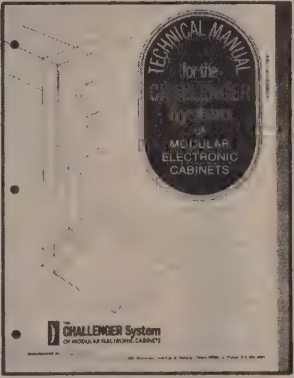
MODULAR ELECTRONIC CABINETS
144 STANDARD SIZES
NEW
SOLID SYSTEM FOR
SOLID SAVINGS

#700 Economical Solid Systems


TECHNICAL MANUAL
for the
CHALLENGER
MODULAR
ELECTRONIC
CABINETS
CHALLENGER System

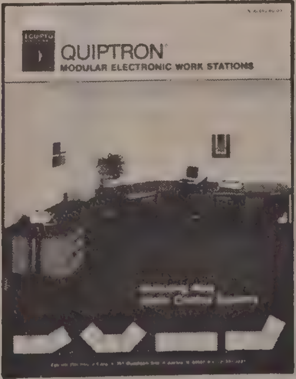
#830 Challenger Technical Manual

EQUIPTO
MODULAR
ELECTRONIC
DESK SYSTEMS

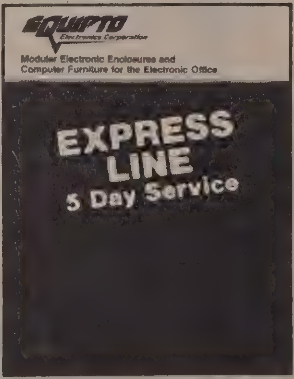
#ED Modular Electronic Desk Systems

INSTRUMENT CABINETS
900-80

#900 Instrument Cabinets


QUIPTRON
MODULAR ELECTRONIC WORK STATIONS

#Q Quiptron Modular Work Stations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Electronics Corporation
Modular Electronic Enclosures and Computer Furniture for the Electronic Office
EXPRESS LINE
5 Day Service

#EL Express Line

EQUIPTO
Technical Guide

EMI-RFI Technical Guide

CHASSIS TRAK
Electronic
Slide Mechanisms

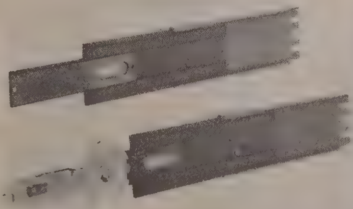
Enclosure slides for even the most unusual applications!

Chassis-Trak solid bearing slides are exceptionally compact, low cost, side mounted, slides for commercial and military application. Permanently lubricated with Poxylube® molybdenum disulfide dry film lubricant to provide smooth sliding action. Chassis-Trak solid bearing slides offer a high degree of immunity to shock and vibration and all slides offer lock-out and quick-disconnect as standard features.

Series	Load Capacity lbs./pr.	Lengths
C300	85	10″ to 24″
C230	125	12″ to 24″
D-600	125	10″ to 24″
CT	175	10″ to 24″
CTR	175	10″ to 24″
CTH	275	14″ to 24″
CTHR	275	14″ to 24″

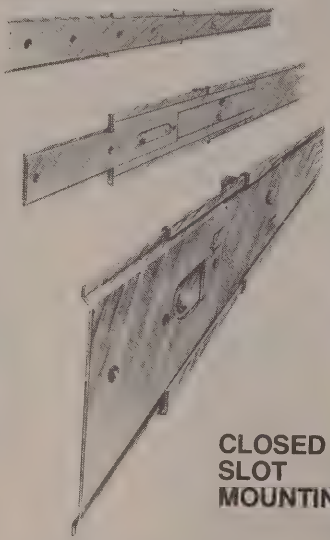
All solid bearing slides available in 2 inch increments affording complete installation versatility.

Pencil-thin design permits installation of standard 17″ chassis in standard 19″ panel racks. All solid bearing slides are cold-rolled steel except Model D-600 which is lightweight, hard coated aluminum. Write for Catalog CT104.



Chassis-Trak slides have been the choice of leading commercial, industrial, and military specifiers for over 25 years.

"Recognized under the Component Program of Underwriters Laboratories Inc."



CLOSED SLOT MOUNTING

MODEL C3000S

These non-pivoting solid bearing slides are recommended for commerical applications and are approved for military use. Load capacity is 85 lbs. Lengths from 10″-24″. Permanently lubricated.

MODEL C230S

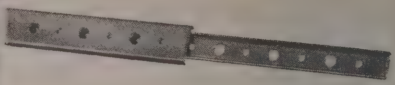
Fits any standard rack or enclosure. Side mounted for commercial and military applications. Well suited to mobile installations. Load capacity is 125 lbs. Lengths from 12″-24″.

MODEL CTS

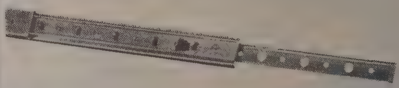
Pencil thin design for installation of standard 17″ chassis in standard 19″ panel racks. Load capacity is 175 lbs. Lengths from 10″-24″. Permanently lubricated.

LINEAR BALL BEARING SLIDES

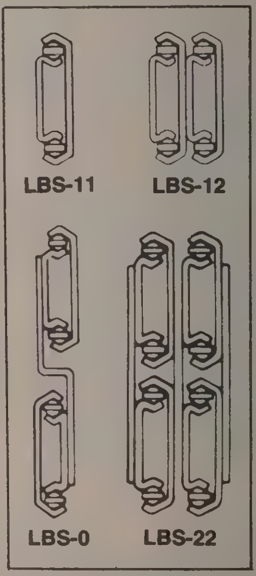
Designed for especially smooth travel and extra long life under maximum loads, these slides are made of cold-rolled steel raceways and operate on precision carbon steel ball bearings. Available in several models and lengths, with optional cabinet mount and/or lock out. Applicable to low cost commercial and tough military applications. Easy mounting system is calibrated for installation at 2 inch intervals. Write for Catalog CT 185.



LBS-11—Two Section Model



LBS-12—Three Section Model

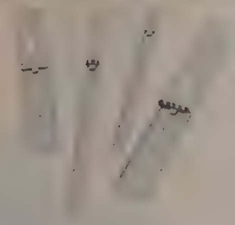


Series	Load Capacity lbs./pr.	Lengths
LBS-11	100	10″ to 40″
LBS-12	250	10″ to 40″
LBS-0	150	10″ to 30″
LBS-22	400	10″ to 30″

CHASSIS TRAK Rugged, Dependable, Economical Slides

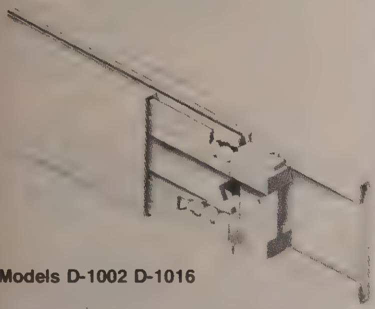
CHASSIS TRAK

Electronic Slide Mechanisms



TWO-SECTION SLIDES

These slides are thinner than normal slides. Sturdy construction allows these two-section slides to be only .340 of an inch thick to provide additional chassis space. They are supplied as *direct mount* solid bearing slides but can be obtained with a return flange for standard mounting. Also designed to be easily disconnected. Mounting hardware is included.



Models D-1002 D-1016

CIRCULATING BALL BEARING SLIDES

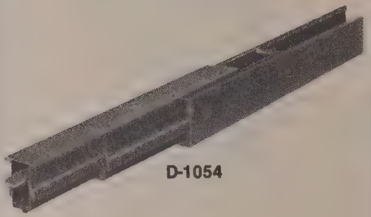
Chassis-Trak circulating ball bearing slides are designed to support weights up to 500 lbs. per pair over considerable lengths. Slides are side mounted with a bottom mount option. Military applications (Models D-1002 and D-1016) are constructed from cold-rolled steel cadmium plated and dipped in irridite. They are furnished with Poxylube finish and carbon steel balls. Loads are distributed evenly over entire length of slide due to unique design of continuous ball movement. Two-way operation available upon request.

Series	Special Feature
D-1002	Mil version
D-1016	Lock-out

Load Capacity up to 500 lbs.
Lengths: 20'' - 60'' in 4 '' incr.

BOTTOM MOUNT SLIDES

Five different models offer load-carrying capacities from 150 lbs./pr. to 1,000 lbs./pr. These slides are made from cold-rolled steel, cadmium plated and irridite dipped, and are available with solid-bearing surfaces or roller bearing, depending on the model. Slides feature smooth operation, dependability and long life for heavy-duty applications. Close tolerance rollers minimize pulling force required for extension and provide vertical alignment, while ball bearings carry any horizontal thrust. Write for Catalog CT-107D.



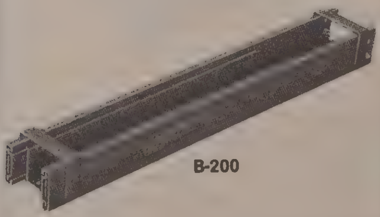
D-1054

Series	Load Cap. lbs./pr.	Lengths
B-200 (solid)	50	10" to 24"
C-938 (roller)	400	12" to 48"
D-1065 (roller)	600	12" to 24"
D-1050 (roller)	1000	22" to 48"
D-1054 (roller) (same as D-1050 except includes lock-in and lock out.)	1000	22" to 48"

(other lengths available upon request)

TOP/BOTTOM MOUNT SLIDES

Telescoping, formed sections, bearing on a film of Poxylube®, a molybdenum disulfide dry film lubricant, makes this low-cost slide desirable for many light-weight applications.



B-200

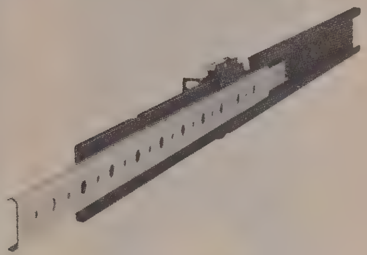
For information on bottom mount slides, write for catalog CT-107.

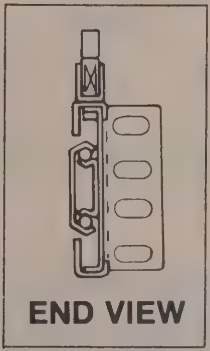
HYBRID SLIDE

This new design is a combination Linear Ball Bearing and Solid Bearing Slide, which combines ease of movement with economy and dependability.

This slide is ½'' thick and at full extension can carry up to 150 lbs. per pair.

Features include 18 in. through 30 in. lengths, disconnect, lock-out and two way travel.





Series	Load Cap. lbs./pr.	Lengths
D-125	150	18'' to 30''

CHASSIS TRAK
P.O. BOX 39100
INDIANAPOLIS, INDIANA 46239
(317) 897-7000
TELEX: 27-2169 (GENDEVI CO IND)
DIVISION OF GENERAL DEVICES COMPANY, INC.

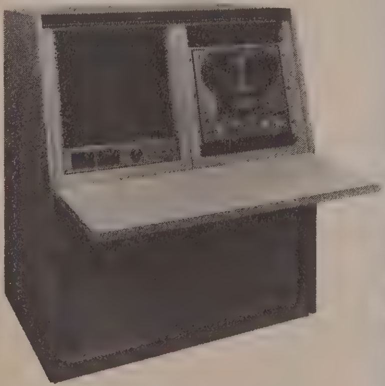
CHASSIS TRAK Rugged, Dependable, Economical Slides

VENT RAK
Electronic
Cabinetry

6200 Series

HEAVY, MEDIUM & LIGHT DUTY CABINETS

For Commercial and Military applications; 12 gauge frame, 16 gauge rear door and 18 gauge side panels.



9500 SERIES SLOPE MODULE

Ideal for control panels, display panels, or equipment which requires the combination of a sloped front and solid single unit construction. Constructed with welded frame, lift-off rear door and side panels. Painted and trimmed in black aluminum.
Write for Catalog VR-186-C.

Cable Carrier

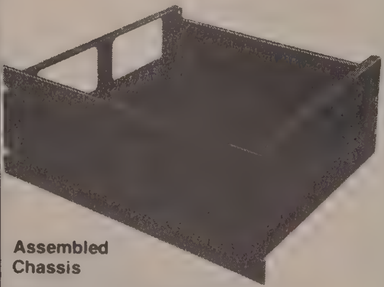
ACCESSORIES

Cable Retractors and Cable Carriers permit power cables to move easily when chassis is extended and fold and retract when chassis is returned. Model D-329 and C-990 have a spring loaded, telescoping action. Can be used with a pivoting chassis. Write for Catalog VR-133-E.

C-4555

CABLE CARRIERS

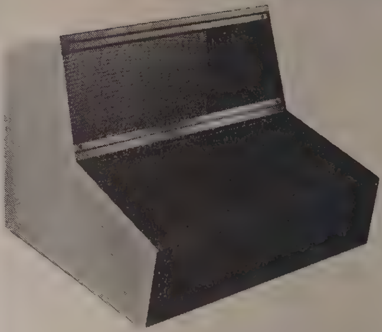
The C-4555 is designed for organizing and easy servicing of ribbon cables and round cables. Plated hinges with rivets increase durability.
Write for Catalog VR-133E.



Assembled
Chassis

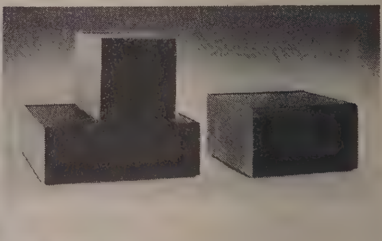
MODULAR CHASSIS

Shipped unassembled, these modular chassis are easy to put together. Consists of a front panel, pair of chassis sides, rear support panel and a chassis plate. Vent-Rak chassis are 17″ wide, for a 19″ front panel opening width. Seven heights from 3½″ to 14″ and four chassis depths from 8½″ to 21¼″ offer a wide selection. Loading capacity of 100 lbs. per sq. ft.
Write for Catalog VR-117-C.



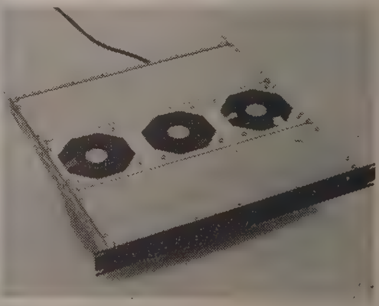
4300 SERIES
DESK TOP CONSOLES

The 4300 Series. Available in three end panel configurations . . . LARGE and MEDIUM configurations can be furnished in standard panel opening widths. SMALL is available in standard and 9½″ (½″ size) panel opening widths. Constructed of aluminum end panels and steel struts with black finish.
Write for Catalog VR-143-C.



4700 SERIES
INSTRUMENT HOUSINGS

Constructed of aluminum end panels and steel struts with black finish, these units are ideal for test equipment. Available in 3 configurations.
Write for Catalog VR-143-C.



COOLING FAN UNIT

Arrangeable cooling fans can be placed in a pattern that will best cool your instruments, circuit boards, power supplies, etc.
Write for Catalog VR-133-E.

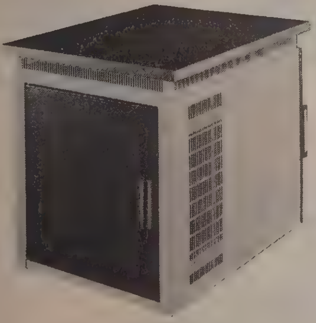
VENT RAK P. O. Box 39100 • Indianapolis, Indiana 46239 • (317) 897-7000 • Telex: 27-2169 (GENDEVI CO IND)

VENT RAK Electronic Cabinetry

ELECTRONIC CABINETS
both beautiful and functional.

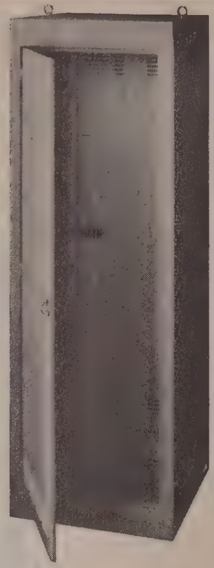
7000 SERIES CABINET

Constructed of a sturdy 12 gauge CRS frame and 16 gauge CRS side panels and door. The 7000 Series is a widely used cabinet for many military and heavy duty applications. Write for catalog VR-103E.



9200 SERIES WORK STATIONS

Available in depths of 24″ - 30″. Frame is 16 gauge CRS with 16 gauge CRS side panels. Rear door is equipped with magnetic latch and standard Vent-Rak pull. Plexiglass front door is optional. Write for catalog VR-186-C.



7700 SERIES SEISMIC CABINET

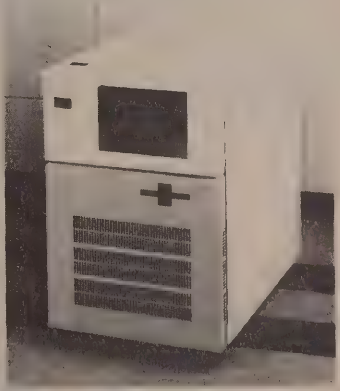
Enclosure successfully passes rigorous, highly scientific, seismic vibration tests. Frame and panel components, including welds, came through the test without cracks or separations. The cabinet has 16 gauge CRS panels and rear door and a 10 gauge CRS frame. Hinged and removable rear door with multiple latches. Various sizes (contact factory). Write for bulletin VR-187-A.

9200 SERIES ELECTRONIC DESKS

The 9200 Series single pod electronic desk is available in any standard color and is topped with beautiful wood grain Formica. Welded frame and an "I" beam tubular steel pedestal leg. Left or right hand configurations, modesty panel and rear door. Dual pod desk also available. Write for catalog VR-186-C.

9500 SERIES CABINENT

Constructed with 14 gauge CRS welded frame, the cabinet has 18 gauge CRS side panels and rear door. Hinged and removable, with magnetic latching. Handsomely trimmed in silver aluminum. Write for catalog VR-186-C.



EMI/RFI CABINETS

Specifically designed cabinets to shield electro magnetic interference. Twenty years of experience in designing EMI/RFI cabinets enables us to offer the following fine features. Latching mechanism for positive electrical contact. Plated ground contact. Door gaskets to filter interference waves. Vent patterns or screens instead of blank openings. All cabinets are constructed of a 14 gauge CRS frame and 18 gauge CRS side panels and doors. Write for catalog VR-EMI.

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DIVISION OF GENERAL DEVICES COMPANY, INC.

The Hammond Alternative For Rack Packaging

RSFS System Rack

This system is designed for single or multiple cabinet assemblies. Interlocking ribs provide a mere 1.0" space loss on side ganged cabinets. Conformation to EIA spacing on overall cabinet height allows for front to back ganging.

Rack Panel Height E	U	Order Part No.	Overall Height C[2]
21.0	12	RSFS 19 021 . . . . BK3	28.0
28.0	16	RSFS 19 028 . . . . BK3	35.0
35.0	20	RSFS 19 035 . . . . BK3	42.0
42.0	24	RSFS 19 042 . . . . BK3	49.0
49.0	28	RSFS 19 049 . . . . BK3	56.0
56.0	32	RSFS 19 056 . . . . BK3	63.0
63.0	36	RSFS 19 063 . . . . BK3	70.0
70.0	40	RSFS 19 070 . . . . BK3	77.0
77.0	44	RSFS 19 077 . . . . BK3	84.0
84.0	48	RSFS 19 084 . . . . BK3	91.0

[1] Specify overall depth in blanks.
17 = 17.5" deep, 24 = 24.5" deep or 31 = 31.5" deep.
[2] Levelling feet add at least 1" to height.

1469 Rack Frames

The 1469 rack is a modular 19" enclosure made for situations where heavier equipment is to be mounted in an attractive package. This rack is extremely sturdy when used as a single unit and even more sturdy when ganged.

Cat. No.	Panel Space In.	U	Overall Height
1469 A1	49.0	28	52.5
1469 A2	49.0	28	52.5
1469 A3	49.0	28	52.5
1469 A4	49.0	28	52.5
1469 A5	49.0	28	52.5
1469 B1	61.25	35	64.7
1469 B2	61.25	35	64.7
1469 B3	61.25	35	64.7
1469 B4	61.25	35	64.7
1469 B5	61.25	35	64.7
1469 C1	70.0	40	73.5
1469 C2	70.0	40	73.5
1469 C3	70.0	40	73.5
1469 C4	70.0	40	73.5
1469 C5	70.0	40	73.5
1469 E1	80.50	46	84.0
1469 E2	80.50	46	84.0
1469 E3	80.50	46	84.0
1469 E4	80.50	46	84.0
1469 E5	80.50	46	84.0
1469 F2	85.75	49	90.0
1469 F3	85.75	49	90.0
1469 F4	85.75	49	90.0
1469 F5	85.75	49	90.0

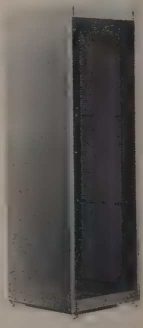
Finish . . . . Specify BK1 or GY2

Economy Rack

The economy racks are designed to be used as single, freestanding units and are not used with system ganging kits.

Rack Panel Height E	U	Order Part No. [1]	Overall Height C[3]
35.0	20	REFK 19 035	40.0
42.0	24	REFK 19 042	47.0
49.0	28	REFK 19 049	54.0
56.0	32	REFK 19 056	61.0
63.0	36	REFK 19 063	68.0
70.0	40	REFK 19 070	75.0
77.0	44	REFK 19 077	82.0
84.0	48	REFK 19 084	89.0

[1] Specify depth required 17 = 17.5" deep or 24 = 24.5" deep.
[3] Levelling feet add at least 1" to overall height



1564 Consoles

1564 Series racks provide an attactive, durable enclosure for control centre installations, or for protection of electronic, hydraulic, pneumatic, or electric equipment.

20° slope provides optimum viewing angle for control or instrument panel. Integral CRT mounting angles and optional desk panel provide versatility for many applications.

Cat. No.	Height	Width	Depth
1564 A2BK1	49.0	22.56	24.5
1564 B2BK1	49.0	22.56	31.5
1564 A4BK1	49.0	22.56	24.5
1564 B4BK1	49.0	22.56	31.5

And More . . . .

A full range of accessories from side panels, tops, writing surfaces and doors to panels, blowers, drawers and much, much more are available through Hammond Manufacturings' 9R-3 Electronic Rack Packaging Catalog. Order Today From and Authorized Hammond Dealer.

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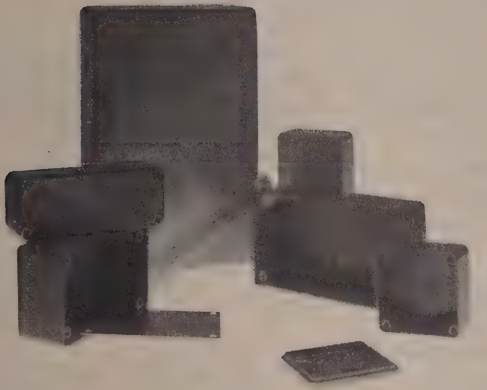
The Hammond Alternative For Small Cases



1590 Series Diecast Boxes

Cat. No.	H	W	D
1590A	3.62	1.50	1.07
1590B	4.37	2.37	1.07
1590BB	4.68	3.68	1.18
1590C	4.68	3.68	2.06
1590	7.39	4.70	2.06
1590E	7.39	4.70	3.06
1590F	7.39	7.37	2.50
1590LB	1.98	1.98	1.07

1590 Series boxes also available in pre-painted colors. See cat. 9C-4

1591 Series ABS Plastic Boxes

Cat. No.[1]	H	W	D
1591L.....	3.34	2.20	1.38
1591A.....	3.93	1.97	.82
1591B.....	4.41	2.44	1.06
1591C.....	4.72	2.55	1.41
1591D.....	5.90	3.14	1.80
1591E.....	7.47	4.33	2.24

[1] Specify color OR (orange) BK (Black) BU (Blue) GY (Grey) or BG (Beige).
ABS boxes also available with unpainted metal lid or clear plastic lid. See Cat. 9C-4.

Rack Mount Cases

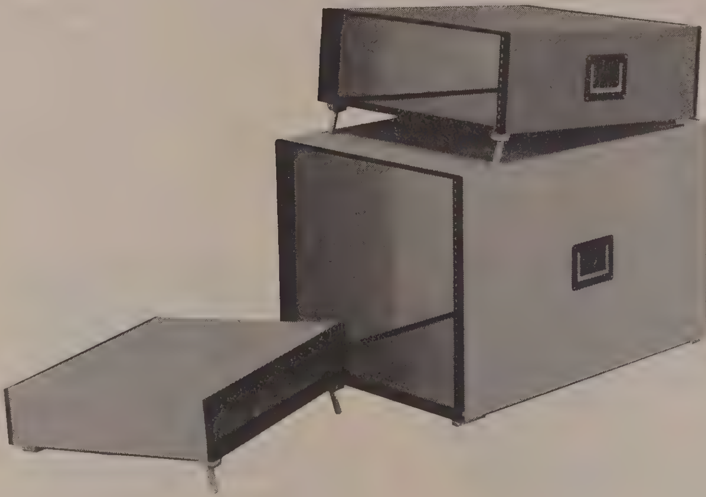
Part No.	Panel in.	Height in.	Depth in.
ACRM 1900313	3.5	3.468	13.0
ACRM 1900317	3.5	3.468	17.0
ACRM 1900323	3.5	3.468	23.0
ACRM 1900713	7.0	6.968	13.0
ACRM 1900717	7.0	6.968	17.0
ACRM 1900723	7.0	6.968	23.0
ACRM 1901013	10.5	10.468	13.0
ACRM 1901017	10.5	10.468	17.0
ACRM 1901023	10.5	10.468	23.0

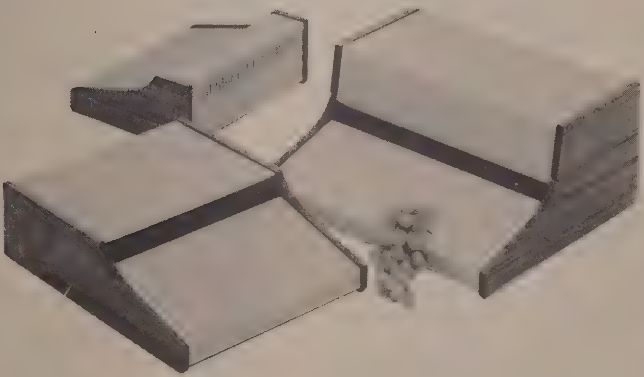
Specify color GF1 or SD1 see color chart.
Depth including handle add 1.594″

Desktop Cases

Part No.	Panel in.	Height in.	Depth in.
ACDT 1900317*	3.5	4.125	17.5
ACDT 1900717	7.0	7.625	17.5
ACDT 1900724	7.0	7.625	24.5
ACDT 1901024	10.5	11.125	24.5
ACDT 1901031	10.5	11.125	31.5
ACDT 1901424	14.0	14.625	24.5
ACDT 1901431	14.0	14.625	31.5
ACDT 1901724	17.5	18.125	24.5
ACDT 1901731	17.5	18.125	31.5

*Specify color GF1 or SD1.





Cat. No.	Panel Width Inches	mm
SCED 251126	10	254
SCED 351126	14	356
SCED 431126	17	432
SCED 351143	14	356
SCED 431143	17	432
SCED 501143	20	508
SCEH 352043	14	356
SCEH 432043	17	432
SCEH 502043	20	508

And Many More . . . . . .

A wide range of cases are available including:
Styrene plastic cases, meter cases, instrument cases, keyboard consoles and 19″ rack cases. Send for Hammond 9C-4 catalog today.

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Module, Case and Cabinet System

(DIN Standard)

INTERLOK
ONE OF THE **PURDY** GROUP OF COMPANIES

770 AIRPORT BOULEVARD, BURLINGAME, CALIFORNIA 94010 • TEL (415) 348-5625 • TWX 910-374-2353

General Information

INTERLOK enclosures are designed for ease of assembly, versatility, and durability. Their modular design offers virtually unlimited electronic packaging flexibility. Standard Europa cards (100 x 160 mm, 3.94 x 6.40 in.) and card sizes derived therefrom are easily accommodated. With internal subdivisions, any card size can be used. In addition, all edge connectors currently in use can be fitted using supplementary assembly sections.

Materials

Aluminum extrusions form the framework of all INTERLOK cabinets. Front and rear panels are 3 mm clear anodized aluminum sheets. Cover panels are either 1.5 mm colored, vinyl coated aluminum sheet (models 10, 14, 32, 36) or 3 mm colored, vinyl coated alucobond (two sheets of aluminum separated by a polyethylene core).

Accessories and Colors

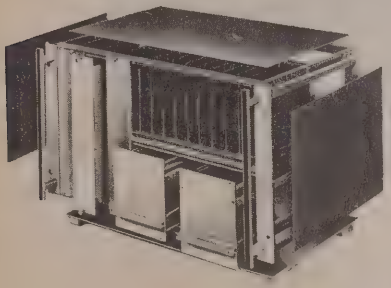
Front and rear panels are accessories on all models except 36, for which rear panels are included. Hinged and folding front panels may also be obtained in a variety of sizes for some models. Extruded front panels in various heights and widths can be used for plug-in modules. A number of different aluminum handles including fluted, shell, and U-handles are also available.

Cover panels are included on models 32 and 36. Standard colors are brilliant blue (models 10, 14, 36), neutral umbra-brown (model 32), and light blue (model 34). Turkish green, graphite black, and orange cover panels are available on some models for an additional charge. Perforated top and bottom panels may also be obtained.

Dimensional Units

The overall height of modules, card frames and plug-in cases and the acceptance height of cabinets is based on height units (E) per DIN Standard 41 494. One E equals 1¾" or 44.45 mm. The 19-inch insert width (483 mm) of the 19" floor cabinets corresponds to the overall width of 19" modules, 19" card frames, 19" cases and the 19" cabinet front panels.

The 5.08 mm (2/10") pitch unit T is used for the acceptance width.



19-Inch Card Frame, Model 14

Applications: to accommodate circuit cards conforming to:

DIN/IEC
100 x 160/220/280 mm
111.8 x 160/220/280 mm
233.4 x 160/220/280 mm
245.1 x 160/220/280 mm

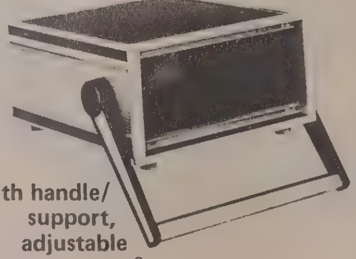
For insertion in 19-inch cabinets or with cover plates as table model.

Heights: 3.50", 5.25", 7.00", 8.75", 10.50", 15.75".

Widths installed: 8.4", 12.6", 16.2", 16.8".

Depths installed: 9.17", 11.53", 16.25".

For complete information please ask for Engineering Bulletin No. 2.



With handle/ support, adjustable in steps of 30°

DIN Instrument Case, Model 36

Features: front panel recessed by 10.5 mm (.41").

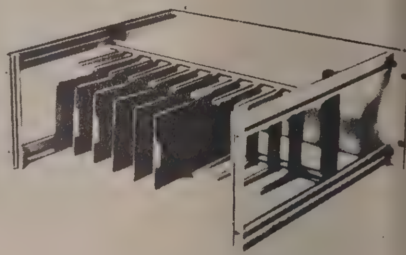
Application: for control and regulating instruments, switches, etc. Panel mounting and tabletop case, available with angled feet; case dimensions and recess in accordance with standard governing built-in switchboard appliances (DIN standard 43 700).

Useable depths: 5.71", 8.07", 10.43", 12.89".

Heights: 2.84", 3.78", 5.59".

Widths: 5.67", 7.56", 11.34", 17.01".

For complete information please ask for Engineering Bulletin No. 4.



19-Inch Modules, Model 10

The 19-inch module is basically four depth sections screwed perpendicularly to the front panel. A wide assortment of accessories are available to suit numerous applications.

Application Examples:
A rear panel may be used as a mounting plate; it can be installed upright or horizontally.

19" modules can be fitted with card-guides.

Terminal rails may be fitted.

Heights: 1.75", 3.50", 5.25", 7.00", 8.75", 10.50", 12.25".

Width installed: 16.06".

Depths: 10.24", 14.17", 18.11".

For complete information please ask for Engineering Bulletin No. 1.

Module, Case and Cabinet System (DIN Standard)

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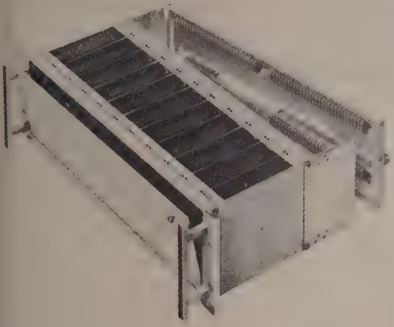


Economy Card Frame, Model 11

Application: The Model 11 is designed to accommodate Europa cards 100 x 160 mm or 233.4 x 160 mm as well as printed circuit cards 4.5" x 6.3".

Heights: 5.25", 10.50", 15.75".

Widths Installed: 8.4", 16.8".

Depths Installed: 8.50", 10.87", 13.23".

For complete information please ask for Engineering Bulletin No. 2.

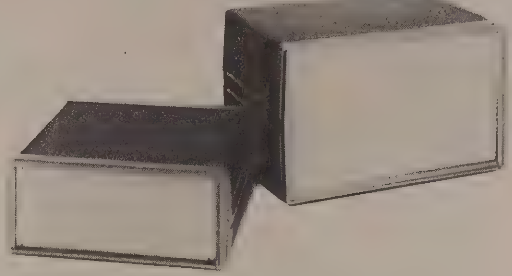


Table Top Case, Model 32
New, Easy Assembly and Maintenance

Two sectional supports running full depth carry all inserts. These special supports permit versatile mounting with only simple assembly gear. The actual enclosure, which consists of front and rear frames and a top and base plate, has no supporting function. These parts are mounted on the mentioned supports using only four screws after the components have been inserted, wired-up and functional tests carried out. Therefore, no damage can be done to the cover plates during assembly.

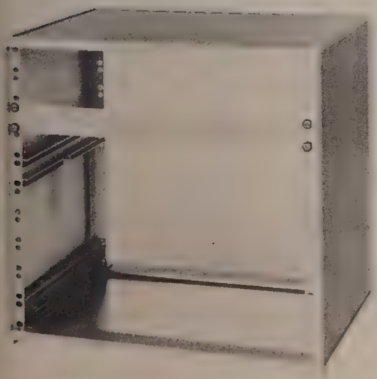
The cover plates are of scratch-resistant Sinaplast and are available in neutral umbra-brown. Unfinished aluminum plates for customer painting can also be furnished.

Heights: 5.25", 10.50".

Widths: 8.4", 12.6", 16.8".

Depths: 10.24", 13.39", 16.54", 19.69".

For complete information please ask for Engineering Bulletin No. 2.



19-Inch Enclosure, Model 150

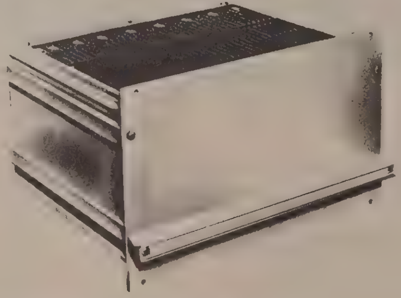
Application: storage of 19-inch modules, card frames and cases.

Heights: 5.25", 7.00", 8.75", 10.50", 17.50".

Width installed: 17.72".

Depths: 9.25", 13.98", 18.70".

For complete information please ask for Engineering Bulletin No. 6.



Cassettes and Insertions, Model 23

Equipment: with cover plates, bottom- and cover plate perforated.

Application: to house printed circuit cards and components.

Heights: 5.25", 10.50".

Widths: 2.8", 4.2", 5.6", 8.4".

For card depths: 6.30", 8.66".

For complete information please ask for Engineering Bulletin No. 2.

Tabletop Console, Model 34

Application: sloping front for housing test instruments and control equipment in laboratory and workshop use.

Heights: 4.78", 7.52", 8.53", 8.95", 9.38", 10.45", 10.67", 11.09".

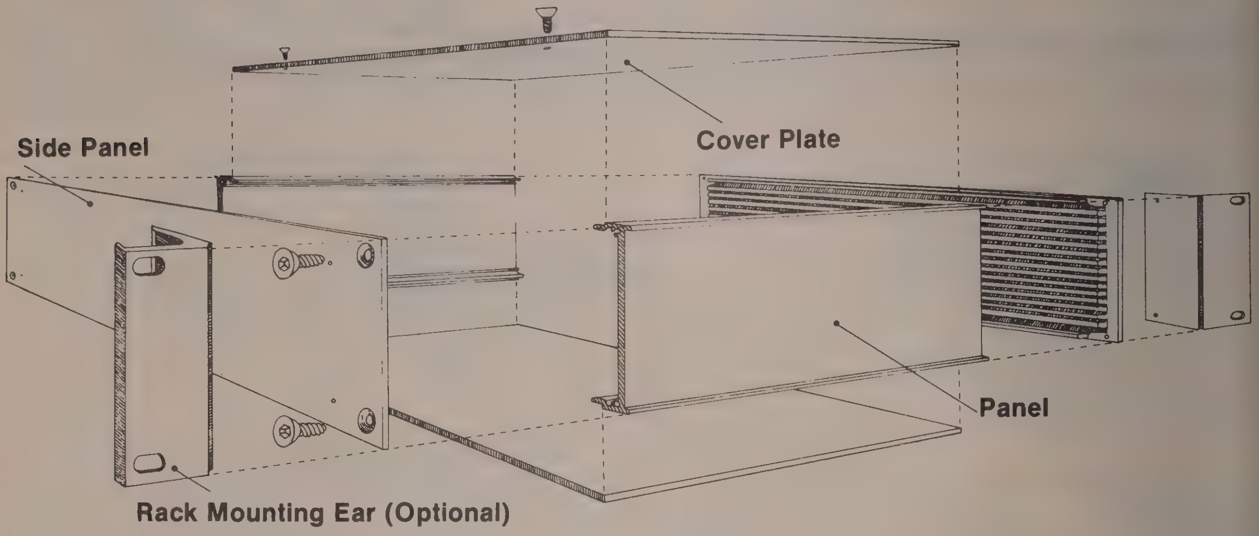
Width: 16.2".

Depths: 12.49", 13.09", 13.64", 14.01", 14.69", 15.09", 15.53", 15.79".

Eight different styles are available.

For complete information please ask for Engineering Bulletin No. 3.

LANSING Series 89 Electronic Enclosure Systems



High Quality Cost Effective Design

Lansing Series 89 Electronic Enclosures combine engineered aluminum extrusion systems and sheet metal parts.

Modular Design
Enclosures are designed to be exact submultiples of standard rack width and height.

They can be used equally well as stand-alone or rack-mount instruments.

They group together easily both vertically and horizontally (with coupler option).

Simple in Concept
Each complete enclosure contains as few as 6 parts (2 each of side, cover, panel) plus hardware.

Parts are modular.

Easy to use, both in prototype and production quantities.

Mechanical Design
The frame is structurally rigid.

Panel area is maximized, recessed and surrounded by an attractive thin bezel.

Printed circuit boards can be mounted easily in a variety of ways.

Rack mounting ears and other options are easily attached.

All parts have close mechanical tolerances.

Manufacturing Advantages
Assembly is quick and efficient.

Inventory is low: minimal number of parts and shelf space required (parts store knocked down, not in bulky subassemblies).

Adapts easily from prototype to specific production requirements.

▶ **Introductory prototyping kits available.**

Easy Access for Servicing
Top and bottom covers remove quickly.

Front and rear panels can be removed.

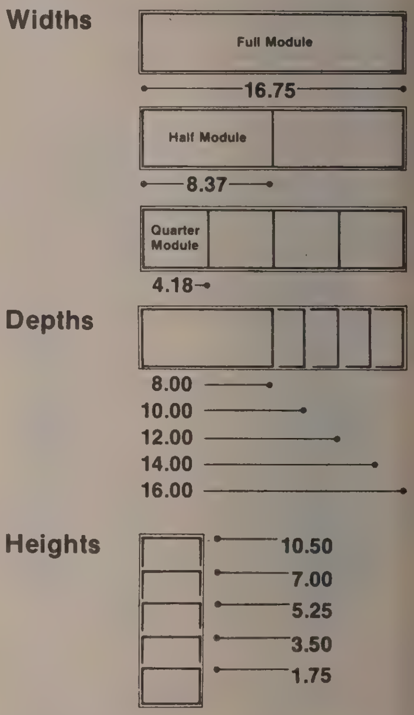
Aesthetics
Clean appearance.

Choice of styles and finishes, including satin anodizing and a variety of vinyl clad materials, provide product differentiation.

Custom Design Service
We work with you to achieve a cost effective solution by considering assembly as well as parts cost.

▶ **Send us your electronic instrument or prototype for a free packaging evaluation and cost saving suggestions.**

Options
Rack Mount Kits. Coupler Options. Extender Panels.



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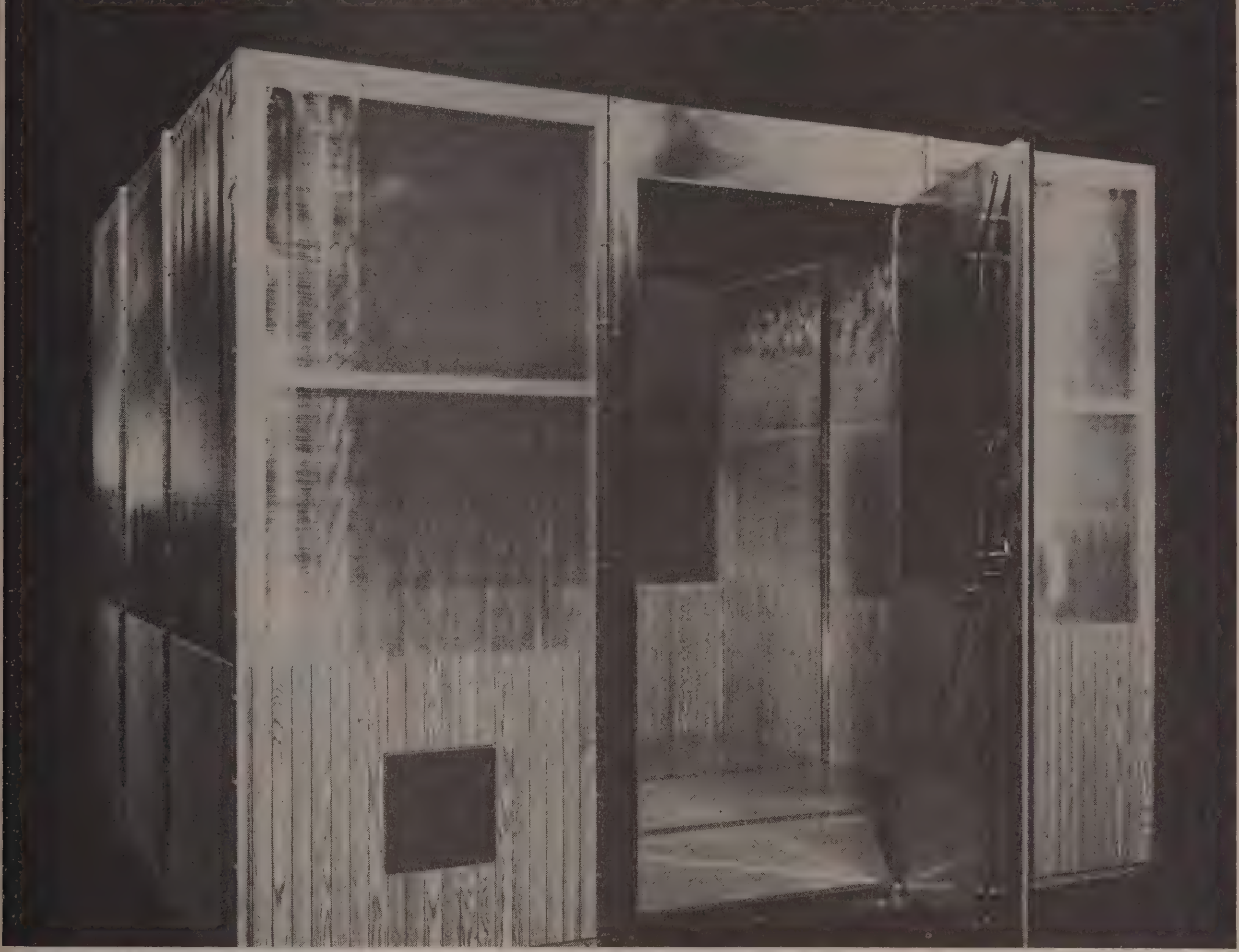

ALL ENCLOSURES ARE FULLY ASSEMBLED AND TESTED PRIOR TO SHIPMENT

Only Lindgren combines the proven superior performance of double-electrically-isolated (DEI) shielding with the benefits of modular room construction. Independent tests demonstrate that Lindgren's DEI design gives highest shielding efficiency in both low-frequency magnetic and high-frequency microwave fields.

Lindgren offers a complete line of modular enclosures, equipment cabinets, and custom RF rooms. Lindgren enclosures are offered in virtually all shielding materials, in all typical shielding thicknesses, in solid-sheet or screen, to cover all shielding requirements. Each enclosure is fully assembled at our plant before shipment, tested to verify RF integrity, and guaranteed to meet its attenuation specifications.

Patented overlapping pressure joints allow Lindgren enclosures to be easily assembled, rearranged, moved, expanded, partitioned, and reassembled again and again with no need for specially trained personnel.

To coordinate with your specific environment, Lindgren can also provide special interior/exterior finishing . . . soundproofing . . . suspended ceilings . . . recessed lighting . . . raised computer floors.

A wide range of options lets you custom-design your enclosure with windows, access panels, manual or automatic sliding doors, wave guide feedthru, lights. RF connectors, fiber-optics, filters for power, signal and communication lines, emergency (panic bars) doors, permanent in place threshold ramps, and more.

The diversity of Lindgren enclosures has satisfied the needs of more than 5000 customers we've served over the last 30 years.

Next time you need a specialized shielded enclosure, make sure you get the superior performance of double-electrically-isolated design plus all the other Lindgren advantages.

Write or call today for full information or applications assistance.

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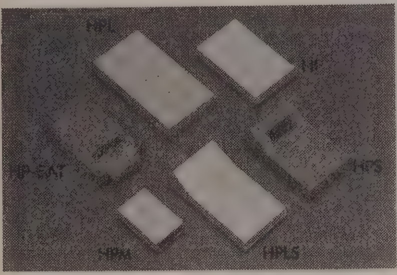
PacTec Electronics Enclosures

Prototyping kits and production units available from stock

Series H

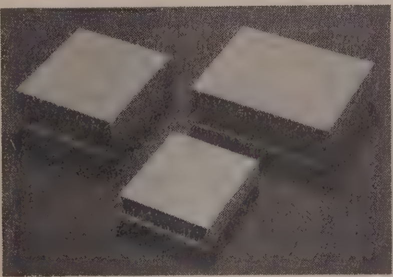


Series H

For prototype kits, add the suffix "K" to the model numbers listed below:

Ordering Code Weight			Height		Width		Depth	
lb	kg		in	mm	in	mm	in	mm
HP-BAT		outside	1.29	32.8	3.60	91.4	5.75	146.1
.23	.10	inside*	1.07	27.2	3.37	85.6	3.97	100.6
HPL		outside	1.12	28.5	4.00	101.6	7.50	190.5
.29	.13	inside*	.92	23.4	3.78	96.0	7.28	184.9
HPL-BAT		outside	1.29	32.8	4.00	101.6	7.50	190.5
.30	.14	inside*	1.07	27.2	3.78	96.0	5.75	146.1
HPS		outside	1.92	48.8	3.60	91.4	5.75	146.1
.22	.10	inside*	.92	23.4	3.37	85.6	5.52	140.2
HPS-BAT		outside	2.09	53.1	3.60	91.4	5.75	146.1
.23	.11	inside*	1.07	27.2	3.37	85.6	3.97	100.6
HPLS		outside	2.10	53.3	4.00	101.6	7.50	190.5
.29	.13	inside*	.92	22.4	3.78	96.0	7.28	184.9
HPLS-BAT		outside	2.27	57.7	4.00	101.6	7.50	190.5
.32	.15	inside*	1.07	27.2	3.78	96.0	5.75	146.1
HPM		outside	.90	22.9	2.40	61.0	3.80	96.5
.11	.05	inside*	.75	19.1	2.22	56.4	3.57	90.7

Series CM



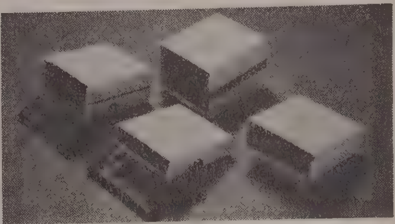
Series CM

For prototype kits, add the suffix "K" to the model numbers listed below:

CM3-150		outside	1.75	44.5	3.33	84.6	5.25	133.4
.25	.115	inside*	1.19	30.2	2.34	59.4	4.81	122.2
CM5-125		outside	1.50	38 1	5 08	129.0	5.25	133.4
.35	.16	inside*	.95	24.1	4.15	105.4	4.81	122.2
CM5-200		outside	2.25	57.2	5.08	129.0	5.25	133.4
.36	.16	inside*	1.70	43.18	4.15	105.4	4.81	122.2
CM6-225		outside	2.50	63.5	6.06	153.9	6.25	158.8
.57	.26	inside*	1.95	49 3	4.87	123.7	5.75	146.1
CM6-300		outside	3 25	82.6	6.06	153.9	6.25	158.8
.58	.27	inside*	2.70	68 6	4 87	123.7	5 75	146.1
CM86-225		outside	2.50	63.5	8.08	205.2	6.25	158 8
.64	.29	inside*	1.95	49 3	6.87	174.6	5.75	146 1
CM69-120		outside	1.38	35.1	6.33	160.8	9.50	241.3
.75	.34	inside*	1.14	29.0	5.95	151.1	8.94	227.1

*Minimum inside usable dimensions

Series C



Series C

Prototype kit C-23K contains everything necessary to build the following models:

Ordering Code Weight			Height		Width		Depth	
lb	kg		in	mm	in	mm	in	mm
C-200		outside	2.44	61.9	8.50	215.9	9.25	235.0
1.14	.52	inside*	1.68	42.7	6.85	174.0	8.00	203.2
C-225		outside	2.69	68.3	8.50	215.9	9.25	235.0
1.14	.52	inside*	1.93	49.0	6.85	174.0	8.00	203.2
C-250		outside	2.94	74.6	8.50	215.9	9.25	235.0
1.16	.53	inside*	2.18	55.4	6.85	174.0	8.00	203.2
C-275		outside	3.19	81.0	8.50	215.9	9.25	235.0
1.16	.53	inside*	2.43	61.7	6.85	174.0	8.00	203.2
C-300		outside	3.44	87.3	8.50	215.9	9.25	235.0
1.17	.53	inside*	2.68	68.1	6.85	174.0	8.00	203.2
C-325		outside	3.69	93.7	8.50	215 9	9.25	235.0
1.17	.53	inside*	2.93	74.4	6.85	174.0	8.00	203.2

Series CB (tilt stand)

Prototype kit CB-23K contains everything necessary to build the following models:

CB-200		outside	2.44	61.9	8.50	215.9	9.25	235.0
1.24	.56	inside*	1.68	42.7	6.85	174.0	8.00	203.2
CB-225		outside	2.69	68.3	8.50	215.9	9.25	235.0
1.24	.56	inside*	1.93	49.0	6.85	174.0	8.00	203.2
CB-250		outside	2.94	74.6	8.50	215.9	9 25	235.0
1.25	.57	inside*	2.18	55.4	6.85	174.0	8.00	203.2
CB-275		outside	3.19	81.0	8.50	215.9	9.25	235.0
1.25	.57	inside*	2.43	61.7	6.85	174.0	8.00	203.2
CB-300		outside	3 44	87.3	8.50	215.9	9.25	235.0
1.27	.58	inside*	2.68	68.1	6.85	174.0	8.00	203.2
CB-325		outside	3.69	93.7	8.50	215.9	9.25	235.0
1.27	.58	inside*	2.93	74.4	6 85	174.0	8.00	203.2

Series CH (handle)

Prototype kit CH-23 contains everything necessary to build the following models:

CH-200		outside	2.44	61.9	8.50	215.9	9.25	235.0
1.36	.62	inside*	1.68	42.7	6 85	174.0	8 00	203.2
CH-225		outside	2.69	68.3	8.50	215.9	9.25	235.0
1.36	.62	inside*	1.93	49.0	6.85	174.0	8.00	203.2
CH-250		outside	2.94	74.6	8.50	215.9	9.25	235.0
1.37	.62	inside*	2.18	55.4	6.85	174.0	8 00	203.2
CH-275		outside	3.19	81.0	8.50	215.9	9.25	235.0
1.37	.62	inside*	2.43	61.7	6.85	174.0	8.00	203.2
CH-300		outside	3.44	87.3	8.50	215.9	9.25	235.0
1.39	.63	inside*	2.68	68.1	6.85	174.0	8 00	203.2
CH-325		outside	3.69	93.7	8.50	215.9	9.25	235.0
1.39	.63	inside*	2.93	74.4	6.85	174.0	8.00	203.2

Series CS (extended height)
Series CBS (extended height & tilt stand)

For prototype kits, add the suffix "K" to the model numbers listed below:

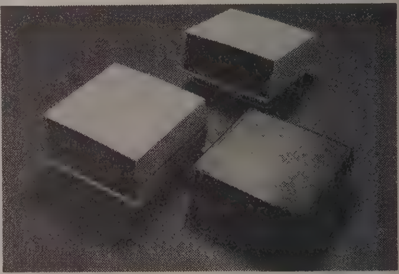
CS-400		outside	4 44	112.7	8.50	215.9	9.25	235.0
1.53	.69	inside*	3.68	93.5	6.85	174.0	8.00	203.2
CS-500		outside	5.44	138.1	8.50	215.9	9.25	235.0
1.55	.71	inside*	4.68	118.9	6.85	174.0	8.00	203.2
CS-600		outside	6.44	163.5	8.50	215.9	9.25	235.0
1.65	.75	inside*	5.68	144.3	6.85	174.0	8.00	203.2
CBS-400		outside	4.44	112.7	8.50	215.9	9.25	235.0
1.63	.74	inside*	3.68	93.5	6.85	174.0	8.00	203.2
CBS-500		outside	5.44	138.1	8.50	215.9	9.25	235.0
1.57	.71	inside*	4.68	118.9	6.85	174.0	8.00	203.2
CBS-600		outside	6.44	163.5	8.50	215.9	9.25	235.0
1.75	.79	inside*	5 68	144.3	6.85	174.0	8.00	203.2

Series CHS (extended height & handle)

For prototype kits, add the suffix "K" to the model numbers listed below:

Ordering Code Weight			Height		Width		Depth	
lb	kg		in	mm	in	mm	in	mm
CHS-400		outside	4.44	112.7	8.50	215.9	9.25	235.0
1.75	.79	inside*	3.68	93.5	6.85	174.0	8.00	203.2
CHS-500		outside	5.44	138.1	8.50	215 .9	9.25	235.0
1.77	.80	inside*	4.68	118.9	6.85	174.0	8.00	203.2
CHS-600		outside	6.44	163.5	8.50	215.9	9.25	235.0
1.87	.81	inside*	5.68	144.3	6.85	174.0	8.0	203.2

Series CL



Series CL

Prototype kit CL-45K contains everything necessary to build the following models:

CL-400		outside	4.51	114.6	12.50	317.5	11.63	295.3
2.32	1.05	inside*	3.50	89.0	10.85	275.6	10.40	264.2
CL-425		outside	4.76	120.9	12.50	317.5	11.63	295.3
2.32	1.05	inside*	3.75	95.3	10.85	275.6	10.40	264.2
CL-450		outside	5.01	127.3	12.50	317.5	11.63	295.3
2.34	1.06	inside*	4.00	102.0	10.85	275.6	10.40	264.2
CL-475		outside	5.26	133.6	12.50	317.5	11.63	295.3
2.34	1.06	inside*	4.25	108.0	10.85	275.6	10.40	264.2
CL-500		outside	5.51	140.0	12.50	317.5	11.63	295.3
2.35	1.07	inside*	4.50	114.3	10.85	275.6	10.40	264.2
CL-525		outside	5.76	146.3	12.50	317.5	11.63	295.3
2.35	1.07	inside*	4.75	120.7	10.85	275.6	10.40	264.2

Series CLB (tilt stand)

Prototype kit CLB-45K contains everything neccessary to build the following models:

CLB-400		outside	4.51	114.6	12.50	317.5	11.63	295.3
2.45	1.11	inside*	3.50	89.0	10.85	275.6	10.40	264.2
CLB-425		outside	4.76	120.9	12.50	317.5	11.63	295.3
2.45	1.11	inside*	3.75	95.3	10.85	275.6	10.40	264.2
CLB-450		outside	5.01	127.3	12.50	317.5	11.63	295.3
2.49	1.13	inside*	4.00	102.0	10.85	275.6	10.40	264.2
CLB-475		outside	5.26	133.6	12.50	317.5	11.63	295.3
2.49	1.13	inside*	4.25	108.0	10.85	275.6	10.40	264.2
CLB-500		outside	5.51	140 0	12.50	317.5	11.63	295.3
2.50	1.14	inside*	4.50	114.3	10.85	275.6	10.40	264.2
CLB-525		outside	5.76	146.3	12.50	317.5	11.63	295.3
2.50	1.14	inside*	4.75	120.7	10.85	275.6	10.40	264.2

Series CLS (extended height)
Series CLBS (extended height & tilt stand)

For prototype kits, add the suffix "K" to the model numbers listed below:

CLS-625		outside	6.76	171.7	12.50	317.5	11.63	295.3
2.99	1.36	inside*	5.75	146.1	10.85	275.6	10.40	264 2
CLS-725		outside	7.76	197.1	12.50	317.5	11.63	295.3
3.02	1.38	inside*	6.75	171.5	10.85	275.6	10.40	264.2
CLS-825		outside	8.76	222.5	12.50	317.5	11.63	295.3
3.18	1.44	inside*	7.75	196.9	10.85	275.6	10.40	264 2
CLBS-625		outside	6.76	171.7	12.50	317.5	11.63	295 3
3 11	1.41	inside*	5.75	146.1	10.85	275.6	10.40	264 2
CLBS-725		outside	7.76	197.1	12.50	317.5	11.63	295 3
3.15	1.43	inside*	6.75	171.5	10.85	275.6	10.40	264 2
CLBS-825		outside	8.76	222.5	12.50	317.5	11.63	295.3
3.31	1.51	inside*	7.75	196.9	10.85	275.6	10.40	264 2

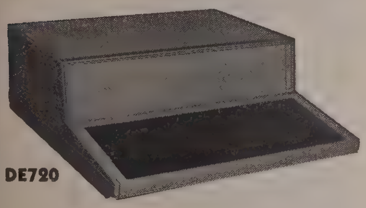
©PacTec

PacTec Systems Enclosures

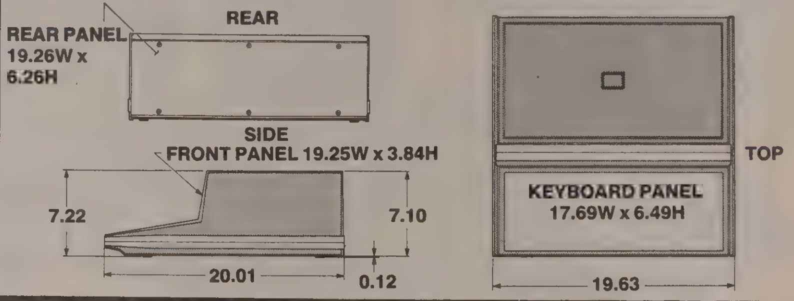
Attractive . . . no tooling costs . . . off-the-shelf

- Prototyping kits and production units
- Easily assembled
- Highly styled, rigid construction
- Built-in features simplify mounting and assembly
- Removable panels for quick internal access
- Inexpensive custom modifications
- Meets UL 94V-0 standards
- EMI/RFI shielding available
- Standard color—beige; custom colors and color combinations available

Desk Top Console

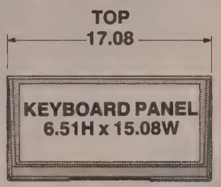


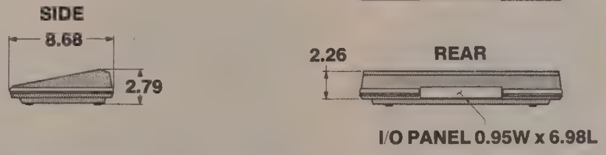
- Accommodates 5¼″ (U3) full-, half-, or quarter-rack card frames
- Available in custom widths
- All panels can be customized or modified


REAR
REAR PANEL 19.26W x 6.26H
SIDE
FRONT PANEL 19.25W x 3.84H
7.22
7.10
20.01
0.12
TOP
KEYBOARD PANEL 17.69W x 6.49H
19.63

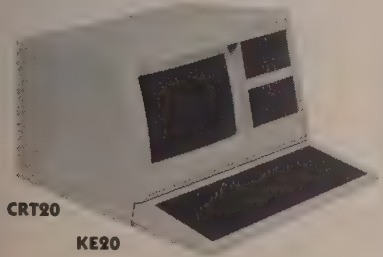
Keyboard Enclosure

- Compatible with all standard keyboard formats
- Keyboard and I/O panels available as modified blanks or custom molded panels

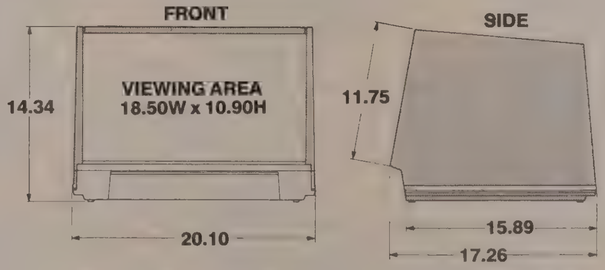

TOP
17.08
KEYBOARD PANEL 6.51H x 15.08W


SIDE
8.68
2.79
2.26
REAR
I/O PANEL 0.95W x 6.98L

CRT Terminal Housing



- Accommodates most common monitor and disc drive combinations
- Removable subchassis for quick assembly and service
- Ventilation slots—standard option


FRONT
VIEWING AREA 18.50W x 10.90H
14.34
20.10
SIDE
11.75
15.89
17.26

PacTec Systems Enclosures are highly styled units that offer flexible packaging. Molded-through color and durability give the enclosures long-lasting attractiveness. They are compatible with our standard electronics line, enabling you to design a family look for modems, power supplies, and interface hardware at a cost far below custom-molded enclosures.

PacTec can customize your enclosure with design modifications, custom front and rear panels, and special trim and finishes that will save you secondary finishing operations and give you a truly distinctive appearance. Many low-cost options and accessories are available.

Prototyping kits include all panel blanks and assembly hardware; production units provided to meet your specifications. PacTec offers packaging design assistance and maintains single source responsibility for total control from design through production.

Additional new products are currently being developed. Consult the factory for availability.

PACTEC®

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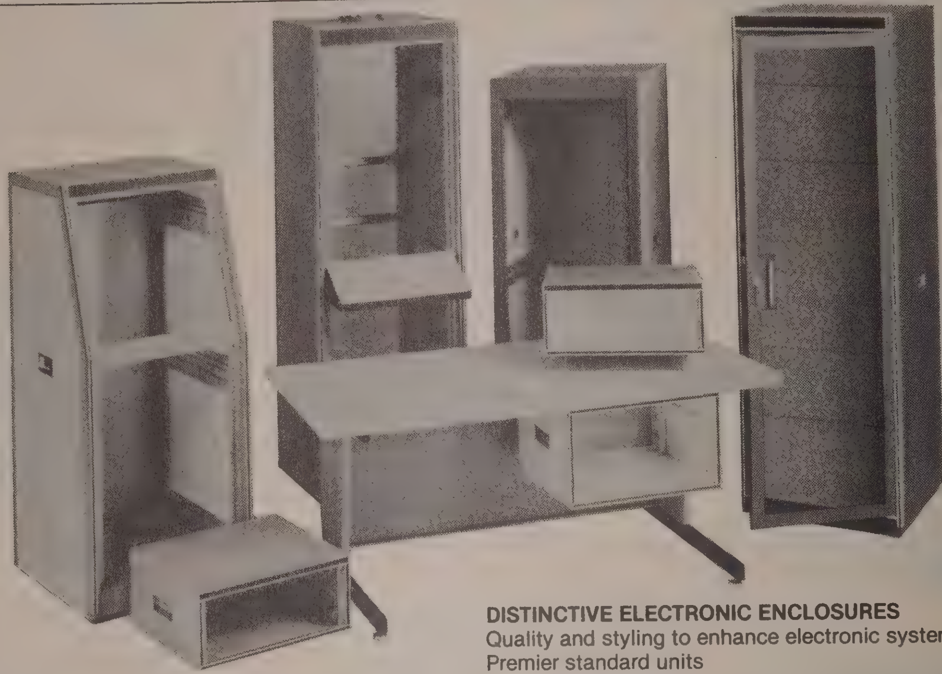
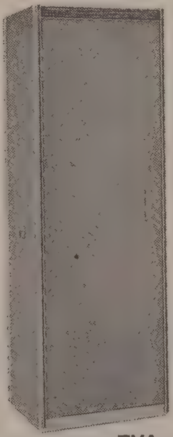
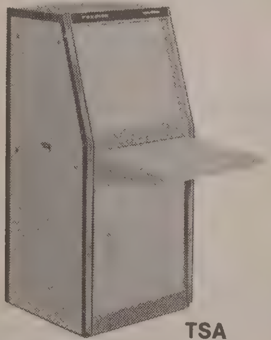
PREMIER CABINETS



DISTINCTIVE ELECTRONIC ENCLOSURES
Quality and styling to enhance electronic systems using Premier standard units

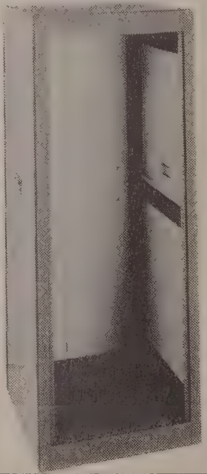


TVA



TSA

TRIMLINE SERIES
Welded modular units with extruded aluminum trim and decorative vinyl inlays. Available in 64 sizes.



SVA

SPARTAN SERIES

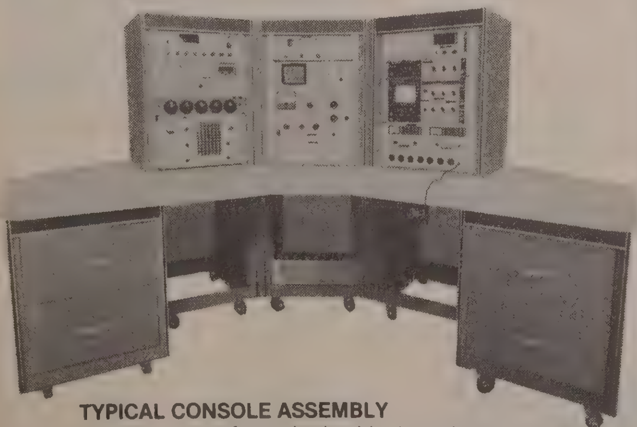
19" and 24" (EIA) Standard Rack Widths

7 Panel Heights from 21" to 77"

4 Depths from 18" to 30"

Available in 64 sizes

SSA



TYPICAL CONSOLE ASSEMBLY
Combinations of standard cabinets and accessories offer an endless variety of easily assembled systems for specialized applications.

R SERIES

RMX, FDX & R SERIES
Solid side skin cabinets for economical applications. RMX & FDX are welded units, R series are knock-down units.

FDX SERIES

CONSOLES & CASES

Premier Metal Products Co. has specialized in sheet metal fabrication of electronic enclosures and accessories for over 30 years.

Premier Enclosures offer maximum flexibility, adaptability and esthetic values. The extensive range of standard units in various widths, depths, heights and shapes available, offer the variety of combinations and configurations necessary for modern packaging systems.

Modified standard and special designs are manufactured on order. Our home office staff and field representatives are available for assistance in solving customer needs in the most efficient manner possible.

FULL LINE CATALOG AVAILABLE
(over 1500 items)

CATALOG CONTENTS

Trimline Series Modular
Frames and Assemblies
Vertical & Sloped Front
Trim Options and Accessories
Wedge Frames for Consoles

Spartan Series Modular
Frame & Assemblies
Vertical & Sloped Front

Trimline Instrument
Cases & Accessories
EIA Standard Rack Panels
Chassis Slides, Blowers,
Fans & Accessories

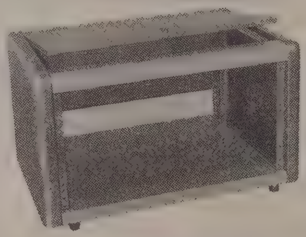
Solid Side Cabinet Racks, Welded & KD
Open Channel Type Relay Racks
Sloped Front Instrument Cabinets
Desk Cabinets & Racks
Modular Vertical & Sloped
Front Cabinets & Accessories

Turret Frames, Printed Circuit Card Frames & Guides, Shelves, Chassis Supports, Panel Handles, Outlet Strips, Casters, Cable Retractors, Misc. Hardware

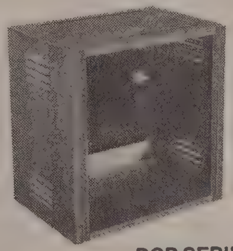
Small cases, portable & utility, blank chassis and plates

Modifications. Finish selector and color charts.

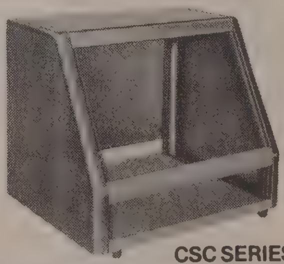
TRIMLINE TIC CASES
88 different standards sizes
11 panel heights, 3 depths, 3 widths.



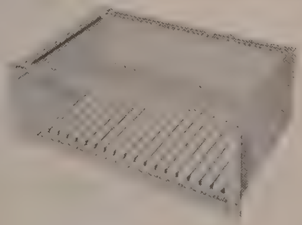
POR SERIES



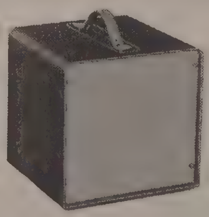
DCR SERIES



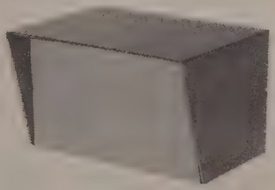
CSC SERIES



PCH SERIES



CC SERIES



SCC SERIES

PREMIER METAL PRODUCTS COMPANY
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AVAILABLE IN OVER 200 STANDARD SIZES
1.96" x 1.77" x 1.18" TO 23.62" x 23.62" x 7.87"

MATERIALS AVAILABLE:
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ALL SIZES AND MATERIALS AVAILABLE FOR IMMEDIATE OFF THE SHELF DELIVERY

STANDARD FEATURES

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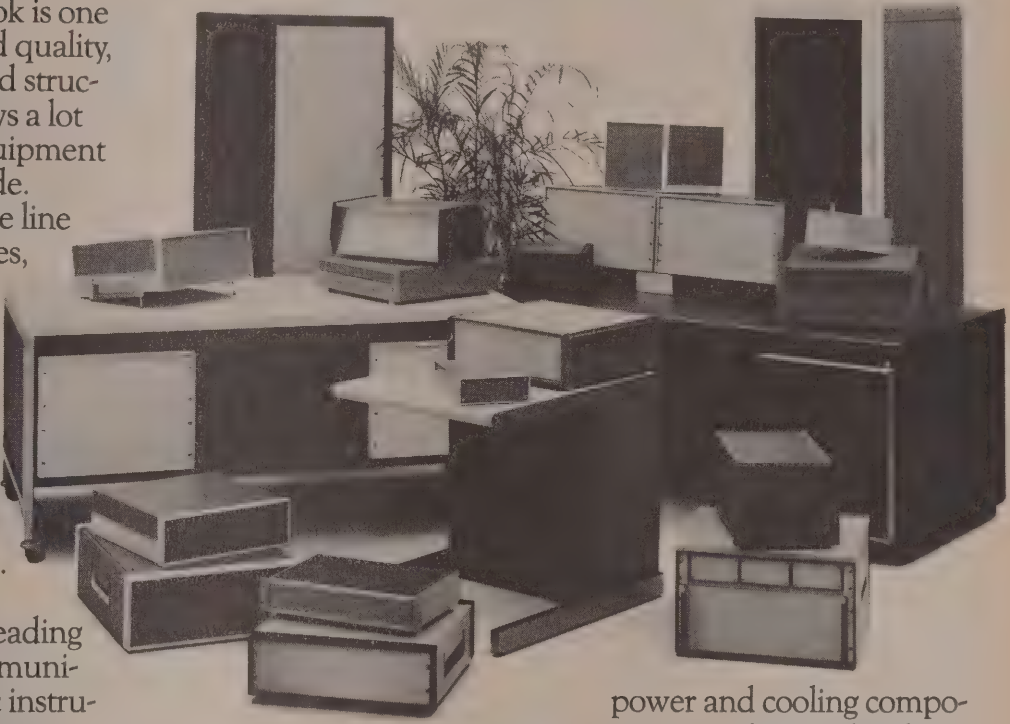
Open up the possibilities of Optima®

The next five pages are your complete resource for high-quality enclosures and accessories



The Optima look is one of understated quality, clean lines, and structural integrity that says a lot about the kind of equipment you'll be putting inside.

We offer a complete line of more than 270 cases, vertical cabinets, and desks. All are available in a wide range of color combinations. All are designed to meet specific needs for individual types of electronic equipment.

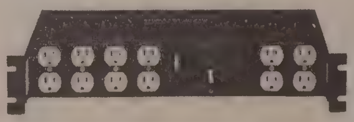
As a division of Scientific-Atlanta, a leading manufacturer of communications and electronic instruments, we have a unique understanding of electronic equipment. Whatever your packaging needs, chances are we have the answer.

Instant Optima®

Instant Optima is our readily available in-stock program. Choose from 55 of our most popular cases, vertical cabinets and desks. We'll ship within three days of your written or telephoned order from our warehouse in Atlanta or Los Angeles.

Your order brings more than a fast solution to your packaging problems. It brings Optima quality and rugged, welded construction—just like every Optima product.

Power & Cooling Accessories



Optima accessories open up even more possibilities. All are in stock, ready to ship.

Whether you need to distribute clean AC power or cool down localized hot spots, you'll find a solution in our full line of accessories. These power and cooling components are designed to fit any standard EIA rack or cabinet. And they're available from stock for fast delivery.

Turn to Optima for information

For more information, and a catalog showing our complete line of cabinets and enclosures, call Atlanta (404) 939-6340, Los Angeles (213) 949-9302, or the Optima office nearest you.

Scientific Atlanta
OPTIMA Division
2166 Mountain Industrial Blvd.,
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Tucker, Georgia 30084

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Georgia (404) 939-6340, California (213) 949-9302, New Jersey (201) 794-3100.
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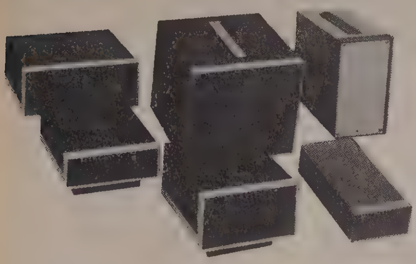
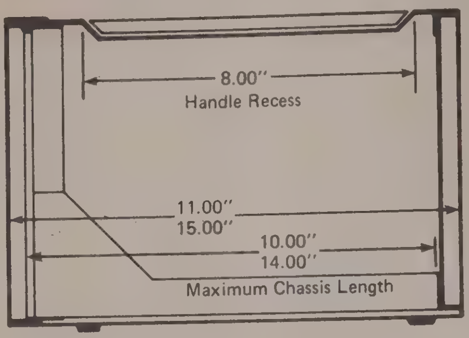


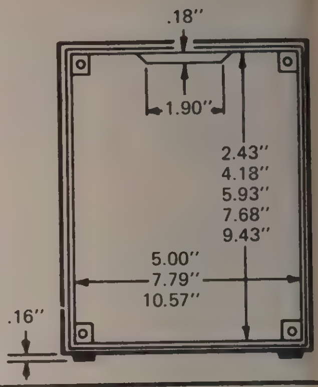
Small Cases

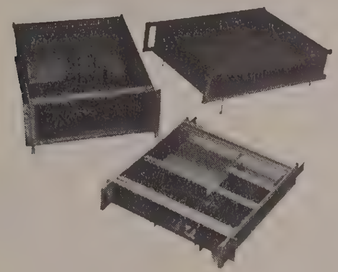
These handsome, lightweight cases are available in 18 standard sizes.

Construction is with a one-piece cover, rear panel, and the bezel-bottom pan assembly. For access and servicing, two screws release the cover and rear panel.

Accessories and Options available: Vertical cabinet adapters, perforated rear panels, cutout for cable exit, flush handle with trim insert, tiltstand, and chassis.

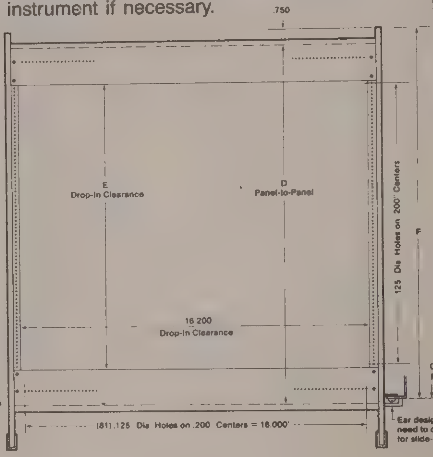

8.00″
Handle Recess
11.00″
15.00″
10.00″
14.00″
Maximum Chassis Length

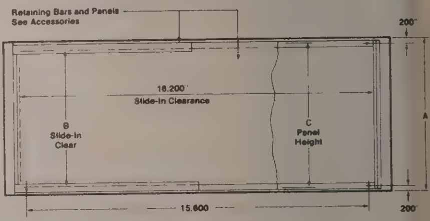

.18″
1.90″
2.43″
4.18″
5.93″
7.68″
9.43″
5.00″
7.79″
10.57″
.16″



Optima Instrumate

Instrumate is a chassis or a card cage or a combination of both. Every member of the frame includes mounting holes for the immediate insertion of Instrumate's optional secondary metalwork, snap-in card guides, card cages for top loading, and motherboards. Interior dimensions and card locations meet IEC/EIA standards for subracks. This is particularly advantageous to companies with international markets. Instrumate conversion from free-standing to rack-mount applications or vice versa can be made externally on a completed instrument if necessary.


.750
E
Drop-In Clearance
D
Panel-to-Panel
16 200
Drop-In Clearance
125 Dia Holes on 200″ Centers
F
Cabinet Mounting Rail
Ear design eliminates need to countersink rails for slide-mounting
(81) .125 Dia Holes on .200 Centers = 16.000″

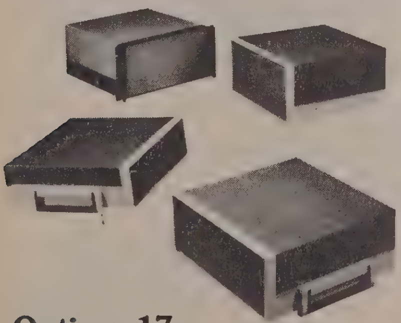

Retaining Bars and Panels See Accessories
16.200″
Slide-In Clearance
B
Slide-In Clear
C
Panel Height
A
200″
200″
15.600

Height Dimensions

	A	B	C
2U	3.470″	2.790″	3.310″
3U	5.220″	4.540″	5.060″
4U	6.970″	6.290″	6.810″
5U	8.720″	8.040″	8.560″
6U	10.470″	9.790″	10.310″

Depth Dimensions

D	E	F
16.600″	13.300″	17.220″
21.000″	17.700″	21.620″
23.000″	19.700″	23.620″



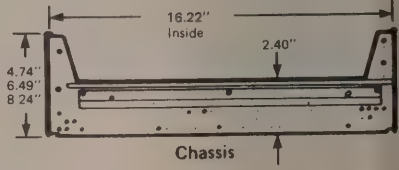
Optima 17

A departure from conventional case design, Optima 17 includes case and chassis with front and rear panels available in 3 standard sizes. It enables you to save valuable design and fabrication time. The case and chassis complement each other structurally for the lowest possible overall weight, at the same time offering full accessibility for assembly and checkout.

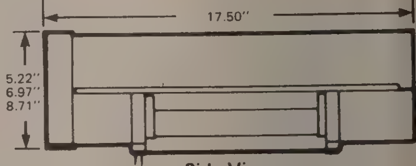
Optima 17 features a welded and hand-finished bezel. Components are chassis sides, front panel, sub-panel, rear panel, and lateral chassis mounting member or component shelf.

This case line is available in four versions:

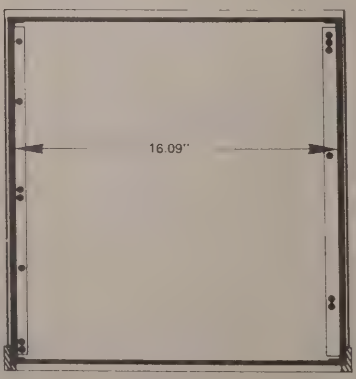
1. No handles, feet on bottom.
2. Side handles with integral feet.
3. Side handles with tilt extension.
4. Installed vertical cabinet adapter with front panel handles.


16.22″
Inside
2.40″
4.74″
6.49″
8.24″

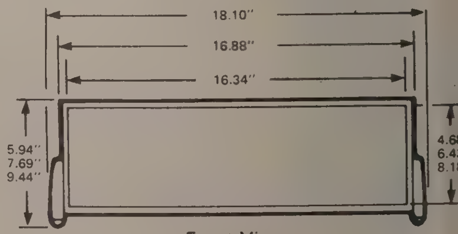
Chassis


17.50″
5.22″
6.97″
8.71″

Side View



Top View


18.10″
16.88″
16.34″
5.94″
7.69″
9.44″

Front View

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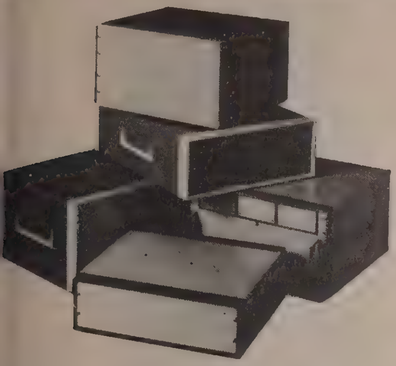
2166 Mountain Industrial Boulevard, Tucker, GA 30084; Tel: 404-939-6340; TWX 810-766-3967



Instrument Cabinets

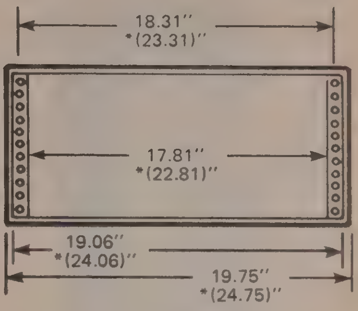
19" wide instrument cabinets are available in 45 standard sizes.

The frame is made of front and rear bezels of welded and hand-finished aluminum extrusions. These are joined by extruded aluminum corner members with body panels captured in the framework without hardware. The result is structural integrity and clean exterior design.

Accessories and Options available: Perforated top, bottom, or side panels; handles; drawers; doors; panels; support angles and slides; storage shelf; tiltstands; power outlets.

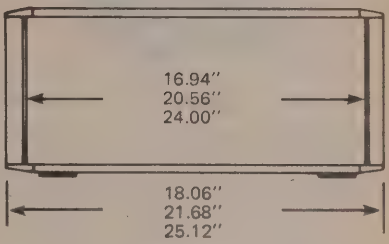
Nominal Panel Heights (Inches)

19" Width
3.50
5.25
7.00
8.75
10.50
12.25
14.00
15.75
17.50
19.25
21.00
22.75
24.50
26.25
28.00

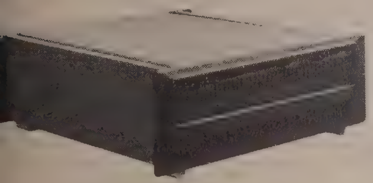

18.31"
*(23.31)"
17.81"
*(22.81)"
19.06"
*(24.06)"
19.75"
*(24.75)"

Front View

*( ) Denotes 24" wide Cases, available upon request.


16.94"
20.56"
24.00"
18.06"
21.68"
25.12"

Side View



OptimaPAK

This case and chassis combines style and beauty for instruments in public areas, such as offices, showrooms, lobbies, hospitals, etc. Available in 8 standard sizes OptimaPAK reflects today's softer, more sculptured look in interiors and office products.

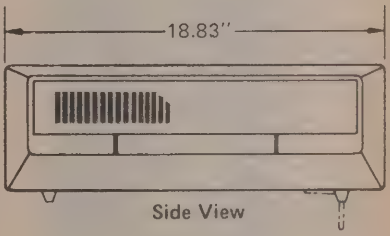
OptimaPAK sides are molded structural foam, with a strength-to-weight ratio of 2 to 5 times greater than steel, acoustic dampening at least 5 times better than steel and excellent thermal and electric insulation properties.

OptimaPAK can be used in several modes:

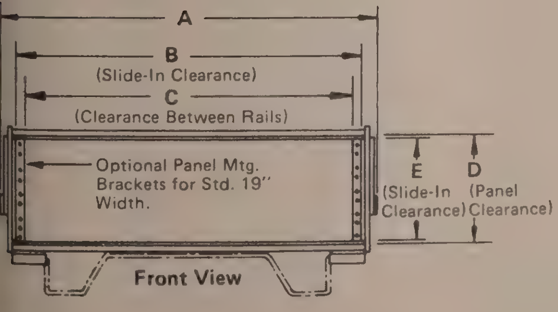
1. The case alone is for the user who provides his own chassis and panels.
2. The case with chassis assembly includes a chassis/panel that slides into the front of the case and locks at the back with 4 screws.
3. The chassis and vertical cabinet adapters include front and rear panels for mounting in 19" vertical cabinets.

Panel Height (Inches)
3.47
5.22
6.97
8.72

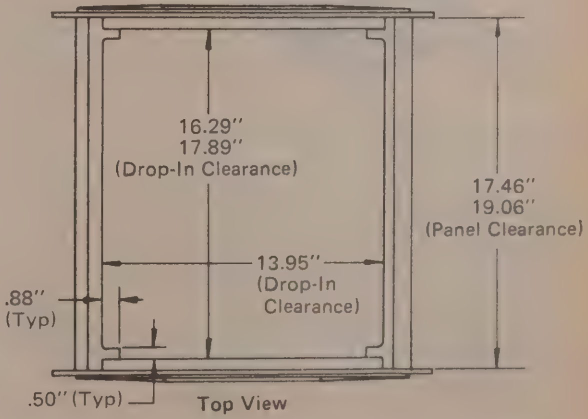
A	B	C	D	E
18.62	17.06	17.81	3.50	3.02
20.22	18.66		5.25	4.75
			7.00	6.50
			8.75	8.25



Side View


A
B
(Slide-In Clearance)
C
(Clearance Between Rails)
Optional Panel Mtg. Brackets for Std. 19" Width.
E
(Slide-In Clearance)
D
(Panel Clearance)

Front View


16.29"
17.89"
(Drop-In Clearance)
17.46"
19.06"
(Panel Clearance)
13.95"
(Drop-In Clearance)
.88"
(Typ)
.50" (Typ)

Top View

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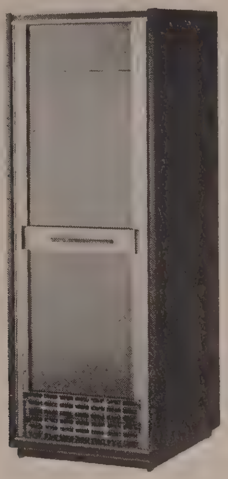


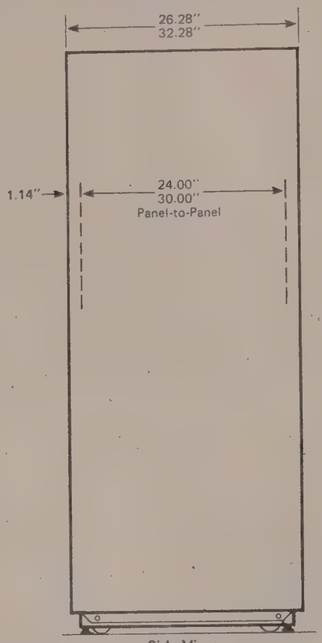
Accent Vertical Cabinets

Available in 8 standard sizes, the Accent Vertical Cabinet displays the tranditional clean Optima design. For top productivity and product quality, your electronics are installed in an open frame, accessible from all sides, with decorative parts added after assembly. The cabinet module includes the basic frame, base, top panel, front-to-rear stiffeners and front decorative trim. Side panels (lift-off style) are offered as an option and hinged aluminum trim can be added to conceal front panel screws. This cabinet has a net load capability of up to 4,578 pounds.

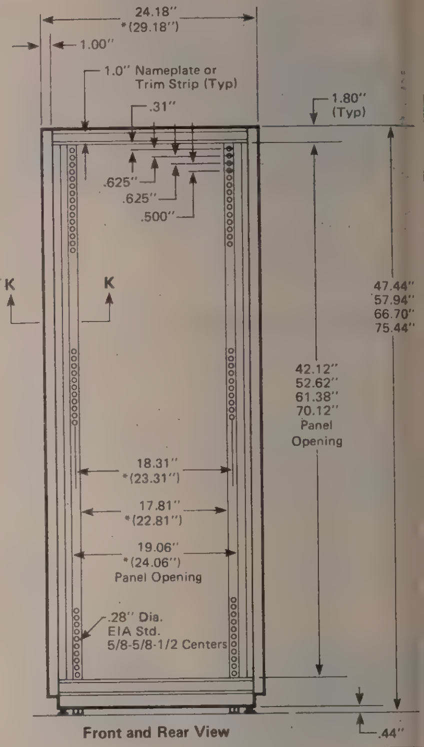
Accent Vertical Cabinets have infinitely adjustable front and rear mounting rails of zinc plated 11 or 14 ga. steel with EIA spacing.

A wide range of accessories and options is available, including solid and plexiglas doors, panels, slides, storage shelves, drawers, writing surfaces, blowers, casters, stabilizers.

*( ) Denotes 24" wide Cabinets, available upon request.


26.28"
32.28"
1.14"
24.00"
30.00"
Panel-to-Panel

Side View


24.18"
*(29.18")
1.00"
1.0" Nameplate or Trim Strip (Typ)
.31"
1.80" (Typ)
.625"
.625"
.500"
K
K
47.44"
57.94"
66.70"
75.44"
42.12"
52.62"
61.38"
70.12"
Panel Opening
18.31"
*(23.31")
17.81"
*(22.81")
19.06"
*(24.06")
Panel Opening
.28" Dia.
EIA Std.
5/8-5/8-1/2 Centers
.44"

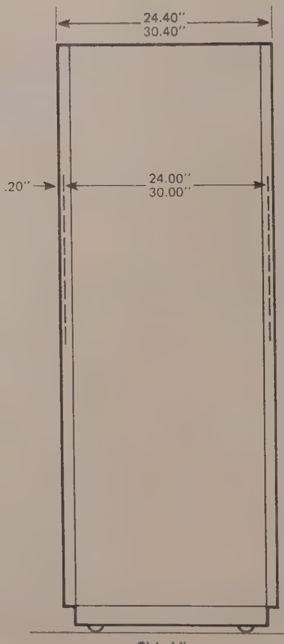
Front and Rear View

Action Vertical Cabinets

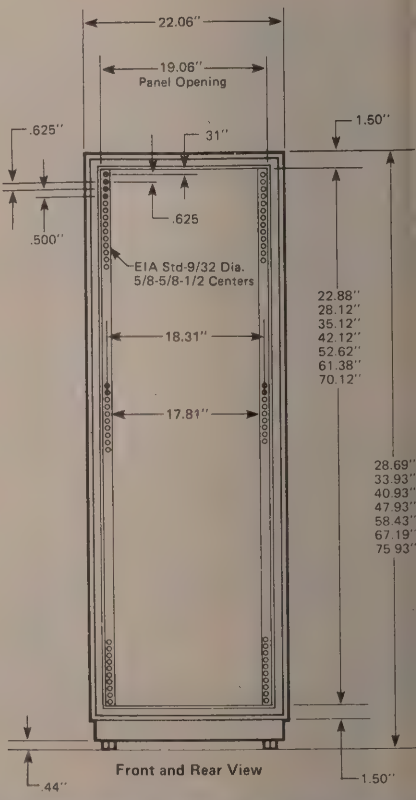
Offering a distinct appearance with a bezel design all its own, the Action Vertical Cabinet is available in 14 standard sizes. The basic frame features front and rear bezels of aluminum extrusions, fabricated in precise tooling fixtures, joined by corner members and mounted to a steel base. This strong, rigid, framework has a net load capability of up to 6,600 pounds.

Action Vertical Cabinets have provisions for intinitely adjustable front and rear mounting rails of zinc plated 11 or 14 ga. steel with EIA spacing.

A wide range of accessories and options is available, including side panels, bottom panels, solid and plexiglas doors, slides, storage shelves, writing surfaces, blowers, casters, stabilizers, and more.


24.40"
30.40"
.20"
24.00"
30.00"

Side View


22.06"
19.06"
Panel Opening
1.50"
.625"
31"
.625
.500"
EIA Std-9/32 Dia.
5/8-5/8-1/2 Centers
18.31"
17.81"
22.88"
28.12"
35.12"
42.12"
52.62"
61.38"
70.12"
28.69"
33.93"
40.93"
47.93"
58.43"
67.19"
75.93"
.44"
1.50"

Front and Rear View

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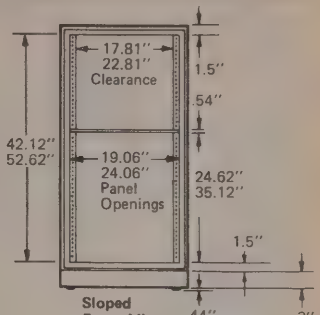
Optima Vertical and Sloped Cabinets

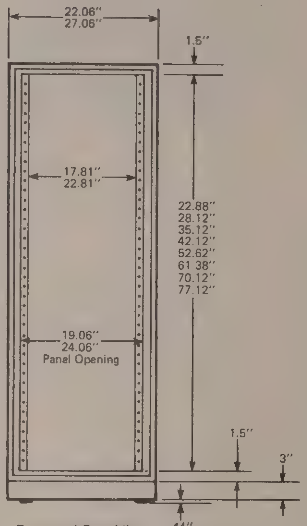
The basic Optima Vertical and Sloped Cabinet, available in 52 standard sizes, feature front and rear bezels of heavy aluminum extrusion, fabricated in precise tooling fixtures to guarantee accuracy. The bezels are joined by extruded corner members and mounted to a steel base. The enclosure is completed with flush-mounted side and top panels. This strong, rigid framework has a net load capability of up to 6,600 pounds.

Optima Vertical Cabinets have provisions for infinitely adjustable front and rear mounting rails of zinc plated 11 or 14 ga. steel with EIA spacing.

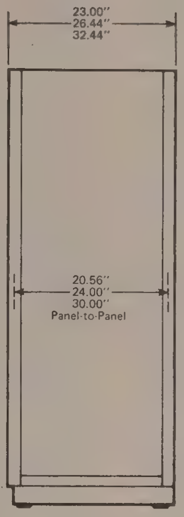
A wide range of accessories and options is available, including solid and plexiglas doors, panels, slides, storage shelves, drawers, writing surfaces, blowers, casters, stabilizers, and more.


17.81"
22.81"
Clearance
1.5"
.54"
42.12"
52.62"
19.06"
24.06"
Panel Openings
24.62"
35.12"
1.5"
.44"
with HW-62
Caster Option
3"

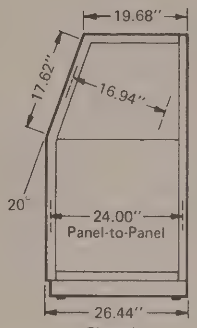
Sloped Front View


22.06"
27.06"
1.5"
17.81"
22.81"
22.88"
28.12"
35.12"
42.12"
52.62"
61 38"
70.12"
77.12"
19.06"
24.06"
Panel Opening
1.5"
3"
.44"
Caster (HW-62)

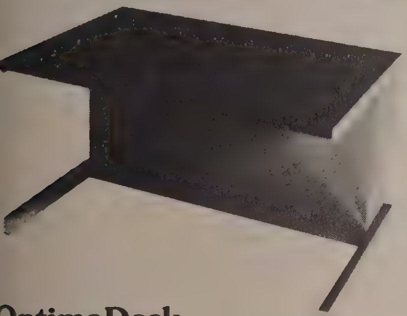
Front and Rear View


23.00"
26.44"
32.44"
20.56"
24.00"
30.00"
Panel-to-Panel

Side View


19.68"
17.62"
16.94"
20°
24.00"
Panel-to-Panel
26.44"

Sloped Side View

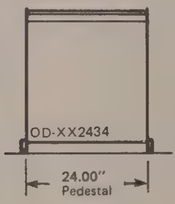


OptimaDesk

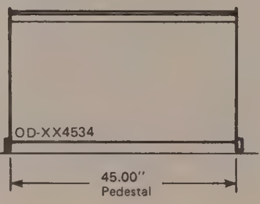
OptimaDesk has functional answers for housing electronic equipment in a simply beautiful way. OptimaDesk is distinctive with many innovative features as standard equipment. Consideration for operator comfort and efficiency, built-in storage space and hidden cable routing result in an outstanding combination of clean design and space utilization. Standard desk or keyboard height in 24", 45", and 66" widths are available. The cantilever construction gives a light appearance without sacrificing strength. Standard options and accessories include cabinets for 19" panel electronics, storage space dividers, drawers, solid or plexiglas doors, etc. OptimaDesks are the logical choice for small systems, EDP, or general office work.

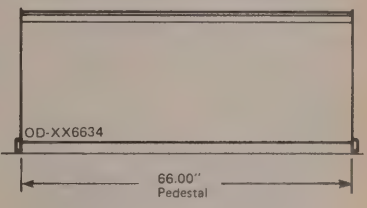
Note:
Each pedestal can be compartmentalized into electronic and/or storage bays.

Electronic bays are standard 19" wide with useable height of 21" and 29" depth.

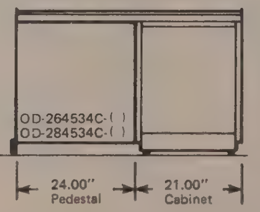

OD-XX2434
24.00"
Pedestal

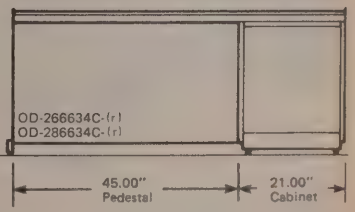
Cabinet not available with 24" model.

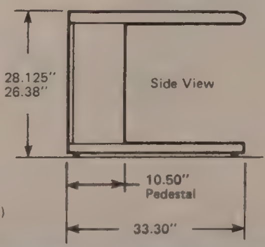

OD-XX4534
45.00"
Pedestal


OD-XX6634
66.00"
Pedestal

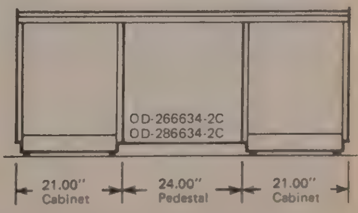
Leg dimensions:
2.5" high x 1.25" wide


OD-264534C-( )
OD-284534C-( )
24.00"
Pedestal
21.00"
Cabinet


OD-266634C-(r)
OD-286634C-(r)
45.00"
Pedestal
21.00"
Cabinet


28.125"
26.38"
Side View
10.50"
Pedestal
33.30"

Note:
XX in a model number indicates the unit can be assembled to desk (28") or Keyboard (26") height.


OD-266634-2C
OD-286634-2C
21.00"
Cabinet
24.00"
Pedestal
21.00"
Cabinet

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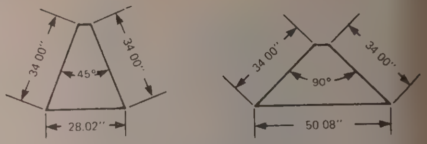
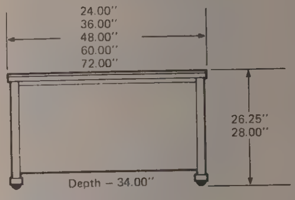

34.00"
34.00"
45°
28.02"
34.00"
34.00"
90°
50.08"

Return Wedge

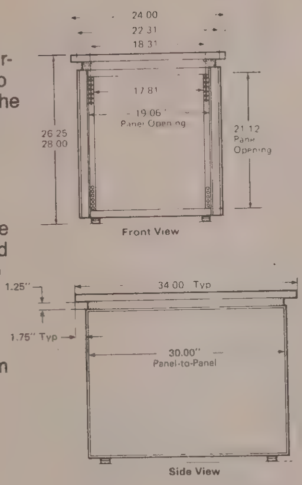

24.00"
36.00"
48.00"
60.00"
72.00"
26.25"
28.00"
Depth – 34.00"

Desk Modules

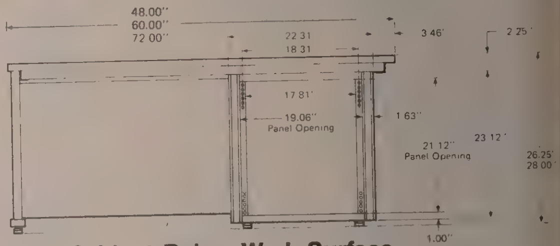
Modular Desks and Cabinets

Optima's Modular Desks for electronic equipment are a moderately priced collection of versatile and very practical modules, designed to give you a clean, professional appearance. The distinct advantage of this carefully developed line is the variety of possible work space arrangements and the ease of changing and adding to your layout. Modules can be arranged in varying combinations of straight-lines and returns, in any sequence, to provide efficiency and convenience. Color coordinated cabinets may be placed below or adjacent to the work surface, for 19" rack-mounting of equipment or for general storage.

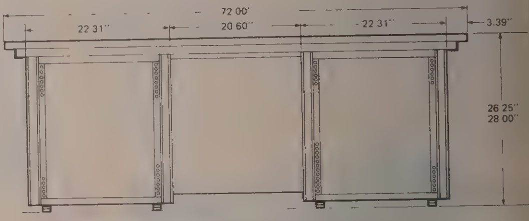
Accessories and Options available: Solid or plexiglas cabinet doors, drawers, trim kits, slides, support angles, and casters.


24.00
22.31
18.31
17.81
19.06"
Panel Opening
26.25
28.00
21.12
Panel Opening
Front View
1.25"
34.00 Typ
1.75" Typ
30.00"
Panel-to-Panel
Side View

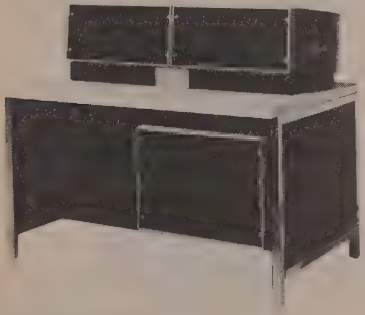
Stand Alone Cabinet


48.00"
60.00"
72.00"
22.31
18.31
3.46"
2.25"
17.81"
19.06"
Panel Opening
1.63"
21.12"
Panel Opening
23.12"
26.25"
28.00"
1.00"

One Cabinet Below Work Surface

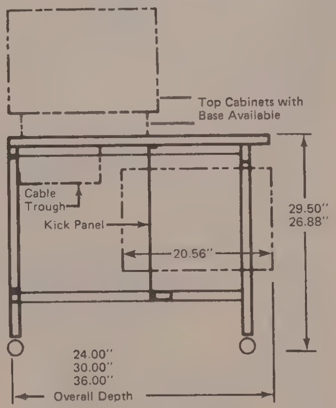

72.00"
22.31"
20.60"
22.31"
3.39"
26.25"
28.00"

Two Cabinets Below Work Surface

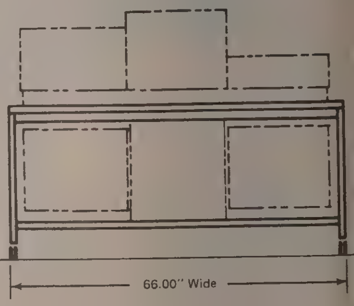


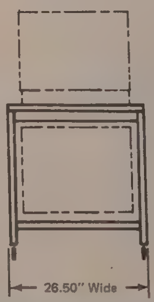
Consoles

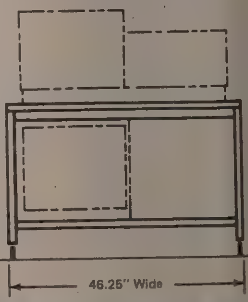
Desklike structures, Optima Consoles offer optional Optima 19" cases installed above and below the work surface. The Console consists of a tubular brushed stainless steel frame, side and rear panels, laminated writing surface, and casters. Cases below the work surface are bolted in place at the factory. Upper cases nest in a tilted or horizontal base and may be ordered initially or added later. Options and accessories include front and rear cabinet panels, drawers, doors, slides, and power strips. This concept offers unusual versatility to systems designers.


Top Cabinets with
Base Available
Cable
Trough
Kick Panel
20.56"
29.50"
26.88"
24.00"
30.00"
36.00"
Overall Depth

Cross-Section of End View







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19" Systems for Electronics Packaging

Standard off-the-self products – the most economical way of presenting your electronics. The right cabinet, the right case and the right 19" subrack system for almost every application. At the same time you have a range of accessories to match the system and you can always add items at a later date without difficulty.

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Quality Protection for Advanced Technology

If it measures, computes, records or controls...Skydyne makes it portable.

Standard Fiberglass Cases—Excellent commercial/shipping containers. Can be modified to meet mil-specs or other specific requirements. 34 sizes.

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Since 1938, Skydyne has met the growing need for durable, lightweight protective enclosures. Keeping pace with today's advancing technologies, Skydyne products are found in a wide variety of applications including Fiberoptics, Geophysical Instruments, Portable Computers, Pollution Control, Meteorological Instruments, Aircraft Maintenance, Aerospace and Military Electronics.

Customers in these and many other fields have come to call on Skydyne when quality packaging is required for portable equipment. Commercial or military; prototype or production...Skydyne's engineering staff will work with you from preliminary design through delivery. They have the ability and know-how to solve the most difficult of packaging problems. Call or write for more information, today.

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COMPUTER PERIPHERAL FURNITURE

1. SHIPPED "ALL-WELDED TOGETHER".
2. NO "NUTS & BOLTS" FOR ASSEMBLY
3. CHOICE OF 6 "DESK-LEG" DESIGNS
4. 17 COLORS (SMOOTH OR TEXTURED)
5. 5 LAMINATE COLOR/PATTERNS....
6. 5 WIDTHS AVAILABLE........
7. 4 DEPTHS AVAILABLE........
8. 3 HEIGHTS AVAILABLE........

— PLUS OTHER FEATURES & ACCESSORIES

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BENCH CABINETS

• 19" PANEL WIDTH • 19³⁄₁₆" OVER ALL DEPTH • RUGGED CONSTRUCTION •
• INCLUDES REAR PERFORATED PANEL • LIGHT WEIGHT •

STANTRON BENCH CABINETS are designed to meet most electronic industry standards, featuring lightweight, rugged construction, distinctive styling and economy pricing

•

CONSTRUCTION DETAILS

- CASE BODY: One piece welded 20 GA steel with four (4) fixed 16 GA steel mounting angles.
- Mounting angles have ⁹⁄₃₂" clearance holes; 8 (10-32) clip nuts supplied.
- Rear perforated panel included. (1¾" open @ bott.)
- FINISH: STANTRON #21-T Textured Royal Blue.
- TRIM: Extruded, anodized aluminum with pecan vinyl inlay top and bottom and black vinyl inlay in vertical extrusion and handle.
- Four (4) rubber feet.

COMPUTER
PERIPHERAL
FURNITURE

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1. SHIPPED "ALL-WELDED TOGETHER".
2. NO "NUTS & BOLTS" FOR ASSEMBLY
3. CHOICE OF 6 "DESK-LEG" DESIGNS
4. 17 COLORS (SMOOTH OR TEXTURED)
5. 5 LAMINATE COLOR/PATTERNS....
6. 5 WIDTHS AVAILABLE............
7. 4 DEPTHS AVAILABLE............
8. 3 HEIGHTS AVAILABLE...........

– PLUS OTHER FEATURES & ACCESSORIES –

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the COLUMBIA

the CENTURY

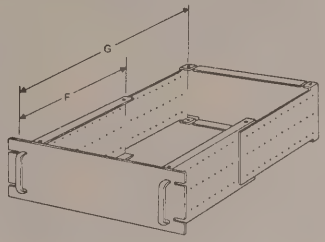
the EXECUTIVE

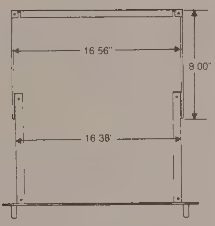
THE STRONGBOX™

E-SERIES EXTENSION KITS

E-Series depth Extension kits are user adjustable in ½″ increments for intermediate and extended chassis depth. Thus any chassis depth from 9½″ to 26″ is available off-the-shelf.

E-Series kits contain 2 Extension Side Panels and 2 Extension Perforated Covers.





EXTENSION RANGE

Kit Number	F	+E-Series = G
SB9-	9.50″	9.50″ - 16.50″
SB12-	12.00″	12.00″ - 19.00″
SB-	19.00″	19.00″ - 26.00″

E-SERIES DEPTH EXTENSION KITS

Extension Kit Number	Mates With			Price
E-3	SB9-3	SB12-3	SB-3	125.00
E-5	SB9-5	SB12-5	SB-5	128.00
E-7	SB9-7	SB12-7	SB-7	131.50
E-8	SB9-8	SB12-8	SB-8	132 50

Add dash "—SAC" to kit number to get Solid instead of Perforated covers (deduct $20.00 from kit price). Add dash "—SAC 1" to kit number to get one, each, Solid and Perforated cover (deduct $10.00 from kit price).

PARTS

Order SB9, SB12, SB Series parts from this table. Parts in each column mate with others of same length.

	KIT DEPTH	KIT DASH NUMBER -3	-5	-7	-8
Front Panel	ALL	FP-3	FP-5	FP-7	FP-8
Handle	ALL	SBH-3	SBH-5	SBH-7	SBH-8
Interior Mounting Panel	ALL	IMP-3	IMP-5	IMP-7	IMP-8
Side Panel	SB9-	SP9-3	SP9-5	SP9-7	SP9-8
	SB12-	SP12-3	SP12-5	SP12-7	SP12-8
	SB-	SP-3	SP-5	SP-7	SP-8
Perforated Cover	SB9-	PAC-9	PAC-9	PAC-9	PAC-9
	SB12-	PAC-12	PAC-12	PAC-12	PAC-12
	SB-	PAC	PAC	PAC	PAC
Solid Cover	SB9-	SAC-9	SAC-9	SAC-9	SAC-9
	SB12-	SAC-12	SAC-12	SAC-12	SAC-12
	SB-	SAC	SAC	SAC	SAC
Bottom Mounting Plate	SB9-	IMP-8	IMP-8	IMP-8	IMP-8
	SB12-	BMP-12	BMP-12	BMP-12	BMP-12
	SB-	BMP	BMP	BMP	BMP
Heavy Cover Plate	SB9-	HCP-9	HCP-9	HCP-9	HCP-9
	SB12-	HCP-12	HCP-12	HCP-12	HCP-12
	SB-	HCP	HCP	HCP	HCP
Solid Bearing Slide	SB9-	SLD-9/12	SLD-9/12	SLD-9/12	SLD-9/12
	SB12-	SLD-9/12	SLD-9/12	SLD-9/12	SLD-9/12
	SB-	SLD	SLD	SLD	SLD
Depth Extension Kit	ALL	E-3	E-5	E-7	E-9

RACK-MOUNT CHASSIS KITS

Kit Dash Number	Number of Rack Units	Front Panel Height	Price SB9	SB12	SB
−3	2	3.47″	198.00	204.00	213.00
−5	3	5.22″	203.50	209.50	218.50
−7	4	6.97″	212.50	218.50	227.50
−8	5	8.72″	219.00	225.00	234.00

Add dash "—SAC" to kit number to get Solid instead of Perforated covers (deduct $20.00 from kit price). Add dash "—SAC 1" to kit number to get one, each Solid and Perforated cover (deduct $10.00 from kit price).

Detailed drawings available on request. Other sizes available; call for quote.

Prices subject to change.
Order Bottom Mounting Plates, Slides and additional Interior Mounting Panels as separate items.

STRONGBOX™ P.O. BOX 84508 / LOS ANGELES, CA 90073
(213) 204-0472

THE STRONGBOX™

HEAVY-DUTY RACK-MOUNT CHASSIS

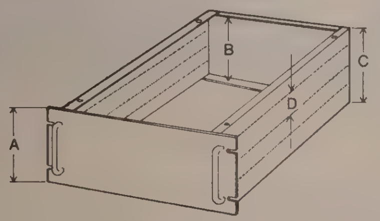
SB9, SB12, SB SERIES

Four EIA Front Panel heights: 3½″, 5¼″, 7″ and 8¾″ (3, 5, 7, 8 nominal).

Three standard depths: 9½″ (SB9-Series), 12″ (SB12-Series) and 19″ (SB-Series).

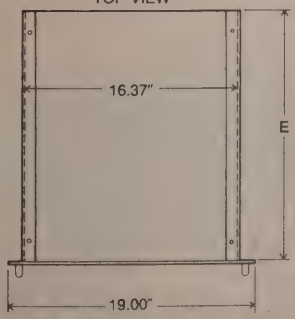
Components can be ordered as complete kits or by the part. See kit and parts tables. Kits and parts come with all required captive machine hardware. Front, Side and Mounting Panels are clear iridited. Covers and Handles are clear anodized. All surfaces are satin grained.

Each kit contains 1 Front Panel, 2 Handles, 2 Side Panels, 2 Perforated Covers and 1 Interior Mounting Panel.



TOLERANCE = ±0.030″

TOP VIEW



SPECIFICATIONS

PARTS

FRONT PANEL — 0.125″ thick, 19.00″ wide. 6061-T6 aluminum. EIA notched.

SIDE PANEL — 0.090″ thick, 5052-H32 aluminum. Three rows of holes on ½″ centers for mounting panels, card cages, etc.

INTERIOR MOUNTING PANEL — 0.090″ thick, 16.37″ wide. 5052-H32 aluminum. For use as a rear panel or vertical or horizontal mounting panel.

PERFORATED ALUMINUM COVER — 0.063″ thick. 16.85″ wide. 3003 aluminum. Assembles with four screws and captive stainless steel nuts.

STRONGBOX™ HANDLE — Standard aluminum handle.

ACCESSORIES

BOTTOM MOUNTING PLATE — 0.090″ thick, 16.37″ wide. 5052-H32 aluminum. For mounting heavy components. Clear iridite finish.

SOLID BEARING SLIDE — .38″ thick. Cad plated steel. Adjustable brackets for assembling to EIA tapped-rail.

SOLID ALUMINUM COVER — 0.063″ thick, 16.85″ wide. 5052-H32 aluminum. Clear anodize finish.

HEAVY COVER PLATE — 0.090″ thick, 16.88″ wide. 5052-H32 aluminum. For mounting heavy components flush with chassis bottom. Clear iridite finish.

Detailed drawings available on request. Other sizes available; call for quote.

DIMENSIONS

Kit Number	A	B	C	D	E
SB9-3	3.47	3.09	3.15	0.75	9.50
SB9-5	5.22	4.84	4.90	1.50	9.50
SB9-7	6.97	6.59	6.65	2.00	9.50
SB9-8	8.72	8.34	8.40	3.00	9.50
SB12-3	3.47	3.09	3.15	0.75	12.00
SB12-5	5.22	4.84	4.90	1.50	12.00
SB12-7	6.97	6.59	6.65	2.00	12.00
SB12-8	8.72	8.34	8.40	3.00	12.00
SB-3	3.47	3.09	3.15	0.75	19.00
SB-5	5.22	4.84	4.90	1.50	19.00
SB-7	6.97	6.59	6.65	2.00	19.00
SB-8	8.72	8.34	8.40	3.00	19.00

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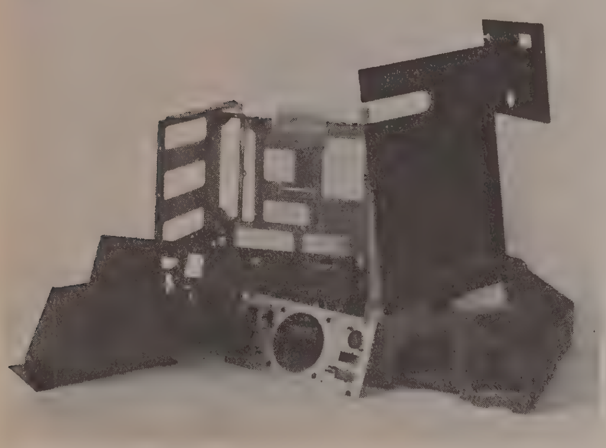
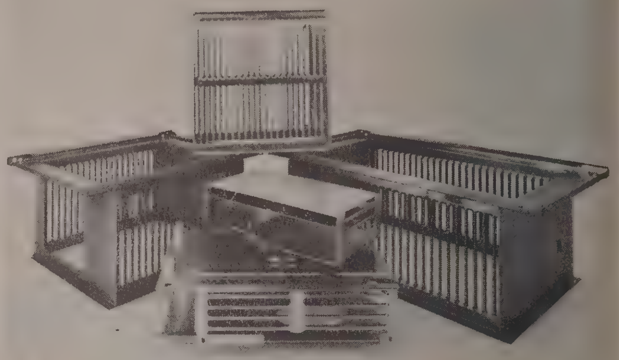
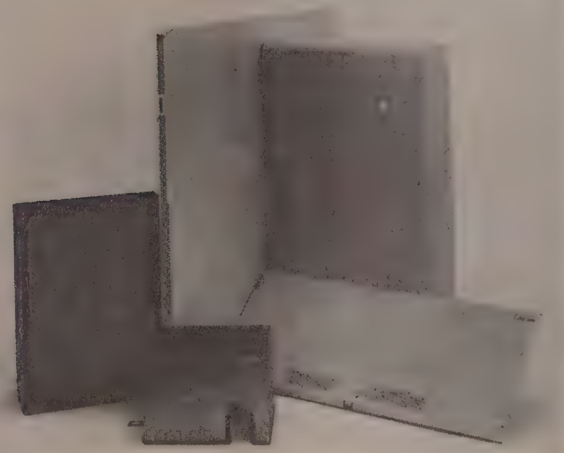
CUSTOM METAL FABRICATION



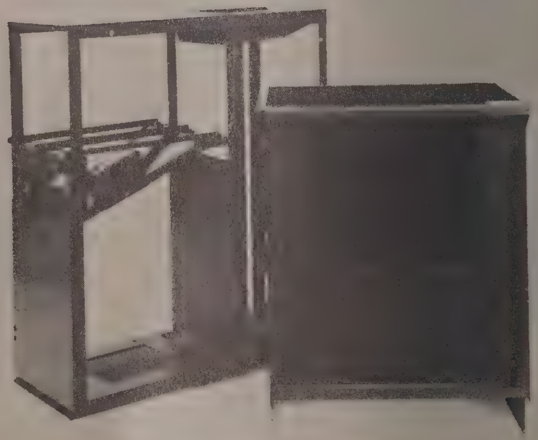
CHASSIS CRS/Galv./Alum. — Painted or plated. Spotwelding hardware / brackets to your specifications.



CARD GUIDES All sizes, configurations, metal louvered, plated.



PERFORATED Standard hole sizes and patterns sheared to size and welded or selectively punched to your design.



FRAMES Sheet metal (shown above) or square tubing. Our fixturing guarantees squareness, flatness and perpendicularity.

**When you need more than a stamping...
Designing, welding, assembly and painting or plating to your rigid specifications.**

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Dept. EM, 733 Davis Street, Scranton, Pennsylvania 18505 (717) 346-3871

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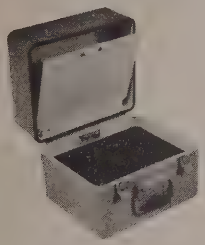
Watertight Instrument Protection

- ALUMINUM
- PORTABLE
- HEAVY DUTY

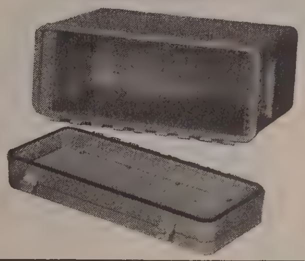


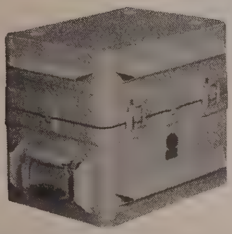
Watertight Cases

TA manufactures over 60 standard case sizes from 5″ × 9″ to 24″ × 42″ and can fabricate cases to custom sizes with no tooling charges. All TA watertight cases utilize the unique "Chevron Seal" to insure no leaks when submerged under 3 feet of water for one hour.

Consoliners for 19″ Rack Panels

TA consoliners mount 19″ NEMA/EIA rack panels from 5¼″ to 26¼″ high. Available with single or dual covers for access to rear connectors and controls, as well as tray compartments in one or both covers for accessory storage.



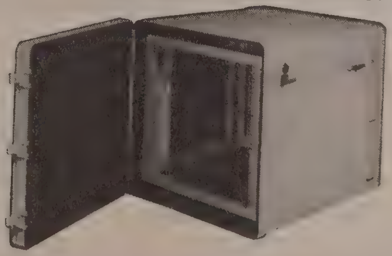


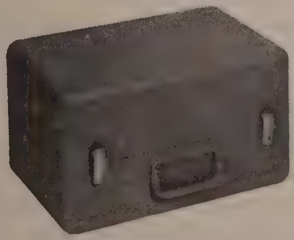
Military Cases

TA military cases are designed to meet or exceed the rigorous demands of applicable specifications such as MIL-C-4150, MIL-T-21200, MIL-T-28800, MIL-T-945 and MIL-C-4734 as well as MIL-STD-108 and MIL-STD-810. TA has supplied cases to one or more of these specifications to most aerospace prime contractors.

Isoliners

TA cases, with shock-mounted internal frames to accommodate 19″ NEMA/EIA panel-mounted equipment, absorb shock and vibration while still maintaining watertight integrity. Standard features include dual covers, automatic breather valves, and choice of bottom feet, casters, or fork-lift skids.





Econ-alum

Lightweight aluminum cases using a joggle interface to yield economical drip-proof transit cases. Recommended for light to medium-duty cases where submergence under water is not a requirement.

TA INSTRUMENT CASE COMPANY DEPT. EE

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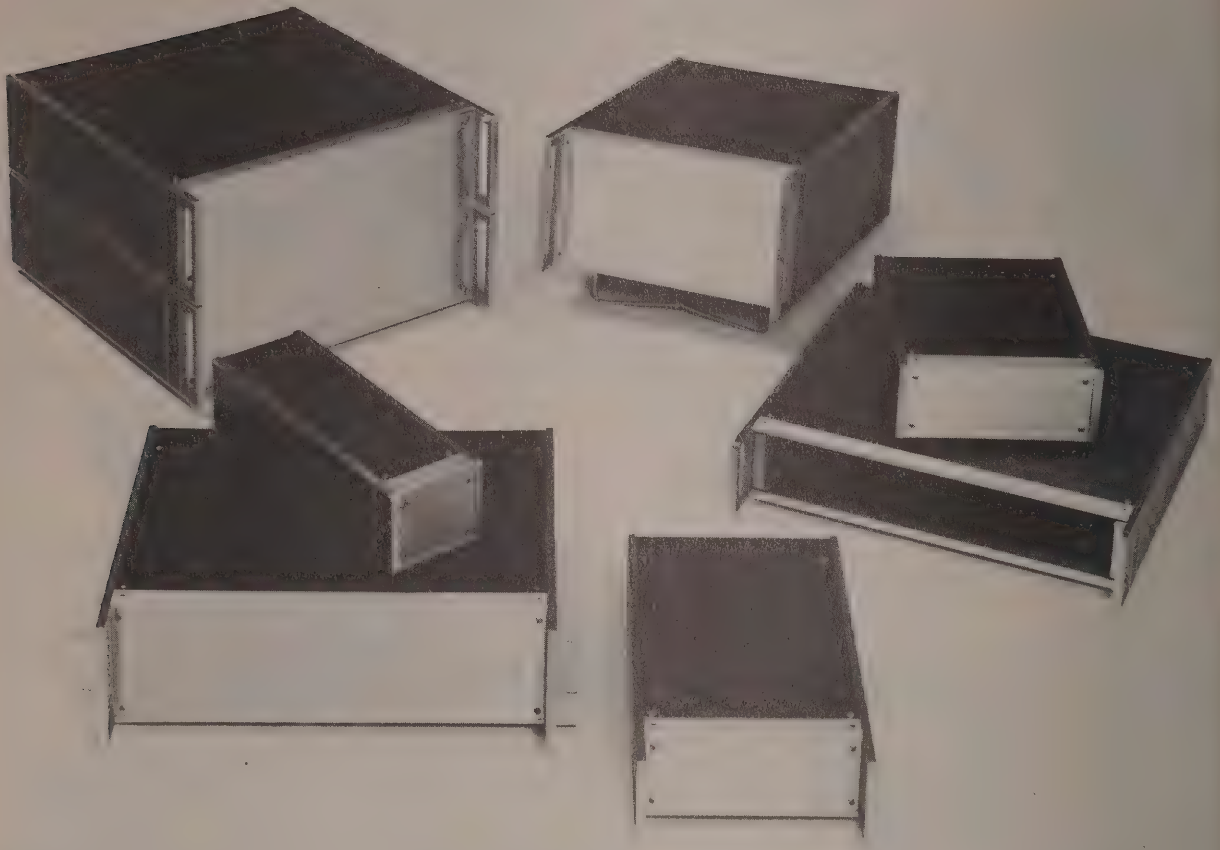
TDJ Company, Inc.

Instrument Enclosures



Available With or Without Handles

Easily Assembled

Sliding Top and Bottom Covers for Maximum Accessibility

Convenient Side Frame Mounting Hole Pattern

Will Accept Your Custom Removable Front and Rear Panels

Standard Colors — Black, Brown and Blue

Over 100 Standard Models Available

The BETA-LINE Series enclosures offer the ultimate in quality and versatility and provide an extensive range of standard packaging dimensions. Rugged die cast aluminum side frames are uniquely engineered to accommodate the latest modular construction. The top and bottom as well as the side covers are easily removed for quick internal access. The beautifully finished side frames and vinyl clad aluminum covers combine to produce a superbly crafted enclosure. Standard vinyl colors include blue, black and brown. A full complement of optional accessories include instrument bails, rack mounting kits, rack mounting slides and aluminum front or rear panels. Rack mounting complies with MIL-STD-189. A retractable instrument bail is available for bench mounting applications. The flexible design of these enclosures permits us to provide customized enclosures for your special requirements.

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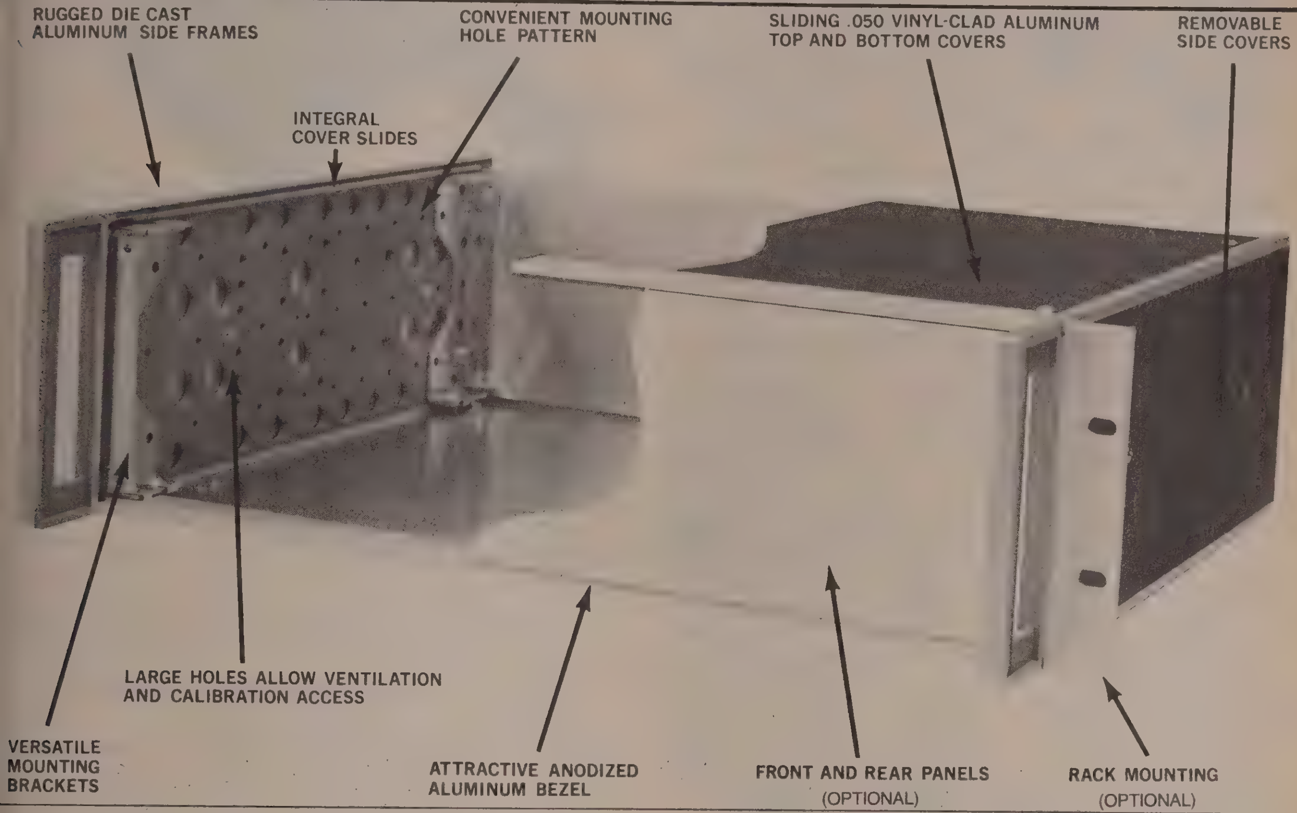
TDJ Company, Inc.

Instrument Enclosures


RUGGED DIE CAST ALUMINUM SIDE FRAMES
CONVENIENT MOUNTING HOLE PATTERN
SLIDING .050 VINYL-CLAD ALUMINUM TOP AND BOTTOM COVERS
REMOVABLE SIDE COVERS
INTEGRAL COVER SLIDES
LARGE HOLES ALLOW VENTILATION AND CALIBRATION ACCESS
VERSATILE MOUNTING BRACKETS
ATTRACTIVE ANODIZED ALUMINUM BEZEL
FRONT AND REAR PANELS (OPTIONAL)
RACK MOUNTING (OPTIONAL)

Model number is determined by outside dimensions of enclosure. Example for Model **B-350-13-1700** is:

B 350-13-1700 H

3.5 inches High
13.0 Inches Deep
17.0 Inches Wide
Add "H" to Model No. to indicate "With Handle"

3.5 Inch Height	5.25 Inch Height	7 Inch Height	8.75 Inch Height
B-350-13-1700H	B-525-13-1700H	B-S700-13-1700H	B-S875-13-1700H
B-350-13-1275	B-525-13-1275	B-S700-13-1275	B-S875-13-1275
B-350-13-0850	B-525-13-0850	B-S700-13-0850	B-S875-13-0850
B-350-13-0425	B-525-13-0425	B-S700-13-0425	B-S875-15-1700H
B-350-15-1700H	B-525-15-1700H	B-S700-15-1700H	B-S875-15-1275
B-350-15-1275	B-525-15-1275	B-S700-15-1275	B-S875-15-0850
B-350-15-0850	B-525-15-0850	B-S700-15-0850	B-S875-17-1700H
B-350-15-0425	B-525-15-0425	B-700-17-1700H	B-S875-17-1275
B-350-17-1700H	B-525-17-1700H	B-700-17-1275	B-S875-17-0850
B-350-17-1275	B-525-17-1275	B-700-17-0850	
B-350-17-0850	B-525-17-0850		
	B-525-21-1700H		
	B-525-21-1275		
	B-525-21-0850		

10.5 Inch Height	12.25 Inch Height	14 Inch Height	15.75 Inch Height
B-S1050-13-1700H	B-S1225-13-1700H	B-S1400-13-1700H	B-S1575-17-1700
B-S1050-13-1275	B-S1225-13-1275	B-S1400-13-1275	B-S1575-17-1275
B-S1050-13-0850	B-S1225-13-0850	B-S1400-13-0850	B-S1575-17-0850
B-S1050-15-1700H	B-S1225-15-1700H	B-S1400-15-1700H	B-S1575-21-1700
B-S1050-15-1275	B-S1225-15-1275	B-S1400-15-1275	B-S1575-21-1275
B-S1050-15-0850	B-S1225-15-0850	B-S1400-15-0850	B-S1575-21-0850
B-S1050-17-1700H	B-S1225-17-1700H	B-S1400-17-1700H	
B-S1050-17-1275	B-S1225-17-1275	B-S1400-17-1275	
B-S1050-17-0850	B-S1225-17-0850	B-S1400-17-0850	
B-S1050-21-1700H			
B-S1050-21-1275			
B-S1050-21-0850			

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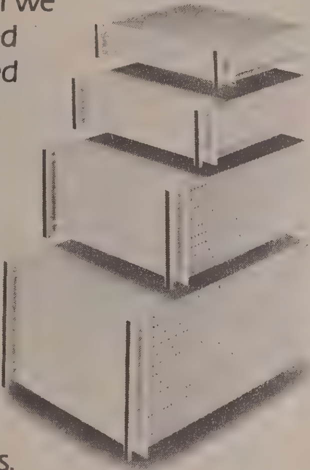
Yes, we can ship tomorrow the ready-made rack chassis drawer you need to package

your current project. With heavy-duty construction: most parts at least .090 material, side members double-bent or rail-reinforced. In stock: all 28 combinations of 7 standard EIA heights (3.47 thru 13.97) and 4 depths (12, 15, 19 & 24"), shipped 95% of the time in ONE working day after we get the order. Prepunched hole patterns, pre-installed captive nuts, assembly hardware included, and scores of options that make it easy to assemble your choice of more than 10^{10} configurations. Choice of five cover styles in every depth and three handle styles in every height, with color options.



And YES, to further take care of your installation needs, many accessories are available: mounting panels, bars, angles, card cages, plus 16 models of slides with adapters as needed. Substantial dollar-volume discounts regardless of product mix. The protection of a full unconditional money-back warranty up to 45 days & $500.00, even if you've already modified the parts. And YES, you can have a catalog mailed to you today. Phone toll-free for your copy including price list, with all this and a lot more. Yes, yes, yes!

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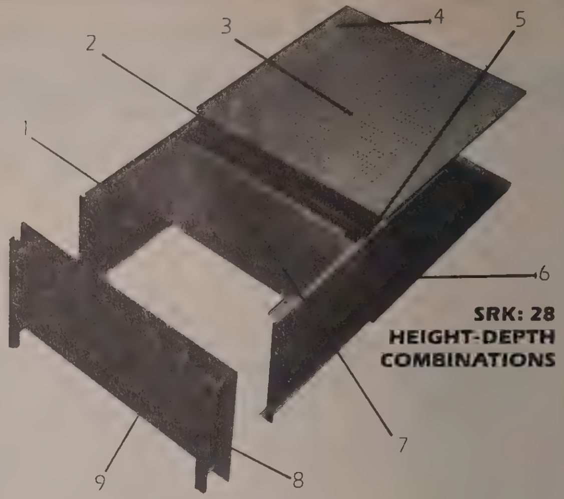
(800-832-4627)

From California phone 800-CHASSIS
(800-242-7747).

From AK, HI, phone 213-478-0046.



SRK: 28 HEIGHT-DEPTH COMBINATIONS

1. Four floating captive nuts in each side frame for securing covers.
2. Heavy-duty Mounting Plate (HMP series) for use as rear panel, .090 thick, 16.37 wide. Stainless captive nuts for easy assembly to side frames. Can be recessed for protection of rear-panel components.
3. Two Perforated Aluminum Non-sliding Covers (PANC), .063 thick, grained and deep-etched, clear-anodized finish. Prepunched hole pattern aids ventilation.
4. Non-sliding covers are stiffened by flanges on all four edges.
5. Notched top & bottom flanges permit rotating the mounting plates or large P.C. boards past edge of side frame for maintenance.
6. Two Seven-Eighths Side Frames (SF-SE series) with 4 tabs for top and bottom clearance and 7/8" vertical hole spacing between hole rows for easy assembling of mounting plates and vast interchangeability of accessories. Surface is grained or deep etched or bead blasted. .090 thick aluminum alloy, 5052-H32, depths 12", 15", 19" or 24", with double bends top and bottom for strength.
7. Second Heavy-duty Mounting Plate (HMP series), like rear panel for mounting internal components. Can be assembled vertically for convection cooling, or horizontally for other purposes.
8. Two Variable Profile Handles (VPH series), clear anodized, with decorative black vinyl. Two optional handle styles: T-section & Oval-section.
9. EIA Front Panel (FP series), 6061-T6 grained surface. 1/8" thick (option 3/16" thick); Stocked in seven EIA heights from 3.47 to 13.97. (Electronic Industry Association dimensions.) All assembly hardware furnished. Clear chemical film finish.

In addition to the SRK series, Techmar features the CRK series, CHASSIS RACK KIT. The CRK combines the 7/8-inch side frame spacing with a full bottom plate for mounting components to offer a value-engineered and versatile chassis. Both the CRK and SRK conveniently integrate hybrid designs such as P.C. card frames, large amplifiers, and power supplies into a self-contained unit.

Techmar continues to offer the HRK and ARK series rack-mounting kits with the previous hole pattern and other features.

Order as kits or as a list of parts; there's no price difference. Most options and accessories are interchangeable. The table below shows the basic components of the SRK & CRK rack-mounting lines. Accessories and other enclosure lines are shown on the opposite page. Additional off-the-shelf accessories are listed.

SPECS: Surfaces except covers and handles are satin grained and finished in clear chemical film per MIL Spec C-5541, Class 1A, insuring electrical continuity when parts are assembled using the stainless captive nuts and internal tooth washers furnished. Covers and handles are deep-etched and are anodized per Mil Spec A-8625, Type 2, Class 1.

SRK & CRK SERIES

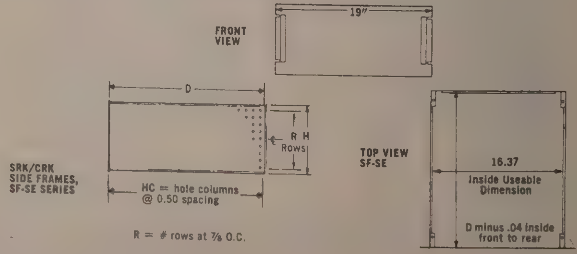
H	3.15	4.90	6.65	8.40	10.15	11.90	13.65
R	3	5	7	9	11	13	15

AVAILABLE DEPTHS & NUMBERS OF HOLE COLUMNS

DEPTH	12"	15"	19"	24"
HC	23	29	37	51

RACK KIT COMBINATIONS OF PARTS
(FOR OTHER COMBINATIONS, ASK FOR EXCEPTIONS OR ORDER BY THE PART.)

Kit Series	Front Panel (Add ht.)	Handle Series (Add ht.)			Side Frame Series (Add dash no.'s for ht. & depth)			Covers (Add dash no. for depth)			Mounting Plate Series		Bottom Plates
	FP	VPH	OSH	TSH	SF-SE	SF4TB	SF	PANC	PAHC	PASC	HMP	CMP	FBP
SRK	1	2			2			2			2		
CRK	1		2		2						1		1


FRONT VIEW
19"
D
R H
Rows
SRK/CRK SIDE FRAMES, SF-SE SERIES
HC = hole columns @ 0.50 spacing
R = # rows at 7/8 O.C.
TOP VIEW SF-SE
16.37
Inside Useable Dimension
D minus .04 inside front to rear

OPTIONS AND ACCESSORIES FOR TECHMAR'S PREFAB CHASSIS SYSTEM

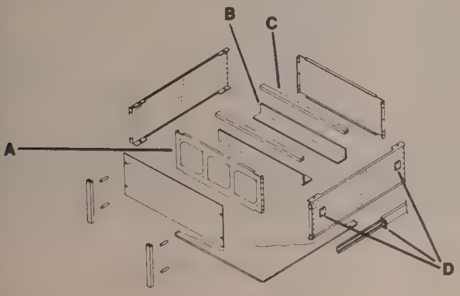
ACCESSORIES SHOWN INCLUDE:

A. Fan Mounting Panel to mount standard sized fans for use in all Techmar enclosures. Can be installed horizontally in any kit or vertically in kits 5¼" in height or larger. Four models for accommodating 1, 2 or 3 each 3⅛" or 4½" fans with help of cutout covers.

B. Mounting Angles with additional screw holes to facilitate a variety of mounting configurations including rotated mounting in SRK & CRK enclosures. From 1.25 × 1.25 × .25 × 16.37 to 1.75 × 1.75 × .25 × 16.37.

C. Mounting Bars for use with large or heavy components. Ends are predrilled and tapped for easy assembly. From .25 × .75 × 16.37 to .50 × 6.00 × 16.37.

D. Slides with mounting adapters to fit all side frame styles and depths. Slides fasten to any EIA tapped mounting rail. Ball-bearing and solid-bearing slides available in 16 versions.



OTHER OPTIONS AND ACCESSORIES STOCKED FOR IMMEDIATE SHIPPING:

1. Side-hinged & bottom-hinged front panels for use with front-loading orientation of Techmar card cages in any Techmar rack kits.
2. Two handle options besides the 3-piece variable-profile: oval-section & T-section, for all heights.
3. Quarter-inch-spacing card cages in 3 heights to mate with many off-shelf mother boards. Can assemble for top, front or rear loading using pre-punched holes in side frames.
4. .2-spacing card cages.
5. Continuous-flange side frames, .090 thick, 19" deep in 7 EIA-related heights.
6. Full Bottom Plate for mounting components, .090" aluminum with grained surface and clear chem film, 16.37 wide × four depths.
7. .063 thick Mounting Plates: CMP series
8. Kit depths 12", 15", 19", 24".

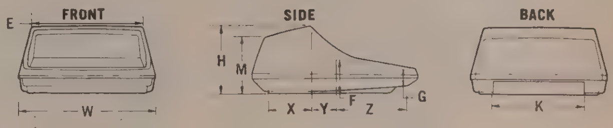
FOR ADDITIONAL INFORMATION AND SPECS CALL TECHMAR APPLICATION ENGINEER.

SHADOPANE™ THERMOPLASTIC

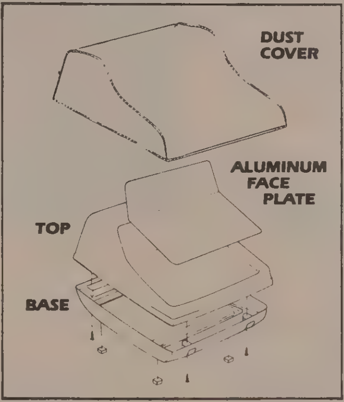
All models of front panels for Techmar rack-mounting enclosures are now stocked in Shadopane™ Thermoplastic as well as aluminum, including regular front panels (FP series), side-hinged (HFP series) and drop down (DFP series), all in EIA heights from 3.47 to 13.97. Add dash TP to kit number or part number.

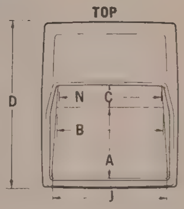
ASK ABOUT

the new Ultra-Variable (UV) rack-mounting kits and parts, due to be in stock starting in the Spring of 1984, featuring optional decorative side-frame covers, extra-rigid reinforcing rails on side frames, and seven-eighths mounting-hole patterns in mounting panels.



MINI-CONSOLES (MC SERIES)





A & C MEASURED ALONG SLOPES.

B MEASURED AT INTERSECTION OF SLOPES

N MEASURED AT TOP OF UPPER SLOPE.

J MEASURED AT BOTTOM OF LOWER SLOPE

For enclosing small instruments economically in high style. Formed from textured high-impact thermo-plastic. Strong, light-weight, heat and scratch resistant, non-conducting. Easy to drill, punch and clean. Top and base assemble with screws from underneath base. Stocked in four sizes and four color combinations for immediate shipping. Assembly hardware included

COLOR COMBINATIONS	DASH NO.
Blue Top, Black Base	—BL-BK
Blue Top, Cocoa Base	—BL-CO
Beige Top, Black Base	—BE-BK
Beige Top, Cocoa Base	—BE-CO

To order: Select model number from table, add dash numbers for color combinations from the other table.

Material: Kydex® or flame-retardant ABS thermoplastic with textured surface

Workability: May be drilled and punched as required (special metal-working tools not needed.

Chemical stability: Not affected by short-term exposure, at normal ambient temperature, to many acids, alkalies, greases, alcohols, gases and petrochemical compounds

Decorating: May be hot stamped or silk-screen printed

Dimensional stability: Excellent rigidity. Stable to at least 160°F

Fire retardation: UL-approved self-extinguishing

DIMENSIONS

MODEL NO.	H	W	D	A	B	C	E	F	G	J	K	M	N	X	Y	Z	LOWER SLOPE	UPPER SLOPE	SHIPPING WEIGHT
MC-3H	3.8	6.8	8.4	3.5	5.2	1.4	5.4	2.0	1.3	5.4	4.1	3.0	4.8	2.9	0.9	3.4	9°	48°	4 lbs
MC-4H	4.6	8.9	10.9	4.4	6.7	2.1	7.3	2.7	1.5	7.3	5.8	3.8	6.4	3.2	1.4	4.2	10°	45°	4 lbs
MC-6H	5.8	10.9	13.6	5.6	8.3	2.7	8.8	3.2	1.9	9.0	7.7	5.0	8.0	4.1	1.8	5.4	10°	43°	5 lbs
MC-9H	9.5	15.8	18.5	8.7	12.6	3.7	13.7	5.0	2.0	13.3	9.6	8.0	12.6	5.5	1.9	8.1	15°	58°	9 lbs

TECHMAR CORPORATION
2232 So. Cotner Ave.
Los Angeles, CA 90064/(213) 478-0046

VILLARREAL
ELECTRONICS

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B & K PRECISION
BRADY
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BURGESS

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C & K
CENTRAL
CHEMTRONICS
CONSOLIDATED
CRYDOM

D
D & R ASSOCIATES
DEARBORN
DURACELL

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EAGLE
EASCO
ELDEMA
ELECTRONIC CORD SETS
ECS (Electronic Component Sales)
EMC (Electronic Molding Corp.)
EVEREADY

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TRIPLETT
TRW-CINCH
TRW-IRC

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Rack Mount and Stand Alone Enclosures

Aluminum die castings and fabrications provide mechanical ruggedness. Features such as mounting rails, die cast handles, popular sizes, and attractive color choices and finishes give you design flexibility. Call now for detailed catalogs or to discuss your application requirements.

Rack Mount

- **CH Series.** Heavy duty rack mount units in four EIA panel heights (3½″, 5¼″, 7″, and 8¾″). Die cast handles. Easy access from top, bottom, or rear.

Rack Mount or Stand Alone

- **R Series.** Precision die cast aluminum R series enclosures are available in two EIA heights: 3½″ and 5¼″. Rack and half rack sizes.

- **SR Series.** Features side bumpers and flush-mounted retractable carrying handles. Vacuum-formed protective front panel cover.

Stand Alone

- **L Series.** Aluminum L series cases feature interior mounting rails for PC boards. Two standard sizes: 12″W x 5″H x 10″D and 8½″W x 4″H x 10″D. Optional lock-position carrying handles for tilt-up use.

All available in a wide range of finishes and colors.

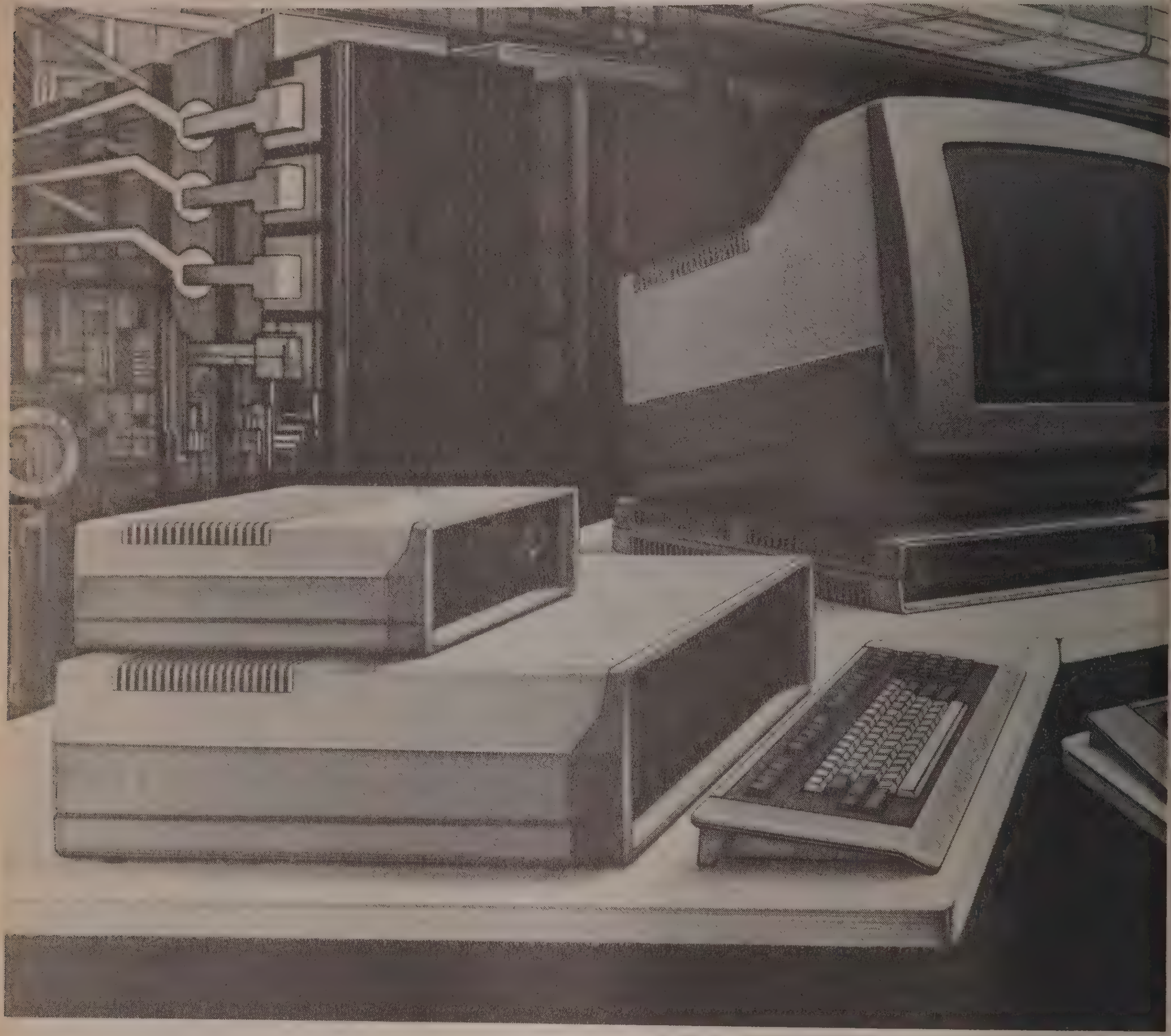
Other enclosure models feature pistol grips, panel mounts, belt clips, and underdash mobile mounts.

Custom printed and CNC turret punched panels.

Tracewell Enclosures, Inc.
7032 Worthington Galena Rd.
Columbus, OH 43085
Telephone: (614) 846-6175

1-800-848-4525

Tracewell Enclosures



REAL RFI/EMI Shielding in new Tracewell Enclosures

New OEM computer enclosures injection molded of Mobay's* 40% aluminum flake-filled resin, Bayblend ME-6540, provide RFI/EMI shielding and maximum design freedom.

The material is flame retardant and provides 99.99% EMI shielding effectiveness. Its 50-45 dB attenuation over a 0.5-1000 mHz frequency range eliminates the need for further EMI processing.

System 15 enclosures are designed with overlapping joints, proper slot geometry, and positive electrical continuity throughout. Brass inserts join tops, bottoms, and panels for positive grounding. The aluminum flake is from Transmet

Tracewell Enclosures

*Mobay Chemical Corporation, Plastics and Coatings Division/Pittsburgh, PA 15205/412-777-2000.

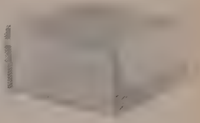
Corporation and incorporated in the resin to provide EMI shielding and excellent heat dissipation. System 15 houses most current designs for CRTs, disk drives, keyboards, and all popular busses including VME.

Tracewell Enclosures, Inc.
7032 Worthington-Galena Road
Columbus, Ohio 43085
Call: 1-800-848-4525
In Ohio call: (614) 846-6175

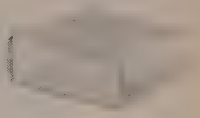
System Enclosures

- Removable top vent for plug-in PC cards. Accepts 19" EIA front panel.

917
- 10"H x 20"W x 20"D.
- Sized for 12" CRT, two 8" floppy disks, card cage and power supply.

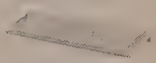


717
- 8"H x 20"W x 20"D.
- Sized for 9" CRT, 5¼" disk, card cage, and power supply.



Keyboard Enclosures

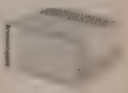
116
- 1.5"H x 20"W x 7"D with a 9° angle.
- Sized for 5 row low profile keyboard.



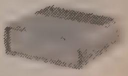
316
- 2"H x 20"W x 9"D with a 9½° angle.
- Sized for 7 row keyboard with palm rest and joystick or track ball.

Extension Enclosures

681
- 7"H x 13"W x 13"D.
- Sized for 7" CRT, and 5¼" disk or bus system with power supply.



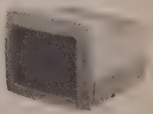
381
- 4"H x 13"W x 13"D.
- Sized for 5" CRT, and mini or micro floppy disk.



CRT Enclosures

151
CRT Enclosures
- Sized for 14" color or 15" black and white CRT.

Kit or chassis mount.



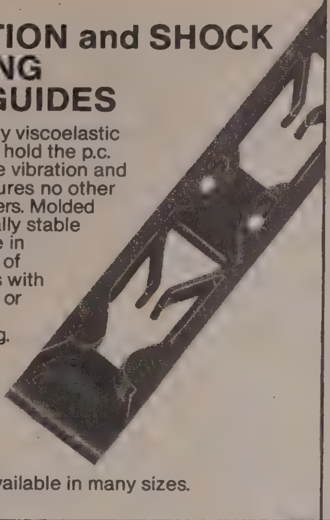
152
Enclosure and yoke
- Tilts and swivels.
- Mounts on 917, 717, and 153 base.

153
Enclosure, yoke, and base
- Base sized for two half high 5¼" floppy disk and large PC board.

UNITRACK

VIBRATION and SHOCK DAMPING CARD GUIDES

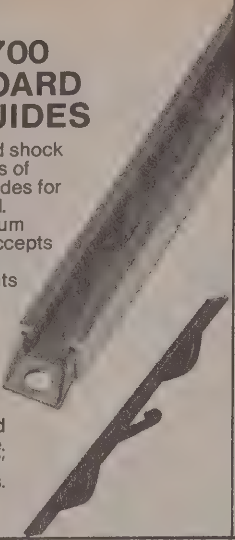
Smooth, sturdy viscoelastic spring fingers hold the p.c. card to reduce vibration and shock . . . features no other card guide offers. Molded of dimensionally stable polycarbonate in a wide variety of sizes. All sizes with snap-in button or hole for quick, easy mounting. For 1/16" cards for military or commercial applications. Slotted card guides available in many sizes.



UNITRACK

Series 4700 "BIG" BOARD CARD GUIDES

Get vibration and shock damping features of UNITRACK'S guides for any size p.c. card. Extruded aluminum guide housing accepts 1½" long spring fingered segments to any length.



Segments molded of polycarbonate. for 1/16" or 1/8" cards.

UNITRACK

I-C KOOLER™ Heat Sink for IC's

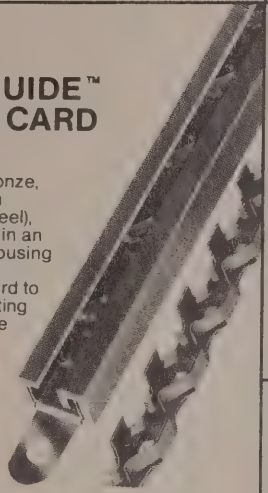
I-C Kooler slips over IC and holds firmly in place. Spring grade copper alloy transfers heat from bottom and top of IC and dissipates heat to air. Tests show I-C Kooler dissipates over 2 watts!

- Sizes to fit most IC's.

UNITRACK

KOOLER-GUIDE™ HEAT SINK CARD GUIDE

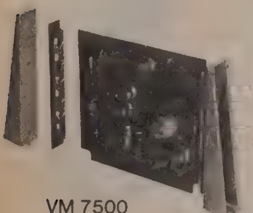
A metal (phosphor bronze, heat treated beryllium copper or stainless steel), spring fingered guide in an extruded aluminum housing which very effectively transfers heat from card to chassis. Various mounting methods: studs, swage nut, clips. For 1/16" or 1/8" boards for military and commercial applications.



UNITRACK

VERSAMOUNT™

Mounts isolated p.c. cards to chassis or motherboard. Firm support brackets molded of dimensionally stable polycarbonate. A rigid mount with just one stud. Also available in metal for larger boards.

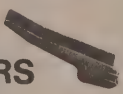


VM 7500

VM 7700

UNITRACK

CARD EXTRACTORS (EJECT – INJECT)



Lightweight and thin (for dense packaging). Formed of stainless steel – epoxy color coded. For 1/16" or 3/32" or 1/8" boards. Plastic, stable polycarbonate extractors also available for 1/16", 3/32" or 1/8" boards.

UNITRACK®

UNITRACK Div., Calabro Industries, Inc.

Goshen Corporate Park
1372 Enterprise Drive
P.O. Box 1927
West Chester, PA 19380
Telephone (215) 692-0800
TWX 510-663-0000

Sales Reps and Distributors in major industrial areas

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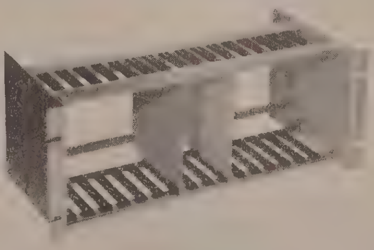
COMPLETE CATALOG
& PRICES

UNITRACK

VERSACAGE™

Card Cages

Low cost, easy to assemble, sturdy cages built to standard EIA sizes. Eleven standard sizes and specials available to meet any requirement. All parts available separately and individually priced in catalog.



Cages for Cooling

Fan-Pan™ are built to use with all standard size cages and specials. Fans mount directly below p.c. cards or power pack for efficient, evenly distributed air flow. Available with one, two or three fans. Quiet, long life fans deliver 100 cfm each.

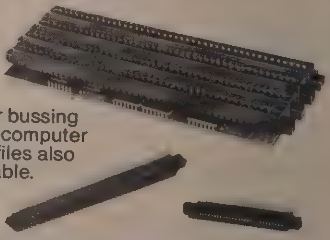
UNITRACK

M80 CARD FILES

for microcomputers

Low cost, lightweight, sturdy card file holds Multibus® (Intel) cards. Available sizes to hold from 2 to 24 cards. Card files available separately or with bus and connectors.

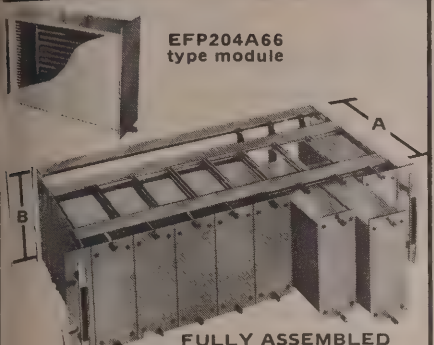
Bus or motherboard cards available to hold 2 to 24 cards. Available separately or with card file. 86 position on .156 centers connections mounted in 100% inspected bus board. P-2 connectors are available with card file and bus board or they are available separately. P-2 connectors are 22 position on .100 centers.



Other bussing microcomputer card files also available.

RACK MOUNTING CARD & MODULE RACKS DESK TOP INSTRUMENT CASES

Vector

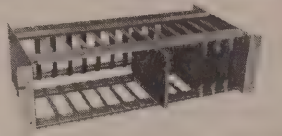


FULLY ASSEMBLED CMA3A20 MODULE RACK with added handles, filler panels, EFP204A66 modules

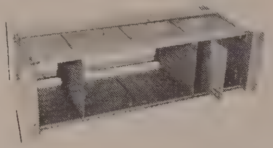
Vector-Pak Module Racks are supplied completely assembled, ready for EFP modules. Connectors mount anywhere along bracket-mounted struts which are pre-loaded with 4-40 nuts. All aluminum, natural anodized finished racks provide sturdy custom-looking housing. Fit standard 19" racks.

Part No.	Description	"A" Dim.	"B" Dim.
CMA3A16	Assembled module rack for ten 1.6"w. x 6.6"lg. modules (EFP164A66)	9"	5¼"
CMA3A20	Assembled module rack for eight 2"w. x 6.6"lg. modules (EFP204A66)	9"	5¼"
CMA4A20	Assembled module rack for eight 2"w. x 9.6"lg. modules (EFP204A97)	12"	5¼"
CMA4A30	Assembled module rack for five 3" w. × 9.7" lg. modules. (EFP304A97)	12"	5.25

Order modules separately ● 66 module, 6 rack models available off the shelf ● Contact Vector for special requirements



CCK13 Type



CCK3 Type

CARD RACKS FULLY ASSEMBLED

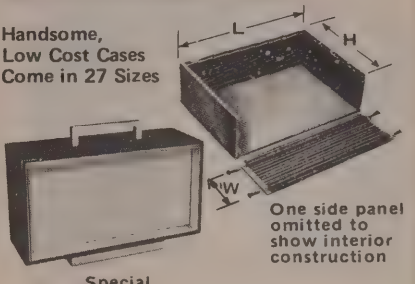
Vector Card Racks fit 19-inch racks and are supplied completely assembled ready for cards. Connectors mount without hole drilling to bracket mounted aluminum struts which have captive 4-40 nuts. 5¼" high unit holds cards 3" to 4½" wide by 6.5" or 9.6" long. 8¾" high unit holds cards 6½" to 7.98" wide by 9.6" long. Sturdy aluminum construction used throughout except on CCK13P which has nylon guides.

Part No.	Description
CCK13	Assembled rack 5¼"h. x 19" w. x 8.9" deep with 21 pairs of guides installed on ¾" centers. Also available – CCK13P w/plastic guides
CCK17	Assembled rack 8¾"h. x 19" w. x 12" deep with 21 pairs of guides installed on ¾" centers
CCK3	Assembled rack 5¼"h. x 19" w. x 8.9" deep with continuous card guides top & bottom

Table top cases, doors, & accessories available ● 20 models available off the shelf ● Fast production on custom models

MULTI MOD SMALL INSTRUMENT CASES

Handsome,
Low Cost Cases
Come in 27 Sizes



One side panel omitted to show interior construction

Special

Elegant finish is clear anodize.

Extruded aluminum frames for light weight, high strength, and fine appearance.

Internal extruded grooves position and hold 1/16" circuit cards, spaced .150 or .160.

Base and two side panels are quickly removable for easy access to contents.

Optional accessories include bezels and handles.

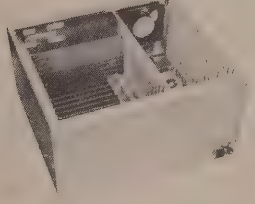
Catalog No.	Width	Length	Height
W45-10-66B	4.5	10.00	6.61
W45-10-46B	4.5	10.00	4.61
W45-86-46B	4.5	8.61	4.61
W30-66-46B	3.0	6.61	4.61
W20-46-46B	2.0	4.61	4.61
W20-46-31B	2.0	4.61	3.10
W16-31-31B	1.6	3.10	3.10

USER DESIGNED PACKAGING

All parts of the extensive Vector-Pak system may be purchased separately to speed packaging prototypes.

STD-BUS & S100-BUS COMPUTER MAINFRAMES

VP200
STD BUS MAINFRAME

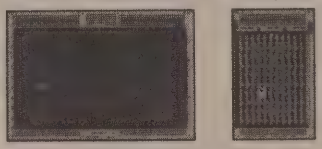


VP100
S100 BUS MAINFRAME

- **Heavy duty power supplies**
- **All-metal construction for shielding: 9" × 17" × 17"**
- **EMI line filter and spike limiter**
- **Cooling fan with EMI filter and finger guard**
- **Easy access by sliding out top cover**
- **Beige vinyl clad aluminum covers, brushed clear anodized aluminum trim and panels**
- **Rack-mountable on customer-supplied slides**
- **STD-Bus 16-slot motherboard, S100-Bus 12-slot motherboard with faraday shield lines, superior power and ground busing and decoupling capacitors**
- Mainframe includes key-operated power switch; lighted reset button; one unswitched and two switched 110 V AC convenience outlets; covered holes on rear for DB25 connectors for terminal, printer, modem and networking, two DB50 connectors for disk drives; two centronics connectors for printers and BNC connector for video out

EUROCARDS FOR GENERAL USE PLUS VME BUS, RM65 AND CIMBUS

Sizes per DIN 41494. Accept 96-position type C connector per DIN41612



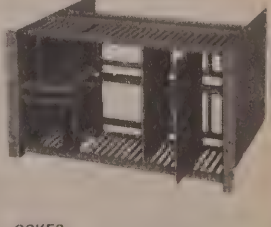
- Holes drilled & plated-thru, .043" dia. on 0.1" grid.
- Accept any width DIP ICs.

Single size: 3.94" × 6.3" × .062"
4614: 3-hole-pad and bus board
4614-2: Wire wrapping bus board
4614-3: Pad-per-hole board (.080" dia. solder pads around each hole).

Double size: 9.19" × 6.3" × .062"
4615: 3-hole-pad & bus board
4615-2: Wire wrapping bus board
4615-3: Pad-per-hole board (.080" dia. solder pad around each hole).

EUROCARD RACKS

CATALOG NUMBER	DESCRIPTION	CAGE SIZE HIGH	CAGE SIZE WIDE	CAGE SIZE DEEP
CCKE1 CCKE1U	Assembled Unassembled	5¼"	19"	14¼"
CCKE2 CCKE2U	Assembled Unassembled	10½"	19"	14¼"
DK1	25% divider kit for CCKE2	CARD HEIGHT IN MILLIMETERS		100 mm 233.4 mm
DK2	50% divider kit for CCKE2			100 mm 233.4 mm
DK3	75% divider kit for CCKE2			100 mm 233.4 mm
DK4	100% divider kit for CCKE2			100 mm 233.4 mm



CCKE2 EUROCARD RACK WITH DK1 DIVIDER KIT INSTALLED
(10 pairs of card guides supplied.)

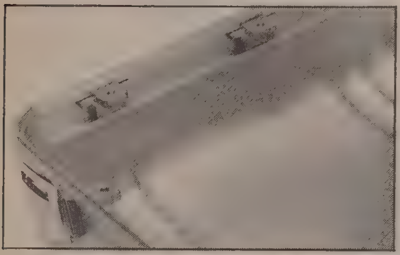
FAST PRODUCTION ON CUSTOM MODELS

VECTOR ELECTRONIC COMPANY, Inc., 12460 Gladstone Avenue, P.O. Box 4336, Sylmar, CA 91342-0336 Phone (818) 365-9661

CARRYING CASES

Zero Centurion® Elite

Top-of-the-line protection and appearance for your finest equipment.



High strength, light weight, and clean simple lines characterize these distinctive deep drawn cases. Surfaces are seamless and wrinkle-free. Satin buffing and anodizing is the standard finish for the line, and makes the most of aluminum's natural good looks.

Zero Centurion "Elite" cases are dust-proof, odor-proof, and weather resistant. Their strength and durability have been proven in actual use around the world. Each case is strong enough to stand on, due to specially heat-treated case shells; yet even the largest (20.00 x 29.00 x 9.94) weigh less than 15 pounds.

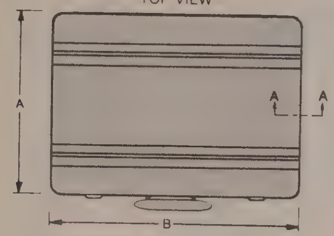
Measurements shown in inches

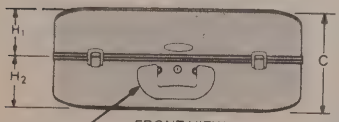
100X Series (standard configuration) Zero Centurion "Elite" Cases

MODEL NUMBER	A OUTSIDE WIDTH	B OUTSIDE LENGTH	C INSIDE HEIGHT	H_1 INSIDE HEIGHT	H_2 INSIDE HEIGHT	MATERIAL THICKNESS	NET WEIGHT LBS.	OPTIONAL FOAM PACK
100X	9.00	12.00	5.00	2.00	3.00	.040	3.31	M44784-100
101X	9.00	16.00	7.75	2.50	5.25	.051	5.00	M44784-101
102X	13.00	18.00	4.50	2.00	2.50	.040	5.00	M44784-102
103X	13.00	18.00	6.00	2.50	3.50	.040	5.37	M44784-103
105X	13.00	21.00	6.50	2.75	3.75	.040	6.12	M44784-105
106X	17.00	21.00	7.50	3.00	4.50	.051	8.37	M44784-106
109X	18.00	26.00	8.50	3.75	4.75	.051	10.68	M44784-109
110X	18.00	26.00	9.00	4.25	4.75	.051	10.81	M44784-110
111X	18.00	24.00	7.00	3.00	4.00	.051	9.50	M44784-111
112X	18.00	24.00	8.00	3.50	4.50	.051	10.00	M44784-112
113X	18.00	24.00	8.50	4.00	4.50	.051	10.00	M44784-113
114X	17.00	18.00	12.00	2.00	10.00	.040	8.56	M44784-114
116X	9.00	16.00	14.50	2.50	12.00	.051	7.18	M44784-116
129X	20.00	29.00	9.94	4.97	4.97	.051	13.75	M44784-129
132X	8.50	19.75	14.43	1.20	13.23	.051	8.12	

Note: Width and length are outside dimensions; height is an inside dimension.
Lower shell of Model 114X, 116X and 132X complete with spot welded wrap-around riser section.

TOP VIEW





FRONT VIEW

Handle locates on top for 101X, 116X and 132X cases.

DESCRIPTION/ SPECIFICATIONS

Case Shell	Deep drawn 2024 aluminum alloy, heat treated.
Closure	Interlocking tongue and groove extrusion of 6063-T5 aluminum alloy, mechanically formed and compressed to case shell; elastomeric gasket seal.
Latches	Two; positive seat, ball type: chrome plated.
Hinge	Piano type (continuous), aluminum, riveted to case; stainless steel pin.
Handle	Injection molded Tennite®, gray.
Lock/key	Tumbler type/Doublefaced.
Feet	Aluminum, riveted to case.
Nameplate	Zero Corporation nameplate mounted on upper case shell above handle.
Finish	Satin buffed sulfuric acid anodized on all exposed surfaces.
Tolerances	±.06"

Tennite is a registered trademark of Eastman.

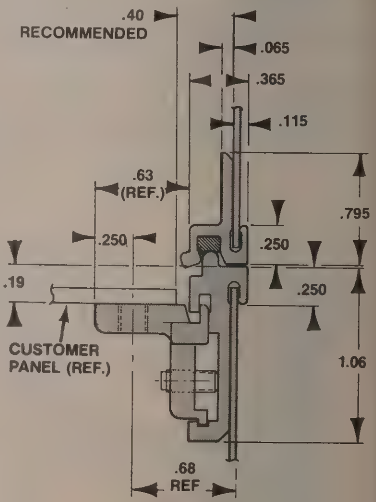
OPTIONAL ACCESSORIES:

M44784 foam pack made of gray polyurethane foam.

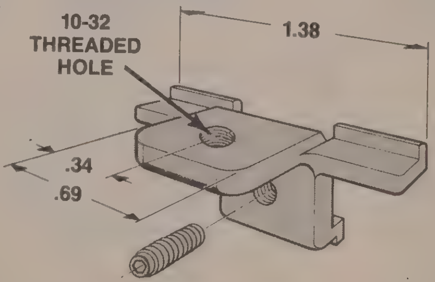
2 lb. density—layered bottom and convoluted top.

ZP20653-1 Adjustable Panel Support Brackets —specify quantity.

ZP 20352 Caster Kit available only on models 109X, 110X and 129X.

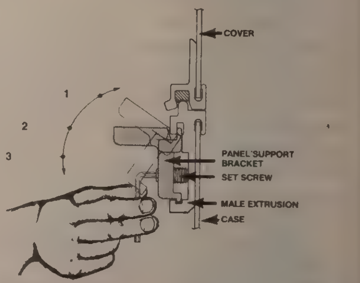


PANEL SUPPORT BRACKET ZP20653-1 (OPTIONAL)



PANEL SUPPORT BRACKET INSTALLATION

1. Insert bracket into extrusion as shown.
2. Rotate downward, as shown, until support bracket is seated.
3. Slide bracket laterally as required to align bracket with panel hole location and tighten set screw.



ZERO CORPORATION

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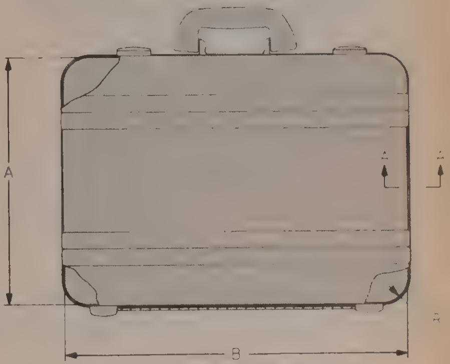
CARRYING CASES

Zero Style-Lite

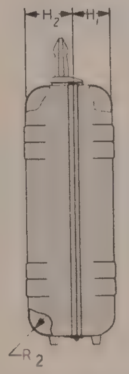
The new high style, low cost way to give your product or service a professional look. An ideal instrument, sample, service, or parts case.

Model Number	Inside A	Inside B	Inside H_1	Inside H_2	Inside R_1	Inside R_2	Net Weight Lbs.	Optional Foam Pack
■ CP500	8.92	11.92	2.00	3.00	.71	1.00	2.50	M44784-100
■ CP502	12.92	17.92	2.00	2.50	1.00	1.00	4.38	M44784-102
■ CP503	12.92	17.92	2.50	3.50	1.00	1.00	4.63	M44784-103
■ CP505	12.92	20.92	2.75	3.75	1.00	1.00	5.13	M44784-105
■ CP506	16.90	20.92	3.00	4.50	1.00	1.25	6.00	M44784-106
■ CP510	17.90	25.92	4.25	4.75	1.00	1.25	7.25	M44784-110

Note: All dimensions are in inches; tolerances ±.06″.



FRONT VIEW



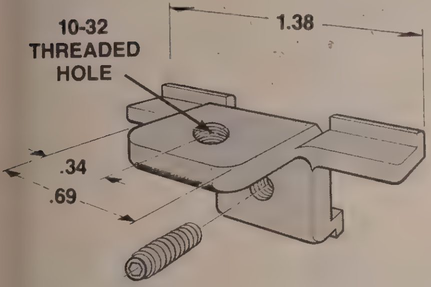
SIDE VIEW

OPTIONAL ACCESSORIES:

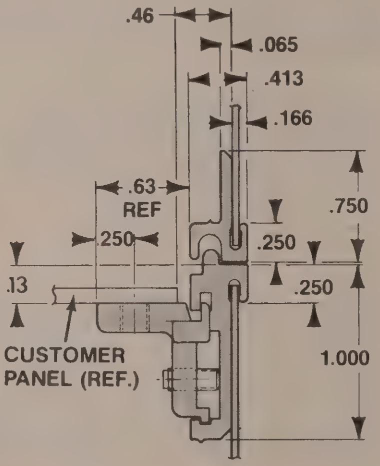
NOTE: Accessories may be ordered separately or as suffixes as noted below.
Adjustable Panel Support Bracket ZP20653-1

M44784 Foam Pack, made of grey polyurethane foam, 2 pound density, bottom is layered, top has convoluted face.

Panel Support Bracket
ZP20653-1 (optional)



SECTION AA
Case Extrusion Panel Support Bracket



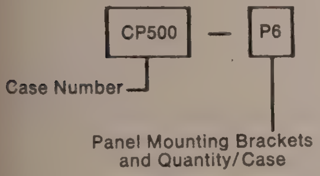
All dimensions are in inches; tolerance ±.06″.

ORDERING INFORMATION

Simply order by part number, indicating quantity. If panel support brackets are required, add suffix P and indicate quantity per case.

If foam pack is required, add suffix F to part number.

SAMPLE PART NUMBER



DELIVERY

Normal delivery is two weeks after receipt of order.

Tennite is a registered trademark of Eastman.

DESCRIPTION/ SPECIFICATIONS

Shells	Thermoformed ABS (Acrylonitrile Butadene Styrene) high-impact plastic; black Morocco grain outside, smooth finish inside.
Latches	Two, positive-seating; bail type, chrome plated.
Handle	Injection molded Tennite®. Black.
Hinge	Piano type (continuous), nickel-plated.
Feet	Molded plastic.
Closure	Interlocking tongue and groove extrusion of 6063-T52 aluminum alloy, firmly riveted to case shell.

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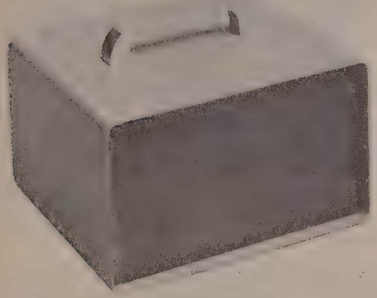
ZERO CORPORATION

CARRYING CASES

Zero Centurion 400 Series Instrument Cases



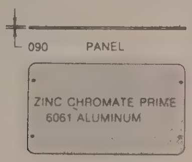
Distinctively designed deep drawn aluminum cases give small instrument a sales-appealing custom appearance. Seamless, deep drawn shells provide protection, even under rugged conditions. The aluminum front panel, recessed for protection of dials, meters, knobs, etc., is attached with four slotted screws for quick access.

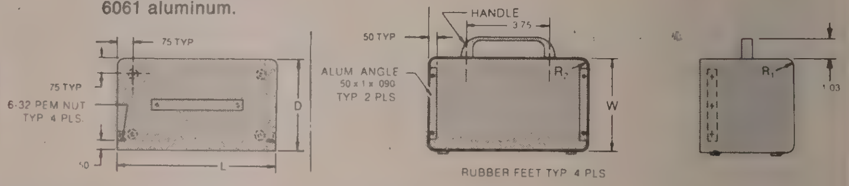
DESCRIPTION/ SPECIFICATIONS

Case	ZIC 407 to 409: .063" 1100-0 aluminum. ZIC 411: .603" 6061-0 aluminum.
Handle	Cast aluminum, brushed finish.
Feet	Four, rubber.
Color	Case: Textured blue polyester exterior. Panel: Zinc chromate primed 6061 aluminum.

CASE NUMBER	W	L	D	R_1	R_2
ZIC 407	4.00	7.00	5.00	.31	.31
ZIC 408	4.50	7.75	7.00	.25	.25
ZIC 409	6.00	9.00	5.00	.31	.31
ZIC 411	7.00	11.00	7.00	.50	.31

Measurements shown in Inches

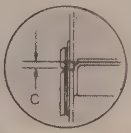




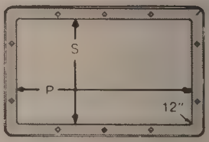
Zero Centurion Valuline 600 Series Aluminum Carrying Cases

(See Description/Specifications on page 4)

Latch assembly
Reference



Strongest of the "Valuline" cases, this series features a spot-welded pre-drilled panel flange, with threaded inserts installed to accept a full-size, primed .090" aluminum panel, which is included with the basic case.



CASE NUMBER	W	L	H_1	H_2	T	ALLOY	R_1	R_2	C	S	P	SIZE PANEL
ZIC 608	7.00	8.00	2.50	6.00	.06	1100-0	.31	.31	.25	5.37	6.37	6.50 x 7.50
ZIC 609	9.00	9.00	2.50	8.00	.06	6061-0	.50	.50	.25	7.37	7.37	8.50 x 8.50
ZIC 610	6.69	10.69	2.50	6.00	.09	6061-0	.50	.50	.21	5.00	9.00	6.18 x 10.18
ZIC 611	7.00	11.00	2.50	6.00	.06	6061-0	.50	.31	.34	5.37	9.37	6.31 x 10.31
ZIC 612	8.37	11.50	2.50	7.00	.06	6061-0	.50	.56	.25	6.75	9.87	7.87 x 11.00
ZIC 613	9.19	13.25	2.50	9.00	.09	6061-0	.56	.56	.28	7.50	11.56	8.56 x 12.62
ZIC 616	10.00	16.00	2.50	9.00	.09	6061-0	1.00	1.00	.28	8.31	14.31	9.50 x 15.50

Note: W, L & H are outside dimensions, R_1, R_2, P & S are inside dimensions.

Zero Centurion Valuline 7000 Series Aluminum Carrying Cases

Most economical of the "Valuline" cases; the ZC 700 Series cases feature fully-gasketed closure around edge of case. Hinges are separable for easy cover removal.

CASE NUMBER	W	L	H_1	H_2	T	ALLOY	R_1	R_2	LATCHES FRT.	LATCHES SIDE
ZC 7010	4.00	7.00	1.25	2.90	.06	1100-0	.31	.31	2	—
ZC 7020	4.00	8.75	1.25	2.90	.06	1100-0	.19	.25	2	—
ZC 7030	5.00	7.00	1.25	3.65	.06	1100-0	.31	.31	2	—
ZC 7040	5.50	8 00	1.25	3.65	.06	1100-0	.25	.25	2	—
ZC 7050	5.68	10.00	1,25	4.65	.06	1100-0	.25	.25	2	—
ZC 7060	6.00	9.00	1.25	4.65	.06	1100-0	.31	.31	2	—
ZC 7070	6.00	14.50	1.37	4.53	.06	1100-0	.44	.50	2	—
ZC 7080	7 00	11.00	1.50	5.40	.06	6061-0	.50	.31	2	—
ZC 7090	8.00	14.00	1.87	6.03	.06	6061-0	.87	.87	2	—
ZC 7100	9.00	9.00	1.50	6.40	.06	6061-0	.50	.50	2	—
ZC 7110	9.19	13.25	1.62	7.28	.06	6061-0	.59	.59	2	1

Note: W, L & H are outside dimensions: R_1 and R_2 are inside dimensions.

(See Description/Specifications on page 4)

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CARRYING CASES

Zero Centurion Valuline ZIP 800 Series Aluminum Carrying Cases

Most versatile of the "Valuline" cases, this series features a fully-gasketed closure of extruded aluminum, spot-welded to the case shell interior to permit installation of optional panel support brackets and full-size primed panel (order separately). An O-ring gasket provides additional environmental protection.

CASE NUMBER	W	L	H_1	H_2	T	ALLOY	R_1	R_2	LATCHES FRT.	LATCHES SIDE	HINGES	OPTIONAL PANEL NUMBER
ZIP 805	6.00	9.00	2.50	5.00	.06	1100-1	.31	.31	2	—	2	ZP 9178-05
ZIP 810	7.00	11.00	2.50	7.00	.06	6061-0	.50	.31	2	—	2	ZP 9178-10
ZIP 820	8.00	14.00	2.50	7.00	.06	6061-0	.87	.87	2	—	2	ZP 9178-20
ZIP 830	8.75	12.00	2.50	8.00	.06	6061-0	.50	.75	2	—	2	ZP 9178-30
ZIP 840	9.19	13.25	2.50	9.00	.06	6061-0	.59	.59	2	—	2	ZP 9178-40
ZIP 850	10.00	16.00	2.50	9.00	.09	6061-0	1.00	1.00	2	1	3	ZP 9178-50

Note: W, L & H are outside dimensions; R_1 and R_2 are inside dimensions.

OPTIONAL ACCESSORY:

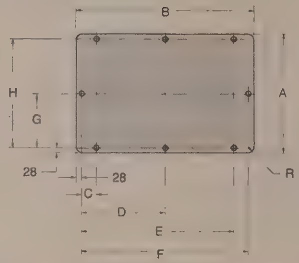
Adjustable Panel Support Brackets (specify quantity)—ZSP 9-014

ZIP 800 Series Panel Dimensions

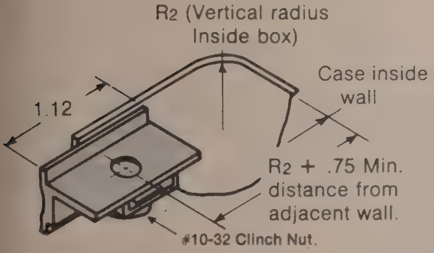
PANEL NUMBER	A	B	C	D	E	F	G	H	R	NO. OF HOLES
ZP 9178-05	5.37	8.37	1.50	—	6.31	—	—	4.81	.18	4
ZP 9178-10	6.37	10.37	2.00	—	7.81	—	—	5.81	.18	4
ZP 9178-20	7.37	13.37	2.87	—	9.93	12.81	3.40	6.81	.62	6
ZP 9178-30	8.12	11.37	2.00	—	8.81	10.81	3.78	7.56	.50	6
ZP 9178-40	8.56	12.62	2.50	—	9.56	12.06	4.00	8.00	.43	6
ZP 9178-50	9.31	15.31	2.50	7.37	12.25	14.75	4.37	8.75	.75	8

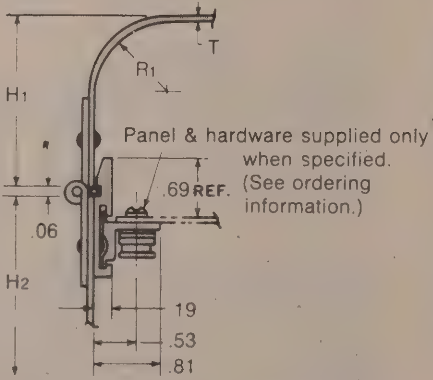
Adjustable Panel Support Bracket
ZSP 9-014 (Option B)

The adjustable panel support bracket shown is an accessory. If desired, specify quantity required for interface with equipment panel. Install per instructions shown below.


B
H
G
A
28
28
C
D
E
F
R

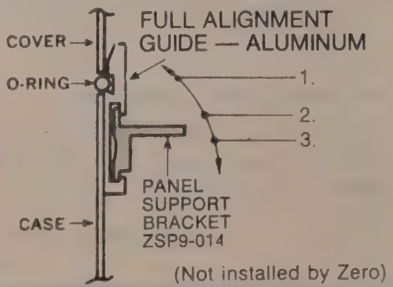
Measurements shown in Inches


R2 (Vertical radius Inside box)
Case inside wall
1.12
R2 + .75 Min. distance from adjacent wall.
#10-32 Clinch Nut.

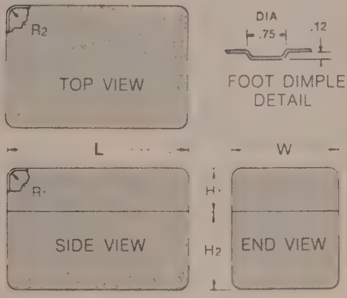

T
R1
H1
Panel & hardware supplied only when specified. (See ordering information.)
.69 REF.
.06
H2
.19
.53
.81

PANEL SUPPORT BRACKET INSTALLATION

1. Apply room temperature cure epoxy to contact surface of support bracket and insert bracket into extrusion slot, as shown.
2. Rotate downward, as shown, until support bracket is seated.
3. Slide bracket laterally as required to align bracket with panel hole location.
4. Allow epoxy to cure prior to further handling. (Note: Epoxy can be obtained locally at most hardware or industrial supply houses.)
5. To order panel support brackets add "B" (Example: ZIP 805B4).


COVER
O-RING
FULL ALIGNMENT GUIDE — ALUMINUM
1.
2.
3.
PANEL SUPPORT BRACKET ZSP9-014
CASE
(Not installed by Zero)

Ruggedly built deep drawn seamless carrying cases are available in three basic configurations *(ZIC 600 Series/ZC 7000 Series/ZIP 800 Series)* and are ideal for housing and/or transporting instrumentation equipment.


R2
TOP VIEW
DIA
.75
.12
FOOT DIMPLE DETAIL
L
W
R
H1
H2
SIDE VIEW
END VIEW

Case dimensions are always shown in the following order:

WIDTH — the narrowest measurement, looking down on the case.

LENGTH — the longest measurement, looking down on the case.

HEIGHT — measured from base to top. The "upper" shell is designated H_1. The "lower" shell is designated H_2.

DESCRIPTION/ SPECIFICATIONS

Material	Aluminum alloy (see tables).
Latches	Zamack #7, nickel plated.
Hinges	Separable pin-type, nickel plated steel, riveted to case/cover.
Handle	ZIC 600 & ZC 7000 Series: Black molded plastic, nickel plated hardware. ZIP 800 Series: Retractable, black molded plastic.
Feet	ZIC & ZC Series: Integral, dimpled; ZIP Series: Four, black rubber.
Gasket	ZC & ZIP Series: Black extruded synthetic rubber.
Finish	Textured blue polyester—outside. Semi-gloss blue polyester—inside.
Tolerances	±.06"

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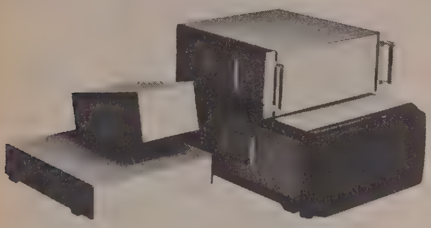
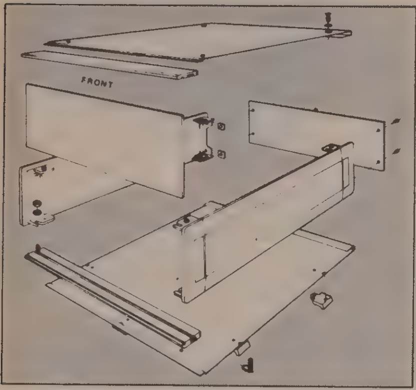
ZERO CORPORATION

INSTRUMENT ENCLOSURES

Zero VIP 6-Way





DESCRIPTION/ SPECIFICATIONS

All units shipped UNASSEMBLED. VIP 6-Way can be hard mounted, used as a portable or table-top unit, tilted, stacked, and racked.

Finish: Case	Textured two-toned blue polyester. Woodgrain vinyl panels with brown trim.
Panels	Semi-gloss gray polyester.
Panels—	
Front & Rear	.125″ aluminum
Top & Bottom	Vented, on models 7″ high or greater on blue vinyl finish only. Venting not available on vinyl woodgrain finish.
Side Handles	Strap-type on 3.5″ & 5.25″ high; Swing-out type on others. (Model 080512-16 has plain side panels without handles.)
Feet	5, plastic, nesting

Zero all-aluminum 6-Way Enclosures represent a thoroughly engineered approach to multi-function enclosures. From the first glance, VIP 6-Way says quality.

OPTIONAL ACCESSORIES

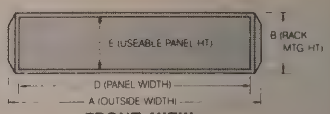
Option "T" — Tilt Stand — two position nickel plated steel.

Option "P" — Rack mounting bracket with pullhandles—aluminum extrusion and die cast handle — for 19″ rack mounting.

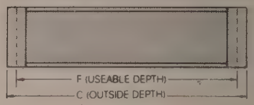
Option "C" — Protective Cover — ABS thermoformed plastic — black (fits front only).

Option "V" — Vertical Joiner Strips (pair).

Option "H" — Horizontal Joiner Strips (pair).



FRONT VIEW



SIDE VIEW

BLUE VINYL ENCLOSURE NO.	WOODGRAIN ENCLOSURE NO.	DIMENSIONS (±0.031″)					
		A	B	C	D	E	F
170312-21	170312-26	16.88	3.50	12.70	15.98	3.15	11.07
170316-21				16.70	15.98	3.15	15.07
170512-21		16.88	5.25	12.70	15.98	4.90	11.07
170516-21	170516-26			16.70	15.98	4.90	15.07
170712-21-X		16.88	7.00	12.70	15.98	6.65	11.07
170716-21-X	170716-26			16.70	15.98	6.65	15.07
170812-21-X		16.88	8.75	12.70	15.98	8.40	11.07
170816-21-X				16.70	15.98	8.40	15.07
170822-21-X	170822-26			22.70	15.98	8.40	21.07
171016-21-X		16.88	10.50	16.70	15.98	10.15	15.07
171022-21-X	171022-26			22.70	15.98	10.15	21.07
171216-21-X		16.88	12.25	16.70	15.98	11.90	15.07
171222-21-X	171222-26			22.70	15.98	11.90	21.07
080312-21		8.43	3.50	12.70	7.52	3.15	11.07
080316-21				16.70	7.52	3.15	15.07
080512-21	080512-16		5.25	12.70	7.52	4.90	11.07
080516-21				16.70	7.52	4.90	15.07

BLUE VINYL ENCLOSURE NO.	NO. WOODGRAIN ENCLOSURE	OPTIONAL ACCESSORIES				
		OPTION H	OPTION V	OPTION P	OPTION C	OPTION T
170312-21	170312-26	B25778C13-1	B25778C11-1	ZP20178-101	ZP112001	B26217-3
170316-21		B25778C13-2	B25778C11-2			
170512-21		B25778C13-1	B25778C11-1	ZP20178-103	ZP112002	
170516-21	170516-26	B25778C13-2	B25778C11-2			
170712-21-X		B25778C13-1	B25778C11-1	ZP20178-105	ZP112003	
170716-21-X	170716-26	B25778C13-2	B25778C11-2			
170812-21-X		B25778C13-1	B25778C11-1	ZP20178-107	ZP112004	
170816-21-X		B25778C13-2	B25778C11-2			
170822-21-X	170822-26	B25778C13-3	B25778C11-3			
171016-21-X		B25778C13-2	B25778C11-2	ZP20178-109	ZP112007	
171022-21-X	171022-26	B25778C13-3	B25778C11-3			
171216-21-X		B25778C13-2	B25778C11-2	ZP20178-111	ZP112008	
171222-21-X	171222-26	B25778C13-3	B25778C11-3			
080312-21		B25778C13-1	B25778C11-1	ZP20178-101	ZP112005	B26217-2
080316-21		B25778C13-2	B25778C11-2			
080512-21	080512-16	B25778C13-1	B25778C11-1	ZP20178-103	ZP112006	
080516-21		B25778C13-2	B25778C11-2			

ORDERING INFORMATION

Units can be ordered with accessories by showing the enclosure number followed by the code letter for each option desired;

EXAMPLE: 170516-21-CTP which specifies the 170516-21 encosure with protective cover, rack mtg. brackets & handle and tilt stand.

NOTE: For models 7″ high or greater the top panel is vented at the rear and the bottom panel is vented at the front on blue polyester finish only. Venting not available on vinyl wood grain finish.

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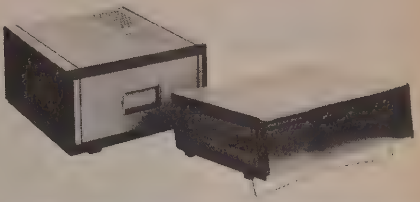
INSTRUMENT ENCLOSURES

Zero VIP Series 19

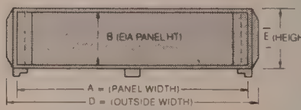
Zero all-aluminum Series 19 enclosures are engineered for lightness and strength, beauty, and versatility. VIP 19 enclosures combine functional design with precision engineering. Components consist of investment castings, extrusions, and specially fabricated aluminum sections.



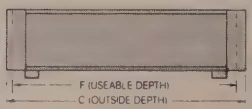
OPTIONAL ACCESSORIES

Option "F"—Front panel
Option "R"—Rear panel
Option "S"—Chassis Slides
Option "T"—Tilt Stand

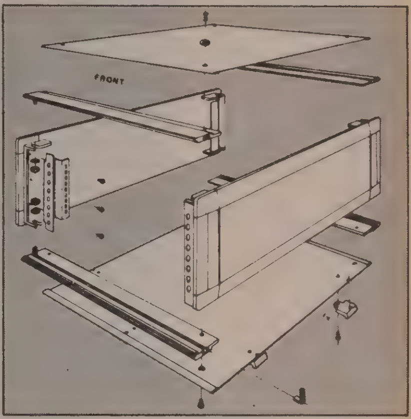
Option "U"—Channel Standoff used in conjunction with Option "S" when slide mounting VIP 6-Way into Series 19. Specify depth -1 for 12", -2 for 16" and -3 for 22".



FRONT VIEW



SIDE VIEW



OPTIONAL ACCESSORIES

DIMENSIONS (±0.031")						ENCLOSURE NO.	OPTION F & R	OPTION S	OPTION T	OPTION U
A	B	C	D	E	F					
19.00	5.25	17.90	20.04	6.03	17.20	190517-41	ZP112000-CO-.12	ZP20498-7	B26217-4	B25778C42 -1, -2, or -3
19.00	7	17.90	20.04	7.78	17.20	190717-41-X	ZP112000-DO-.12			
19.00	8.75	17.90	20.04	9.53	17.20	190817-41-X	ZP112000-EO-.12			
19.00	10.50	17.90	20.04	11.28	17.20	191017-41-X	ZP112000-FO-.12			
19.00	12.25	25.90	20.04	13.03	25.20	191225-41-X	ZP112000-GO-.12	ZP20498-15		
19.00	14	25.90	20.04	14.78	25.20	191425-41-X	ZP112000-HO-.12			
19.00	17.50	25.90	20.04	18.28	25.20	191725-41-X	ZP112000-KO-.12			
19.00	21	25.90	20.04	21.78	25.20	192125-41-X	ZP112000-MO-.12			
19.00	24.50	25.90	20.04	25.28	25.20	192425-41-X	ZP112000-PO-.12			
19.00	28	25.90	20.04	28.78	25.20	192825-41-X	ZP112000-SO-.12			

ORDERING INFORMATION

Units can be ordered with accessories by showing the enclosure number followed by the code letter for each option desired; **EXAMPLE** 190817-41-X-RST, which specifies the 190817-41-X enclosure with rear panel, 1 pair chassis slides and tilt stand.

NOTE: For models 7" high or greater the top panel is vented at the rear and the bottom panel is vented at the front.

DESCRIPTION/ SPECIFICATIONS

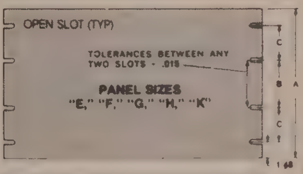
All units shipped UNASSEMBLED.

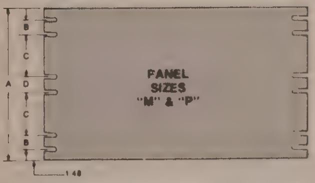
Finish	Textured two-toned blue polyester.
Panels:	
Top & Bottom	Vented on models 7" high and greater.
Side Handles	Strap-type on 5.25" high; Swing-out type on others.
Feet	5, plastic nesting

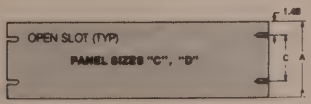
Zero Blank 19 Inch Panels Front & Rear, for VIP 19 Series Enclosures or MATRIX IV Cabinets

Panels: 19" wide, .125" thick 6061-T6 aluminum alloy; Irridited finish. Slots: Open type.

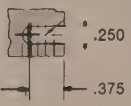
PANELS	DIMENSIONS (±0.031")					PART NUMBER
	A	B	C	D	E	
"C" Size	5.21	—	2.25	—	—	ZP112000-CO-.12
"D" Size	6.96	—	4.00	—	—	ZP112000-DO-.12
"E" Size	8.71	2.25	1.75	—	—	ZP112000-EO-.12
"F" Size	10.46	3.00	2.25	—	—	ZP112000-FO-.12
"G" Size	12.21	5.75	1.75	—	—	ZP112000-GO-.12
"H" Size	13.97	4.00	3.50	—	—	ZP112000-HO-.12
"K" Size	17.47	7.50	3.50	—	—	ZP112000-KO-.12
"M" Size	20.97	1.75	5.25	4.00	—	ZP112000-MO-.12
"P" Size	24.47	1.75	5.25	7.50	—	ZP112000-PO-.12
"S" Size	27.97	1.75	5.25	3.50	4.00	ZP112000-SO-.12

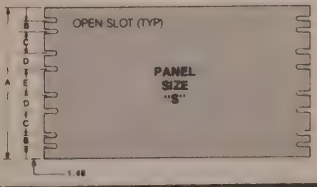

OPEN SLOT (TYP)
TOLERANCES BETWEEN ANY TWO SLOTS - .010
PANEL SIZES "E," "F," "G," "H," "K"
C
B
A
C
1.40





OPEN SLOT DETAIL





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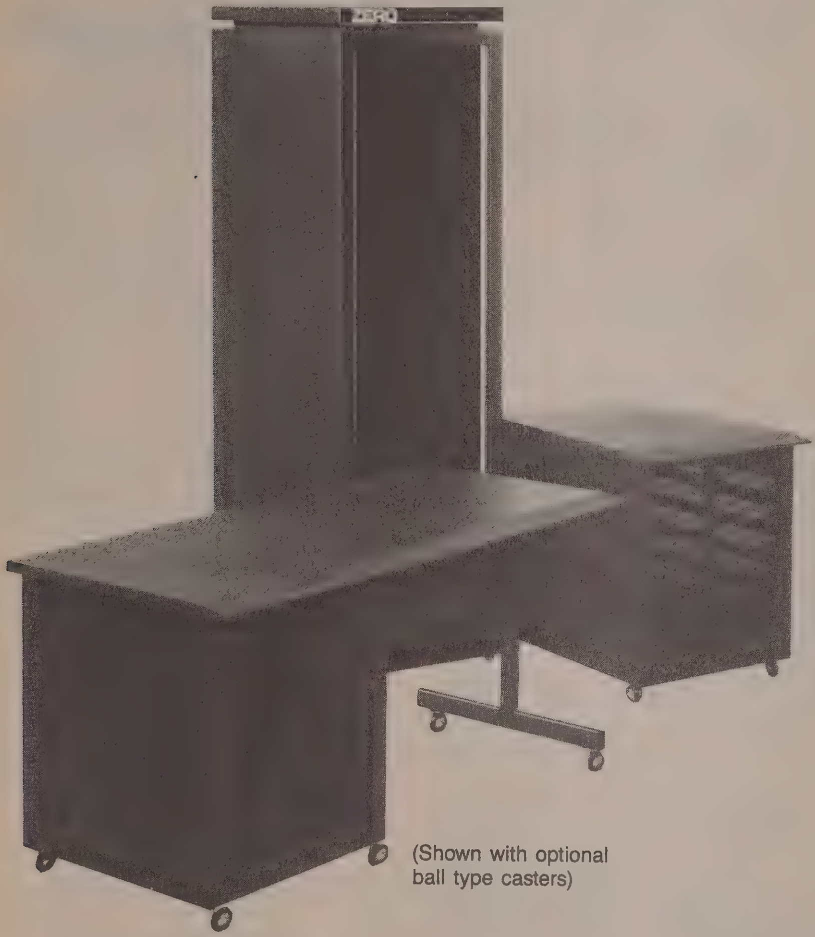
ELECTRONIC CABINETS

Zero Matrix IV Series 303 & 404



(Shown with optional ball type casters)

Quality construction, design flexibility and practical good looks are key benefits of the new Series 303 Desk System from Zero.

Characterized by its rugged good looks and functional engineering, this new line offers custom appearance at off-the-shelf prices.

The Series 303 is available in two basic configurations; the desk system and complimentary mini-cabinet. The standard mini-cabinet includes a non-glare woodgrain desk top with comfort edge, a removable rear panel, vented side panels and pre-drilled mounting flanges. The desk unit includes the basic cabinet with a 60″ desk top, a supporting tubular frame, and a rear modesty panel.

The Series 404 is ideally suited for high strength and rigidity, the space-saving Series 404 uses side panels that function as stationary frame members.

The standard Series 404 consist of a basic frame, a pagoda top, and auxiliary* rear door with louvers on top, four leveling pads, two mounting rails, and provisions for mounting 8.75″ connector panel or blower grille.

All units are finished with a dark brown textured polyester paint. The Series 303 desk top is a non-glare walnut grain phenolic.

As with all of the Matrix IV line, both series offer an extensive list of accessories. If you need assistance in ordering or wish to discuss modifications and alternatives, please consult your local representative.

SPECIFICATIONS

Standard Panel Opening:	22.88 (Series 303 only), 56.12 in., 63.12 in., 70.12 in. (series 404 only).
Standard Panel Opening:	19.12 in. for std. EIA panels.
Standard Depth:	30. in.
Materials:	Frame and top panels are 16 GA. (0.060). Doors and side panels are 18 GA. (0.047). Mounting angles are 11 GA. (0.120) cold rolled steel.
Standard Finish:	Painted with a polyester coating, in textured finish.
Mounting Hardware:	Each Series 303 unit comes with a complement of twelve (12) 10-32 clip nuts for installing equipment to pre-drilled mounting. flanges. Series 404 features drilled and tapped 10-32/EIA standard hole spacing on mounting angles and one set of mounting rails. (Additional sets of rails are available as options.)

Approximate Shipping Weights:

Desk Unit 200 lbs.
Mini cabinet 120 lbs.
56″ cabinet 232 lbs.
63″ cabinet 245 lbs.
70″ cabinet 258 lbs.

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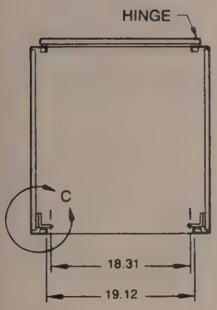
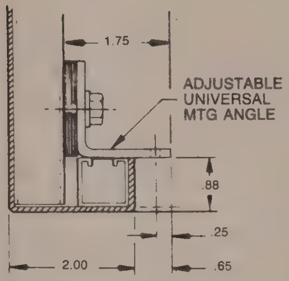
*Auxiliary door is not a full size door, it allows 8.75″ for mounting a connector panel or grille.

ELECTRONIC CABINETS

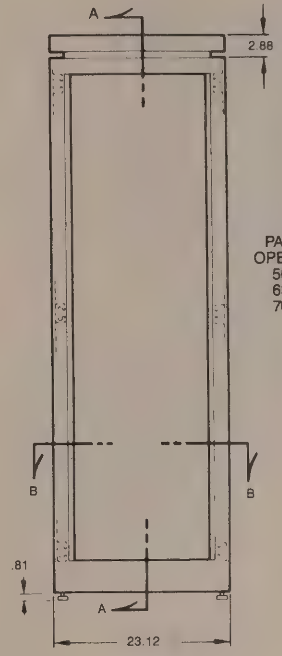
Series 404


HINGE
C
18.31
19.12

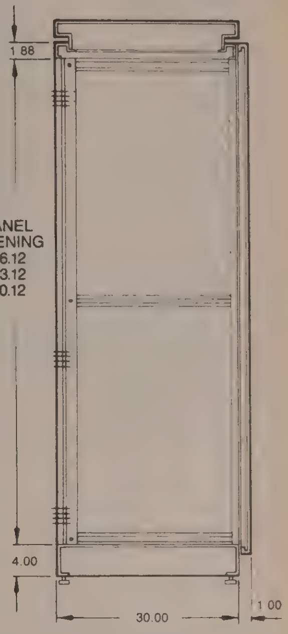
SECTION BB


1.75
ADJUSTABLE UNIVERSAL MTG ANGLE
.88
.25
2.00
.65

VIEW C

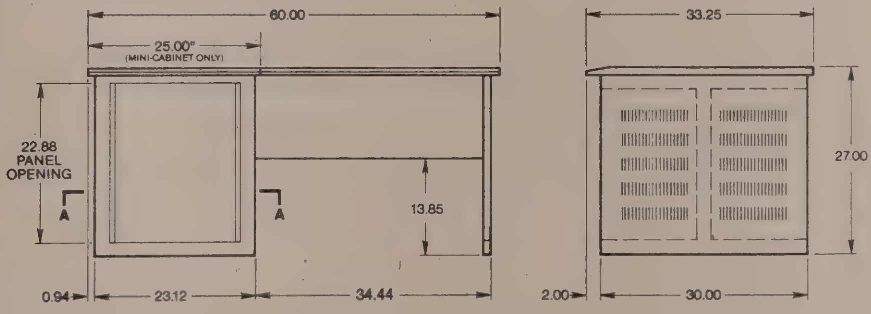

A
2.88
B
B
.81
A
23.12

FRONT VIEW

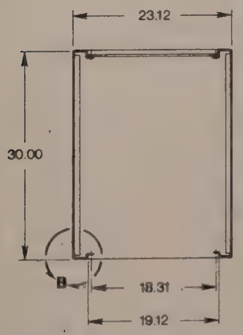

1.88
PANEL OPENING
56.12
63.12
70.12
4.00
30.00
1.00

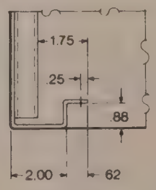
SECTION AA

Series 303


60.00
25.00"
(MINI-CABINET ONLY)
22.88 PANEL OPENING
A
A
13.85
0.94
23.12
34.44
33.25
27.00
2.00
30.00

DESK UNIT


23.12
30.00
B
18.31
19.12


1.75
25
.88
2.00
62

DETAIL B

SECTION AA

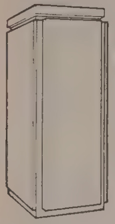
ELECTRONIC CABINETS

Zero Matrix IV Accessories

Full Front Door

Order: A1
22″, 56″, 63″, 70″*

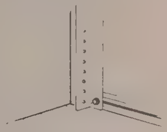
Full length, hinged front door comes with magnetic latch and gasketing. Opens right to left.



Mounting Rails

Order: A8
22″, 56″, 63″, 70″*

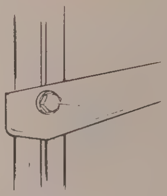
Additional mounting rails for all Matrix IV cabinets. Drilled and tapped for 10-32 screw to Universal standard hole pattern. 11 GA. plated steel (set of two).



EQUIPMENT SHELF ANGLES

Order: A19

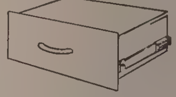
Set of 2 adjustable steel angles. **Length must be specified** (16″ or 21″). For use with A17 vertical mounting channels



Storage Drawers

Order: A34 (7.00x18.00 deep)
A36 (8.75x18.00 deep)

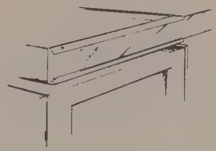
A storage or utility drawer of welded aluminum alloy. Fits standard 19.00 panel width. (Requires rear mounting rails A8.) Slides provide 2/3 drawer extension. Complete assembly finish in gray enamel, with brown front panel. Die cast, chrome finish handle.



Identification Trim

Order: A3 (2″ Height)

Extruded aluminum with plastic insert.
(For Series 404 only.)

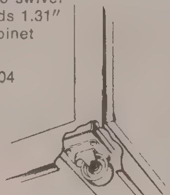


Casters

Order: A10

Medium duty, with a maximum loading of 200 lbs. each. Two rigid, two swivel standard. Adds 1.31″ to overall cabinet height.

(For Series 404 only.)

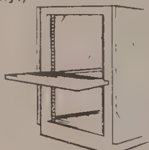


Fixed Writing Surface

Order: A22

Sturdy shelf covered with low-glare laminated white plastic. Requires only 1.75 inches of vertical panel space. (Requires A8 option.)

(For Series 404 only.)



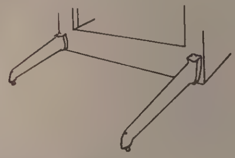
6 weeks delivery

Stabilizer Legs

Order: A46

Fold out stabilizer legs for use when drawers are extended — cast aluminum with black textured paint finish.

(For Series 404 only.)

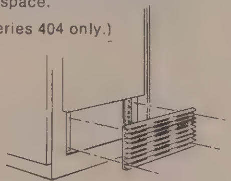


Grill

Order: A6

Designed specifically for Matrix IV cabinets. Extruded aluminum grill, brushed and anodized. Flush mounted. Uses 8.75″ panel space.

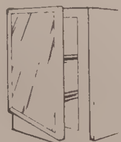
(For Series 404 only.)



Plexiglas Front Door

Order: A16
22″, 56″, 63″, 70″*

Full-length, smoked Plexiglas door. Brushed aluminum frame with magnetic latch.

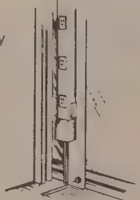


6 weeks delivery

Plug-in Strip

Order: A28
22″, 56″, 63″, 70″*

125 Volt AC, 15 amp. Uses 36″-12 AWG 3-wire cord (without plug). Available with 3 to 12 outlets. Quantity of outlets varies with vertical panel opening of rack.

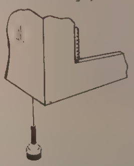


6 weeks delivery

Leveling Feet

Order: A-47-4
A47-6

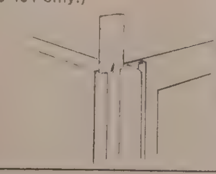
Independently adjustable screw-type leveling feet on composite pads, located at all contact points (4 or 6).
Adds 1.50″ to desk height.
(For Series 303 only.)



Vertical Trim

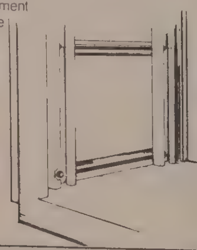
Order: A7
56″, 63″, 70″*

Used to further enhance the appearance of the Matrix IV. Brushed aluminum finish with Black inserts. Cannot be used with full front door.
(For Series 404 only.)



VERTICAL MOUNTING CHANNELS

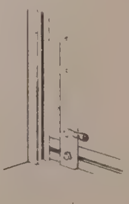
Order: A17
22″, 56″, 63″, 70″*
Set of 4 painted (black) steel channels allow infinite equipment mounting adjustment. Channels are the same length as vertical cabinet panel opening



Buss Bar

Order: A30 Ground
22″, 56″, 63″, 70″*

1.00 inch x .25 plated copper bar with 10-32 tapped holes on 3.5 inch centers. Includes one MS25036-132 terminal for cable connection.



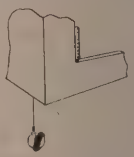
6 weeks delivery

Ball Type Casters

Order: A48-4
A48-6

Bonded rubber tread, 2¼″ dia. ball casters, located at all contact points (4 or 6). 75 lb. dynamic load. Adds 2.50″ to desk height.

(For Series 303 only.)



* Be certain to specify height (22″, 56″, 63″, 70″) of front panel when ordering these items separately.

ZERO CORPORATION

ZERO-WEST DIVISION • 777 Front Street, Burbank, California 91503 • (818) 846-4191
ZERO-EAST DIVISION • 288 Main Street, Monson, Massachusetts 01057 • (413) 267-5561

ELECTRONIC CABINETS

Zero Matrix IV Ordering Information

Ordering a Series 303 or 404 cabinet/desk system is as simple as composing a part number. If you need more information or technical assistance, please contact your local Zero representative.

ORDERING PROCEDURE:

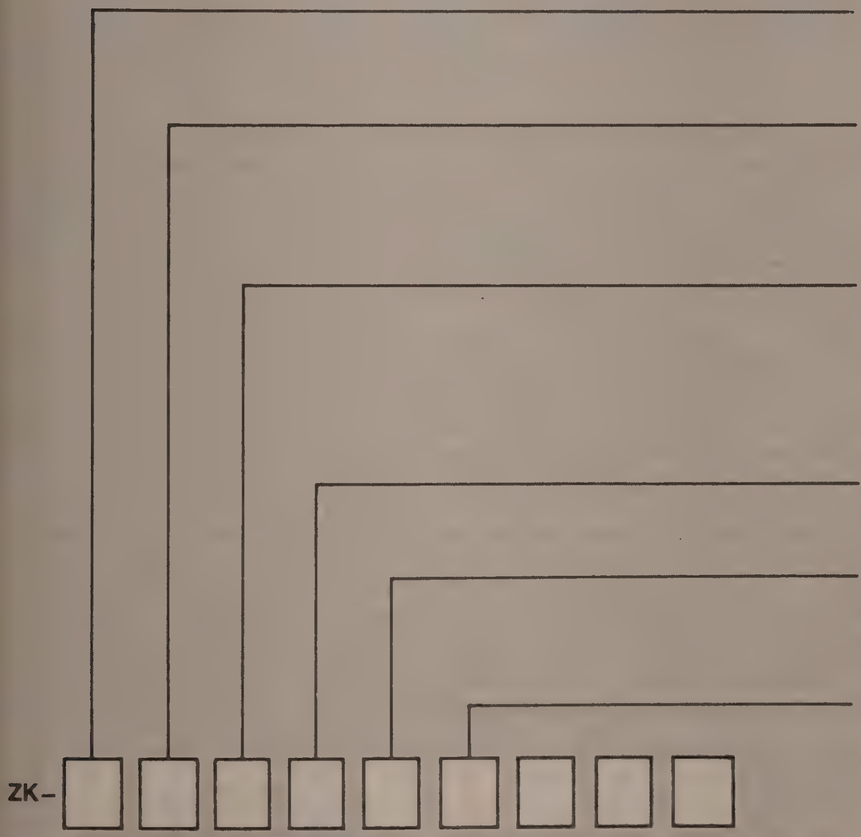
Fill in the blanks as shown with the appropriate number or letter for the Matrix IV unit you require.

EXAMPLE:

If you need a Series 404 single bay cabinet, with 70.12″ vertical panel opening, 19.12″ horizontal panel opening, 30″ cabinet depth, a solid pagoda top, casters, vertical trim, identification trim and two additional mounting rails, build a part number in this manner:

ZK-4-5-Y-B-T2-B-A3-A7-A8-A10

(Shown with optional ball-type casters)



SERIES

Order	Series
3	303
4	404

VERTICAL PANEL OPENING

Order	Panel Opening
1	22.88″ (Series 303 only)
3	56.12″ (Series 404 only)
4	63.12″ (Series 404 only)
5	70.12″ (Series 404 only)

MODEL

Order	Configuration
1	303 Desk unit, left side cabinet (Standard)
2	303 Desk unit, right side cabinet (Special Order Only)
3	303 Mini-Cabinet
Y	404 Single Bay Vertical Cabinet

HORIZONTAL PANEL OPENING & DEPTH

Order	Panel Opening	Panel Depth
B	19.12″	30.0″

TOP STYLE

Order	Top Style
T2	Pagoda Top (Series 404 only)
T8	Non-glare walnut grain phenolic (Series 303 only)

ACCESSORIES*

May be ordered in any quantities — See page 14

Zero Corporation's policy is one of continuous product improvement; consequently, Zero reserves the right to deviate from the product description and specifications set forth in this publication.

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ZERO CORPORATION

DOW CORNING High Technology

PROPERTIES		POTTING, ENCAPSULATING							
		SYLGARD® SILICONE ELASTOMERS					SILASTIC® SILICONE RUBBERS		
		170^a	170 Fast Cure^a	182^d	184^d	186^a	E^a	J^a	L^a
PHYSICAL AND CHEMICAL	Physical Nature (as cured)	Flexible rubber	Flexible rubber	Rubberlike	Rubberlike	Rubber	Flexible rubber	Flexible rubber	Flexible rubber
	Color	Black	Black	Transparent	Transparent	Translucent	White	Green	Green
	Viscosity at 77 F (25 C), poises	25^1	na	39^1	39^1	450^1	600^1	800^1	1,000^1
	Specific Gravity at 77 F (25 C) (ASTM D 702)	1.38	1.35	1.05	1.05	1.12	1.12	1.29	1.29
	Shelf Life, months	12	12	12	6	6	6	6	6
	Pot Life^3 at 77 F (25 C) (ASTM D 702), Hrs	1/4	na	8	2	2	2	1	1
	Cure Time/Temperature, hr/°C	8/25	4.5 min./25	4/65	24/25	24/25	24/25	24/25	24/25
	Refractive Index at 77 F (25 C) (ASTM D 1218)	na	na	1.43	1.41	1.43	na	na	na
	Radiation Resistance^4, megarads	200	—	200	200	200	200	200	200
	Flash Point (open cup), °C (ASTM D 92)	na	na	na	na	na	na	na	na
	Water Absorption – 7 days at 77 F (25 C), % (ASTM D 570)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	Viscosity/Temp. Coefficient	na	na	na	na	na	na	na	na
	Useful Temperature Range, °C	-55 to 225	-55 to 200	-55 to 200	-55 to 200	-55 to 200	-55 to 200	-55 to 200	-55 to 200
	Thermal Conductivity, at 77-212 F (25-100 C), cal/cm^2/°C/sec/cm (Cenco Fitch)	7.5x10^{-4}	8.0x10^{-4}	3.5x10^{-4}	3.5x10^{-4}	4.1x10^{-4}	4.35x10^{-4}	8.11x10^{-4}	5.60x10^{-4}
	Thermal Shock, at 132-312 F (-55-155 C), 10 cycles (Mil-1-16923E)	Pass	—	Pass	Pass	Pass	Pass	Pass	Pass
	Weight Loss, after 1000 hrs. at 302 F (1250 C), percent	—	—	1.6	1.6	—	—	—	—
	Weight Loss, after 1000 hrs at 392 F (200 C), percent	—	—	3.2	4.0	—	—	—	—
	Self-extinguishing, UL-94	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Volume Expansion from 77-302 F (25-150 C), cc/cc-°C	8.0x10^{-4}	—	9.6x10^{-4}	9.6x10^{-4}	2.5x10^{-4}	7.2x10^{-4}	9.0x10^{-4}	9.0x10^{-4}
	Specific Heat, at 77 F (25 C), cal/gm-°C	0.35	—	0.34	0.34	0.34	0.34	0.34	0.34
	Corrosion Resistance, (Mil-S-23586)	Good/Pass	—	Good/Pass	Good/Pass	Good/Pass	Pass	Pass	Pass
MECHANICAL	Tensile Strength, psi (ASTM D 412)	500	380	900	900	700	700	750	500
	Elongation, % (ASTM D 412)	150	150	100	100	420	400	175	370
	Durometer Hardness, Shore A, points, (ASTM D 2240)	50	48	40	35	32	40	60	33
	Tear Strength, ppi (ASTM D 412)	25	13.5	15	90	90	90	70	45
	Shrinkage, after 3 days at 77 F (25 C), percent	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	Brittle Point, °C (ASTM D 217)	-100	—	-65	-120	-100	-100	-120	-120
	Deep Section Cure, in. thickness	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Bleed, percent (Mil-1-8660)	na	na	na	na	na	na	na	na
	Consistency, worked (ASTM D 217)	na	na	na	na	na	na	na	na
ELECTRICAL	Arc Resistance, second (ASTM D 495)	120	—	115	115	119	121	126	122
	Dielectric Constant, at 100 Hz (ASTM D 150)	3.15	3.12	2.66	2.66	2.79	2.81	2.94	2.71
	Dielectric Constant, at 100 KHz (ASTM D 217)	3.10	3.02	2.65	2.65	2.78	2.82	2.79	2.75
	Dissipation Factor, at 100 Hz (ASTM D 150)	0.008	0.015	0.0009	0.0009	0.0009	0.006	0.0152	0.0088
	Dissipation Factor, at 100 KHz (ASTM D 150)	0.002	0.004	0.001	0.001	0.001	0.002	0.0040	0.0026
	Dielectric Strength, volts/mil (ASTM D 149)	450	—	450	450	450	500	500	500
	Volume Resistivity, ohm/cm (ASTM D 257)	1.0x10^{15}	3.16x10^{14}	2x10^{15}	2x10^{15}	3.0x10^{15}	5.0x10^{14}	5.15x10^{14}	4.66x10^{14}

NOTE: All values are typical of production and are not intended for use in preparing specifications.

na = not applicable

[1] Measured after catalyzation.

[2] Extrusion rate – grams/min.

[3] Pot life is defined as time required to double viscosity after catalyst addition.

[4] Useful after exposure to this megarad dose, but not unchanged.

[5] With 10% catalyst S, time to triple viscosity after catalyst addition.

[6] With 10% catalyst S.

[7] With catalysts S or F.

[8] Closed cup flash point.

PRIMER CODE:

[a] DOW CORNING 1200 prime coat

[b] DOW CORNING 1201 prime coat

[c] DOW CORNING 1204 prime coat

[d] SYLGARD prime coat

[e] no primer required

Silicone Protection Materials

POTTING, ENCAPSULATING									PROTECTIVE COATINGS			
SILASTIC® SILICONE RUBBERS					DOW CORNING® RTV SILICONE ELASTOMERS				DOW CORNING® COATINGS			
3-6527[e]	Q3-6567[e]	96-081[a]	96-082[a]	96-083[a]	3110[b]	3112[b]	3120[b]	3145[c]	SILASTIC® 1890[f]	3-6550[c]	3140[c]	1-2577
Gel Transparent 3.3[1]	Flexible rubber Black 15[1]	Rubber Black 250 gms[2]	Flexible rubber Black 11[1]	Flexible rubber Translucent 100[1]	Flexible rubber White 140[1]	Flexible rubber White 300[1]	Flexible rubber Red 300[1]	Rubber Translucent or Grey 120 gms[2]	Rubber Grey 300	Rubber Clear, Grey 13	Rubber Clear 350	Silicone Resin Straw 800
0.97 6 2	1.24 6 2 days	1.44 6 na	1.21 6 15 days	1.08 6 2	1.17 12 3/4[5]	1.35 12 3/4[5]	1.47 12 3/4[5]	1.12 6 na	1.05 6 na	1.05 6 na	1.05 6 na	1.11 12 na
24/25 1.407 20	2/150 na —	24/25 na 100	1/150 na —	1/150 — —	24/25[6] na 100	24/25[6] na 100	24/25[6] na 100	72/25 na 100	24/25 na —	72/25 (1/8") na —	72/25 na 100	24/25 na —
na 0.10 na	na 0.10 na	na — na	na 0.10 na	na 0.10 na	na 0.4 na	na 0.2 na	na 0.2 na	na 0.4 na	12[8] 0.40 na	85 — na	na 0.40 na	13 Nil na
-50 to 150 na —	-55 to 200 — —	-55 to 260 — —	-55 to 200 — —	-55 to 200 4.0x10^{-4} —	-55 to 200 5.0x10^{-4} Pass	-55 to 200 6.0x10^{-4} Pass	-55 to 300 7.7x10^{-4} Pass	-55 to 200 4.03x10^{-4} Pass	-55 to 200 4.95x10^{-4} —	-55 to 200 — —	-55 to 200 2.91x10^{-4} Pass	-65 to 200 2.90x10^{-4} Pass
— — Yes	— — Yes	— — Yes	— — Yes	— — Yes	— — Yes	— — Yes	— — Yes	— — No	— — No	— — —	— — No	— — No
9.9x10^{-4} CP=0.4315 —	8.94x10^{-4} — —	— — na	— — —	8.58x10^{-4} 0.31 —	7.5x10^{-4} 0.35 Pass[7]	5.0x10^{-4} 0.33 Pass[7]	5.2x10^{-4} 0.32 Pass[7]	7.8x10^{-4} 0.35 Excellent	— — —	9.6x10^{-4} — Pass	8.8x10^{-4} 0 35 Pass	— — Excellent
na na na	150 70 40	650 160 64	250 150 33	1000 110 63	350 200 45	650 150 60	650 100 60	700 675 33	150 400 20	285 400 24	300 350 22	240 74 30
na Nil —	— Nil —	40 — -65	— Nil —	30 Nil —	20 0 4 -100	30 0 4 —	30 0 3 -100	125 — -65	100 Nil —	29 — —	20 — -65	na na na
Yes na na	Yes na na	No na na	Yes na na	Yes na na	Yes na na	Yes na na	Yes na na	No na na	No na na	No na na	No na na	na na na
182 2 95 2 95	120 3 00 2 98	— 2 95 2 95	— 3 07 2 99	270 2 80 2 80	90 3 0 2 9	125 3 2 3 1	125 3 8 3 7	50 2 81 2 78	— 2 8 —	— 2 69 2 69	50 2 64 2 63	na 2 68 2 71
0 0025 0 00015 450 2 33x10^{15}	0 008 0 002 450 5 0x10^{14}	0 0060 0 0020 450 6 0x10^{14}	0 012 0 002 500 5 0x10^{14}	0 002 0 001 500 1.5x10^{15}	0.012 0.003 600 1.0x10^{13}	0.030 0.005 600 1.10x10^{13}	0.030 0.003 600 5.0x10^{13}	0.0015 0.0028 600 5.0x10^{14}	0.001 — 470 1.5x10^{13}	0.0008 0.0016 570 3.5x10^{14}	0 0016 0 0004 500 5 0x10^{14}	0 000672 0 001435 1100 1 5x10^{15}

REGIONAL SALES OFFICE DIRECTORY

Dow Corning Corporation
Irvine, CA
(714) 261-0800

Dow Corning Corporation
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Dow Corning Corporation
Chicago, IL
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Dow Corning Corporation
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Dow Corning Corporation
Cleveland, OH
(216) 464-2330

Dow Corning Corporation
Dallas, TX
(214) 661-0702

DOW CORNING

eem

MINIGLOSSARY
ENCAPSULATION

MATERIALS/HANDLING

Catalyst: A substance which changes the *rate* of chemical reaction. Very small quantities can cause fast change.

Conformal coating Sprayed or dipped. A thin conformal jacket which protects an assembly from moisture or other degrading environments.

Curing agent: See catalyst.

Hardener: See catalyst.

Hermetic: A permanent gas-tight seal.

RTV: Room Temperature Vulcanizing. Associated with silicone rubber sealants which vulcanize at room temperature.

Thermoplastic: Plastic materials which can be made to flow *repeatedly* with the application of heat.

Thermosetting: Plastics which once cured cannot be made to flow again.

Thixotropy: The property of a coating compound which has low viscosity when agitated, but which thickens when the agitation ceases.

Viscosity: Measured in units of *poise* or *centipoise.* The property of a liquid which resists internal flow. Low viscosity equates with thin and vice-versa.

PROCESSING

Casting: Parts or assemblies are placed in a mold. Encapsulating material is added and cured. Part is then removed from the mold.

Dip coating: Part or assembly is dipped into the encapsulating material. Final thickness is determined by number of dips, viscosity, rate of withdrawal, and temperature.

Embedding: Wherein an encapsulant substantially fills all voids in and about an assembly.

Impregnation: A process of encapsulation involving evacuating all air and then allowing the encapsulating material to flow in and fill all voids.

Molding: Similar to casting except this process usually implies multicavity molds and costly machines.

Potting: Wherein the part or assembly is immersed in an encapsulating material contained in a shell which becomes a permanent outer surface after curing.

DIELECTRIC

Arc resistance: An encapsulant's resistance to the formation of a conductive path or track. Measured in time.

Breakdown voltage: The voltage at which an encapsulant fails electrically.

Capacitance: The property of conductors and dielectrics which allows the storage of an electrical charge when the voltage is applied.

Corona: A luminous discharge of electricity due to air ionization when a certain voltage is reached. Can be internal or external. The formation of ozone can cause rapid deterioration of certain materials.

Dielectric: Insulator (Nonconductor.)

Dielectric constant: The property of a material that determines its ability to store electrostatic energy.

Dielectric strength: The ratio of dielectric breakdown to the thickness of insulating material.

Dissipation factor: The ratio of a dielectric material's energy losses.

Flashover: Point at which an electric discharge occurs around an edge or across a surface. Can result in a carbon track and permanent degradation.

Insulation resistance: (IR) An insulating material's total DC leakage.

Surface resistivity: The resistance of the surface of an insulating material to the flow of direct current.

Voltage endurance: Sometimes called corona resistance. The ability of a material to withstand the application of sustained high voltage.

Volume resistivity: The resistance of a material to direct current flow as a measure of volume. Expressed as ohm-centimeters.

HumiSeal COATINGS FOR ELECTRONICS
GENERAL CHART OF PROPERTIES

Listed in this General Chart of Properties are ten of the most frequently used HumiSeal Protective Coatings and their principal properties. These have been tabulated in order to facilitate comparison of their characteristics and selection of the most suitable type for a specific application. In addition to these HumiSeal types we manufacture a variety of coatings for special purposes, including high temperature applications. Should none of the coatings listed in this chart fulfill your requirements, we suggest that you contact us for recommendations.

HumiSeal Protective Coatings are available in one-quart or one-gallon cans, five-gallon pails, or fifty-five gallon drums. HumiSeal types 1B15 and 1A27 are also available in 12-ounce aerosol containers. All HumiSeal types listed in this chart may be applied by dip, brush or spray. Literature on recommended techniques for the proper application of coatings and the preparation of the subtrates is available upon request.

	PROPERTIES OF LIQUID HumiSeal											PROPERTIES OF CURED HumiSeal COATING																	
												THERMAL PROPERTIES			PHYSICAL PROPERTIES						ELECTRICAL PROPERTIES					CHEMICAL PROPERTIES			
HumiSeal Type[1]	Specific Weight (lbs. per gallon)[2]	Solids Content (% by weight)[3]	Viscosity, with catalyst when applicable (centipoises)[4]	Flash Point (°F)[5]	Drying Time for Handling[6]	Recommended Curing Conditions	Time Required to Reach Optimum Properties	Pot Life, at Room Temperature	Shelf Life, at Room Temperature	Coverage per gallon (in sq. ft.) After One Dip	Mixing Ratio Part A to Part B (By Weight)	Continuous Use Temperature Range (°F)	Thermal Shock Test[7]	Solderability[8]	Clarity[9]	Average Build After One Dip (mils)[10]	Flammability[7]	Flexibility[7]	Adhesion[12]	Mar Resistance[12]	Dielectric Constant[13]	Dissipation Factor[13]	Dielectric Strength (volts)[7]	Insulation Resistance (teraohms)[7]	Moisture Resistance (gigaohms)[14]	Main Constituent	Fungus Resistance[7]	Resistance to Solvents	HumiSeal Type[1]
1B12	7.3	20	30	40	10 min.	24 hrs. at room temp. or 30 min. at 170°F	24 hrs.	1 year	1 year	550	one component	−75°F to +280°F	Passes	Good	Transparent	0.5	Self-extinguishing	Very Good	Excellent	Very Good	2.8	.010	6000	250	30	Acrylic	Excellent	Very Good	1B12
1B15	7.6	35	470	30	10 min.	24 hrs. at room temp. or 30 min. at 170°F	24 hrs.	1 year	1 year	450	one component	−75°F to +270°F	Passes	Good	Transparent	2	Self-extinguishing	Fair	Excellent	Fair	2.3	.010	8000	350	40	Acrylic	Excellent	Fair	1B15
1B31	7.6	35	180	30	10 min.	24 hrs. at room temp. or 30 min. at 170°F	24 hrs.	6 mos.	6 mos.	450	one component	−75 F to +270°F	Passes	Good	Transparent	2	Self-extinguishing	Excellent	Excellent	Very Good	2.5	.010	7500	800	60	Acrylic	Excellent	Good	**1B31**
1A20	8.5	50	120	80	60 min.	24 hrs. at room temp.	1 week	6 mos.	6 mos.	375	one component	−70°F to +250°F	Passes	Excellent	Transparent	2	Self-extinguishing	Excellent	Very Good	Excellent	3.5	.028	8000	300	48	Polyurethane	Excellent	Excellent	**1A20**
1A27	8.0	50	5000	80	15 min.	24 hrs. at room temp. or 4 hrs. at 170°F	1 week	1 year	1 year	450	one component	−90°F to +250°F	Passes	Excellent	Transparent	5	Self-extinguishing	Excellent	Excellent	Fair	3.6	.020	7500	200	12	Polyurethane	Fair	Good	1A27
1A33	7.7	44	180	30	15 min.	24 hrs. at room temp. or 4 hrs. at 170°F	1 week	6 mos.	6 mos.	300	one component	−90°F to +250°F	Passes	Excellent	Transparent	2	Self-extinguishing	Excellent	Excellent	Fair	3.6	.030	7500	200	16	Polyurethane	Excellent	Good	**1A33**
2A64	8.9	55	80	85	4-5 hrs.	3 hrs. at 170°F	1 week	6 hrs.	6 mos.	470	1:1	−70 F to +270°F	Passes	Excellent	Transparent	1	Self-extinguishing	Excellent	Excellent	Good	3.5	.024	3500	450	35	Polyurethane	Excellent	Excellent	**2A64**
2B13	7.5	42	50	40	30 min.	90 min. at 200°F	1 week	24 hrs.	1 year	480	100:2	−70°F to +270 F	Passes	Poor	Transparent	2	Self-extinguishing	Excellent	Excellent	Excellent	3.0	.030	8000	300	33	Epoxy	Excellent	Excellent	2B13
2A51	9.2	100	6000	non flammable	2 hrs.	24 hrs. at room temp. or 2 hrs. at 200°F	1 week	6 hrs.	6 mos.	200	1:1	−70 F to +250 F	Passes	Poor	Transparent	15	Self-extinguishing	Fair	Good	Good	3.0	.030	6000	400	6	Epoxy	Excellent	Good	2A51
2A53	7.8	54	300	70	30 min.	2 hrs. at 200°F	1 week	24 hrs.	6 mos.	400	1:1	−70 F to +250 F	Passes	Poor	Transparent	1	Self-extinguishing	Excellent	Excellent	Excellent	3.0	.030	8000	200	28	Epoxy	Excellent	Excellent	**2A53**

HumiSeal TYPES LISTED IN BOLD PRINT COMPLY WITH THE REQUIREMENTS OF MIL-I-46058C

All technical data in this bulletin are based on test results using the stated standards and are believed to be correct. However, since the end use of HumiSeal materials (and the manner of storing and handling them) is beyond our control, we make no warranty — expressed or implied — as to the fitness of use, results to be obtained from or effects of use with respect to these materials. Their use shall be solely by the judgment of and at the risk of the end-user notwithstanding any statement contained in this bulletin

1. The first digit in the type number specifies whether the product is a one-, or a two-component system.
2. Fed-Std 141a, Method 4184.
3. Fed-Std 141a, Method 4044.
4. Fed Std 141a, Method 4287
5. Fed Std 141a, Method 4291
6. Fed Std 141a, Method 4061.
7. Mil I 46058C.
8. Visual evaluation for ease of soldering with an 85 watt iron through a 2 mil film.
9. Fluorescent dye may be added if required.
10. Fed-Std 141a, Method 2121
11. Fed-Std 406, Method 7031, Procedure A.
12. Fed-Std 141a, Method 6303.
13. ASTM-D150-65T, at 1 MHz and 25°C
14. Mil-I-46058C Insulation resistance during 10th cycle, at 65°C and 98% RH.

HumiSeal®

HumiSeal Division
Columbia Chase Corporation
28-60 Bklyn-Queens Expressway, W
Woodside, New York 11377
Phone: (212) 932-0800 TWX: 710-582-2141
Cable Address: COLTECHNIC NEWYORK

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KESTER®
SOLDER

Technical Report:

PURITY AND MINIMAL OXIDATION IN BAR SOLDER

THE PROBLEM:

With the growing sophistication of the electronics industry came the need for purer, higher performance solders. Conventionally alloyed solder often suffers from unacceptable levels of oxidation and impurities, resulting in inconsistent appearance and performance. The cost of touch-ups and rejections is a problem for manufacturers of complicated electronic assemblies, printed circuit boards and substrates for microcircuitry.

THE CAUSE:

The conventional solder manufacturing process — pouring individual small bars - exposes large surface areas while the metals are in a molten state; this process promotes high levels of oxidation and contact with impurities in the ambient environment. Further opportunity for contamination arises in the handling of material by personnel.

A simple visual inspection of conventionally cast bar solder reveals discoloration, crystalline segregation and surface aggregates of oxides. A pound of such solder obviously cannot deliver a pound of pure performance.

"ULTRAPURE"
CONVENTIONAL CAST BAR

Inspection of Kester's "ULTRAPURE" will easily satisfy the most critical eye. "ULTRAPURE" is uniform and virtually flawless in appearance.

THE KESTER SOLUTION

In response to the purity requirements of the electronics industry, Kester developed "Ultrapure." This proprietary extrusion process results in a solder bar virtually free of metallic impurities, sulphur and oxides. The level of purity achieved in Ultrapure is far above that found in ordinary cast bars; furthermore, there is no segregation of metals in the extruded Ultrapure bar.

Using only virgin metals, Ultrapure solder is manufactured under the tightest quality control standards in the industry. A very large ingot is poured and inserted in a virtually air tight hydraulic press. Following automatic extrusion, Ultrapure is handled by gloved personnel to eliminate contact with body oils and salts.

Ultrapure's superior performance on the production line should result in substantial cost savings; it offers more connections per pound of solder, less dross on initial melting, reduced touch-up and rejection rates, superior fluidity and brighter connections.

Ultrapure is ideally suited for all modern soldering techniques. Write for more information.

Litton

KESTER SOLDER
4201 W. Wrightwood Ave., Chicago, IL 60639

Vydyne® Nylon Resins. The engineered thermoplastic line that tackles your toughest tasks.

Trust Monsanto to bring you the hottest line of engineering nylons anywhere. These rugged, lightweight, fast-molding engineering thermoplastic resins offer the features you demand in high-performance polymers.

VYDYNE FR GRADES. THE INDUSTRY LEADER IN PERFORMANCE AND PROCESSABILITY.

More and more of today's designs are requiring flame-retardant performance. And design engineers are turning to Monsanto. Monsanto developed the first commercially available FR nylon and continues to lead the industry with both reinforced and unreinforced grades. And this FR nylon line meets ratings of UL 94V-0 and UL 94-5V in thinner sections than competitive nylon grades. Typical applications are electrical connectors, cable ties, switches and coil bobbins.

VYDYNE 69 NYLONS. SUPERIOR DIMENSIONAL STABILITY FOR ELEVATED TEMPERATURE ENVIRONMENTS.

These resins exhibit low moisture absorption and consequently offer good dimensional stability. They are heat stabilized for elevated temperature service and lubricated for machine feeding in extrusion applications. The most common application is electrical wire jacketing.

VYDYNE 66 NYLONS. STRENGTH, STIFFNESS AND ELECTRICAL RESISTANCE IN ONE PACKAGE.

These general purpose resins represent the largest volume, most frequently specified type of nylon used. They combine strength and rigidity with electrical resistance and lubricity for easy molding. Typical applications are terminal blocks, cable ties and coil bobbins.

Vydyne nylon resins can meet the requirements of many of your toughest tasks. For a closer look at Vydyne specifications, simply turn the page. For further information call or write. You'll also find our address and phone number on the following page.

® Vydyne is a trademark of Monsanto Company

Monsanto

Vydyne® Nylon Resins for the Electrical/

	PROPERTIES	UNITS	TEST TEMP. °F	66 NYLONS					
				General Purpose Vydyne 21 SP		Heat Stabilized Vydyne 22H		Nucleated Vydyne 24NSL	
				0.2% MOISTURE	2.5% MOISTURE	0.2% MOISTURE	2.5% MOISTURE	0.2% MOISTURE	2.5% MOISTURE
MECHANICAL	**Tensile Strength at Yield**	psi	−40	15,500	15,000				
			73	12,000	9,000	12,400	9,500	13,700	10,400
			170	9,000	6,000				
	Elongation at Fail	%	−40	20	20				
			73	80	200	70	>200	30	35
			170	300	300				
	Elongation at Yield	%	−40	5	6				
			73	10	20	10	25	10	25
			170	30	30	30	35	33	37
	Secant Flexural Modulus	psi	−40	470,000	490,000				
			73	400,000	190,000	415,000	195,000	450,000	232,000
			170	100,000	90,000				
	Tensile Modulus	psi	73	430,000	190,000	430,000	190,000	517,000	329,000
	Flexural Strength	psi	73	13,000	6,000	15,200	8,100	16,800	9,600
	Izod Impact Strength, Notched	ft-lb/in	−40	0.6	0.5	0.6	0.5	0.6	0.5
			73	1.0	3.0	0.9	2.7	0.9	2.8
	Tensile Impact, Type S	ft-lb/sq in	73	80	100	75		70	100
	Gardner Impact	in-lb	73						
THERMAL	**Deflection Temperature, @66 psi**	°F		450	430	450	430	478	457
	@264 psi			180	160	190	165	221	181
	Melting Point (DSC)	°F		498		482-500		482-500	
	Coefficient of Thermal Expansion	10^{-5}in/in/°F		4.5		4.5		4.5	
	Specific Heat	BTU/lb/°F		0.4		0.4		0.4	
	Thermal Conductivity	BTU/ hr-ft^2 (°F/in)		1.7		1.7		1.7	
ELECTRICAL	**Volume Resistivity**	ohm-cm	73	6x10^{15}	2x10^{13}	3.6x10^{15}	1.4x10^{11}	2x10^{16}	7x10^{12}
	Dielectric Constant 10^2Hz		73	3.7	6.0	3.64	7.36	3.7	7.0
	10^3Hz		73	3.6	6.0	3.60	5.93	3.6	6.1
	10^6Hz		73	3.1	3.5	3.30	3.68	3.3	3.9
	Dissipation Factor 10^2Hz		73	0.02	0.04	0.008	0.19	0.01	0.11
	10^3Hz		73	0.02	0.04	0.013	0.14	0.01	0.09
	10^6Hz		73	0.03	0.08	0.017	0.06	0.02	0.07
	Dielectric Strength, Short time	volts/mil	73	570	550	536	568	550	545
	Step by step	volts/mil	73	540	480	482	433	500	480
MISCL.	**Specific Gravity**		73	1.14		1.14		1.14	
	Water Absorption (24 hr.)	%	73	1.2		1.4		1.1	
	UL Flammability, 1/32"*			94V-2		94V-2		94V-2	
	Rockwell Hardness	M Scale	73	85	60	88	61	88	69
		R Scale	73	120	105	119	108	121	113
	Injection Molding Stock Temp.	°F		540-560		520-560		520-560	
	Mold Shrinkage	mils/in		15-20		15-20		8-12	

Electronic Market

	69 NYLONS		**NYLON RESINS WITH FLAME RETARDANT ADDITIVES***					
Weather Resistant Vydyne 25W	Vydyne 60H		Vydyne M-340		Vydyne M-344		Vydyne 909	
CONDITIONED	0.2% MOISTURE	1.3% MOISTURE	0.2% MOISTURE	2.0% MOISTURE	0.2% MOISTURE	2.0% MOISTURE	0.2% MOISTURE	1.5% MOISTURE
11,200	10,200	6,500	10,500	7,000	8,500	5,500	16,500	12,500
60	50	115	25	90	50	75	7	7
	10	10	10				7	7
420,000	335,000	155,000	450,000	180,000	430,000	200,000	1,050,000	700,000
	275,000		430,000	190,000				
	11,000		15,500	6,800				
			0.6					
1.4	0.7	2.0	1.0	2.0	0.6	1.7	1.9	2.4
	50							
446	333	320	410		420	400		
208	167	140	170		170	160	464	460
498	410		480		480		482	
4.5	8.3		4.5		4.1			
0.4	0.4				0.39		0.33	
1.7	1.5						2.4	
	3.3×10^{15}	2.7×10^{13}	10^{15}	10^{13}	10^{14}	10^{13}	3.8×10^{12}	8.0×10^{12}
	3.6	5.4	3.8		3.3	3.9		
	3.5	4.8	3.7		3.6	4.9	3.9	5.0
	3.2	3.4	3.3		3.6	5.2	3.5	3.6
	0.02	0.09	0.01		0.024	0.089		
	0.02	0.09	0.01		0.006	0.014	0.15	0.30
	0.02	0.02	0.03		0.005	0.006	0.02	0.05
	547	555	550	580	540	620	540	450
	503	454	460	420	500	560	480	350
1.14	1.08		1.24		1.27		1.47	
	0.44		1.1		0.9		0.7	
94V-2	94HB		94-5V & 94V-0 at 1/32" 94V-0 at 1/64"		94-5V & 94V-0 at 0.080" 94V-0 at 1/64"		94V-0 at 0.22" 94-5V at 0.062"	
	61		85				89	70
			120				120	110
540-560	430-500		485-510		485-510			
13	11-13		15-20		15-20		2-4	

NOTE: Values for Vydyne resin reported at 0.2% moisture are typical of those in the dry-as-molded state. Values reported at 1.3-2.5% moisture represent the moisture levels reached at equilibrium in a 50% R. H. environment at 73°F.

*The expression "with flame retardant additives" and all the UL ratings for flammability mentioned herein are not intended to reflect performance presented by these or any other materials under actual fire conditions. Each end user should determine whether potential fire hazards are associated with the finished product and whether Vydyne resin is suitable for the particular use.

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Department 804
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St. Louis, Missouri
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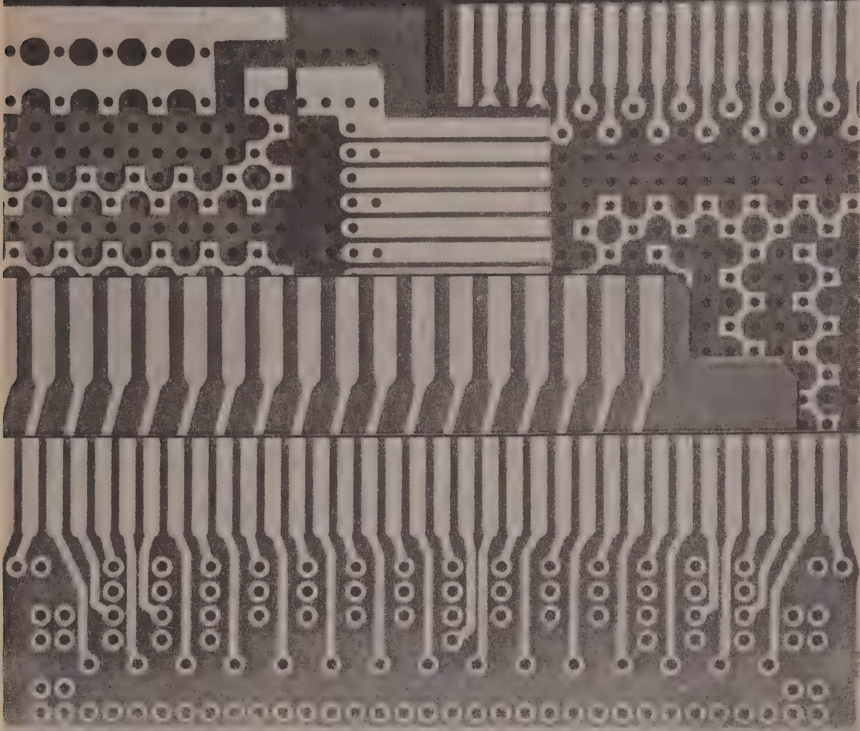

- Plated thru pad-per-hole for "bare board" freedom of component placement . . .
- Solder or wrap wire with 3-hole pads, interposed power & ground buses . . .
- Wire wrapping with two buses . . .
- Clearance ground plane for high speed, high frequencies . . .
- Bare boards for unlimited freedom of component placement . . .
- 0.042" diameter holes on 0.1" grid for DIP ICs, leadless chip carrier sockets, or any 0.1" grid discrete components . . .

TOP QUALITY—LOW COST

Everything you need through one company – card racks, prototyping boards, connectors, extenders, backplane boards, NEW IBM personal computer boards available.

Hardware support for STD Bus, S-100, Multibus, Motorola Exorcisor and Rockwell AIM 65 Expansion, Apple, Heath H8, DEC PDP 8-11, TI 980, IBM Personal Computer.

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CIRCUIT BOARDS

Manufacturer	EEM Page No.	Type of Board				
		Printed Circuit				
		1-side	2-sides	Clad	Unclad	Rigid
Datak	2•1090			●		
Injectorall	2•1091	●	●	●	●	●
Kalmus	2•1093	●	●			●
Vector	2•1094			●	●	

ACCESSORIES & SERVICES

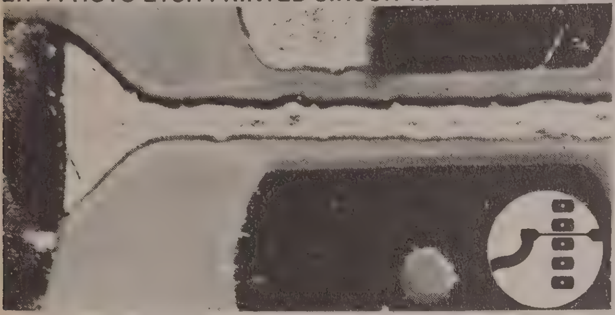
Manufacturer	EEM Page No.	Etchants	Dry Transfer Patterns & Symbols	Cleaners & Solvents	Assembly & Fabrication Services	Terminals & Pins
Datak	2•1090	●	●	●		
Injectorall	2•1091	●	●	●	●	
Kalmus	2•1093				●	
Vector	2•1094					●

DATAK - PRINTED CIRCUIT KITS

PHOTO ETCH™ Printed Circuit Kit

Photograph original 1:1 master art or PC patterns directly from a magazine page using remarkable POS-NEG™ system (patented). No darkroom or camera needed. Set has all materials to make original artwork masters, film negatives and positives. Use the 5"x 6" print frame, copper clad boards, negative photoresist and chemicals to sensitize, expose, develop and etch printed circuit boards. 12 page instruction book covers the theory and practical instructions. Photoflood bulb must be purchased separately at any camera store.

ER-4 PHOTO ETCH PRINTED CIRCUIT KIT $34.95



Dry Transfer DIRECT ETCH™ Resist in Action

OTHER PRINTED CIRCUIT PRODUCTS

TINNIT™ Electroless Bright Tin Plate

TINNIT is supplied as a dry powder. Dissolved in a pint of water, it will plate about 700 sq. ins. of clean copper with a bright tin plating. No electricity is needed. Use to enhance solderability and conductivity on edge card connector patterns.

ER-18 TINNIT™ BRIGHT TIN PLATE $3.50

Etch Resist Pen

Felt pen has lacquer ink that is impervious to PC etchants.

ER-15 ETCH RESIST PEN $1.80

Dry Concentrated Etchant

¼ pound anhydrous ferric chloride in vapor tight pack makes 1 pint etchant, enough for 200 sq. in. of copper board. Cost less than liquids.

ER-3 DRY CONCENTRATED ETCHANT $2.50

Power Etch Pump Kit

Circulates etchant with air to speed etch rate. Kit has pump, coupling hose, perforated distributor tube.

ER-12 POWER ETCH PUMP $7.25

POS-NEG™ Photocopy Film and Accessories

Makes negatives or positives from opaque or translucent original art in one step without a camera. No darkroom needed but use subdued light. Use with yellow filter (ER—17) and EAL photoflood lamp. Read ER-16 Photo Etch Manual before opening this film.

ER-5 SIX SHEETS 5" x 6" POS—NEG FILM $6.50
ER-9 TWO SHEETS 8" x 11" POS-NEG FILM 6.50
ER-16 PHOTO ETCH MANUAL 1.50
ER-17 8½" x 11½" YELLOW FILTER 2.00

Contact Printing Frame

A solidly made plated steel and glass exposure frame. Spring back adjusts for film or circuit board exposure. Kit includes ER-17 yellow filter and ER-16 Photo Etch Manual. 9" x 12" size.

ER-10 CONTACT PRINTING FRAME, 9" x 12" $12.95

Film Process Chemicals

Three packets make 1 pint lithographic film developer and 1 pint acid fixer. Handles 15 sheets 5" x 6" Pos-Neg film.

ER-6 FILM PROCESS CHEMICALS $3.25

Negative Photo Resist Liquid and Developer

Spray on PC board and expose through negative. Unexposed areas are dissolved by developer. Exposed areas harden and are etch resistant. Four ounce bottle with pump spray coats over 1700 sq. in. Develop ONLY with ER-8 or Kodak KPR developer.

ER-71 PHOTO RESIST LIQUID, 4 ounce $6.95
ER-8 NEGATIVE RESIST DEVELOPER, 16 ounce $4.20

DIRECT ETCH™ Printed Circuit Kit

This one step kit uses a unique dry transfer resist that makes razor-sharp patterns on copper clad boards. Lay out circuits right on the copper with these etch resistant dry transfers. Connect with dry transfer lines or the special tape, then etch in ferric chloride or in any commercial PC etchant. Results are equal to or better than commercial boards. Kit includes PC boards, dry transfer resist patterns, resist tapes, ferric chloride etchant, etch tray and instructions.

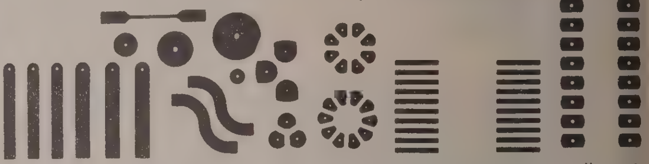
ER-1 DIRECT ETCH PRINTED CIRCUIT KIT $9.50

DRY TRANSFER ETCH RESIST PATTERNS

DATAK prints a broad range of dry transfer resist patterns with an ink that is impervious to all commercial etchants. This ink is identical to that used in printing the JotDraft and Microseries range of donuts and connector patterns. See our full line catalog for additional etch resist patterns.

17.6X BLOWUP shows .015" line between .100" spaced DIP pads. Resist pattern is from DATAK ER-2 set. Circuit board is 2 ounce copper etched in a still bath of ferric chloride for 30 minutes at 125°F. Measured undercut is less than .0015".

Resist Pattern and Tape Assortment



Our best selling set includes 8 sheets of donuts, .125" and .156" connector fingers, transistors, round IC's, DIPs of any size, dry transfer traces and 2 rolls of resist tape. This set is in the ER-1 and ER-4 kits.

ER-2 DRY TRANSFER ETCH RESIST ASSORTMENT . . $5.75

Resist Donut Pad Assortment

Set contains 4 sheets of donuts 1/16" through ¼" dia. with .025" center holes.

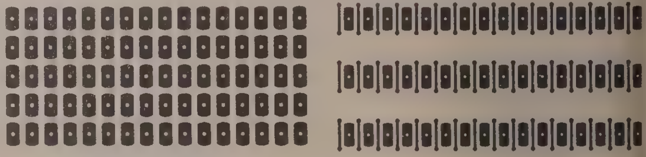
ER-13 DONUT PAD ASSORTMENT $2.95

Resist DIP Pattern Assortment

Set has 4 sheets of continuous .100" x .300" DIP patterns and .050" spaced flatpack fingers. Rub down the length you need. See also JD-171, JD-174.

ER-14 DIP PATTERN ASSORTMENT $2.95

Continuous Resist DIP Pads



From JD-171 From JD-174

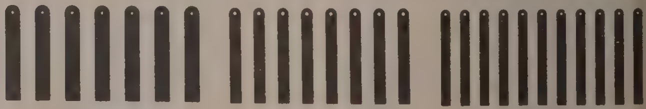
JD-171 set contains 24 sheets of continuous .125"D x .070" cut pads spaced on .100" x .150" centers. Transfer pads on any multiple of .150" or .100". Do any size DIP pattern accurately and fast.

JD-171 RESIST DIP PADS $11.95

JD-174 has 24 sheets of continuous .125"D x .053" cut pads spaced on .100" x .150" centers with a trace between adjacent pads. Pads transfer alone or with traces on any multiple of .100" or .150". Do a large ROM or a ½ DIP with equal ease.

JD-174 RESIST DIP PADS WITH TRACES $11.95

Edge Card Connector Fingers



.156 Spacing .125 Spacing .100 Spacing

Sets contain 24 strips of spaced connector fingers. Each strip of fingers is 8" long. Butt strips for any connector length.

JD—122R ASST. CONNECTOR FINGERS: .156" & .125" $11.95
JD-168 CONNECTOR FINGERS: .100" $11.95

See Sections 2400 and 6000 for DATAK Panel Marking Sets and Wire Markers

QUALITY PRODUCTS FOR PROFESSIONAL RESULTS

INJECTORALL

COPPER CLAD LAMINATES

UNCOATED

Size	Copper Thickness	CEM Cat. Nos. 1 side	CEM Cat. Nos. 2 sides	XXXPC Cat. Nos. 1 side	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	CEM Cat. Nos. 1 side	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	FR4 Cat. Nos. 2 sides
3 x 4½	1 oz.	PC1-CEM	PC9-CEM	PC1	PC5	PC40	2 oz.	PC5-CEM	PC9	PC51	1 oz.	PC44
*3 9/16 x 6″	1/16″	—	—	—	PC5A	PC40A	1/16″	—	—	—	1/32″	—
4 x 6″		PC2-CEM	PC10-CEM	PC2	PC6	PC41		PC6-CEM	PC10	PC52		PC45
†5 1/16 x 6″		—	—	—	PC5C	PC40C		—	—	—		—
†5 1/16 x 9″		—	—	—	PC5D	PC40D		—	—	—		—
6 x 9		PC3-CEM	PC11-CEM	PC3	PC7	PC42		PC7-CEM	PC11	PC53		PC46
*6 x 9 w/ 3 9/16 edge		—	—	—	PC5B	PC40B		—	—	—		—
‡6 5/16 x 6		—	—	—	PC5E	PC40E		—	—	—		—
‡6 5/16 x 9		—	—	—	PC5F	PC40F		—	—	—		—
12 x 18		PC4-CEM	PC12-CEM	PC4	PC8	PC43		PC8-CEM	PC12	PC54		PC47
24 x 36		PC4-CEM-1	PC12-CEM-1	PC4-1	PC8-1	PC43-1		PC8-CEM-1	PC12-1	PC54-1		PC47-1
36 x 48		PC4-CEM-2	PC12-CEM-2	PC4-2	PC8-2	PC43-2		PC8-CEM-2	PC12-2	PC54-2		PC47-2

NEGATIVE RESIST BOARDS (BLACK BAG—RED HEADER) USE WITH INJECTORALL D2 DEVELOPER

Size	Copper Thickness	CEM Cat. Nos. 1 side	CEM Cat. Nos. 2 sides	XXXPC Cat. Nos. 1 side	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	CEM Cat. Nos. 1 side	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	FR4 Cat. Nos. 2 sides
3 x 4½	1 oz.	PC1-CEMS	PC9-CEMS	PC13	PC17	PC40S	2 oz.	PC5-CEMS	PC9S	PC51S	1 oz.	PC44S
*3 9/16 x 6″	1/16″	—	—	—	PC5AS	PC40AS	1/16″	—	—	—	1/32″	—
4 x 6		PC2-CEMS	PC10-CEMS	PC14	PC18	PC41S		PC6-CEMS	PC10S	PC52S		PC45S
†5 1/16 x 6″		—	—	—	PC5CS	PC40CS		—	—	—		—
†5 1/16 x 9″		—	—	—	PC5DS	PC40DS		—	—	—		—
6 x 9		PC3-CEMS	PC11-CEMS	PC15	PC19	PC42S		PC7-CEMS	PC11S	PC53S		PC46S
*6 x 9 w/ 3 9/16 edge		—	—	—	PC5BS	PC40BS		—	—	—		—
‡6 5/16 x 6″		—	—	—	PC5ES	PC40ES		—	—	—		—
‡6 5/16 x 9″		—	—	—	PC5FS	PC40FS		—	—	—		—
12 x 18″		PC4-CEMS	PC12-CEMS	PC16	PC19A	PC43S		PC8-CEMS	PC12S	PC54S		PC47S

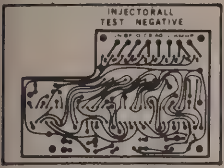
POSITIVE RESIST BOARDS (BLACK BAG—BLUE HEADER) USE WITH INJECTORALL D3 DEVELOPER

Size	Copper Thickness	CEM Cat. Nos. 1 side	CEM Cat. Nos. 2 sides	XXXPC Cat. Nos. 1 side	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	CEM Cat. Nos. 1 side	FR4 Cat. Nos. 1 side	FR4 Cat. Nos. 2 sides	Copper Thickness	FR4 Cat. Nos. 2 sides
3 x 4½	1 oz.	PC1-CEMP	PC9-CEMP	—	PC17P	PC40P	2 oz.	PC5-CEMP	PC9P	PC51S	1 oz.	PC44P
*3 9/16 x 6	1/16″	—	—	—	PC5AP	PC40AP	1/16″	—	—	—	1/32″	—
4 x 6		PC2-CEMP	PC10-CEMP	—	PC18P	PC41P		PC6-CEMP	PC10P	PC52P		PC45P
†5 1/16 x 6		—	—	—	PC5CP	PC40CP		—	—	—		—
†5 1/16 x 9		—	—	—	PC5DP	PC40DP		—	—	—		—
6 x 9		PC3-CEMP	PC11-CEMP	—	PC19P	PC42P		PC7-CEMP	PC11P	PC53P		PC46P
*6 x 9 w/ 3 9/16 edge		—	—	—	PC5BP	PC40BP		—	—	—		—
‡6 5/16 x 6″		—	—	—	PC5EP	PC40EP		—	—	—		—
‡6 5/16 x 9″		—	—	—	PC5FP	PC40FP		—	—	—		—
12 x 18″		PC4-CEMP	PC12-CEMP	—	PC19AP	PC43P		PC8-CEMP	PC12P	PC54P		PC47P

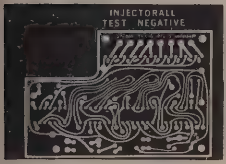
* FITS 22/44 CARD EDGE CONNECTOR

† FITS S-100 CARD EDGE CONNECTOR—.100 Centers

‡ FITS S-100 CARD EDGE CONNECTOR—.125 Centers



POSITIVE ARTWORK



NEGATIVE ARTWORK

Copper clad laminates available as:

1. Uncoated; 2. Negative resist coating; or,
3. Positive resist coating.

Special Cuts available in sizes from 3″ x 3″ up to 12″ x 18″. One or two sides copper clad and as uncoated or positive or negative coated. Please specify coating required and type from chart shown above. There is no charge for cutting and price is based on area. Minimum order for special cuts: 6 pieces each size.

DRAFTING AIDS

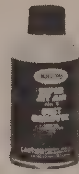
POSITIVE PHOTO RESIST

PC197-3

PC197-3
INJECTORALL
POSITIVE
SPRAY
PHOTO RESIST
FOR
PRINTED CIRCUIT
BOARDS
Contents under pressure
Read back panel carefully.

For sensitizing boards. High quality positive resist which will cause less pinholing. Available in 3 oz. aerosol spray can. Has less sensitivity to white light than other resists.

SUPER JET AIR COMPUTER CLEANER



SUPER JET AIR is a pressurized chemical at 70 P.S.I. which is used for blowing dust, lint and dirt from electronic instruments as well as projection and camera lenses. It is ideal to use in computers and other precision instruments where a moisture and lint free dust remover is necessary. Replaces the use of a brush or cloth which may disturb circuitry or break fine wiring. Available in 14 oz. spray can.

ANTI-FUNGUS VARNISH

INJECTORALL
ANTI-FUNGUS
VARNISH

ANTI-FUNGUS VARNISH is a moisture and fungus resistant varnish conforming to MIL-173C specifications. It will produce a hard antifungus film that is acid and salt water resistant. It is an air drying varnish, natural in color and is recommended to be used on all electronic equipment especially in hot and humid climates. This insulating varnish is suitable for use on electrical windings, generators, transformers and electronic equipment. Available in 12 oz. spray and gallons.

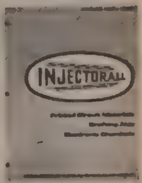
SUPER 100

CLEANER AND LUBRICANT

SUPER 100 is a fast drying cleaner and lubricant that is excellent for all TV tuners and controls as well as electrical contacts and machined parts. SUPER 100 causes no destructive action on plastics, electrical insulation and wire coatings. Specially formulated with TF Freon for the industrial electronic industry. When you care to use the very best, this is the cleaner for you. Available in 3 oz., 6 oz., 16 oz.

OTHER INJECTORALL QUALITY PRODUCTS

- P/C Chemicals and Suppplies
- IC Sockets
- "D" Sub-min Connectors
- Breadboards and Terminals
- Conformal Coatings:
  Anti-fungus Varnish
  Polyurethane Resin
  Acrylic
- Cleaners and Lubricants
- Freezer Sprays
- Drafting Aids
- Flat Ribbon Cable
- P.C. Wick
- Printed Circuit Kits



SEND FOR FREE COMPLETE CATALOG

INJECTORALL ELECTRONICS CORP. • 98-100 GLEN STREET • GLEN COVE, NY 11542 • (516) 671-6010

NEED MORE INFORMATION?

USE ONE OF THE NEW

EEMEDIATE ACTION CARDS

INSIDE THE BACK COVER OF
VOLUMES 1A, 1B & 2

SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
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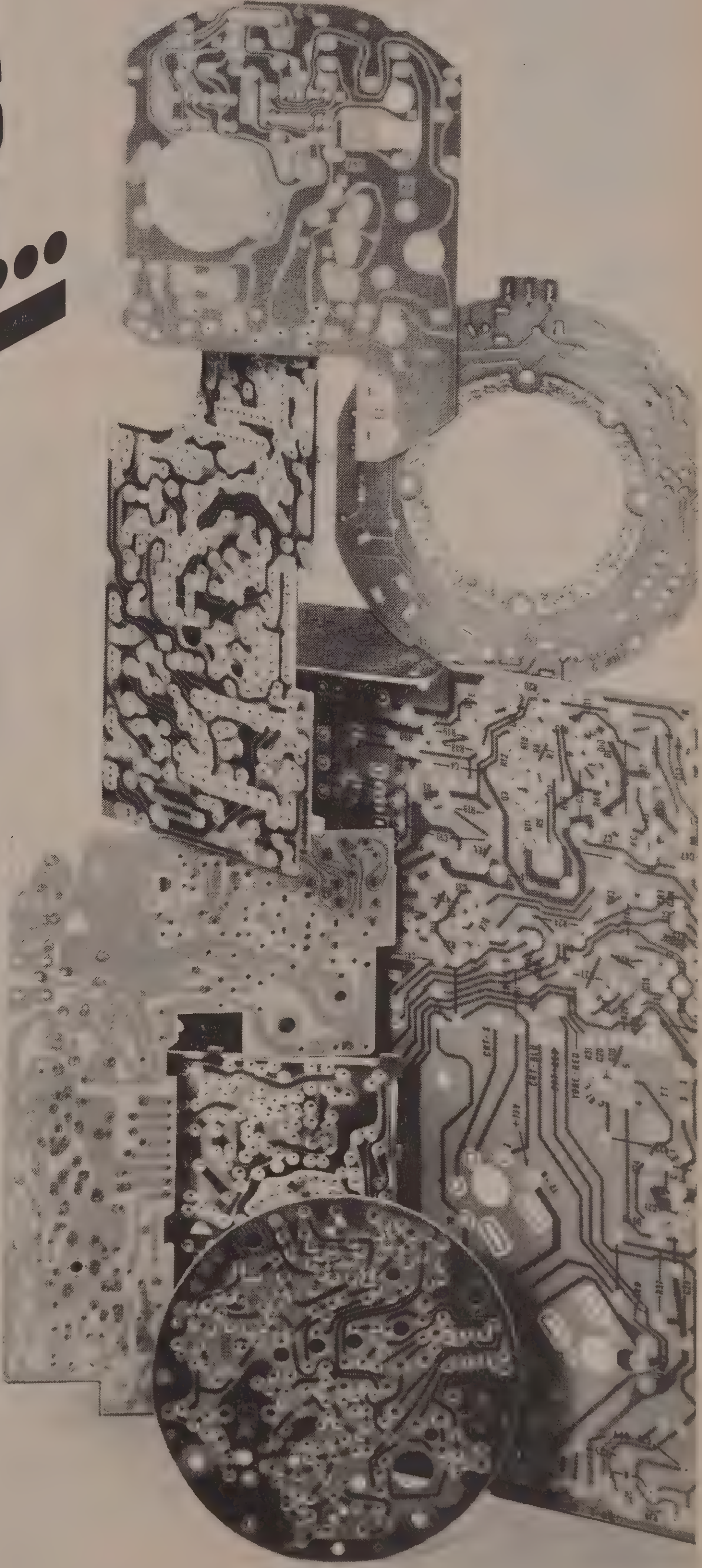
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?

LOOK AT KALMUS QUALITY...



If you use SINGLE-SIDED PRINTED CIRCUIT BOARDS, you should know Kalmus. We're one of the largest independent producers of SINGLE-SIDED PCB's in the country.

Our 70,000 sq. ft. manufacturing facility has etching capacity of over 7,000,000 sq. ft. per year, punch presses up to 100 tons and nine automatic printing presses. Our capabilities also include complete UV printing facilities.

In addition to SINGLE-SIDED PCB production, Kalmus is also a leading independent producer of DOUBLE-SIDED, PLATED-THRU-HOLE boards. Maintaining consistently high quality on large volume production runs of DOUBLE-SIDED boards has helped Kalmus build a reputation as the "quality house" for PCB's.

So for dependable, on-time delivery of SINGLE-SIDED and DOUBLE-SIDED, PLATED-THRU-HOLE PRINTED CIRCUIT BOARDS, give your next order to Kalmus.

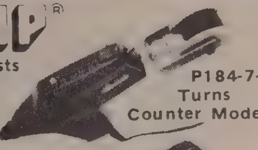
Send for a free copy of our new facilities brochure.

KALMUS & ASSOCIATES, Inc.
2424 South 25th Avenue • Broadview, Illinois 60153
Phone: 312-343-7004

Vector WIRE WRAPPING TOOLS, P.C. CARDS, TERMINALS, VECTORBORD®

SLIT-N-WRAP®

wiring tools — wire for .025" sq. posts
P184 SERIES FOR 28 & 30 GAGE TEFZEL INSULATED WIRE



- Wire spools mounted with tension regulators reduce wire breakage.
- Removable wire-grip housing on power tools eliminates need to hand-hold wire end at start of wrap.
- Replaceable bits, set-screw mounted, simplify maintenance & insure reliability, reduce costs and downtime.

P184-25
DC Model

No Stripping • No Precutting • No Premeasuring • No Loading • Daisy Chain Wraps • Quick Change Bits • Reliable Wraps Meet MIL-STD 1130B • U. S. & Foreign Patents

P184-1
Manual Tool

The patented tool has a specially designed tip which slits the wire insulation just before it is wrapped on a post. Wire feeds from a spool on the tool making "daisy chain" connections with single level wraps. Insulation is slit only during wrapping.

MANUAL SLIT-N-WRAP TOOLS

P184-1. Supplied with two 50′ spools of 28 ga. Tefzel wire, tension regulator wire spool bracket, wrap bit No. 02, P183 cutoff and forming tool.

P184-6. Same as P184-1 except supplied with two 75′ spools of 30 ga. Tefzel wire and No. 04 wrap bit.

TURNS COUNTER 110V AC SLIT-N-WRAP TOOLS

P184-7-28. Electronic 7-turn counter, also adjustable to 3, 5, 9 turns or continuous run, assures uniform number of turns for each pull of trigger. Supplied with 300′ spool of Tefzel 28 ga. wire with tension regulator wire spool bracket, wrap bit No. 02, P183 cutoff and forming tool, external power transformer with cord. 2-piece wrap bit shaft with stationary wire grip avoids need to hold wire end at start of wrap.

P184-7-30. Same as P184-7-28 except supplied with No. 04 bit and 200′ spool of 30 ga. Tefzel wire.

CONTINUOUS RUN SLIT-N-WRAP POWER TOOLS

P184-3S. 110V AC with external power transformer and cord, P183 cutoff and forming tool. Order bits, wire spools and wire bracket separately (see table below).

P184-2S. DC with nickel/cadmium battery, AC recharging unit, P183 cutting and forming Tool. Order bits, wire spools and bracket separately (see table below).

ALL SLIT-N-WRAP TOOLS CAN BE USED WITH ALL SLIT-N-WRAP & CONVENTIONAL WRAP BITS AND WIRE TYPES LISTED BELOW.

Set-Screw Mounted Wrapping Bits for Easy Low Cost Replacement. For Use With All Slit-N-Wrap Tools

Part No.	For Use With Wire Type	AWG	Wiring Method
01	Polyurethane	28	Slit-N-Wrap
02	Tefzel	28	Slit-N-Wrap
03	Kynar	26-30	Conventional Wrap
04	Tefzel	30	Slit-N-Wrap

Wire tension regulator bracket P160-5G for Slit-N-Wrap modeled where not furnished. Not needed for conventional wrap tools.

WIRE FOR SLIT-N-WRAP METHOD

Tefzel Insulated Silver Plated Wire.

FOR USE WITH 02 BIT

Part No.	AWG	Color	Ft. Per Spool
W28-6A	28	Green	50
W28-6B	28	Red	50
W28-6D	28	Blue	50
W38-6E	28	White	50
W28-6F	28	Yellow	50
W28-6H	28	Black	50
W28-6AS	28	Green	300
W28-6BS	28	Red	300
W28-6DS	28	Blue	300
W28-6ES	28	White	300
W28-6FS	28	Yellow	300

FOR USE WITH 04 BIT

Part No.	AWG	Color	Ft. Per Spool
W30-6E	30	White	200
W30-6D	30	Blue	200
W30-6J	30	Orange	200
W30-6F	30	Yellow	200
W30-6ET	30	White	75
W30-6DT	30	Blue	75
W30-6JT	30	Orange	75
W30-6FT	30	Yellow	75

Polyurethane—Nylon Insulated Wire For Use with No. 01 Bit.

Part No.	AWG	Color	Ft. Per Spool
W28-2-A	28	Green	100′
W28-2-B	28	Red	100′
W28-2-C	28	Clear	100′
W28-2-D	28	Blue	100′

WIRE FOR CONVENTIONAL WIRE WRAPPING METHOD

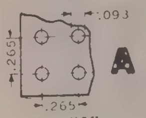
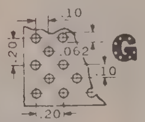
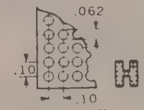
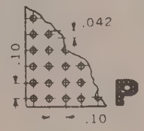
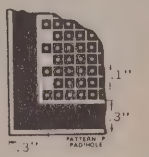
Kynar Insulated Wire, Silver Plated, Solid Conductor, Easy Stripping, For Use With 03 Bit.

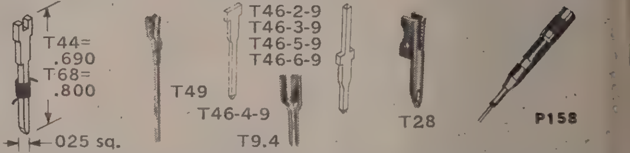
Part No.	AWG	Color	Ft. Per Spool
2323A28-4	28	White	50
W30-5A	30	Green	75
W30-5AS	30	Green	300
W30-5B	30	Red	75
W30-5BS	30	Red	300
W30-5E	30	White	75
W30-5ES	30	White	300
W30-5F	30	Yellow	75
W30-5FS	30	Yellow	300

P210 MILLIOHM PROBE

P210—For use in verifying wrap connection from post to post. Determines wrap resistance in milliohms (0-30, 0-300 and 0-3000) in accordance with MIL-STD 1130B. Hand held, battery operated convenience (9V battery). Many other uses: verifying power and ground lines in automotive, marine and avionics.

VECTORBORD® — MICROVECTORBORD®

Pattern	Material	Catalog Number	Length Inches	Width Inches	Thick. Inches
 Pattern "A"	phenolic	32AA18	8.51	4.80	3/32
		64AA18	16.99	4.80	3/32
	epoxy glass comp.	32A18WE	8.51	4.80	1/16
		64A18WE	16.99	4.80	1/16
 Pattern "G"	epoxy paper	85G24EP	16.99	4.80	1/16
	epoxy glass comp.	42G24WE	8.51	4.80	1/16
		85G24WE	16.99	4.80	1/16
		85G42WE	16.99	8.51	1/16
 Pattern "H"	epoxy glass	85H48WE	8.50	4.80	1/16
		85H85WE	8.51	8.51	1/16
		170H48WE	16.99	4.80	1/16
		170H48-032	16.99	4.80	1/32
		170H85WE	16.99	8.51	1/16
 Pattern "P"	Note 1: boards with "WE" in part no. are epoxy glass; boards without "WE" are epoxy glass comp.	29P29	3.00	3.00	1/16
		44P29	4.50	3.00	1/16
		44P44	4.50	4.50	1/16
		59P44-032	6.00	4.50	1/32
		64P44-032	6.50	4.50	1/32
		64P44	6.50	4.50	1/16
		64P44WE	6.50	4.50	1/16
		84P44	8.50	4.50	1/16
		84P44WE	8.50	4.50	1/16
		169P44	17.00	4.50	1/16
		164P44WE	17.00	4.50	1/16
		169P59-032	17.00	6.00	1/32
		169P59-047	17.00	6.00	3/64
		169P79	17.00	8.00	1/16
		169P84	17.00	8.50	1/16
		169P84WE	17.00	8.50	1/16
		169P99	10.00	17.00	1/16
		349P84	36.00	8.50	1/16
	copper clad; see Note 1 above	169P44C1	17.00	4.50	1/16
		169P44C2	17.00	4.50	1/16
		169P44WEC1	17.00	4.50	1/16
		169P59C1	17.00	6.00	1/32
		169P84C1	17.00	8.50	1/16
		169P84WEC1	17.00	8.50	1/16
	epoxy paper	64P44EP	6.50	4.50	1/16
		84P44EP	8.50	4.50	1/16
		169P44EP	17.00	4.50	1/16
		169P47EP	17.00	4.80	1/16
		169P84EP	17.00	8.50	1/16
Following pad-per-hole Vectorbord has P-pattern holes with etched and tinned 2 ounce copper pads on both sides around each hole.	epoxy paper Cu 1	64P44EPC1	6.50	4.50	1/16
		169P44EPC1	17.00	4.50	1/16
	phenolic	64P44XXXP	6.50	4.50	1/16
		169P44XXXP	17.00	4.50	1/16
		169P59XXXP	17.00	6.00	1/16
	ep. gl. comp. pad/hole	45P80-1	8.08	4.50	1/16
		106P106-1	10.60	10.60	1/16



TERMINAL DIMENSIONS AND INSTALLING TOOLS				
Part No. Tin Plated	Length Below 1/16" Board	Height Above Board	Hand Tool	P158 Tool w/Die Point
T9.4	.219	.190	P122B	—
T28	.175	.200	P91A	—
T42-1	.107	.281	P149A	—
T46-2-9	.300	.360	P133B	D7-4
T46-3-9	.520	.460		D7-4
T46-4-9	.300	.040	or	D7-4
T46-5-9	.24	.280		D7-4
T49	.560	.210	P156	D8
T49-1	.388	.21	P156	D8
T44	.477	.120	A13	D11
T68	.790	.172	A13-1	D17
T68A	.540	.172	A13-1	D17

WRAPPABLE & SOLDERABLE TERMINALS & PINS

T44/T68 Mini-Wrap for 0.042″ Holes—Low profile wire wrappable terminals have slotted upper end for soldered wires. Ideal for miniature assemblies.

T49 Trifurcated Klip-Wrap—Unique three-fingered clip on upper end makes this a time-saving terminal for production or experimental uses. Spring clip holds leads from 0.018″ to 0.025″, 0.032″ or 0.040″ until soldered.

T46 Series Press-In Wrap Posts have rectangular base with stepped shank for better holding in 0.042″ holes.

T42-1 Miniaturized Compact Push-in fits 0.042″ dia. holes such as in "P" pattern Micro-Vectorbord and can be mounted on 0.1″ centers side-to-side. Tintillate plated. Ideal for IC work because leads can be laid in slots or pass through terminal vertically.

T28-Compact push-in terminals fit 0.062″ dia. holes in printed circuit boards and Vectorbord. Patterns, B, F, G, and H. Tintillate plated copper alloy.

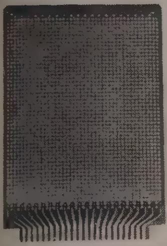
T9.4-Push-in type fits 0.093″ dis. holes in printed circuit boards or Vectorbord "A" and "AA" patterns. Serrated teeth hold leads 0.032″ to 0.040″ in slots until soldered. Supplied with intillate plating for easy soldering.

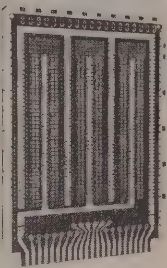
P158 Spring Impact Tool accepts screw-in terminal die points listed above. When depressed, tool delivers sharp impact force to drive terminals into circuit board holes.

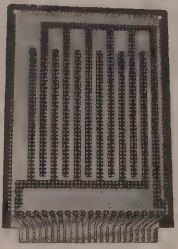
VECTOR ELECTRONIC COMPANY, 12460 Gladstone Avenue, P.O. Box 4336, Sylmar, CA 91342-0336 **Phone (818) 365-9661**

PLUGBORDS • P. C. CONNECTORS • EXTENDER CARDS •

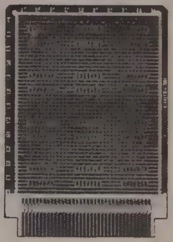
Vector

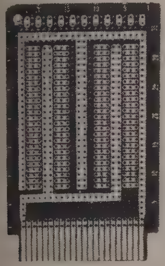

◀ 3662

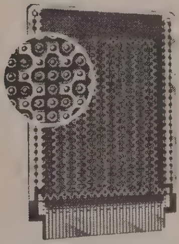

◀ 3677-2

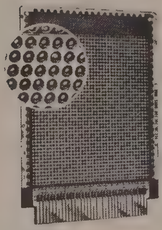

◀ 3682-2 (Wiring Side)

3719-3 - X Side ▶

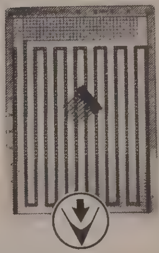



◀3795-3


◀ 4066-4 (Wiring Side)


◀ 4112-4 (Wiring Side)

8002 ▶



BARE BOARDS ● BOARDS FOR WIRE WRAPPING ● BOARDS FOR SOLDERING

UNIVERSAL PLUGBORDS

Use for prototype, test, and short run plug-in circuits. All boards are 1/16" thick and have an overall grid of 0.042" holes on 0.1" centers (pattern "P"). All etched circuitry above contact area is tinned for easy soldering. Boards are available with varied contact arrangements and mating connectors are listed. Back-to-back contacts terminate in independent hole pads. Layout paper furnished with all boards.

PLUGBORD SPECIFICATIONS

Flame Retardant Epoxy Glass Composite.

Copper Cladding: 2 oz. (.0027" thick) 1 or 2 sides. Solder coated except contacts.

Contacts: Nickel plated and gold flashed.

CARD EXTENDERS SPECIFICATIONS

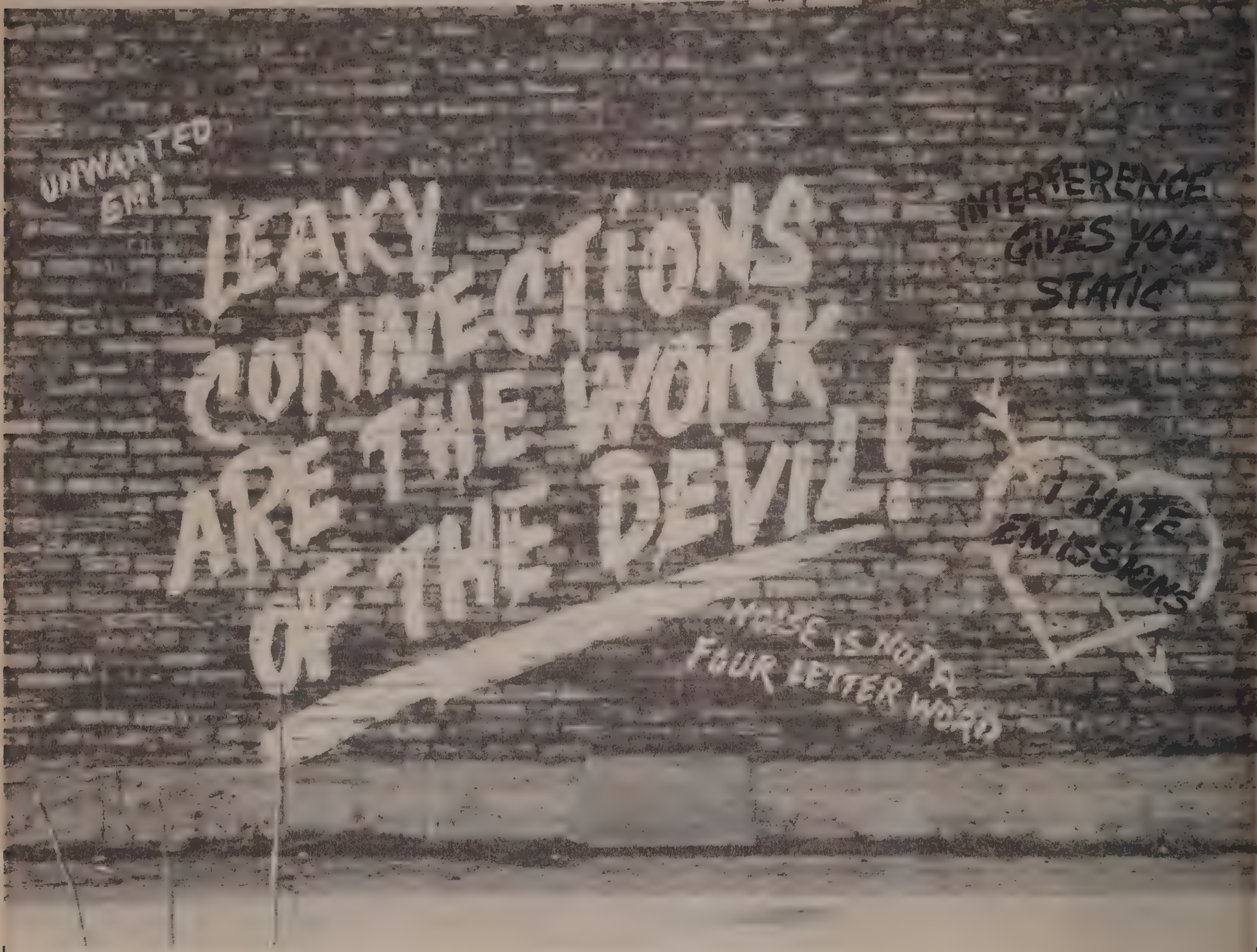
Flame retardant epoxy glass composite. Nickel/gold plug tips. High quality top connector installed.

ORDERING INFORMATION

Part No.	Size	Contacts		Max. No. 16-pin DIPs Accom.	Circuitry Description	Mating Connectors		Mating Extenders
		No.	Spacing			Solder Tail	Wrap Tail	
3662	4.5 x 6.5	44	.156	50	Contacts only.	R644	R644-3	3690
3662-2	4.5 x 9.6	44	.156	90		R644	R644-3	3690
3662-5	4.5 x 4.5	44	.156	40		R644	R644-3	3690
3662-9	4.5 x 6.5	44	.156	50	Same as 3662 but with plated thru holes.	R644	R644-3	3690
3662A6	4.5 x 6.5	44	.156	54	Ground plane, component side.	R644	R644-3	3690
3673	7.98 x 9.6	80	.125	152	Contacts only.	R680-2	R680	3690-14
3677	4.5 x 9.6	44	.156	21	3-hole pad groups for component mounting and interconnection. Interleaved ground & voltage buses.	R644	R644-3	3690
3677-2	4.5 x 5.5	44	.156	12		R644	R644-3	3690
3677-6	4.5 x 8.1	none	none	21	Sim. to 3677, but without contacts.	none	none	none
3682	4.5 x 9.6	44	.156	48	For wire wrapping. Interleaved ground & voltage buses. 3682-4 has ground plane on component side.	R644	R644-3	3690
3682-2	4.5 x 6.5	44	.156	24		R644	R644-3	3690
3682-4	4.5 x 6.5	44	.156	24		R644	R644-3	3690
3719-1	4.5 x 6.5	72	.100	60	Contacts only.	R636-2	R636-1	3690-2
3719-2	4.5 x 6.5	72	.100	12	Horizontal etched conductor lines.	R636-2	R636-1	3690-2
3719-3	4.5 x 6.5	72	.100	12	Horizontal etched conductors one side, vertical other side, broken for 14-pin DIP only.	R636-2	R636-1	3690-2
3719-4	4.5 x 9.6	72	.100	90	Contacts only.	R636-2	R636-1	3690-2
3719-5	4.5 x 4.5	72	.100	30	Contacts only.	R636-2	R636-1	3690-2
3719-6	4.5 x 6.5	72	.100	48	Contacts only and plated thru holes.	R636-2	R636-1	3690-2
3795	2.73 x 4.5	44	.100	16	Contacts only.	———	R644-2	3690-8
3795-1	2.73 x 4.5	44	.100	4	Interleaved power & ground buses and 3-hole solder pads.	———	R644-2	3690-8
3797	2.73 x 4.5	30	.156	16	Contacts only.	R630	R630-1	3690-10
3797-2	2.73 x 4.5	30	.156	4	Power & ground buses and 3-hole solder pads.	R630	R630-1	3690-10
4050-1	4.5 x 6.5	44	.156	12	Horizontal etched conductor lines one side, vertical other side broken for 14-pin DIP mounting.	R644	R644-3	3690
4050-2	4.5 x 6.5	44	.156	12		R644	R644-3	3690
4066-4	4.5 x 6.5	72	.100	34	Interleaved power & ground buses plus "free" space for large components. Ground plane on component side.	R636-2	R636-1	3690-2
4066-5	4.5 x 4.5	72	.100	18		R636-2	R636-1	3690-2
4112	4.5 x 9.6	44	.156	40	3-hole pads plus interleaved zig-zag voltage bus, overall ground plane other side.	R644	R644-3	3690
4112-4	4.5 x 6.5	44	.156	25		R644	R644-3	3690
4112-5	4.5 x 4.5	44	.156	15		R644	R644-3	3690
4493	4.5 x 6.5	72	.100	42	2 regulator positions, 1 prewired to powers input, ground plane, other position uncommitted. Full ground plane network 1 side, other side interdigital.	R636-2	R636-1	3690-2
4493-1	4.5 x 9.6	72	.100	63		R636-2	R636-1	3690-2
4494	4.5 x 6.5	44	.156	42		R644	R644-3	3690
8001	4.5 x 6.5			20	3-hole pads, 2 buses, solder or wrap.	These circbords are Vector's popular Plugbord patterns without the expensive plug section. I/O area for mounting any type board connector.		
8002	4.5 x 6.5			35	2 buses - best for wire wrapping.			
8003	4.5 x 6.5			60	Pad-per-hole board.			
8004	4.5 x 6.5			40	Clearance ground plane.			

Many Other Standard Models Available — Fast Production of Custom Models. See Sec. 1400, P. 2•1065 for Card Racks and Enclosures.

VECTOR ELECTRONIC COMPANY, Inc. 12460 Gladstone Avenue, P.O. Box 4336, Sylmar, CA 91342-0336 Phone (818) 365-9661


UNWANTED EMI
LEAKY CONNECTIONS ARE THE WORK OF THE DEVIL!
INTERFERENCE GIVES YOU STATIC
I HATE EMISSIONS
NOISE IS NOT A FOUR LETTER WORD

Some Grafitti Is Funny … Some Isn't!

Connectors and cables that emit spurious EMI are no laughing matter. That's why it's no small coincidence that more and more designers are specifying Shielded Cable Assemblies with Circular Din Connectors.

Switchcraft provides a versatile line of fully Shielded Cables for these applications. They feature Switchcraft's Circular Din Plugs with the exclusive one piece shell/shield. Shielded Mating Din Receptacles complete the system for EMI suppression to assist you in meeting the strict requirements of FCC 20780 Docket.

The molded plugs are sealed against contamination, designed with flex and strain relief to protect internal wire connections. Also offered are molded through-the-panel strain reliefs.

When it comes to Cables, Switchcraft can accommodate virtually your every need with complete capabilities to customize your cable in terms of style, color, wire size, type of shielding, even to molding your company logo or ID. In addition all our cable assemblies are 100% quality tested before they leave our plant.

So, if you'd like to beat the devil at his own game, why not fill out the Reader Service Card and we'll be happy to send you complete information. Or, if your needs are more pressing, contact: Mr. Dean Arvanitis/Ken Wood at (312) 792-2700.

SWITCHCRAFT INC.
A Raytheon Company

5555 N. Elston Ave., Chicago, IL, 60630
(312) 792-2700

CONNECTORS, CABLE-TO-CABLE/PANEL

Manufacturer	EEM Starting Page	Series/Model No.	Type Connector						Con-nector		No. Con-ductors		Angle		Special Features												
			Circular	Coax/Triax	Flat Cable	Rectangular	D-Submin.	DIN	Solder	Solderless	Single	Multi	Right Angle	Parallel	Herm. Seal	Envir. Resis.	High Density	Power	Hi Rel	Low Signal	Quick Disconnect	Locking	LIF ZIF	Free Hanging	Header	Polarization	Mil. Spec.
Amlan	2•1153						●		●	●		●	●	●										●	●		●
AMP	2•1127	MATE-N-LOK				●			●			●	●	●								●		●	●		
	2•1128	AMPLIMITE			●		●			●		●	●	●				●	●					●			
	2•1133	Plastic	●	●						●		●		●			●	●	●		●	●		●	●	●	
	2•1136	CHAMP			●	●				●		●	●	●		●								●	●		
	2•1138	MTA			●	●				●		●	●	●													
Asmann/ebm	2•1255						●			●												●					
Beau Products	2•1166	3300/5400				●			●			●		●										●			
Ceramaseal	2•1168	Hi-temp./vac.		●					●		●				●									●			
	2•1168	Instr.	●						●			●			●									●	●		
Contact Electronics	2•1169						●	●	●	●																	
Dai-Ichi Shoji	2•1254	MPX	●	●					●			●									●			●	●		
Fischer	2•1275	Swiss made		●					●		●			●					●	●	●	●					
Fujitsu	2•1276				●				●	●		●	●	●								●					
Holmberg	2•1302	H2/3/4					●		●	●		●	●	●						●							
ITT Cannon	2•1342	D-series		●			●		●	●		●		●					●					●	●		
	2•1345	KO/KPT, etc.	●						●	●					●	●			●	●	●			●	●		
ITT Pomona	2•1395	Audio	●						●			●		●						●	●	●		●			
LEMO	2•1503	B/E/S	●	●					●		●	●				●			●		●	●					
3M	2•1514				●	●			●	●																	
Malco	2•1520	MCK	●			●	●	●						●	●								●				
Metuchen Capacitors	2•1524	Filtered					●		●			●		●													
National Tel•Tronics	2•1530		●						●		●			●													
Power Dynamics	2•1544	Power Cord				●			●	●		●		●				●							●		
Rowe	2•1556	G/LL/RMC	●	●							●	●		●							●	●		●	●		
Sealectro	2•1561	RF types		●					●		●	●	●	●						●	●	●					
Shogyo	2•1562	Various/RF	●	●					●	●	●	●	●	●													
Souriau	2•1566	851/8526	●						●	●		●		●		●			●								
Spectrum Control	2•1569	Filtered					●		●	●		●	●	●			●							●	●		
Switchcraft	2•1578	Audio	●						●				●	●							●	●		●	●		
	2•1580	DIN	●						●			●	●	●						●		●		●	●		
Symbex	2•1587	RS-232/449, etc.					●		●			●		●						●		●					
TRW	2•1613	Super D				●				●		●	●	●					●			●	●	●		●	
	2•1646	Dura-Con				●			●			●	●			●	●	●							●		
	2•1678	Superibbon				●				●	●	●		●			●				●	●		●	●	●	
	2•1707	Jones				●			●			●	●											●	●		
	2•1717	Vibra-Lok	●							●		●		●		●	●		●			●		●	●	●	●
	2•1726	C-48	●							●		●		●		●	●		●			●		●	●	●	●
	2•1734	Nu-Lok		●					●	●	●			●	●	●			●	●		●					
Viking	2•1737						●						●	●													
Wall-Able	2•1742	F/Phono		●					●		●			●													
Wells Electronics	2•1754	420/421/423					●		●				●	●											●		

CONNECTORS, PCB/FLAT CABLE

Manufacturer	EEM Starting Page	Series/ Model No./ I.D.	Board to Chassis/ Mother Bd.		Board to Cable/ I/O		For Extender Bd.	Type or Feature	Contact Style			Special Features											
			One* Piece	Two† Piece	One* Piece	Two† Piece			Canti-lever	Pin	Bel-low	ZIF-LIF	Extractors	Gold Contact	Cup/Eye/Tail Solder	DIP/Flow Solder	Inst. Dis. Contact	Wirewrap	Rt. Angle Contacts	Positive Lock	Mil. Spec.	Coax Adder	Polarization
AirBorn	2•1107	WT/WTB		●		●				●			●	●	●	●		●	●	●		●	●
		WTBT					●			●			●	●	●	●		●	●	●			●
	2•1108	WGB/ WTKA		●				2-Rows		●			●	●	●	●		●	●	●			●
	2•1110	Hi Density		●				3-Rows							●	●		●					
	2•1111	Lead-Edge		●					●							●							
	2•1107/ 2•1112	WTA/WTD				●		Crimp Removable					●	●	●	●	●	●	●	●	●		
Amlan	2•1157	DIN 4612		●				Male/ Female		●				●	●	●		●	●				
AMP	2•1143	STD	●				●		●					●		●		●					
		Low Profile	●					Bifurcated	●					●	●	●							
	2•1144	Pace	●					Removable Contacts	●					●				●					
	2•1145	Econo-mate		●				NAFI Compatible		●						●			●		●		●
	2•1146	Cam Action	●				●	Ends Open	●			●			●	●			●	●			
	2•1147	Bell Crank	●						●			●						●					
Aptronics	2•1160	Strip Headers		●				Male/ Female		●				●		●			●				
Caton	2•1167	EC	●					Card Edge	●					●							●		
Contact	2•1169	Card Edge	●						●						●	●		●			●		
CTS Fabritek	2•1246	Headers & Sockets		●						●				●		●			●		●		
Dale	2•1250	EB4/6	●					Card Edge	●					●		●		●	●		●		●
Eby	2•1256	Headers & Card Edge	●	●						●				●	●	●			●				
	2•1257	Flat Cable				●		Headers		●				●			●				●		
Edac	2•1258	Card Edge	●							●				●				●					●
	2•1260	DIN		●						●		●		●		●							
	2•1261	Headers & Sockets		●											●	●	●	●			●		
Elfab	2•1271	Finger-Pac		●						●						●							
	2•1272	Press-Pac		●				DIN	●	●						●		●					
	2•1273	Box-Pac		●				Surface Mount	●							●							
H&T Components	2•1318	Hi-Tec 4000				●		Socket	●		●			●			●				●		●
	2•1320	Hi-Tec 4100		●				Headers		●	●			●		●			●		●		●
	2•1322	Hi-Tec 4140/50		●				Headers		●	●			●		●			●		●		●

* One Piece: Etched fingers on board or exposed flat-cable-wires plug directly into mating connector.
† Two Piece: Board or cable has attached connector, or header, that mates with socket.

CONNECTORS, PCB/FLAT CABLE (Con't.)

Manufacturer	EEM Starting Page	Series/ Model No./ I.D.	Board to Chassis/ Mother Bd. One* Piece	Board to Chassis/ Mother Bd. Two† Piece	Board to Cable/ I/O One* Piece	Board to Cable/ I/O Two† Piece	For Ex-tender Bd.	Type or Feature	Contact Style Canti-lever	Contact Style Pin	Contact Style Bel-low	Special Features ZIF-LIF	Extractors	Gold Contact	Cup/Eye/Tail Solder	DIP/Flow Solder	Inst. Dis. Contact	Wirewrap	Rt. Angle Contacts	Positive Lock	Mil. Spec.	Coax Adder	Polarization
Holmberg	2•1295	Card Edge	●					Many Cent.-To-Cent.		●				●	●	●		●	●				●
Hypertronics	2•1312	Submin.		●						●		●			●	●		●	●				
Indl. Elctrn. Hardware	2•1329	IEH		●				Hypertac Contacts		●		●									●		
Interlok	2•1336	Ser. M		●						●	●			●									
ITT Cannon	2•1352	GO3/PB	●						●						●	●		●					
		GO6/60		●				DIN/IDC		●	●					●	●	●	●				
Kel-Am	2•1472	PR PS				●		Headers	●							●		●					
	2•1473	RF				●		Socket								●			●				●
	2•1476	6100				●		Ribbon									●						●
	2•1477	RC		●				To PC Socket								●		●	●				
	2•1482	DIN		●						●	●			●		●		●	●				
Metuchen	2•1525	D-Submin.				●		Filtered		●	●				●			●	●				●
Panduit	2•1533	Lat-Con				●		Flat Cable		●	●						●				●		●
	2•1534	Hi-Con		●				DIN		●	●					●		●	●				
Phoenix Contact	2•1540	Term. Blocks			●			Screw Type								●			●				
Sullins	2•1574	EZ		●				Lo-Hi Profile				●		●	●	●							●
Symbex	2•1586	Flat Cable			●	●		Headers	●	●	●						●						
Thomas & Betts	2•1594	Slimline			●			Headers			●					●	●						
	2•1595	Female				●		Sockets		●	●			●			●			●	●		●
	2•1597	Male				●		Headers		●	●			●	●	●		●		●	●		●
	2•1599	Card Edge				●		Flat Cable	●								●			●			●
TRW	2•1648	Cardcon	●					Edge				●		●		●				●	●		●
	2•1651	Cinch		●				4 Tyne		●	●			●		●			●		●		
	2•1661	Cinch	●					Wirewrap	●					●				●					●
	2•1663	Hi Density		●				DIN		●	●				●	●		●	●				
	2•1666	Superfast	●	●	●	●		Flat Cable Headers	●	●	●					●	●	●		●			●
Viking	2•1737	VSBX/ D-Sub.	●	●					●			●				●		●	●				
WECO	2•1746	Term. Blocks			●			Screw Type								●			●				
Weidmuller	2•1748	Term. Blocks			●			Screw Type								●			●				

* One Piece: Etched fingers on board or exposed flat-cable-wires plug directly into mating connector.

† Two Piece: Board or cable has attached connector, or header, that mates with socket.

CONNECTORS, RACK & PANEL

Manufacturer	EEM Starting Page	Series/ Model No.	Contact			Two-Piece		Special Features							
			Pin	Canti-lever	Bellow	‖ Mating	⊥ Mating	ZIF-LIF	Wirewrap	DIP Solder	Cup/Eye Solder	Locking	Hoods	Jack Screw	Hi Rel/ Mil.
Dale	2•1253	MM22/24	●			●				●	●	●	●		
Edac	2•1262	516		●		●			●	●	●		●	●	
ITT Cannon	2•1341	DPK/DPX	●			●									●
Rowe	2•1556		●			●									

JACKS, PLUGS, ADAPTERS, PINS

Manufacturer	EEM Page(s)	Jacks	Jack Adapters	Plug & Jack Sets	Plugs, Electrical	Plug Adapters	Binding Posts	Pins, Elec. Cond.	Contacts, Electrical	Plugs, Power	Recep-tacles, Power	Jumpers, Circuit Board	Clips, Test	Leads, Test
Alden	2•1113-1119										●			
Aptronics	2•1160, 1161											●		
Aries	2•1149-1152	●		●					●			●		
Asmann/ebm	2•1255											●		
Concord	2•1170-1243	●	●	●	●	●	●	●	●					
Connector Corp.	2•1244, 1245	●			●				●					
Eby	2•1256, 1257						●							
Grayhill	2•1294						●						●	
Hiram Jones	2•1314-1317	●							●					
Hypertronics	2•1311-1313								●					
Interlok	2•1334-1337				●									●
International Comps. Corp.	2•1338	●			●	●								
ITT Pomona	2•1355-1470	●	●	●	●	●	●					●	●	●
Keystone	2•1484-1495	●		●	●		●							
LEMO	2•1503-1512	●			●									
Mill-Max	2•1523							●						
Mueller	2•1528, 1529												●	
Natl. Tel•Tronics	2•1530, 1531	●		●	●		●							
Panel Comps.	2•1536-1539									●	●			
Power Dynamics	2•1544-1546									●	●			
Robinson Nugent	2•1552-1555							●	●					
Sealectro	2•1561	●			●									
Shogyo	2•1562-1564	●	●	●	●	●								
HH Smith	2•1565	●		●	●		●							
Superior Elec. Co.	2•1577			●			●							
Switchcraft	2•1578-1585	●		●	●						●			
Tecknit	2•1588-1591								●					
Thomas & Betts	2•1593-1612											●		
TRW	2•1613-1735	●			●				●			●		
Wall-Able	2•1742, 1743	●							●					
WECO	2•1745-1747			●										
Weidmuller	2•1748			●										

TERMINALS & TERMINAL BOARDS, BLOCKS, ETC.

Manufacturer	EEM Page(s)	Barrier Blocks	Terminal Boards	Terminal Strips	Terminals							
					Feed-thru	Lug	PCB	Standoff	Threaded	Wirewrap	Solderless	Push-on/ Quick Discon.	Turret
AMP	2•1121-1148					●					●		
Asmann/ebm	2•1255			●									
Beau Products	2•1164-1166	●		●									
Caton	2•1167	●		●									
Concord	2•1170-1243		●	●	●	●	●		●	●		●	●
Electrovert	2•1266, 1267	●		●									
Hiram Jones	2•1314-1317			●	●	●	●	●	●				●
Interlok	2•1337			●									
ITT Pomona	2•1355-1470												●
Keystone	2•1484-1495		●	●									
Kulka Smith	2•1496-1501	●	●*	●	●	●					●	●	●
Magnum	2•1516-1518		●	●									
Mill-Max	2•1523									●			
National Tel•Tronics	2•1530, 1531		●	●		●							
Panduit	2•1532-1534					●							
Phoenix Contact	2•1540-1542	●		●									
Precicontact	2•1547							●		●			●
RDI/Reed Devices	2•1548-1551	●	●	●					●	●			
Shogyo	2•1562-1564		●	●									
HH Smith	2•1565	●	●										
TRW	2•1613-1735	●		●		●	●						
Wall-Able	2•1742, 1743		●	●							●		
WECO	2•1745-1747			●									
Weidmuller	2•1748	●		●							●		

SOCKETS

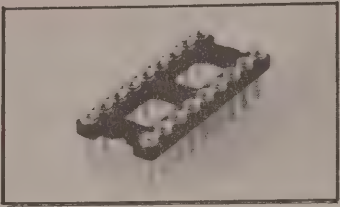
Manufacturer	EEM Page(s)	IC	DIP/SIP	Pin Grid Array	Carrier	Transistor	Crystal	Lamp	Relay	Tube	Test	Adapter
Advanced Interconnections	2•1102-1104	●	●	●								
Aries	2•1149-1152		●	●								
Asmann/ebm	2•1255	●	●			●					●	
Augat	2•1162, 1163	●	●	●								
Connector Corp.	2•1244, 1245	●				●	●			●		
Custom Connector	2•1249								●			
Eby	2•1256, 1257					●*	●*		●	●*		
Electronic Molding	2•1268-1270	●	●	●								
Elfab	2•1271-1274	●	●									
Grayhill	2•1294					●		●				
H & T Comps.	2•1318-1328	●*	●*									
Interlok	2•1334-1337								●		●	
ITT Pomona	2•1355-1470										●	●
Kel-Am	2•1472-1483	●	●									
Keystone	2•1484-1495					●						
Panduit	2•1532-1534	●	●									
Precicontact	2•1547	●	●				●		●			●
RDI/Reed Devices	2•1548-1551								●	●		
Robinson Nugent	2•1552-1554	●	●								●	
HH Smith	2•1565		●									●
Thomas & Betts	2•1594-1611	●	●	●	●							●
TRW	2•1613-1735	●	●								●	
Wall-Able	2•1742, 1743					●			●			
WECO	2•1745-1747	●	●									
Wells Electronics	2•1750-1755	●	●		●							

* Mil. Spec.

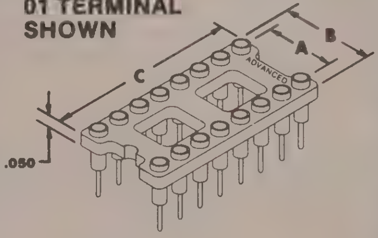
ADVANCED D.I.P. Sockets

OPEN FRAME

PART NO. 01 TERMINAL	NUMBER OF PINS	A	B	C
LS308-01TG	8	(7.62) .300	(10.16) .400	(10.16) .400
LS314-01TG	14	(7.62) .300	(10.16) .400	(17.78) .700
LS316-01TG	16	(7.62) .300	(10.16) .400	(20.32) .800
LS318-01TG	18	(7.62) .300	(10.16) .400	(22.86) .900
LS320-01TG	20	(7.62) .300	(10.16) .400	(25.40) 1.000
LS422-01TG	22	(10.16) .400	(12.70) .500	(27.94) 1.100
LS624-01TG	24	(15.24) .600	(17.78) .700	(30.48) 1.200
LS628-01TG	28	(15.24) .600	(17.78) .700	(35.56) 1.400
LS640-01TG	40	(15.24) .600	(17.78) .700	(50.80) 2.000

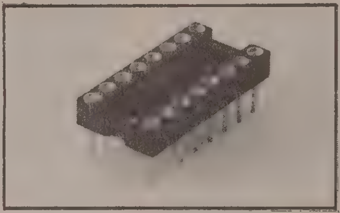


OPEN FRAME
01 TERMINAL
SHOWN

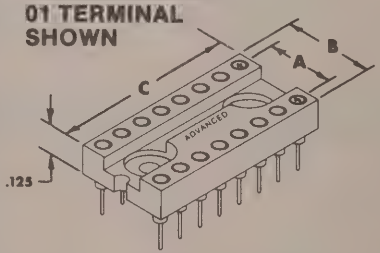


CLOSED FRAME

PART NO. 01 TERMINAL	NUMBER OF PINS	A	B	C
DS308-01TG	8	(7.62) .300	(10.16) .400	(10.16) .400
DS314-01TG	14	(7.62) .300	(10.16) .400	(17.78) .700
DS316-01TG	16	(7.62) .300	(10.16) .400	(20.32) .800
DS318-01TG	18	(7.62) .300	(10.16) .400	(22.86) .900
DS320-01TG	20	(7.62) .300	(10.16) .400	(25.40) 1.000
DS422-01TG	22	(10.16) .400	(12.70) .500	(27.94) 1.100
DS624-01TG	24	(15.24) .600	(17.78) .700	(30.48) 1.200
DS628-01TG	28	(15.24) .600	(17.78) .700	(35.56) 1.400
DS640-01TG	40	(15.24) .600	(17.78) .700	(50.80) 2.000

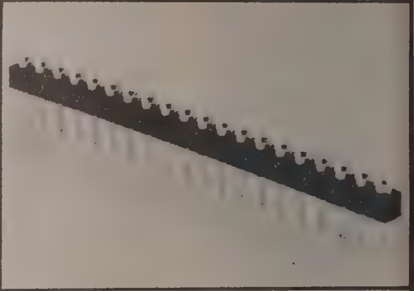


CLOSED FRAME
01 TERMINAL
SHOWN

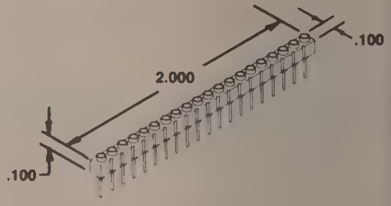


SINGLE IN-LINE BREAKAWAY SOCKET STRIP

PART NO. 01 TERMINAL	NUMBER OF PINS
SS020-01TG	20

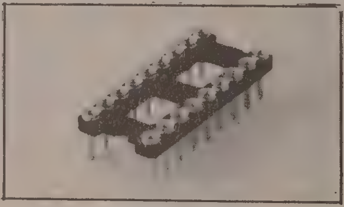


SOCKET STRIP
01 TERMINAL
SHOWN

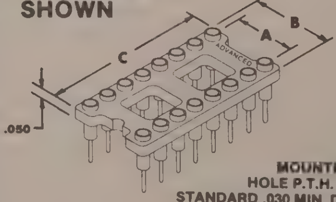


D.I.P. Sockets - Super Low Profile

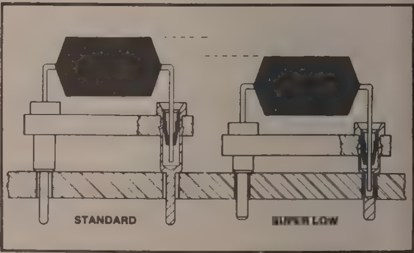
PART NO. -04 TERMINAL	NUMBER OF PINS	A	B	C
LS308-04TG	8	(7.62) .300	(10.16) .400	(10.16) .400
LS314-04TG	14	(7.62) .300	(10.16) .400	(17.78) .700
LS316-04TG	16	(7.62) .300	(10.16) .400	(20.32) .800
LS318-04TG	18	(7.62) .300	(10.16) .400	(22.86) .900
LS320-04TG	20	(7.62) .300	(10.16) .400	(25.40) 1.000
LS422-04TG	22	(10.16) .400	(12.70) .500	(27.94) 1.100
LS624-04TG	24	(15.24) .600	(17.78) .700	(30.48) 1.200
LS628-04TG	28	(15.24) .600	(17.78) .700	(35.56) 1.400
LS640-04TG	40	(15.24) .600	(17.78) .700	(50.80) 2.000



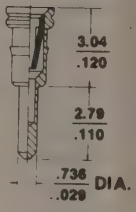
OPEN FRAME
04 TERMINAL
SHOWN



MOUNTING
HOLE P.T.H. OR
STANDARD .030 MIN. DIA.



New Hi-Rel Super Low Dip Socket with hollow-tailed terminal and .050 thick open-frame body allows for greater PCB packaging density. New terminal design utilizes standard PCB hole diameters. With IC leg sitting into the PCB, a decrease in the mounting height occurs. Super Low packaging can be obtained using our LS series body as shown, .062 thick glass epoxy for LSI sockets, Pin Grid Array sockets, and with our Mylar Throw Away Carriers in both Dual-In-Line and Pin Grid Array Patterns.



04 TERMINAL

ADVANCED
INTERCONNECTIONS

5 Division Street, Warwick, R.I. 02818 Telephone (401) 885-0485 TWX 710 3820400

ADVANCED Peel-A-Way™ Sockets

D.I.P. and P.G.A. (Patent Pending)

Mylar ® and Kapton ® Socket Terminal Carriers

Features:

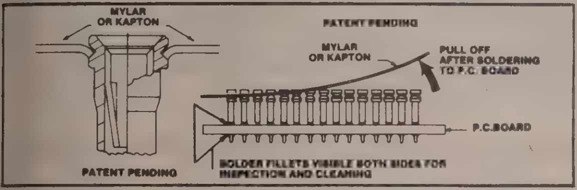
- Throw-Away Carrier
- Peels off after Soldering
- Complete Soldering Visibility on both sides of PCB
- Footprint to Customer Requirement
- Maximum Air Flow
- Better Flux Rinse
- No Contact Damage Due to Pin Carrier Insertion
- No Contact Pull Out Due to Extraction of Pin Carrier

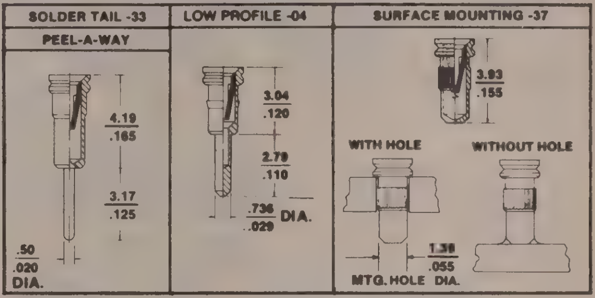
Material:

Body: Mylar® or Kapton® Type H
Terminal: Brass per QQ-B-626
Contact: Beryllium Copper per QQ-C-530

Plating:

Terminal: Gold over Nickel or Tin over Nickel
Contact: Gold over Nickel


MYLAR OR KAPTON
PATENT PENDING
PATENT PENDING
MYLAR OR KAPTON
PULL OFF AFTER SOLDERING TO P.C. BOARD
P.C.BOARD
SOLDER FILLETS VISIBLE BOTH SIDES FOR INSPECTION AND CLEANING

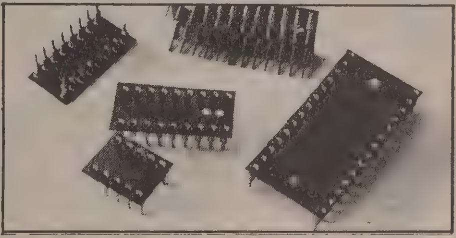

SOLDER TAIL -33
PEEL-A-WAY
LOW PROFILE -04
SURFACE MOUNTING -37
4.19 / .165
3.17 / .125
.50 / .020 DIA.
3.04 / .120
2.79 / .110
.736 / .029 DIA.
3.93 / .155
WITH HOLE
WITHOUT HOLE
1.38 / .055
MTG. HOLE DIA.

How to Use: 1. Place Socket in P.C. Board
2. Send P.C. Board and Socket thru soldering operation
3. Peel-A-Way Mylar or Kapton Carrier

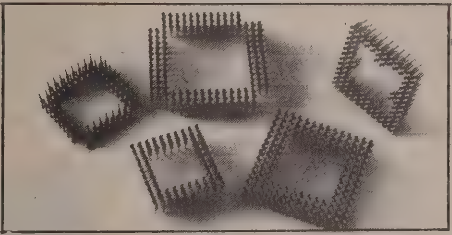
Peel-A-Way Disposable Socket Terminal Carrier Available in any Configuration shown or Custom Designed to Meet Your Specifications.

MYLAR DIP SOCKETS For Standard Wave Soldering Applications

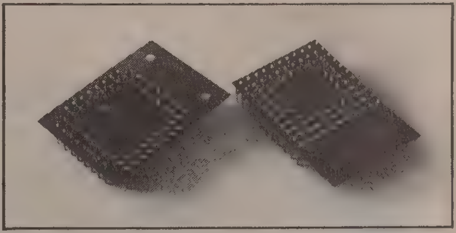
KAPTON DIP SOCKETS For High Temperature Applications



MYLAR PGA SOCKETS For Standard Wave Soldering Applications



KAPTON PGA SOCKETS For High Temperature Applications



Peel-A-Way Sheet Of Sockets (Patent Pending)

MAXIMIZE YOUR SOCKET LOADING

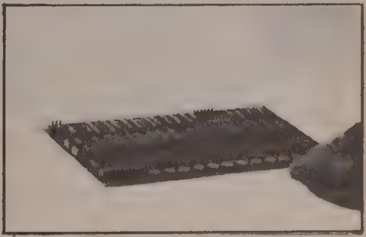
- This unique concept in terminal loading features all the standard advantages of Mylar/Kapton Peel-A-Way sockets plus an exceptionally fast P.C. Loading Rate of pins or socket positions.
- No expensive tooling or machinery is required. Just send your P.C. board or copy of artwork and Advanced will produce a finished sheet loaded with sockets and ready for your soldering operation.
- Cut out areas for loading caps, resistors, I.C.'s or other hardware may be incorporated into the sheet.

LOADING RATE PER SHEET*

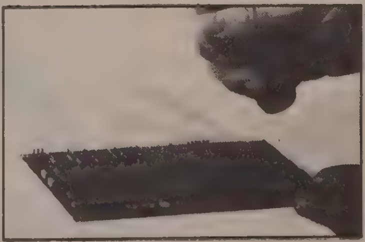
PINS PER BOARD/SHEET	PINS LOADED PER HR.
100	18,000/HR
500	90,000/HR
1000	180,000/HR
2000	360,000/HR
3000	540,000/HR
4000	720,000/HR
5000	900,000/HR
10,000	1,800,000/HR

*20 Seconds Typ. Loading Rate Shown Will Vary With Operator's Skill

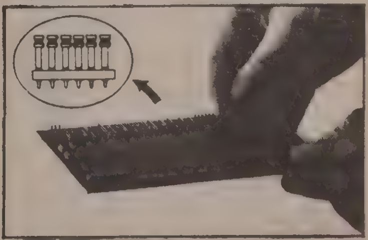
1. Place sheet of sockets into P.C. Board.



2. Send P.C. & Mylar or Kapton Sheet thru soldering operation.



3. Peel-A-Way Mylar®/Kapton®.



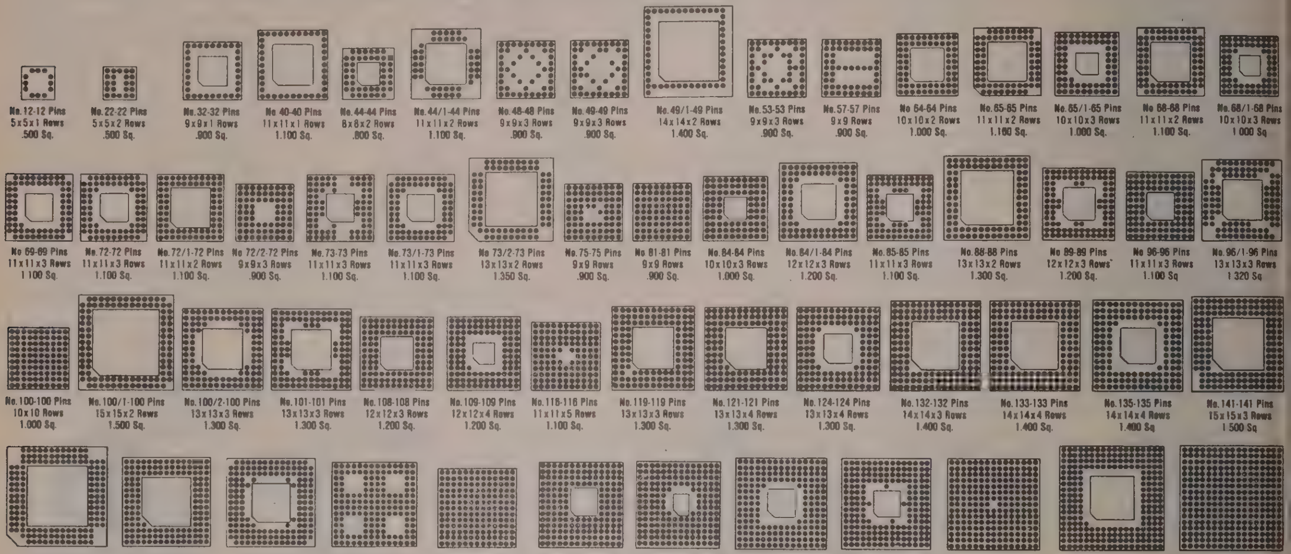
4. Results in free standing socket terminals which allow ease of flux cleaning and final inspection

ADVANCED INTERCONNECTIONS 5 Division Street, Warwick, R.I. 02818 Telephone (401) 885-0485 TWX 710 3820400

Pin Grid Array Sockets

Over 60 Footprints. In Stock. Now!

Custom designs delivered 2-3 weeks after approval



No.12-12 Pins
5x5x1 Rows
.500 Sq.

No.22-22 Pins
5x5x2 Rows
.500 Sq.

No.32-32 Pins
9x9x1 Rows
.900 Sq.

No 40-40 Pins
11x11x1 Rows
1.100 Sq.

No.44-44 Pins
8x8x2 Rows
.800 Sq.

No.44/1-44 Pins
11x11x2 Rows
1.100 Sq.

No.48-48 Pins
9x9x3 Rows
.900 Sq.

No.49-49 Pins
9x9x3 Rows
.900 Sq.

No.49/1-49 Pins
14x14x2 Rows
1.400 Sq.

No.53-53 Pins
9x9x3 Rows
.900 Sq.

No.57-57 Pins
9x9 Rows
.900 Sq.

No 64-64 Pins
10x10x2 Rows
1.000 Sq.

No.65-65 Pins
11x11x2 Rows
1.160 Sq.

No.65/1-65 Pins
10x10x3 Rows
1.000 Sq.

No 68-68 Pins
11x11x2 Rows
1.100 Sq.

No.68/1-68 Pins
10x10x3 Rows
1 000 Sq

No 69-69 Pins
11x11x3 Rows
1 100 Sq.

No.72-72 Pins
11x11x3 Rows
1.100 Sq.

No.72/1-72 Pins
11x11x2 Rows
1.100 Sq.

No 72/2-72 Pins
9x9x3 Rows
.900 Sq.

No.73-73 Pins
11x11x3 Rows
1.100 Sq.

No.73/1-73 Pins
11x11x3 Rows
1.100 Sq.

No 73/2-73 Pins
13x13x2 Rows
1.350 Sq.

No.75-75 Pins
9x9 Rows
.900 Sq.

No 81-81 Pins
9x9 Rows
.900 Sq.

No.84-84 Pins
10x10x3 Rows
1.000 Sq.

No.84/1-84 Pins
12x12x3 Rows
1.200 Sq.

No.85-85 Pins
11x11x3 Rows
1.100 Sq.

No.88-88 Pins
13x13x2 Rows
1.300 Sq.

No 89-89 Pins
12x12x3 Rows
1.200 Sq.

No 96-96 Pins
11x11x3 Rows
1.100 Sq

No.96/1-96 Pins
13x13x3 Rows
1 320 Sq

No.100-100 Pins
10x10 Rows
1.000 Sq.

No.100/1-100 Pins
15x15x2 Rows
1.500 Sq.

No.100/2-100 Pins
13x13x3 Rows
1.300 Sq.

No.101-101 Pins
13x13x3 Rows
1.300 Sq.

No.108-108 Pins
12x12x3 Rows
1.200 Sq.

No.109-109 Pins
12x12x4 Rows
1.200 Sq.

No.116-116 Pins
11x11x5 Rows
1.100 Sq.

No.119-119 Pins
13x13x3 Rows
1.300 Sq.

No.121-121 Pins
13x13x4 Rows
1.300 Sq.

No.124-124 Pins
13x13x4 Rows
1.300 Sq.

No.132-132 Pins
14x14x3 Rows
1.400 Sq.

No.133-133 Pins
14x14x4 Rows
1.400 Sq.

No.135-135 Pins
14x14x4 Rows
1.400 Sq

No.141-141 Pins
15x15x3 Rows
1 500 Sq

No.145-145 Pins
17x17x3 Rows
1.750 Sq.

No.145/1-145 Pins
15x15x3 Rows
1.500 Sq.

No.149-149 Pins
15x15x4 Rows
1.500 Sq.

No.160-160 Pins
14x14 Rows
1.400 Sq.

No.169-169 Pins
13x13 Rows
1.300 Sq.

No.171-171 Pins
14x14x5 & 4 Rows
1.400 Sq.

No.175-175 Pins
14x14x6 & 5 Rows
1.400 Sq.

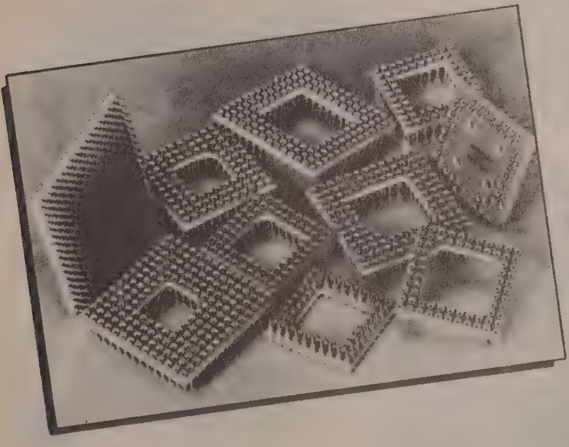
No.224-224 Pins
15x15 Rows
1.500 Sq.

No.179-179 Pins
15x15x5 Rows
1.500 Sq.

No.181-181 Pins
15x15x5 Rows
1.500 Sq.

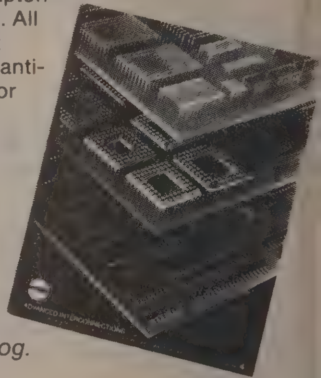
No.225-225 Pins
18x18x5 Rows
1.800 Sq

No 289-289 Pins
17x17 Rows
1 700 Sq



Advanced is ready when you are! We stock a large array of our dependable, economical Pin Grid Array Sockets, ready to go! Over 60 footprints with more added monthly. 12 to 289 pins on .100 grid spacing. Low Insertion Force (avg. 3.5 oz. per line). Insulators of .062 glass-epoxy, Mylar* Peel-A-Way™ or Kapton* Peel-A-Way™ for vapor phase soldering. All featuring dependable Advanced Socket Terminals with 4-finger contacts, 100% anti-wicking of solder, and tapered entries for easier insertion. In your choice of standard or super low profile and Wire-Wrap* terminals. Custom designs, too, shipped 2 to 3 weeks after your design OK. Advance **your** technology today!

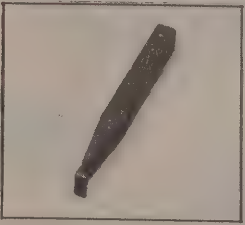
*Mylar and Kapton ©Dupont Chemical
Wire-Wrap ©Gardner-Denver



Ask for your copy of our new tell-all 20-page catalog.

PIN GRID ARRAY-EXTRACTION TOOLS

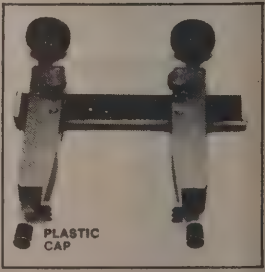
Pry Out Tool
Advanced Part #1107



Pull Out Tool
Advanced Part #1109

PLASTIC CAP

Universal Pull Out Tool
Advanced Part #1114



ADVANCED INTERCONNECTIONS
5 Division Street, Warwick, R.I. 02818 Telephone (401) 885-0485 TWX 710 3820400

AirBorn builds versatility.

Available in any AirBorn miniature or subminiature electronic connector.

LOW FORCE CONNECTORS

3-row connectors

Size	Mating Forces*
WG 160	18.5
WGA 122	14.5
WGR 92	11.0
WG 80	9.5

*Average force per contact .115 lbs.-1.840 oz.

2-row connectors

Size	Mating Forces*
WTB 120	14.0
WTB 100	12.0
WTB 90	10.5
WTB 70	8.1
WTB 66	7.6
WTB 60	7.0
WTB 56	6.5
WTB 54	6.3

Original Code	Low Force Code
SEC	SAC
SED9, 11, 15	SAD9, 11, 15
SF3, SF6	SAF3, SAF6
SW40	SAW40

Example: WG160SAD11 SY

A minimum withdrawal force of .08 lbs. times the number of contacts applies.
Individual contact forces with test pins per MS 3197:
Minimum Separation Force .5 oz. (.029″ Steel Pin)
Maximum Engagement Force 12.0 oz. (.031″ Steel Pin)
Availability: Standard production schedule.
Pricing: Same as standard connector.
No change in connector code number is required. Previously assigned low force codes, such as WG160SAD11SY will continue to be honored.

AirBorn

AirBorn Connectors / AirBorn, Inc.
4321 AirBorn Drive / Post Office Box 519 / Addison, Texas 75001-0519
Telephone 214-931-3200 / TWX 910-860-5230

AirBorn Connectors
4321 AirBorn Drive
Post Office Box 519
Addison, Texas 75001-0519
Telephone 214-931-3200 / TWX 910-860-5230

PC CONNECTORS / CODE INFORMATION / SPECIFICATIONS

MATERIAL AND FINISH SPECIFICATIONS

Pin Contact BE CU, per QQ-C-530

Socket Contact BE CU, per QQ-C-530 and/or QQ-C-533

Contact Finish Gold plate per MIL-G-45204

Molded Inserts Glass filled diallyl phthalate per MIL-M-14G

Jackscrews, Guides Stainless Steel, Series 303 per ASTM-A582, passivated per QQ-P-35

Guide Sockets (Polarized "D" Type) BE CU, per QQ-C-530, Nickel plated per QQ-N-290

Face Seal Gasket Silicone rubber per ZZ-R-765

Hoods Nylon, glass filled, for strain relief

PERFORMANCE SPECIFICATIONS

Contact Rating 5 Amperes

Wire Size #22 AWG stranded (adapter sleeves available)

Test Voltage 1000 V., 60 cps RMS @ sea level
300 V., 60 cps RMS @ 70,000 feet

Operating Temperature −65° to +125°C or −85° to +257°F

Durability 500 mating cycles

Insulation Resistance 5000 Megohms min. @ 500 VDC

Contact Resistance 0.025 volt maximum drop at 5 amps

Contact Separating Force .70 oz. minimum with .029 dia. test pin
12.00 oz. maximum with .031 dia. test pin

Low Force Sockets 3.50 oz. Max.; 250 oz. Avg.

SERIES IDENTIFICATION

WT — 1 row, .100″ centers

WG, WGA, WGE — 3 row, .100″ centers, offset .050″

WTA, WTB, WTBT, WTKA, WTDXA — 2 row, .100″ centers, offset. 050″

HARDWARE

SY — guide set (Note - Polarized "D shaped" guide sets available in 64 keying positions)

SYL — guide set - .247 mounting extension

J — fixed jackscrew set

JL — fixed jackscrew set — .247 mounting extension

JT — turning jackscrew set

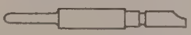
JTA — short turning jackscrew set

JTB — short turning jackscrew set/ internal hex

JTL — long turning jackscrew set

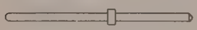
CONTACTS

PC



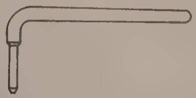
Pin, solder cup

PD



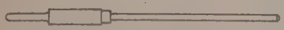
Pin, dip solder

PR



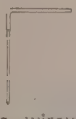
Pin, right angle, dip solder

PW



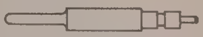
Pin, wirewrap

PRW



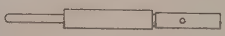
Pin, right angle, wirewrap

PF



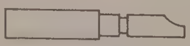
Pin, flexcable

WTK2222PA



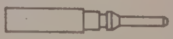
Pin. crimp removable 22 gage barrel

SEC, SAC



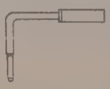
Closed entry socket, solder cup

SED, SAD



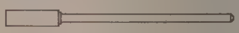
Closed entry socket, dip solder

SER, SAR



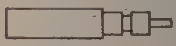
Closed entry socket, right angle, dip solder

SW, SAW



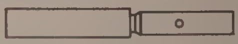
Closed entry socket, wirewrap

SF, SAF



Closed entry socket, flexcable

WTK2222S
WTK2220S



Closed entry socket, crimp removable, 20 & 22 gage barrel

Examples of termination lengths:

PD9, 11 — 9/64, 11/64 extensions
PR7, 9, 11 — 7/64, 9/64, 11/64 extensions
PRW40 — 40/64 extension
PF3 — 3/64 extension
SED9, 11, 15 — 9/64, 11/64, 15/64 extensions
SER7 — 7/64 extension
SW40 — 40/64 extension
SF3 — 3/64 extension
SF6 — 6/64 extension

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Addison, Texas 75001-0519
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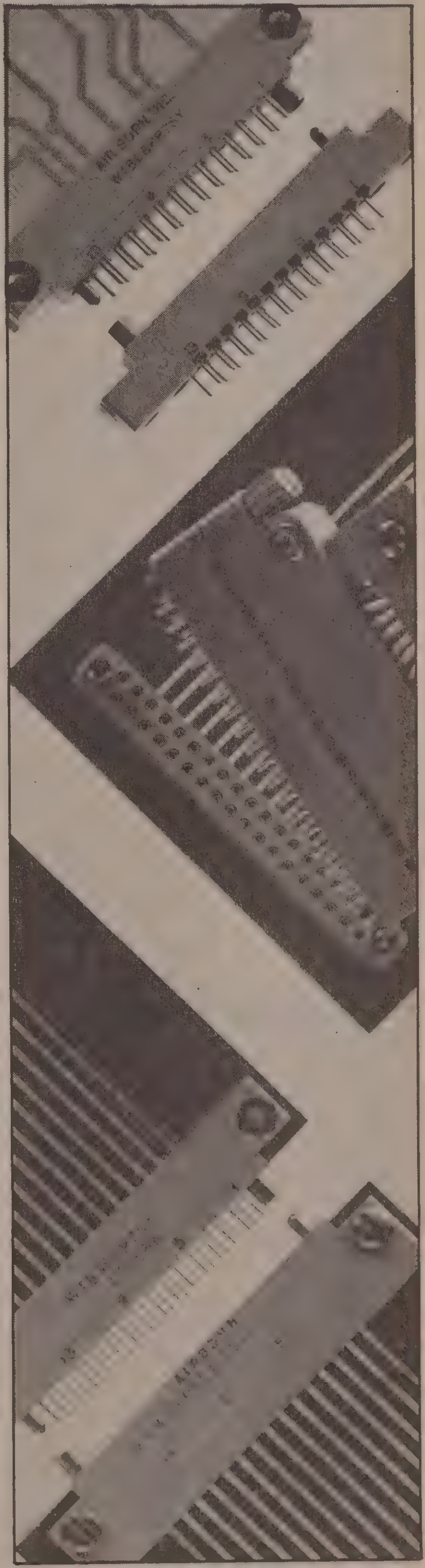
PC BOARD AND CHASSIS COMBINATIONS



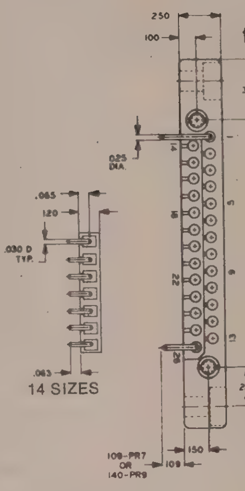
AirBorn Connectors for PC Card to Chassis or Mother Board Connections

Two series of subminiature, right-angle .030″ dia. BeCu pin to socket connectors.

Series WT: Single-row connectors on .100″ centers.

Series WTB: Double-row connectors on .100″ centers, offset .050″. Three or six 50-ohm Coax available with 20-contact connectors.

Terminations: Soldercup, wave solder, Wire-Wrap*.



14 SIZES

Con tacts	Length Overall
10	1.350
14	1.550
20	1.850
24	2.050
26	2.150
30	2.350
36	2.650
40	2.850
44	3.050
50	3.350
54	3.550
56	3.650
60	3.850
66	4.150
70	4.350
90	5.650
100	6.150
120	7.150
20+3	2.850
20+6	4.050

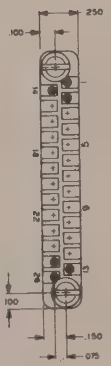
AirBorn Connectors for PC Board Input-Output, Cable to Panel and Cable to Chassis Connections

Series WTA: Subminiature, rectangular plug and receptacle, .100″ centers, two rows offset .050″, .030″ dia. BeCu contacts.

Terminations: Soldercup, wave solder, and Wire-Wrap*: Flexcable.

Series WTD: Subminiature, rectangular plug and receptacle, .100″ centers, two rows offset .050″, .030″ dia. BeCu contacts.

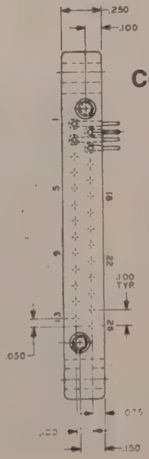
Terminations: Crimp Removable Socket.



Contacts	Overall Length
10	.850
14	1.050
20	1.350
24	1.550
26	1.650
30	1.850
36	2.150
40	2.350
44	2.550
50	2.850
54	3.050
56	3.150
60	3.350
66	3.650
70	3.850

AirBorn Connectors for Extender Board and Test Applications

Series WTBT: Right angle receptacles combine with right angle plugs for extender board applications. Available in combinations from 10 to 70 contacts. Choice of .109″ or .140″ termination lengths. Also provides a test vehicle using conventional plugs with guiding or jackscrew locking devices.



Contacts	Length Overall
10	1.350
14	1.550
20	1.850
24	2.050
26	2.150
30	2.350
36	2.650
40	2.850
44	3.050
50	3.350
54	3.550
56	3.650
60	3.850
66	4.150
70	4.350

*Registered TM of Gardner-Denver Company.

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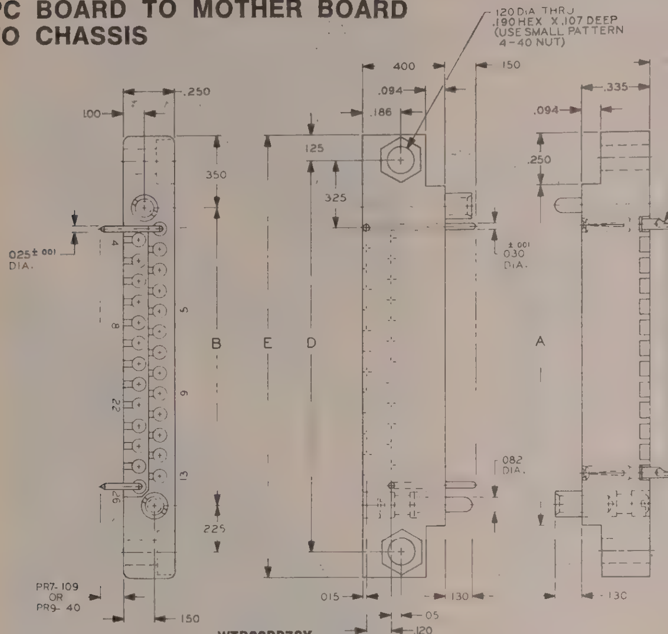
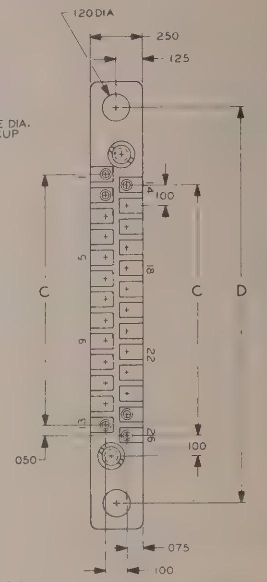
PC CONNECTORS / APPLICATIONS

PC BOARD TO MOTHER BOARD TO CHASSIS

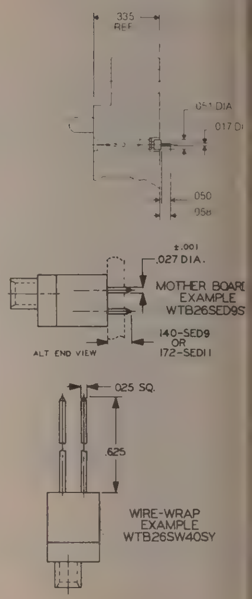

.120 DIA THRU .190 HEX X .107 DEEP (USE SMALL PATTERN 4-40 NUT)
.250
100
.025 ± .001 DIA.
350
B
E
D
A
225
PR7-109 OR PR9-140
150
400
.094
.186
125
325
150
.335
.094
.250
± .001 .030 DIA.
.082 DIA.
015
130
.05
.120
100
.035 INSIDE DIA. SOLDER CUP
4
8
22
26
5
9
13

WTB26PR7SY


.120 DIA
250
125
100
C
C
D
100
050
075
100
4
5
9
13
18
22
26

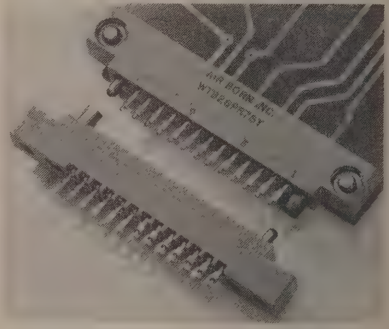
WTB26SECSY

SF3—FLEXIBLE CIRCUIT TERMINAL

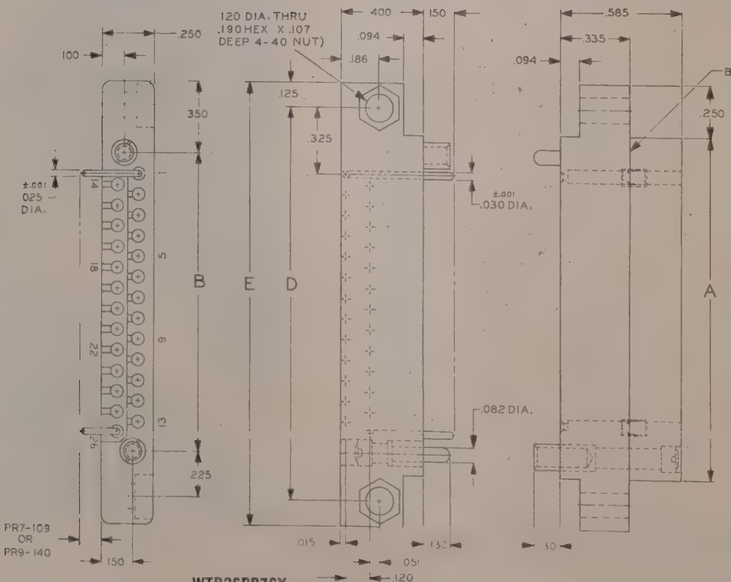

.335 REF
.051 DIA
.017 DI
.050
.058
±.001 .027 DIA.
MOTHER BOAR EXAMPLE WTB26SED9S
ALT END VIEW
140-SED9 OR 172-SEDII
.025 SQ.
.625
WIRE-WRAP EXAMPLE WTB26SW40SY

Series WGB, WTKA
2 row, right angle plug with .100″ centers, offset .050″

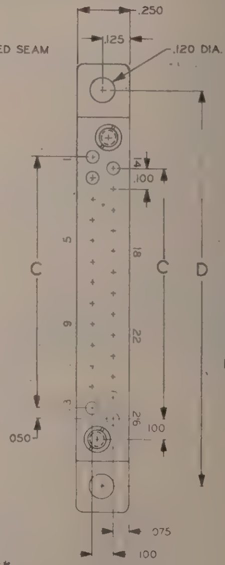
Size	A	B	C	D	E
	Dimensions				
10	.850	.650	.400	1.100	1.350
14	1.050	.850	.600	1.300	1.550
20	1.350	1.150	.900	1.600	1.850
24	1.550	1.350	1.100	1.800	2.050
26	1.650	1.450	1.200	1.900	2.150
30	1.850	1.650	1.400	2.100	2.350
36	2.150	1.950	1.700	2.400	2.650
40	2.350	2.150	1.900	2.600	2.850
44	2.550	2.350	2.100	2.800	3.050
50	2.850	2.650	2.400	3.100	3.350
54	3.050	2.850	2.600	3.300	3.550
56	3.150	2.950	2.700	3.400	3.650
60	3.350	3.150	2.900	3.600	3.850
66	3.650	3.450	3.200	3.900	4.150
70	3.850	3.650	3.400	4.100	4.350


AIR BORN INC.
WTB26PR7SY

PC BOARD TO CHASSIS


120 DIA. THRU .190 HEX X .107 DEEP 4-40 NUT)
.250
100
350
±.001 .025 DIA.
B
E
D
A
225
PR7-109 OR PR9-140
150
400
150
.094
.186
125
325
.585
.335
.094
BONDED SEAM
.250
±.001 .030 DIA.
.082 DIA.
015
130
.051
.120
.130
14
18
22
26
5
9
13

WTB26PR7SY


.250
.125
.120 DIA.
.100
C
C
D
050
100
075
100
14
18
22
26
5
9
3

WTKA26SSY*

WTKA(*) — Includes full complement of WTK2222S crimp removable socket contacts.

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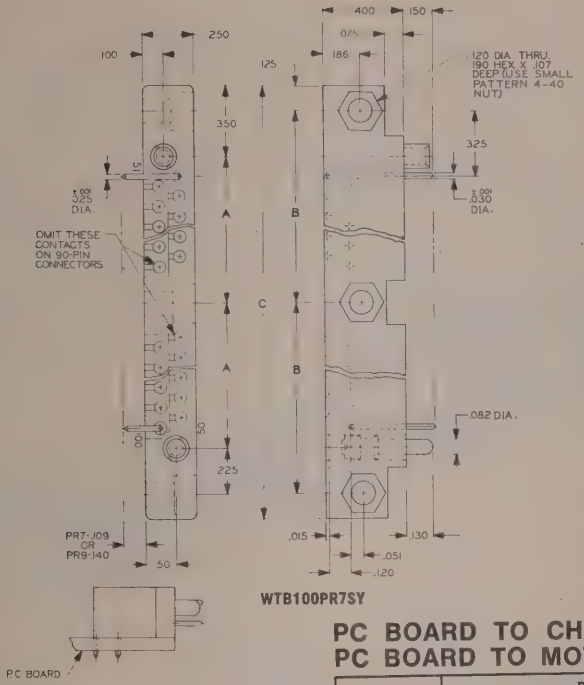
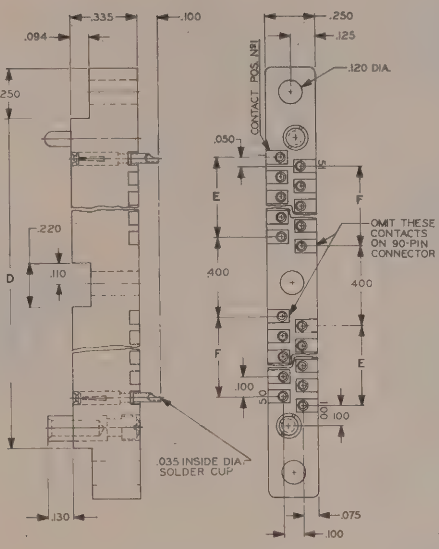
PC & COAX CONNECTORS / APPLICATIONS


.400
.150
.250
.100
.075
.186
.125
.120 DIA. THRU. .190 HEX. X .107 DEEP (USE SMALL PATTERN 4-40 NUT)
.350
.325
.51
±.001 .025 DIA.
±.001 .030 DIA.
A
B
C
OMIT THESE CONTACTS ON 90-PIN CONNECTORS
.082 DIA.
.50
.00
.225
PR7-.109 OR PR9-.140
.50
.015
.130
.051
.120
P.C BOARD

WTB100PR7SY


.335
.100
.094
.250
.125
.120 DIA.
CONTACT POS. NO. 1
.250
.050
.51
E
F
OMIT THESE CONTACTS ON 90-PIN CONNECTOR
.220
.110
D
.400
.400
.100
.50
.100
.100
.035 INSIDE DIA. SOLDER CUP
.130
.075
.100

WTB100SECSY

Terminations:
Solder cup, dip pin, or Wire Wrap*

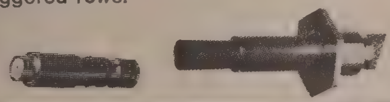
* Registered TM of Gardner-Denver Company

PC BOARD TO CHASSIS
PC BOARD TO MOTHER BOARD

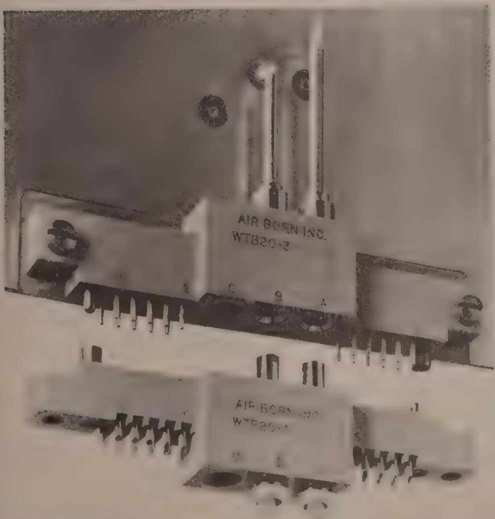
Size	Dimensions A	B	C	D	E	F
90	2.475	2.700	5.650	5.150	2.200	2.100
100	2.725	2.950	6.150	5.650	2.400	2.400
120	3.225	3.450	7.150	6.650	2.900	2.900

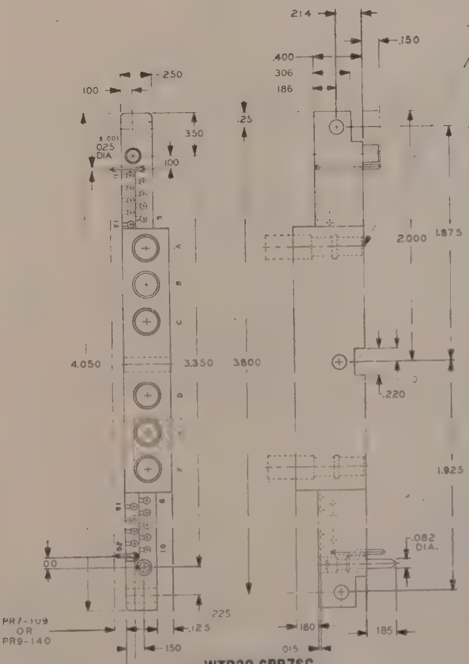
COAX PLUS 20 . . .

This combination connector offers even more versatility by combining either 3 or 6 removable coaxial contacts for 50 ohm cable with 20 standard signal contacts in one compact unit. Designed for semi-rigid or flexible cable, AirBorn's Series WTB-Coax right-angle PC board connector features .100″ spacing in 2 staggered rows.

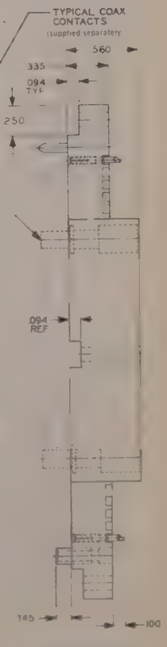


Tools Available


AIR BORN INC.
WTB20-2
AIR BORN INC.


.214
.150
.400
.306
.186
.250
.100
.25
±.001 .025 DIA.
.350
.100
A
B
C
D
E
F
4.050
3.350
3.800
2.000
1.875
.220
1.825
.082 DIA.
.225
PR7-.109 OR PR9-.140
.125
.150
.160
.015
.185
.075 TYP

WTB20-6PR7SC


TYPICAL COAX CONTACTS (supplied separately)
.560
.335
.094 TYP
.250
.094 REF
.145
.100

WTB20-6SECSC

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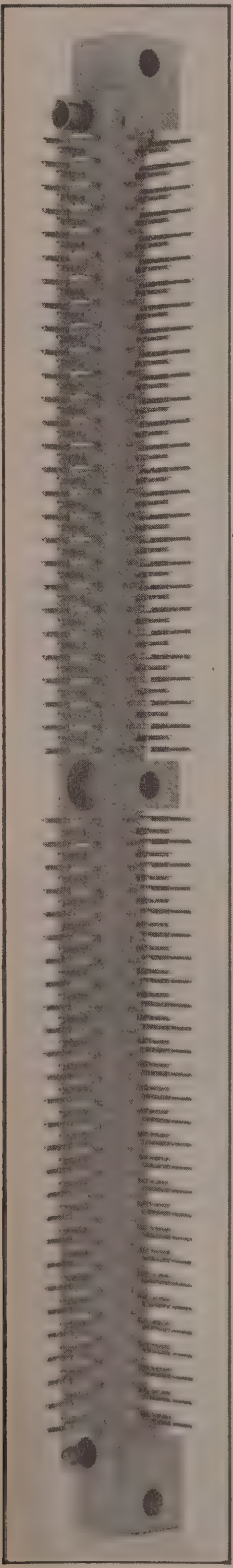
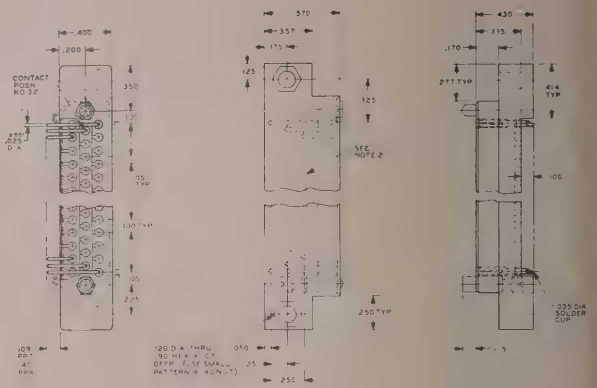
PC CONNECTORS/3-ROW HIGH DENSITY



92 Contacts PCB to MB
PCB to Chassis

Series WGE: 3.9″ long
Three rows staggered with contacts centered on .100″

Terminations: solder cup, dip pin, or Wire-Wrap*.

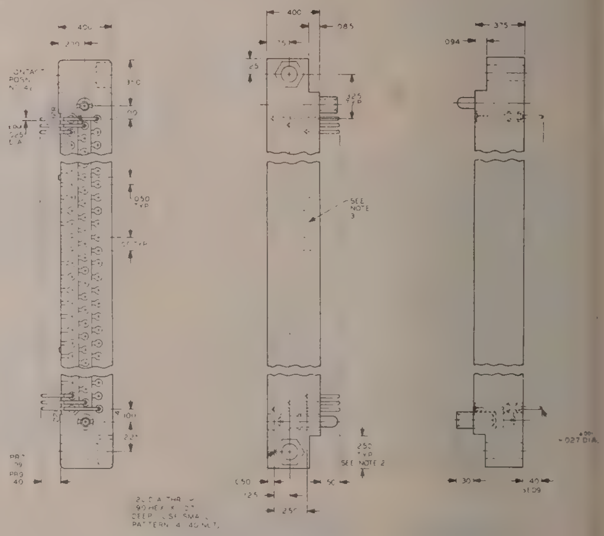

.400
.200
CONTACT POSN NO.32
.025 DIA
.350
.100 TYP
.370
.357
.175
.125
SEE NOTE 2
.250 TYP
.430
.335
.170
.277 TYP
.414 TYP
.100
.035 DIA SOLDER CUP

---

122 Contacts PCB to MB
PCB to Chassis

Series WGA: 4.9″ long
Three rows staggered with contacts centered on .100″

Terminations: solder cup, dip pin, or Wire-Wrap*.

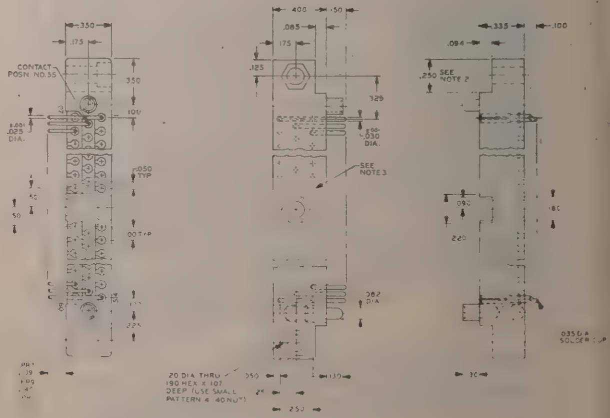

.400
.085
.375
.094
.050 TYP
SEE NOTE 3
SEE NOTE 2
.027 DIA

---

80 Contacts — 3.5″ long
160 Contacts — 6.4″ long
PCB to MB
PCB to Chassis

SERIES WG
Three rows staggered with contacts centered on .100″

Terminations: solder cup, dip pin, or Wire-Wrap*


.350
.175
CONTACT POSN NO.55
.025 DIA.
.350
.100
.050 TYP
.400
.150
.085
.175
.125
.325
.030 DIA.
SEE NOTE 3
.082 DIA
.335
.100
.094
.250 SEE NOTE 2
.220
.035 DIA SOLDER CUP
.20 DIA THRU .190 HEX X .101 DEEP (USE SMALL PATTERN 4-40 NUT)
.250

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AirBorn Connectors
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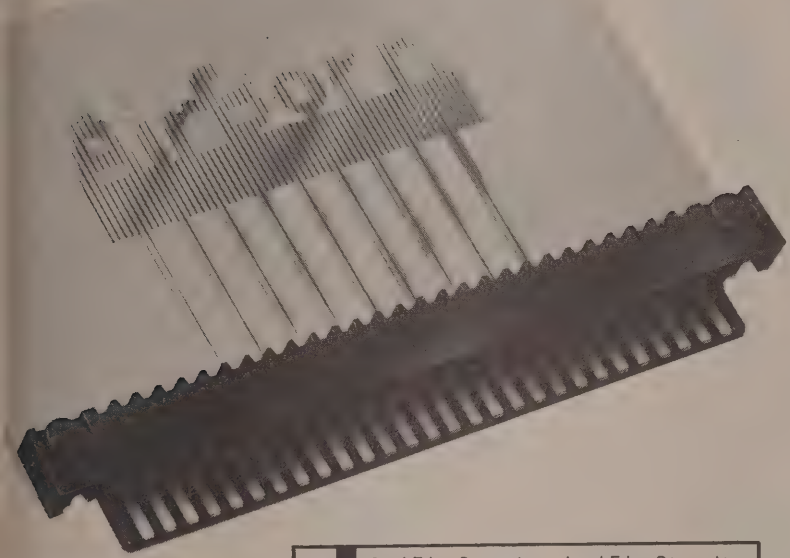
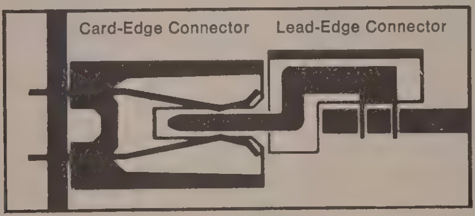
LEAD-EDGE™ CONNECTORS

- Designed as a daughter board component on a two-piece mated connector system.
- Compatible with most edgeboard connectors.
- Replaces gold plated fingers on printed wiring boards.
- Provides superior electrical and mechanical performance. Eliminates the variables which degrade the plated fingers approach in conventional edgeboard interconnections.





FEATURES

- Precision molded Lead-Edge connecting surface provides narrow tolerance of ±.003 on .066 thickness.
- Molded body and stamped contacts assure consistent and controlled forces for board insertion and withdrawal.
- Lead-Edge plug accepts various "thin" or "thick" daughter boards.
- Improved reliability of interconnection while using conventional edgeboard receptacle.
- Connector replacement can save expensive daughter board.
- Coplaner design permits retrofit with relative ease. Centerline of connector and PCB are conincident.
- Low plug cost can often reduce total costs by eliminating gold plated fingers and adding reliability.
- Connector may be assembled with other components on wave solder pass.
- Connector to board clearance enables maximum flushing for flux removal.
- Polarization or keying is available through contact or rib modification.
- Simple masking of gold plated contact surfaces facilitates assembly.
- Either plastic snap-in or standard #4 metal hardware (nuts and screws) is available.
- Eliminates costly gold plating equipment, inventory and personnel for circuit board fingers.
- Eliminates corrosive effects of plating bath fumes.
- Standard .125 centerline spacing applies.

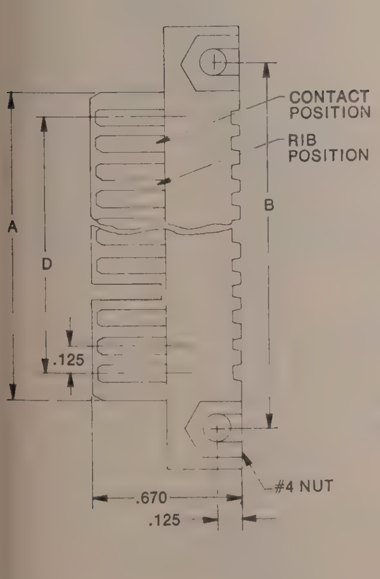
MATERIAL SPECIFICATIONS

Contact Material: CA194 base metal, 30μ" gold minimum over nickel underplate.

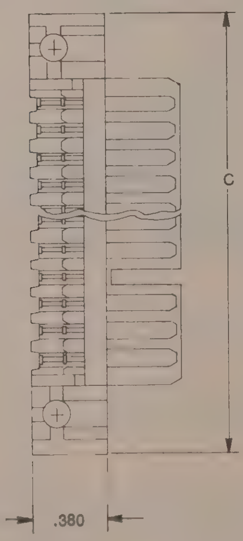
Insulating Material: Glass filled polyester, UL94V-0 Rating.

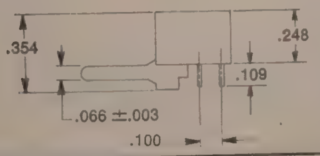
Hardware: Optional snap-in buttons or #4 nuts and screws for mounting.

TOP VIEW



BOTTOM VIEW





PERFORMANCE SPECIFICATIONS

Spacing: .125"
Current Rating: 3 amperes
Contact Resistance: 15 milliohms max.
Insulation Resistance: 5000 megohms min.
Capacitance: 2 picofarads max.
Dielectric Withstanding Voltage: .125" — 1500 VRMS min.
Operating Voltage: 600 VDC
Operating Temperature: −65°C to 125°C
Humidity (40°C, 96 hours) Ref. MIL-C-21097: 90-95%
Mates with most edgeboard connectors.
Leading edge (contacts) coplanar with PWB.

POLARIZATION ON CONTACT OR RIB POSITION

Indicate odd contact number for polarization position or rib position. Not available at either end position.

On contact position — omit contact pair .

On rib position — omit two contact pairs (one on each side of rib).

Positions	Dimensions			
	A	B	C	D
28	3.615	3.871	4.215	3.375
30	3.865	4.121	4.465	3.625
35	4.490	4.746	5.090	4.250
40	5.115	5.371	5.715	4.875
50	6.365	6.621	6.965	6.125

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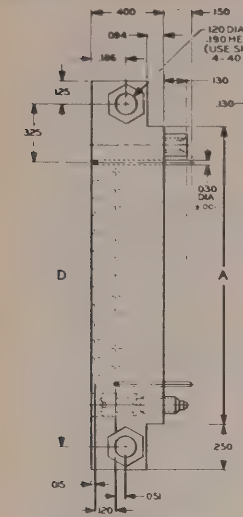
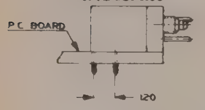
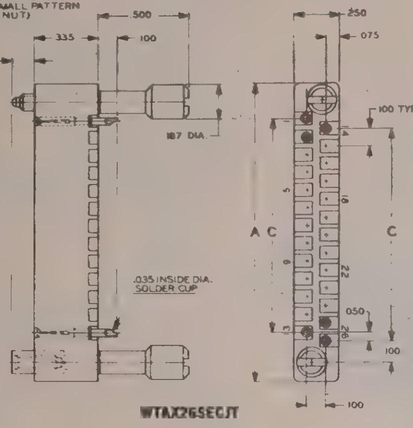
CABLE CONNECTORS / APPLICATIONS

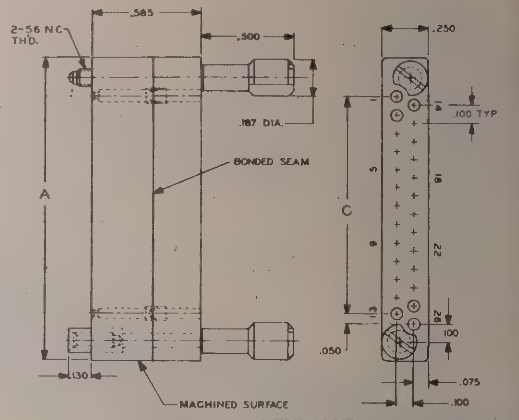

.400
.150
.084
.186
.120 DIA. THRU
.190 HEX × .107 DEEP
(USE SMALL PATTERN 4-40 NUT)
.130
.125
.325
.030 DIA ±.001
D
A
.250
.015
.051
.120

WTB26PR7J


P.C. BOARD
.120


.335
.100
.500
.250
.075
.187 DIA.
.100 TYP
.035 INSIDE DIA. SOLDER CUP
A
C
C
.050
.100
.100

WTAX26SECJT

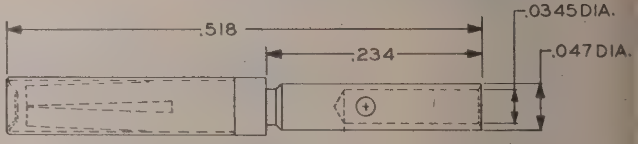

2-56 NC THD.
.585
.500
.250
.187 DIA.
BONDED SEAM
.100 TYP
A
C
.050
.100
.130
MACHINED SURFACE
.075
.100

WTDXA26SJT

CABLE TO MOTHER BOARD

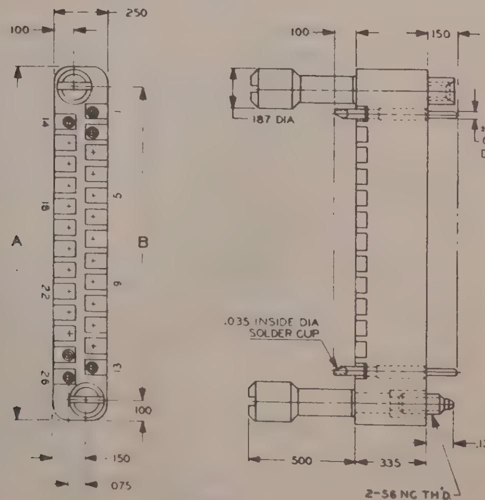
Size	Dimensions A	B	C	D	E
10	.850	.650	.400	1.100	1.350
14	1.050	.850	.600	1.300	1.550
20	1.350	1.150	.900	1.600	1.850
24	1.550	1.350	1.100	1.800	2.050
26	1.650	1.450	1.200	1.900	2.150
30	1.850	1.650	1.400	2.100	2.350
36	2.150	1.950	1.700	2.400	2.650
40	2.350	2.150	1.900	2.600	2.850
44	2.550	2.350	2.100	2.800	3.050
50	2.850	2.650	2.400	3.100	3.350
54	3.050	2.850	2.600	3.300	3.550
56	3.150	2.950	2.700	3.400	3.650
60	3.350	3.150	2.900	3.600	3.850
66	3.650	3.450	3.200	3.900	4.150
70	3.850	3.650	3.400	4.100	4.350

REMOVABLE CRIMP SOCKET
P/N WTK 2222 S
MAX. WIRE SIZE NO. 22

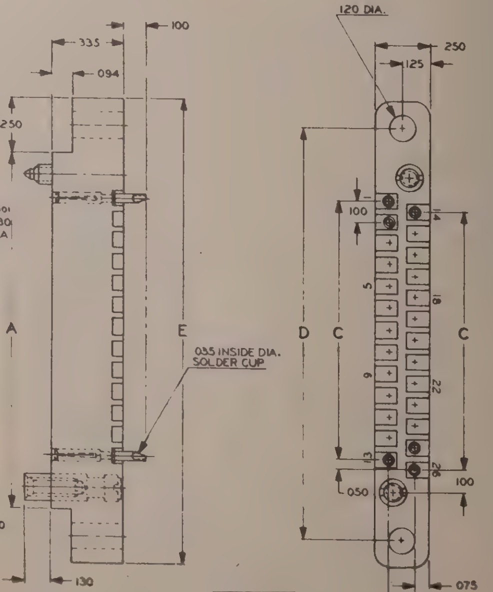

.518
.234
.0345 DIA.
.047 DIA.

NOTE: Crimp Removable Contact Tools Available

CABLE TO PANEL


.100
.250
A
B
.100
.150
.075
.150
.187 DIA
±.001 .030 DIA
.035 INSIDE DIA SOLDER CUP
.500
.335
.130
2-56 NC THD.

WTA26PCJT


.335
.100
.094
.250
A
E
.035 INSIDE DIA. SOLDER CUP
.130
.120 DIA.
.250
.125
.100
D
C
C
.050
.100
.075
.100

WTB26SECJ

Electrical Products and Accessories

Alden offers a variety of general purpose electrical products including: A.C. receptacles and accessories, CRT sockets, test jacks and plugs, plugs and sockets, terminals, indicator lights, static discharge cords and relay sockets.

High Voltage Connectors

Alden manufactures a broad range of low cost, high quality H.V. connectors rated up to 40 KVDC. Connectors feature integrally molded-in contacts and leads and are offered in panel mount, in-line, and polarized, multi-circuit configurations.

Custom Molding

Specialists in custom molded connectors and circuit modules for applications including copiers, lasers, medical, military, radar, business and scientific equipment. Contact Alden's Product Engineers for prompt assistance on your application.

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HIGH VOLTAGE CONNECTORS

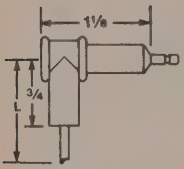
MATERIALS

THERMOPLASTIC	Resistance to Heat		Dielectric strength Volts/Mil	SUMMARY
	°F	°C		
LDPE – Low Density Polyethylene	180	82	750 Min	Low cost, standard for most HV connectors
HDPE – High Density Polyethylene	250	122	750 Min	Structural rigidity, heat resistance
FRPP - Flame Retardant Polypropylene	240	116	875 Min	UL listed 94V-O
E-CTFE – Fluoropolymer	330	165	490 Min	Environmental, nonflammable
Nylon – Polyamide	221	105	400 Min	Primarily used for tube caps

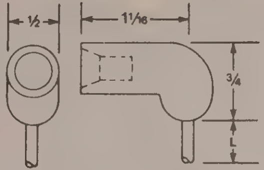
HIGH VOLTAGE WIRE TYPES

A large stock of standard and custom high voltage wires is available in all standard gages, including UL listed types to 40KVDC. Our Sales Engineers will advise of the most appropriate type.

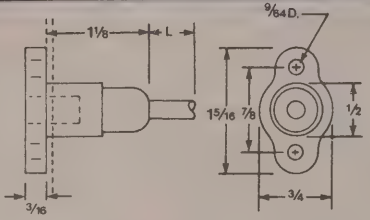
TO 15 KVDC



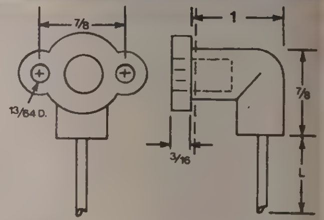
8101M90-S
Right angle in-line male connector. Mates with any female in the 8101S series.



8101FSL
Right angle female connector. Mates with any male in the 8101 or 8101S series.

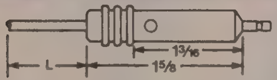


8101FSP
Panel-mounting female connector. Mates with any male in the 8101 or 8101S series.

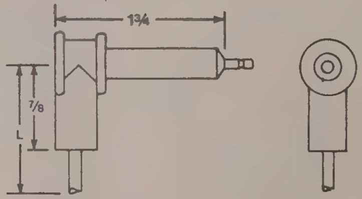


8101FSP-90
Panel-mounting right angle female connector. Mates with any male in the 8101 or 8101S series.

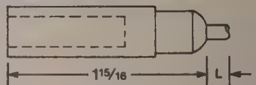
TO 20 KVDC



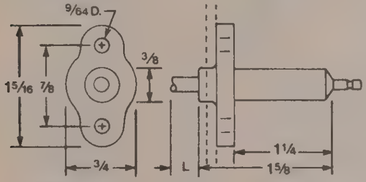
8101M
In-line male connector. Rated to 20 KVDC. Mates with any female in the 8101 or 8101S series.



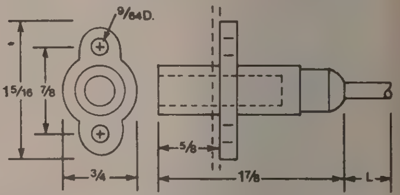
8101M-90
Right angle male connector. Rates to 15 KVDC. Mates with any female in the 8101 or 8101S series.



8101F
In-line female connector. Rated to 15 KVDC. Mates with any male in the 8101 series.

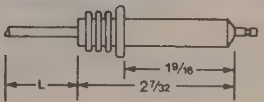


8101MP
Panel-mounting male connector. Rated to 15 KVDC. Mates with any female in the 8101 or 8101S series.

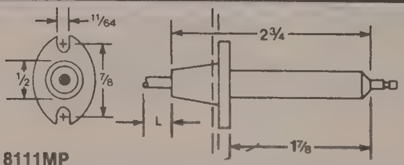


8101FP
Panel-mounting female connector. Rated to 20 KVDC. Mates with any male in the 8101 series.

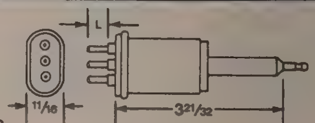
TO 30 KVDC



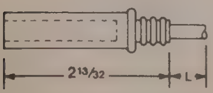
8111M
In-line male connector. Rated to 30 KVDC. Mates with any female in the 8111 or 8111L series.



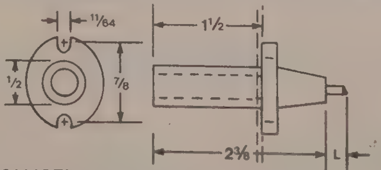
8111MP
Panel-mounting male connector. Rated to 30 KVDC. Mates with any female in the 8111 or 8111L series.



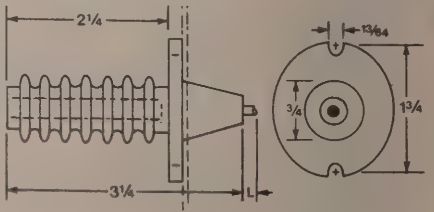
8111M-3
In-line male three-way voltage splitter. Rated to 40 KVDC. Mates with any female in the 8111 or 8111L series.



8111F
In-line female connector. Rated to 20 KVDC. Mates with any male in the 8111 or 8111L series.



8111SFP
Panel-mounting female connector. Rated to 25 KVDC. Mates with any male in the 8111 or 8111L series.



8111FP
Panel-mounting female connector. Rated to 30 KVDC. Mates with any male in the 8111 or 8111L series.

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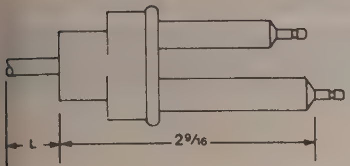
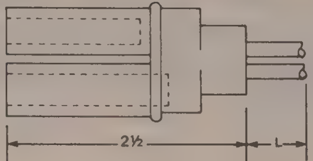
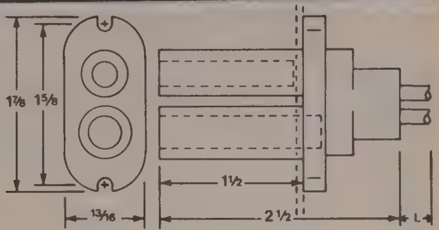
POLARIZED TO 15 KVDC



8102M
Polarized in-line male connector. Mates with 8102F and 8102FP.

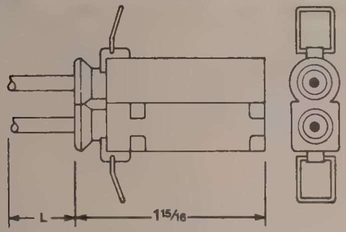


8102F
Polarized in-line female connector. Mates with 8102M.

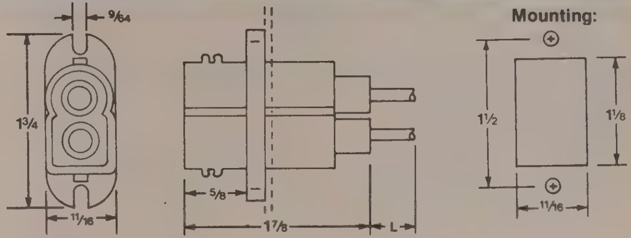

1⅞
1⅝
13/16
1½
2½
L

8102FP
Polarized panel-moutning female connector. Mates with 8102M.

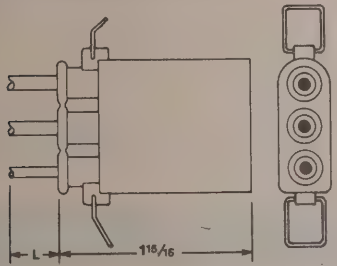
POLARIZED TO 30 KVDC



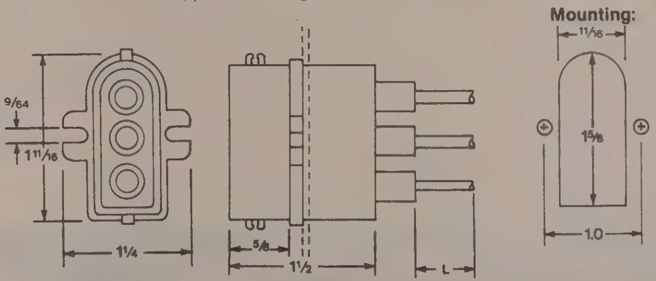
8112M
Polarized two-circuit, male connector with optional locking wire latches. Mates with 8112FP.


9/64
1¾
11/16
5/8
1⅞
L
Mounting:
1½
1⅛
11/16

8112FP
Polarized two-circuit, panel-mounting, female connector. Mates with 8112M.

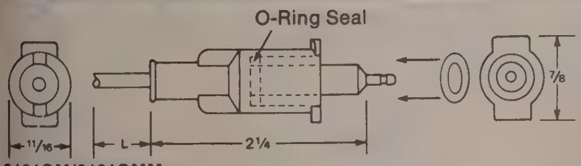


8113M
Polarized, two-circuit, male connector with ground lead and optional locking wire latches. Mates with 8113FP.

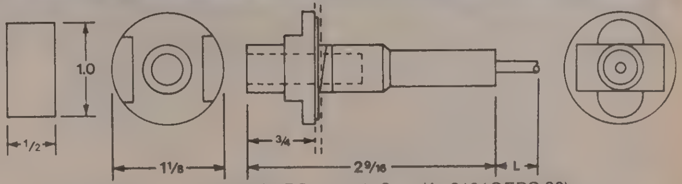

Mounting:
11/16
9/64
1 11/16
1¼
5/8
1½
L
1⅝
1.0

8113FP
Polarized, two-circuit, panel-mounting, female connector with ground lead. Mates with 8113M.

TWIST LOCKING TO 40 KVDC

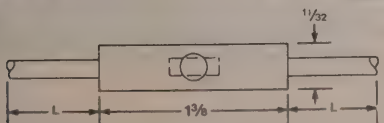

O-Ring Seal
11/16
L
2¼
7/8

8101QM/8101QMM
Quick-locking male connector. 8101QMM supplied without lead. Available with .125″, .140″ ID for insertion of lead, or specify. Mates with the 8101QFP.

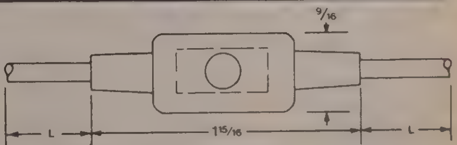

1.0
1/2
1⅛
3/4
2 9/16
L

8101QFP (Also available in PC mount. Specify 8101QFPC-90)
Quick panel-mounting female connector. Mates with any male in the 8101 series.

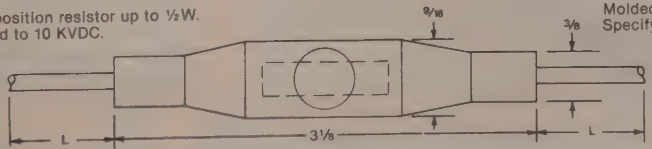
IN-LINE RESISTORS



4178RI
Molded in-line carbon composition resistor up to ½W. Specify resistor value. Rated to 10 KVDC.


9/16
L
1 15/16
L

4174RI
Molded in-line carbon composition resistor up to 2W. Specify resistor value. Rated to 15 KVDC.



4176RI
Molded in-line special high voltage resistor (ACI HVW series, or other). Specify resistor value. Rated to 30 KVDC.

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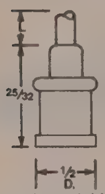
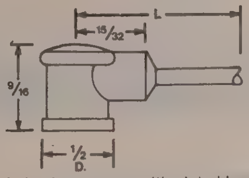
END CAP CONNECTORS CRT SOCKETS & ANODE CONNECTORS

TUBE CAP & FLASH TUBE CONNECTORS

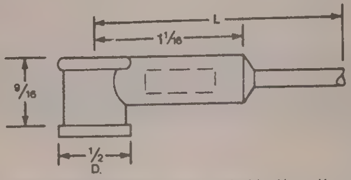
Alden's broad range of tube cap and flash tube connectors are designed to fit most standard end cap diameters, from ¼" - 9/16". The most popular styles are shown below. Call us for assistance.



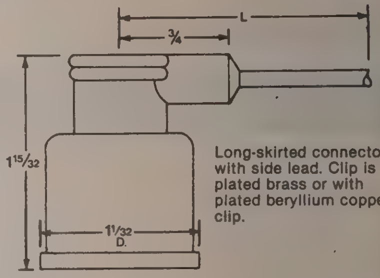
In-line axial lead connector with plated brass clip or with plated beryllium copper clip.



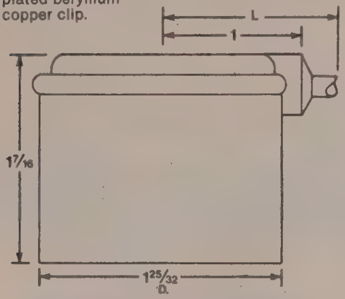
Side lead connector with plated brass clip or with plated beryllium copper clip.



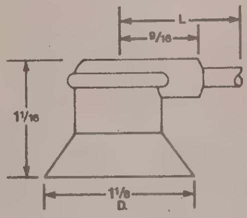
Side lead connector with molded-in ½ watt resistor. Specify resistor. Plated brass clip or with plated beryllium copper clip.



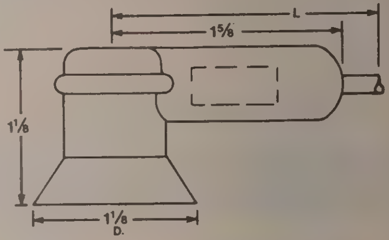
Long-skirted connector with side lead. Clip is plated brass or with plated beryllium copper clip.



Deep-skirted connector with side lead. Clip is corona-shielded plated beryllium copper.

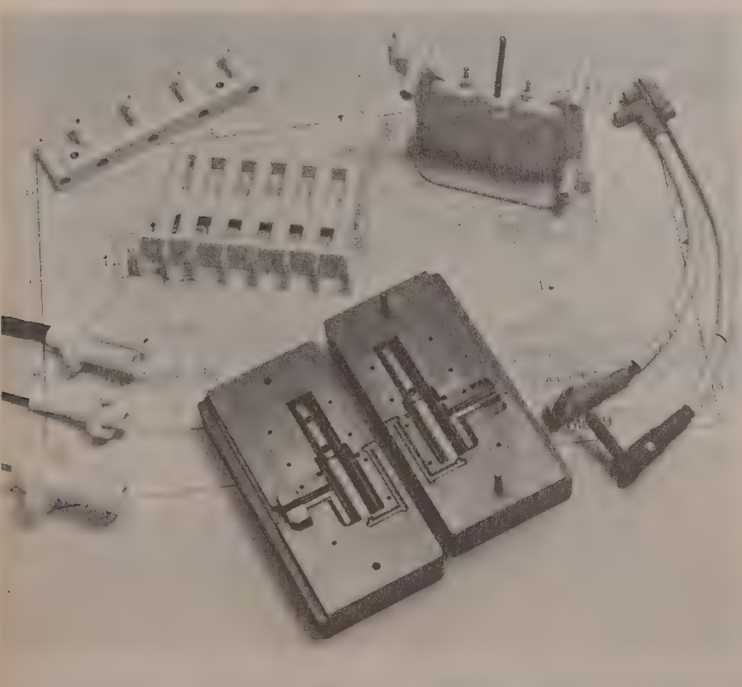


Silicone end cap connector with side lead and flared skirt. Clip is corona-shielded plated beryllium copper.



Silicone end cap connector with side lead, and molded-in ½ or 1 watt resistor. Specify resistor. Clip is corona-shielded plated beryllium copper.

CUSTOM MOLDING



Alden maintains a fully equipped in-house tool room and mold making facility with the capability and flexibility to serve each customer's specific needs. A wide variety of mold styles and molding equipment enables Alden to handle all jobs. From simple single cavity molds to complex multi-cavity molds for high volume runs on our automatic presses, Alden delivers.

Alden's highly skilled team of product and mold designers work together to coordinate the development of each new product. Whether blueprints and specifications are submitted or design effort is required, Alden welcomes all inquiries.

PROTOTYPES — As a means of proving a new design or providing functional parts before tooling a production mold, Alden offers the following prototyping options.

- **PROTOTYPE MOLDS** — Injection molded prototypes are produced from a low cost, single cavity, aluminum mold.
- **MACHINED PROTOTYPES** — Functional prototypes are machined from modern engineering plastics.
- **EPOXY RESIN CASTING** — Liquid resins are used to cast functional prototypes to close tolerances in a temporary rubber mold.

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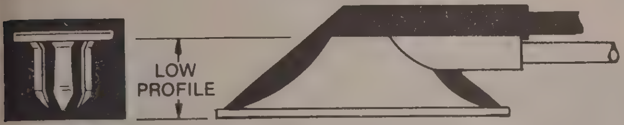
3228-RA SERIES CRT ANODE CONNECTORS

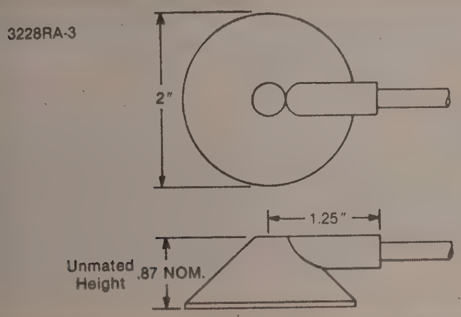
Alden's 3228RA-3 and -4 Series CRT Anode Connectors are designed to meet current demands for J1-21 style CRT receptacles with the following important features:

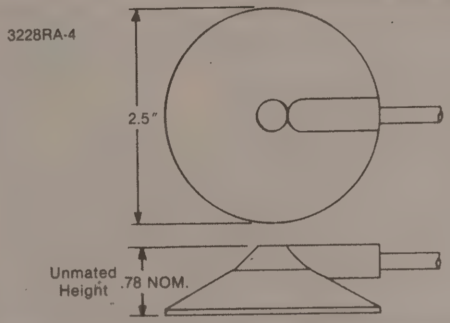
- High Voltage (to 40KVDC)
- Flame Retardant (UL 94-VO)
- Low Cost
- Low Profile
- High Flexibility



THE CAP — the 3228RA-3 and -4 Series takes advantage of the latest developments in flame retardant thermoplastic rubber to achieve a flexible low-profile seal that rivals silicones in performance, yet is low in cost.

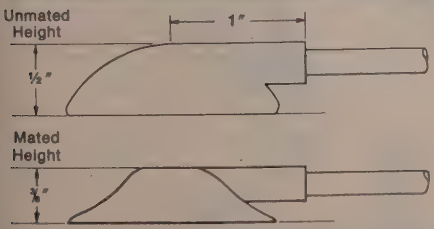
THE CONTACT — Alden's multi-prong contact insures a positive corona-free connection, plus easy removal and installation. Nickel plated spring steel guarantees long contact life.

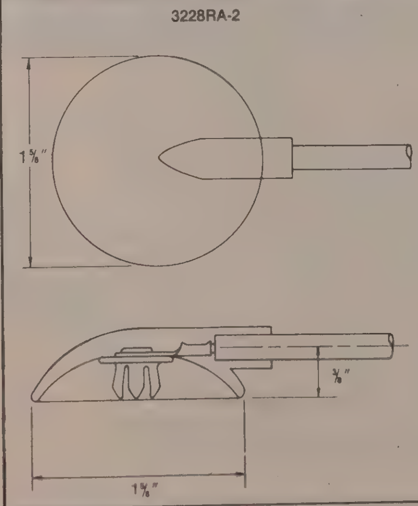




Alden's exclusive integral molding technique of directly molding onto lead wires maximizes high voltage performance. Standard wire is fully rated at 40 KVDC and meets UL 3239 VW-1 105°C. Other wires and configurations available upon request.

3228RA-2 SILICONE CRT ANODE CONNECTOR





NEW!

The 3228RA-2 is an integrally molded anode cap/lead assembly incorporating the same multi-prong positive contact used on the -3 and -4 models. The silicone rubber boot actually bonds to the wire insulation maximizing its high voltage performance. A super low profile allows this anode cap to fit minimum clearance applications where only potting epoxies could be used before.

Alden offers a variety of other anode connectors as well as CRT sockets. For additional information please contact our sales office directly.

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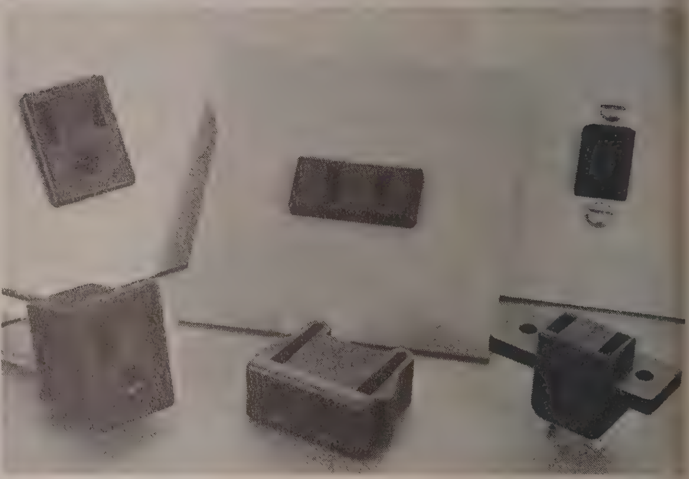
402 SERIES CONVENIENCE OUTLETS

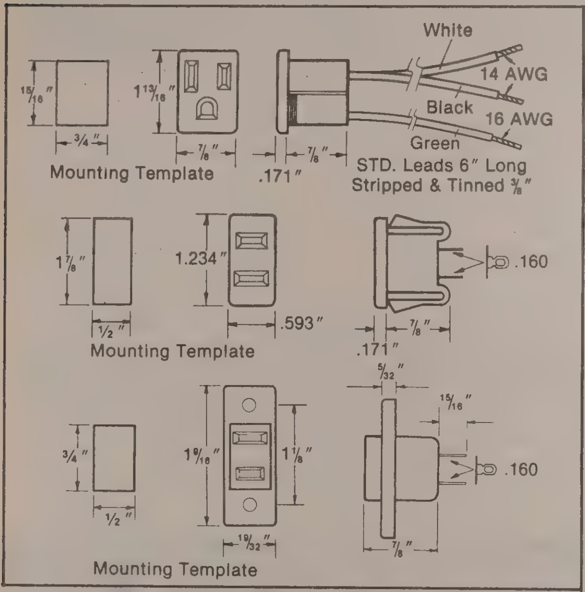
- **Rugged**
- **Low Cost**
- **Dependable**

Alden's 402 Series Convenience Outlets are compact, UL/CSA approved A.C. receptacles suitable for both the electronics and appliance industries. The clean, contemporary styling of this line complements the latest trends in product design.

Injection molded in a glass-filled, UL 94-VO engineering thermoplastic, the high-impact housings of the 402 series outlet are ultrasonically welded, creating a rugged bond which securely retains the electrical contacts.

Available in a wide variety of colors with several termination options, the 402 Series is offered in the following three models.





402 SACGL-1

This compact, polarized A.C. receptacle with ground circuit fits neatly into even the most crowded panel. Integrally molded mounting tabs provide the user with a fast, inexpensive means of assembly. Snaps into panel thicknesses of 24G (.025") to 16G (.062"). Standard lead length is 6". Other lengths are available upon request.

402 SPACE(L)

The 302 SPACE is a versatile, polarized convenience outlet designed to fit a wide range of panel thicknesses. Unique dual-range mounting tabs allow this model to accommodate panels from .030" to .100" thick. Available with either solder tab (402 SPACE) or wire lead (402 SPACEL) terminations.

402 PACE

The 402 PACE is one of the smallest UL/CSA approved convenience outlets available. This rugged polarized A.C. outlet fits where ordinary outlets are too bulky, making them ideal for all types of electronic equipment. Eyelet, rivet or screw mounting to chassis with standard production tools.

HIGH QUALITY STATIC CONTROL CORDS

NEW!

Designed with user comfort and product reliability in mind, Alden's 2200 Series static control cords offer the following features:

VERSATILE
- Available in a variety of snap fastener sizes.
- Order with or without one megohm ¼ watt resistor.
- Offered with a practical 6′ extended length coil cord or a straight cord of customer specified length.
- Banana plug fits all standard mat fasteners.

RELIABLE
- Standard 24 AWG, 105 strand copper wire for long life and flexibility.
- Tough polyurethane insulation provides 100% coil cord memory.
- Flexible vinyl strain reliefs eliminate unnecessary stress on cord.

ANTI-STATIC

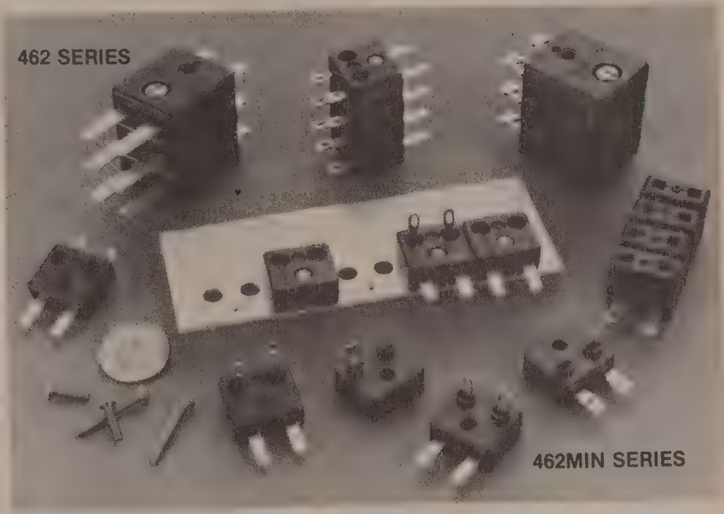
ALDEN

ALDEN PRODUCTS COMPANY
P.O. Box 860, 117 North Main Street, Brockton, MA 02403
Tel.: (617) 583-0160 • Telex 924451

General Purpose Fused Connector

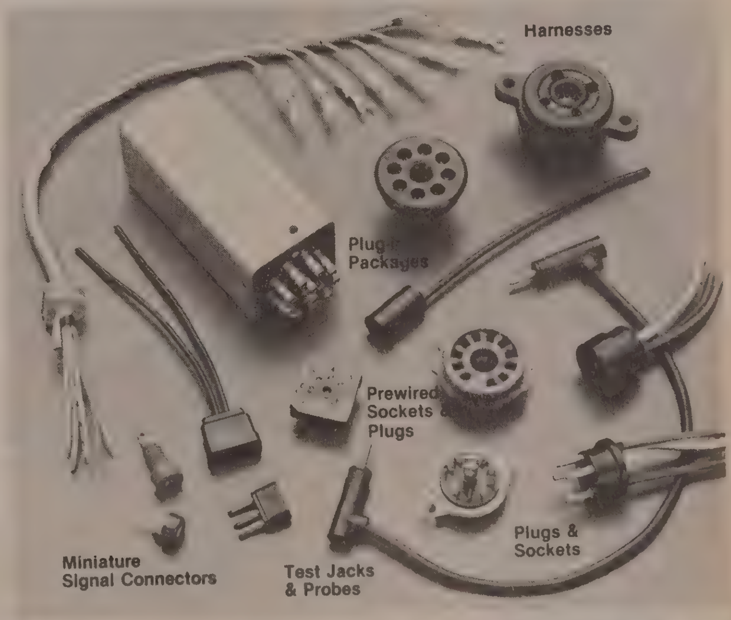
Alden's 4440 Series Fused Connector Assemblies permit the external design of critical fused circuits. Eliminate the need to service or disassemble expensive electronic equipment to replace a 5¢ fuse. Simply slide outer collar from connector to gain access to fuses. These 3 pin connectors are designed with two fused and one ground circuit.

Back Connectors


462 SERIES
462MIN SERIES

Designed for modular plug-in chassis, doors, or similar applications. Ruggedly constructed of glass-fiber reinforced thermoplastic, ultrasonically welded. Can be stacked or ganged. Generous bell mouth entry females and floating clip males allow broad alignment tolerance. Flame retardant UL 94-VO.

Other Products and Services


Harnesses
Plug-in Packages
Prewired Sockets & Plugs
Plugs & Sockets
Miniature Signal Connectors
Test Jacks & Probes

Alden has hundreds of other low-cost products for most electrical and electronic applications. Contact our Sales Engineers for prompt assistance.

- Harnesses
- Plug-in Packages
- Miniature Signal
- Plugs and Sockets
- Custom Modifications

ALDEN

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AMP ⋈ DISTRIBUTOR MARKETING

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AMP Solderless Terminals and Splices

AMP's solderless terminals and splices meet and exceed today's requirements for reliable terminations in applications ranging from control circuits to heavy duty power wiring.

Tooling

Hand Tools:

PIDG and PLASTI-GRIP Terminals, Butt Splices and FASTON Receptacles — 22-10 AWG — CERTI-LOK Tool No. 169400 or TETRA-CRIMP Tool No. 59824-1.

DIAMOND GRIP and SOLISTRAND Terminals and Splices — 22-10 AWG — Tool No. 49835.

PLASTI-GRIP Parallel Splices and Closed End Splices — 22-10 AWG — Tool No. 69364.

Other hand, power and automatic tooling is available for different production needs. Consult AMP Incorporated for information.

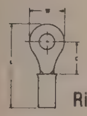
Insulated PIDG Terminals, Splices and FASTON Receptacles

Insulated PLASTI-GRIP Terminals, Splices and FASTON Receptacles

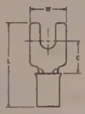
Uninsulated DIAMOND GRIP Terminals

Uninsulated SOLISTRAND Terminals and Splices

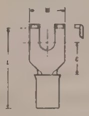
Insulation Color Code
22-16 AWG — Red
16-14 AWG — Blue
12-10 AWG — Yellow



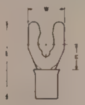
Ring



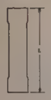
Spade



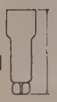
Flanged Spade



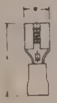
Spring Spade



Splice



Closed End Splice



FASTON Receptacle

Splices, Closed End

Wire Size	Vinyl (VS)	
	L	Part No.
22-14	.740	36964
16-14	.800	34864
12-10	.975	34308

Request Catalog No. 75-338 for complete listings.

Rings

Wire Size	Stud Size	Dimensions		PIDG		PLASTI-GRIP		DIAMOND GRIP		SOLISTRAND	
		C	W	L	Part No.	L	Part No.	L	Part No.	L	Part No.
22-16	4	.156	.218	.672	31878	.684	32944	.603	31094	.449	34104
	6	.156	.218	.672	31879	.684	32945	.603	31906	.449	34105
	8	.281	.312	.844	31888	.856	32951	.775	30996	.625	34111
	10	.281	.312	.844	31889	.856	32952	.775	30997	.625	34112
	¼	.437	.469	1.078	31892	1.090	32953	1.009	31251	.855	34113
	5⁄16	.437	.469	1.078	31893	1.090	32954	1.009	31252	.855	34114
16-14	4	.171	.250	.703	32439	.715	32956	.634	32187	.480	34119
	6	.171	.250	.703	32440	.715	32957	.634	32188	.480	34120
	8	.281	.343	.859	31899	.871	32959	.790	30992	.636	34122
	10	.281	.343	.859	31900	.871	32960	.790	30993	.636	34123
	¼	.437	.469	1.078	31904	1.090	32961	1.009	31256	.855	34124
	5⁄16	.437	.469	1.078	31905	1.090	32962	1.009	31257	.855	34125
12-10	8	.302	.375	1.083	32543	1.083	32968	1.007	31826	.760	32994
	10	.302	.375	1.083	32544	1.083	32969	1.007	31771	.760	33457
	5⁄16	.468	.531	1.322	32546	1.327	32971	1.251	31827	1.004	33459
	⅜	.531	.593	1.414	32547	1.421	32972	1.345	31828	1.098	33220
	½	.625	.750	1.594	35151	1.594	34837	—	—	1.273	35135

Spades

22-16	6	.203	.297	.753	34080	.765	327735	.684	33766	.530	36195
	8	.312	.375	.908	32050	.920	32981	.839	31638	.685	34117
	10	.312	.375	.908	32051	.920	32962	.839	31639	.685	34118
16-14	6	.312	.375	.908	32055	.920	32964	—	—	.685	34127
	8	.312	.375	.908	32056	.920	32965	—	—	.685	34128
12-10	8	.296	.406	1.095	32588	1.095	32974	1.019	31830	.772	32995
	10	.296	.406	1.095	32589	1.095	32975	1.019	31831	.772	33479

Spades, Flanged

22-16	6	.203	.296	.737	32561	.749	322249	.668	32419	.514	320749
	8	.250	.416	.830	32497	.842	324169	.761	32495	.607	323124
	10	.203	.296	—	—	.749	328516	—	—	—	—
16-14	8	.203	.294	.737	320862	.685	320859	—	—	.514	320856
	10	.203	.294	.737	320863	—	—	.685	320860	.514	320857
12-10	6	.250	.296	1.017	324577	1.017	324581	.941	324580	.694	324578
	8	.250	.416	1.017	32510	1.017	324172	.941	32417	.694	323143
	10	.250	.416	1.017	326865	—	—	.941	322715	.694	323144

Spades, Spring

22-16	6	.250	.250	.799	52929	.811	52949	—	—	.576	53120-1
	8	.281	.375	.860	52930	.872	52950	—	—	—	—
	10	.281	.406	.908	52931	.920	52951-2	—	—	—	—
16-14	6	.250	.250	.799	52935	.811	52955	—	—	.576	53123-1
	8	.281	.375	.860	52936	.872	52956	—	—	.637	53124-1
	10	.281	.406	.908	52937	.920	52957	—	—	.685	53125-1
12-10	6	.174	.250	.959	52941	.959	52961	—	—	.636	53126-1
	8	.276	.375	1.052	52942	1.052	52962	—	—	.729	53127-1
	10	.276	.406	1.100	52943	1.100	52963	—	—	.777	53128-1
	¼	.338	.625	1.225	52945	1.225	52965	—	—	.902	53138-1

FASTON Receptacles, 250 Series Fits Tab (thk.) .032

Wire Size	W	PIDG		PLASTI-GRIP	
		L	Part No.	L	Part No.
22-18	.300	.900	640903-1	.900	640933-1
16-14	.300	.900	640905-1	.900	640935-1
12-10	.300	1.012	640907-1	1.035	640937-1

Splices, Butt

Wire Size	PIDG		PLASTI-GRIP		SOLISTRAND	
	L	Part No.	L	Part No.	L	Part No.
22-16	1.265	320559	1.065	34067	.591	31818
16-14	1.265	320562	1.065	34071	.572	31819
12-10	1.656	320570	1.160	34072	.567	32151

Splices Parallel

Wire Size	PLASTI-GRIP		SOLISTRAND	
	L	Part No.	L	Part No.
22-16	.760	34131	.301	34130
16-14	.760	34133	.301	34137
12-10	.843	34135	.343	34138

Listed here are some of the more popular terminals and splices produced by AMP. For information about other terminating devices not listed here, call Customer Service at (717) 780-4400 or write AMP Incorporated, Harrisburg, Pa. 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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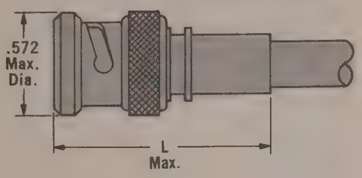
AMP
INCORPORATED

AMP RF Connectors

BNC Series Dual Crimp Type
MIL-C-39012, Class II Category B

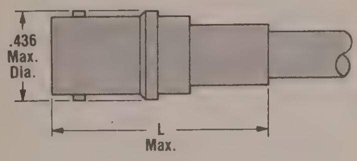
Features: ■ Low VSWR ■ Low initial cost ■ Low applied cost, solderless crimp ■ Fully intermateable with comparable UG/U Series connectors ■ Bayonet lock coupling for quick connect/disconnect ■ Positive insulation grip with crimped braid ferrule

Plugs



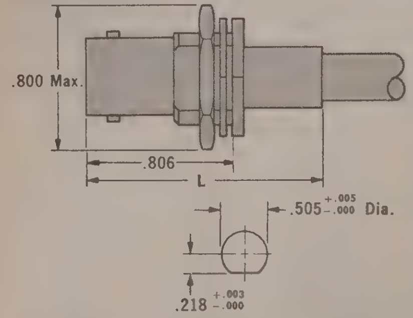
RG/U Cable	"L"	Part No.		MS 39012/ Designation*	Hand Tool No.	Die Insert No. for Tools Hand—69710 Pneu.—69365
		Tarnish Resistant Finish	Silver Finish			
58, 58B	1.500	225395-1	2-331350-1	16-0004	69478-1	69727
58A, 58C	1.500		2-331350-1	16-0004	69478-3	69726
59, 59A, 59B 62, 62A, 62B, Belden 8241, 8279	1.500	225395-2	331350	16-0008	69477-1	69669-1
55B, 223 55, 55A,	1.500	225395-3	2-331350-7	16-0005	69478-1	69727
71, 71A, 71B	1.500	225395-4	2-331350-3	16-0012	69477-1	69669-1
141, 141A	1.500	225395-5	2-331350-8	16-0006	69478-3	69726
142, 142A, 142B	1.500	225395-6	2-331350-9	16-0007	69478-3	69726
174, 188	1.500	225395-7	2-331350-4	—	220009-1	220026-1
179, 187	1.500	225395-8	2-331350-5	—	220009-1	220026-1
180, 180A, 195	1.500	225395-9	2-331350-6	—	69477-2	69669-2
Amphenol 21-597, Beldon 8218	1.500	1-225395-0	2-331350-2	—	69477-2	69669-2
Belden 8281, 9231	1.500	—	4-331350-0	—	220043-1	220088-1

Jacks



RG/U Cable	"L"	Part No.		MS 39012/ Designation*	Hand Tool No.	Die Insert No. for Tools Hand—69710 Pneu.—69365
		Tarnish Resistant Finish	Silver Finish			
58, 58B	1.500	225396-1	2-331351-1	17-0004	69478-1	69727
58A, 58C	1.500		2-331351-1	17-0004	69478-3	69726
59, 59A, 59B 62, 62A, 62B, Belden 8241, 8279	1.500	225396-2	331351	17-0008	69477-1	69669-1
174, 188	1.500	225396-7	2-331351-4	—	220009-1	220026-1
179, 187	1.500	225396-8	2-331351-5	—	220009-1	220026-1
180, 180A, 195	1.500	225396-9	2-331351-6	—	69477-2	69669-2

Bulkhead Jacks



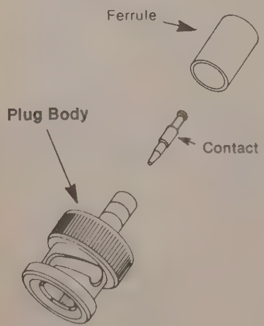
RG/U Cable	"L"	Part No.		MS 39012/ Designation*	Hand Tool No.	Die Insert No. for Tools Hand—69710 Pneu.—69365
		Tarnish Resistant Finish	Silver Finish			
58, 58B	1.296	225398-1	1-331693-1	19-0003	69478-1	69727
58A, 58C	1.296		1-331693-1	19-0003	69478-3	69726
59, 59A, 59B, 62, 62A, 62B, Belden 8241, 8279	1.296	225398-2	331693	19-0007	69477-1	69669-1
55, 55A, 55B, 223	1.296	225398-3	1-331693-6	19-0004	69478-1	69727
71, 71A, 71B	1.296	225398-4	1-331693-5	19-0012	69477-1	69669-1
174, 188	1.296	225398-7	1-331693-2	—	220009-1	220026-1
179, 187	1.296	225398-8	1-331693-3	—	220009-1	220026-1
180, 180A, 195	1.296	225398-9	1-331693-4	—	69477-2	69669-2
Amphenol 21-597, Belden 8218	1.296	1-225398-0	1-331693-0	—	69477-2	69669-2

*Government designation applies only to silver plated parts.

Request Catalog No. 73-116

Commercial BNC Dual Crimp Connector

Features: ■ Low cost ■ Smaller and lighter than standard BNC connectors ■ Fully crimpable ■ Captive center contact ■ Fully intermateable with all BNC UG/U connectors ■ Low VSWR ■ Tarnish resistant finish ■ Machine or hand tool applied.



RG/U Cable	Plug Part Numbers			CERTI-CRIMP Hand Tool Part Number	Die Number for Commercial Hand Tool No. 220190-1	Die Number for Terminating Machine No. 220152-1
	Tin Plated Center Contact	Gold Plated Center Contact	Silver Plated Center Contact			
58, 58A, 58B, 58C, 141, 141A	227079-1	227079-5	227079-9	220187-1	220189-1	220191-1
55, 55A, 55B, 223, 142, 142A, 142B	227079-2	227079-6	1-227079-0	220187-1	220189-1	220191-1
59, 59A, 59B 62, 62A, 62B	227079-3	227079-7	1-227079-1	220187-2	220189-2	220191-2
71, 71A, 71B	227079-4	227079-8	1-227079-2	220187-2	220189-2	220191-2
RG174, 188, 316	1-227079-4	1-227079-6	1-227079-5	220009-5	220210-1	220198-1
RG179, 187	2-227079-0	2-227079-2	2-227079-1	220009-5	—	220198-1
AMPHENOL 21-597 Belden 8218 Essex 2003	1-227079-7	1-227079-9	1-227079-8	69477-4	—	220206-1
Belden 9248	3-227079-1	3-227079-0	3-227079-2	220247-1	220244-1	—
Belden 9266	—	1-227079-3	—	220187-2	220189-2	220191-4

Need more details? Call AMP Customer Service at (717) 780-8400,
or write AMP Incorporated, Harrisburg, Pa. 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

AMP, CERTI-CRIMP — Trademark of AMP Incorporated

AMP
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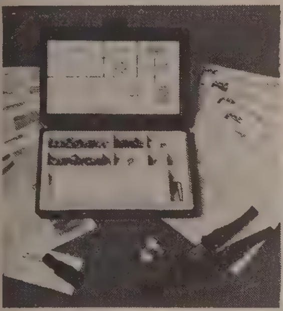
AMP RF Connectors

Commercial BNC Designers Kits

Features: ■ Enough components for 40 BNC connectors ■ Vertical and right angle BNC pcb packs ■ Stripping and crimping tools ■ Strong, compact carrying case

Kits contain the following:



Request Catalog No. 78-478

Description	Quantity			
	Mil. Kit Part No. 227070-3	Mil. Kit Part No. 227070-7	Mil. Kit Part No. 227070-8	Part No.
BNC Connector-Military (RG-58)	40	20	—	227074-1
BNC Connector-Military (RG-59)	—	20	40	227080-1
Ferrule (RG-58)	40	20	—	50427-4
Ferrule (RG-59)	—	20	40	50428-2
Contact (RG-58)	40	20	—	226943-2
Contact (RG-59)	—	20	40	226943-4
PCB Connector-Right Angle	1	1	1	226990-1
PCB Connector-Right Angle (w/Lugs)	1	1	1	226978-1
PCB Connector-Vertical	1	1	1	226993-1
PCB Connector-Vertical (w/Lugs)	1	1	1	226987-1
Jam Nut	4	4	4	1-329631-2
Lockwasher	4	4	4	1-329632-2
Cable Stripper	1	1	1	603995-2
Commercial Hand Tool	1	1	1	220190-1
Crimping Dies (RG-58)	1	1	—	220189-1
Crimping Dies (RG-59)	—	1	1	220189-2
Hex Socket Key-3/32	1	1	1	—
Hex Socket Key-1/16	1	1	1	—

Kits contain military style collars.

Commercial BNC Receptacles

Features BNC Solder Receptacle ■ Low initial cost ■ Nylon insulating bushing ■ Front mounted ■ Accommodates .046-.250 panel thickness ■ Optional solder tab ■ Optional dielectric and contact plating ■ Contact will accept .059 max. wire

Assemblies	Part No.	Center Contact Pl.	Dielectric
Standard Receptacle with Standard Lockwasher and Nut	227169-1	Tin	Valox*
	227169-2	Tin	Teflon†
	227169-3	Gold	Valox*
	227169-4	Gold	Teflon†
	227169-9	Silver	Valox*
	1-227169-0	Silver	Teflon†
Standard Receptacle with Lockwasher Terminal and Nut	227169-5	Tin	Valox*
	227169-6	Tin	Teflon†
	227169-7	Gold	Valox*
	227169-8	Gold	Teflon†
	1-227169-1	Silver	Teflon†
	1-227169-2	Silver	Valox*
Isolated Receptacle with Standard Lockwasher and Nut	227726-1	Tin	Valox*
	227726-2	Silver	
	227726-3	Gold	
Sealed Receptacle	227426-1	Gold	Polypropylene Epoxy

†Trademark of E. I. DuPont

Features: BNC Receptacles for PCB and Panel Mount Applications ■ Right angle and vertical styles ■ Mounting flanges or mounting posts ■ Isolated ground ■ Threaded body ■ Slim profile for high density packaging ■ Accommodates up to a .125 thick pc board and .250 panel thickness ■ .025 high standoff pads ■ Can be mounted inboard or at pcb edge

Request Catalog No. 79-520

A Without Mounting Posts Part No. 226990-2
B With Solder Mounting Posts Part No. 227161-2
C Without Mounting Posts Part No. 226993-2
D With Solder Mounting Posts Part No. 227222-2
E Vertical PCB BNC Receptacle with Mounting Flanges Part No. 226987-2
F Right Angle PCB/Panel Mount BNC Receptacle with Mounting Flanges Part No. 226978-3

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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†TEFLON — Trademark of E.I. duPont, Inc.
*VALOX — Trademark of General Electric Co.

AMP
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AMP SMA Series Connectors for Semi-Rigid Cables

Qualified to MIL-C-39012

Features

- Completely preassembled plug and jack
- Qualified to MIL-C-39012
- No heat or soldering required in the termination
- Standard cable stripping dimensions
- No special skills required
- Speed of assembly—a plug or jack can be terminated in less than one minute when using a Cable Preparation Machine and Pneumatic Application tool
- Intermateable with all SMA series connectors presently available
- Stainless steel shells
- Gold or passivated finish

Materials

Beryllium Copper:
QQ-C-530

TEFLON:
TFE per MIL-P-19468

Brass:
QQ-B-626

Silicone Rubber:
QQ-R-765

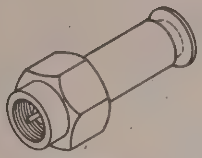
Stainless Steel:
ASTM-A-582

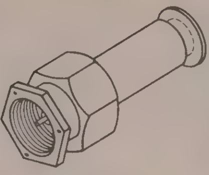
Plating:
Gold per MIL-G-45204
Tin per MIL-T-10727
Nickel per QQ-N-290

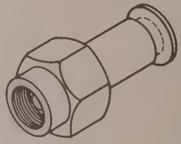
SMA Phase Match Test Connector Kit for Semi-Rigid Cables Part No. 228863-1

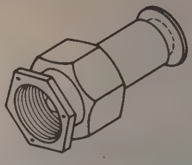
The AMP Phase Match Test Connector Kit is used to phase match RG-402/U and RG-405/U semi-rigid cables when used in conjunction with AMP MIL-C-39012, SMA connectors.

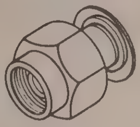
Request Catalog No. 82-689

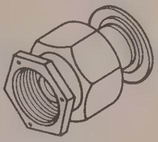

Plug With Center Contact

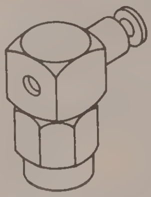

Plug With Center Contact & Safety Wire Holes

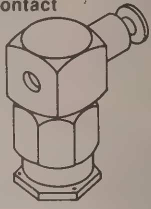

Plug Without Center Contact

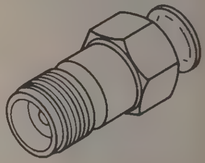

Plug Without Center Contact & With Safety Wire Holes

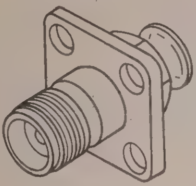

Plug With Retractable Collar

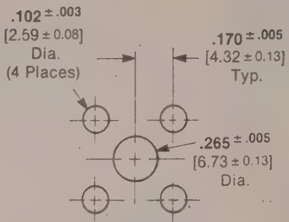

Plug With Retractable Collar & With Safety Wire Holes


Right Angle Plug

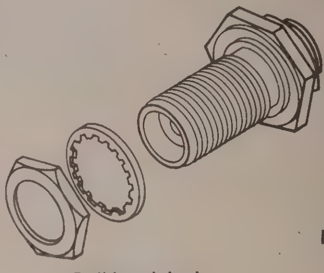

Right Angle Plug With Safety Wire Holes

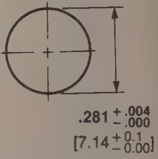

Jack


Panel Jack



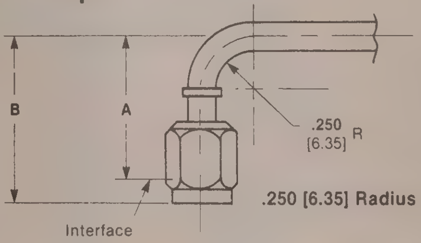
Recommended Panel Cutout


Bulkhead Jack

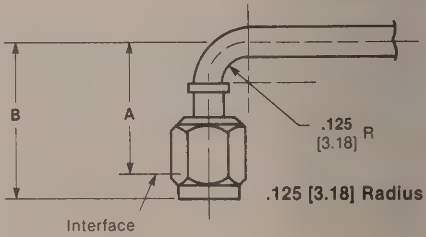


Recommended Panel Cutout

Bend Specifications



.250 [6.35] Radius



.125 [3.18] Radius

SMA Plug Part Number[6,7]		Dimensions			
		.250 [6.35] Radius		.125 [3.18] Radius	
MIL-C-39012 Category B	MIL-C-39012 Category F	A	B	A	B
227531-1 thru -4	228635-1 thru -4	.578 14.68	.713 18.11	.453 11.51	.588 14.94
227743-1 thru -4	228634-1 thru -4	.755 19.18	.890 22.61	.630 16	.765 19.43
227868-1 thru -4	228639-1 thru -4	—	—	.603 15.32	.738 18.75

SMA Hand Tool Kit—Part No. 59981-1

Kit includes the following:

Description	AMP Part No.	M22520/No.
Hand Tool	59980-1	36-01
Plug Locator without Center Contact	220220-2	36-06
Plug Locator with Center Contact	220221-2	36-04
Jack Locator	220222-2	36-05
Dies—RG-402 (.141 [3.58] O.D.)	312253-1	36-02
Dies—RG-405 (.086 [2.18] O.D.)	312253-2	36-03
Cutoff Fixture	311395-1	36-09
Cable Dressing Fixture	311396-1	36-07
Trimmer Tool	312317-1	36-08

Description	AMP Part No.	M22520/No.
Cable Bend Fixture Assembly Which Includes (6 Items):	220224-1	36-10
Bend Segment—RG-402 (.125 [3.18] R.)	311386-1	36-11
Bend Segment—RG-402 (.250 [6.35] R.)	311386-2	36-12
Bend Segment—RG-405	311386-3	36-13
Tool Holder	311392-1	36-10
Limiting Pin	307581-1	36-10
Conforming Block	312067-1	36-10
Hex Wrench	21027-6	—
Carrying Case	13126-1	—
Insert, Case	13127-1	—

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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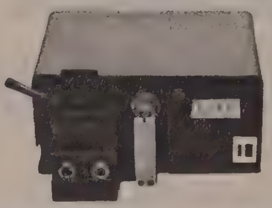
AMP SMA Series Connectors

Pneumatic Application Tool Kit Part No. 59964-1 (RG-402 or RG-405) Includes Locators—Part Nos. 220241-1 & 308075-2



Cable Preparation Machine Part No. 220211-1

Stripping Kits:

Cable	Strip Length	Part No.
RG-402	.085 2.16	220227-2
RG-405	.085 2.16	220227-3

Connector Part Numbers

Connector Type	Part Numbers—MIL-C-39012, Category B[1]				Part Numbers—MIL-C-39012, Category F[1]			
	.141 [3.58] OD Cable (Type RG-402)		.086 [2.18] OD Cable (Type RG-405)		.141 [3.58] OD Cable (Type RG-402)		.086 [2.18] OD Cable (Type RG-405)	
	Stainless Steel Body, Passivated	Stainless Steel Body, Gold Plate	Stainless Steel Body, Passivated	Stainless Steel Body, Gold Plate	Stainless Steel Body, Passivated	Stainless Steel Body, Gold Plate	Stainless Steel Body, Passivated	Stainless Steel Body, Gold Plate
Plug with Center Contact	227743-1 79-3104	227743-2 79-3104	227868-1 79-3103	227868-2 79-3103	228634-1 79-3308	228634-2 79-3308	228639-1 79-3307	228639-2 79-3307
Plug with Center Contact & Safety Wire Holes	227743-3 79-3004	227743-4 79-3004	227868-3 79-3003	227868-4 79-3003	228634-3 79-3208	228634-4 79-3208	228639-3 79-3207	228639-4 79-3207
Plug without Center Contact	227531-1 92-3101	227531-2 92-3101	—	—	228635-1 92-3301	228635-2 92-3301	—	—
Plug without Center Contact & with Safety Wire Holes	227531-3 92-3001	227531-4 92-3001	—	—	228635-3 92-3201	228635-4 92-3201	—	—
Plug with Retractable Collar	227531-5	227531-6	—	—	—	—	—	—
Plug with Retractable Collar & with Safety Wire Holes	227531-7	227531-8	—	—	—	—	—	—
Right Angle Plug	228626-1	228626-2	228583-1	228583-2	—	—	—	—
Right Angle with Safety Wire Holes	228626-3	228626-4	228583-3	228583-4	—	—	—	—
Jack	227744-1 81-3004	227744-2 81-3004	227869-1 81-3003	227869-2 81-3003	228636-1 81-3208	228636-2 81-3208	228640-1 81-3207	228640-2 81-3207
Panel Jack	227745-1 82-3004	227745-2 82-3004	227870-1 82-3003	227870-2 82-3003	228637-1 82-3208	228637-2 82-3208	228641-1 82-3207	228641-2 82-3207
Bulkhead Jack	227746-1 83-3004	227746-2 83-3004	227871-1 83-3003	227871-2 83-3003	228638-1 83-3208	228638-2 83-3208	228642-1 83-3207	228642-2 83-3207

Tooling

Connector Type	Part Numbers—Tooling					
	Hand Tool—59980-1			Pneumatic Application Tool—59964-1		
	Dies[2]		Locator[2]	Dies		Locator[4]
	.141 [3.58]	.086 [2.18]		.141 [3.58]	.086 [2.18]	
Plug with Center Contact	312253-1	312253-2	220221-2	220243-1	220242-1	308075-2
Plug with Center Contact & Safety Wire Holes	312253-1	312253-2	220221-2	220243-1	220242-1	308075-2
Plug without Center Contact	312253-1	—	220220-2	220243-1	—	220241-1
Plug without Center Contact & with Safety Wire Holes	312253-1	—	220220-2	220243-1	—	220241-1
Plug with Retractable Collar	59996-1[3]	—	220220-2	59965-1	—	220241-1
Plug with Retractable Collar & with Safety Wire Holes	59996-1[3]	—	220220-2	59965-1	—	220241-1
Right Angle Plug	312253-1	—	312173-1[3]	220243-1	—	59966-1[5]
Right Angle with Safety Wire Holes	312253-1	—	312173-1[3]	220243-1	—	59966-1[5]
Jack	312253-1	312253-2	220222-2	220243-1	220242-1	308075-2
Panel Jack	312253-1	312253-2	220222-2	220243-1	220242-1	308075-2
Bulkhead Jack	312253-1	312253-2	220222-2	220243-1	220242-1	308075-2

[1] Connector part numbers are shown with the AMP part number over the MIL-C-39012 number.

[2] Included in Hand Tool Kit 59981-1 except those marked with (3).

[3] Not included in Hand Tool Kit 59981-1.

[4] Included with Tool 59964-1 except those marked with (5).

[5] Not included with 59964-1.

[6] Category B part numbers not recommended for new designs.

[7] Consult latest issue of MIL-C-39012 and QPL for current military dash numbers.

Request Catalog No. 82-689

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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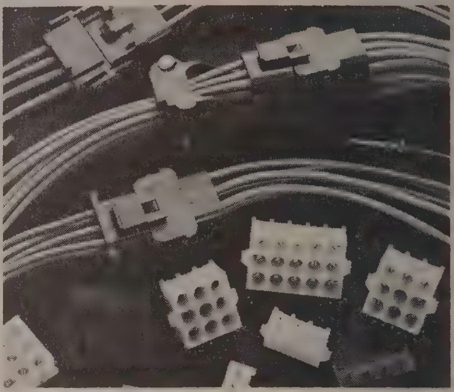
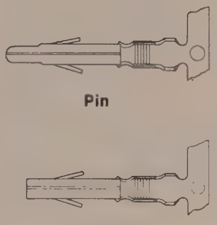
AMP Universal MATE-N-LOK Connectors— meet international standards and also handle 600 volts safely.



Features

- Pins and sockets can be intermixed in the same housing
- Positive polarization
- Pin or socket contact can be hot
- Positive locking housings
- Insulation capability to .200 diameter
- Removable, crimp snap-in contacts
- Panel mount or free-hanging



Pin

Socket

Universal Contacts — Pin and Sockets can be used in either plug or cap housings (Pin Diameter .084)

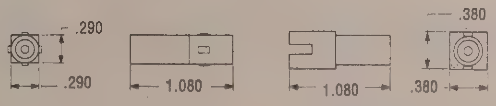
Wire Size Range AWG	Ins. Dia. Range	Stock Thickness	Material & Finish	Strip Form Contact No.		Loose Piece Contact No.		Miniature Applicator Part No.	Hand Tool Part No.
				Pin	Socket	Pin	Socket		
24-18	.040-.100	.012	Brass, Pre-tin	350561-1	350570-1* 350851-1	350690-1	350689-1*	466320-1 466320-2	90300-1
			Brass, Gold	350561-2	350570-2* 350851-2	350690-2	350689-2* 640347-2		
20-14	.060-.130	.012	Brass, Pre-tin	350218-1	350536-1	350547-1	350550-1	687763-1 687763-2	90296-1
			Brass, Gold	350218-2	350536-2	350547-2	350550-2		
20-14	.130-.200	.012	Brass, Pre-tin	350538-1	350537-1	350552-1	350551-1	687926-1	90298-1
			Brass, Gold	350538-2	350537-2	350552-2	350551-2	687926-2	90299-1
18-14‡	.130-.200	.012	Brass, Pre-tin	350873-1	350874-1	—	—	466588-1 466588-2	90299-1
			Brass, Gold	350873-2	350874-2	—	—		

*Socket Contact — .010 stock thickness.
Contact Extraction Tool **Part No.** 458994-1. Contact Insertion Tool **Part No.** 455830-1.

‡Has larger wire barrel. Recommended for predominant use of #14 AWG.

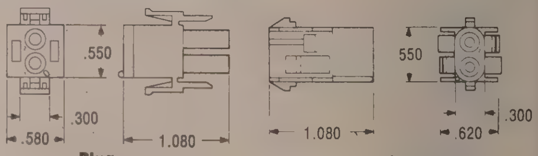
Connector Housing Specifications

1 Circuit Free-Hanging



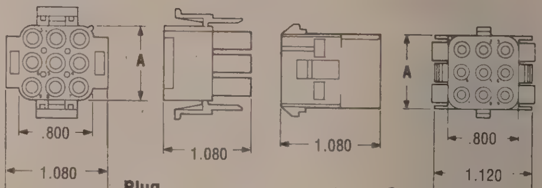
Plug **Cap**

2 Circuit



Plug **Cap**

9, 12 and 15 Circuit



Plug **Cap**

No. of Circuits	A Dim.	Housing Part Numbers			
		Plug Nylon 94V-2	Plug Nylon 94V-0	Cap Nylon 94V-2	Cap Nylon 94V-0
1	—	1-350867-0	350865-1	1-350868-0	350866-1
2	—	1-480698-0	350777-1	1-480699-0	350778-1
3	.800	1-480700-0	350766-1	1-480701-0	350767-1
4	1.050	1-480702-0	350779-1	1-480703-0	350780-1
5	1.300	1-480763-0	350809-1	1-480764-0	350810-1
6	1.550	640585-1*	640581-1*	—	—
		1-480704-0	350715-1	1-480705-0	350781-1
8	2.050	640586-1	640582-1	—	—
9	.800	1-480706-0	350720-1	1-480707-0	350782-1
12	1.050	1-480708-0	350735-1	1-480709-0	350783-1
15	1.300	1-480710-0	350736-1	1-480711-0	350784-1

*In-line version.

Note: 5 position cavity identification located on side of housing.

Request Catalog No. 73-104 for complete listing.

NOTES:

1. Nylon 94V-2 part numbers listed are for natural nylon color (NEMA colors available upon request).
2. Nylon 94V-0 is brick red color only.
3. Contacts are on .250 centerline spacing.

- Available in 94V-0 flame retardant material
- pc board capability using pin or socket header assemblies
- Recognized under Component Program of Underwriters Laboratories Inc. File No. E28476
- CSA Certified — File No. LR 16455
- Tested by VDE under their Test Report 4751-800-2/A

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.
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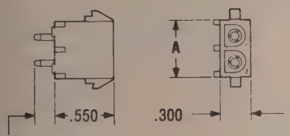
AMP Universal MATE-N-LOK Connectors

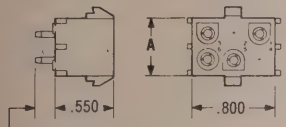
Printed Circuit Board Pin/Socket Header Assemblies

2, 3, 4 and 5 Circuit



.175 Standard Tail,
.235 Long Tail

6, 9, 12 and 15 Circuit



.175 Standard Tail,
.235 Long Tail

NOTES:

Housing Material: 94V-2 rating, natural color (NEMA colors available); 94V-0 rating, brick red.

Pin Material: Phos. Bronze, pre-tin plate or .000030 min. gold over .000050 min. nickel.

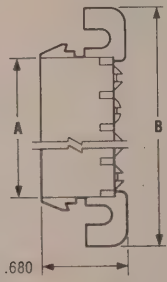
No. of Circuits	Pin Assembly Part Number		Socket Assembly Part Number		Housing Material (Nylon)	A Dim.	Finish
	Standard Tail*	Long Tail**	Standard Tail*	Long Tail**			
2	350428-1	350582-1	350759-4	350986-4	94V-2	.550	Pre-tin
	350428-2	350582-2	350759-3	350986-3			Gold
	350786-1	350787-1	350824-1	350831-1	94V-0		Pre-tin
	350786-2	350787-2	350824-2	350831-2			Gold
3	350429-1	350583-1	350760-4	350987-4	94V-2	.800	Pre-tin
	350429-2	350583-2	350760-3	350987-3			Gold
	350789-1	350790-1	350825-1	350832-1	94V-0		Pre-tin
	350789-2	350790-2	350825-2	350832-2			Gold
4	350430-1	350584-1	350761-4	350988-4	94V-2	1.050	Pre-tin
	350430-2	350584-2	350761-3	350988-3			Gold
	350792-1	350793-1	350826-1	350833-1	94V-0		Pre-tin
	350792-2	350793-2	350826-2	350833-2			Gold
5	640466-1	—	640467-1	643061-1	94V-2	1.300	Pre-tin
	640900-1	—	640901-1	643062-1	94V-0		
6	350431-1	350585-1	350762-4	350989-4	94V-2	.550	Pre-tin
	350431-2	350585-2	350762-3	350989-3			Gold
	350711-1	350732-1	350827-1	350834-1	94V-0		Pre-tin
	350711-2	350732-2	350827-2	350834-2			Gold
9	350432-1	350586-1	350763-4	350990-4	94V-2	.800	Pre-tin
	350432-2	350586-2	350763-3	350990-3			Gold
	350712-1	350742-1	350828-1	350835-1	94V-0		Pre-tin
	350712-2	350742-2	350828-2	350835-2			Gold
12	350433-1	350587-1	350764-4	350991-4	94V-2	1.050	Pre-tin
	350433-2	350587-2	350764-3	350991-3			Gold
	350713-1	350737-1	350829-1	350836-1	94V-0		Pre-tin
	350713-2	350737-2	350829-2	350836-2			Gold
15	350434-1	350588-1	350765-4	350992-4	94V-2	1.300	Pre-tin
	350434-2	350588-2	350765-3	350992-3			Gold
	350714-1	350738-1	350830-1	350837-1	94V-0		Pre-tin
	350714-2	350738-2	350830-2	350837-2			Gold

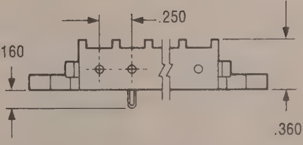
*Use Standard Tail for .062 thick printed circuit board.

**Use Long Tail for .125 thick printed circuit board.

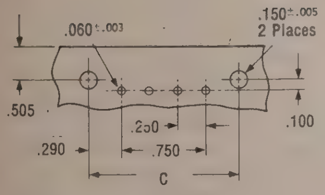
Right Angle Pin Header Assemblies

Contacts: Phos. Bronze





Board Layout



Use 6-32 UNC Pan Head Screw
3/8 long and hex nut for mounting

No. of Circuits	Dimensions			Assembly Part No.		Pin Finish
	A	B	C	94V-2	94V-0	
2	.550	1.245	.830	1-350946-0	1-350942-0	Pre-Tin
				2-350946-0	2-350942-0	Gold
3	.800	1.495	1.080	1-350947-0	1-350943-0	Pre-Tin
				2-350947-0	2-350943-0	Gold
4	1.050	1.745	1.330	1-350948-0	1-350944-0	Pre-Tin
				2-350948-0	2-350944-0	Gold
5	1.300	1.995	1.580	1-350949-0	1-350945-0	Pre-Tin
				2-350949-0	2-350945-0	Gold
6	1.550	2.245	1.830	640587-1	640583-1	Pre-Tin
				640587-2	640583-2	Gold
[illegible]	2.050	2.745	2.330	640588-1	640584-1	Pre-Tin
				640588-2	640584-2	Gold

Request Catalog No. 73-104 for complete listing.

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AMPLIMITE High Density 20 and 22 Pin and Socket Connectors (Subminiature "D" Type)

Materials:
Shell—Steel, Class G; Cadmium plated per QQ-P-416, Type II, Class 2*
Insert—Diallyl Phthalate per MIL-M-14, Type SDG-F; Color, Blue
Retention Springs—Stainless Steel*

*Shells in non-magnetic brass and retention springs in beryllium copper can be supplied upon request.

AMPLIMITE High Density 20 and 22 (HDM-20 & HDD-22) Connectors are compact pin and socket connectors especially designed for state-of-the-art high density packaging. They are ideally suited for such diverse applications as military and ground support, computer peripheral equipment, modems, and industrial control instrumentation. HDD-22 Connectors provide even higher density than the HDM-20 Connectors.

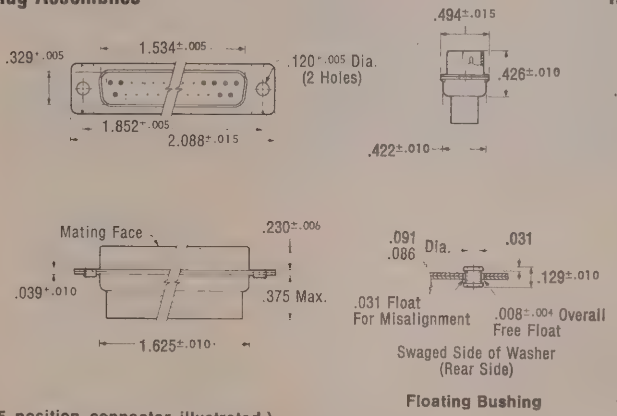
Features (HDM-20 Connectors) ■ Wide choice of sizes — 9, 15, 25, 37 and 50 contact positions ■ Conforms to latest amendments of MIL-C-24308 ■ Optional mounting — standard or with floating bushings ■ Machine applied terminations of size 20 screw-machined and precision formed contacts assure highest production rates and lowest applied cost ■ Contacts accept 24-20 AWG wire range.

Features (HDD-22 Connectors) ■ Wide choice of sizes — 15, 26, 44, 62, 78 and 104 contact positions ■ Connectors conform to latest amendments of MIL-C-24308 ■ High density connections — contacts spaced as close as .090″ (in 15, 26 and 44 positions) ■ Size 22 contacts available in screw-machined or precision formed versions, accommodate No. 28-22 AWG wire range ■ Cadmium plated steel shells ■ Machine applied terminations assure highest production rates at lowest applied cost

The HDM-20 and HDD-22 Connectors are also available with gold plated non-magnetic brass shells.

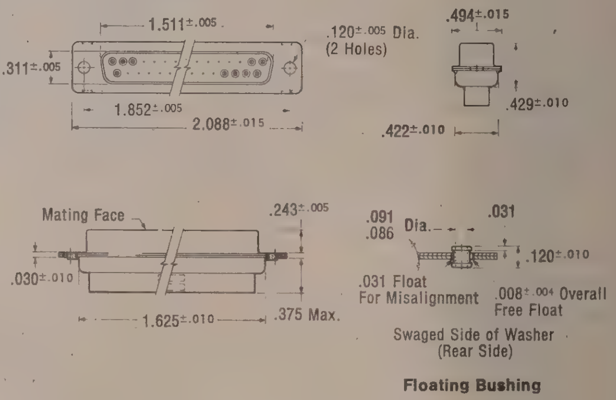
HDM-20 Connector

Plug Assemblies


.329±.005
1.534±.005
.120±.005 Dia.
(2 Holes)
1.852±.005
2.088±.015
.494±.015
.426±.010
.422±.010
Mating Face
.230±.006
.039±.010
.375 Max.
1.625±.010
.091
.086
Dia.
.031
.129±.010
.031 Float
For Misalignment
.008±.004 Overall
Free Float
Swaged Side of Washer
(Rear Side)
Floating Bushing

(25 position connector illustrated.)

Receptacle Assemblies


1.511±.005
.120±.005 Dia.
(2 Holes)
.494±.015
.311±.005
.429±.010
1.852±.005
2.088±.015
.422±.010
Mating Face
.243±.005
.030±.010
1.625±.010
.375 Max.
.091
.086
Dia.
.031
.120±.010
.031 Float
For Misalignment
.008±.004 Overall
Free Float
Swaged Side of Washer
(Rear Side)
Floating Bushing

No. of Contact Pos.	Standard Mount		Floating Bushing Mount		Description
	Military Part No. (M24308/)	AMP Part No.	Military Part No. (M24308/)	AMP Part No.	
9	4-259	205162-1	4-324	205412-1	Plug only
	4-1	205556-2	4-302	205486-2	Plug with pins
	4-6	205556-3	4-313	205486-3	Plug with pins and tool*
15	4-260	205164-1	4-325	205408-1	Plug only
	4-2	205558-2	4-303	205409-2	Plug with pins
	4-7	205558-3	4-314	205409-3	Plug with pins and tool*
25	4-261	205166-1	4-326	205413-1	Plug only
	4-3	205560-2	4-304	205487-2	Plug with pins
	4-8	205560-3	4-315	205487-3	Plug with pins and tool*
37	4-262	205168-1	4-327	205414-1	Plug only
	4-4	205562-2	4-305	205488-2	Plug with pins
	4-9	205562-3	4-316	205488-3	Plug with pins and tool*
50	4-263	205170-1	4-328	205415-1	Plug only
	4-5	205564-2	4-306	205431-2	Plug with pins
	4-10	205564-3	4-317	205431-3	Plug with pins and tool*

No. of Contact Pos.	Standard Mount		Floating Bushing Mount		Description
	Military Part No. (M243081/)	AMP Bit No.	Military Part No. (M243081/)	AMP Bit No.	
9	2-281	205161-1	2-292	205416-1	Recpt. only
	2-1	205555-2	2-23	205483-2	Recpt. with sockets
	2-6	205555-3	2-34	205483-3	Recpt. with sockets and tool*
15	2-282	205163-1	2-293	205417-1	Recpt. only
	2-2	205557-2	2-24	205433-2	Recpt. with sockets
	2-7	205557-3	2-35	205433-3	Recpt. with sockets and tool*
25	2-283	205165-1	2-294	205418-1	Recpt. only
	2-3	205559-2	2-25	205484-2	Recpt. with sockets
	2-8	205559-3	2-36	205484-3	Recpt. with sockets and tool*
37	2-284	205167-1	2-295	205419-1	Recpt. only
	2-4	205561-2	2-26	205485-2	Recpt. with sockets
	2-9	205561-3	2-37	205485-3	Recpt. with sockets and tool*
50	2-285	205169-1	2-296	205420-1	Recpt. only
	2-5	205563-2	2-27	205432-2	Recpt. with sockets
	2-10	205563-3	2-38	205432-3	Recpt. with sockets and tool*

*Insertion/Extraction Tool, AMP **Part No.** 91067-2; Military **Part No.** M24308/18-2.

Note: Pins and sockets supplied with connectors are loose piece. For ordering loose piece and/or tape-mounted pins and sockets separately, refer to Catalog No. 79-547.

Request Catalog No. 79-547 for complete product listing.

Need more details? Call AMP Customer Service at (717) 780-4400,
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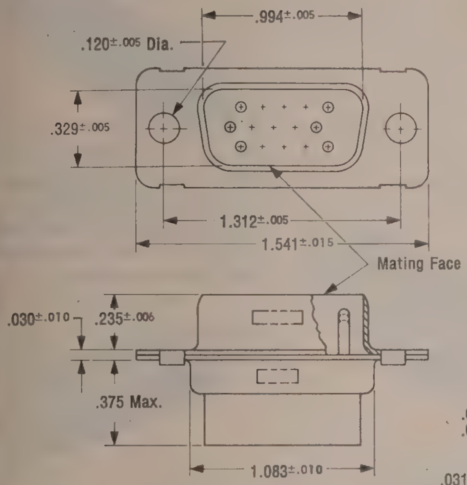
Insert—Diallyl Phthalate per MIL-M-14, Type SDG-F; Color, Blue
Retention Springs—Stainless Steel*

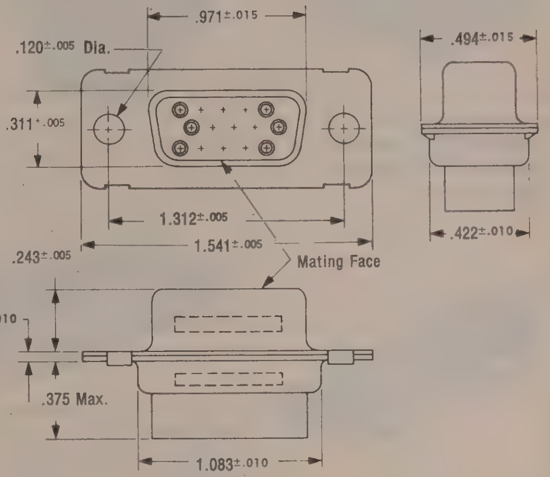
*Shells in non-magnetic brass and retention springs in beryllium copper can be supplied upon request.

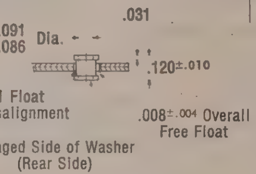
HDD-22 Connector

Plug Assemblies



Receptacle Assemblies





Floating Bushing

(26 position connector illustrated.)

No. of Contact Pos.	Standard Mount		Floating Bushing Mount		Description
	Military Part No. (M24308/)	AMP Part No.	Military Part No. (M24308/)	AMP Part No.	
15	4-264	204501-1	4-329	204525-1*	Plug only
	—	204513-1*	—	204537-1*	Plug with Tool**
	4-11	204513-2	4-307	204537-2*	Plug with Pins
	4-17	204513-3	4-318	204537-3*	Plug with Pins and Tool**
26	4-265	204503-1	4-330	204527-1*	Plug only
	—	204515-1*	—	204539-1*	Plug with Tool**
	4-12	204515-2	4-308	204539-2*	Plug with Pins
	4-18	204515-3	4-319	204539-3*	Plug with Pins and Tool**
44	4-266	204505-1	4-331	204529-1*	Plug only
	—	204517-1*	—	204541-1*	Plug with Tool**
	4-13	204517-2	4-309	204541-2*	Plug with Pins
	4-19	204517-3	4-320	204541-3*	Plug with Pins and Tool**
62	4-267	204507-1	4-332	204531-1*	Plug only
	—	204519-1*	—	204543-1*	Plug with Tool**
	4-14	204519-2	4-310	204543-2*	Plug with Pins
	4-20	204519-3	4-321	204543-3*	Plug with Pins and Tool**
78	4-268	204509-1	4-333	204533-1*	Plug only
	—	204521-1*	—	204545-1*	Plug with Tool**
	4-15	204521-2	4-311	204545-2*	Plug with Pins
	4-21	204521-3	4-322	204545-3*	Plug with Pins and Tool**
104	4-269	204511-1	4-334	204535-1*	Plug only
	—	204523-1*	—	204547-1*	Plug with Tool**
	4-16	204523-2	4-312	204547-2	Plug with Pins
	4-22	204523-3	4-323	204547-3*	Plug with Pins and Tool**

Standard Mount		Floating Bushing Mount		Description
Military Part No. (M24308/)	AMP Part No.	Military Part No. (M24308/)	AMP Part No.	
2-286	204500-1	2-297	204524-1	Recpt. only
—	204512-1*	—	204536-1*	Recpt. with Tool**
2-11	204512-2	2-28	204536-2	Recpt. with Sockets
2-17	204512-3	2-39	204536-3	Recpt. with Sockets and Tool**
2-287	204502-1	2-298	204526-1	Recpt. only
—	204514-1*	—	204538-1*	Recpt. with Tool**
2-12	204514-2	2-29	204538-2	Recpt. with Sockets
2-18	204514-3	2-40	204538-3	Recpt. with Tool and Sockets**
2-288	204504-1	2-299	204528-1	Recpt. only
—	204516-1*	—	204540-1*	Recpt. with Tool**
2-13	204516-2	2-30	204540-2	Recpt. with Sockets
2-19	204516-3	2-41	204540-3	Recpt. with Tool and Sockets**
2-289	204506-1	2-300	204530-1	Recpt. only
—	204518-1*	—	204542-1*	Recpt. with Tool**
2-14	204518-2	2-31	204542-2	Recpt with Sockets
2-20	204518-3	2-42	204542-3	Recpt. with Tool and Sockets**
2-290	204508-1	2-301	204532-1	Recpt. only
—	204520-1*	—	204544-1*	Recpt. with Tool**
2-15	204520-2	2-32	204544-2	Recpt with Sockets
2-21	204520-3	2-43	204544-3	Recpt. with Tool and Sockets**
2-291	204510-1	2-302	204534-1	Recpt. only
—	204522-1*	—	204546-1*	Recpt. with Tool**
2-16	204522-2	2-33	204546-2	Recpt with Sockets
2-22	204522-3	2-44	204546-3	Recpt with Tool and Sockets**

*No specific military part no. assigned. May be quoted and/or purchased by equivalent military part no., stating any variation from the military part no., or by AMP part no. only.

Insertion/Extraction Tool, AMP **Part No. 91067-1; Military **Part No.** M24308/18-1.

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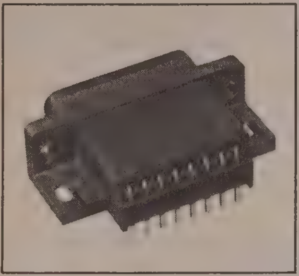
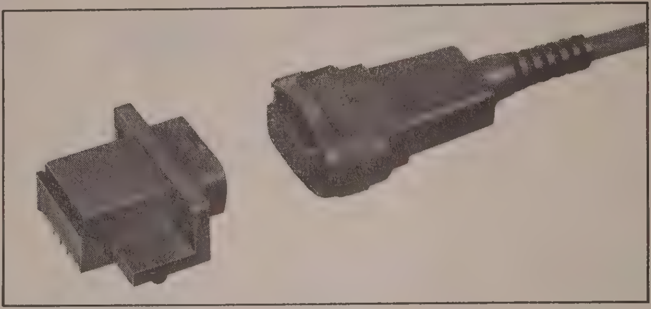
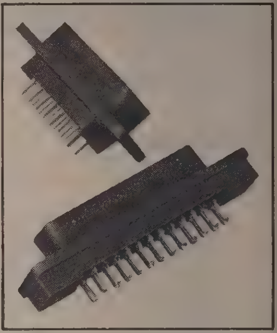
AMPLIMITE Subminiature HD-20 High Density Pin and Socket Connectors



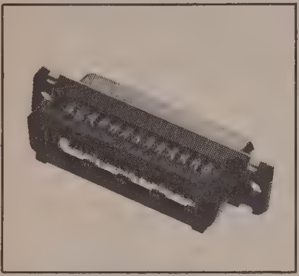
HDP-20 All-Plastic Connectors Preloaded with .025 [0.64] Sq. Right-Angle Posted Contacts for Pc Board Mounting



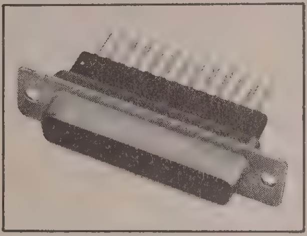
HDJ-20 All-Plastic Connectors for Jacketed Cable



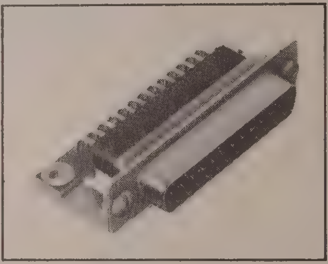
HDP-20 All-Plastic Connectors With and Without Integral Standoffs, Preloaded with .026 [0.66] or .040 [1.02] Dia. Straight Posted Contacts for Pc Board Mounting



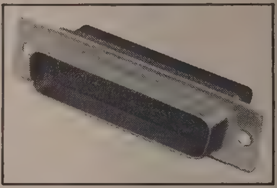
HDF-20 Low Profile Metal-Shell Connectors for Flat Ribbon Cable



HD-20 Metal-Shell Connectors Preloaded with .025 [0.64] Sq. Straight Posted Contacts for Pc Board Mounting and Wrap-Type Terminations



HD-20 Metal-Shell Connectors Preloaded with .025 [0.64] Sq. Right-Angle Posted Contacts for Pc Board Mounting



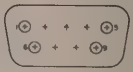
HD-20 Metal-Shell Connectors for Snap-In Contacts

Features

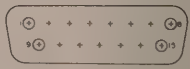
- Available in various styles: metal shell, plastic insert HD-20 connectors for snap-in contacts and HDF-20 connectors for round conductor. Flat cable: all-plastic HDP-20 connectors for pc board mounting and HDJ-20 connectors for jacketed cable.
- Shell sizes 1 thru 5 offer wide choice of contact positions: 9, 15, 25, 37 and 50.
- HD-20 metal-shell connectors accept size 20 DF precision-formed and size 20 DM screw-machined contacts.
- HD-20 metal-shell connectors employ captivated plastic retention tines to eliminate need for spring clips.
- HDP-20 all-plastic connectors employ 94V-0 rated thermoplastic housings with straight and right-angle posted contacts.
- Broad selection of accessories for strain relief/cable clamping, connector-to-connector mating, connector-to-pc board mounting, circuit commoning and keying.
- Machine-applied terminations of size 20 DF and size 20 DM and insulation displacement contacts assure highest production rates at lowest applied cost.
- Filtered AMPLIMITE connectors are available, request Catalog No. 78-487 for specifications.

Insert Arrangements

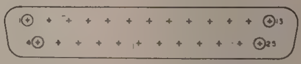
9 Position (Shell Size 1)



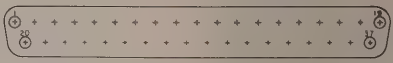
15 Position (Shell Size 2)



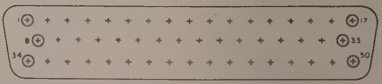
25 Position (Shell Size 3)



37 Position (Shell Size 4)



50 Position (Shell Size 5)



Note: Mating face of plug assembly shown; receptacle assembly is mirror image.

HD-20 Connectors (for Snap-In Contacts)

Material and Finish:

Shell—Steel per QQ-S-698; Zinc plated per QQ-Z-325, Type II, Class 3 (Yellow Chromate)

Insert—Black Glass-Filled Nylon, Self-Extinguishing, 94V-0 Rated

HDP-20 All-Plastic Connectors Preloaded with .025 [0.64] Sq. Right-Angle Posted Contacts

Material and Finish:

Housing—Black Thermoplastic, 94V-0 Rated

Post Spacer—Black Thermoplastic, 94V-0 Rated

Pin Contacts (Posted)—Brass per MIL-C-50; plated

Socket Contacts (Posted)—Phosphor Bronze per QQ-B-750 plated as follows:

A—Gold flash over .000050 [0.00127] nickel on entire contact, with additional .000030 [0.00076] gold on mating end for length of .150 [3.81] min.

B—Gold flash over .000030 [0.00076] nickel

Gold plating per MIL-G-45204; Nickel plating per QQ-N-290

Request Catalog No. 79-546 for complete product listing.

Need more details? Call AMP Customer Service at (717) 780-8400, or write AMP Incorporated, Harrisburg, Pa. 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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AMPLIMITE Subminiature HD20 High Density Pin and Socket Connectors (Continued)

HDP-20 All-Plastic Connectors Preloaded with Straight Posted Contacts (for Pc Board Mounting)

Material and Finish:

Housing—Black Thermoplastic, 94V-0 Rated

Pin Contacts (Posted)—Brass per MIL-C-50: plated

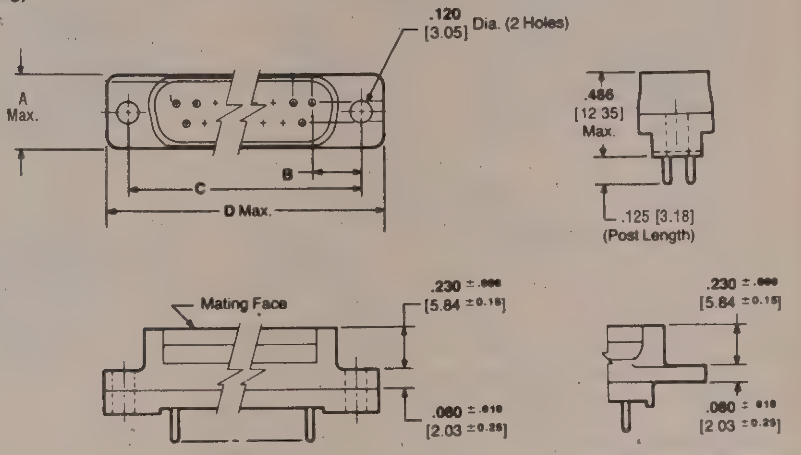
Socket Contacts (Posted)—Phosphor Bronze per QQ-B-750 plated as follows

A—Gold flash over .000050 [0.00127] nickel on entire contact, with additional .000030 [0.00076] gold on mating end for length of .150 [3.81] min.

B—Gold flash over .000030 [0.00076] nickel

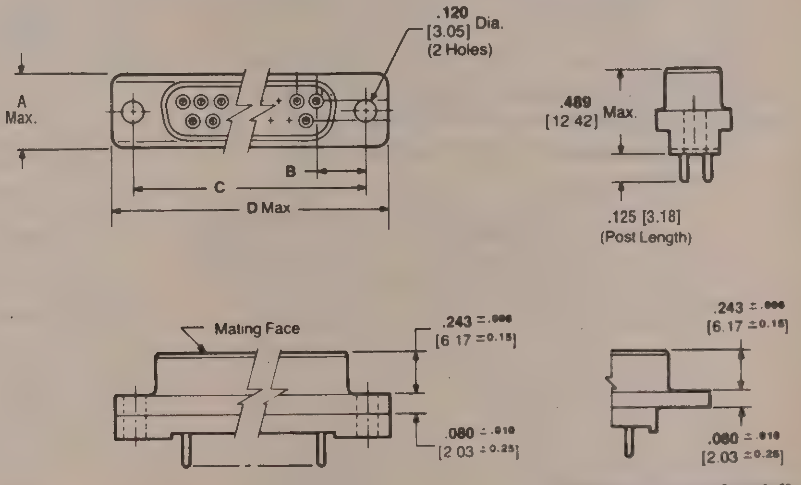
Gold plating per MIL-G-45204; Nickel plating per QQ-N-290

Plug Assemblies 9, 15, 25, 37 and 50 Positions



without Integral Standoff

Receptacle Assemblies 9, 15, 25, 37 and 50 Positions



without Integral Standoff

Request Catalog No. 79-546 for complete product listing.

No. of Contact Pos. Shell Size	Dimensions				Contact Finish Plating Code)	.040 [1.02] Dia. Post				.026 [0.66] Dia. Post			
						Plug Assembly		Receptacle Assembly		Plug Assembly		Receptacle Assembly	
	A	B	C	D		Part No. (Without Integral Standoff)	Standard Mounting Holes	Part No. (Without Integral Standoff)	Standard Mounting Holes	Part No. (Without Integral Standoff)	Standard Mounting Holes	Part No. (Without Integral Standoff)	Standard Mounting Holes
9 (1)	.420 10.67	.278 7.06	.984 24.99	1.228 31.19	A	208003-6	207663-4	208002-6	207665-4	208084-2	208006-2	208079-4	207826-4
					B	208003-5	207663-3	208002-5	207665-3	208084-1	208006-1	208079-3	207826-3
15 (2)	.420 10.67	.278 7.06	1.312 33.32	1.546 39.27	A	208065-4	207325-4	208066-4	207323-4	208085-2	208007-2	208080-4	207827-4
					B	208065-3	207325-3	208066-3	207323-3	208085-1	208007-1	208080-3	207827-3
25 (3)	.420 10.67	.274 6.96	1.852 47.04	2.095 53.22	A	207879-6	207089-6	207878-6	207090-6	208086-2	208008-2	208081-4	207828-4
					B	207879-5	207089-5	207878-5	207090-5	208086-1	208008-1	208081-3	207828-3
37 (4)	.420 10.67	.272 6.91	2.500 63.5	2.737 69.52	A	208005-6	207329-4	208004-6	207327-4	208087-2	208009-2	208082-4	207829-4
					B	208005-5	207329-3	208004-5	207327-3	208087-1	208009-1	208082-3	207829-3
50 (5)	.527 13.39	.333 8.46	2.406 61.11	2.643 67.13	A	208067-4	207667-4	208068-4	207669-4	208088-2	208010-2	208083-4	207830-4
					B	208067-3	207667-3	208068-3	207669-3	208088 1	208010-1	208083-3	207830-3

Plug and Receptacle Assemblies are available with .170 [4.32] and .250 [6.35] post lengths. Refer to AMP Catalog No. 79-546 for specifications.

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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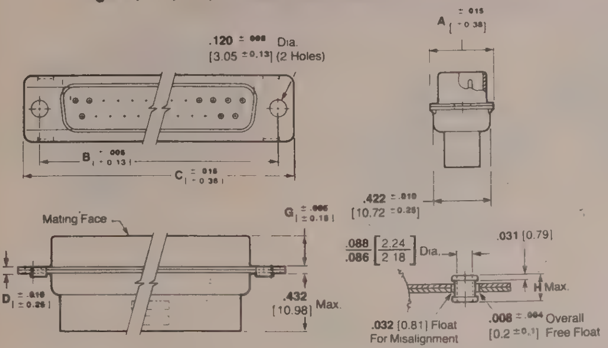
AMPLIMITE Subminiature HD20 High Density Pin and Socket Connectors (Continued)

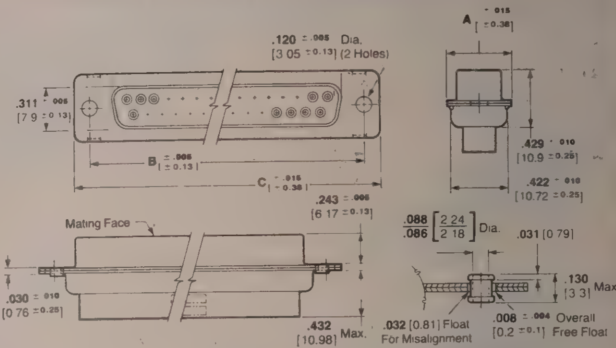
HD 20 Connectors (for Snap-In Contacts)

Plugs 9, 15, 25, 37 and 50 Positions


.120 ± .005 Dia. [3.05 ±0.13] (2 Holes)
A ±.015 [±0.38]
B ±.005 [±0.13]
C ±.015 [±0.38]
Mating Face
G ±.005 [±0.13]
D ±.010 [±0.25]
.432 [10.98] Max.
.422 ±.010 [10.72 ±0.25]
.088 [2.24] / .086 [2.18] Dia.
.031 [0.79]
H Max.
.032 [0.81] Float For Misalignment
.008 ±.004 Overall [0.2 ±0.1] Free Float

Floating Bushing

Receptacles 9, 15, 25, 37 and 50 Positions

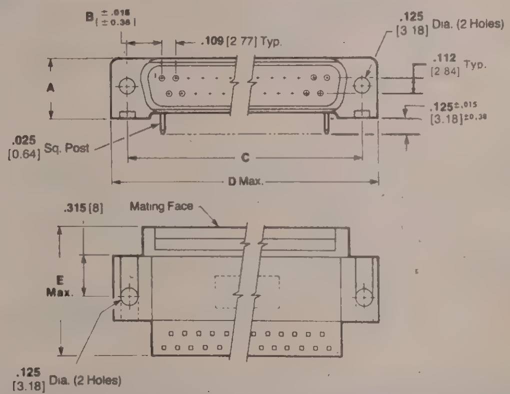

.120 ± .005 Dia. [3.05 ±0.13] (2 Holes)
A ±.015 [±0.38]
.311 ±.005 [7.9 ±0.13]
.429 ±.010 [10.9 ±0.25]
B ±.005 [±0.13]
C ±.015 [±0.38]
.422 ±.010 [10.72 ±0.25]
.243 ±.005 [6.17 ±0.13]
Mating Face
.088 [2.24] / .086 [2.18] Dia.
.031 [0.79]
.130 [3.3] Max
.030 ±.010 [0.76 ±0.25]
.432 [10.98] Max.
.032 [0.81] Float For Misalignment
.008 ±.004 Overall [0.2 ±0.1] Free Float

Floating Bushing

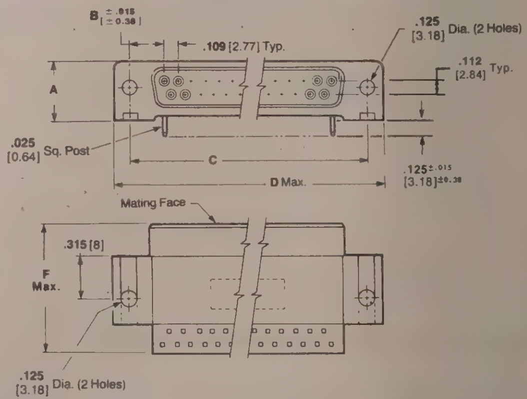
No. of Contact Pos. (Shell Size)	Dimensions						Part Nos.		Mounting Method
	A	B	C	D	G	H	Plug	Receptacle	
9 (1)	.494 12.55	.984 24.99	1.213 30.81	.030 0.76	.235 5.97	.130 3.3	205204-1	205203-1	Standard
							205434-1	205439-1	Floating Bushing
15 (2)	.494 12.55	1.312 33.32	1.541 39.14	.030 0.76	.235 5.97	.130 3.3	205206-1	205205-1	Standard
							205435-1	205440-1	Floating Bushing
25 (3)	.494 12.55	1.852 47.04	2.088 53.04	.039 0.99	.230 5.84	.139 3.53	205208-1	205207-1	Standard
							205436-1	205441-1	Floating Bushing
37 (4)	.494 12.55	2.500 63.5	2.729 69.32	.039 0.99	.230 5.84	.139 3.53	205210-1	205209-1	Standard
							205437-1	205442-1	Floating Bushing
50 (5)	.605 15.37	2.406 61.11	2.635 66.93	.039 0.99	.230 5.84	.139 3.53	205212-1	205211-1	Standard
							205438-1	205443-1	Floating Bushing

HDP-20 All-Plastic Connectors Preloaded with .025 [0.64] Sq. Right-Angle Posted Contacts (for Pc Board Mounting)

Plug Assemblies 9, 15, 25, 37 and 50 Positions


B ±.015 [±0.38]
.109 [2.77] Typ.
.125 [3.18] Dia. (2 Holes)
.112 [2.84] Typ.
A
.125 ±.015 [3.18 ±0.38]
.025 [0.64] Sq. Post
C
D Max.
.315 [8]
Mating Face
E Max.
.125 [3.18] Dia. (2 Holes)

Receptacle Assemblies 9, 15, 25, 37 and 50 Positions


B ±.015 [±0.38]
.109 [2.77] Typ.
.125 [3.18] Dia. (2 Holes)
.112 [2.84] Typ.
A
.025 [0.64] Sq. Post
C
D Max.
.125 ±.015 [3.18 ±0.38]
Mating Face
.315 [8]
F Max.
.125 [3.18] Dia. (2 Holes)

No. of Contact Pos. (Shell Size)	Dimensions						Contact Finish (Plating Code)	Part Nos.	
	A	B	C	D	E	F		Plug Assembly	Receptacle Assembly
9 (1)	.452 11.48	.276 7.01	.984 24.99	1.228 31.19	1.023 25.98	1.035 26.29	A	207081-2	207084-2
							B	207081-1	207084-1
15 (2)	.452 11.48	.278 7.06	1.312 33.32	1.556 39.53	1.023 25.98	1.035 26.29	A	206913-2	206914-2
							B	206913-1	206914-1
25 (3)	.452 11.48	.274 6.96	1.852 47.04	2.095 53.22	1.023 25.98	1.035 26.29	A	206604-2	206584-2
							B	206604-1	206584-1
37 (4)	.452 11.48	.272 6.91	2.500 63.5	2.742 69.65	1.023 25.98	1.035 26.29	A	206816-2	206817-2
							B	206816-1	206817-1
50 (5)	.558 14.17	.333 8.46	2.406 61.11	2.648 67.26	1.135 28.83	1.147 29.13	A	206971-2	206973-2
							B	206971-1	206973-1

Notes: 1. All plug assemblies are preloaded with size 20 DF posted pin contacts.

2. Recommended board thickness is .093 [2.37] max.; recommended pc board hole size is .047 [1.19].
Request Catalog No. 79-546 for complete product listing.

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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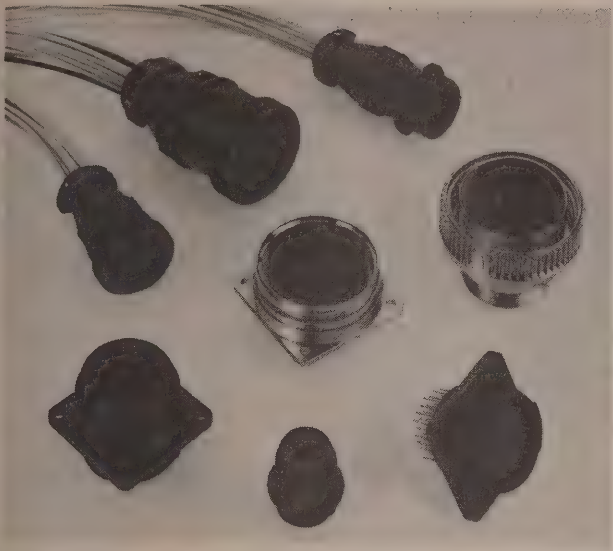
AMP Circular Plastic Connectors

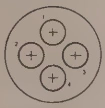


AMP CPC and metal-shell CPC connectors are designed for such commercial applications as automotive, aircraft, instrumentation, computer and peripheral equipment. These connectors offer many advanced design features to assure top quality performance.

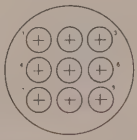
Features: ■ Light-weight, all-plastic connectors and metal-shell versions available. ■ CPC connectors made of UL recognized, high grade thermoplastic material. ■ Recognized under the Component Program of Underwriters Laboratories Inc. for ® 250-volt service*, File No. E28476. ■ CSA Certified, ® File No. LR16455. ■ Four connector series for different interconnection needs: • Series 1 — Standard density applications with Multimate contacts. • Series 2 — High density applications with Size 20 DM and 20 DF contacts (.040 [1.02] pin diameter). • Series 3 — Power density applications with Type XII contacts capable of carrying up to 35 amperes of current. • Series 4 — Combination standard and power density applications with Series 1 and Series 3 contacts. ■ Available in panel or chassis mount versions and in free-hanging versions. ■ Quick connect/disconnect capability with thread assist, positive detent coupling. ■ Built-in pin and socket protection. ■ 5-key polarization for proper mating of connector halves. ■ Special connector configurations offer mixed coaxial cable sizes, special solder and posted contacts, special mounting designs, built-in strain relief and adaptability to snap-on cable boots. ■ Full complement of optional accessories.

Series 1 Contact Arrangement

Shell Size 11 and 13

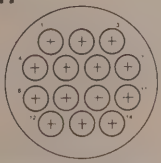


Arrangement 11-4

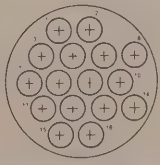


Arrangement 13-9

Shell Size 17

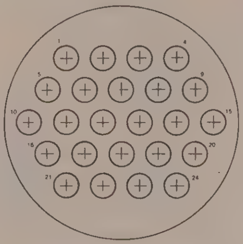


Arrangement 17-14

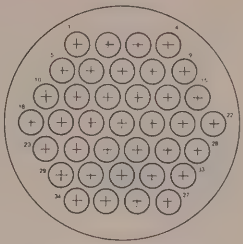


Arrangement 17-16

Shell Size 23



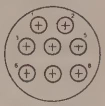
Arrangement 23-24



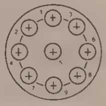
Arrangement 23-37

Series 2 Contact Arrangement

Shell Size 11

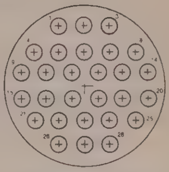


Arrangement 11- 8



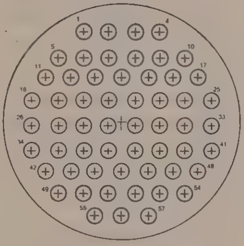
Arrangement 11-9

Shell Size 17

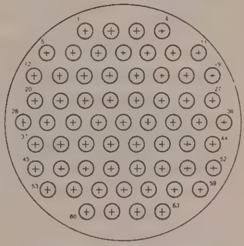


Arrangement 17-28

Shell Size 23



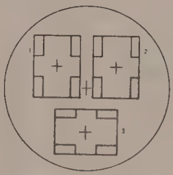
Arrangement 23-57



Arrangement 23-63

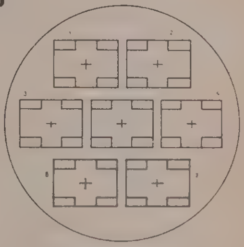
Series 3 Contact Arrangements

Shell Size 17



Arrangement 17-3

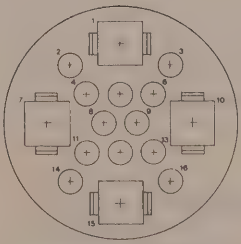
Shell Size 23



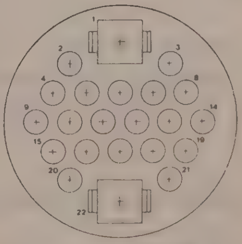
Arrangement 23-7

Series 4 Contact Arrangements

Shell Size 23



Arrangement 23-16M



Arrangement 23-22M

Need more details? Call AMP Customer Service at (717) 780-8400, or write AMP Incorporated, Harrisburg, Pa. 17105.

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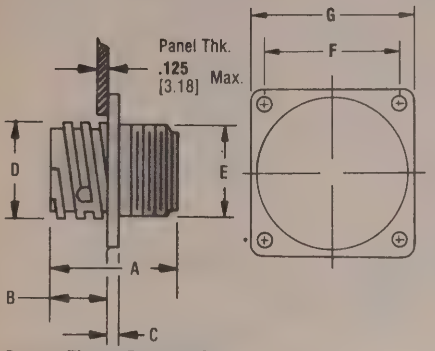
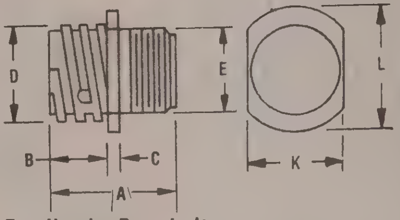
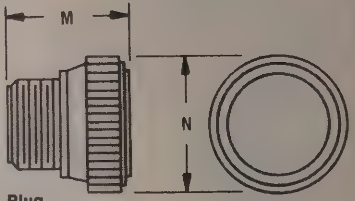
AMP Circular Plastic Connectors (Continued)



Square Flange Receptacle



Free Hanging Receptacle



Plug

Contacts:
Series 1 — Size 16 (Signal, subminiature coaxial and fiber optic).
Series 2 — Size 20 (Signal).
Series 3 — Power.
Series 4 — Mix of Size 16 and Power.
Request Catalog No. 73-204 for complete specifications.

Series Class	Arrange-ment No.	Sex*	Dimensions											Receptacles		Plugs
			A Max.	B ±.015 0.38	C ±.010 0.25	D ±.010 0.25	E Max.	F ±.010 0.25	G ±.025 0.64	K Max.	L Max.	M Max.	N Max.	Square Flanged	Free Hanging	
1	11-4	Rev.	1.070 27.18	.420 10.67	.094 2.39	.687 17.45	.740 18.8	.844 21.44	1.125 28.58	.817 20.75	.935 23.75	1.365 34.68	.942 23.93	206430-1	206430-2	206429-1
		Std.	1.350 34.29									1.080 27.43		206061-1	206153-1	206060-1
	13-9	Std.	1.350 34.29	.420 10.67	.094 2.39	.812 20.62	.879 22.33	.969 24.61	1.281 31.01	.874 22.2	1.072 27.23	1.080 27.43	1.070 27.18	206705-1	206705-2	206708-1
	17-14	Rev.	1.070 27.18	.420 10.67	.094 2.39	1.050 26.67	1.110 28.2	1.125 28.58	1.435 36.45	1.161 29.49	1.310 33.27	1.365 34.68	1.315 33.4	206043-1	206043-3	206044-1
	17-16	Std.	1.350 34.29									1.080 27.43		206036-1	206036-3	206037-1
	23-24**	Std.	1.350 34.29	.520 13.21	.156 3.96	1.438 36.53	1.510 38.36	1.438 36.53	1.750 44.45	1.505 38.23	1.733 44.02	1.080 27.43	1.743 44.27	206838-1	206838-2	206837-1
	23-37	Rev.	1.070 27.18	.520 13.21	.156 3.96	1.438 36.53	1.510 38.36	1.438 36.53	1.750 44.45	1.505 38.23	1.733 44.02	1.365 34.68	1.743 44.27	206306-1	206306-2	206305-1
		Std.	1.350 34.29									1.080 27.43		206151-1	206151-2	206150-1
2	11-8†	Std.	.809 20.55	.420 10.67	.094 2.39	.688 17.48	.630 16	.844 21.44	1.125 28.58	.817 20.75	.935 23.75	.800 20.32	.942 23.93	205841-1	205841-2	205838-1
		Rev.												206433-1	206433-2	206434-1
	11-9	Std.	.809 20.55	.420 10.67	.094 2.39	.688 17.48	.630 16	.844 21.44	1.125 28.58	.817 20.75	.935 23.75	.800 20.32	.942 23.93	206486-1	206486-2	206485-1
	17-28	Std.	.809 20.55	.420 10.67	.094 2.39	1.050 26.67	.943 23.95	1.125 28.58	1.435 36.45	1.161 29.49	1.310 33.27	.800 20.32	1.315 33.4	205840-3	206152-1	205839-3
		Rev.												206038-1	206038-2	206039-1
	23-57	Rev.	.924 23.47	.420 10.67	.156 3.96	1.438 36.53	1.515 38.48	1.438 36.53	1.750 44.45	1.500 38.1	1.733 44.02	.915 23.24	1.743 44.27	206438-1	206438-2	206437-1
	23-63	Std.												205843-1	205843-2	205842-1
3	17-3	Std.	1.635 41.53	.420 10.67	.094 2.39	1.050 26.67	1.110 28.2	1.125 28.58	1.435 36.45	1.161 29.49	1.310 33.27	1.645 41.78	1.315 33.4	206036-2	206207-1	206037-2
		Rev.												206425-1	206425-2	206426-1
	23-7	Std.	1.635 41.53	.520 13.21	.156 3.96	1.438 36.53	1.510 38.35	1.438 36.53	1.750 44.45	1.505 38.23	1.733 44.02	1.645 41.78	1.743 44.27	206137-1	206137-2	206136-1
		Rev.												206227-1	206227-2	206226-1
4	23-16M	Std.	1.635 41.53	.520 13.21	.156 3.96	1.438 36.53	1.510 38.35	1.438 36.53	1.750 44.45	1.500 38.1	1.733 44.02	1.645 41.78	1.743 44.27	207486-1	207486-2	207485-1
	23-22M	Std.												206613-1	206613-3	206612-1

*Standard sex: pin contacts in receptacle housings, socket contacts in plug housings. Reverse sex: socket contacts in receptacle housings, pin contacts in plug housings.

**Plug and receptacle accept Type II, III+, VI, X, subminiature COAXICON or fiber optic contacts. Contacts for insulation diameters up to .150 [3.81].

†Filtered Adapter available for the std. 11-8 arrangement. Request Catalog No. 78-487.

Accessories available include:

Cable Clamps, Various Seals, Back-Shell Extender,
Panel Mount Adaptor and Flexible Strain Relief.

Request Catalog No. 73-204 for complete product listing.

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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AMP Metal-shell CPC Connectors

Materials:

Inserts—Black thermoplastic

Outer shells, plug coupling ring—Zinc alloy, nickel plated per QQ-N-290 over copper per Mil-C-14550A

Plug retainer ring and snap ring—Stainless steel

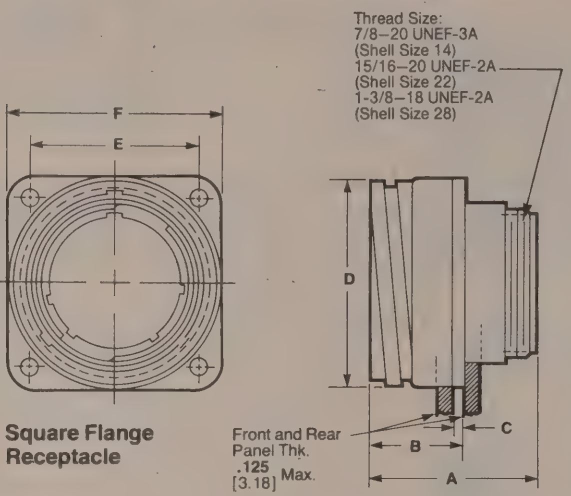
O-ring—Neoprene (peripheral seal); Fluorocarbon Elastomer (Tetraseal)

Contacts:
Series 1 — Size 16 (Signal, subminiature coaxial and fiber optic).
Series 2 — Size 20 (Signal).
Series 3 — Power.
Series 4 — Mix of Size 16 and Power.
Request Catalog No. 73-204 for complete specifications.

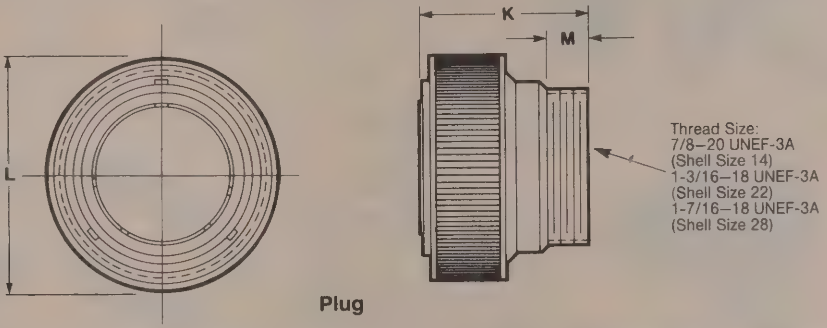
Protective Caps

Shell Size 22
Part Number 211903-1

Shell Size 28
Part Number 211904-1



Square Flange Receptacle



Plug

Series	Arrangement No.	Sex[1]	Dimensions A Max.	B ±.010 0.25	C ±.010 0.25	D Max.	E ±.010 0.25	F ±.015 0.38	K Max.	L ±.015 0.38	M ±.005 0.13	Square Flange Receptacles Without Peripheral Seal	With Peripheral Seal	Plugs Without Peripheral Seal	With Peripheral Seal
1	14-5	Std.	1.415 35.94	.745 18.92	.100 2.54	1.031 26.19	.906 23.01	1.185 30.1	1.395 35.43	1.225 31.12	.380 9.65	208719-1	—	208718-1	208718-2
		Rev.										208721-1	—	208720-1	208720-2
	14-7	Std.	1.415 35.94	.745 18.92	.100 2.54	1.031 26.19	.906 23.01	1.185 30.1	1.395 35.43	1.225 31.12	.380 9.65	208715-1	—	208714-1	208714-2
		Rev.										208717-1	—	208716-1	208716-2
	22-14	Rev.	1.195 30.35	.795 20.19	.103 2.62	1.505 38.23	1.250 31.75	1.534 38.96	1.715 43.56	1.885 47.88	.380 9.65	208487-1	208487-2	208486-1	—
	22-16	Std.	1.470 37.34	.795 20.19	.103 2.62	1.505 38.23	1.250 31.75	1.534 38.96	1.435 36.45	1.885 47.88	.380 9.65	208489-1 —	208489-2 208489-3*	208488-1 —	— 208716-3*
	28-24	Std.	1.555 39.5	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	1.575 40.01	2.270 57.66	.380 9.65	208459-1	208459-2	208457-1	—
	28-37	Std.	1.555 39.5	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	1.575 40.01	2.270 57.66	.380 9.65	208471-1	208471-2	208470-1	—
		Rev.	1.260 32.01						1.840 46.74			208473-1	208473-2	208472-1	—
2	22-28	Std.	1.075 27.31	.795 20.19	.103 2.62	1.505 38.23	1.250 31.75	1.534 38.96	1.251 31.78	1.885 47.88	.380 9.65	208491-1	208491-2	208490-1	—
		Rev.										208493-1	208493-2	208492-1	—
	28-57	Rev.	1.200 30.48	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	1.400 35.56	2.270 57.66	.380 9.65	208475-1	208475-2	208474-1	—
	28-63	Std.	1.200 30.48	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	1.400 35.56	2.270 57.66	.380 9.65	208477-1	208477-2	208476-1	—
3	22-3	Std.	1.755 44.58	.795 20.19	.103 2.62	1.505 38.23	1.250 31.75	1.534 38.96	1.985 50.42	1.885 47.88	.380 9.65	208495-1	208495-2	208494-1	—
		Rev.										208497-1	208497-2	208496-1	—
	28-7	Std.	1.825 46.36	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	2.120 53.85	2.270 57.66	.380 9.65	208483-1	208483-2	208482-1	—
		Rev.										208485-1	208485-2	208484-1	—
4	28-13M	Std.	1.825 46.36	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49 53	2.120 53.85	2.270 57.66	.380 9 65	211823-1 —	211823-2 211823-3*	211822-1 —	— 211822-3*
	28-16M	Std.	1.825 46.36	.873 22.17	.125 3.18	1.900 48.26	1.562 39.67	1.950 49.53	2.120 53.85	2.270 57.66	.380 9.65	208479-1	208479-2	208478-1	—
	28-22M	Std.	1.825 46 36	.873 22.17	.125 3 18	1.900 48.26	1.562 39.67	1.950 49.53	2.120 53 85	2.270 57 66	.380 9 65	208481-1	208481-2	208480-1	—

[1] Standard sex: pin contacts in receptacle housings, socket contacts in plug housings.
Reverse sex: socket contacts in receptacle housings, pin contacts in plug housings.

Notes: 1. All connectors are supplied unloaded.
2. Metal-shell CPC connectors preloaded with posted contacts are available, consult AMP Incorporated.

*Tetraseal.

Request Catalog No. 73-204

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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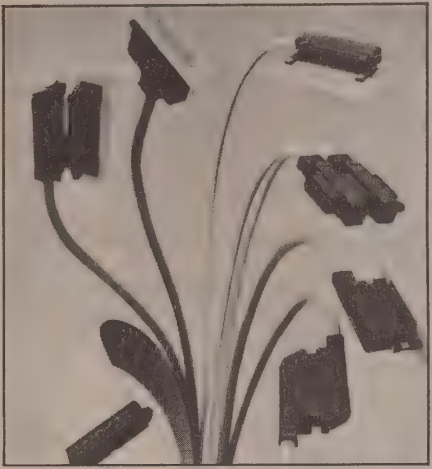
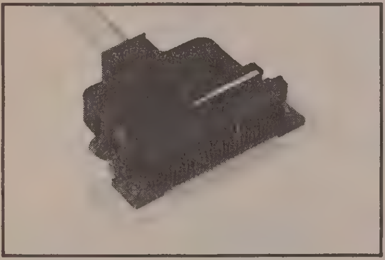
CHAMP Connector Systems

The CHAMP Connector is fully intermateable and interchangeable with existing connectors of a similar design. Applications for this type of connector are widely diversified and include all phases of the Telecommunications Industry, including original telephone manufacturing, Operating Telephone Companies, Cable Reclamation, Cable Manufacturing and Bay Connectorization. In addition the CHAMP connector line is ideally suited for use in computer terminals, test equipment, business and copying machines, telemetering and various equipment used in the security industry.



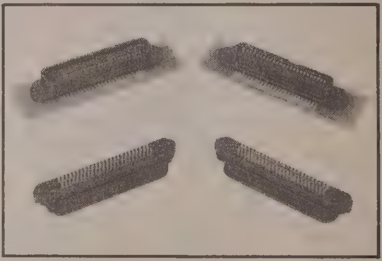
Insulation Displacement Connectors

Features: ■ Wide wire range ■ Eliminates costly wire preparation ■ Terminates unstripped solid and stranded (7 strand) wire, multi-conductor cable, and ribbon and laminated cable ■ Replaceable contacts ■ Accommodates wire with most soft insulation types in diameters to .045 [1.14] ■ Connectors fully intermateable and interchangeable with others of similar design ■ Ideally suited for cable-to-cable and cable-to-panel connector applications ■ Exceptionally stable performance under various environmental conditions ■ Self-extinguishing thermoplastic housings and accessories ■ Contacts on .085 [2.16] centers in dual-position arrangement ■ Optional accessories include: • Dust covers to protect contacts • Snap-on strain relief covers for 90° and 180° cable dress • Snap-in panel mount strain reliefs • 90° Slide-on strain relief covers for 50 position only ■ High speed applicator tooling assures reliable electrical and mechanical terminations at lowest installed cost ■ Connectors available in 14, 24, 36, 50 and 64 positions with a choice of mounting methods, screw type, bail mount type or locking latch type ■ Recognized under the Components Recognition Program of Underwriters Laboratories Inc., File No. E-28476 ®UL



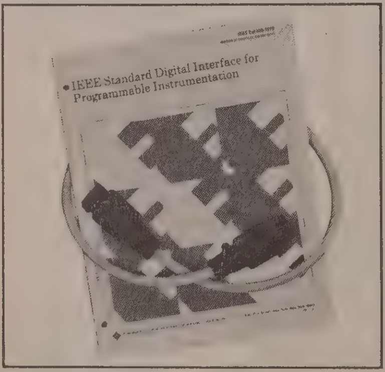
CHAMP PC Board Connectors

Available as Vertical Mount, Edge Mount and Right Angle Mount. Fully intermateable with existing connectors of a similar design. They are capable of accommodating printed circuit board thicknesses from .062–.125 [1.57-3.18]



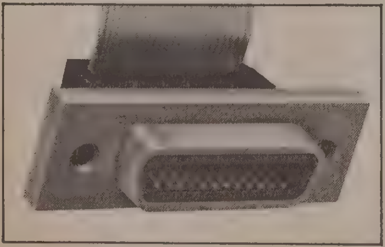
ACTION PIN PC Board Connectors

Combine the high reliability of the CHAMP insulation displacement connector interface with the utilization and cost savings of ACTION PIN terminals.


IEEE Standard Digital Interface for Programmable Instrumentation

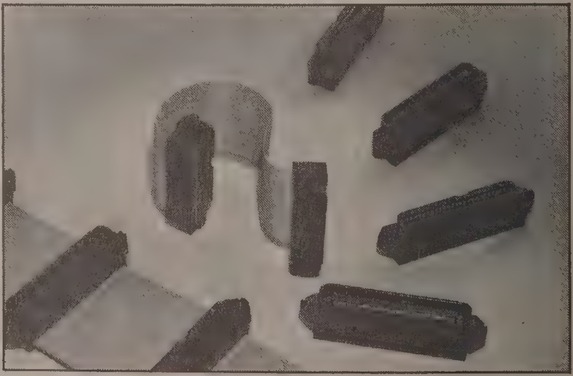
CHAMP Connectors for Interface Bus Applications per IEEE-488

Designed for the instrumentation industry and conforms to the applicable standard IEEE #488-1978. Also available shielded.



Shielded CHAMP Connectors

Afford excellent protection from electromagnetic interference or electrostatic discharge to sensitive circuitry. For discrete wire, jacketed cable, ribbon cable or printed circuit board mounting.



CHAMP Latch Connectors (for ribbon cable on .050 [1.27] centerline)

Provide a fast reliable means of mass terminating ribbon cable without time consuming soldering and prestripping of wire.

Request Catalog No. 73-152.

Need more details? Call AMP Customer Service at (717) 780-8400.
or write AMP Incorporated, Harrisburg, Pa. 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

AMP, ACTION PIN, CHAMP — Trademark of AMP Incorporated

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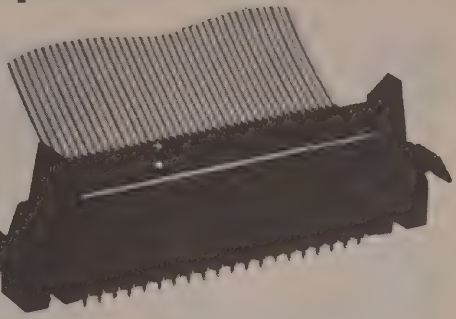
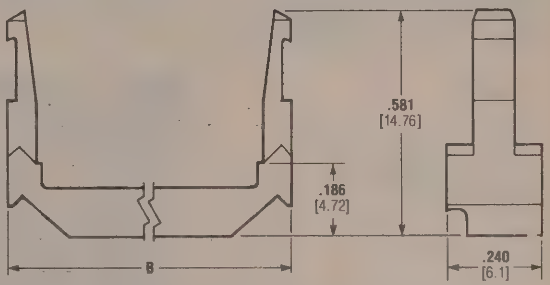
AMP Universal Ejection Style Receptacle Connector and Pin Headers

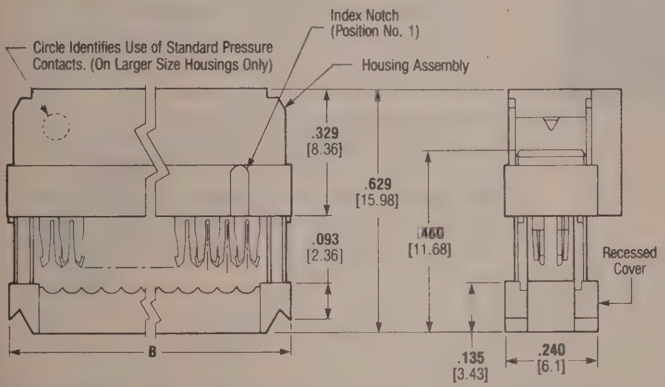


■ Broad line of products — straight-thru for vertical attachment, right angle for horizontal attachment and long feed-thru post tails to facilitate wrap-type terminations or thick printed circuit boards ■ Ejection latch accessory ■ One hand ejection of mated system ■ Headers accept all existing receptacle connectors with double row .100 center configurations ■ Polarized housing accepts double- or single-interference style polarization — also military-style polarization ■ Complete pin protection on all four sides, 3 sided headers also available ■ Duplex plated pins facilitate soldering to a printed circuit board, while retaining noble plating on mating end ■ Pin pattern on .100 centers and standard mounting holes ■ One-step termination of housing and cover ■ All-plastic system prevents shorting ■ All plastic parts made from UL recognized 94V-0 rated materials ■ Receptacle material: phosphor bronze; pin material: brass or phosphor bronze ■ Pins and receptacles plated .000030 gold over contact areas, .000100 to .000200 tin over solder and termination areas — both have nickel underplating ■ Filtered pin header assemblies are available, request Catalog No. 78-487.

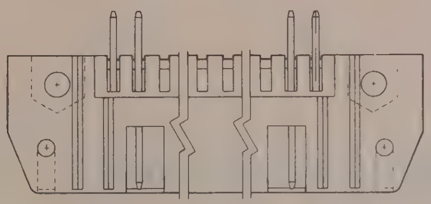
Strain Relief Cover



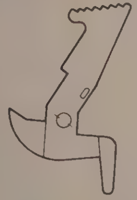
Receptacle Connector



Straight Thru Pin Header Assemblies

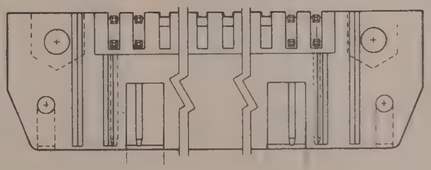


Latches



For use with	Part No.
Connector with Strain Relief Cover	102186-1
Connector without Strain Relief Cover	102185-1

Right Angle Pin Header Assemblies



No. of Positions	Polarized Connector Kit Nos.		Strain Relief Part Nos.	Straight Thru Pin Headers			Right Angle Pin Headers		
	With Strain Relief	Without Strain Relief		.110 Tail	.155 Tail	.610 Tail	.110 Tail	.155 Tail	.610 Tail
10	499499-1	746186-1	499252-5	102154-1	102156-1	499437-1	102160-1	102162-1	499439-1
14	499499-2	746186-2	499252-9	102154-2	102156-2	499437-2	102160-2	102162-2	499439-2
16	499499-3	746186-3	499252-8	102154-3	102156-3	499437-3	102160-3	102162-3	499439-3
20	499499-4	746186-4	499252-2	102154-4	102156-4	499437-4	102160-4	102162-4	499439-4
24	499499-6	746186-6	1-499252-0	102154-5	102156-5	499437-5	102160-5	102162-5	499439-5
26	499499-7	746186-7	499252-3	102154-6	102156-6	499437-6	102160-6	102162-6	499439-6
30	499500-8	746187-8	1-499252-2	102154-7	102156-7	499437-7	102160-7	102162-7	499439-7
34	499500-9	746187-9	499252-6	102154-8	102156-8	499437-8	102160-8	102162-8	499439-8
40	1-499500-0	1-746187-0	499252-1	102154-9	102156-9	499437-9	102160-9	102162-9	499439-9
50	1-499500-2	1-746187-2	499252-4	1-102154-0	1-102156-0	1-499437-0	1-102160-0	1-102162-0	1-499439-0
60	1-499500-3	1-746187-3	499252-7	1-102154-1	1-102156-1	1-499437-1	1-102160-1	1-102162-1	1-499439-1
64	1-499500-4	1-746187-4	1-499252-3	1-102154-2	1-102156-2	1-499437-2	1-102160-2	1-102162-2	1-499439-2

Request Catalog No. 73-177

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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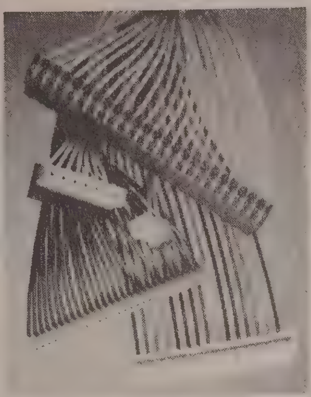
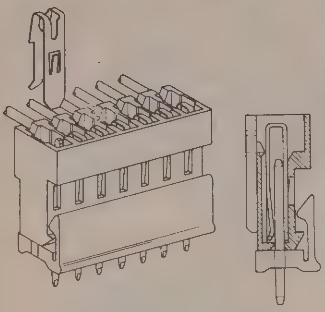
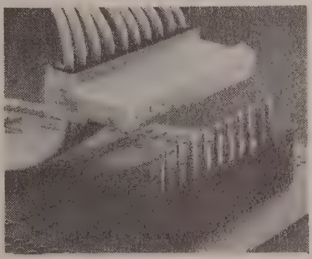
AMP Mass Termination Assembly System—MTA



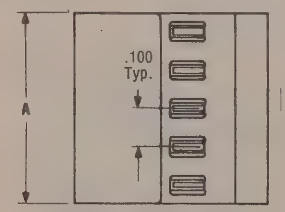


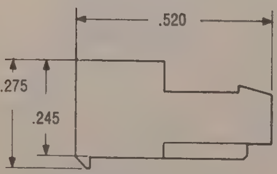


Features

- Mass termination for low applied cost
- Four complete systems: MTA-100 for .025 square posts on .100 centers; MTA-156 for .045 round or square posts on .156 centers; MTA-156 cable-to-cable posted connectors on .156 centers; and MTA-156 card edge connectors for .062 thick printed circuit boards on .156 centers
- Complete family of post headers
- Available as components or complete ribbon cable assemblies
- Preloaded dual beam insulation displacement contacts eliminate hand loading and the need for pre-stripped wires
- Available in wire size range #28 AWG thru #18 AWG, solid, fused stranded or stranded wire (7 strands)
- Accommodates discrete, ribbon or jacketed flat cable
- Contacts post lubricated to prevent fretting corrosion
- Wire-to-post housings made of thermoplastic 94V-2 material and color coded for wire size. Card edge housings made of 94V-0 rated material
- Contacts are post tin-plated, copper alloy
- Capable of terminating wire with an outside diameter of .060 max. for MTA-100 housings and .095 max. for MTA-156 housings
- Meets the material requirements of Table 23.1 of UL 1410 Standards for Television Receiver and Video Products (Wire-to-post connectors only)
- Recognized under the Component Program of Underwriters Laboratories Inc. — File No. E28476
- CSA Certified under File No. LR 16455-54

AMP MTA-100 Closed End Housings .100 Centers





No. of Circuits	A	Part Numbers			
		28 AWG	26 AWG	24 AWG	22 AWG
2	.200	690443-2	640442-2	640441-2	640440-2
3	.300	640443-3	640442-3	640441-3	640440-3
4	.400	640443-4	640442-4	640441-4	640440-4
5	.500	640443-5	640442-5	640441-5	640440-5
6	.600	640443-6	640442-6	640441-6	640440-6
7	.700	640443-7	640442-7	640441-7	640440-7
8	.800	640443-8	640442-8	640441-8	640440-8
9	.900	640443-9	640442-9	640441-9	640440-9
10	1.000	1-640443-0	1-640442-0	1-640441-0	1-640440-0
11	1.100	1-640443-1	1-640442-1	1-640441-1	1-640440-1
12	1.200	1-640443-2	1-640442-2	1-640441-2	1-640440-2
13	1.300	1-640443-3	1-640442-3	1-640441-3	1-640440-3
14	1.400	1-640443-4	1-640442-4	1-640441-4	1-640440-4
15	1.500	1-640443-5	1-640442-5	1-640441-5	1-640440-5
16	1.600	1-640443-6	1-640442-6	1-640441-6	1-640440-6
17	1.700	1-640443-7	1-640442-7	1-640441-7	1-640440-7
18	1.800	1-640443-8	1-640442-8	1-640441-8	1-640440-8
19	1.900	1-640443-8	1-640442-9	1-640441-9	1-640440-9
20	2.000	2-640443-0	2-640442-0	2-640441-0	2-640440-0
21	2.100	2-640443-1	2-640442-1	2-640441-1	2-640440-1
22	2.200	2-640443-2	2-640442-2	2-640441-2	2-640440-2
23	2.300	2-640443-3	2-640442-3	2-640441-3	2-640440-3
24	2.400	2-640443-4	2-640442-4	2-640441-4	2-640440-4
25	2.500	2-640443-5	2-640442-5	2-640441-5	2-640440-5
26	2.600	2-640443-6	2-640442-6	2-640441-6	2-640440-6
27	2.700	2-640443-7	2-640442-7	2-640441-7	2-640440-7
28	2.800	2-640443-8	2-640442-8	2-640441-8	2-640440-8

Request Catalog No. 77-451 for complete product listing.

Need more details? Call AMP Customer Service at (717) 780-8400, or write AMP Incorporated, Harrisburg, Pa. 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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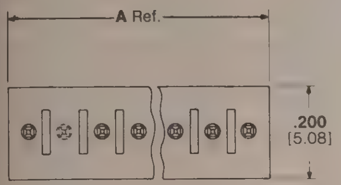
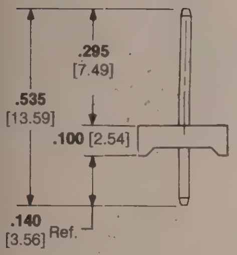
AMP Mass Termination Assembly System—MTA

(Continued)

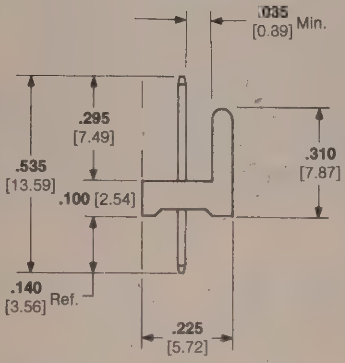
AMP MTA-100 Post Header Assemblies
.100 Centers .025 x .025 Posts



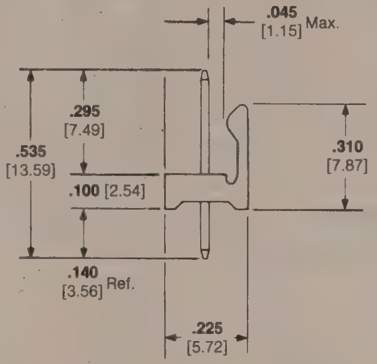
Straight Post Header Assemblies



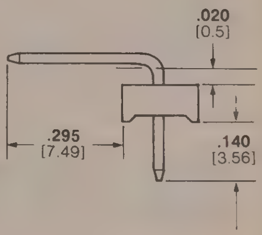
Polarized Straight Post Header



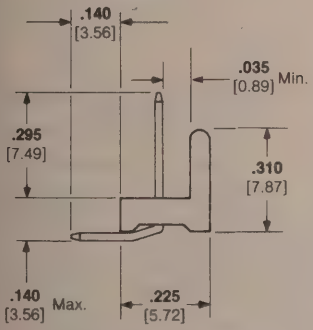
Friction Lock Straight Post Header Assembly



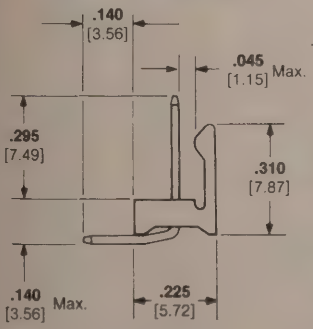
Right Angle Post Header Assembly



Polarized Right Angle Post Header Assembly



Friction Lock Right Angle Post Header Assembly



No. of Positions	A	Part Numbers					
		Straight Post Header Assembly	Polarized Straight Post Header	Friction Lock Straight Post Header Assembly	Right Angle Post Header Assembly	Polarized Right Angle Post Header	Friction Lock Right Angle Post Header
2	.200	640452-2	640454-2	640456-2	640453-2	640455-2	640457-2
3	.300	640452-3	640454-3	640456-3	640453-3	640455-3	640457-3
4	.400	640452-4	640454-4	640456-4	640453-4	640455-4	640457-4
5	.500	640452-5	640454-5	640456-5	640453-5	640455-5	640457-5
6	.600	640452-6	640454-6	640456-6	640453-6	640455-6	640457-6
7	.700	640452-7	640454-7	640456-7	640453-7	640455-7	640457-7
8	.800	640452-8	640454-8	640456-8	640453-8	640455-8	640457-8
9	.900	640452-9	640454-9	640456-9	640453-9	640455-9	640457-9
10	1.000	1-640452-0	1-640454-0	1-640456-0	1-640453-0	1-640455-0	1-640457-0
11	1.100	1-640452-1	1-640454-1	1-640456-1	1-640453-1	1-640455-1	1-640457-1
12	1.200	1-640452-2	1-640454-2	1-640456-2	1-640453-2	1-640455-2	1-640457-2
13	1.300	1-640452-3	1-640454-3	1-640456-3	1-640453-3	1-640455-3	1-640457-3
14	1.400	1-640452-4	1-640454-4	1-640456-4	1-640453-4	1-640455-4	1-640457-4
15	1.500	1-640452-5	1-640454-5	1-640456-5	1-640453-5	1-640455-5	1-640457-5
16	1.600	1-640452-6	1-640454-6	1-640456-6	1-640453-6	1-640455-6	1-640457-6
17	1.700	1-640452-7	1-640454-7	1-640456-7	1-640453-7	1-640455-7	1-640457-7
18	1.800	1-640452-8	1-640454-8	1-640456-8	1-640453-8	1-640455-8	1-640457-8
19	1.900	1-640452-9	1-640454-9	1-640456-9	1-640453-9	1-640455-9	1-640457-9
20	2.000	2-640452-0	2-640454-0	2-640456-0	2-640453-0	2-640455-0	2-640457-0
21	2.100	2-640452-1	2-640454-1	2-640456-1	2-640453-1	2-640455-1	2-640457-1
22	2.200	2-640452-2	2-640454-2	2-640456-2	2-640453-2	2-640455-2	2-640457-2
23	2.300	2-640452-3	2-640454-3	2-640456-3	2-640453-3	2-640455-3	2-640457-3
24	2.400	2-640452-4	2-640454-4	2-640456-4	2-640453-4	2-640455-4	2-640457-4
25	2.500	2-640452-5	2-640454-5	2-640456-5	2-640453-5	2-640455-5	2-640457-5
26	2.600	2-640452-6	2-640454-6	2-640456-6	2-640453-6	2-640455-6	2-640457-6
27	2.700	2-640452-7	2-640454-7	2-640456-7	2-640453-7	2-640455-7	2-640457-7
28	2.800	2-640452-8	2-640454-8	2-640456-8	2-640453-8	2-640455-8	2-640457-8

Request Catalog No. 77-451 for complete product listing

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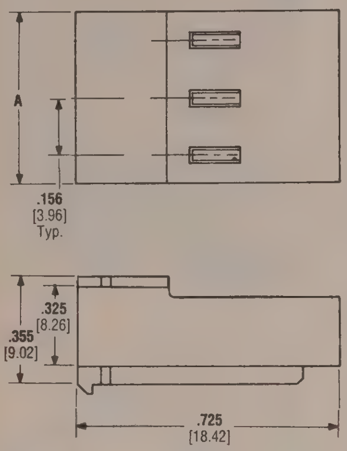
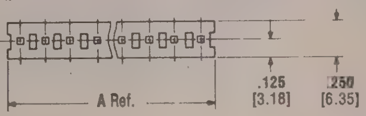
AMP Mass Termination Assembly System — MTA

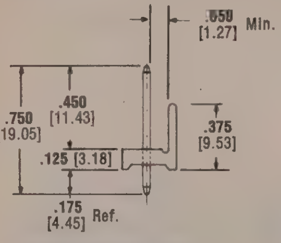
AMP MTA-156 Closed End Housings without Lock .156 [3.96] Centers



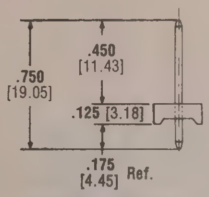
No. of Circuits	A Inch	A mm	Part Numbers 26 AWG [0.12-0.15 mm²]	24 AWG [0.2 mm²]	22 AWG [0.3-0.4 mm²]	20 AWG [0.5-0.6 mm²]	16 AWG [0.8-0.9 mm²]
2	.312	7.92	640435-2	640434-2	640433-2	640432-2	640431-2
3	.468	11.89	640435-3	640434-3	640433-3	640432-3	640431-3
4	.624	15.85	640435-4	640434-4	640433-4	640432-4	640431-4
5	.780	19.81	640435-5	640434-5	640433-5	640432-5	640431-5
6	.936	23.77	640435-6	640434-6	640433-6	640432-6	640431-6
7	1.092	27.74	540435-7	640434-7	640433-7	640432-7	640431-7
8	1.248	31.7	640435-8	640434-8	640433-8	640432-8	640431-8
9	1.404	35.66	640435-9	640434-9	640433-9	640432-9	640431-9
10	1.560	39.62	1-640435-0	1-640434-0	1-640433-0	1-640432-0	1-640431-0
11	1.716	43.59	1-640435-1	1-640434-1	1-640433-1	1-640432-1	1-640431-1
12	1.872	47.55	1-640435-2	1-640434-2	1-640433-2	1-640432-2	1-640431-2
13	2.028	51.51	1-640435-3	1-640434-3	1-640433-3	1-640432-3	1-640431-3
14	2.184	55.47	1-640435-4	1-640434-4	1-640433-4	1-640432-4	1-640431-4
15	2.340	59.44	1-640435-5	1-640434-5	1-640433-5	1-640432-5	1-640431-5
16	2.496	63.4	1-640435-6	1-640434-6	1-640433-6	1-640432-6	1-640431-6
17	2.652	67.36	1-640435-7	1-640434-7	1-640433-7	1-640432-7	1-640431-7
18	2.808	71.32	1-640435-8	1-640434-8	1-640433-8	1-640432-8	1-640431-8
19	2.964	75.29	1-640435-9	1-640434-9	1-640433-9	1-640432-9	1-640431-9
20	3.120	79.25	2-640435-0	2-640434-0	2-640433-0	2-640432-0	2-640431-0
21	3.276	83.21	2-640435-1	2-640434-1	2-640433-1	2-640432-1	2-640431-1
22	3.432	87.17	2-640435-2	2-640434-2	2-640433-2	2-640432-2	2-640431-2
23	3.588	91.14	2-640435-3	2-640434-3	2-640433-3	2-640432-3	2-640431-3
24	3.744	95.1	2-640435-4	2-640434-4	2-640433-4	2-640432-4	2-640431-4

AMP MTA-156 Post Header Assemblies .156 [3.96] Centers

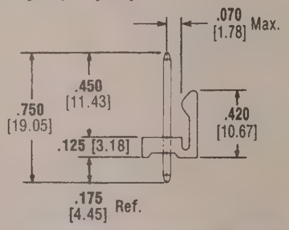




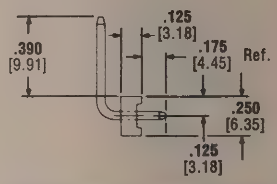
Polarized Straight Post Header Assembly (.045 [1.14] Square and Round Posts)



Straight Post Header Assembly (.045 [1.14] Square and Round Posts)



Friction Lock Straight Post Header Assembly (.045 [1.14] Square and Round Posts)



Right Angle Post Header Assembly (.045 [1.14] Square Posts)

No. of Positions	A Inch	A mm	Part Numbers Straight Post Header Assembly Square Post	Straight Post Header Assembly Round Post	Polarized Straight Post Header Assembly Sruare Post	Polarized Straight Post Header Assembly Round Post	Friction Lock Straight Post Header Assembly Square Post	Friction Lock Straight Post Header Assembly Round Post	Right Angle Post Header Assembly
2	.312	7.92	640383-2	640384-2	640444-2	640386-2	640445-2	640388-2	640385-2
3	.468	11.89	640383-3	640384-3	640444-3	640386-3	640445-3	640388-3	640385-3
4	.624	15.85	640383-4	640384-4	640444-4	640386-4	640445-4	640388-4	640385-4
5	.780	19.81	640383-5	640384-5	640444-5	640386-5	640445-5	640388-5	640385-5
6	.936	23.77	640383-6	640384-6	640444-6	640386-6	640445-6	640388-6	640385-6
7	1.092	27.72	640383-7	640384-7	640444-7	640386-7	640445-7	640388-7	640385-7
8	1.248	31.7	640383-8	640384-8	640444-8	640386-8	640445-8	640388-8	640385-8
9	1.404	35.66	640383-9	640384-9	640444-9	640386-9	640445-9	640388-9	640385-9
10	1.560	39.62	1-640383-0	1-640384-0	1-640444-0	1-640386-0	1-640445-0	1-640388-0	1-640385-0
11	1.716	43.59	1-640383-1	1-640384-1	1-640444-1	1-640386-1	1-640445-1	1-640388-1	1-640385-1
12	1.872	47.55	1-640383-2	1-640384-2	1-640444-2	1-640386-2	1-640445-2	1-640388-2	1-640385-2
13	2.028	51.51	1-640383-3	1-640384-3	1-640444-3	1-640386-3	1-640445-3	1-640388-3	1-640385-3
14	2.184	55.47	1-640383-4	1-640384-4	1-640444-4	1-640386-4	1-640445-4	1-640388-4	1-640385-4
15	2.340	59.44	1-640383-5	1-640384-5	1-640444-5	1-640386-5	1-640445-5	1-640388-5	1-640385-5
16	2.496	63.4	1-640383-6	1-640384-6	1-640444-6	1-640386-6	1-640445-6	1-640388-6	1-640385-6
17	2.652	67.36	1-640383-7	1-640384-7	1-640444-7	1-640386-7	1-640445-7	1-640388-7	1 640385-7
18	2.808	71.32	1-640383-8	1-640384-8	1-640444-8	1-640386-8	1-640445-8	1-640388-8	1-640385-8
19	2.964	75.29	1-640383-9	1-640384-9	1-640444-9	1-640386-9	1-640445-9	1-640388-9	1-640385-9
20	3.120	79.25	2-640383-0	2-640384-0	2-640444-0	2-640386-0	2-640445-0	2-640388-0	2-640385-0
21	3.276	83.21	2-640383-1	2-640384-1	2-640444-1	2-640386-1	2-640445-1	2-640388-1	2-640385-1
22	3.432	87.17	2-640383-2	2-640384-2	2-640444-2	2-640386-2	2-640445-2	2-640388-2	2-640385-2
23	3.588	91.14	2-640383-3	2-640384-3	2-640444-3	2-640386-3	2-640445-3	2-640388-3	2-640385-3
24	3.744	95.1	2-640383-4	2-640384-4	2-640444-4	2-640386-4	2-640445-4	2-640388-4	2-640385-4

Request Catalog No. 77-451 for complete product listing.

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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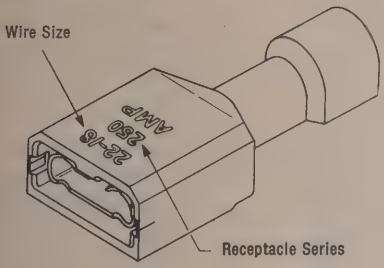
AMP Ultra-Fast Receptacles and Tabs

These fully-insulated terminals, now available in right angle flag and tab configurations, are your most cost effective way to meet safety hazard requirements. With good reason. A one-step operation gets rid of a whole array of costly post insulation problems. And the result is compatible with the safety requirements of Underwriters Laboratories standards 1410, 478 and 560.

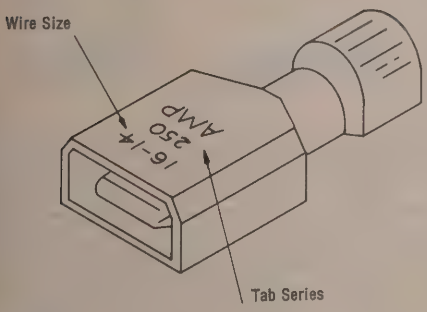
Ultra-Fast Fully Insulated FASTON Receptacle

Material:
Housing — Nylon Type 6/6, 94V-2
Terminal — Tin-plated, copper alloy



Ultra-Fast Fully Insulated FASTON Tab

Material:
Housing — Nylon Type 6/6
Terminal — Tin-plated, copper alloy



.250 Series

Wire Range	Ins. Dia. Max.	Mating Tab	Terminal Material	Color Code (Translucent)	Part Numbers Strip Form	Part Numbers Loose Piece
22-18	.135	.032 x .250	Brass	Red	2-520102-2	2-520103-2
16-14	.160			Blue	3-520106-2	3-520107-2

Request Catalog No. 75-357

Features

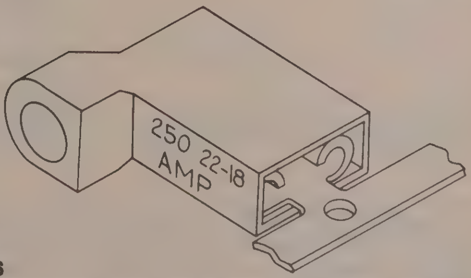
■ Prevents shock and short hazards ■ Insures correct lead-in of tab ■ Insures full mating with a variety of tab styles including those with shoulders ■ Terminals are color coded by wire size ■ Terminals contain wire size and tab size designation ■ Recognized under the Component Program of Underwriters Laboratories Inc., Electrical File No. E-66717 ■ CSA Certified under File No. LR-42168 ■ Nylon Type 6/6 housing meets UL temperature rating of 105°C ■ Terminates 22-14 AWG stranded wire ■ Meets UL-310 specification for quick connect terminals

Wire Range†	Ins. Dia. Max.	Mating Tab	Terminal Material	Part Nos. Strip	Part Nos. Loose Piece
.110 Series					
26-22	.100	.020 x .110	Brass	7-520365-2	7-520366-2
22-18	.120	.016 x .110	Brass	2-520080-2	2-520081-2
		.020 x .110	Brass	2-520083-2	2-520084-2
			Phosphor Bronze	2-520137-2	2-520138-2
		.032 x .110	Brass	2-520272-2	2-520273-2
	.230	.016 x .110	Brass	2-520308-2	2-520309-2
		.020 x .110	Brass	2-520306-2	2-520307-2
		.032 x .110	Brass	2-520310-2	2-520311-2
16-14	.260	.020 x .110	Brass	3-520370-2	3-520371-2
		.032 x .110	Brass	3-520372-2	3-520373-2
.187 Series					
22-18	.135	.020 x .187	Brass	2-520181-2	2-520182-2
			Phosphor Bronze	2-520181-4	2-520182-4
		.032 x .187	Brass	2-520193-2	2-520194-2
			Phosphor Bronze	2-520193-4	2-520194-4
	.230	.020 x .187	Brass	2-520261-2	2-520262-4
		.032 x .187	Brass	2-520274-2	2-520275-2
16-14	.160	.020 x .187	Brass	3-350815-2	3-350816-2
		.032 x .187	Brass	3-520124-2	3-520125-2
	.260	.020 x .187	Brass	3-520150-2	3-520151-2
		.032 x .187	Brass	3-520276-2	3-520277-2
.250 Series					
22-18	.135	.032 x .250	Brass	2-520183-2	2-520184-2
			Phosphor Bronze	2-520183-4	2-520184-4
	.230	.032 x .250	Brass	2-520263-2	2-520264-2
			Phosphor Bronze	2-520263-4	2-520264-4
16-14	.160	.032 x .250	Brass	3-350819-2	3-350820-2
			Phosphor Bronze	3-520116-2	3-520117-2
	.260	.032 x .250	Brass	3-520140-2	3-520141-2
			Phosphor Bronze	3-520140-4	3-520141-4

†Stranded wire only.

Ultra-Fast Fully Insulated FASTON Flag Receptacle

Material:
Housing — Nylon Type 6/6
Terminal — Tin-plated,
copper alloy



.187 Series

22-18	.165	.020 x .187	Brass	2-520334-2	2-520335-2
		.032 x .187	Brass	2-520336-2	2-520337-2
16-14	.185	.020 x .187	Brass	3-520338-2	3-520339-2
		.032 x .187	Brass	3-520340-2	3-520341-2

.250 Series

Wire Range*	Ins. Dia. Max.	Tab Size	Terminal Base Material	Part Nos. Strip Form	Part Nos. Loose Piece
22-18	.165	.032 x .250	Brass	2-520128-2	2-520129-2
16-14	.185	.032 x .250	Ph. Brz.	2-520128-4	2-520129-4
			Brass	3-520132-2	3-520133-2

*Stranded wire only.

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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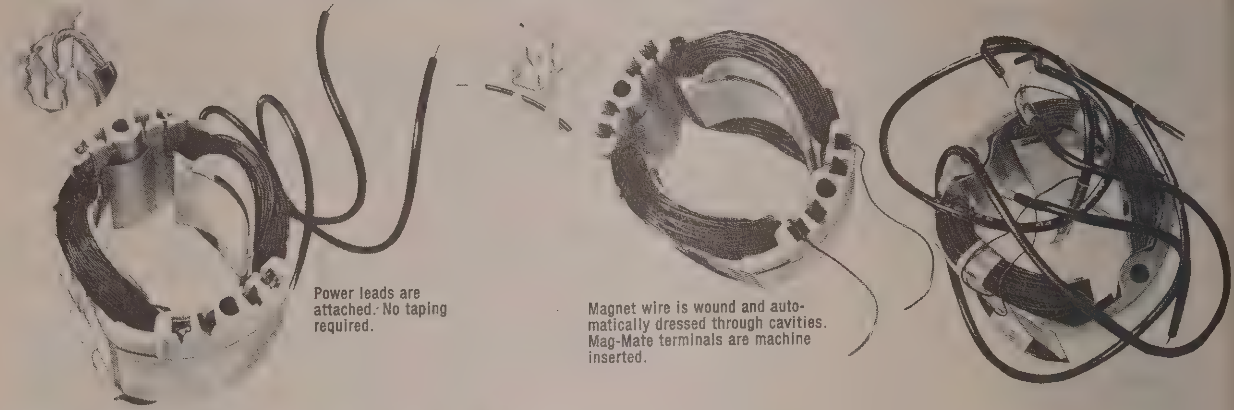
AMP, FASTON — Trademarks of AMP Incorporated

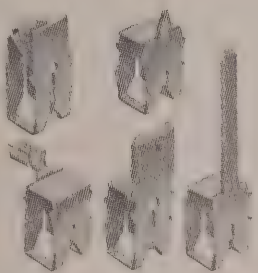
AMP Mag-Mate magnet wire interconnection system.



Power leads are attached. No taping required.

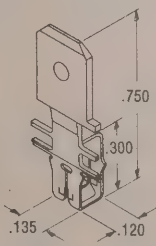
Magnet wire is wound and automatically dressed through cavities. Mag-Mate terminals are machine inserted.

The Mag-Mate interconnection system not only "evolutionizes" old production techniques but also aids design flexibility. With it you can interconnect aluminum magnet wire as well as cooper. And you can choose from a broad variety of terminals for power lead termination. They range from tabs and posts to wire crimp barrels; or just use stripped wire.



- Terminates either copper or aluminum magnet wire
- Terminates all magnet wire film insulations
- Eliminates need for pre-stripping conductors
- Automatically trims excess magnet wire
- Simultaneously terminates two wires of the same size in one terminal
- Eliminates post insulating
- Capable of producing up to 2000 terminations per hour
- May be mass terminated
- Clean metal-to-metal interface

FASTON Tab Terminal .250 Series

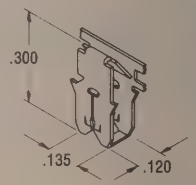


Magnet Wire Range		Tab Size	Stock Thickness		Part Number	
Copper AWG	Aluminum AWG		Tab Section	Mag. Wire Section	Strip	Loose Piece
33-31**	—	.032 x .250	.032	.010	62600-1	62655-1
30-27**	28-25**	.032 x .250	.032	.012	62651-1	62656-1
26-23**	24-20*	.032 x .250	.032	.016	62652-1	62657-1
22-20*	19-18*	.032 x .250	.032	.016	65653-1	62658-1

Material: Tin Plated Brass
Loose Piece Terminal Insertion Tool: Part No. 274282-1
Tab terminals mate with compatible FASTON receptacles.
*Single magnet wire only.
**Two magnet wires may be terminated in same terminal, if diameters are equal.

Request Catalog No. 76-385 for complete product listing

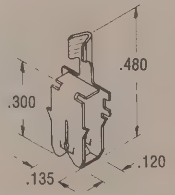
Poke-In Terminal



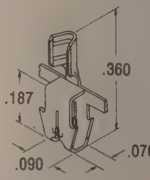
Magnet Wire Range		Lead Wire Range AWG	Stock Thickness	Part Number	
Copper AWG	Aluminum AWG			Strip	Loose Piece
33-31**	—	20-18	.010	62431-1	62527-1
30-27**	28-25**	20-18	.012	62429-1	62526-1
26-23**	24-20	20-18	.016	62935-1	63044-1
22-20*	19-18	20-18	.016	62420-1	62524-1
19-17	—	20-18	.016	62833-1	62912-1

Material: Tin Plated Brass
Loose Piece Terminal Insertion Tool: Part No. 274250-2
Accepts fused stranded or solid lead wire only.
Will also accept Poke-In Tab Terminal.
*Single magnet wire only.
**Two magnet wires may be terminated in same terminal, if diameters are equal.

Crimp Wire Barrel Terminals



A



B

Type	Magnet Wire Range		Lead Wire Range AWG	Stock Thickness	Part Number	
	Copper AWG	Aluminum AWG			Strip	Loose Piece
A	26-23**	24-20†	24-20	.016	62459-1	62666-1
A	22-20†	19-18†	24-20	.016	62458-1	62665-1
B	32-31**	—	26-22*	.010	62607-1	—
B	30-28**	—	26-22*	.012	62608-1	—
B	27-25**	—	26-22*	.012	62609-1	—
B	24-22†	—	26-22*	.012	62610-1	—

*Lead wire enters wire barrel at transition section between barrel and box portions (front entry) when strip is run thru applicator to crimp lead wires.
**Two magnet wires may be terminated in same terminal, if diameters are equal.
†Single magnet wire only.

NOTE: Type A **Loose Piece Terminal Insertion Tool:** Part No. 274278-1
F-Crimp wire barrel accepts stranded, fused stranded or solid wire.

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

AMP, FASTON — Trademarks of AMP Incorporated

AMP
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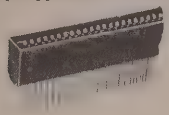
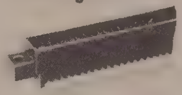
AMP Standard Edge Connectors

Wrap-Type

Wrap-Type with ACTION PIN



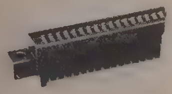
Mid-High Mt. Ears



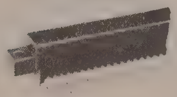
Mid-High Mt. Ears and Inserts

w/o Mt. Ears

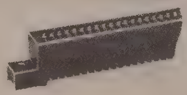
Solder Posts



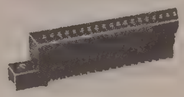
Card Extender



Low Mt. Ears



Low Mt. Ears & Inserts



Features:

■ Maximum number of dual positions:
.100 [2.54] ℄—70
.125 [3.18] ℄—60
.156 [3.96] ℄—44

■ Selective gold plating of contacts for high performance at low cost ■ .025 [0.64] square solid posts meet standard wrap-type specifications ■ .028 [0.71] diameter solid posts for flow solder applications ■ Recognized under the component program of Underwriters Laboratories Inc., Electrical File No. E 28476

■ Glass-filled polyester housing is 94V-0 rated ■ Accepts double sided pc boards, .054-.070 [1.27-1.78] thick

Request Catalog No. 74-253

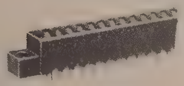
Contact Spacing	No. of Dual Positions	Post Type & Row-to-Row Spacing	Mid-High Mounting Ears		Without Mounting Ears	Low Mounting Ears	
			With Mounting Ears	With Mounting Ears and Inserts		With Mounting Ears	With Mounting Ears and Inserts
.100	10, 12, 15, 18, 22, 25, 28, 30, 35, 36, 40, 43, 50, 60, 70	Solder .200	X	X	X	X	X
		Wrap-Type .200	X	X	X	—	—
	6, 10, 12, 15, 18, 22, 25, 28, 30, 35, 36, 40, 43, 50, 57, 60, 70	Wrap-Type with ACTION PIN .200	—	—	X	X	—
.125	6, 9*, 10, 15, 18, 22, 28, 30, 35, 36, 40, 43, 50, 60	Solder .250	X	X	X	X	X
	6, 10, 15, 18, 22, 28, 30, 31, 35, 36, 40, 43, 50, 60	Wrap-Type .250	X	X	X	—	—
	6, 10, 12, 15, 18, 22, 25, 28, 30, 31, 35, 36, 40, 43, 50, 57, 60	Wrap-Type with ACTION PIN .250	—	—	X	X	—
.156	6, 10, 12, 15, 18, 22, 24, 25, 28, 30, 36, 43, 44	Solder .200	—	—	X	X	—
		Wrap-Type .200	—	—	X	X	—
		Wrap-Type with ACTION PIN .200	—	—	X	X	—
.100	10, 12, 15, 18, 22, 25, 28, 30, 35, 36, 40, 43, 50, 60, 70	Card Extender .054-.070 Pc Boards	X	—	—	—	—
.125	6, 10, 15, 18, 22, 28, 30, 31, 35, 36, 40, 43, 50, 60	Card Extender .054-.070 Pc Boards	X	—	—	—	—

*Low mounting ears only. Contacts plated .000015 or .000030 gold in contact area over nickel. Bright tin plating on posts.

AMP Low Profile Edge Connectors

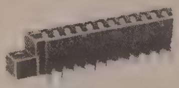
Solder Posts .200 Row-to-Row

Solder Posts .140 Row-to-Row

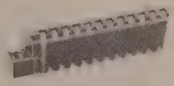


Solder Eyelet

Mt. Ears



Mt. Ears and Inserts



W/O Mt. Ears

Features: ■ Low profile housing is .460 [11.68] deep ■ 6 through 44 dual positions on .156 [3.96] centerline; 6 through 50 dual positions on .125 [3.18] centerline ■ Solder eyelet for wire-to-board or solder post for mother-daughter board application ■ Selective gold plating of contact area for high performance at low cost ■ Alternate platings, including tin, are available on request ■ Contacts bifurcated for redundancy ■ Accepts .055-.070 [1.4-1.78] thick printed circuit boards ■ UL 94V-0 rated, glass-filled polyester housings ■ Variety of solder post lengths ■ 5 amp current rating per contact

Request Catalog No. 75-336

Contact Spacing	No. of Dual Positions	Post Type & Row-to-Row Spacing	Mounting Configuration		
			With Mounting Ears	With Mounting Ears and Inserts	Without Mounting Ears
.156	6, 10, 12, 15, 18, 22, 24, 25, 28, 30, 36, 43, 44	Solder .200	X	X	X
		Solder .140	X	X	X
		Solder Eyelet .235	X	X	—
.125	6, 10, 15, 18, 22, 28, 30, 31, 36, 40, 43, 50	Solder .200	X	X	X
		Solder .140	X	X	X
		Solder Eyelet .235	X	X	—

Contacts plated .000015 or .000030 gold in contact area over nickel. Bright tin plating on posts.

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

ACTION PIN, AMP — Trademarks of AMP Incorporated

AMP INCORPORATED

AMP PACE Printed Circuit Card Edge Connectors

AMP PACE (Pre-Assembled Card Edge) Connectors are the latest innovation in the evolution of backplane architecture. Designed to shorten manufacturing time and reduce applied costs, these one-step, preassembled connectors come ready for mounting and mass terminating. In addition, design features such as removable housings and contacts that are replaceable through the top of the connector housing assure maximum flexibility in your backplane packaging.

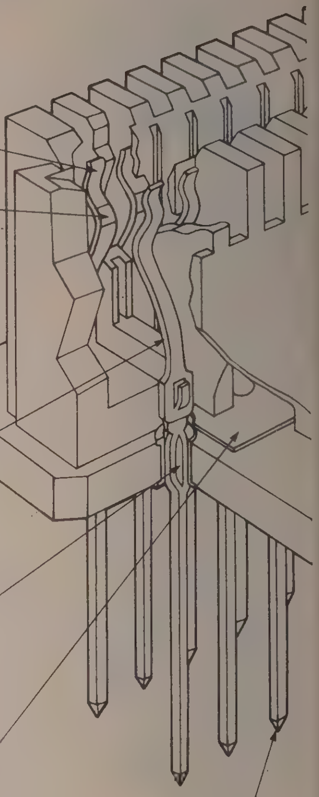
At the heart of the AMP PACE Connector is AMP's proven and reliable ACTION PIN Contact. This unique contact has superior electrical and physical characteristics that are unmatched in the industry.

AMP PACE Connectors are available with post centerline spacings of:
.100 x .100 [2.54 x 2.54]
.100 x .200 [2.54 x 5.08]
.125 x .125 [3.18 x 3.18]
.125 x .250 [3.18 x 6.35]
.156 x .200 [3.96 x 5.08]

Regardless of your application, the AMP team of sales, field and staff engineers is available to help with your design requirements.

Request Catalog No. 79-549 for complete listing.

Features



Repairability :
Individual contacts can be removed without removing the housing; housings can be removed without removing posts.

Precision Plated Contacts:
Accu-plate precision plating puts gold where it is needed for superior electrical contact at a reasonable cost.

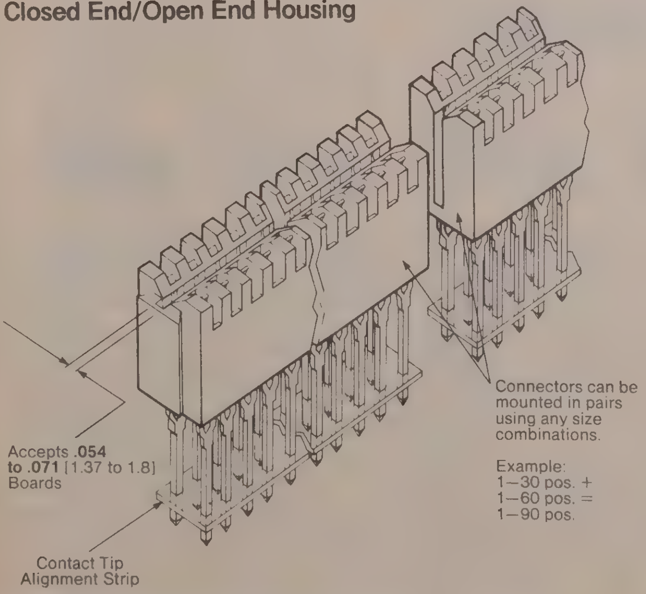
Beam Contact Design:
The contact's unique beam design accommodates and compensates for daughter board warp and stress assuring long-term, reliable performance (100 gram minimum normal force).

Gas-Tight Connection:
Spring sections of ACTION PIN Contacts compress in opposite directions, maintaining a gastight fit with the pc board.

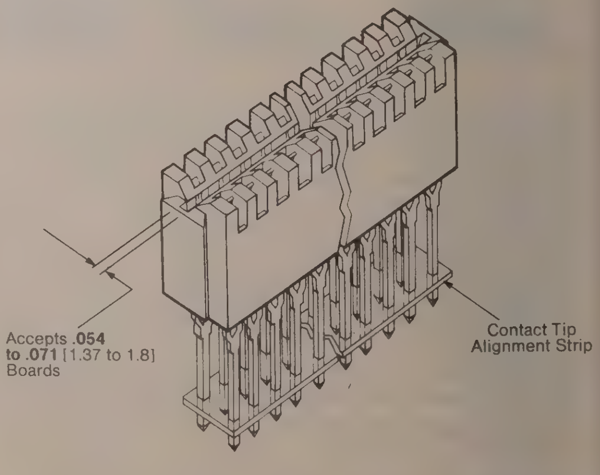
Contact Tip Alignment Strip:
Polyester strip assures straight and stable pin alignment for damage-free entry into the board

Precision Plated Post:
Accu-plate gold plating can be applied to the entire post, or just the post tip for improved pluggability.

Closed End/Open End Housing


Accepts .054 to .071 [1.37 to 1.8] Boards
Contact Tip Alignment Strip
Connectors can be mounted in pairs using any size combinations.
Example:
1—30 pos. +
1—60 pos. =
1—90 pos.

Standard Housing


Accepts .054 to .071 [1.37 to 1.8] Boards
Contact Tip Alignment Strip

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

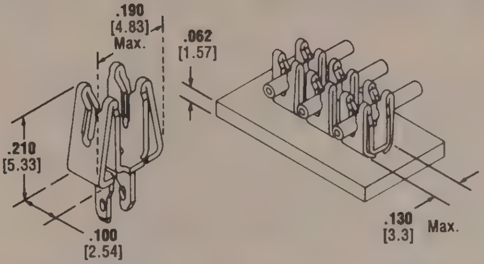
Specifications subject to change. Consult AMP Incorporated for latest design specifications.

ACTION PIN, AMP, AMP PACE — Trademarks of AMP Incorporated

AMP
INCORPORATED

AMP Quadra-Mate Wire-to-Printed Circuit Board Terminal

Features: ■ Redundant wire displacement termination areas ■ Built-in strain relief ■ Accepts 28-24 AWG [0.09-0.2 mm²] stranded, solid or fused wire ■ Feed-thru connections allow wiring flexibility ■ Free-standing ■ Low board profile (less than ¼″ [6.35 mm] high) ■ Available in loose piece or strip form ■ Mass termination adaptability ■ Capable of being reused ■ Low applied costs



Wire Size (AWG over mm²)			Part Numbers			
7-Strand	Solid	Fused	Loose Piece	Strip	Terminal Hand Tool	Wire Hand Tool
24 0.2	24-26 0.2-0.13	26 0.13	62977	63007	274374-1	274377-1
26 0.14	26-28 0.13-0.08	28 0.09	63024	63003		
28 0.09	28-30 0.08-0.05	30 0.05	63025	63004		

Semi-automatic applicators are available for inserting terminals into boards. Automatic and semi-automatic applicators are available for wire insertion.

Material and Finish:

Terminal — Brass, tin plated over copper. Other plating and terminal materials available. Contact AMP Engineering, AMP Incorporated, Harrisburg, PA 17105.

Max. Ins. Dia. — .060 [1.52]

Request Catalog No. 80-576

AMP ECONOMATE II Connectors featuring ACTION PIN Contacts

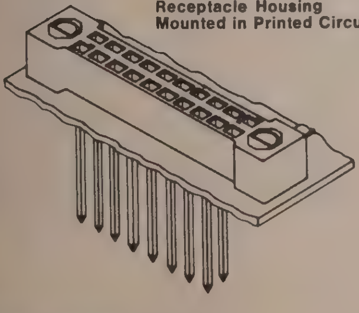
AMP ECONOMATE Components are designed to simplify panel packaging of printed circuit boards. Housings are applied to the contacts after they have been inserted into the printed circuit boards.

The .025 square AMP ACTION PIN contact is the heart of the ECONOMATE system. This unique contact, with its superior electrical and mechanical characteristics, is available in a wide range of predetermined strip lengths as well as in reel form for high speed machine insertion.

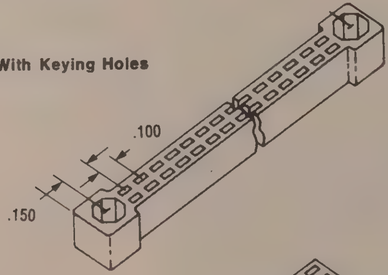
The ECONOMATE II connector comes in a .100 x .100 post centerline configuration and meets the applicable requirements of MIL-C-28754. This connector is completely intermateable with NAFI-type headers and NAFI/SEM polarizing keys and modules.

AMP ECONOMATE II Connectors

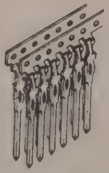
Receptacle Housing Mounted in Printed Circuit Board



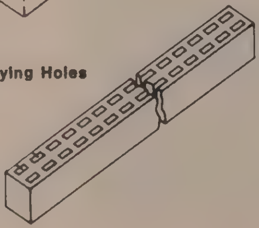
Housing With Keying Holes



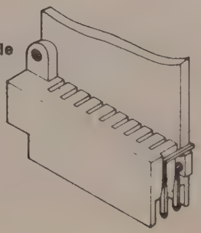
Receptacle Contact



Housing Without Keying Holes



Right Angle Header



Request Catalog No. 75-316

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.

ACTION PIN, AMP, ECONOMATE — Trademarks of AMP Incorporated

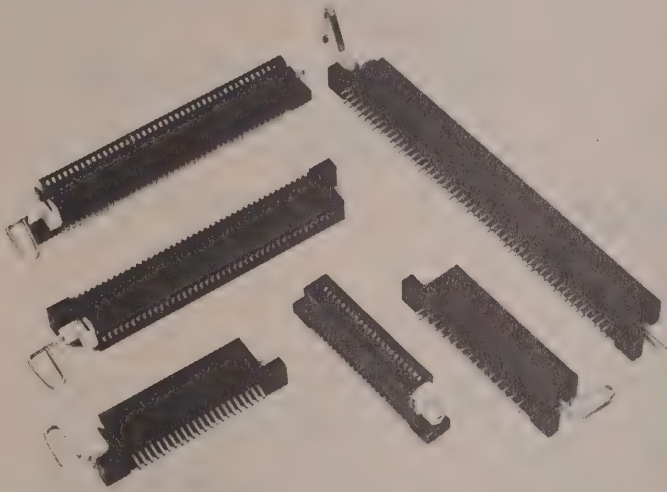
AMP
INCORPORATED

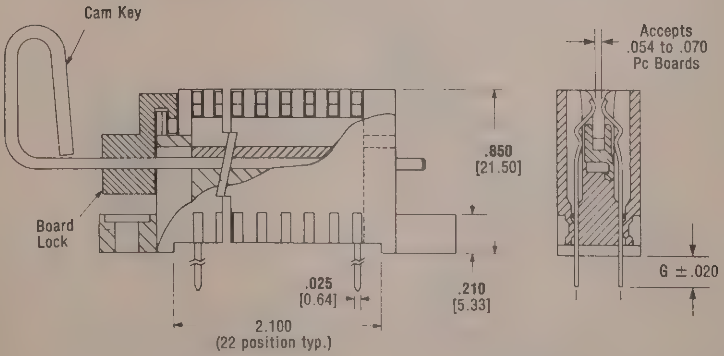
Rotary Cam Actuated, Zero Insertion Force Connectors

- Contacts on .100 x .200, .125 x .250 or .156 x .200 centers
- Accepts .054 to .070 thick double-sided pc boards
- Integral board lock assures proper pc board alignment and prevents board from sliding out of connector
- Easy operation — cam key or conventional nut-driver
- Glass-filled polyester housings, 94V-0 rated
- Connector configurations available with both ends open and one end open for insertion of pc board from either side or top
- Card extender, right angle and .025 sq. posted versions available

In addition to the connectors listed here the following versions are available: Sequential contact operation, card extender contacts, right angle posts and wrap-type posts. Also available is a complete line of rotary cam connectors featuring wiping action contacts. These connectors are available in open one end and open both end versions with a choice of solder post, right angle post, wrap-type post and card extender contacts in .100, .125 and .156 contact centers.

Request Catalog No. 78-485 for complete listing.





.100 x .200 Centers

No. of Dual Pos.	G	Part Numbers Open One End	Part Numbers Both Ends Open
22	.125	531020-1	531021-1
	.160	1-531020-1	1-531021-1
25	.125	531020-2	531021-2
	.160	1-531020-2	1-531021-2
28	.125	531020-3	531021-3
	.160	1-531020-3	1-531021-3
36	.125	531020-4	531021-4
	.160	1-531020-4	1-531021-4
40	.125	531020-5	531021-5
	.160	1-531020-5	1-531021-5
42	.125	531020-6	531021-6
	.160	1-531020-6	1-531021-6
43	.125	531020-7	531021-7
	.160	1-531020-7	1-531021-7
50	.125	531020-8	531021-8
	.160	1-531020-8	1-531021-8
60	.125	531020-9	531021-9
	.160	1-531202-9	1-531021-9
65	.125	1-531020-0	1-531021-0
	.160	2-531020-0	2-531021-0

.125 x .250 Centers

No. of Dual Pos.	G	Part Numbers Open One End	Part Numbers Both Ends Open
18	.125	531023-1	531024-1
	.160	531023-9	531024-9
22	.125	531023-2	531024-2
	.160	1-531023-0	1-531024-0
28	.125	531023-3	531024-3
	.160	1-531023-1	1-531024-1
30	.125	531023-4	531024-4
	.160	1-531023-2	1-531024-2
36	.125	531023-5	531024-5
	.160	1-531023-3	1-531024-3
40	.125	531023-6	531024-6
	.160	1-531023-4	1 531024-4
43	.125	531023 7	531024-7
	.160	1-531023-5	1-531024-5
50	.125	531023-8	531024-8
	.160	1-531023-6	1-531024-6

.156 x .200 Centers

No. of Dual Pos.	G	Part Numbers Open One End	Part Numbers Both Ends Open
15	.125	531025-1	531026-1
	.160	531025-7	531026-7
18	.125	531025-2	531026-2
	.160	531025-8	531026-8
22	.125	531025-3	531026 3
	.160	531025-9	531026-9
28	.125	531025-4	531026-4
	.160	1-531025-0	1-531026-0
36	.125	531025-5	531026-5
	.160	1-531025-1	1-531026-1
43	.125	531025-6	531026-6
	.160	1-531025-2	1-531026-2

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

Specifications subject to change. Consult AMP Incorporated for latest design specifications.
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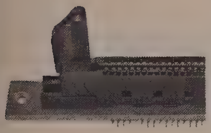
AMP Zero Insertion Force (ZIF) Printed Circuit Board Connectors

Printed Circuit Board Edge Connectors



- Eliminates all force needed to install printed circuit boards
- Side or top entry
- Contacts on .125 x .125 and .100 x .100 centers
- .025 square posts
- Accepts .054 to .071 thick pc boards
- Normally closed design
- Available with bellcrank actuator

Edge Connector — Lever Style

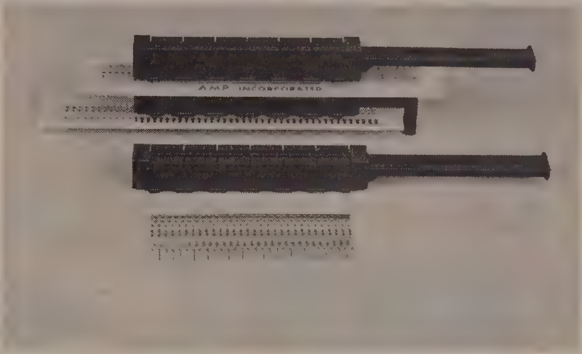
.125 x .125 Centerline

No. of Dual Positions	Part Number
32	118201-1
40	118201-2
44	118201-3
52	118201-4
56	118201-5
60	118201-6
64	118201-7
68	118201-8
72	118201-9
76	1-118201-0
80	1-118201-1
84	1-118201-2
88	1-118201-3
92	1-118201-4
96	1-118201-5
100	1-118201-6
104	1-118201-7
108	1-118201-8
112	1-118201-9
116	2-118201-0
120	2-118201-1
124	2-118201-2
128	2-118201-3
132	2-118201-4
136	2-118201-5
140	2-118201-6

.100 x .100 Centerline

No. of Dual Positions	Part Number
15	119471-1
20	119471-2
25	119471-3
30	119471-4
35	119471-5
40	119471-6
45	119471-7
50	119471-8
55	119471-9
60	1-119471-0
65	1-119471-1
70	1-119471-2
75	1-119471-3
80	1-119471-4
85	1-119471-5
90	1-119471-6
95	1-119471-7
100	1-119471-8
105	1-119471-9
110	2-119471-0
115	2-119471-1
120	2-119471-2
125	2-119471-3
130	2-119471-4
135	2-119471-5
140	2-119471-6
145	2-119471-7
150	2-119471-8
155	2-119471-9
160	3-119471-0
165	3-119471-1
170	3-119471-2
175	3-119471-3

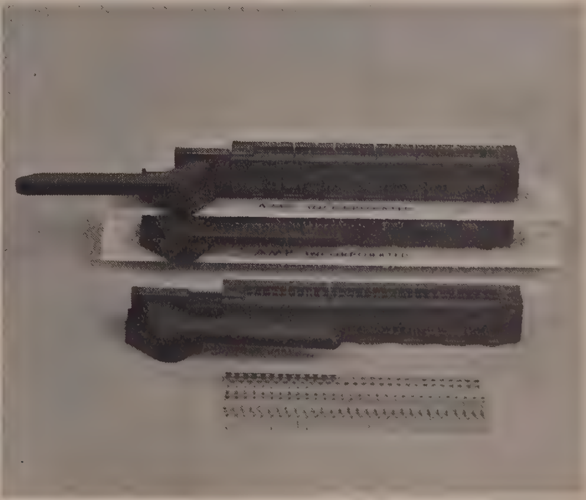
Printed Circuit Board Stacking Connectors



- Eliminates need for backplane
- Ideal for microprocessor interconnection
- No gold card edge fingers required
- Short electrical paths
- Ideal for bus organized circuitry
- Contacts on .100 x .100 centers
- .025 square posts

No. of Dual Positions	Part Numbers			
	Housings		Contact Comb	Applicator Kit
	Push-Pull Act.	Side Act.		
10	117879-2	118435-2	118035-2	59939-1
15	117879-3	118435-3	118035-3	59939-2
20	117879-4	118435-4	118035-4	59939-3
25	117879-5	118435-5	118035-5	59939-4
30	117879-1	118435-1	118035-1	59939-5
35	117879-6	118435-6	118035-6	59939-6
40	117879-7	118435-7	118035-7	59939-7
45	117879-8	118435-8	118035-8	59939-8
50	117879-9	118435-9	118035-9	59939-9

Request Catalog No. 82-667



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Specifications subject to change. Consult AMP Incorporated for latest design specifications.

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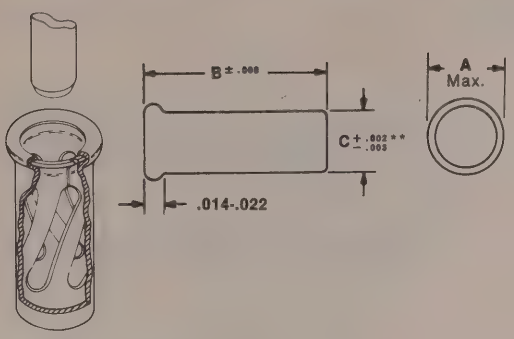
AMP Miniature Spring Socket

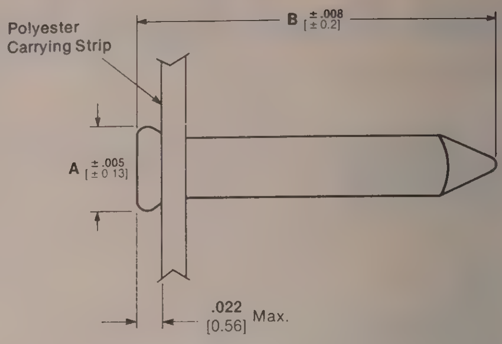


Material: Spring—Beryllium Copper; Eyelet—Copper.

Pin Dia. Range*	Dimensions			Recommended Hole Size for Automatic Insertion†	Finish		Part Numbers	
	A	B	C		Spring	Eyelet	Closed Bottom	Open Bottom
.010-.013	.059	.142	.038	$.040^{\pm.002}$	Gold	Tin	5-330808-0	5-330808-4
					Tin	Tin	2-330808-1	4-330808-1
.013-.020	.059	.142	.038	$.040^{\pm.002}$	Gold	Tin	6-330808-5	6-330808-3
					Tin	Tin	6-330808-4	6-330808-1
.013-.020	.059	.168	.038	$.040^{\pm.002}$	Gold	Tin	50935-1	50935-7
					Tin	Tin	50935-2	50935-8
.018-.021	.070	.138	.050	$.052^{\pm.003}$	Gold	Tin	2-331272-3	3-331272-9
					Tin	Tin	2-331272-1	3-331272-7
.018-.025	.070	.260	.050	$.052^{\pm.003}$	Gold	Tin	50863-5	50863-1
					Tin	Tin	50863-8	50863-6
.022-.025	.070	.138	.050	$.052^{\pm.003}$	Gold	Tin	2-331272-7	4-331272-3
					Tin	Tin	2-331272-5	4-331272-1
.013-.026	.070	.178	.050	$.052^{\pm.003}$	Gold	Tin	50462-8	50462-2
					Tin	Tin	50462-7	50462-1
.022-.025	.077	.138	$.061^{\pm.002}$	$.062^{+.004}_{-.003}$	Gold	Tin	3-331677-7	2-331677-0
					Tin	Tin	1-331677-6	1-331677-9
.026-.029	.077	.138	$.061^{\pm.002}$	$.062^{+.004}_{-.003}$	Gold	Tin	3-331677-8	2-331677-4
					Tin	Tin	1-331677-0	2-331677-3
.026-.033	.077	.257	$.061^{\pm.002}$	$.062^{+.004}_{-.003}$	Gold	Tin	50864-9	50864-5
					Tin	Tin	50864-6	50864-8
.030-.033	.077	.138	$.061^{\pm.002}$	$.062^{+.004}_{-.003}$	Gold	Tin	1-331677-8	2-331677-2
					Tin	Tin	1-331677-3	2-331677-1
.030-.033	.089	.143	$.070^{\pm.002}$	$.072^{+.004}_{-.003}$	Gold	Tin	1-332070-9	2-332070-5
					Tin	Tin	1-332070-8	2-332070-4
.034-.037	.089	.143	$.070^{\pm.002}$	$.072^{+.004}_{-.003}$	Gold	Tin	2-332070-1	2-332070-7
					Tin	Tin	2-332070-0	2-332070-6
.034-.041	.089	.260	$.070^{\pm.002}$	$.072^{+.004}_{-.003}$	Gold	Tin	1-331892-4	1-331892-2
					Tin	Tin	1-331892-5	1-331892-8
.037-.040	.089	.143	$.070^{\pm.002}$	$.072^{+.004}_{-.003}$	Gold	Tin	2-332070-3	2-332070-9
					Tin	Tin	2-332070-2	2-332070-8
.042-.049	.118	.290	$.100^{\pm.002}$	$.101^{\pm.003}$	Gold	Tin	50871-5	50871-1
					Tin	Tin	50871-8	50871-6
.050-.057	.118	.290	$.100^{\pm.002}$	$.101^{\pm.003}$	Gold	Tin	1-50871-4	1-50871-0
					Tin	Tin	1-50871-7	1-50871-5
.056-.065	.118	.290	$.100^{\pm.002}$	$.101^{\pm.003}$	Gold	Tin	2-50871-3	1-50871-9
					Tin	Tin	2-50871-6	2-50871-4

*To insure proper spring tension, do not exceed a .002 difference in pin diameter when changing to a smaller pin. For square or rectangular pin size equivalent, request Catalog No. 73-213.
†For hand insertion, hole diameter should be appropriate "C" diameter +.001 to +.004.
**Unless specified otherwise.

Features ■ Bellmouth design allows easy pluggability. ■ Helical spring design accepts round, square or rectangular leads without concern for socket orientation. ■ Wide range of socket sizes covers a pin range of .010 to .065 diameter and board thickness of .031 to .125. ■ Low profile head of .022 allows greater board-to-board clearance. ■ Small head diameter allows centerline spacing of .100. ■ Meets gold plating specifications of MIL-G-45204, Type II and tin plating specifications of MIL-T-10727, Type I.
Request Catalog No. 73-213 for complete listings.



Miniature Spring Socket on Polyester Strip

Series 1 (Hole Size .042 ± .003 [1.07 ± 0.08])†

Pin Dia. Range	Dimensions		Finish		Part numbers	
					Polyester Strip	
	A	B	Spring	Eyelet	W/Sealant	WO/Sealant
.010-.016 0.25-0.41	**.061** 1.55	.161 4.09 (Short)	Gold	Tin	645947-5* 1-645947-5**	645948-5* 1-645948-5**
			Tin	Tin	645947-4* 1-645947-4**	645948-4* 1-645948-4**
.010-.020 0.25-0.51	**.061** 1.55	.186 4.72 (Long)	Gold	Tin	645949-2* 1-645949-2**	645950-2* 1-645950-2**
			Tin	Tin	645949-1* 1-645949-2**	645950-1* 1-645950-1**
.013-.020 0.33-0.51	**.061** 1.55	.161 4.09 (Short)	Gold	Tin	645947-1* 1-645947-2**	645948-1* 1-645948-2**
			Tin	Tin	645947-1* 1-645947-1**	645948-1* 1-645948-1**

*50,000 per reel.
**10,000 per reel.
†.043±.002 [1.09±0.05] for loose piece hand insertion.

Series 2 (Hole Size .052 ± .003 [1.32 ± .008])†

Pin Dia. Range	Dimensions		Finish		Part numbers	
					Polyester Strip	
	A	B	Spring	Eyelet	W/Sealant	WO/Sealant
.019-.026 0.48-0.66	**.070** 1.78	.161 4.09 (Short)	Gold	Tin	645953-2* 1-645953-2**	645954-2* 1-645954-2**
			Tin	Tin	645953-1* 1-645953-1**	645954-1* 1-645954-1**
.013-.026 0.33-0.66	**.070** 1.78	.186 4.72 (Long)	Gold	Tin	645955-2* 1-645955-2**	645956-2* 1-645956-2**
			Tin	Tin	645955-1* 1-645955-1**	645956-1* 1-645956-1**
.013-.020 0.33-0.51	**.070** 1.78	.161 4.09 (Short)	Gold	Tin	645953-5* 1-645953-5**	645954-5* 1-645954-5**
			Tin	Tin	645953-4* 1-645953-4**	645954-4* 1-645954-4**

*50,000 per reel.
**10,000 per reel.
†.053±.003 [1.35±0.05] for loose piece hand insertion.

Features ■ Bullet nose design for high volume application. ■ Available with silicone seal ■ Two series covers a pin range of .010 to .026 diameter and board thickness of .031 to .125. ■ Sockets are ovalized for board retention in high speed soldering operations. ■ Sockets accept round, flat or rectangular leads. ■ Bellmouth design allows easy pluggability. ■ Low profile head of .022 allows greater board-to-board clearance. ■ Small head diameter allows centerline spacing of .100. ■ Meets gold plating specifications of MIL-G-45204, Type II and tin plating specifications of MIL-T-10727, Type I. ■ Strip sockets may be applied using pneumatic hand tools, automatic bench machines or numerically controlled application equipment. ■ Application rates of 2000 to 9000 per hour are obtainable.
Request Catalog No. 81-645

Need more details? Call AMP Customer Service at (717) 780-4400, or write AMP Incorporated, Harrisburg, PA 17105.

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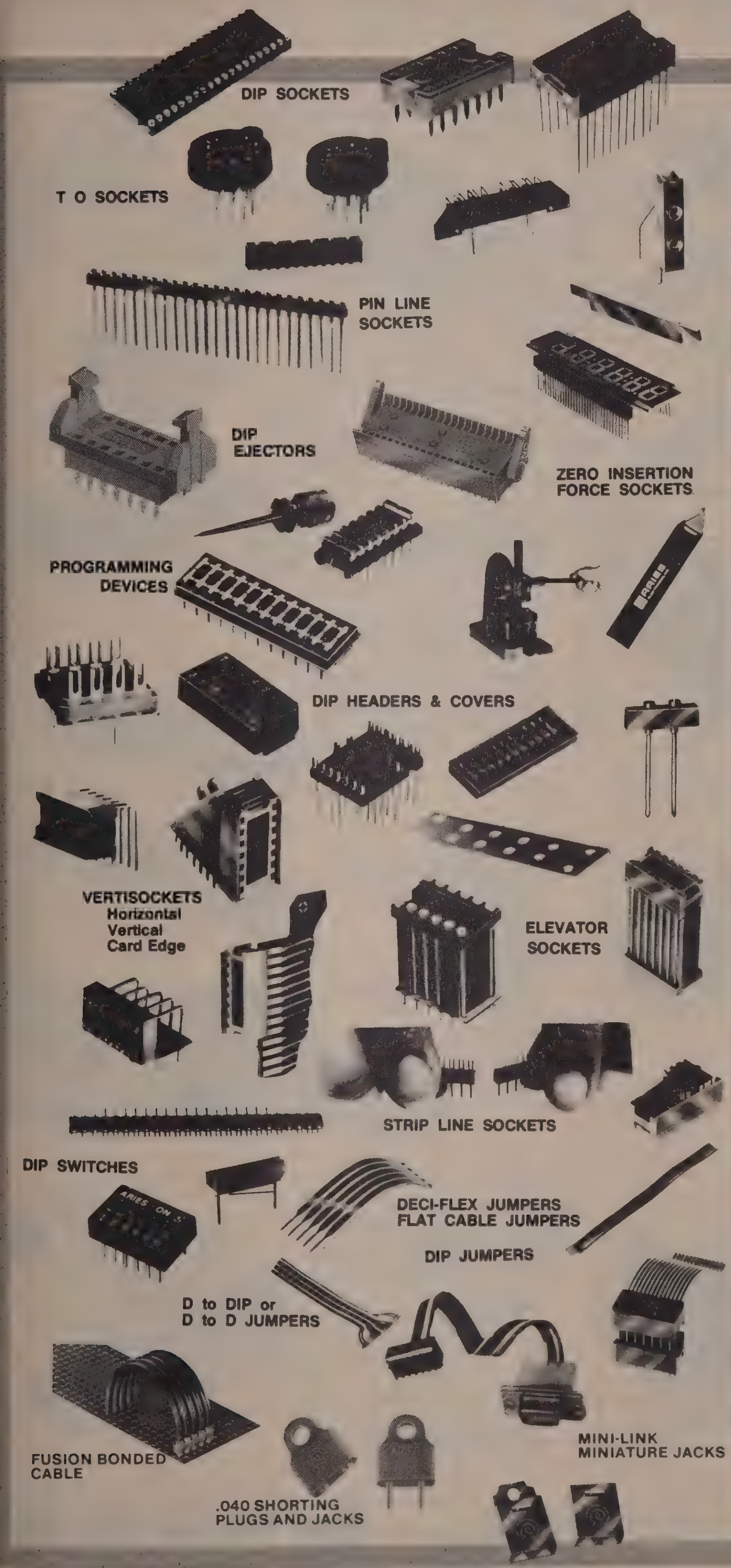
NEW '83 - '84


DIP SOCKETS
T O SOCKETS
PIN LINE SOCKETS
DIP EJECTORS
ZERO INSERTION FORCE SOCKETS
PROGRAMMING DEVICES
DIP HEADERS & COVERS
VERTISOCKETS
Horizontal
Vertical
Card Edge
ELEVATOR SOCKETS
STRIP LINE SOCKETS
DIP SWITCHES
ARIES ON
DECI-FLEX JUMPERS
FLAT CABLE JUMPERS
DIP JUMPERS
D to DIP or
D to D JUMPERS
FUSION BONDED CABLE
.040 SHORTING PLUGS AND JACKS
MINI-LINK MINIATURE JACKS

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ELECTRONICS, INC.

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Electronics (Europe) Ltd.

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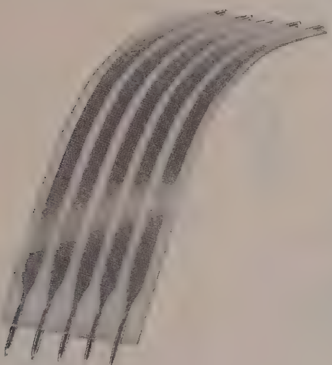
The Industry's most complete line of DIP products

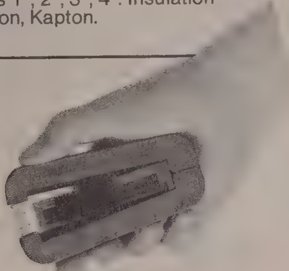
Refer to "Manufacturers and Sales Offices Directory" (yellow pages Vol. 1) for complete list of Sales Representatives and Local Distributors.

The Industry's most complete line of DIP products



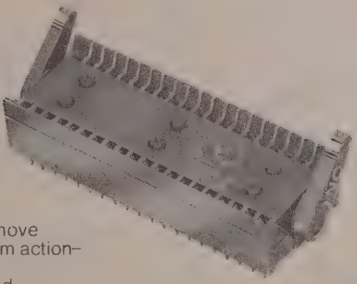
DECI-FLEX®
(SERIES 160)

Low cost, flexible multi-conductor interconnection. Available any number of conductors on .100 centers. Lengths 1", 2", 3", 4". Insulation options: Nomex, Polyester, Teflon, Kapton.



NEW! ANTI-STATIC T516AS DIP-R-SIZER HAND TOOL

Molded of anti-static material...ideal for MOS devices susceptible to static damage.



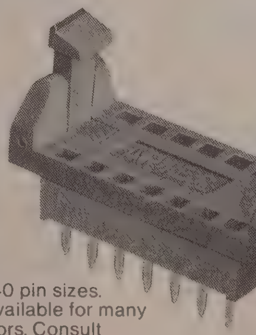
ZERO INSERTION FORCE SOCKET (SERIES 516)

Normally Open—No force to insert component.

Closed—Holds component firmly.

Open—No force to remove component. Smooth cam action–no tools required. Available 24, 28, 40 and 64 contacts.

Collet EJECT-A-DIP Sockets

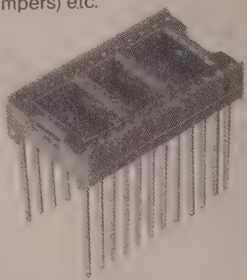


Rugged, solderable DIP socket with unique latch to lock-in jumpers, ICs, etc. Latch also ejects DIP packages without damage to pins. Ideal for high vibration environments or applications in which device leads get bent during removal. High reliability collet contacts accept round or rectangular pins. Available solder tail or wire wrap in 14, 16, 24, and 40 pin sizes. Locking latch heights available for many manufacturers' connectors. Consult factory for specials.

DIP SOCKETS—6 STYLES

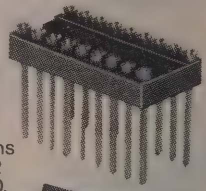
DIP SOCKETS

For mounting IC's, logic jumpers (see DIP-R-LOGIC Jumpers) etc.



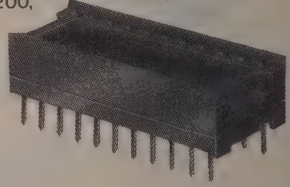
SERIES 501

Wire Wrap* Type Pins with Aries bifurcated contacts. Available: 8-10-14-16-18-20-22-24-28-32-34-36-38-40-48 Pins on .200, .300, .400 and .600 centers.



SERIES 503

LO-PRO®file Sockets—Wire wrap pins with collet style contacts. Available 2 to 64 pins in increments of 2 on .200, .300, .400, .600 or .900 centers.

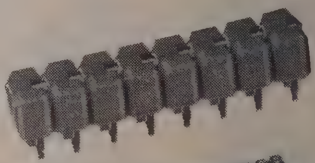


SERIES 511

Solder Type Pins with Aries bifurcated contacts. Available: 8-10-14-16-18-20-22-24-28-32-36-40 Pins on .200, .300, .400 and .600 centers.

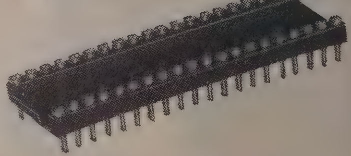
SERIES 0520

Single row in-line sockets with "breakable" feature. Uses stamped single beam face-grip contacts. 40 solder tail pins to a strip. Body breaks off cleanly to any desired number of contacts.



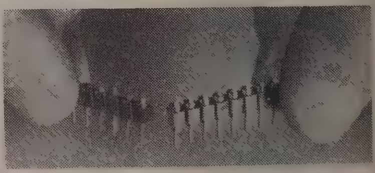
SERIES 513

Lo-Profile™ Collet Style Sockets. Available 6 to 64 pins on .200, .300, .400, .600 and .900 centers.



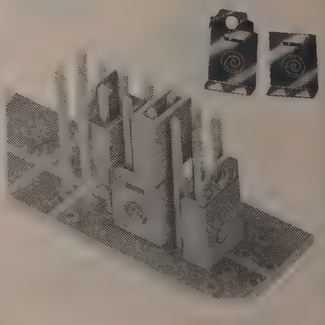
STRIP LINE SOCKETS SERIES 0513, 0503

with "break" feature for any desired number of positions (1 to 25 pins). Available solder tail, 2 and 3 wrap pins.



MINI-LINK™

Miniature jacks for jumpering .025 pins on .100 matrix. Mini-Link allows jumpering...row to row...pin to pin and can also be stacked. Can be supplied with or without handle. Mini-Link also has a convenient outside test point opening. Packaged 50/bag.



*TM—Gardner-Denver

Complete information in Catalog S-84

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ELECTRONICS, INC.

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DIP HEADERS and COVERS – 5 STYLES and SPECIALS

DIP HEADERS & COVERS for mounting components.

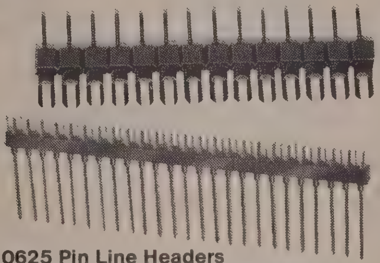
SERIES 600 with coined contacts. 2 Styles of Terminals: Post and Fork. Available 2 thru 20 pins on .300 centers; 22 pins on .400 centers; 24 thru 40 pins on .600 centers. Contact styles shown below.

SERIES 625 with screw machine terminals. 5 Styles of Terminals. Available 2 to 40 pins—.200, .300, .400 and .600 centers.

SERIES 8625 with screw machine terminals. Available in 14-16-18-32 pins in single and double rows on .800 centers. Terminal styles shown below.

SERIES 650 COVERS: FOR HEADERS

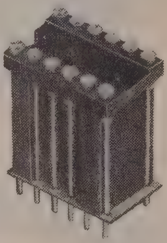
Available for 8-14-16-24-40 pin sizes to accept components of 1/8″, 3/8″, 1/2″, or 3/4″ high.



"BREAK" to length desired.

SERIES 0600 and 0625 Pin Line Headers

A single header strip both end and side stackable on .100 centers. (0600 with coined contacts). (0625 with screw machine terminals). Available: 1 to 25 pins on .100 centers.

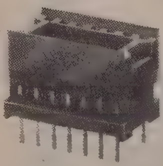


ELEVATOR SOCKETS

Useful to bring device to level required. Available from 1/4″ to 1-1/4″ high. Standard heights in stock; specials 3 weeks.

SERIES 8XXX (XXX=height)

Available 14 or 16 pin. Aries bifurcated pins on .300 centers.

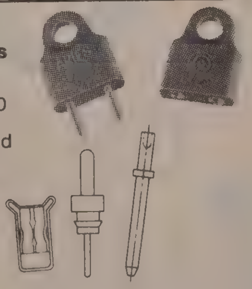


COLLET STYLE CONTACTS

2 to 64 pin. Any height 1/4″ to 1-1/4″

.040 Shorting Plugs and Jacks and .040 DIP Strips and Loose Pins

Plugs and jacks used to interconnect .040 sockets and/or .040 pins on .200 centers. Convenient ring handle for insertion or removal. Male straight and right angle and female socket DIP strips in convenient 10 position size ("break-off" feature for any smaller size). Also available are loose .040 female sockets, .040 male pins for staking and .040 pins for press fit.

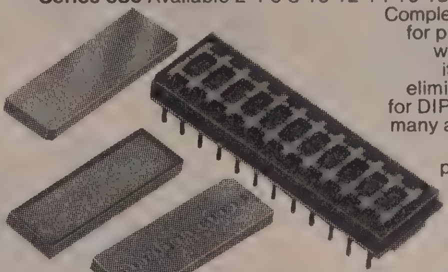


DIP PROGRAM HEADERS and COVERS

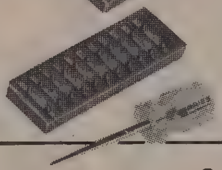
TOP-SLOT Programmable Headers and Covers

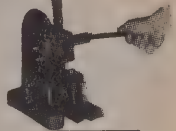
Series 680 Available 2-4-6-8-10-12-14-16-18-20-24 pins. Complete versatility for programming within header itself . . . thus eliminating need for DIP switches in many applications.

- Available pre-programmed from Aries Stocking Distributors.



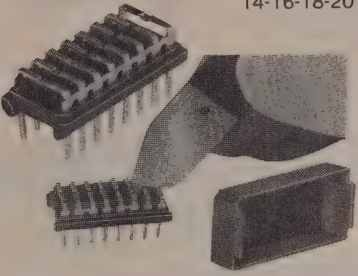
- Hand tool or Arbor Press for programming through "TOP SLOT"™ cover.





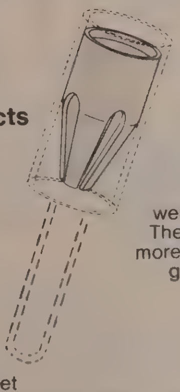
Series 675 Available 2-4-6-8-10-12-14-16-18-20 Pins on .300 centers

Program the header! Available pre-programmed or can be programmed by customer with needle-nose pliers or Aries Program Header Tool.

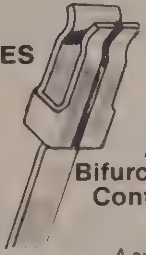


ARIES OFFERS TWO PROVEN CONTACT STYLES

Aries Collet Contacts

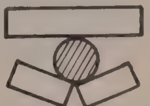


Aries Bifurcated Contacts

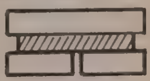


A superior electrical contact as well as firm, physical spring grip. The Aries bifurcated contact has more metal than any other . . . one good reason for its superiority and secure mating.

Aries collet contacts are widely used for highly reliable electrical contact at low cost. Collet accepts .015 to .020 dia. round leads. Contacts 30μ gold plated berylium copper. Body available gold or tin plated.



For round leads up to .020 dia. Redundant 3 point contact.



For flat leads up to .025 wide. Grips thickness for maximum electrical contact.

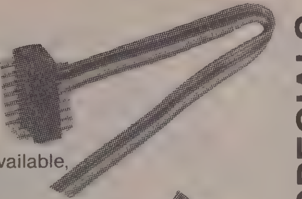
Complete information in Catalog S-84

P.O. Box 130
Frenchtown, N J 08825
Telephone (201) 996-6841
TWX 510-235-3391

ARIES®
ELECTRONICS, INC.

The Industry's most complete line of DIP products

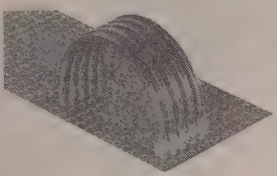
DIP JUMPERS – 10 STANDARD STYLES and SPECIALS



DIP JUMPERS
SERIES 100—DIP board to DIP board.
Available 4 thru 40 pins.
Any length cable.
Any connector orientation available, 12 standard configurations.

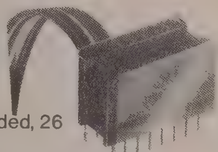
SERIES 152FB
Fusion Bonded Cable Jumpers

Available in 1″ to 12″ lengths in ¼″ increments.
Conductors: 4 thru 12 on .100″ centers.
Flexible, extruded PVC insulation on 26 gauge stranded wire conductors which are fusion bonded with an over-coat of tin for easy solderability and/or pluggability.
Fusion Bonded Cable Jumpers can be soldered directly to p.c. board or pluggable into Aries pin line sockets (Series 0513) or low cost (Series 0520).



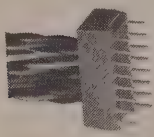
DIP-ER LOGIC SOCKET/JUMPER

SERIES 206-207-208



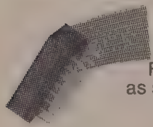
Dip-er Logic Socket Jumpers saves the space on the board for a plug in position and can be used to impose two devices into one position.
Plugs into standard 8-14-16-24 and 40 position logic panels.
Any length cable. Cable—EIA color coded, 26 AWG (7 strands 34 AWG).
Type B—600 V 105° C.

TWISTED PAIR JUMPERS



Twisted pair jumpers are available with one less number of pairs than the connector number. Example: 14 pin jumper is available with either 13 twisted pairs, all grounds connected to 14 pin, or 7 twisted pairs, all grounds connected to the opposite signal pins 8-14.

FLAT CABLE JUMPERS



Flat cable jumpers provided as 14 and 16 pin as standards, also available in 8 and 24 pin with flat wire bonded together. Excellent for high flex applications or where space is a major consideration. Most connector orientations available.

D TO DIP JUMPERS

SERIES 225

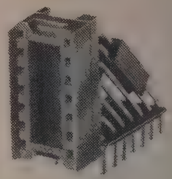
Cable assemblies using "D" Series subminiature connectors (9, 15, 25, 37 and 50 pin) on one end and Aries DIP Headers on other ends. Other end can be furnished stripped and tinned also. Cable is EIA color coded 26 AWG. Other sizes and types of cable can be accommodated.

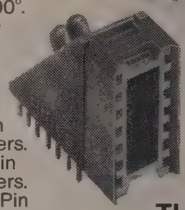
SPECIALS Aries will promptly respond to your special jumper requirements.

VERTISOCKETS 22 STYLES and SPECIALS

VERTISOCKETS®

For mounting LED Displays, Switches, Test Points. A complete line—from 2 pin for decimal to 40 pins for multiple displays.
Available for vertical, horizontal or edge card displays with optional mounting angles of 30°, 45°, 60° or 90°. Device mounting centers .200, .300 and .600.





VERTICAL MOUNTING

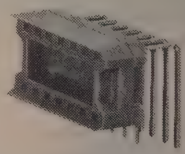
SERIES 2810— Available: 8-10 Pin (Aries bifurcated pins) on .200 centers.
SERIES 810—Available: 8-14-16 Pin (Aries bifurcated pins) on .300 centers.
SERIES 6810—Available: 8-10-14 Pin (Aries bifurcated pins) on .600 centers.

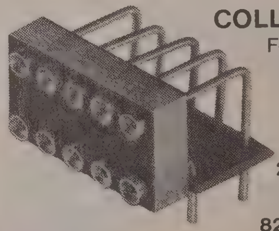
THRIFTY MODEL VERTISOCKET

High volume—low cost—bifurcated contacts 14 Pin—.300 centers
Cat. No. 14-810-90R

HORIZONTAL MOUNTING

SERIES 2820, 2822 and 2823—Available: 8-10 Pins (Aries bifurcated pins) on .200 centers.
SERIES 820, 822, 823—Available: 8-14-16-18 Pins (Aries bifurcated pins) on .300 centers.
SERIES 6823—Available: 8 to 40 Pins (Aries bifurcated pins) on .600 centers.
SERIES 822E (Economy Model)—Available: 8-14-16-18 Pins. (Aries bifurcated pins) on .300 centers. Note: One row of pins .025 x .006 with other row .025 sq.



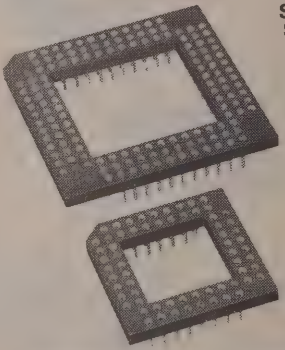


COLLET STYLE VERTISOCKET

For displays using round pins (Solder or Wire Wrap). Excellent for military applications. Can be provided with FR4 base material.

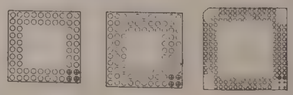
Horizontal
SERIES 2820C, 2822C, 2823C—Available: 8 and 10 pins on .200 centers.
SERIES 820C, 822C and 823C—Available: 8 to 20 pins on .300 centers in increments of two (2).

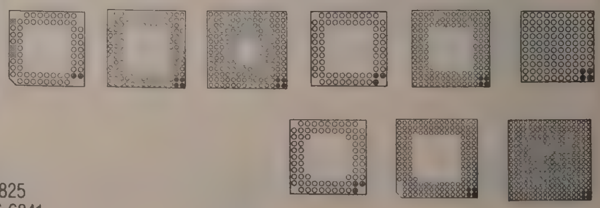
Vertical
SERIES 2810C—Available 8-10 pins.
SERIES 0810C—Available: 2 pin (for decimal) on .150 center.



PIN GRID ARRAY SOCKETS

Collet contacts on .100 centers in a square matrix for acceptance of components not on conventional DIP matrix. Available to meet any configuration of pin positions. Special low insertion force collet contacts are used to reduce insertion force of high pin count devices. Many standard sizes available from 64 to 289 pins in either tail or wire wrap styles.





ARIES®
ELECTRONICS, INC.

P.O. Box 130
Frenchtown, NJ 08825
Telephone (201) 996-6841
TWX 510-235-3391

Complete information in Catalog S-84

amlan inc. LOW COST D subminiature connectors

COMPARE D subminiature connector prices in this catalog with your current supplier - THEN ORDER FROM amlan. Quantity discounts are available. ALL ITEMS IN STOCK.

- **High quality connectors. Design conforms to MIL-C-24308 and IEC 48B recommendations**
- **Connectors mate with all industry standard 9, 15, 25, 37, and 50 contact D subminiature connectors**
- **Solder cup, wire wrap, straight and 90° printed circuit terminations**
- **Straight and 90° hoods available**
- **15, 25, and 37 pin male and female flat cable connectors are available.**
- **Samples available. Please contact us.**

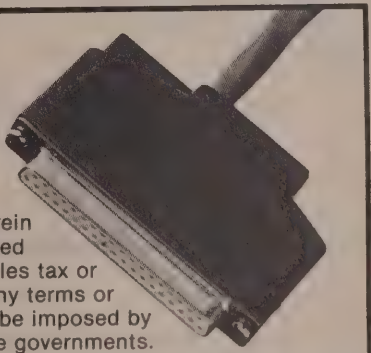
Ordering Information

Order connectors by part number selected from the charts. Prices shown are for 1 to 99 pieces. Contact amlan, Inc. for quantity discount price schedule.

Insulating connector hoods with integral cable clamps fit male and female connectors interchangeably. Both straight and 90° styles are available. Order from chart by number of contacts.

Molded, one-piece angle brackets support right angle printed circuit connectors, and hold solder tails in alignment for easy insertion in the drilled hole pattern on the board. One bracket required per connector. Order from chart by number of contacts. See mounting drawings for dimensions.

Terms and Conditions of Sale



1. All prices are F.O.B. Stamford, CT.
2. Any price or prices herein stated shall be increased to the extent of any sales tax or other tax or taxes or any terms or conditions which may be imposed by the federal and/or state governments.
3. Payment: 30 days net.
4. A minimum order charge of $5.00 will be added to orders under $50.00.
5. Prices and specifications subject to change without notice.

Distributor inquiries welcomed.

amlan inc.

97 Thornwood Road
Stamford, CT 06903
Telephone (203) 322-1913
Telex: 643647

Specifications

Insulation
Thermoplastic-polyester

Shell
Steel, zinc plated, with yellow chromate surface

Contact material
Copper alloy, machined

Contact surface
Hard gold plate (0.5 micron) over nickel (2.0 micron)

Operating life
Greater than 100 connect/disconnect cycles

Operating force
.44 lbf (2.0N) typical per contact, .75 lbf (3.4N) maximum

Current
5A max., each contact, to 96 °C ambient temperature

Voltage
125 Vac, continuous, according to VDE 110/A

Breakdown voltage
1000 Vac to 50 Hz for 1 minute; 250 Vdc; contact to contact and contact to housing

Contact resistance
Less than .0025 ohms (mated)

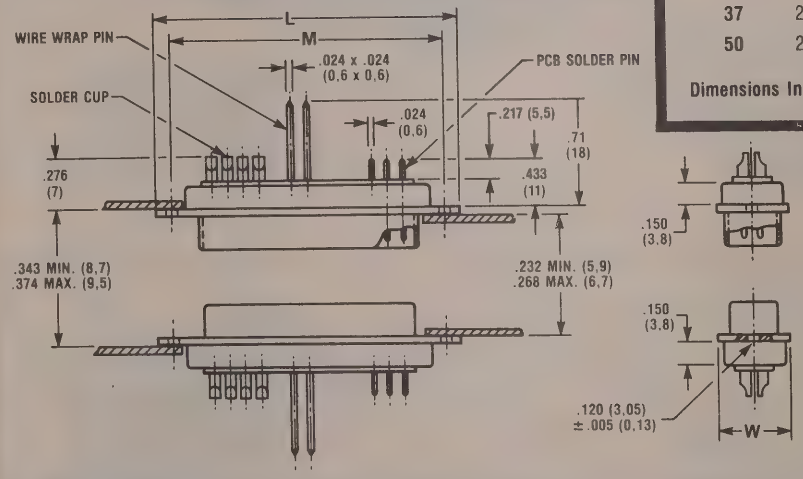
Insulation resistance
Greater than 10^{11} ohms

Temperature range
−55° to 125 °C (−67° to 257 °F).
Derate to 4A @ 110 °C, to 2A @ 120 °C, to 0A @ 125 °C ambient temperature

All connectors mate with all industry standard 9, 15, 25, 37, and 50 contact D subminiature connectors.

NO. CONTACTS	M		L		W	
9	.985	(25,0)	1.213	(30,8)	.492	(12,5)
15	1.311	(33,3)	1.544	(39,2)	.492	(12,5)
25	1.850	(47,0)	2.087	(53,0)	.492	(12,5)
37	2.500	(63,5)	2.733	(69,4)	.492	(12,5)
50	2.406	(61,1)	2.638	(67,0)	.606	(15,4)

Dimensions In Inches (mm)



ANGLE BRACKETS $ .30 EACH, ALL SIZES
CABLE HOODS $1.00 EACH, ALL SIZES

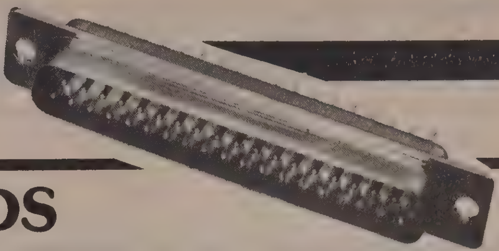
Accessories

NO. CONTACTS	9	15	25	37	50
ANGLE BRACKETS (1 req'd per connector)	BR 9	BR 15	BR 25	BR 37	BR 50
CABLE HOODS STRAIGHT	CG 9 G	CG 15 G	CG 25 G	CG 37 G	CG 50 G
90°	CG 9 S	CG 15 S	CG 25 S	CG 37 S	CG 50 S

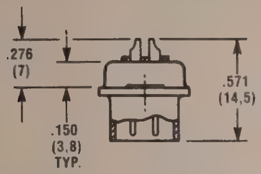
amlan inc.

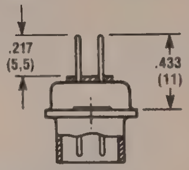
97 Thornwood Road, Stamford, CT 06903
Telephone (203) 322-1913 Telex: 643647

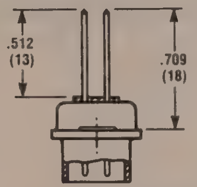
Price List

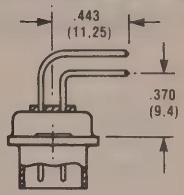


Male Connectors - Type CDS


.276
(7)
.150
(3,8)
TYP.
.571
(14,5)

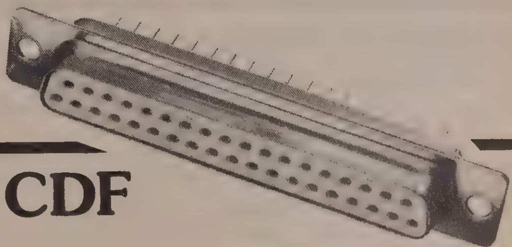

.217
(5,5)
.433
(11)


.512
(13)
.709
(18)

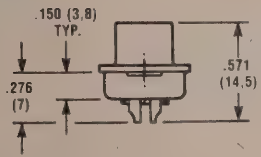

.443
(11,25)
.370
(9.4)

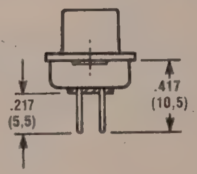
PRICE EA.
1-99 PIECES

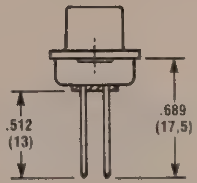
NO. CONTACTS	SOLDER CUP	PCB SOLDER TAIL	WIRE WRAP POST	RIGHT ANGLE PCB
9	CDS 9 L $1.36	CDS 9 P 1.36	CDS 9 WW 1.90	CDS 9 A 2.54
15	CDS 15 L 1.84	CDS 15 P 1.84	CDS 15 WW 2.62	CDS 15 A 3.74
25	CDS 25 L 2.56	CDS 25 P 2.56	CDS 25 WW 3.78	CDS 25 A 5.60
37	CDS 37 L 3.58	CDS 37 P 3.58	CDS 37 WW 5.32	CDS 37 A 8.00
50	CDS 50 L 4.84	CDS 50 P 4.84	CDS 50 WW 7.00	CDS 50 A 10.66

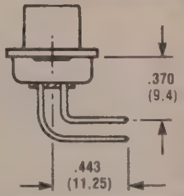


Female Connectors - Type CDF


.150 (3,8)
TYP.
.276
(7)
.571
(14,5)


.217
(5,5)
.417
(10,5)


.512
(13)
.689
(17,5)


.370
(9.4)
.443
(11,25)

PRICE EA.
1-99 PIECES

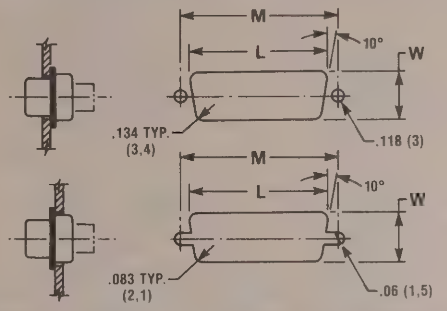
NO. CONTACTS	SOLDER CUP	PCB SOLDER TAIL	WIRE WRAP POST	RIGHT ANGLE PCB
9	CDF 9 L $1.86	CDF 9 P 2.02	CDF 9 WW 2.82	CDF 9 A 3.26
15	CDF 15 L 2.62	CDF 15 P 2.90	CDF 15 WW 4.22	CDF 15 A 4.98
25	CDF 25 L 3.84	CDF 25 P 4.36	CDF 25 WW 6.50	CDF 25 A 7.70
37	CDF 37 L 5.36	CDF 37 P 6.14	CDF 37 WW 9.30	CDF 37 A 11.08
50	CDF 50 L 7.22	CDF 50 P 8.24	CDF 50 WW 12.34	CDF 50 A 14.96

Mounting Information

Dimensions are inches (mm in parentheses).
All dimensions ±.008" (±.2 mm)

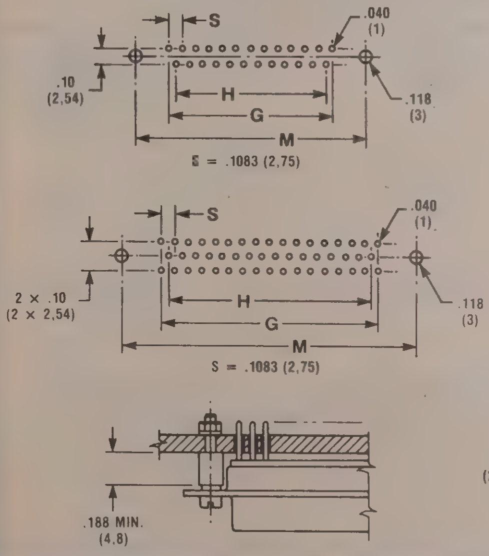
NO. CONTACTS	M	L	W
9	.985 (25,0)	.807 (20,5)	.449 (11,4)
15	1.311 (33,3)	1.134 (28,8)	.449 (11,4)
25	1.850 (47,0)	1.673 (42,5)	.449 (11,4)
37	2.500 (63,5)	2.327 (59,1)	.449 (11,4)
50	2.406 (61,1)	2.217 (56,3)	.555 (14,1)
9	.985 (25,0)	.874 (22,2)	.485 (12,3)
15	1.311 (33,3)	1.201 (30,5)	.485 (12,3)
25	1.850 (47,0)	1.744 (44,3)	.485 (12,3)
37	2.500 (63,5)	2.390 (60,7)	.485 (12,3)
50	2.406 (61,1)	2.295 (58,3)	.603 (15,3)

Panel mounting hole configurations

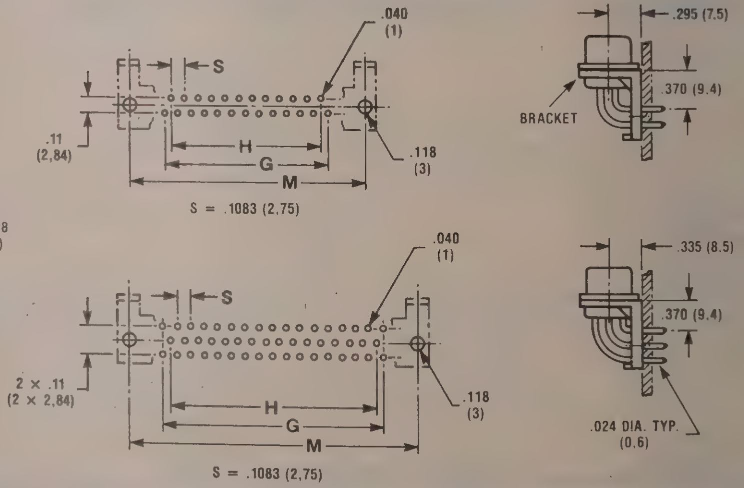

M
L
10°
W
.134 TYP.
(3,4)
.118 (3)
M
L
10°
W
.083 TYP.
(2,1)
.06 (1,5)

NO. CONTACTS	M	G	H
9	.985 (25,0)	4 x S = .433 (4 x S = 11)	3 x S = .325 (3 x S = 8,25)
15	1.311 (33,3)	7 x S = .758 (7 x S = 19,25)	6 x S = .650 (6 x S = 16,5)
25	1.850 (47.0)	12 x S = 1.300 (12 x S = 33,0)	11 x S = 1.192 (11 x S = 30,25)
37	2.500 (63.5)	18 x S = 1.950 (18 x S =49,5)	17 x S = 1.841 (17 x S = 46,75)
50	2.406 (61,1)	16 x S = 1.733 (16 x S = 44,0)	15 x S = 1.625 (15 x S = 41,25)

Printed circuit layouts for straight PCB solder pins


S
.040
(1)
.10
(2,54)
.118
(3)
H
G
M
S = .1083 (2,75)
S
.040
(1)
2 × .10
(2 × 2,54)
.118
(3)
H
G
M
S = .1083 (2,75)
.188 MIN.
(4,8)

Printed circuit layouts for right angle PCB solder pins


.040
(1)
S
.11
(2,84)
.118
(3)
H
G
M
S = .1083 (2,75)
.295 (7,5)
.370 (9.4)
BRACKET
.040
(1)
S
2 × .11
(2 × 2,84)
.118
(3)
H
G
M
S = .1083 (2,75)
.335 (8.5)
.370 (9.4)
.024 DIA. TYP.
(0.6)

amlan inc.

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Stamford, CT 06903
Telephone (203) 322-1913
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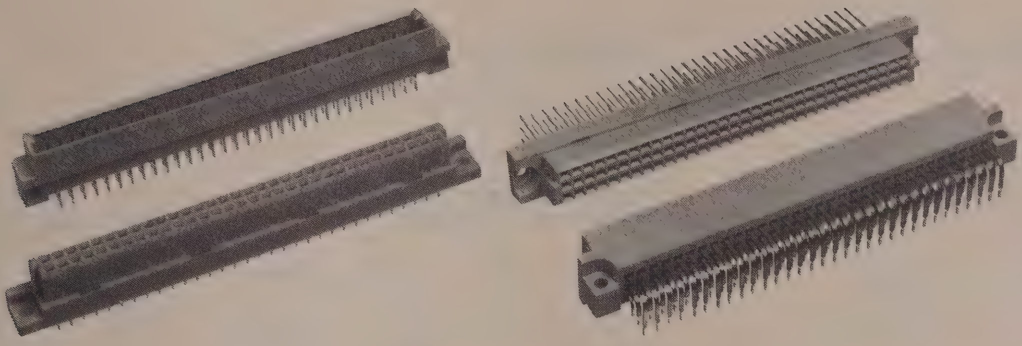
DIN 41612 Male and Female Connectors. Style C



Technical Data:

Number of contacts: Style C	96 and 64	32
Class of application:	EKD complying with DIN 40040	
Contact resistance:	$\leq 10\ \mathrm{m}\,\Omega$	
Insulation resistance:	$\geq 10^{14}\,\Omega$	
Mini. clearance distance:	≥ 1,5 mm	≥ 3,3 mm
Mini. creepage distance:	≥ 1,5 mm	≥ 3,3 mm
Voltage proof:	1 KV 50 Hz	2,5 KV 50 Hz
Operating temperature range:	-55°C...+ 125°C	
Voltage rating of adjacent contacts complying with VDE 0110, group A:	250 V~	750 V~
Operating current:	ambient temperature	
	+ 20°C	2 A
	+ 70°C	1 A
	+ 100°C	0,5A
Capacitance between adjacent contacts (2,54 mm spacing) male and female:	appr. 2 pF	
For thicknesses of printed circuit boards up to	maxi. 1,85 mm	
Operating force: for plugging-in (per contact):	≤ 60 N	
for drawing	≥ 0,15	
Life time:	more than 500 operations	
Flamability:	flame-retardent complying with ASTM D 635, UL-tested as well as VDE 0730, part 2 h	
Material:	Thermoplastic-polyester	

Contact Dimensions:

Male connector:	angled solder pins 0,63 x 0,63 mm for P.C.B. connections Ø 1 ± 0,1 mm Solder eyelet Solder pins
Female connector:	Mini-wire-wrap 0,6 x 0,6 mm diagonal 0,84 mm Length tags sufficient for 3 connections modified wrap-turn. Solder pins 0,6 x 0,6 mm for P.C.B. connections 0,1 ± 0,1 mm Solder eyelet Angled solder pins
Contact surface:	hard-gold-plated (DIN-Version)
For higher requirements:	2,0 NI + 2,0 AU

A coding is possible by inserting a rivet into the socket body: in this case the corresponding knife contact of the plug has to be cut flat.

Part-NR.: Rivet/100 each...SKN B + C

Contact amlan for complete DIN 41612 catalog.

Distributor inquiries welcomed.

amlan inc.

97 Thornwood Road
Stamford, CT 06903
Telephone (203) 322-1913
Telex: 643647

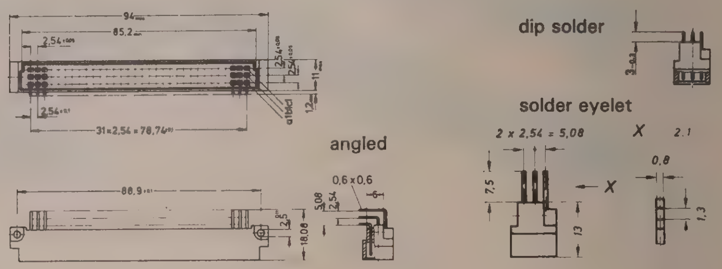
DIN 41612 Male Connectors.

Contact spacing 2,54 and 5,08 mm. Style C

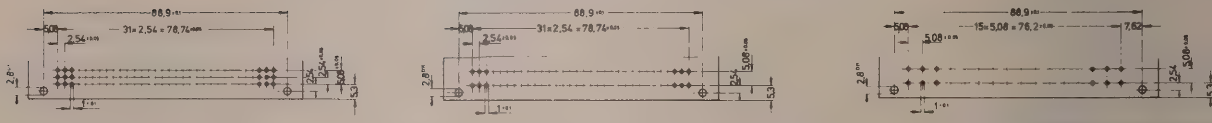
Number of contacts:

32, 64, 96

Dimensions in mm

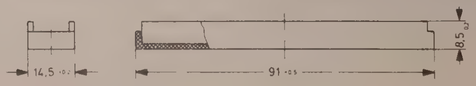

94
85,2
2,54
2,54
2,54
11
a b c
12
2,54
31×2,54 = 78,74
dip solder
3
solder eyelet
2 × 2,54 = 5,08
X
2,1
0,8
7,5
13
1,3
angled
0,6×0,6
6
88,9
5,08
2,54
2,8
18,08

Printed circuit layout for male connectors


88,9
5,08
31×2,54 = 78,74
2,54
2,8
2,54
2,54
5,08
5,3
1
88,9
5,08
31×2,54 = 78,74
2,54
2,8
5,08
2,54
5,3
1
88,9
5,08
15×5,08 = 76,2
7,62
5,08
2,8
2,54
5,08
1

Copper cladding at the botto

Protecting cap CLO—C + D, soldering protection for plug



Number of contacts	Contact arrangement	Contact spacing mm	Contact surface/µm	Termination method		
				Angled	Solder eyelet	Dip solder
32	a	2,54	2,0 Ni + 0,8 Au	C 32 M 0,8 Aa	C 32 M 0,8 La	C 32 M 0,8 Pa
			2,0 Ni + 2,0 Au	C 32 M 3,0 Aa	C 32 M 3,0 La	C 32 M 3,0 Pa
	a+c	5,08	2,0 Ni + 0,8 Au	C 32 M 0,8 Aa+c	C 32 M 0,8 La+c	C 32 M 0,8 Pa+c
			2,0 Ni + 2,0 Au	C 32 M 3,0 Aa+c	C 32 M 3,0 La+c	C 32 M 3,0 Pa+c
64	a+b	2,54	2,0 Ni + 0,8 Au	C 64 M 0,8 Aa+b	C 64 M 0,8 La+b	C 64 M 0,8 Pa+b
			2,0 Ni + 2,0 Au	C 64 M 3,0 Aa+b	C 64 M 3,0 La+b	C 64 M 3,0 Pa+b
	a+c	2,54	2,0 Ni + 0,8 Au	C 64 M 0.8 Aa+c	C 64 M 0.8 La+c	C 64 M 0.8 Pa+c
			2,0 Ni + 2,0 Au	C 64 M 3,0 Aa+c	C 64 M 3,0 La+c	C 64 M 3,0 Pa+c
96	a+b+c	2,54	2,0 Ni + 0,8 Au	C 96 M 0,8 Aa+b+c	C 96 M 0,8 La+b+c	C 96 M 0,8 Pa+b+c
			2,0 Ni + 2,0 Au	C 96 M 3,0 Aa+b+c	C 96 M 3,0 La+b+c	C 96 M 3,0 Pa+b+c

Contact amlan for complete DIN 41612 catalog.

amlan inc.

97 Thornwood Road
Stamford, CT 06903
Telephone (203) 322-1913
Telex: 643647

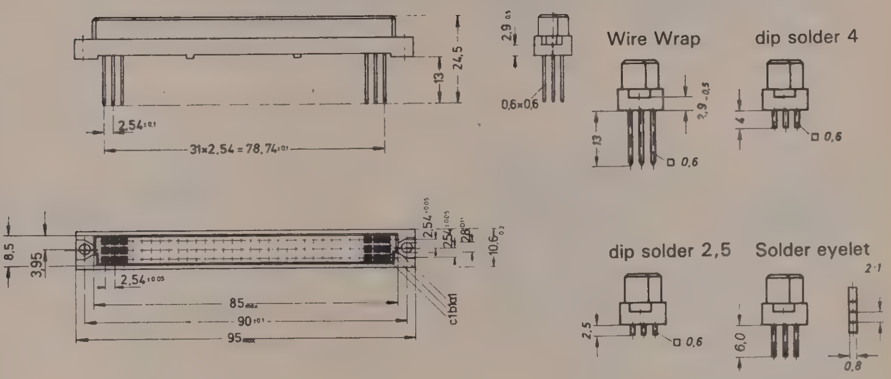
DIN 41612 Female Connectors.

Contact spacing 2,54 and 5,08 mm. Style C

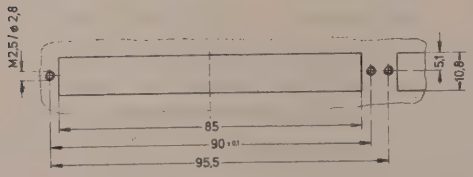
Number of contacts:

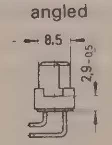
32,64,96

Dimensions in mm


24,5
13
2,9
0,6×0,6
2,54
31×2,54 = 78,74
Wire Wrap
dip solder 4
0,6
8,5
3,95
2,54
85
90
95
10,6
c b a
dip solder 2,5
Solder eyelet
2,5
6,0
0,8

Mounting holes for wiring


M2,5/⌀2,8
5,1
10,8
85
90
95,5


angled
8,5
2,9

Number of contacts	Contact arrangement	Contact spacing mm	Contact surface /µm	Termination method				
				Dip solder 2,5 mm	Dip solder 4,0mm	Wire Wrap	Solder eyelet	Angled
32	a	2,54	2,0 Ni + 0,8 Au	C 32 F 0,8 P2a	C 32 F 0,8 P4a	C 32 F 0,8 WWa	C 32 F 0,8 La	C 32 F 0,8 Aa
			2,0 Ni + 2,0 Au	C 32 F 3,0 P2a	C 32 F 3,0 P4a	C 32 F 3,0 WWa	C 32 F 3,0 La	C 32 F 3,0 Aa
	a + c	5,08	2,0 Ni + 0,8 Au	C 32 F 0,8 P2a + c	C 32 F 0,8 P4a + c	C 32 F 0,8 WWa + c	C 32 F 0,8 La + c	C 32 F 0,8 Aa + c
			2,0 Ni + 2,0 Au	C 32 F 3,0 P2a + c	C 32 F 3,0 P4a + c	C 32 F 3,0 WWa + c	C 32 F 3,0 La + c	C 32 F 3,0 Aa + c
64	a + b	2,54	2,0 Ni + 0,8 Au	C 64 F 0,8 P2a + b	C 64 F 0,8 P4a + b	C 64 F 0,8 WWa + b	C 64 F 0,8 La + b	C 64 F 0,8 Aa + b
			2,0 Ni + 2,0 Au	C 64 F 3,0 P2a + b	C 64 F 3,0 P4a + b	C 64 F 3,0 WWa + b	C 64 F 3,0 La + b	C 64 F 3,0 Aa + b
	a + c	2,54	2,0 Ni + 0,8 Au	C 64 F 0,8 P2a + c	C 64 F 0,8 P4a + c	C 64 F 0,8 WWa + c	C 64 F 0,8 La + c	C 64 F 0,8 Aa + c
			2,0 Ni + 2,0 Au	C 64 F 3,0 P2a + c	C 64 F 3,0 P4a + c	C 64 F 3,0 WWa + c	C 64 F 3,0 La + c	C 64 F 3,0 Aa + c
96	a + b + c	2,54	2,0 Ni + 0,8 Au	C 96 F 0,8 P2a + b + c	C 96 F 0,8 P4a + b + c	C 96 F 0,8 WWa + b + c	C 96 F 0,8 La + b + c	C 96 F 0,8 Aa + b + c
			2,0 Ni + 2,0 Au	C 96 F 3,0 P2a + b + c	C 96 F 3,0 P4a + b + c	C 96 F 3,0 WWa + b + c	C 96 F 3,0 La + b + c	C 96 F 3,0 Aa + b + c

Contact amlan for complete DIN 41612 catalog.

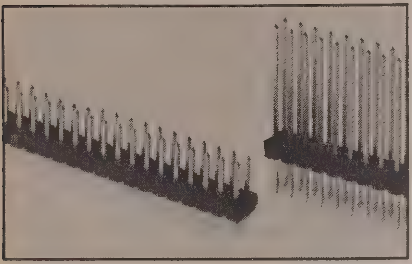
APTRONICS
CORPORATION

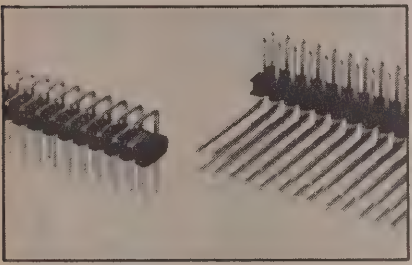
INTERCONNECTION PRODUCTS

MALE STRIP HEADERS (STRAIGHT OR RIGHT-ANGLE)

Directly interchangeable replacements for other industry standard headers • Choice of tail lengths available for soldering or wire wrapping • Choice of solder plate finish or gold-over-nickel plating • Cut-to-length for making rows less than maximum.

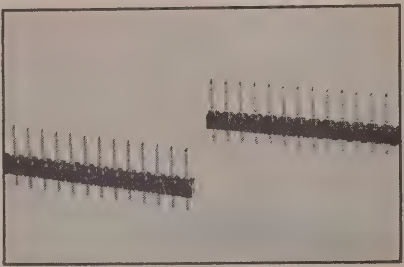
235 SERIES

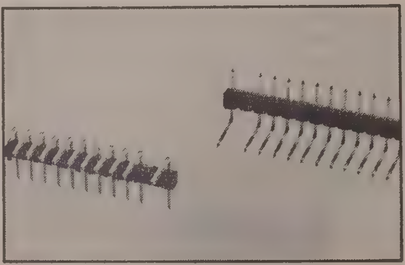




- Single or dual-row available.
- 1 to 36 contact posts per row.
- Straight posts are .235″ long.
- Clear interface length of right-angle post is .235″.
- Dual row headers mate with standard .100″ x .100″ (or .100″ x .200″) socket connectors.

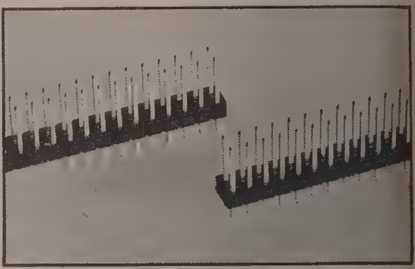
295 SERIES

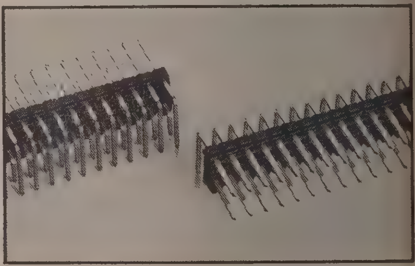




- Up to 30 contact posts per row.
- Straight posts are .295″ long.
- Clear interface length of right-angle posts is .295″.
- Available in full or polarized rows.
- Standard polarized headers have second circuit voided (post removed).
- Solder stand-offs facilitate production wave soldering.

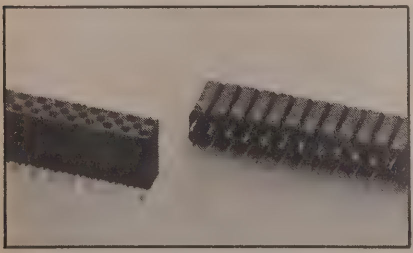
318 SERIES

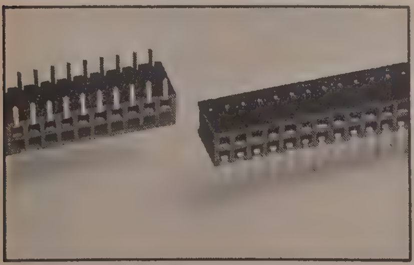




- Single or dual-row available.
- 1 to 36 contact posts per row.
- Straight posts are .318″ long.
- Clear interface length of right-angle post is .318″.
- Dual row headers mate with standard .100″ x .100″ (or .100″ x .200″) socket connectors.

FEMALE STRIP HEADERS (STRAIGHT OR RIGHT-ANGLE)





Mate with industry-standard .025″ round or square post male headers on .100″ centers.

- Double-sided contact design assures reliable performance.
- Choice of solder plated finish or selective gold-over-nickel plating.
- Straight headers are available with 1 to 36 contacts per row. Right-angle headers are available with 1 to 63 contacts per row.
- Solder stand-offs facilitate production wave soldering.
- Notched insulator aligns right-angle header solder tails for easy PC board insertion.

All standard configurations are available through authorized APTRONICS DISTRIBUTORS.

For the name and telephone number' of the stocking distributor in your area, call:

CALL TOLL FREE: (800) 792-0137
IN OHIO CALL COLLECT: (216) 354-9239

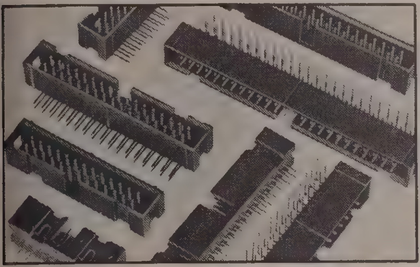
APTRONICS
CORPORATION
9450 PINENEEDLE DRIVE, BOX 270,
MENTOR, OHIO 44060, TWX: 810-425-2250
In Canada, call Lenbrook Electronics,
111 Esna Park Dr., Unit 1, Markham, Ontario, L3R1H2
(416) 477-7722, TWX: 610-492-3102

APTRONICS
CORPORATION

INTERCONNECTION PRODUCTS

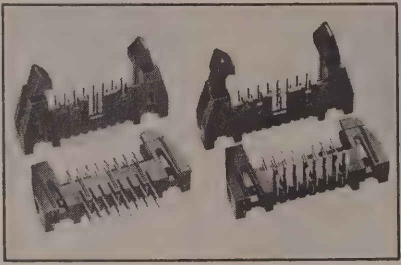
SHROUDED HEADERS (STRAIGHT OR RIGHT-ANGLE)

Mate with all standard dual-row socket connectors with contacts spaced on .100" x .100" centers • Positive polarization assured by triple keying slot arrangement • Available in 10,14, 16, 20, 26, 34, 40, 50, 60 and 64 contact models • Choice of solder plate finish or gold-over-nickel plating • Solder stand-offs facilitate production wave soldering



LOW PROFILE SERIES

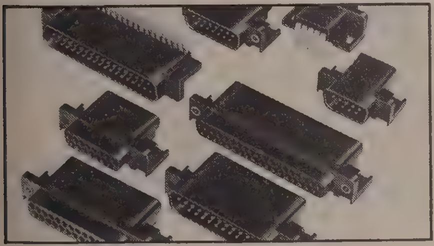
- Standard .025" square posts for connector interface and .020" square solder tails for easy PC board insertion.
- Solder tail length: .125".
- Positive polarization assured by 4-wall boxed configuration.



C-SHROUD SERIES

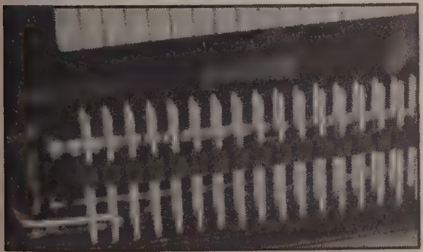
- Standard .025" round posts.
- Available with Lock-Eject latches in 2 sizes.
- Two solder tail lengths: .115" and .175".

D-SUBMINIATURE CONNECTORS

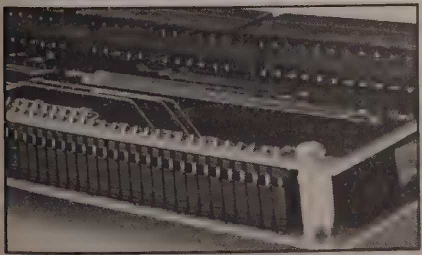


- Industry-standard dimensions — mate with all standard "D" connector cable assemblies.
- 4 sizes available in both male and female: 9, 15, 25, and 37 contacts.
- Choice of selective gold or solder plating on contact area. All tails are solder plated.
- 3 mounting styles available: .125" dia. thru-hole, #4-40 threaded insert and #4-40 threaded standoff.
- Rigid .016" solder tails require no spacers and no extra support for easy insertion and precise alignment.
- Solder tail length of .140" accommodates PC boards up to .093" thick.

TYPICAL SYSTEM INTERCONNECTION UTILIZING APTRONICS MALE & FEMALE HEADERS.



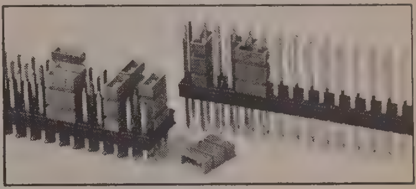
Double-insulated male header mates with female header for PC board interconnection. (Second insulator strip maintains proper pin alignment at mating end.)



Male header mated to female header to provide board-to-board interface.

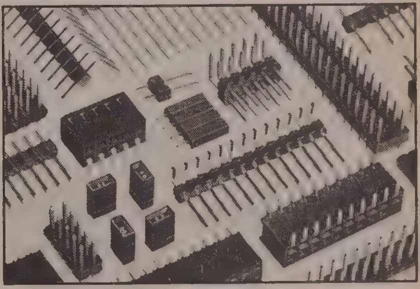
The entire line of APTRONICS interconnection products is very competitively priced and in most cases is available for immediate delivery.

"MIDGIE™" FEMALE 2-POSITION JUMPER



Miniature shunt for plug-on programming eliminates costly DIP switches and soldering

- Mate with standard .025" round or square posts on .100" centers.
- Unique C-spring contact gives balanced forces and low resistance.
- Fully stackable, low-profile design is ideal for high-density applications.
- Choice of unplated finish or gold-over-nickel plating.



As shown in the photo, APTRONICS can produce virtually any configuration of headers that your requirements may call for. Direct your inquiries to your local APTRONICS Sales Representative or to the Factory.

All standard configurations are available through authorized APTRONICS DISTRIBUTORS.

For the name and telephone number of the stocking distributor in your area, call:

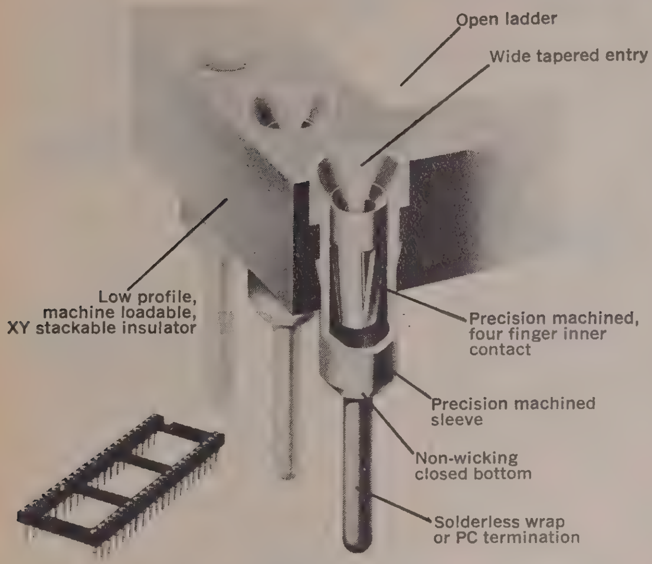
CALL TOLL FREE: (800) 792-0137
IN OHIO CALL COLLECT: (216) 354-9239

APTRONICS
CORPORATION

9450 PINENEEDLE DRIVE, BOX 270,
MENTOR, OHIO 44060, TWX: 810-425-2250
In Canada, call Lenbrook Electronics,
111 Esna Park Dr., Unit 1, Markham, Ontario, L3R1H2
(416) 477-7722, TWX 610 492 3102

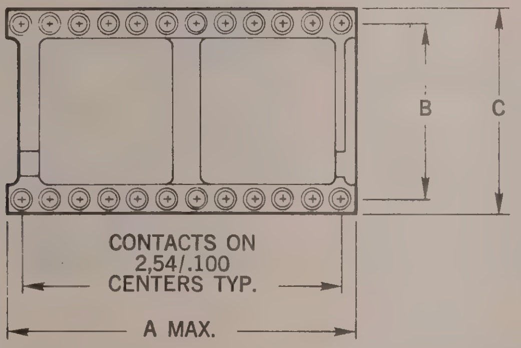
AUGAT® LOW INSERTION FORCE DIP SOCKETS 1000 SERIES

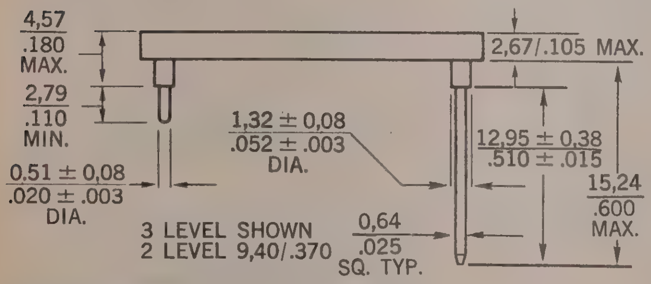
LEADERS IN INTERCONNECTION COMPONENTS


Open ladder
Wide tapered entry
Low profile, machine loadable, XY stackable insulator
Precision machined, four finger inner contact
Precision machined sleeve
Non-wicking closed bottom
Solderless wrap or PC termination

The Augat 1000 Series sockets offer **at least 50% lower insertion force** than comparable conventional dual-in-line constructions. **Yet unlike mechanically actuated LIF designs,** they're low profile, machine loadable, XY stackable — and have open ladder construction to facilitate board cooling, cleaning and inspection. So with the 1000 Series sockets, the many advantages of production dual-in-line sockets are available for a wide range of applications requiring low insertion forces and important wiping action.

- Precision machined to exact tolerances and optimum geometry, the four finger inner contact provides seamless, concentric funnel entry for easy, safe, low insertion force DIP socketing (.011″ x .018″ pin requires only an average 3.8 oz/line insertion, while maintaining 3.7 oz/line extraction).
- Consistent normal force of 110 grams per IC leg.
- Non-wicking, closed bottom, precision machined sleeve gives 100% protection against flux and solder contamination. Choice of wire wrappable or PC termination.
- Standard dual-in-line body offers greater production convenience and performance reliability than bulky, mechanically actuated LIF designs. Low profile. Machine loadable. XY stackable. Open ladder for cooling, cleaning and inspection. Applications from 8 to 64 positions.
- New thermoplastic polyester insulator material provides 50°F higher service temperature than standard PBT.


B
C
CONTACTS ON 2,54/.100 CENTERS TYP.
A MAX.


4,57 / .180 MAX.
2,79 / .110 MIN.
0.51 ± 0,08 / .020 ± .003 DIA.
1,32 ± 0,08 / .052 ± .003 DIA.
2,67/.105 MAX.
12,95 ± 0,38 / .510 ± .015
15,24 / .600 MAX.
3 LEVEL SHOWN
2 LEVEL 9,40/.370
0,64 / .025 SQ. TYP.

MATERIALS

Insulator:	Thermoplastic Polyester (PET) Rated 94V-O Blue Color
Inner Contact:	Machined Beryllium Copper, 30μ″ Gold Over Nickel
Outer Sleeve:	Machined Brass, Tin Over Copper or Gold Over Nickel

DIMENSIONS

- PCB Thickness Range: Standard .062″ and .092″
- PCB Hole Size Range: .035″ ± .003″ Solder
- IC Pin Dimension Range:
  .010″ x .016″ through
  .015″ x .022″
  .017″ to .022″
  round leads

No. of Contacts	A	B ±.005	C
14	17,78 .700	7,62 .300	10,16 .400
16	70,32 .800		
18	22,86 .900		
20	25,40 1.000		
22	27,94 1.100	10,16 .400	12,70 .500
24*	30,40 1.200	7,62 .300	10,16 .400
24*		10,16 400	12,70 .500
24		15,24 .600	17,78 .700
28	35,36 1.400		
40	50,80 2.000		
64	81,28 3.200	22,86 .900	25,40 1.000

PART NUMBER

10 XX **AGXX XX**

Series
Number of Contacts 14 - 64

D — PC Termination
F — 3 Level Wire Wrappable
F2 — 2 Level Wire Wrappable

AG 10 — Gold Inner Contact/Gold Outer Sleeve
AG 11 — Gold Inner Contact/Tin Outer Sleeve

* For 24 Position Options Consult Factory

AUGAT INC. INTERCONNECTION COMPONENTS DIVISION
33 Perry Avenue, P.O. Box 779, Attleboro, Massachusetts 02703 • (617) 222-2202 • TWX 710-391-0644

Refer to Augat Sheet C-1796

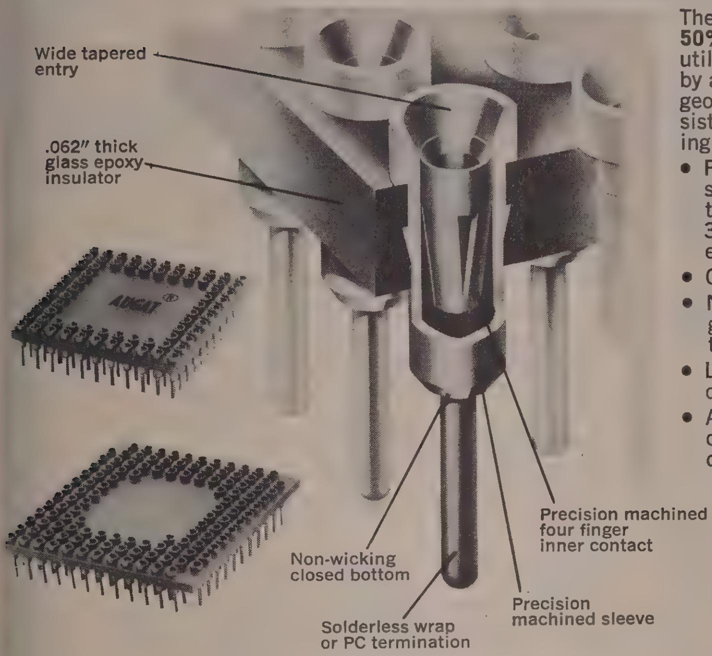
AUGAT®

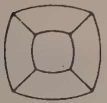
PIN GRID ARRAY SOCKETS PPS SERIES

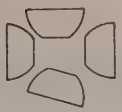
LEADERS IN INTERCONNECTION COMPONENTS

The Augat PPS series **reduces insertion forces by more than 50%** compared with conventional pin grid array sockets utilizing stamped and formed inner contacts. It's accomplished by a proven Augat inner contact concept refined to optimum geometry for high pin count packages. And it assures consistent normal force and important wiping action while protecting IC legs from damage.

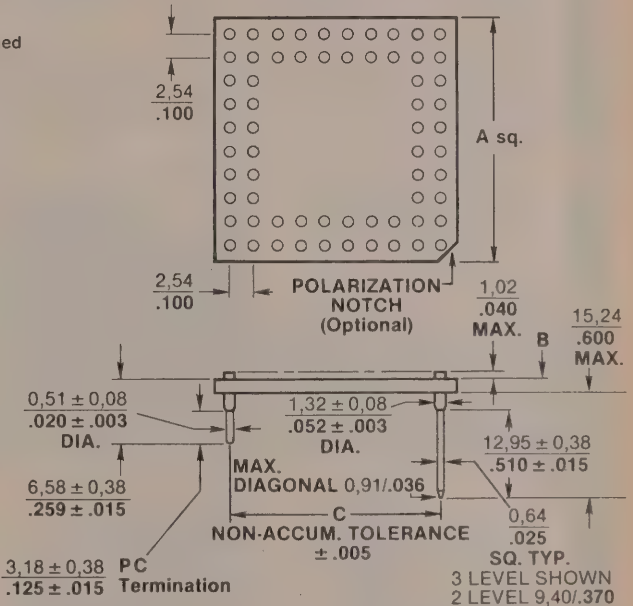
- Precision machined, four finger inner contact provides seamless, concentric funnel entry for easy, safe, low insertion force socketing (.018" dia. pin requires only an average 3.4 oz/line insertion while maintaining 3.0 oz/line extraction).
- Consistent normal force of 80 grams per pin average.
- Non-wicking, closed bottom, precision machined sleeve gives 100% protection against flux and solder contamination. Choice of wire wrappable or PC termination.
- Low profile .062" thick glass epoxy insulator. Standard or optional for all sizes.
- Available in 64, 68, 72, 73, 120, 121, 148 and 149 positions on standard .100" grid centers. Custom construction on request.


Wide tapered entry
.062" thick glass epoxy insulator
Precision machined four finger inner contact
Non-wicking closed bottom
Precision machined sleeve
Solderless wrap or PC termination


Seamless Machined


Distorted Stamped

Uniform mechanical performance compared to stamped and formed alternatives. Cut-away view (from bottom) shows how shearing forces during contact-to-sleeve assembly can damage stamped inner contact seams, distorting four-finger alignment. Augat machined inner contacts have no seams, they maintain symmetrical four-finger configuration to ensure uniform mechanical performance.


2,54
.100
A sq.
2,54
.100
POLARIZATION NOTCH (Optional)
1,02
.040
MAX.
B
15,24
.600
MAX.
0,51 ± 0,08
.020 ± .003
DIA.
1,32 ± 0,08
.052 ± .003
DIA.
12,95 ± 0,38
.510 ± .015
MAX. DIAGONAL 0,91/.036
6,58 ± 0,38
.259 ± .015
C
NON-ACCUM. TOLERANCE ± .005
0,64
.025
SQ. TYP.
3,18 ± 0,38
.125 ± .015
PC Termination
3 LEVEL SHOWN
2 LEVEL 9,40/.370

DIMENSIONS

No. of Contacts	Pin Grid	No. of Rows	A ±.020	B ±.0075	C
64 * 68	10 x 10	2	26,67 1.050	1,57 .0625	22,80 .900
72 * 73	11 x 11	2	29,21 1.105	1,57 .0625	25,40 1.000
120 * 121	13 x 13	3	34,29 1.350	1,57 .0625	30,48 1.200
148 * 149	14 x 14	3	36,83 1.450	3,17 .1255	33,02 1.300

* Optional Location of Extra Contact(s). Other Sizes on Request.

• PCB Thickness Range:	Standard .062" and .092"
• PCB Hole Size Range:	.035" ± .003" Solder Termination
• IC Pin Dimension Range:	.017" to .022" Diameter
• Solderless Wrap Length:	2 Level .370" ± .010 3 Level .510" ± .010

MATERIALS

Insulator:	Glass Epoxy Rated 94V-O
Inner Contact:	Machined Beryllium Copper
Outer Sleeve:	Machined Brass
Plating:	
Inner Contact:	30μ" Gold Over Nickel
Outer Sleeve:	Tin Over Copper

PART NUMBER

PPS XX AGXXX

PPS Series — PPS

Contact Number 64 through 149 — XX

AG1D — Printed Circuit
AG1F — Solderless Wrap, 3 Level
AG1F2 — Solderless Wrap, 2 Level

AUGAT INC. INTERCONNECTION COMPONENTS DIVISION
33 Perry Avenue, P.O. Box 779, Attleboro, Massachusetts 02703 • (617) 222-2202 • TWX 710-391-0644

Refer to Augat Sheet C-1807

BEAU®

Thermoplastic Barrier Terminal Strips

BEND BARRIERS WITHOUT BREAKING

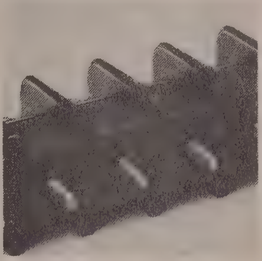
Beau barrier strips reduce breakage dramatically because they are made of highly resilient thermoplastic. Impact strength many times more than phenolics. Production line and in-field damage (and time-consuming rewiring) are virtually eliminated.

PROTECTS SOLDER JOINTS FROM DAMAGE

Terminals are ultrasonically imbedded in base (exclusive). Eliminates solder joint damage from torqueing screws, or from strain in dressing down wire bundles. Pull-out strength doubled.

TERMINAL TAILS ENCLOSED

Cavities are eliminated around dip solder terminal tails. Allows mounting on PCB without affecting circuit isolation. Eliminates entrapment of foreign matter. Reduces solder wicking.



U.L. RECOGNIZED.
CSA CERTIFIED.

HIGH AND LOW BARRIER STYLES

Only Beau offers both — and our high barriers offer maximum circuit isolation with the lowest overall height of any other high barrier brand.

CLOSED-SIDE STRIPS OFFER EXTRA PROTECTION

Series 75000 strips have closed side. Serves as wire stop. Permits mounting components close to barrier strip without shorting. Wires or screwdrivers can't pass through closed side to contact other wires, leads or PCB components.

20-AMP STRIPS IN SAME SPACE AS 15

Our 76000 and 77000 double-row strips are designed to take the same panel space as any double-row 15-amp barrier terminal strip.

HIGHEST U.L. FLAME RETARDANT RATING

Our thermoplastic material attains the highest flame retardant rating (self extinguishing) assigned by UL: 94V-0.

QUICK-CONNECT TERMINALS SAVE TIME

Beau quick-connect terminals speed assembly time, cut costs and improve connections. Cold solder joints are also eliminated.

NEAT, ACCURATE MOUNTING ENDS

All our thermoplastic strips are molded to length. None are cut down from longer strips. They're neater, without ugly saw cuts. And they are precisely the same length every time.

SPECIFICATIONS

	SINGLE-ROW						DOUBLE-ROW		
Series No.	70000	71000	72000	73000	74000	75000 Closed side	76000	77000	78000
Terminal ctrs	.325″	3/8″	3/8″	7/16″	7/16″	3/8″	3/8″	3/8″	7/16″
Current (UL)	20A	20A	20A	20A	20A	20A	20A	20A	20A
Volts, rms (UL) Gen Indl Comml	150 250	150 250	150 250	300 250	300 250	150 250	150 250	150 250	300 250
Width	1/2″	5/8″	5/8″	3/4″	.63″	.68″	7/8″	7/8″	1 1/8″
Height	1/2″	9/16″	21/32″	3/4″	.58″	.56″	5/8″	7/16″	35/64″
Insulator material	Thermoplastic. 94V-0. Black.	Thermoplastic, glass filled. U.L. flame retardant rating 94V-0. Color, black.				Thermoplastic, 94V-0. Black.	Thermoplastic, glass filled. U.L. flame retardant rating, 94V-0. Color, black.		
No. circuits	1 to 30	1 to 26	1 to 26	1 to 30	1 to 30	1 to 26	2 to 30	2 to 30	1 to 30
Terminals, Top	Screws only. 1-sided solder.	Screws only. 1 & 2-sided solder. Quick connect.		Screws. Quick connect.	Screws only.	Screws. 1-sided solder. Quick connect.	Screws only. 1 & 2-sided solder. Quick connect.		Screws. Quick connect.
Terminals, bottom	PC; Wire wrap; Rt angle PC.	Insul solder turret; Insul PC; PC; Turret; Wire wrap; Rt angle PC; Insul quick-connect.				PC. Wire wrap. Rt angle PC.	Solder, short; PC, short; Solder, long; PC, long; Wire wrap; Z terminal, over-the-side PC.		Solder, short. PC, long. Solder, long. Wire wrap.
Snap-On Covers (opt)	—	Low-cost protective guard. .032″ Vulc fiber.		—	—	.032″ Vulc fiber.	Low cost protective guard. .032″ Vulc fiber.		

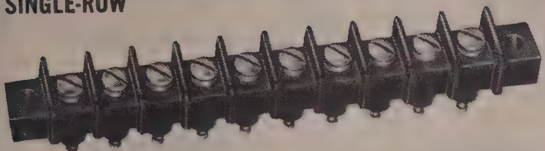
Beau Products
DIVISION OF VERNITRON CORPORATION

BOX 10, LACONIA, NEW HAMPSHIRE 03246
TEL: (603) 524-5101 TWX: 710-364-1843
Also available in Canada, England, Europe and Japan.

BEAU®

Phenolic Barrier Terminal Strips

SINGLE-ROW



Available in 15 and 20 amp models. Both have high-impact glass-filled phenolic bases with excellent breakage resistance. Furnished in green, with or without mounting ends. Nickel-plated brass screws. Cadmium or tin plated terminals. Imprinting on barrier strip body available.

U.L. RECOGNIZED. CSA CERTIFIED.

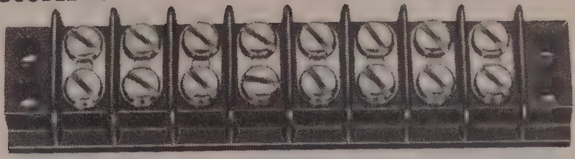
Rating, Amps	Series No.	Back Types	No. Circuits	Width	Height	Terminal Screws	Term. Ctrs.
15	12000	Feed thru or Closed	1-31	35/64″	7/16″	5-40x3/16″	3/8″
20	13000	Feed thru or Closed	1-26	47/64″	35/64″	6-32x1/4″	7/16″

TERMINALS

Series No.	12000	13000	
TOP	Screws only. 1 & 2 sided solder. Quick connect.	Screws only. Quick connect.	
BOTTOM	PC, .090″D PC, .062″D Solder turret	Insul screw. Insul turret. Insul turret with 8-32 screw.	Insul PC. Insul taper pin. PC, .090″D PC, .062″D Solder turret

SNAP-ON COVERS: Low-cost protective guard fits most makes of barrier terminal strips. Easy to install. .032″ Vulc fiber.

DOUBLE-ROW



Available in general-purpose phenolic. Wide choice of terminal styles, marker/insulation strips and other hardware. Black, standard.

U.L. RECOGNIZED. CSA CERTIFIED.

Rating, Amps	Series No.	Back Types	No. Circuits	Width	Height	Terminal Screws	Term. Ctrs.
10	10000	Open	1-20	5/8″	5/16″	2-56x3/16″	1/4″
15	14000	Open	1-30	7/8″	13/32″	5-40x1/4″	3/8″
20	18000	Open	1-30	1 1/8″	1/2″	6-32x1/4″	7/16″
20	19000	Closed	1-30	1 1/8″	25/64″	6-32x1/4″	7/16″
30	21000	Open	1-25	1 5/16″	5/8″	8-32x5/16″	9/16″
30	22000	Closed	1-26	1 5/16″	21/32″	8-32x5/16″	9/16″

TERMINALS

Series No.	10000	14000	18000 19000	21000 22000
TOP	Screws only. 1 & 2 sided solder.	Screws only. 1 & 2 sided solder. Quick connect.	Screws only. 1 & 2 sided solder. Quick connect.	Screws only. 1 & 2 sided solder. Quick connect.
BOTTOM	Solder. PC, short.	Solder, short. PC, short. Solder, long. PC, long. Wire wrap. Z terminal.	Solder, short. PC, long. Solder, long. Wire wrap.	Solder, short. Solder, long.

SNAP-ON COVERS: Low-cost protective guard fits most makes of barrier terminal strips. Easy to install. .032″ Vulc fiber.

Pre-Grounding Connectors

3300 SERIES: 10 amps per contact
5400 SERIES: 15 amps per contact

PRE-GROUNDING FOR GREATER SAFETY

Beau gives you the greater safety of U.L. recognized pre-grounding plug and socket connectors. The extra long grounding contact engages before any other active contacts are mated. Available for chassis and cable mounting.

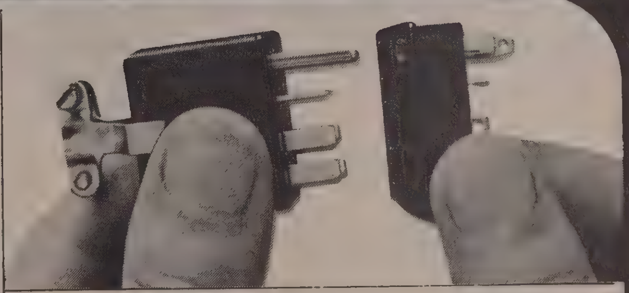
LOWEST INSTALLED COST

Only Beau offers the longer pre-grounding contact. Thus, you will never have to cut any contacts to a shorter length to achieve a safer connection. No more costly, time-consuming hand cutting operations.

CONTACT POSITION

In the 3300 Series, the grounding contact takes the place of a regular contact. Connector sizes 3324 through 3333 are already of the pre-grounding type, and there is no need to specify the grounding contact.

In the 5400 Series, the grounding contact is an additional contact position rather than taking the place of a standard contact.



SPECIFICATIONS

For other specifications and data, see next page.

Rating: 3300 Series, 10 amps per contact at 750 volts,
5400 Series, 15 amps per contact at 1750 volts.

Grounding contact rating: 30 amps at rated voltages.

No. of contacts: 3300 Series, 3 to 33 (incl. grounding contact),
5400 Series, 5 to 13 (incl. grounding contact)

Grounding contact: Extra long, heavy-duty plated brass.

Grounding contact tail: 5400 Series, mounted on an elevated creep path barrier that puts required distance between ground and active contacts.

U.L. RECOGNIZED. CSA CERTIFIED.

Beau Products
DIVISION OF VERNITRON CORPORATION

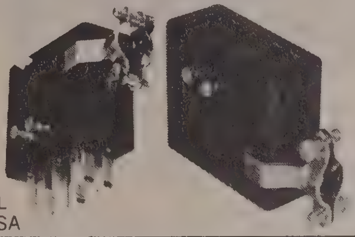
BOX 10, LACONIA, NEW HAMPSHIRE 03246
TEL: (603) 524-5101 TWX: 710-364-1843
Also available in Canada, England, Europe and Japan.

BEAU®

Plug & Socket Connectors

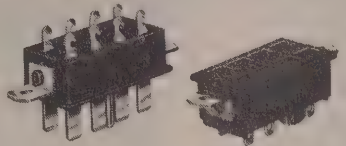
3300 SERIES

10 amps, 750 volts
2-33 contacts


UL
CSA

5400 SERIES

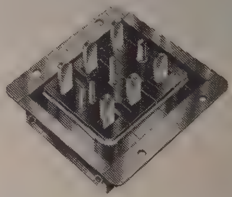
15 amps, 1750 volts
4-16 contacts


UL
CSA

Also, 4400 Series—for mounting from back of panel.

5500 SERIES

50 amps, 600 volts
2-16 contacts


Shallow-bracket mounting

SEVEN EXCLUSIVE INNOVATIONS

1. PRE-GROUNDING — see previous page.

2. THERMOPLASTIC BACKSHELLS.

(Metal also.) Resilient thermoplastic backshells provide greater dielectric strength and greater safety. They're also non-rusting and acid resistant. UL; CSA.

3. WAVE SOLDERABLE CONTACT TAILS.

Special tail design (S_6 and P_7) allows for mounting directly to PC boards and flexible circuits — and gives you the economy of automatic wave soldering. 3300 Series. UL; CSA.

4. 16 CONTACTS IN THE SPACE OF 12.

Our 15 amp connectors can have up to 16 contacts—4 more than other 15 amp makes. That's 33% more contacts in the same amount of space. UL; CSA.

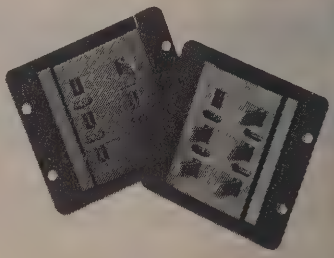
5. PANEL MOUNTED IN ONE-FOURTH THE TIME.

C-clip mounting of Beau connectors cuts panel mounting time by 3/4ths. No drilling. No screws. Just slide on C-clips and it's secure. 3300, 5400 Series. UL; CSA.

6. SELF-POLARIZING 6-CONTACT CONNECTOR.

With contacts set in opposing directions, even a heavy hand can't mismate our 6-contact 10 amp plugs and sockets. UL; CSA.

7. HERMAPHRODITIC SELF-POLARIZING.



With male and female contacts in both halves, or with conventional polarization. Can gang in building block fashion. 50 amp.

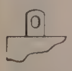
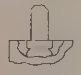
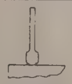
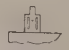
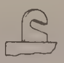
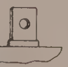
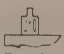
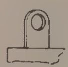
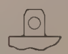
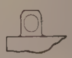
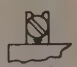
PANEL MOUNTING HARDWARE

AB = Angle Bracket
ABR = Angle Bracket Reversed
LAB = Less Angle Bracket
ABT = Angle Bracket Tapped
DB = Deep Bracket
EB = End Bracket
EBR = End Bracket Reversed
EBT = End Bracket Tapped
FP = Flat Plate
SB = Shallow Bracket
SCC = Snap "C" Clip
RP = Recessed Plate

CABLE MOUNTING HARDWARE

BBS = Blank Back Shell
CCE = Cable Clamp End
CCE-L = Cable Clamp End, Latch
CCE-K = Cable Clamp End, Keeper
CCT = Cable Clamp Top
CCT-L = Cable Clamp Top, Latch
CCT-K = Cable Clamp Top, Keeper
FHE = Flared Hole End
FHE-L = Flared Hole End, Latch
FHE-K = Flared Hole End, Keeper
FHT = Flared Hole Top
FHT-L = Flared Hole Top, Latch
FHT-K = Flared Hole Top, Keeper

CONTACT TAILS

3300 SERIES				5400 SERIES						5500
										
P or S Solder eye	**P_1 or S_1** Quick Connect .110 tab	**P_4 (long) P_7 (short)** Wire-Wrap	**S_6** Printed Circuit	**P** Solder hook	**P_1** .205 tab **P_2** .187 tab	**P_6, S_6** Printed Circuit	**P_3** Large Solder eye	**S_1** Quick Connect/ Sold. eye	**S_3** Large Solder Eye	**P or S** Binding head screw

Beau Products
DIVISION OF VERNITRON CORPORATION

BOX 10, LACONIA, NEW HAMPSHIRE 03246
TEL: (603) 524-5101 TWX: 710-364-1843
Also available in Canada, England, Europe and Japan.

Caton Connector Corona-Free Connectors & Assemblies For Over 36 Years, recognized for quality Design and Engineering

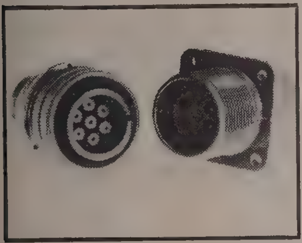
MODIFIED MS CONNECTORS

CCM Series

Positive contact screw-on connectors features self-centering tapered contours of molded resilient silicone inserts. They afford high dependability with their positive peripheral seal. The dielectric inserts are unaffected by temperatures in the range of −70°F to +400°F. They are ozone and corona resistant.

In addition to the single contact version, the CCM series come in 2, 3, 4, 5, 7 and 8 contact versions and have shell sizes ranging from 12 to 24. They carry voltage rates from 20 to 50 KVDC.

A line of accessories including protective caps and cable clamps are available throughout the ranges offered.



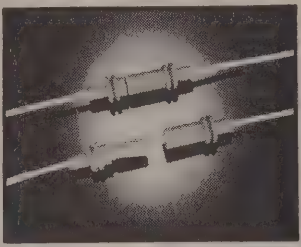
THE PM 105 FROM CATON

NEW

PM Series quality at lower cost

Designed for universal application in electronic and electrical engineering programs, these fully molded silicone connectors are ideal for marine and medical installations, automotive and business machine assemblies, aircraft and space technology.

The PM 105 series is vibration proof, watertight and waterproof, tested for underwater engineering projects, with high wear resistance capability. Connectors are manufactured with UL approved material, can be panel mounted, field assembled. 1000 to 5KV operating voltage. Available sheathed or unsheathed.

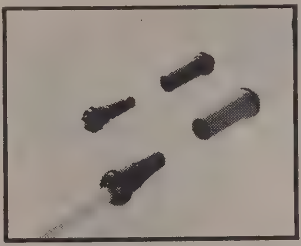


SILICONE IN-LINE CONNECTORS

PM200-PM300 Series

These all silicone positive end pieces snap together forming a watertight connection that can easily be disassembled or changed. The units are fully molded and offer high reliability and long life. The units are corona free and leak proof.

The PM 200 series is for 30 KVDC and the PM series is for 50 KVDC. Both series are available with grommet type ends for panel mounting or with optional finger grip.

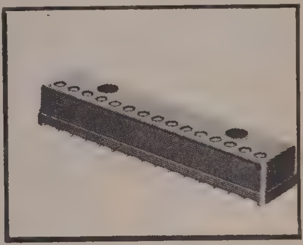


PRINTED CIRCUIT BOARD EDGE CONNECTORS

EC Series

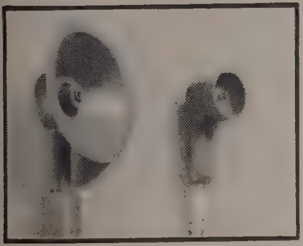
Caton manufactures literally hundreds of printed circuit board connectors including the entire line of H.H. Buggie products under a license agreement. The socket contacts are phosphor bronze with gold plating and are available in mineral filled diallyl phthalate or phenolic to meet the various MIL-M-14F type requirements. Each series comes with plugs and female receptacles.

Operating voltage is 250 volts AC RMS with a current rating of 5 amperes. Operating temperatures are −55°C to +125°C.



CATON

"We know what will work. . . and we have learned how many ideas will not work."



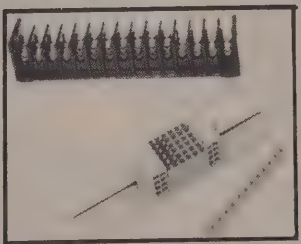
CRT ANODE LEADS

CCR Series

Caton CRT anode leads are leak proof and corona free. The lead assemblies are molded silicone with heat treated contacts. They offer excellent fire and heat resistance with ambient temperatures over 150°C.

The connectors adapt perfectly to JI-22 or JI-25 anode ball contacts. Capabilities range from 5 KV to 30 KV.

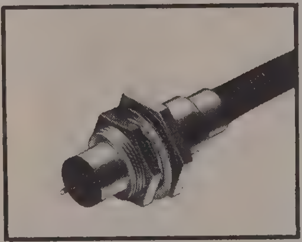
Manufactures under license from the Burndy Corporation



TERMINAL BLOCKS

MMC Series®

A high density series of terminal blocks are offered with a simple crimp-type snap in contacts. They come in standard and miniature designs and are modular in construction.



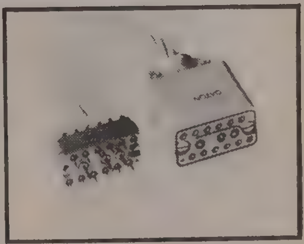
RADAR-PULSE-HI VOLTAGE CABLE ASSEMBLIES

CA 123 Series

Our high voltage cable assemblies feature factory molded ends that assure the highest possible corona free construction. Corona extinction is measured in accordance with MIL-C-17.

These cable assemblies are the industry standard and are used in virtually all radar installations world-wide. Their corona free capabilities range from 10-30 KVAC and the Hi-Pot tests from 25-75 KVAC.

The CA series comes in numerous configurations to interface with most any high-voltage/pulsed voltage requirements.



RACK & PANEL CONNECTORS

PD 15 Series®

This series is used to connect power sources to receivers, modulators and transmitters. They come in removable crimp-type and solder contacts.

CATON

Caton Connector Corporation
Jones River Industrial Park
Kingston, Massachusetts 02364
617-585-4315 TWX 710-391-7546

Ceramaseal

HERMETIC 50-OHM CONNECTORS

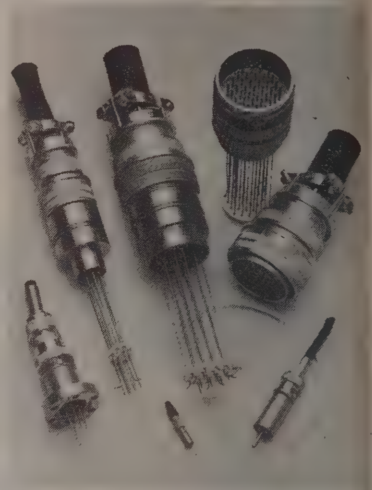
CERAMIC-METAL HIGH TEMPERATURE ULTRA HIGH VACUUM

- N, BNC, SMA, HN
- VSWR typically less than 1.3 up to 8 GHz (SMA)
- −50°C to +400°C*
- Pressure ratings 10^{-3} up to 10^{-10} torr or 1 atm. to 750 psig at 20°C BNC
- Operating voltages to 1500 volts peak (HN)

* with plug disconnected above 200°C

INSTRUMENTATION CONNECTORS

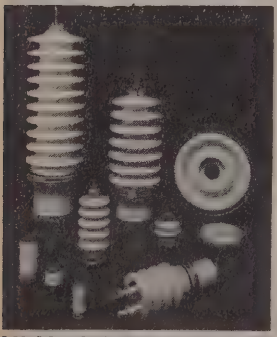
HIGH TEMPERATURE 1 TO 37 PINS

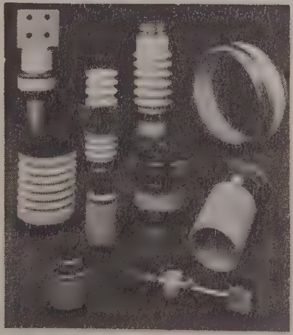


- Operating pressures $< 10^{-10}$ torr to 100 psig
- Temperature range −200 to +450°C*
- Ceramic-metal bonded
- Bakeable vacuum flange and weld adapter mountings

* with plug disconnected

Undersea to outer space... hi-temp hi-alumina ceramic-metal seals:



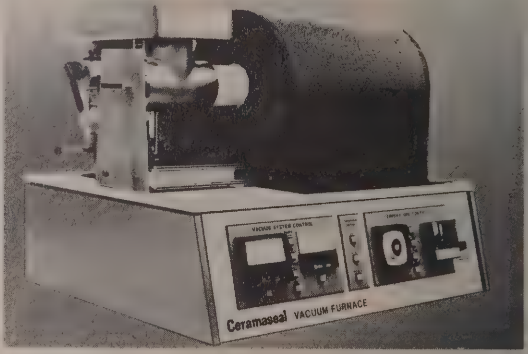


HI-VACUUM, HI-PRESSURE TIGHT

$< 1 \times 10^{-9}$ torr
$> 10,000$ psi

WIDE TEMPERATURE RANGE

Bakeable at 450°C; operate continuously at 350°C in air; withstand cryogenic temperatures



VACUUM FURNACES

for Research & Industry

- Table top & floor models
- Vacuum to $< 10^{-6}$ torr & temp. range to 1100° C
- Ceramic retort with all metal seal to vacuum flange
- High-speed baffled S.S. diffusion pump & manifold
- Digital display of furnace charge temp.
- Applications: brazing, heat treating, sintering, crystal annealing, degassing

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CONNECTORS, WITH OUR ADVANTAGE.

The Contact Advantage:

- *second source interchangeability* gives you an economical alternative in meeting your electronic connector needs
- *major inventory availability* means shorter lead times in filling your orders
- *local distributor network* for convenient localized service whenever, wherever needed
- *rush hotline service and guaranteed delivery* (call us for details)
- *connector quality you can count on*—quality *built* in, not just "inspected" in; UL recognized.

D' Subminiature Connectors: 9-50 Position Solder Cup, Solder Pin, Wrap Post, Crimp (Insulators & Contacts); 9-37 Position PC Mount Right Angle. Conform to MIL-C-24308.

IDC Connectors: 9-50 Positions; quick economical mass termination with round conductor flat ribbon cable.

Eurocard-DIN Connectors: Solder Pins, Solder Loops, Angled Solder Pins, 2-3-Level Wrap Post, Angled Wrap Post. Conform to DIN 41612 & 41617.

Cardedge Connectors: Solder Pin, Eyes or Solderless Wrap Terminations. Conform to MIL-C-21097.

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30 Plymouth Street, Fairfield, NJ 07006 • Phone 201-575-7660 • Telex 130-216
Western Regional Sales Center: 1900 Wyatt Drive #10, Santa Clara, CA 95050 • Phone 408-988-5400

5IVE WAY BINDING POSTS

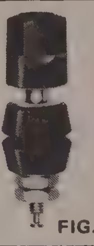


FIG. 1

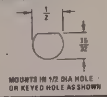
01-1001-1-XX XX HEX HEAD

FINISH COLOR INSULATED

RATED FOR 30 AMPERE CURRENT CAPACITY AND 1000 VOLT WORKING VOLTAGE

Post is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of post allows for five ways to connect: accepts standard banana plug, clip on main shaft, up to No. 12 wire thru cross hole clamped with head, wire looped around shaft and clamped with head, spade lug clamped with head.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation	Lexan	—	—
Nuts & Inserts	Brass	Nickel	Gold
Post	Brass	Bright Tin	Gold



MOUNTS IN 1/2 DIA HOLE OR KEYED HOLE AS SHOWN

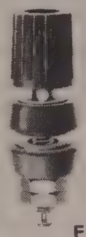


FIG. 2

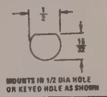
01-1002-1-XX XX FLUTED HEAD

FINISH COLOR INSULATED

RATED FOR 30 AMPERE CURRENT CAPACITY AND 1000 VOLT WORKING VOLTAGE

Post is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of post allows for five ways to connect: accepts standard banana plug, clip on main shaft, up to No. 12 wire thru cross hole clamped with head, wire looped around shaft and clamped with head, spade lug clamped with head.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation	Lexan	—	—
Nuts & Inserts	Brass	Nickel	Gold
Post	Brass	Bright Tin	Gold



MOUNTS IN 1/2 DIA HOLE OR KEYED HOLE AS SHOWN

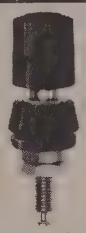


FIG. 3

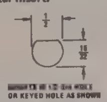
01-1001-0-XX XX HEX HEAD

FINISH COLOR COMMERCIAL STYLE

RATED FOR 30 AMPERE CURRENT CAPACITY AND 1000 VOLT WORKING VOLTAGE

Post is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of post allows for five ways to connect. Similar to 01-1001-1 except that the bottom insulating washer is thinner and does not have a metal insert.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation	Lexan	—	—
Nuts & Inserts	Brass	Nickel	Gold
Post	Brass	Bright Tin	Gold



MOUNTS IN 1/2 DIA HOLE OR KEYED HOLE AS SHOWN

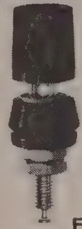


FIG. 4

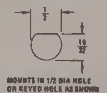
01-1002-0-XX XX FLUTED HEAD

FINISH COLOR COMMERCIAL STYLE

RATED FOR 30 AMPERE CURRENT CAPACITY AND 1000 VOLT WORKING VOLTAGE

Post is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of post allows for five ways to connect. Similar to 01-1002-1 except that the bottom insulating washer is thinner and does not have a metal insert.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation	Lexan	—	—
Nuts & Inserts	Brass	Nickel	Gold
Post	Brass	Bright Tin	Gold



MOUNTS IN 1/2 DIA HOLE OR KEYED HOLE AS SHOWN

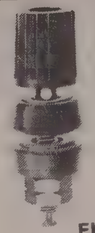


FIG. 5

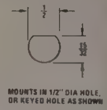
01-1002-8-03 XX FLUTED HEAD

COLOR .080 PIN JACK STYLE

Post is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of post allows for five ways to connect as with 01-1002-1-03XX, however head accepts .080 ±.001 pin instead of banana plug.

COMPONENT	MATERIAL	(03) FINISH
Insulation	Lexan	—
Nuts & Inserts	Brass	Gold
Post	Brass	Gold
Jack Body	Brass	Gold
Spring Insert	Beryllium Copper	Gold

*FOR 30°C ΔT



MOUNTS IN 1/2" DIA HOLE, OR KEYED HOLE AS SHOWN

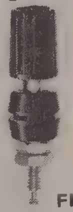


FIG. 6

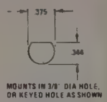
01-1102-1-XX XX MINIATURE FLUTED HEAD

FINISH COLOR

RATED FOR 15 AMPERE CURRENT CAPACITY AND 1000 VOLT WORKING VOLTAGE.

Post is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of post allows for five ways to connect: accepts standard banana plug, clip on main shaft, up to No. 12 wire thru cross hole clamped with head, wire looped around shaft and clamped with head, spade lug clamped with head.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation	Lexan	—	—
Nuts & Inserts	Brass	Nickel	Gold
Post	Brass	Bright Tin	Gold



MOUNTS IN 3/8" DIA HOLE, OR KEYED HOLE AS SHOWN

MINIATURE FLUTED HEAD

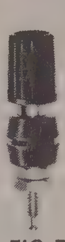


FIG. 7

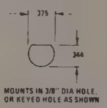
01-1102-4-03 XX .040 PIN JACK STYLE

01-1102-8-03 XX .080 PIN JACK STYLE

COLOR

Post is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of post allows for five ways to connect as with 01-1102-1-03XX, however head accepts .040 ±.001 or .080 ±.001 pin instead of banana plug.

COMPONENT	MATERIAL	(03) FINISH
Insulation	Lexan	—
Nuts & Inserts	Brass	Gold
Post	Brass	Gold
Jack Body	Brass	Gold
Spring Insert	Beryllium Copper	Gold



MOUNTS IN 3/8" DIA HOLE, OR KEYED HOLE AS SHOWN

MIL SPEC BINDING POSTS

PER MIL-P-55149/1 SUPPLIED WITH ADDITIONAL GOLD PLATED FLAT WASHER AND LOCKWASHER

Part No.	Size	Head	Mil. No.	Color
01-1102-5-0312	MINI	FLUTED	PBO1FA01	RED
01-1102-5-0310	MINI	FLUTED	PBO1FA02	BLK
01-1001-5-0312	ST'D	HEX	PBO1FA03	RED
01-1002-5-0312	ST'D	FLUTED	PBO1FA03	RED
01-1001-5-0310	ST'D	HEX	PBO1FA04	BLK
01-1002-5-0310	ST'D	FLUTED	PBO1FA04	BLK

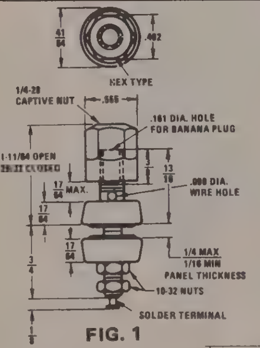

41/64
.492
HEX TYPE
1/4-28 CAPTIVE NUT
.555
.161 DIA. HOLE FOR BANANA PLUG
1-11/64 OPEN
3/8
13/16
17/64 MAX.
.098 DIA. WIRE HOLE
17/64
17/64
3/4
1/4 MAX
1/16 MIN
PANEL THICKNESS
10-32 NUTS
SOLDER TERMINAL
1/8

FIG. 1

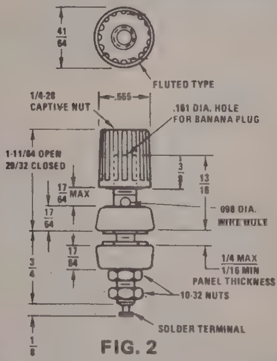

41/64
FLUTED TYPE
1/4-28 CAPTIVE NUT
.555
.161 DIA. HOLE FOR BANANA PLUG
1-11/64 OPEN
29/32 CLOSED
3/8
13/16
17/64 MAX
.098 DIA. WIRE HOLE
17/64
17/64
3/4
1/4 MAX
1/16 MIN
PANEL THICKNESS
10-32 NUTS
SOLDER TERMINAL
1/8

FIG. 2

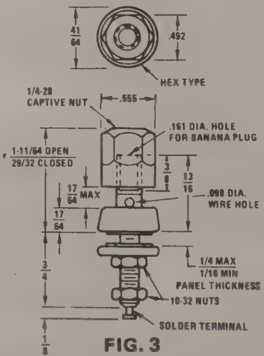

41/64
.492
HEX TYPE
1/4-28 CAPTIVE NUT
.555
.161 DIA. HOLE FOR BANANA PLUG
1-11/64 OPEN
29/32 CLOSED
3/8
13/16
17/64 MAX
.098 DIA. WIRE HOLE
17/64
3/4
1/4 MAX
1/16 MIN
PANEL THICKNESS
10-32 NUTS
SOLDER TERMINAL
1/8

FIG. 3

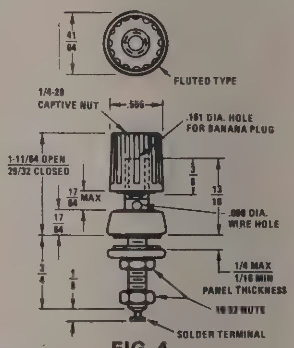

41/64
FLUTED TYPE
1/4-28 CAPTIVE NUT
.555
.161 DIA. HOLE FOR BANANA PLUG
1-11/64 OPEN
29/32 CLOSED
3/8
13/16
17/64 MAX
.098 DIA. WIRE HOLE
17/64
3/4
1/4 MAX
1/16 MIN
PANEL THICKNESS
10-32 NUTS
SOLDER TERMINAL
1/8

FIG. 4

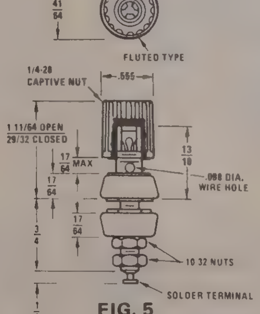

41/64
FLUTED TYPE
1/4-28 CAPTIVE NUT
.555
1 11/64 OPEN
29/32 CLOSED
17/64 MAX
13/16
.098 DIA. WIRE HOLE
17/64
17/64
3/4
10 32 NUTS
SOLDER TERMINAL
1/8

FIG. 5

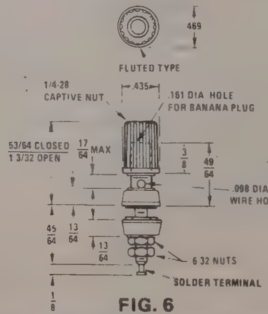

.469
FLUTED TYPE
1/4-28 CAPTIVE NUT
.435
.161 DIA HOLE FOR BANANA PLUG
53/64 CLOSED
1 3/32 OPEN
17/64 MAX
3/8
49/64
.098 DIA. WIRE HOLE
45/64
13/64
13/64
6 32 NUTS
SOLDER TERMINAL
1/8

FIG. 6

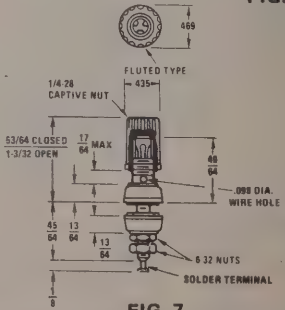

.469
FLUTED TYPE
1/4-28 CAPTIVE NUT
.435
53/64 CLOSED
1-3/32 OPEN
17/64 MAX
49/64
.098 DIA. WIRE HOLE
45/64
13/64
13/64
6 32 NUTS
SOLDER TERMINAL
1/8

FIG. 7

CONCORD
THE COMPONENT PEOPLE

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

FIVE WAY BINDING POSTS

01-1009-1-XX10 FLUTED METAL HEAD INSULATED

FINISH COLOR

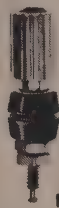
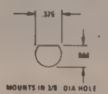


FIG. 8

RATED FOR 15 AMPERE CURRENT CAPACITY

Post is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design allows for five ways to connect. Similar to 01-1102-1 except that the head is fluted brass

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation	Lexan	—	—
Nuts & Inserts	Brass	Nickel	Gold
Post	Brass	Bright Tin	Gold
Head	Brass	Nickel	Gold



MOUNTS IN 3/8 DIA HOLE OR KEYED HOLE AS SHOWN

01-1008-1-0210 FLUTED METAL HEAD GROUNDED

FINISH COLOR

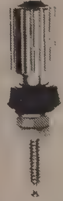
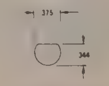


FIG. 9

RATED FOR 15 AMPERES CURRENT CAPACITY

Post is grounded to chassis via plated flat metal washer. Accommodates panels 1/16" to 1/4" thick. Design allows for five ways to connect. Similar to 01-1009-1 except that the 01-1008-1 is grounded.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation	Lexan	—	—
Nuts & Inserts	Brass	Nickel	Gold
Post	Brass	Bright Tin	Gold
Head	Brass	Nickel	Gold



MOUNTS IN 3/8 DIA HOLE OR KEYED HOLE AS SHOWN

01-1042-1-02XX FLUTED HEAD INSULATED

FINISH COLOR

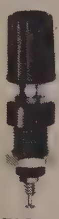


FIG. 10

RATED FOR 15 AMPS CURRENT CAPACITY

Post is completely insulated from chassis. Single-piece threaded lexan body mounts in 5/16" diameter hole. Eliminates handling of additional mounting washer. Design of post allows for five ways to connect as with 01-1102-1-02XX.

COMPONENT	MATERIAL	(02) FINISH
Insulation	Lexan	—
Nuts & Inserts	Brass	Nickel
Post	Brass	Bright Tin

MOUNTING HOLE

01-1044-1-02XX FLUTED HEAD INSULATED

FINISH COLOR

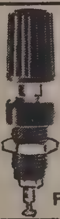


FIG. 11

RATED FOR 15 AMPS CURRENT CAPACITY

Post is completely insulated from chassis. Single piece threaded lexan body mounts in 5/16" round or double "D" hole. Eliminates handling of additional bottom washer. Design of post allows for five ways to connect as with 01-1102-1-02XX.

COMPONENT	MATERIAL	(02) FINISH
Insulation	Lexan	—
Nuts & Inserts	Brass	Nickel
Post	Brass	Bright Tin

MOUNTING HOLE

DUAL BINDING POSTS

01-1501-1-XXXX DUAL BINDING POST HEX HEAD

FINISH COLOR

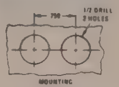
FIG. 12

RATED FOR 30 AMPERES AT 1000 VOLTS

Post is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of post allows for five ways to connect: accepts standard banana plug, clip on main shaft, up to No. 12 wire thru cross hole clamped with head, wire looped around shaft and clamped with head, spade lug clamped with head.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation (Head)	Lexan		
Metal Inserts and Nuts	Brass	Nickel	Gold
Posts	Brass	Bright Tin	Gold

1 RED HEAD + 1 BLK HEAD	RED	BLACK
00	12	10


.750
1/2 DRILL 2 HOLES
MOUNTING DIMENSIONS

01-1505-1-XXXX DUAL BINDING POST FLUTED HEAD

FINISH COLOR

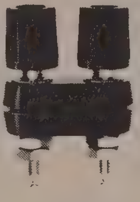


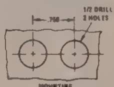
FIG. 13

RATED FOR 30 AMPERES AT 1000 VOLTS

Post is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of post allows for five ways to connect: accepts standard banana plug, clip on main shaft, up to No. 12 wire thru cross hole clamped with head, wire looped around shaft and clamped with head, spade lug clamped with head.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation (Head)	Lexan		
Metal Inserts and Nuts	Brass	Nickel	Gold
Posts	Brass	Bright Tin	Gold

1 RED HEAD + 1 BLK HEAD	RED	BLACK
00	12	10


.750
1/2 DRILL 2 HOLES
MOUNTING DIMENSIONS

01-1550-1-XXXX MINIATURE FLUTED HEAD

FINISH COLOR

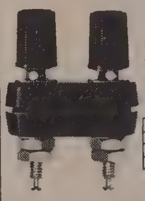


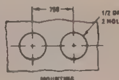
FIG. 14

RATED FOR 30 AMPERES AT 1000 VOLTS

Post is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of post allows for five ways to connect: accepts standard banana plug, clip on main shaft, up to No. 12 wire thru cross hole clamped with head, wire looped around shaft and clamped with head, spade lug clamped with head.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation (Head)	Lexan		
Metal Inserts and Nuts	Brass	Nickel	Gold
Posts	Brass	Bright Tin	Gold

1 RED HEAD + 1 BLK HEAD	RED	BLACK
00	12	10


.750
1/2 DRILL 2 HOLES
MOUNTING DIMENSIONS

01-1590-1-XX10 FLUTED METAL HEAD

FINISH COLOR

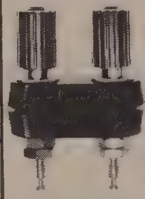
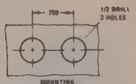


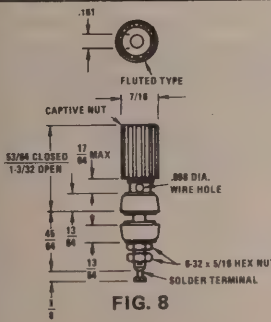
FIG. 15

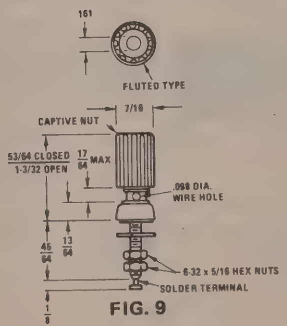
RATED FOR 30 AMPERES AT 1000 VOLTS

Post is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of post allows for five ways to connect: accepts standard banana plug, clip on main shaft, up to No. 12 wire thru cross hole clamped with head, wire looped around shaft and clamped with head, spade lug clamped with head.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation (Head)	Lexan		
Metal Inserts and Nuts	Brass	Nickel	Gold
Posts	Brass	Bright Tin	Gold


.750
1/2 DRILL 2 HOLES
MOUNTING DIMENSIONS


.161
FLUTED TYPE
7/16
CAPTIVE NUT
53/64 CLOSED
1-3/32 OPEN
17/64 MAX
.098 DIA. WIRE HOLE
45/64
13/64
13/64
6-32 x 5/16 HEX NUTS
SOLDER TERMINAL
1/8
FIG. 8


161
FLUTED TYPE
7/16
CAPTIVE NUT
53/64 CLOSED
1-3/32 OPEN
17/64 MAX
.098 DIA. WIRE HOLE
45/64
13/64
6-32 x 5/16 HEX NUTS
SOLDER TERMINAL
1/8
FIG. 9

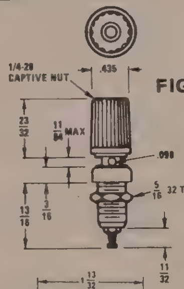
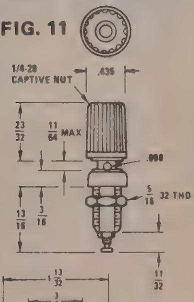
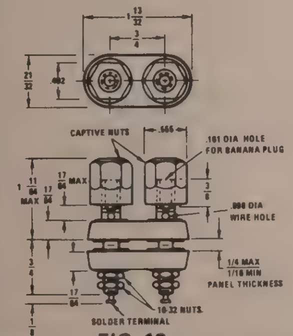
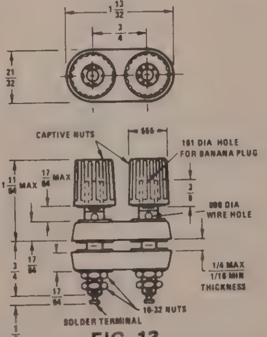
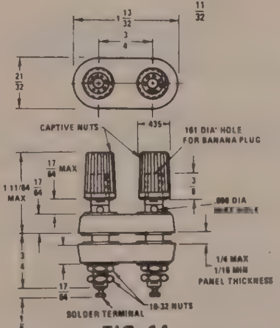
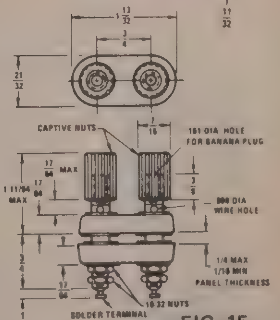

1/4-20 CAPTIVE NUT
.435
23/32
11/64 MAX
.098
5/16 32 THD
13/16
3/16
11/32
FIG. 10

FIG. 11

1/4-20 CAPTIVE NUT
.435
23/32
11/64 MAX
.098
5/16 32 THD
13/16
3/16
11/32


1 13/32
3/4
21/32
.662
CAPTIVE NUTS
.565
.161 DIA HOLE FOR BANANA PLUG
1 11/64 MAX
17/64 MAX
17/64
3/8
.098 DIA WIRE HOLE
3/4
1/4 MAX
1/16 MIN
PANEL THICKNESS
17/64
10-32 NUTS
SOLDER TERMINAL
1/8
FIG. 12


1 13/32
3/4
21/32
CAPTIVE NUTS
.565
161 DIA HOLE FOR BANANA PLUG
1 11/64 MAX
17/64 MAX
3/8
.098 DIA WIRE HOLE
3/4
17/64
1/4 MAX
1/16 MIN
THICKNESS
17/64
10-32 NUTS
SOLDER TERMINAL
1/8
FIG. 13


1 13/32
3/4
21/32
CAPTIVE NUTS
.435
161 DIA' HOLE FOR BANANA PLUG
1 11/64 MAX
17/64 MAX
17/64
3/8
.098 DIA
3/4
1/4 MAX
1/16 MIN
PANEL THICKNESS
17/64
10-32 NUTS
SOLDER TERMINAL
1/8
FIG. 14


1 13/32
3/4
21/32
CAPTIVE NUTS
7/16
161 DIA HOLE FOR BANANA PLUG
1 11/64 MAX
17/64 MAX
17/64
3/8
.098 DIA WIRE HOLE
3/4
1/4 MAX
1/16 MIN
PANEL THICKNESS
17/64
10-32 NUTS
SOLDER TERMINAL
1/8
FIG. 15

CONCORD
THE COMPONENT PEOPLE

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

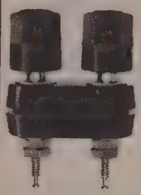
30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

DUAL BINDING POSTS

01-1506-1-XXXX DUAL BINDING POST HEX HEAD

FINISH COLOR

FIG. 16

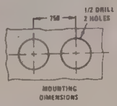


RATED FOR 15 AMPERES AT 1000 VOLTS

Hex head 15 amp. Posts are completely insulated from chassis. Sturdy dual construction permits rapid and accurate mounting with less effort than single posts. Each post allows for five ways to connect.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation (Head)	Lexan		
Metal Inserts and Nuts	Brass	Nickel	Gold
Posts	Brass	Bright Tin	Gold

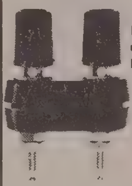
1 RED HEAD + 1 BLK HEAD	RED	BLACK
00	12	10


.750
1/2 DRILL 2 HOLES
MOUNTING DIMENSIONS

01-1556-1-XXXX MINIATURE FLUTED HEAD

FINISH COLOR

FIG. 18

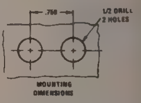


RATED FOR 15 AMPERES AT 1000 VOLTS

Miniature fluted head 15 amp. Posts are completely insulated from chassis. Sturdy dual construction permits rapid and accurate mounting with less effort than single posts. Each post allows for five ways to connect.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation (Head)	Lexan		
Metal Inserts and Nuts	Brass	Nickel	Gold
Posts	Brass	Bright Tin	Gold

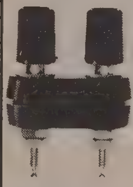
1 RED HEAD + 1 BLK HEAD	RED	BLACK
00	12	10


.750
1/2 DRILL 2 HOLES
MOUNTING DIMENSIONS

01-1516-1-XXXX DUAL BINDING POST FLUTED HEAD

FINISH COLOR

FIG. 17

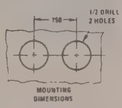


RATED FOR 15 AMPERES AT 1000 VOLTS

Post is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of post allows for five ways to connect: accepts standard banana plug, clip on main shaft, up to No. 12 wire thru cross hole clamped with head, wire looped around shaft and clamped with head, spade lug clamped with head.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation	Lexan	—	—
Nuts & Inserts	Brass	Nickel	Gold
Post	Brass	Bright Tin	Gold

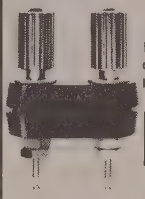
1 RED HEAD + 1 BLK HEAD	RED	BLACK
00	12	10


.750
1/2 DRILL 2 HOLES
MOUNTING DIMENSIONS

01-1596-1-XX10 FLUTED METAL HEAD

FINISH COLOR

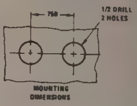
FIG. 19



RATED FOR 15 AMPERES AT 1000 VOLTS

Metal fluted head 15 amp. Posts are completely insulated from chassis. Sturdy dual construction permits rapid and accurate mounting with less effort than single posts. Each post allows for five ways to connect.

COMPONENT	MATERIAL	(02) FINISH	(03) FINISH
Insulation	Lexan		
Metal Inserts and Nuts	Brass	Nickel	Gold
Posts	Brass	Bright Tin	Gold


.750
1/2 DRILL 2 HOLES
MOUNTING DIMENSIONS

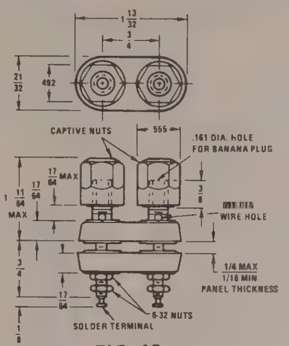

1 13/32
3/4
21/32
.492
CAPTIVE NUTS
.555
.161 DIA. HOLE FOR BANANA PLUG
17/64 MAX
1 11/64 MAX
3/8
WIRE HOLE
1/4 MAX 1/16 MIN PANEL THICKNESS
3/4
17/64
6-32 NUTS
SOLDER TERMINAL
1/8

FIG. 16

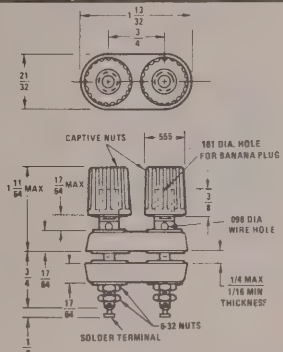

1 13/32
3/4
21/32
CAPTIVE NUTS
.555
161 DIA. HOLE FOR BANANA PLUG
1 11/64 MAX
17/64 MAX
3/8
.098 DIA WIRE HOLE
1/4 MAX 1/16 MIN THICKNESS
3/4
17/64
6-32 NUTS
SOLDER TERMINAL
1/8

FIG. 17

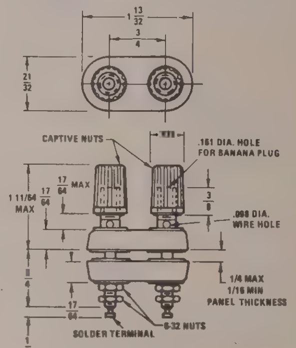

1 13/32
3/4
21/32
CAPTIVE NUTS
.161 DIA. HOLE FOR BANANA PLUG
1 11/64 MAX
17/64 MAX
3/8
.098 DIA. WIRE HOLE
1/4 MAX 1/16 MIN PANEL THICKNESS
3/4
17/64
6-32 NUTS
SOLDER TERMINAL
1/8

FIG. 18

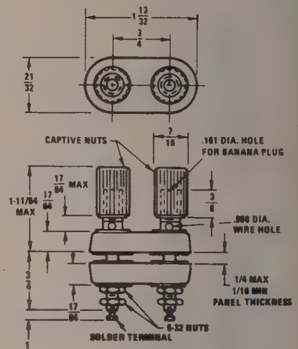

1 13/32
3/4
21/32
CAPTIVE NUTS
7/16
.161 DIA. HOLE FOR BANANA PLUG
1-11/64 MAX
17/64 MAX
3/8
.098 DIA. WIRE HOLE
1/4 MAX 1/16 MIN PANEL THICKNESS
3/4
17/64
6-32 NUTS
SOLDER TERMINAL
1/8

FIG. 19

TEST ADAPTERS & BANANA PLUGS

01-2550-1-02XX DUAL INSTRUMENT TEST ADAPTER

FINISH COLOR

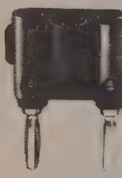


FIG. 20

RATED FOR 15 AMPERES AND 5000 VOLTS CONTINUOUS DUTY

Cable mount design. Two standard banana plugs on 3/4" centers in front and banana jacks in rear allow for stacking. Rounded beryllium copper spring gives maximum contact and longest life. Wires are inserted into cross holes and clamped by screws inside adaptor body. Insulation available in red or black (see color chart).

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Insulation	Molded Plastic	–

RED	BLK
12	10

01-2551-1-02XX DUAL INSTRUMENT TEST ADAPTER

FINISH COLOR

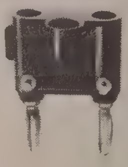


FIG. 21

RATED FOR 15 AMPERES AND 5000 VOLTS CONTINUOUS DUTY

Cable mount design. Two standard banana plugs on 3/4" centers in front and banana jacks in rear allow for stacking. Rounded beryllium copper spring gives maximum contact and longest life. Wires are soldered to two solder terminals mounted on side of plug body for permanent connection. Insulation available in red or black (see color chart).

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Insulation	Molded Plastic	-
Solder Terminals	Brass	Gold

RED	BLK
12	10

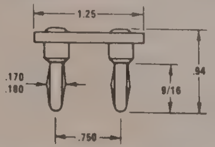
01-2555-1-02 DUAL INSTRUMENT SHORTING BAR

FINISH

RATED FOR 15 AMPERES AND 5000 VOLTS CONTINUOUS DUTY

Two standard banana plugs in front are on 3/4" centers. Plug bodies are swaged onto a 3/32" thick brass busbar.

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Bus Bar	Brass	Nickel


1.25
.170
.180
.94
9/16
.750

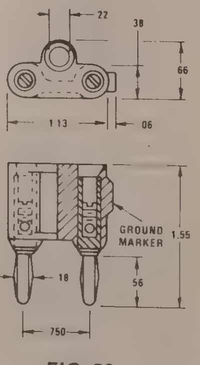

22
38
.66
1.13
.06
GROUND MARKER
1.55
.18
.56
.750

FIG. 20

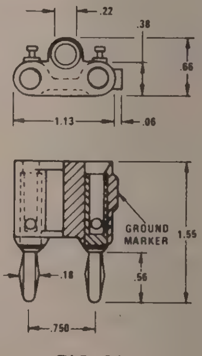

.22
.38
.66
1.13
.06
GROUND MARKER
1.55
.18
.56
.750

FIG. 21

CONCORD
THE COMPONENT PEOPLE

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

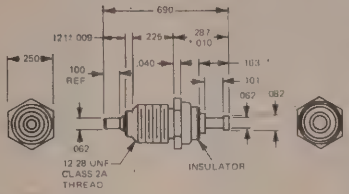
BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TEFLON FEED THRU INSULATED TERMINALS

1117-01-0119 INSULATED FEED THRU - THREAD MOUNT
1117-01-0519

BASIC PART NO. FINISH COLOR


690
121± 009
225
287
010
250
100
REF
040
183
101
062
082
062
12 28 UNF
CLASS 2A
THREAD
INSULATOR

COMPONENT FINISH/COLOR

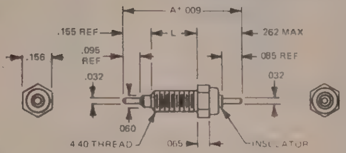
PART NO.	TERMINAL (BRASS)	INSULATOR (TEFLON)	THREADED SLEEVE (BRASS)
1117-01-0119	SILVER	WHITE	NICKEL
1117-01-0519	ELECTRO-SOLDER	WHITE	NICKEL

SUPPLIED UNASSEMBLED NICKEL PLATED BRASS MOUNTING HEX NUT
NICKEL PLATED PHOSPHOR BRONZE INTERNAL TOOTH LOCKWASHER

1117-13-0119 INSULATED FEED THRU - THREAD MOUNT
1117-14-0119

BASIC PART NO. FINISH COLOR

PART NO	L	A
1117 13	200	590
1117 14	250	640


A± 009
.155 REF
L
262 MAX
.156
.095
REF
085 REF
.032
032
060
4 40 THREAD
065
INSULATOR

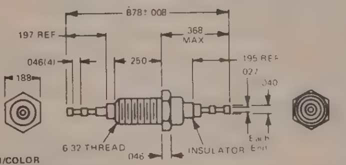
COMPONENT FINISH/COLOR

PART NO.	TERMINAL (BRASS)	INSULATOR (TEFLON)	THREADED SLEEVE (BRASS)
1117-13-0119	SILVER	WHITE	NICKEL
1117-14-0119	SILVER	WHITE	NICKEL

SUPPLIED UNASSEMBLED NICKEL PLATED BRASS MOUNTING HEX NUT
NICKEL PLATED PHOSPHOR BRONZE INTERNAL TOOTH LOCKWASHEP

1117-17-0119 INSULATED FEED THRU - THREAD MOUNT

BASIC PART NO. FINISH COLOR


878± 008
197 REF
368
MAX
046(4)
250
195 REF
027
040
188
6 32 THREAD
046
INSULATOR
Each
End

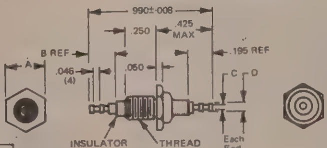
COMPONENT FINISH/COLOR

PART NO.	TERMINAL (BRASS)	INSULATOR (TEFLON)	THREADED SLEEVE (BRASS)
1117-17-0119	SILVER	WHITE	NICKEL

SUPPLIED UNASSEMBLED NICKEL PLATED BRASS MOUNTING HEX NUT
NICKEL PLATED PHOSPHOR BRONZE INTERNAL TOOTH LOCKWASHER

1117-16-0119 INSULATED FEED THRU - THREAD MOUNT
1117-15-0119

BASIC PART NO. FINISH COLOR


990±.008
.250
.425
MAX
B REF
.195 REF
A
.046
(4)
.060
C
D
INSULATOR
THREAD
Each
End

PART NO.	A	B	C	D	THREAD
1117 16-0119	250	195	027	040	8 32
1117 15-0119	312	229	046	062	10-32

COMPONENT FINISH/COLOR

PART NO	TERMINAL (BRASS)	INSULATOR (TEFLON)	THREADED SLEEVE (BRASS)
1117-16-0119	SILVER	WHITE	NICKEL
1117-15-0119	SILVER	WHITE	NICKEL

SUPPLIED UNASSEMBLED: NICKEL PLATED BRASS MOUNTING HEX NUT
NICKEL PLATED PHOSPHOR BRONZE INTERNAL TOOTH LOCKWASHER

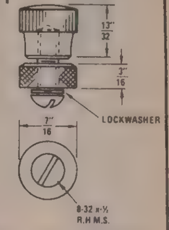
GROUNDING BINDING POSTS

01-1060-1-02XX MOLDED HEAD-GROUNDING TYPE

FINISH COLOR

RATED FOR 15 AMP CONTINUOUS DUTY

Molded head contains threaded brass insert. Knurled nut is nickel plated brass. Screw and lockwasher are supplied.


13"/32
3"/16
LOCKWASHER
7"/16
8-32 x ½
R.H.M.S.

RED	BLK
12	10

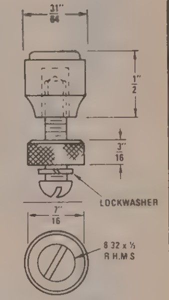
01-1061-1-02XX MOLDED HEAD GROUNDING TYPE

FINISH COLOR

RATED FOR 15 AMPS CONTINUOUS DUTY

Molded head contains threaded brass insert. Knurled nut is nickel plated brass. Screw and lockwasher are supplied.

RED	BLK
12	10

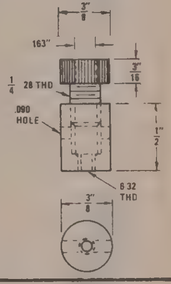

31"/64
1"/2
3"/16
LOCKWASHER
7"/16
8 32 x ½
R H.M S

01-1050-1-02 ALL METAL GROUNDING

FINISH

RATED FOR 15 AMPS CONTINUOUS DUTY

Binding post is designed to connect three wavs. Nickel plated brass head accepts standard banana plug. Nickel plated brass body accepts standard .080 phone tip. Wire or flat lug can be clamped between head and body.

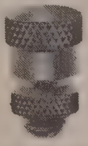

3"/8
163"
3"/16
1/4 28 THD
.090
HOLE
1"/2
6 32
THD
3"/8

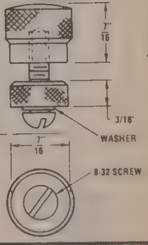
01-1051-1-02 ALL METAL GROUNDING

FINISH

RATED FOR 15 AMPS CONTINUOUS DUTY

Head and knurled nut are nickel plated brass. Screw and lockwasher are supplied.

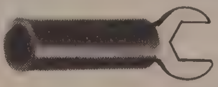


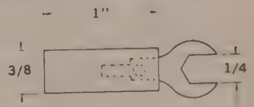

7"/16
3/16'
WASHER
7"/16
8-32 SCREW

01-2900-1-02XX SPADE LUG ADAPTER INSULATED

FINISH COLOR

Handle is molded plastic. Lug is nickel plated brass. Fits all standard binding posts. Lug can be removed from handle to allow soldering of wire (up to No. 10) in cross hole. Available in colors. (see color chart)

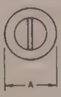


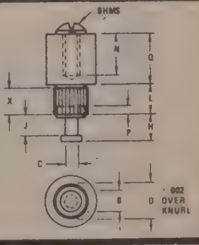


10-75X-X-XX ALL METAL GROUNDING

FINISH

Binding post is swage mounted onto chassis. Body is bright alloy plated brass. Binding head machine screw and lockwasher are supplied.




BHMS
N
Q
X
L
J
P
H
C
B
D
.002 OVER KNURL

No.	A	B	C	D	H	J	L	N	P	Q	X	TAP	T
10-753-3	.312	.125	.068	.220	.172	.125	.141	.218	.062	.250	.117	6-32	3/32
10-754-4	.344	.141	.078	.250	.203	.156	.172	.250	.078	.312	.148	8-32	1/8
10-756-6	.375	.156	.094	.257	.203	.156	.234	.312	.093	.375	.210	10-32	3/16

CONCORD
THE COMPONENT PEOPLE

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

BANANA PLUGS

01-2002-1-02XX BANANA PLUG INSULATED

FINISH COLOR

RATED FOR 15 AMPERES CONTINUOUS DUTY

Standard size spring for standard size banana jacks. Brass stud locks wire in place or wire can be directly soldered into rear of plug body. Available in colors (see color chart).

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Handle	Molded Plastic	–
Stud	Brass	Unplated

01-2006-1-02XX BANANA PLUG INSULATED

FINISH COLOR

RATED FOR 15 AMPERES CONTINUOUS DUTY

Standard size spring for standard size banana jacks. Set screw clamps wire inside plug body without soldering. Available in colors (see color chart).

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Handle	Molded Plastic	–

01-2011-1-02XX BANANA PLUG INSULATED

FINISH COLOR

RATED FOR 15 AMPERES CONTINUOUS DUTY

Standard size spring for standard size banana jacks. Brass stud locks wire in place or wire can be directly soldered into rear of plug body. Available in colors (see color chart).

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Handle	Molded Plastic	–
Stud	Brass	Unplated

01-2016-1-02XX BANANA PLUG INSULATED

FINISH COLOR

RATED FOR 15 AMPERES CONTINUOUS DUTY

Standard size spring for standard size banana jacks. Wire is inserted thru rear and cross holes and wrapped around plug body for solderless connection. Available in colors (see color chart).

COMPONENT NO	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Handle	Molded Plastic	

01-2050-1-02XX BANANA PLUG INSULATED SHORT HANDLE

FINISH COLOR

RATED FOR 15 AMPERES CONTINUOUS DUTY

Standard size spring for standard size banana jacks. Brass stud locks wire in place or wire can be directly soldered into rear of plug body. Available in colors (see color chart).

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Handle	Molded Plastic	
Stud	Brass	Unplated

01-2071-1-02XX BANANA PLUG INSULATED SHORT HANDLE

FINISH COLOR

RATED FOR 15 AMPERES CONTINUOUS DUTY

Standard size spring for standard size banana jacks. Wire is inserted thru rear and cross holes and wrapped around plug body for solderless connection. Availcble in colors (see color chart).

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Handle	Molded Plastic	–

01-2066-1-02XX BANANA PLUG INSULATED SHORT HANDLE

FINISH COLOR

RATED FOR 15 AMPERES CONTINUOUS DUTY

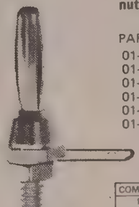
Short size spring for standard size banana jacks. Wire can be soldered directly into rear of plug body. Available in colors (see color chart).

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Handle	Molded Plastic	–

01-2310- thru 01-2315-1-02 BANANA PLUG

FINISH

RATED FOR 15 AMPERES CONTINUOUS DUTY



Standard size spring for standard size banana jacks. Supplied with nut and tinned lug.

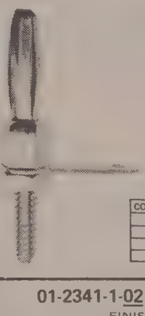
PART NO.	L	O.A.
01-2310-1	6-32x3/8"	1-3/16
01-2311-1	6-32x1/2"	1-5/16
01-2312-1	6-32x3/4"	1-9/16
01-2313-1	8-32x3/8"	1-3/16
01-2314-1	8-32x1/2"	1-5/16
01-2315-1	8-32x3/4"	1-9/16

COMPONENT NO	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Lug	Brass	Tinned
Nut	Brass	Nickel

01-2360- thru 01-2365-1-02 BANANA PLUG

FINISH

RATED FOR 15 AMPERES CONTINUOUS DUTY



Standard size spring for standard size banana jacks. Supplied with nut and tinned lug.

PART NO.	L	O.A.
01-2360-1	6-32x3/8"	1-5/32
01-2361-1	6-32x1/2"	1-9/32
01-2362-1	6-32x3/4"	1-17/32
01-2363-1	8-32x3/8"	1-5/32
01-2364-1	8-32x1/2"	1-9/32
01-2365-1	8-32x3/4"	1-17/32

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Lug	Brass	Tinned
Nut	Brass	Nickel

01-2341-1-02 BANANA PLUG

FINISH

RATED FOR 15 AMPERES CONTINUOUS DUTY

Standard size spring for standard size banana jacks. Supplied with tinned lug and screw for panel mounting.

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Lug	Brass	Tinned

01-2347-1-02 BANANA PLUG

FINISH

RATED FOR 15 AMPERES CONTINUOUS DUTY

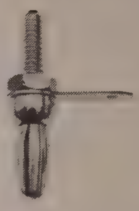
Standard size spring for standard size banana jacks. Supplied with brass stud and nut.

COMPONENT NO	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Stud	Brass	Unplated
Nut	Brass	Nickel

01-2370 THRU 01-2373-1-02 BANANA PLUG

FINISH

RATED FOR 15 AMPERES CONTINUOUS DUTY



Short size spring for standard size banana jacks. Supplied with tinned lug and nut.

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel
Lug	Brass	Tinned
Nut	Brass	Nickel

PART NO.	L	O.A.
01-2370-1	4-40x3/8"	15/16
01-2371-1	4-40x1/2"	1-1/16
01-2372-1	6-32x3/8"	15/16
01-2373-1	6-32x1/2"	1-1/16

01-2255-X-01 BANANA PLUG

FINISH

RATED FOR 15 AMPERES CONTINUOUS DUTY

Short size spring for standard size banana jacks. Plug body is heat treated to facilitate swaging.

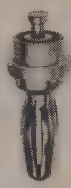
COMPONENT NO.	MATERIAL	(01) FINISH
Plug Body	Brass	Silver
Spring	Beryllium Copper	Silver

PART NO.	L
01-2255-3	7/32
01-2255-5	3/16
01-2255-6	1/8

01-2260-X-02 BANANA PLUG

FINISH

RATED FOR 15 AMPERES CONTINUOUS DUTY



Short size spring for standard size banana jacks. Plug body is heat treated to facilitate swaging.

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Spring	Beryllium Copper	Nickel

PART NO.	L	PANEL
01-2260-2	.105	1/16
01-2260-3	.135	3/32
01-2260-4	.165	1/8

01-2258-X-01 BANANA PLUG

FINISH

RATED FOR 5 AMPERES CONTINUOUS DUTY

Miniature size spring for miniature size banana jacks. Plug body is heat treated to facilitate swaging.

COMPONENT NO	MATERIAL	(01) FINISH
Plug Body	Brass	Silver
Spring	Beryllium Copper	Silver

PART NO.	L	PANEL
01-2258-2	.094	1/16
01-2258-3	.125	3/32
01-2258-4	.156	1/8

01-2251-X-01 BANANA PLUG

FINISH

RATED FOR 5 AMPERES CONTINUOUS DUTY

Miniature size spring for miniature size banana jacks. Plug body is heat treated to facitlitate swaging.

COMPONENT NO.	MATERIAL	(01) FINISH
Plug Body	Brass	Silver
Spring	Beryllium Copper	Silver

PART NO.	L	PANEL
01-2251-2	105	1/16
01-2251-3	135	3/32
01-2251-4	165	1/8

01-2332-1-01 BANANA PLUG

FINISH

RATED FOR 5 AMPERES CONTINUOUS DUTY

Miniature size spring for miniature size banana jacks.

COMPONENT NO.	MATERIAL	(01) FINISH
Plug Body	Brass	Silver
Spring	Beryllium Copper	Silver

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

BANANA JACKS-PHONE TIP PLUGS

09-9125-1-044XX BANANA PANEL JACK INSULATED

FINISH COLOR

RATED FOR 15 AMPERES CONTINUOUS DUTY

Accepts standard banana plugs. Mounts in 5/16" round hole in panel up to 5/16" thick. Available in colors (see color chart).

COMPONENT NO	MATERIAL	(044) FINISH
Contact	Brass	Bright Tin
Insulation	Lexan	
Nut	Brass	Nickel

09-9126-1-044XX BANANA PÁNEL JACK INSULATED

FINISH COLOR

RATED FOR 15 AMPERES CONTINUOUS DUTY

Accepts standard banana plugs. Mounts in 5/16" round or double "D" hole in panel up to 5/16" thick. Available in colors(see color chart).

COMPONENT NO	MATERIAL	(044) FINISH
Contact	Brass	Bright-Tin
Insulation	Lexan	
Nut	Brass	Nicke

09-9135-1-044XX BANANA PANEL JACK INSULATED

FINISH COLOR

RATED FOR 15 AMPERES CONTINUOUS DUTY

Accepts standard banana plugs. Mounts in 5/16" round hole in panel up to 5/16" thick. Available in colors (see color chart).

COMPONENT NO.	MATERIAL	(044) FINISH
Contact	Brass	Bright-Tin
Insulation	Lexan	
Nut	Brass	Nickel

09-9136-1-044XX BANAÑA PANEL JACK INSULATED

FINISH COLOR

RATED FOR 15 AMPERES CONTINUOUS DUTY

Accepts standard banana plugs. Mounts in 5/16" round or double "D" hole in panel up to 5/16" thick. Available in colors (see color chart)

COMPONENT NO.	MATERIAL	(044) FINISH
Contact	Brass	Bright-Tin
Insulation	Lexan	–
Nut	Brass	Nickel

01-2520-X-02 BANANA JACK SWAGE MOUNT

RATED FOR 15 AMPERES CONTINUOUS DUTY

Accepts standard banana plugs. Body is nickel plated brass and is heat treated to facilitate swaging.

PART NO.	L	PANEL
01-2520-2	.105	1/16
01-2520-3	.135	3/32
01-2520-4	.165	1/8

01-2510-1-01 BANANA JACK MINIATURE

RATED FOR 15 AMPERES CONTINUOUS DUTY

Accepts miniature banana plug. Body is silver plated brass and is heat treated to facilitate swaging.

01-2515-X-01 BANANA JACK

RATED FOR 15 AMPERES CONTINUOUS DUTY

Accepts miniature banana plug. Body is silver plated brass and is heat treated to facilitate swaging.

PART NO.	L	PANEL
01-2515-2	.105	1/16"
01-2515-3	.135	3/32"
01-2515-4	.165	1/8"

01-2540-1-02 BANANA JACK

RATED FOR 15 AMPERES CONTINUOUS DUTY

Accepts standard banana jacks. Fits in 1/4" mounting hole. Accommodates panel up to 5/16" thick.

COMPONENT NO.	MATERIAL	(02) FINISH
Body	Brass	Nickel
Lug	Brass	Tinned
Nut	Brass	Nickel

01-2542-1-02 BANANA JACK

RATED FOR 15 AMPERES CONTINUOUS DUTY

Accepts standard banana jacks. Fits in 1/4" mounting hole. Accommodates panel up to 3/8" thick.

COMPONENT NO.	MATERIAL	(02) FINISH
Body	Brass	Nickel
Lug	Brass	Tinned
Nut	Brass	Nickel

01-2405-1-02 BANANA JACK MINIATURE

RATED FOR 15 AMPERES CONTINUOUS DUTY

Accepts miniature banana jack. Fits in .196 mounting hole. Accommodates panel up to 1/8" thick.

COMPONENT NO.	MATERIAL	(02) FINISH
Body	Brass	Nickel
Lug	Brass	Tinned
Nut	Brass	Nickel

INSULATED PHONE TIP PLUGS

01-2100-1-02XX PHONE TIP PLUG INSULATED

FINISH COLOR

RATED FOR 12 AMPERES CONTINUOUS DUTY SOLDERLESS TYPE

For standard phone tip jacks. Wire is inserted thru rear and cross holes in plug body and then wrapped around threaded portion. Threaded collar tightens down wire. Available in colors (see color chart).

COMPONENT NO	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Handle	Molded Plastic	

01-2102-1-02XX PHONE TIP PLUG INSULATED

FINISH COLOR

RATED FOR 12 AMPERES CONTINUOUS DUTY SOLDER TYPE

For standard phone tip jacks. No metal exposed when fully inserted eliminating the chance of shock or grounding. Available in colors (see color chart).

COMPONENT NO	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Handle	Molded Plastic	

01-2105-1-02XX PHONE TIP PLUG INSULATED

FINISH COLOR

RATED FOR 12 AMPERES CONTINUOUS DUTY SOLDER TYPE

For standard phone tip jacks. Designed to accept soldering of heavy duty wire in plug body. Available in colors (see color chart).

COMPONENT NO	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Handle	Molded Plastic	

01-2110-1-02XX INSULATED PLUG PHONO NEEDLE

FINISH COLOR

RATED FOR 12 AMPERES CONTINUOUS DUTY SOLDER TYPE

Pin vise design for easy removal and replacement of needle.

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Handle	Molded Plastic	

01-2118-1-02XX PHONE TIP PLUG INSULATED

FINISH COLOR

RATED FOR 12 AMPERES CONTINUOUS DUTY SOLDERLESS TYPE

For standard phone tip jacks. Wire is inserted thru rear and cross holes in plug body and then wrapped around threaded portion. Threaded collar tightens down wire. Available in colors (see color chart).

COMPONENT NO	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Handle	Molded Plastic	

01-2120-1-02XX PHONE TIP PLUG INSULATED

FINISH COLOR

RATED FOR 12 AMPERES CONTINUOUS DUTY

For standard phone tip jacks. Wire is inserted thru rear and cross holes in plug body and then wrapped around threaded portion. No metal exposed when fully inserted eliminating the change of shock or grounding. Available in colors (see color chart).

COMPONENT NO	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Handle	Molded Plastic	

01-2122-1-02XX PHONE TIP PLUG INSULATED

FINISH COLOR

RATED FOR 12 AMPERES CONTINUOUS DUTY

For standard phone tip jacks. Accepts standard banana plug.

COMPONENT NO	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Handle	Molded Plastic	

01-2132-1-02XX PHONE TIP PLUG INSULATED SHORT HANDLE

FINISH COLOR

RATED FOR 12 AMPERES CONTINUOUS DUTY SOLDERLESS TYPE

For standard phone tip jacks. Wire is inserted thru rear and cross holes in plug body and then wrapped around threaded portion. Threaded collar tightens down wire. Available in colors (see color chart).

COMPONENT NO	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Handle	Molded Plastic	

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

PHONE TIP PLUGS-TEST PRODS-NYLON HEX HEAD JACKS

01-2134-1-02XX
FINISH COLOR

PHONE TIP PLUG
INSULATED
SHORT HANDLE

RATED FOR 12 AMPERES CONTINUOUS DUTY SOLDER TYPE

For standard phone tip jacks. No metal exposed when fully inserted eliminating the chance of shock or grounding. Available in colors (see color chart).

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Handle	Molded Plastic	

01-2135-1-02XX
FINISH COLOR

PHONE TIP PLUG
INSULATED
SHORT HANDLE

RATED FOR 12 AMPERES CONTINUOUS DUTY

For standard phone tip jacks. Wire is inserted thru rear and cross holes in plug body and then wrapped around threaded portion. No metal exposed when fully inserted eliminating the chance of shock or grounding. Available in colors (see color chart).

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Handle	Molded Plastic	

01-2140-1-02XX
FINISH COLOR

INSULATED PLUG
PHONE NEEDLE
SHORT HANDLE

RATED FOR 12 AMPERES CONTINUOUS DUTY SOLDER TYPE

Pin vise design for easy removal and replacement of needle.

COMPONENT NO.	MATERIAL	(02) FINISH
Plug Body	Brass	Nickel
Handle	Molded Plastic	

01-4101-1-02
FINISH

PHONE TIP PLUG
PRESS MOUNT

RATED FOR 12 AMPERES
CONTINUOUS DUTY
SOLDERLESS TYPE

For standard phone tip jacks. Wire is inserted thru rear and cross holes in plug body and then wrapped around threaded portion. Threaded collar tightens down wire. All parts are nickel plated brass.

01-4102-1-02
FINISH

PHONE TIP PLUG
PRESS MOUNT

RATED FOR 12 AMPERES
CONTINUOUS DUTY
SOLDERLESS TYPE

For standard phone tip jacks. Wire is inserted thru rear and cross holes in plug body and then wrapped around threaded portion. Threaded collar tightens down wire. All parts are nickel plated brass.

01-4103-1-02
FINISH

PHONE TIP PLUG
PRESS MOUNT

RATED FOR 12 AMPERES
CONTINUOUS DUTY
SOLDER TYPE

For standard phone tip jacks. Rear hole can be used as a banana jack or a solder well. Nickel plated brass.

01-4104-1-02
FINISH

PHONE TIP PLUG
THREAD MOUNT

RATED FOR 12 AMPERES
CONTINUOUS DUTY
SOLDERLESS TYPE

For standard phone tip jacks. Wire is inserted thru rear and cross holes an then wrapped around plug body. Threaded collar tightens down wire. All parts are nickel plated brass.

01-4105-1-02
FINISH

PHONE TIP PLUG
THREAD MOUNT

RATED FOR 12 AMPERES
CONTINUOUS DUTY
SOLDERLESS TYPE

For standard phone tip jacks. Wire is inserted thru rear and cross holes and then wrapped around plug body. Threaded collar tightens down wire. All parts are nickel plated brass.

01-4106-1-02
FINISH

PHONE TIP PLUG
THREAD MOUNT

RATED FOR 12 AMPERES
CONTINUOUS DUTY
SOLDER TYPE

For standard phone tip jacks. Rear hole can be used as a banana jack or a solder well. Nickel plated brass.

01-4107-1-02
FINISH

PHONE NEEDLE
THREAD MOUNT

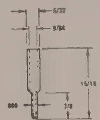
RATED FOR 12 AMPERES
CONTINUOUS DUTY
SOLDER TYPE

Pin vise design for easy removal and replacement of needle. Plug body and collar are nickel plated brass. Needle is made of steel.

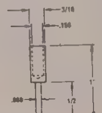
PHONE TIP SOLDER STYLE

01-4001-1-02
FINISH

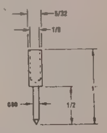
Nickel plated brass.



01-4002-1-02
FINISH



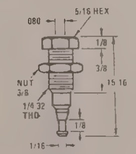
01-4003-1-02
FINISH



RATED FOR 12 AMPERES
CONTINUOUS DUTY

09-9150-1-044XX
FINISH COLOR

BANANA JACKS

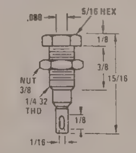


RATED FOR 10 AMPS CONTINUOUS DUTY

Accepts standard banana plug. Mounts in 1/4" hole in panels up to 1/4" thick.

09-9151-1-044XX
FINISH COLOR

BANANA JACKS

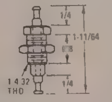


RATED FOR 10 AMPS CONTINUOUS DUTY

Accepts standard banana plug. Mounts in 1/4" hole in panels up to 1/4" thick.

09-9152-1-044XX
FINISH | COLOR

BANANA JACKS

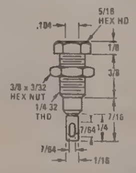


RATED FOR 10 AMPS CONTINUOUS DUTY

Part is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick.

09-9140-1-044XX
FINISH COLOR

BANANA PANEL JACK
INSULATED

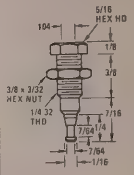


RATED FOR 10 AMPERE CURRENT

Part is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of part accepts mini-banana plug. One piece turret contact allows sealed panel entry hole.

09-9141-1-044XX
FINISH | COLOR

BANANA PANEL JACK
INSULATED

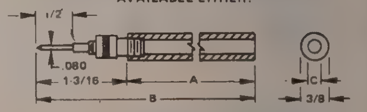


RATED FOR 10 AMPERE CURRENT

Part is completely insulated from chassis. Accommodates panels from 1/16" to 1/4" thick. Design of part accepts mini-banana plug. One piece turret contact allows sealed panel entry hole.

TEST PRODS

PROD TIPS, CHUCKS AND COLLARS SUPPLIED
BRASS NICKEL PLATED.
MACHINED THERMO-PLASTIC HANDLES
AVAILABLE EITHER:



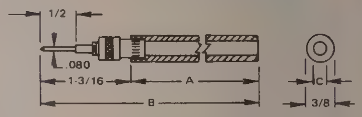
THREADED–SOLDERLESS TYPE

Feed wire thru body, wrap, and secure with knurled collar for solderless connection.

	A	B	C
01-2601-4-02XX	4"	5-1/4"	3/16"
01-2601-5-02XX	5-1/2"	6-3/4"	3/16"

SPECIFY COLOR

RED	BLACK
-12	-10

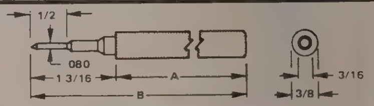


FORCE FIT–SOLDERLESS TYPE

Same as above except prod tip is force fit into handle rather than threaded.

	A	B	C
01-2602-4-02XX	4"	5-1/4"	3/16"
01-2602-5-02XX	5-1/2"	6-3/4"	3/16"

SPECIFY COLOR

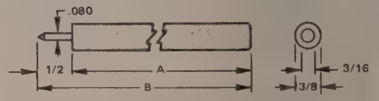


THREADED–SOLDER TYPE

.161 Dia hole in prod enables use of heavy duty wire

	A	B
01-2604-4-02XX	4"	5-3/16"
01-2604-5-02XX	5-1/2"	6-11/16"

SPECIFY COLOR

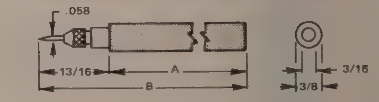


THREADED–SOLDER TYPE

Prod assembles flush with insulating handle

	A	B
01-2605-4-02XX	4"	4-1/2"
01-2605-5-02XX	5-1/2"	6"

SPECIFY COLOR



THREADED–PIERCING TYPE

Removable chuck allows for easy needle replacement

	A	B
01-2606-4-02XX	4"	4-13/16"
01-2606-5-02XX	5-1/2"	6-5/16"

SPECIFY COLOR

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

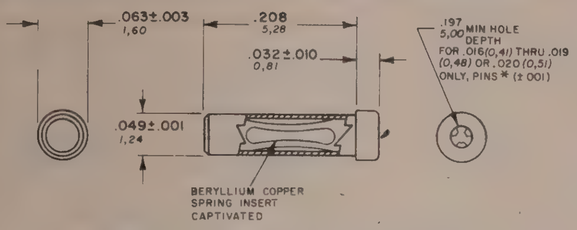
CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. JACKS-CLOSED ENTRY-SOLDER MOUNT

09-9050-1-XX P.C. JACK FOR .016 THRU .019 OR .020 ONLY, PINS*

BASIC PART NO. FINISH


.063±.003
1,60
.208
5,28
.032±.010
0,81
.049±.001
1,24
.197
5,00 MIN HOLE DEPTH
FOR .016(0,41) THRU .019 (0,48) OR .020 (0,51) ONLY, PINS * (± 001)
BERYLLIUM COPPER SPRING INSERT CAPTIVATED

ACCEPTS .016(0,41) THRU .019(0,48) OR .020(0,51) ONLY, PINS *

BOARD THICKNESS .031(0,79) TO .156 (3,96)

COMPONENT FINISH

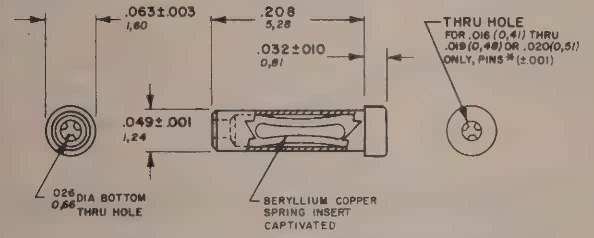
PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9050-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE $.052^{+.002}_{-.001}$ DIA (#55 DRILL)

*ONCE AN .020(0,51) PIN IS INSERTED, THE USE OF 016(0,41) THRU .019(0,48) PINS IS NO LONGER RECOMMENDED

09-9049-1-XX P.C. JACK FOR .016 THRU .019 OR .020 ONLY, PINS*

BASIC PART NO. FINISH


.063±.003
1,60
.208
5,28
.032±.010
0,81
THRU HOLE
FOR .016 (0,41) THRU .019 (0,48) OR .020(0,51) ONLY, PINS * (±.001)
.049±.001
1,24
.026
0,66 DIA BOTTOM THRU HOLE
BERYLLIUM COPPER SPRING INSERT CAPTIVATED

ACCEPTS .016(0,41) THRU .019(0,48) OR .020(0,51) ONLY, PINS*

BOARD THICKNESS .031(0,79) TO .156 (3,96)

COMPONENT FINISH

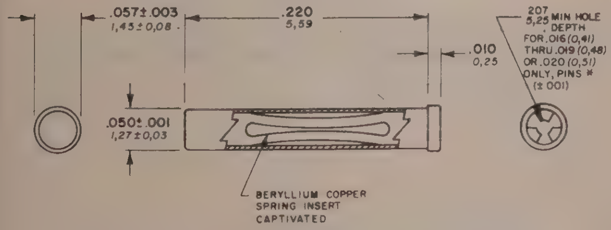
PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9049-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE $.052^{+.002}_{-.001}$ DIA (#55 DRILL)

*ONCE AN .020(0,51) PIN IS INSERTED, THE USE OF .016(0,41) THRU .019(0,48) PINS IS NO LONGER RECOMMENDED.

09-9026-1-XX P.C. JACK FOR .016 THRU .019 OR .020 ONLY, PINS*

BASIC PART NO. FINISH


.057±.003
1,45±0,08
.220
5,59
.010
0,25
.207
5,25 MIN HOLE DEPTH
FOR .016(0,41) THRU .019 (0,48) OR .020 (0,51) ONLY, PINS * (± 001)
.050±.001
1,27±0,03
BERYLLIUM COPPER SPRING INSERT CAPTIVATED

ACCEPTS .016(0,41) THRU .019(0,48) OR 020(0,51) ONLY, PINS *

BOARD THICKNESS .031(0,79) TO .188(4,78)

COMPONENT FINISH

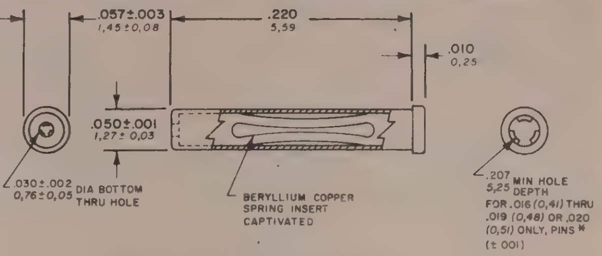
PART NO.	BODY (COPPER ALLOY)	SPRING (BERYLLIUM COPPER)
09-9026-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE .052 ±.001 DIA (#55 DRILL)

*ONCE AN 020(0,51) PIN IS INSERTED, THE USE OF 016(0,41) THRU .019(0,48) PIN IS NO LONGER RECOMMENDED

09-9026-2-XX P.C. JACK FOR .016 THRU .019 OR .020 ONLY, PINS*

BASIC PART NO. FINISH


.057±.003
1,45±0,08
.220
5,59
.010
0,25
.050±.001
1,27±0,03
.030±.002
0,76±0,05 DIA BOTTOM THRU HOLE
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.207
5,25 MIN HOLE DEPTH
FOR .016 (0,41) THRU .019 (0,48) OR .020 (0,51) ONLY, PINS * (± 001)

ACCEPTS .016(0,41) THRU .019(0,48) OR .020(0,51) ONLY, PINS *

BOARD THICKNESS .031 (0,79) TO .188 (4,78)

COMPONENT FINISH

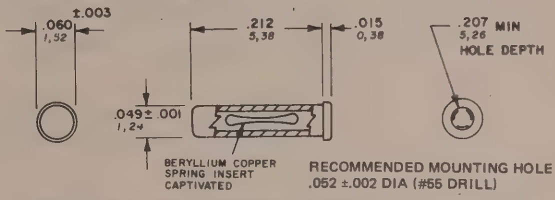
PART NO.	BODY (COPPER ALLOY)	SPRING (BERYLLIUM COPPER)
09-9026-2-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE .052 ±.001 DIA (#55 DRILL)

*ONCE AN .020(0,51) PIN IS INSERTED, THE USE OF .016(0,41) THRU .019 (0,48) PINS IS NO LONGER RECOMMENDED

09-9093-1-XX P.C. JACK FOR .022 PIN

BASIC PART NO. FINISH


.060±.003
1,52
.212
5,38
.015
0,38
.207 MIN
5,26 HOLE DEPTH
.049±.001
1,24
BERYLLIUM COPPER SPRING INSERT CAPTIVATED

RECOMMENDED MOUNTING HOLE .052 ±.002 DIA (#55 DRILL)

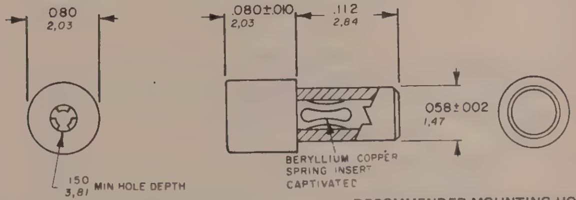
ACCEPTS .022(0,56) PIN

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9093-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9015-1-XX P.C. JACK FOR .025 PIN

BASIC PART NO. FINISH


080
2,03
.080±.010
2,03
.112
2,84
058±002
1,47
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.150
3,81 MIN HOLE DEPTH

ACCEPTS .025(0,64) PIN

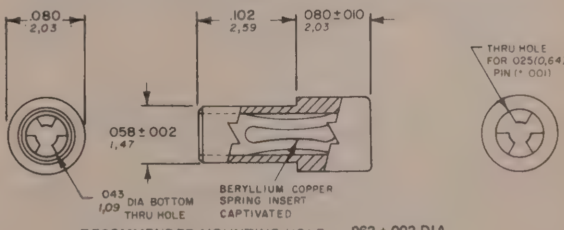
RECOMMENDED MOUNTING HOLE .062 ±.002 DIA

BOARD THICKNESS .031(0,79) TO .062 (1,57)

PART NO	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9015-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9017-1-XX P.C. JACK FOR .025 PIN

BASIC PART NO. FINISH


.080
2,03
.102
2,59
080±010
2,03
THRU HOLE
FOR 025(0,64) PIN (± 001)
058±002
1,47
043
1,09 DIA BOTTOM THRU HOLE
BERYLLIUM COPPER SPRING INSERT CAPTIVATED

RECOMMENDED MOUNTING HOLE .062 ±.002 DIA

ACCEPTS .025(0,64) PIN

BOARD THICKNESS .031(0,79) TO .062(1,57)

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9017-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

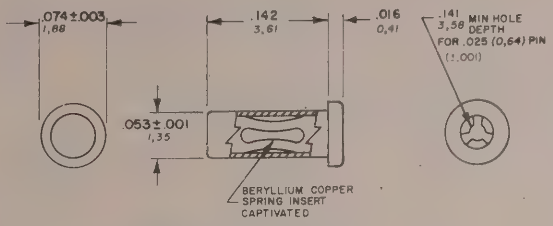
CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. JACKS-CLOSED ENTRY-SOLDER MOUNT

09-9024-1-XX P.C. JACK FOR .025 PIN

BASIC PART NO. FINISH


.074±.003
1,88
.142
3,61
.016
0,41
.141 MIN HOLE
3,58 DEPTH
FOR .025 (0,64) PIN
(±.001)
.053±.001
1,35
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED

ACCEPTS .025 *(0,64)* PIN

BOARD THICKNESS .031 *(0,79)* TO .094 *(2,39)*

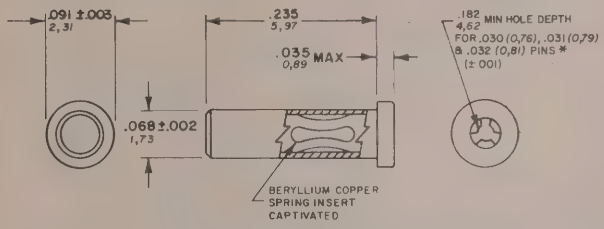
RECOMMENDED MOUNTING HOLE
.055 ±.001 DIA (#55 DRILL)

COMPONENT FINISH

PART NO.	BODY (COPPER ALLOY)	SPRING(BERYLLIUM COPPER)
09-9024-1-03	GOLD/COPPER	GOLD/COPPER
-04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
-06	ELECTRO-TIN/COPPER	GOLD/ COPPER

09-9036-1-XX P.C. JACK FOR .030.031 AND .032 PINS*

BASIC PART NO. FINISH


.091 ±.003
2,31
.235
5,97
.035 MAX
0,89
.182 MIN HOLE DEPTH
4,62
FOR .030 (0,76), .031 (0,79)
& .032 (0,81) PINS *
(± 001)
.068±.002
1,73
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED

ACCEPTS .030 *(0,76)*, .031 *(0.79)* AND .032 *(0,81)* PINS *

BOARD THICKNESS .031 *(0,79)* TO .188 *(4,78)*

COMPONENT FINISH

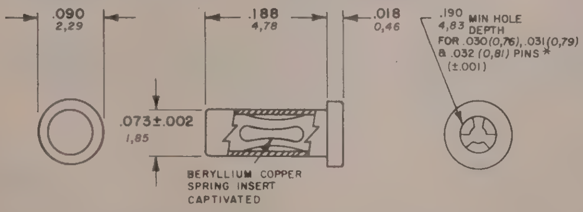
PART NO.	BODY(BRASS)	SPRING(BERYLLIUM COPPER)
09-9036-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE .073 ±.002 (#49 DRILL)

INTERCHANGING OF .030(0,76)*, .031*(0,79)* AND .032 *(0,81)* SIZED PINS IS NOT RECOMMENDED FOR REPEATED USAGE.

09-9034-1-XX P.C. JACK FOR .030.031 AND .032 PINS*

PART NO. FINISH


.090
2,29
.188
4,78
.018
0,46
.190 MIN HOLE
4,83 DEPTH
FOR .030(0,76), .031(0,79)
& .032 (0,81) PINS *
(±.001)
.073±.002
1,85
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED

ACCEPTS .030 *(0,76)*, .031*(0,79)*, AND .032*(0,81)* PINS*

BOARD THICKNESS .031 *(0,79)* TO .156 *(3,96)*.

COMPONENT FINISH

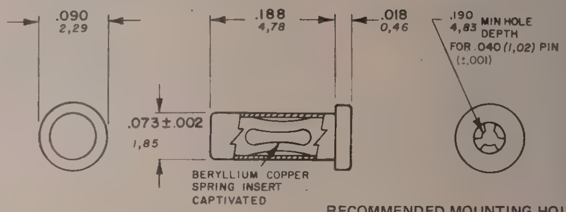
PART NO.	BODY(BRASS)	SPRING(BERYLLIUM COPPER)
09-9034-1-03	GOLD/COPPER	GOLD/COPPER
-04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
-06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE .076 $^{+.002}_{-.001}$ DIA (#48 DRILL)

INTERCHANGING OF .030(0,76)*, .031*(0,79)*, AND .032*(0,81)* SIZED PINS IS NOT RECOMMENDED FOR REPEATED USAGE

09-9001-1-XX P.C. JACK FOR .040 PIN

BASIC PART NO. FINISH


.090
2,29
.188
4,78
.018
0,46
.190 MIN HOLE
4,83 DEPTH
FOR .040 (1,02) PIN
(±.001)
.073±.002
1,85
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED

ACCEPTS .040 *(1,02)* PIN

BOARD THICKNESS .031 *(0,79)* TO .156 *(3,96)*

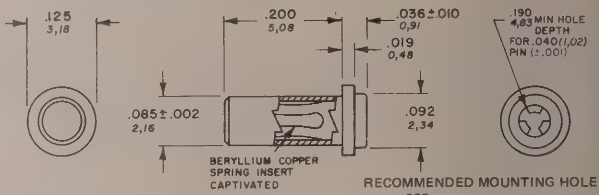
RECOMMENDED MOUNTING HOLE
.076 $^{+.002}_{-.001}$ DIA (#48 DRILL)

COMPONENT FINISH

PART NO.	BODY(BRASS)	SPRING(BERYLLIUM COPPER)
09-9001-1-03	GOLD/COPPER	GOLD/COPPER
-04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
-06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9018-1-XX P.C. JACK FOR .040 PIN

BASIC PART NO. FINISH


.125
3,18
.200
5,08
.036±.010
0,91
.019
0,48
.190 MIN HOLE
4,83 DEPTH
FOR .040(1,02)
PIN (±.001)
.085±.002
2,16
.092
2,34
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED

ACCEPTS .040*(1,02)* PIN

BOARD THICKNESS .031 *(0,79)* TO .156 *(3,96)*

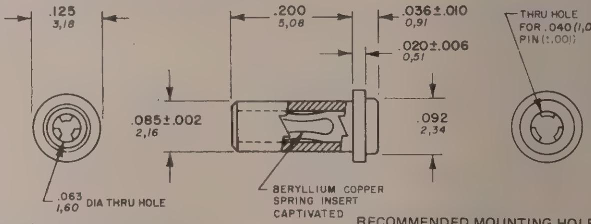
RECOMMENDED MOUNTING HOLE.
.089 $^{+.002}_{-.001}$ DIA (#43 DRILL)

COMPONENT FINISH

PART NO.	BODY(BRASS)	SPRING(BERYLLIUM COPPER)
09-9018-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9002-1-XX P.C. JACK FOR .040 PIN

BASIC PART NO. FINISH


.125
3,18
.200
5,08
.036±.010
0,91
.020±.006
0,51
THRU HOLE
FOR .040(1,02)
PIN (±.001)
.085±.002
2,16
.092
2,34
.063
1,60 DIA THRU HOLE
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED

ACCEPTS .040 *(1,02)* PIN

BOARD THICKNESS .031*(0,79)* TO .156*(3,96)*

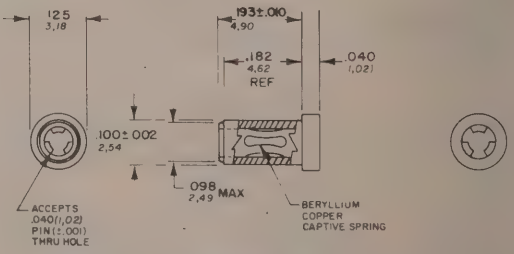
RECOMMENDED MOUNTING HOLE
.089 $^{+.002}_{-.001}$ DIA (#43 DRILL)

COMPONENT FINISH

PART NO.	BODY(BRASS)	SPRING(BERYLLIUM COPPER)
09-9002-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9047-1-XX P.C. JACK FOR .040 PIN

BASIC PART NO. FINISH


125
3,18
193±.010
4,90
.182
4,62
REF
.040
1,02
.100±.002
2,54
098
2,49 MAX
ACCEPTS
.040(1,02)
PIN (±.001)
THRU HOLE
BERYLLIUM
COPPER
CAPTIVE SPRING

COMPONENT FINISH

PART NO.	BODY(BRASS)	SPRING(BERYLLIUM COPPER)
09-9047-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE .104 ±.001 DIA (#37 DRILL)

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

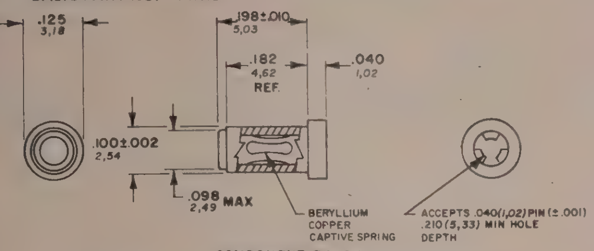
CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. JACKS-CLOSED ENTRY-SOLDER MOUNT

09-9048-1-XX P.C. JACK FOR .040 PIN

BASIC PART NO. FINISH


.125
3,18
.198±.010
5,03
.182
4,62
REF.
.040
1,02
.100±.002
2,54
.098
2,49
MAX
BERYLLIUM
COPPER
CAPTIVE SPRING
ACCEPTS .040(1,02) PIN (±.001)
.210 (5,33) MIN HOLE
DEPTH

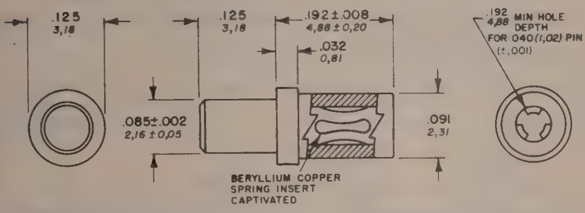
COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9048-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE
.104 ±.001 DIA (#37 DRILL)

09-9008-1-XX P.C. JACK FOR .040 PIN

BASIC PART NO. FINISH


.125
3,18
.125
3,18
.192±.008
4,88±0,20
.032
0,81
.192
4,88
MIN HOLE
DEPTH
FOR 040(1,02) PIN
(±.001)
.085±.002
2,16±0,05
.091
2,31
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED

ACCEPTS .040(1,02) PIN
BOARD THICKNESS .031 (0,79) TO .094 (2,39)

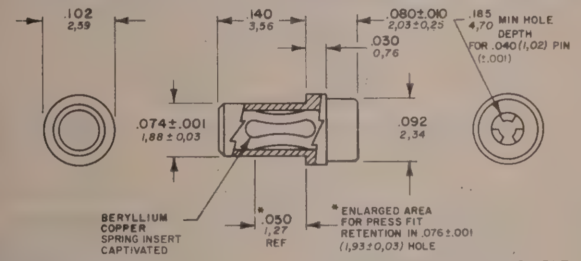
RECOMMENDED MOUNTING HOLE
.089 ±.002 DIA (#43 DRILL)

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9008-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9006-1-XX .040 JACK-SPECIAL PRESS FIT RETENTION FEATURE

BASIC PART NO. FINISH


.102
2,59
.140
3,56
.080±.010
2,03±0,25
.030
0,76
.185
4,70
MIN HOLE
DEPTH
FOR .040(1,02) PIN
(±.001)
.074±.001
1,88±0,03
.092
2,34
BERYLLIUM
COPPER
SPRING INSERT
CAPTIVATED
*.050
1,27
REF
* ENLARGED AREA
FOR PRESS FIT
RETENTION IN .076±.001
(1,93±0,03) HOLE

ACCEPTS .040 (1,02) PIN
BOARD THICKNESS .062 (1,57) TO .125 (3,18)

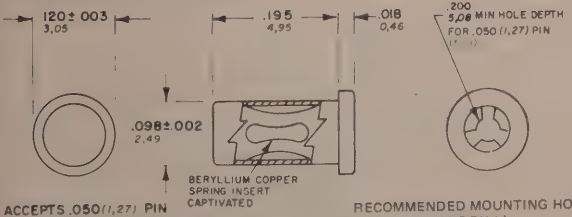
RECOMMENDED MOUNTING HOLE
.076 ±.001 DIA (#48 DRILL)

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9006-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9061-1-XX P.C. JACK FOR .050 PIN

BASIC PART NO. FINISH


120±.003
3,05
.195
4,95
.018
0,46
.200
5,08
MIN HOLE DEPTH
FOR .050 (1,27) PIN
.098±.002
2,49
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED

ACCEPTS .050(1,27) PIN
BOARD THICKNESS .031(0,79) TO .156(3,96)

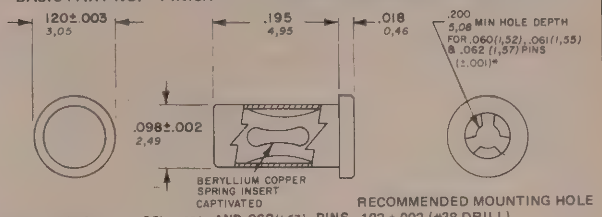
RECOMMENDED MOUNTING HOLE
.102 ±.002 (#38 DRILL)

COMPONENT FINISH·

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9061-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9013-1-XX P.C. JACK FOR .060, 061 AND .062 PINS*

BASIC PART NO. FINISH


120±.003
3,05
.195
4,95
.018
0,46
.200
5,08
MIN HOLE DEPTH
FOR .060(1,52), .061(1,55)
& .062 (1,57) PINS
(±.001)*
.098±.002
2,49
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED

RECOMMENDED MOUNTING HOLE
.102 ±.002 (#38 DRILL)

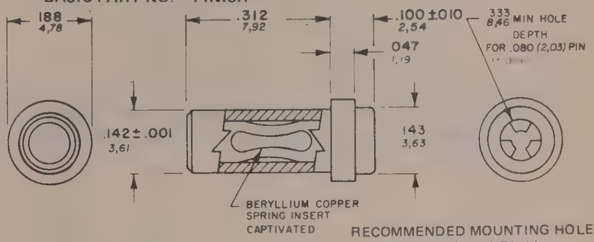
ACCEPTS .060(1,52), .061 (1,55), AND .062(1,57) PINS
BOARD THICKNESS .031(0,79) TO .156(3,96)

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9013-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9039-1-XX P.C. JACK FOR .080 PIN

BASIC PART NO. FINISH


188
4,78
.312
7,92
.100±.010
2,54
047
1,19
333
8,46
MIN HOLE
DEPTH
FOR .080 (2,03) PIN
.142±.001
3,61
143
3,63
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED

RECOMMENDED MOUNTING HOLE
.144 ±.001 DIA (#27 DRILL)

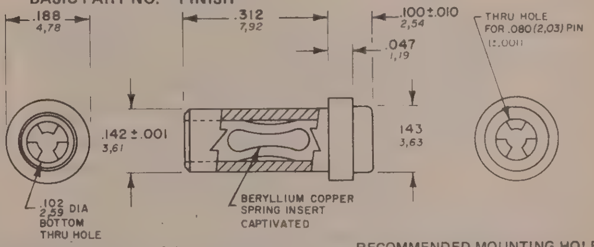
ACCEPTS .080 (2,03) PIN
BOARD THICKNESS .031(0,79) TO .250 (6,35)

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9039-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9044-1-XX P.C. JACK FOR .080 PIN

BASIC PART NO. FINISH


.188
4,78
.312
7,92
.100±.010
2,54
.047
1,19
THRU HOLE
FOR .080(2,03) PIN
(±.001)
.142±.001
3,61
143
3,63
.102
2,59
DIA
BOTTOM
THRU HOLE
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED

ACCEPTS .080 (2,03) PIN
BOARD THICKNESS .031(0,79) TO .250 (6,35)

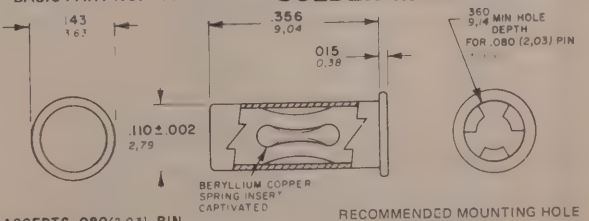
RECOMMENDED MOUNTING HOLE
.144 ±.001 DIA (#27 DRILL)

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9044-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9038-1-XX P.C. JACK FOR .080 PIN -SOLDER MOUNT

BASIC PART NO. FINISH


143
3,63
.356
9,04
015
0,38
360
9,14
MIN HOLE
DEPTH
FOR .080 (2,03) PIN
.110±.002
2,79
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED

ACCEPTS .080(2,03) PIN
BOARD THICKNESS .031(0,79) TO .312 (7,92)

RECOMMENDED MOUNTING HOLE
.116 ±.002 DIA (#32 DRILL)

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9038-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

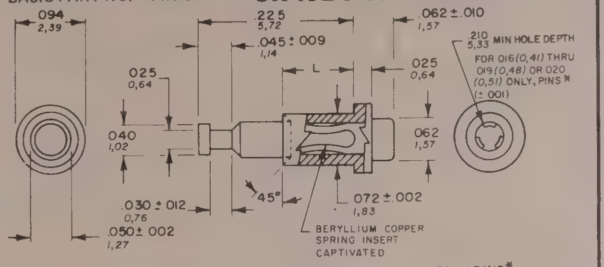
CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. JACKS-CLOSED ENTRY-SWAGE MOUNT

09-9051-X-XX P.C. JACK FOR .016 THRU .019 OR .020 ONLY. PINS*

BASIC PART NO. FINISH


.094
2,39
.225
5,72
.062 ± .010
1,57
.045 ± 009
1,14
025
0,64
L
025
0,64
.210
5,33 MIN HOLE DEPTH
FOR 016(0,41) THRU 019(0,48) OR 020 (0,51) ONLY, PINS*
(± 001)
040
1,02
062
1,57
45°
.030 ± 012
0,76
.050 ± 002
1,27
072 ± .002
1,83
BERYLLIUM COPPER SPRING INSERT CAPTIVATED

ACCEPTS .016(0,41) THRU .019(0,48) OR .020(0,51) ONLY, PINS*

PART NO.	L	BOARD THICKNESS
09-9051-1	.041 (1,04)	1/32 (0,79)
09-9051-2	.072 (1,83)	1/16 (1,59)
09-9051-3	.104 (2,64)	3/32 (2,38)
09-9051-4	.135 (3,43)	1/8 (3,18)

COMPONENT FINISH

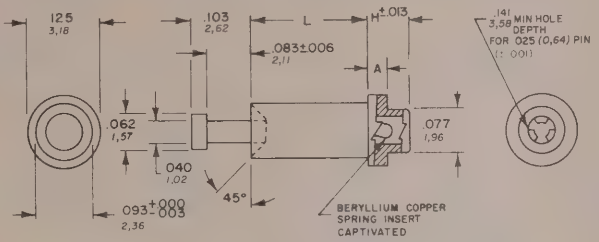
PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9051-X-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

*ONCE AN .020(0,51) PIN IS INSERTED, THE USE OF 016(0,41) THRU .019(0,48) PINS IS NO LONGER RECOMMENDED.

RECOMMENDED MOUNTING HOLE .076 ±.002 DIA (#48 DRILL)

09-9045-X-XX P.C. JACK FOR .025 PIN

BASIC PART NO. FINISH


125
3,18
.103
2,62
L
H ±.013
.083±.006
2,11
A
.141
3,58 MIN HOLE DEPTH
FOR 025 (0,64) PIN
(±.001)
.062
1,57
.077
1,96
040
1,02
45°
093 +.000 -.003
2,36
BERYLLIUM COPPER SPRING INSERT CAPTIVATED

ACCEPTS .025 (0,64) PIN

PART NO.	L	A	H	BOARD THICKNESS
09-9045-2	.094 (2,39)	.062 (1,57)	.106 (2,69)	1/16 (1,59)
09-9045-3	.125 (3,18)	.031 (0,79)	.075 (1,90)	3/32 (2,38)
09-9045-4	.156 (3,96)	.031 (0,79)	.075 (1,90)	1/8 (3,18)
09-9045-6	.219 (5,56)	.031 (0,79)	.075 (1,90)	3/16 (4,76)

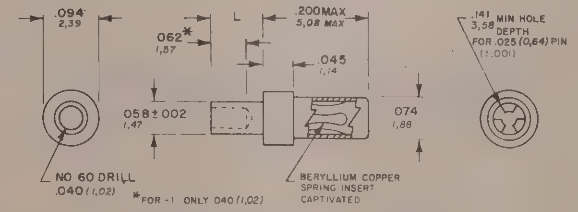
COMPONENT FINISH

PART NO	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9045-X-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE .094 $^{+.002}_{-.001}$ DIA (#42 DRILL)

09-9020-X-XX P.C. JACK FOR .025 PIN

BASIC PART NO. FINISH


.094
2,39
L
.200 MAX
5,08 MAX
062*
1,57
.045
1,14
.141
3,58 MIN HOLE DEPTH
FOR .025 (0,64) PIN
(±.001)
058 ± 002
1,47
074
1,88
NO 60 DRILL
.040 (1,02)
BERYLLIUM COPPER SPRING INSERT CAPTIVATED

*FOR -1 ONLY 040 (1,02)

ACCEPTS 025 (0,64) PIN

PART NO.	L	BOARD THICKNESS
09-9020-1	.062 (1,57)	1/32 (0,79)
09-9020-2	.094 (2,39)	1/16 (1,59)
09-9020-3	.125 (3,18)	3/32 (2,38)
09-9020-4	.156 (3,96)	1/8 (3,18)

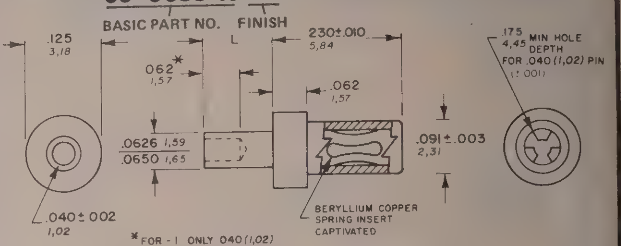
COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9020-X-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE .062 ±.002 DIA

09-9035-X-XX P.C. JACK FOR .040 PIN

BASIC PART NO. FINISH


.125
3,18
L
.230±.010
5,84
062*
1,57
.062
1,57
.175
4,45 MIN HOLE DEPTH
FOR .040 (1,02) PIN
(±.001)
.0626 1,59
.0650 1,65
.091±.003
2,31
.040±.002
1,02
BERYLLIUM COPPER SPRING INSERT CAPTIVATED

*FOR -1 ONLY 040 (1,02)

ACCEPTS .040(1,02) PIN

PART NO.	L	BOARD THICKNESS
09-9035-1	.062 (1,57)	1/32 (0,79)
09-9035-2	.094 (2,39)	1/16 (1,59)
09-9035-3	.125 (3,18)	3/32 (2,38)
09-9035-4	.156 (3,96)	1/8 (3,18)

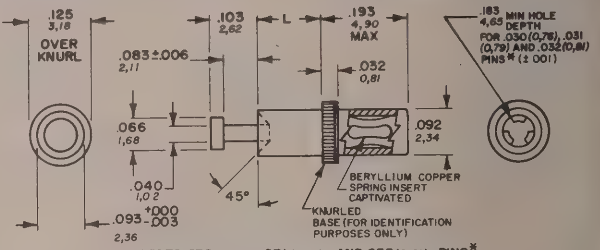
COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9035-X-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE .067 ±.002 DIA (#51 DRILL)

09-9037-X-XX P.C. JACK FOR .030.031 AND .032 PINS*

BASIC PART NO. FINISH


.125
3,18
OVER KNURL
.103
2,62
L
.193
4,90
MAX
.183
4,65 MIN HOLE DEPTH
FOR .030(0,76), .031 (0,79) AND .032(0,81) PINS* (±.001)
.083±.006
2,11
.032
0,81
.066
1,68
.092
2,34
.040
1,02
45°
.093 +.000 -.003
2,36
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
KNURLED BASE (FOR IDENTIFICATION PURPOSES ONLY)

ACCEPTS .030(0,76), .031(0,79) AND .032(0,81) PINS*

PART NO.	L	BOARD THICKNESS
09-9037-1	.062 (1,57)	1/32 (0,79)
09-9037-2	.094 (2,39)	1/16 (1,59)
09-9037-3	.125 (3,18)	3/32 (2,38)
09-9037-4	.156 (3,96)	1/8 (3,18)
09-9037-6	.219 (5,56)	3/16 (4,76)

COMPONENT FINISH

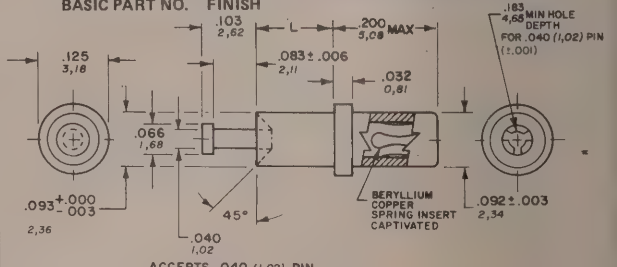
PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9037-X-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

*INTERCHANGING OF .030(0,76), .031 (0,79) AND .032 (0,81) SIZED PINS IS NOT RECOMMENDED FOR REPEATED USAGE

RECOMMENDED MOUNTING HOLE .094 $^{+.002}_{-.001}$ DIA (#42 DRILL)

09-9004-X-XX P.C. JACK FOR .040 PIN

BASIC PART NO. FINISH


.103
2,62
L
.200 MAX
5,08
.183
4,65 MIN HOLE DEPTH
FOR .040 (1,02) PIN
(±.001)
.125
3,18
.083±.006
2,11
.032
0,81
.066
1,68
.093 +.000 -.003
2,36
45°
.040
1,02
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.092±.003
2,34

ACCEPTS .040 (1,02) PIN

PART NO.	L	BOARD THICKNESS
09-9004-1	.062 (1,57)	1/32 (0,79)
09-9004-2	.094 (2,39)	1/16 (1,59)
09-9004-3	.125 (3,18)	3/32 (2,38)
09-9004-4	.156 (3,96)	1/8 (3,18)
09-9004-6	.219 (5,56)	3/16 (4,76)

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9004-X-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE .094 $^{+.002}_{-.001}$ DIA (#42 DRILL)

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

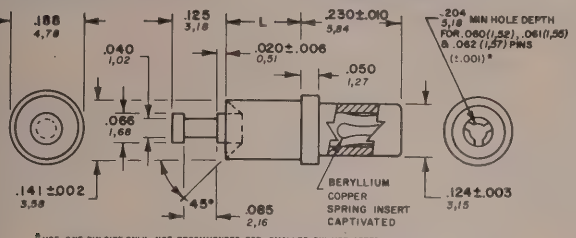
CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. JACKS-CLOSED ENTRY-SWAGE MOUNT

09-9067-X-XX P.C. JACK FOR .060, 061 AND .062 PINS*

BASIC PART NO. FINISH


.188
4,78
.125
3,18
L
.230±.010
5,84
.204
5,18 MIN HOLE DEPTH
FOR .060(1,52), .061(1,55)
& .062 (1,57) PINS
(±.001)*
.040
1,02
.020±.006
0,51
.050
1,27
.066
1,68
.141±.002
3,58
45°
.085
2,16
BERYLLIUM
COPPER
SPRING INSERT
CAPTIVATED
.124±.003
3,15

*USE ONE PIN SIZE ONLY- NOT RECOMMENDED FOR SMALLER PIN USE AFTER LARGER PIN HAS BEEN USED.

ACCEPTS .060(1,52) ,061(1,55) ,AND .062(1,57) PINS

PART NO.	L	BOARD THICKNESS
09-9067-1	.058 (1,47)	1/32 (0,79)
09-9067-2	.089 (2,26)	1/16 (1,59)
09-9067-3	.120 (3,05)	3/32 (2,38)
09-9067-4	.151 (3,84)	1/8 (3,18)
09-9067-6	.214 (5,44)	3/16 (4,76)

COMPONENT FINISH

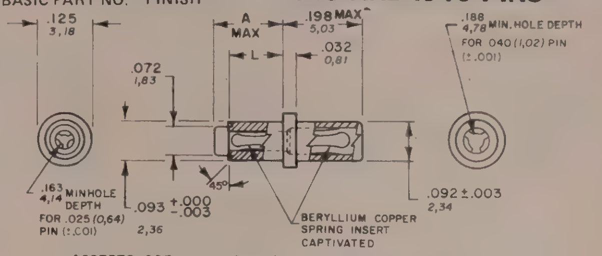
PART NO.	BODY(BRASS)	SPRING(BERYLLIUM COPPER)
09-9067-X-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE

.144 $^{+.002}_{-.001}$ DIA (#27 DRILL)

09-9019-X-XX DOUBLE ENDED P.C. JACK FOR .025 AND .040 PINS

BASIC PART NO. FINISH


.125
3,18
A
MAX
.198 MAX
5,03
.032
0,81
L
.072
1,83
.188
4,78 MIN. HOLE DEPTH
FOR .040 (1,02) PIN
(±.001)
.163
4,14 MIN HOLE
DEPTH
FOR .025 (0,64)
PIN (±.001)
45°
.093 +.000 -.003
2,36
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED
.092±.003
2,34

ACCEPTS .025 (0,64) AND .040 (1,02) PINS

PART NO.	L	A	BOARD THICKNESS
09-9019-2	.094 (2,39)	.191 (4,85)	1/16 (1,59)
09-9019-3	.125 (3,18)	.191 (4,85)	3/32 (2,38)
09-9019-4	.156 (3,96)	.191 (4,85)	1/8 (3,18)
09-9019-6	.219 (5,56)	.253 (6,43)	3/16 (4,76)

COMPONENT FINISH

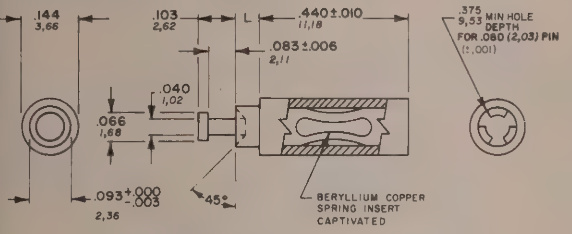
PART NO.	BODY(BRASS)	SPRING(BERYLLIUM COPPER)
09-9019-X-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE

.094 $^{+.002}_{-.001}$ DIA (#42 DRILL)

09-9042-X-XX P.C. JACK FOR .080 PIN

BASIC PART NO. FINISH


.144
3,66
.103
2,62
L
.440±.010
11,18
.083±.006
2,11
.375
9,53 MIN HOLE
DEPTH
FOR .080 (2,03) PIN
(±.001)
.040
1,02
.066
1,68
.093 +.000 -.003
2,36
45°
BERYLLIUM COPPER
SPRING INSERT
CAPTIVATED

ACCEPTS .080(2,03) PIN

PART NO.	L	BOARD THICKNESS
09-9042-1	.062 (1,57)	1/32 (0,79)
09-9042-2	.094 (2,39)	1/16 (1,59)
09-9042-3	.125 (3,18)	3/32 (2,38)
09-9042-4	.156 (3,96)	1/8 (3,18)
09-9042-6	.219 (5,56)	3/16 (4,76)

COMPONENT FINISH

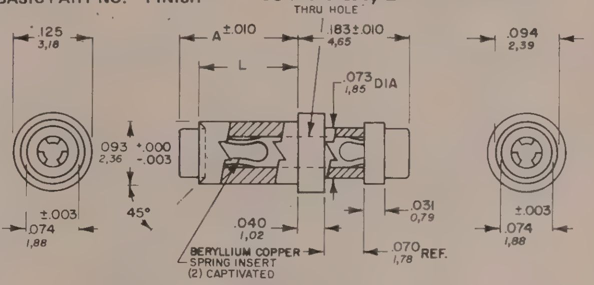
PART NO.	BODY(BRASS)	SPRING(BERYLLIUM COPPER)
09-9042-X-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE

.094 $^{+.002}_{-.001}$ DIA (#42 DRILL)

09-9022-X-XX DOUBLE ENDED P.C. JACK FOR .025 PIN, BOTH ENDS

BASIC PART NO. FINISH


THRU HOLE
.125
3,18
A ±.010
.183±.010
4,65
.094
2,39
L
.073
1,85 DIA
.093 +.000 -.003
2,36
45°
±.003
.074
1,88
.040
1,02
.031
0,79
BERYLLIUM COPPER
SPRING INSERT
(2) CAPTIVATED
.070
1,78 REF.
±.003
.074
1,88

ACCEPTS .025(0,64) PINS (BOTH ENDS) (±.001)

PART NO.	L	A	BOARD THICKNESS
09-9022-2	.094 (2,39)	.129 (3,28)	1/16 (1,59)
09-9022-3	.125 (3,18)	.160 (4,06)	3/32 (2,38)
09-9022-4	.156 (3,96)	.191 (4,85)	1/8 (3,18)
09-9022-6	.219 (5,56)	.254 (6,45)	3/16 (4,76)

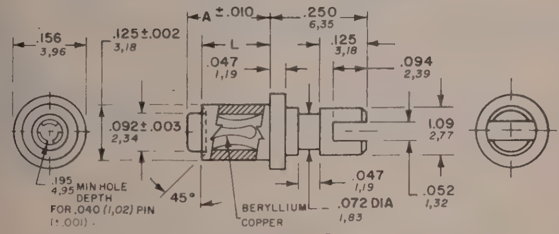
COMPONENT FINISH

PART NO.	BODY(BRASS)	SPRING(BERYLLIUM COPPER)
09-9022-X-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE .094 $^{+.002}_{-.001}$ DIA (#42 DRILL)

09-9003-X-XX P.C. JACK SLOTTED, FOR .040 PIN

BASIC PART NO. FINISH


A ±.010
.250
6,35
.156
3,96
.125±.002
3,18
L
.125
3,18
.047
1,19
.094
2,39
.092±.003
2,34
1.09
2,77
.195
4,95 MIN HOLE
DEPTH
FOR .040 (1,02) PIN
(±.001)
45°
BERYLLIUM
COPPER
SPRING INSERT
CAPTIVATED
.047
1,19
.072 DIA
1,83
.052
1,32

ACCEPTS .040(1,02) PIN

PART NO.	L	A	BOARD THICKNESS
09-9003-2	.094 (2,39)	.182 (4,62)	1/16 (1,59)
09-9003-3	.125 (3,18)	.182 (4,62)	3/32 (2,38)
09-9003-4	.156 (3,96)	.182 (4,62)	1/8 (3,18)
09-9003-6	.219 (5,56)	.223 (5,66)	3/16 (4,76)

COMPONENT FINISH

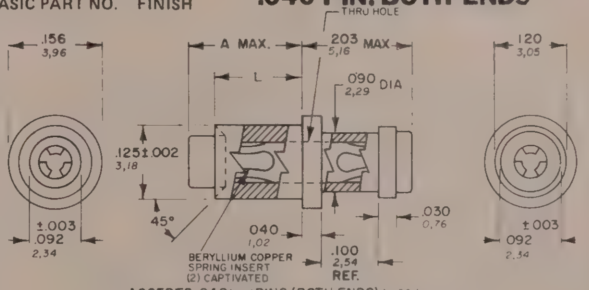
PART NO.	BODY(BRASS)	SPRING(BERYLLIUM COPPER)
09-9003-X-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE

.129 ±.002 DIA (#30 DRILL)

09-9007-X-XX DOUBLE ENDED P.C JACK FOR .040 PIN, BOTH ENDS

BASIC PART NO. FINISH


THRU HOLE
.156
3,96
A MAX.
.203 MAX
5,16
.120
3,05
L
.090
2,29 DIA
.125±.002
3,18
45°
±.003
.092
2,34
.040
1,02
.030
0,76
BERYLLIUM COPPER
SPRING INSERT
(2) CAPTIVATED
.100
2,54
REF.
±.003
.092
2,34

ACCEPTS .040(1,02) PINS (BOTH ENDS) (±.001)

PART NO.	L	A	BOARD THICKNESS
09-9007-2	.094 (2,39)	.203 (5,16)	1/16 (1,59)
09-9007-3	.125 (3,18)	.203 (5,16)	3/32 (2,38)
09-9007-4	.156 (3,96)	.203 (5,16)	1/8 (3,18)
09-9007-6	.219 (5,56)	.250 (6,35)	3/16 (4,76)

COMPONENT FINISH

PART NO.	BODY(BRASS)	SPRING(BERYLLIUM COPPER)
09-9007-X-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE .129 ±.002 DIA (#30 DRILL)

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD

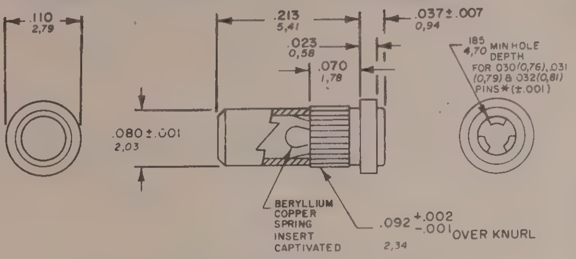
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. JACKS-CLOSED ENTRY-PRESS MOUNT

09-9031-1-XX P.C. JACK FOR .030,031 AND .032 PINS*

BASIC PART NO. FINISH


.110
2,79
.213
5,41
.037±.007
0,94
.023
0,58
.070
1,78
.185
4,70 MIN HOLE DEPTH FOR 030(0,76),031 (0,79) & 032(0,81) PINS*(±.001)
.080±.001
2,03
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.092 +.002 -.001 OVER KNURL
2,34

ACCEPTS .030(0,76) ,.031(0,79) AND .032(0,81) PINS*
BOARD THICKNESS .062(1,57) OR GREATER

COMPONENT FINISH

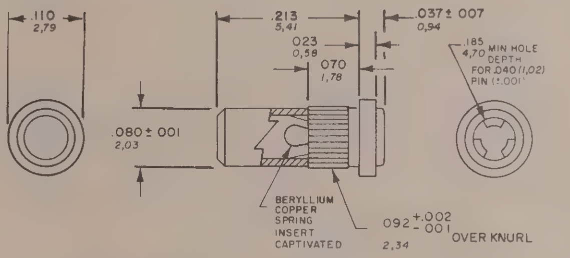
PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9031-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

*INTERCHANGING OF 030(0,76) ,.031 (0,79) ,AND 032(0,81) SIZED PINS IS NOT RECOMMENDED FOR REPEATED USAGE

RECOMMENDED MOUNTING HOLE
.089 ±.001 DIA (#43 DRILL)

09-9032-1-XX P.C. JACK FOR .040 PIN

BASIC PART NO. FINISH


.110
2,79
.213
5,41
.037± 007
0,94
023
0,58
070
1,78
.185
4,70 MIN HOLE DEPTH FOR.040(1,02) PIN (±.001)
.080± 001
2,03
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
092 +.002 -.001 OVER KNURL
2,34

ACCEPTS .040(1,02) PIN
BOARD THICKNESS 062 (1,57) OR GREATER

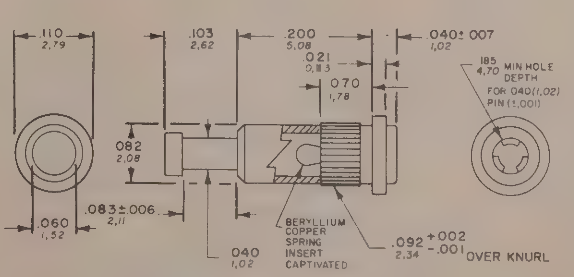
COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9032-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE
.089 ±.001 DIA (#43 DRILL)

09-9053-1-XX P.C. JACK FOR .040 PIN

BASIC PART NO. FINISH


.110
2,79
.103
2,62
.200
5,08
.040± 007
1,02
.021
0,53
070
1,78
.185
4,70 MIN HOLE DEPTH FOR 040(1,02) PIN (±.001)
082
2,08
.083±.006
2,11
.060
1,52
040
1,02
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.092 +002 -.001 OVER KNURL
2,34

ACCEPTS .040(1,02) PIN
BOARD THICKNESS .062(1,57) OR GREATER

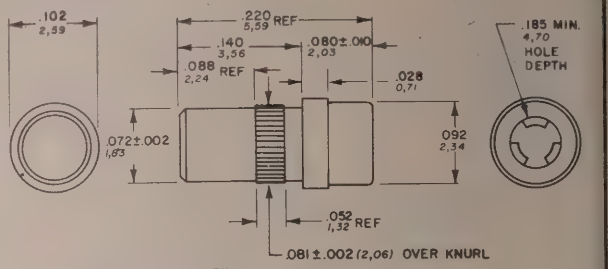
COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9053-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE
.089 ±.001 DIA (#43 DRILL)

09-9081-1-XX P.C. JACK FOR .040 PIN

BASIC PART NO. FINISH


.102
2,59
.220 REF
5,59
.140
3,56
.080±.010
2,03
.088 REF
2,24
.028
0,71
.185 MIN.
4,70 HOLE DEPTH
.072±.002
1,83
092
2,34
.052 REF
1,32
.081±.002(2,06) OVER KNURL

ACCEPTS .040(1,02) PIN
BOARD THICKNESS .062(1,57)

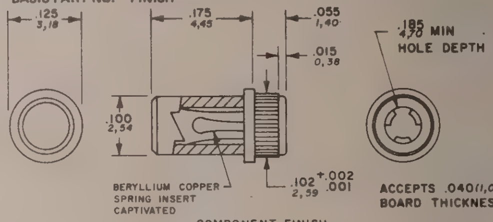
COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9081-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE
.076 ±.002 DIA (#48 DRILL)

09-9078-1-XX P.C. JACK FOR .040 PIN

BASIC PART NO. FINISH


.125
3,18
.175
4,45
.055
1,40
.015
0,38
.185
4,70 MIN HOLE DEPTH
.100
2,54
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.102 +.002 -.001
2,59

ACCEPTS .040(1,02) PIN
BOARD THICKNESS .062

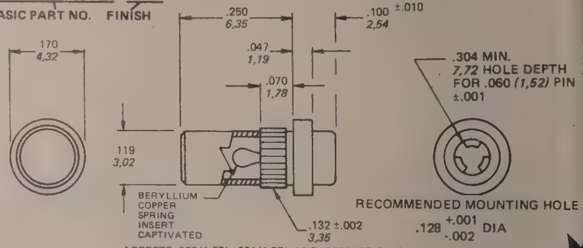
COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9078-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE .0995 +.001 -.003 DIA (#39 DRILL)

09-9100-1-XX JACK FOR .060 PIN

BASIC PART NO. FINISH


.250
6,35
.100 ±.010
2,54
170
4,32
.047
1,19
.070
1,78
.304 MIN.
7,72 HOLE DEPTH FOR .060 (1,52) PIN ±.001
119
3,02
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.132 ±.002
3,35

RECOMMENDED MOUNTING HOLE
.128 +.001 -.002 DIA

ACCEPTS .060(1,52), .061(1,55), AND .062(1,57) PINS
BOARD THICKNESS .031(0,79) TO .156(3,96)

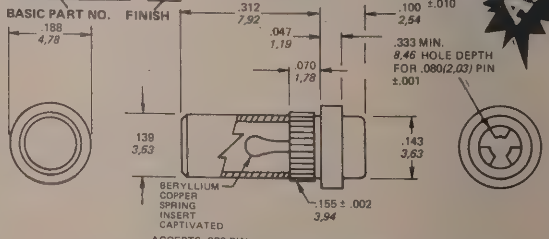
*USE ONE SIZE PIN ONLY -NOT RECOMMENDED FOR SMALLER PIN USE AFTER LARGER PIN HAS BEEN USED.

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9100-1-03	GOLD/COPPER	GOLD/COPPER
09-9100-1-04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
09-9100-1-06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9101-1-XX JACK FOR .080 PIN

BASIC PART NO. FINISH


.312
7,92
.100 ±.010
2,54
.188
4,78
.047
1,19
.070
1,78
.333 MIN.
8,46 HOLE DEPTH FOR .080(2,03) PIN ±.001
139
3,53
.143
3,63
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.155 ± .002
3,94

ACCEPTS .080 PIN
BOARD THICKNESS .031(0,79) TO .250(6,35)

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9101-1-03	GOLD/COPPER	GOLD/COPPER
09-9101-1-04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
09-9101-1-06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE .151 +.001 -.002 DIA

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

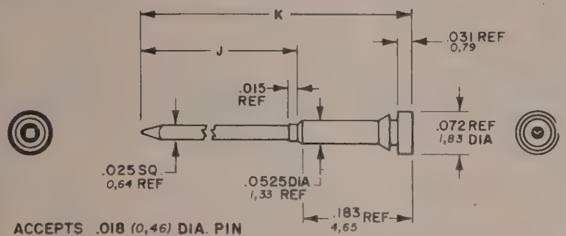
CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. JACKS-CLOSED ENTRY-PRESS MOUNT

09-6023-1-XX P.C. JACK FOR .018 PIN – SQUARE WRAP

BASIC PART NO. FINISH


K
J
.031 REF 0,79
.015 REF
.072 REF 1,83 DIA
.025 SQ 0,64 REF
.0525 DIA 1,33 REF
.183 REF 4,65

ACCEPTS .018 *(0,46)* DIA. PIN

PART NO.	K	J	BOARD THICKNESS
09-6010-1	.443 *(11,25)*	.250 *(6,35)*	1/16 *(1,59)*
09-6010-2	.563 *(14,30)*	.370 *(9,40)*	1/16 *(1,59)*
09-6010-3	.693 *(17,60)*	.500 *(12,7)*	1/16 *(1,59)*

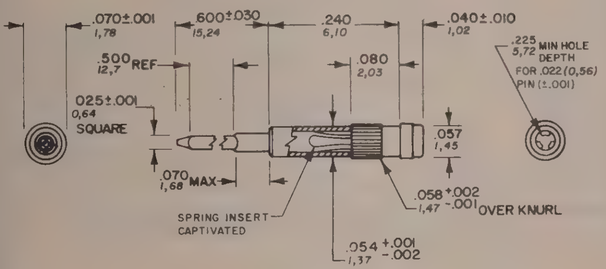
COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-6010-X-03	GOLD / COPPER	GOLD/COPPER
09-6010-X-06	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE
.055 ±.001 DIA (#55 DRILL)

09-9066-1-03 P.C. JACK FOR .022 PIN

BASIC PART NO. FINISH


.070±.001 1,78
.600±.030 15,24
.240 6,10
.040±.010 1,02
.225 5,72 MIN HOLE DEPTH FOR .022 (0,56) PIN (±.001)
.500 REF 12,7
.080 2,03
.025±.001 0,64 SQUARE
.057 1,45
.070 1,68 MAX
.058 +.002 -.001 1,47 OVER KNURL
SPRING INSERT CAPTIVATED
.054 +.001 -.002 1,37

ACCEPTS .022 *(0,56)* PIN
BOARD THICKNESS .062 *(1,57)* TO .188 *(4,78)*

RECOMMENDED MOUNTING HOLE
.055 ±.001 DIA (#54 DRILL)

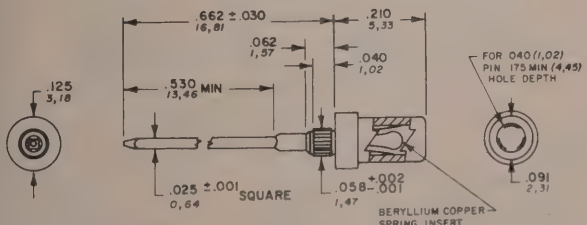
COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9066-1-03	GOLD / COPPER	GOLD/COPPER

COMBINATION P.C. JACKS & SQUARE WRAP-CLOSED ENTRY

09-9095-1-03 P.C. JACK FOR .040 PIN- PRESS MOUNT

BASIC PART NO. FINISH


.662 ±.030 16,81
.210 5,33
.062 1,57
.040 1,02
FOR .040 (1,02) PIN .175 MIN (4,45) HOLE DEPTH
.125 3,18
.530 13,46 MIN
.025 ±.001 0,64 SQUARE
.058 +.002 -.001 1,47
.091 2,31
BERYLLIUM COPPER SPRING INSERT CAPTIVATED

ACCEPTS .040 *(1,02)* PIN

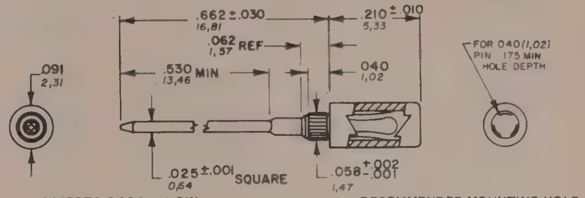
RECOMMENDED MOUNTING HOLE
.066 ±.001 DIA (#54 DRILL)

COMPONENT FINISH

PART NO	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9095-1-03	GOLD/COPPER	GOLD/COPPER

09-9077-1-03 P.C. JACK FOR .040 PIN- PRESS MOUNT

BASIC PART NO. FINISH


.662 ±.030 16,81
.210 ±.010 5,33
.062 1,57 REF
.091 2,31
.530 13,46 MIN
.040 1,02
FOR .040 (1,02) PIN .175 MIN HOLE DEPTH
.025 ±.001 0,64 SQUARE
.058 +.002 -.001 1,47

ACCEPTS .040 *(1,02)* PIN
BOARD THICKNESS .062 *(1,57)*

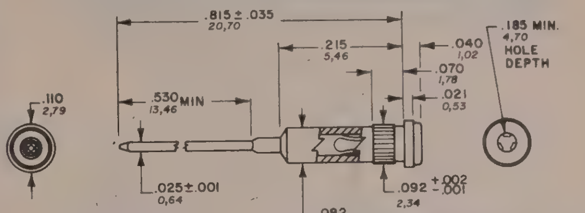
RECOMMENDED MOUNTING HOLE
.055 ±.001 DIA (#54 DRILL)

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9077-1-03	GOLD/COPPER	GOLD/COPPER

09-9076-1-03 P.C. JACK FOR .040 PIN- PRESS MOUNT

BASIC PART NO. FINISH


.815 ±.035 20,70
.185 MIN. 4,70 HOLE DEPTH
.215 5,46
.040 1,02
.070 1,78
.021 0,53
.110 2,79
.530 13,46 MIN
.025±.001 0,64
.092 +.002 -.001 2,34
.082 2,08

ACCEPTS .040 *(1,02)* PIN
BOARD THICKNESS .062 *(1,57)* TO .188 *(4,78)*

RECOMMENDED MOUNTING HOLE
.089 ±.001 (#43 DRILL)

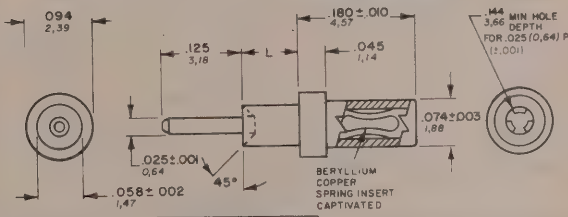
COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9076-1-03	GOLD/COPPER	GOLD/COPPER

COMBINATION PLUG-JACKS-CLOSED ENTRY

09-9016-X-XX .025 JACK-.025 PLUG- SWAGE MOUNT

BASIC PART NO. FINISH


.094 2,39
.180 ±.010 4,57
.144 3,66 MIN HOLE DEPTH FOR .025 (0,64) PIN (±.001)
.125 3,18
L
.045 1,14
.074±.003 1,88
.025±.001 0,64
45°
.058± .002 1,47
BERYLLIUM COPPER SPRING INSERT CAPTIVATED

PART NO.	L	BOARD THICKNESS
09-9016-1	.051 *(1,30)*	1/32 *(0,79)*
09-9016-2	.082 *(2,08)*	1/16 *(1,59)*
09-9016-3	.113 *(2,87)*	3/32 *(2,38)*
09-9016-4	.145 *(3,68)*	1/8 *(3,18)*

ACCEPTS .025 *(0,64)* PIN

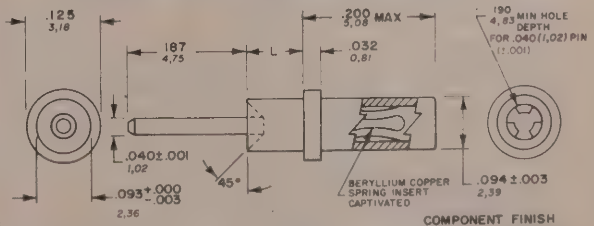
RECOMMENDED MOUNTING HOLE
.062 ±.002 DIA

COMPONENT FINISH

PART NO	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9016-X-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER

09-9005-X-03 .040 JACK-.040 PLUG- SWAGE MOUNT

BASIC PART NO. FINISH


.125 3,18
.200 5,08 MAX
.190 4,83 MIN HOLE DEPTH FOR .040 (1,02) PIN (±.001)
.187 4,75
L
.032 0,81
.040± .001 1,02
45°
.093 +.000 -.003 2,36
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.094 ±.003 2,39

ACCEPTS .040 *(1,02)* PIN

PART NO.	L	BOARD THICKNESS
09-9005-1	.062 *(1,57)*	1/32 *(0,79)*
09-9005-2	.094 *(2,39)*	1/16 *(1,59)*
09-9005-3	.125 *(3,18)*	3/32 *(2,38)*
09-9005-4	.156 *(3,96)*	1/8 *(3,18)*
09-9005-6	.219 *(5,56)*	3/16 *(4,76)*

COMPONENT FINISH

PART NO.	BODY (BRASS)
09-9005-X-03	GOLD/COPPER

SPRING (BERYLLIUM COPPER)
GOLD/COPPER

RECOMMENDED MOUNTING HOLE
.094 $^{+.002}_{-.001}$ DIA (#42 DRILL)

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

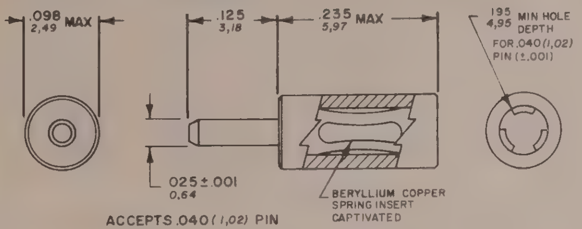
CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

COMBINATION PLUG-JACK ASSEMBLIES-CLOSED ENTRY

09-9014-1-XX .040 JACK-.025 PLUG

BASIC PART NO. FINISH


.098 2,49 MAX
.125 3,18
.235 5,97 MAX
.195 4,95 MIN HOLE DEPTH FOR .040 (1,02) PIN (±.001)
.025±.001 0,64
BERYLLIUM COPPER SPRING INSERT CAPTIVATED

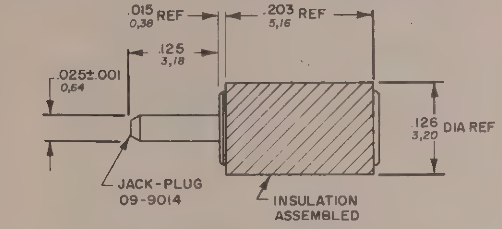
ACCEPTS .040 (1,02) PIN

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9014-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER

09-9010-1-XX 10 .40 JACK-.025 PLUG-INSULATED

BASIC PART NO. FINISH COLOR

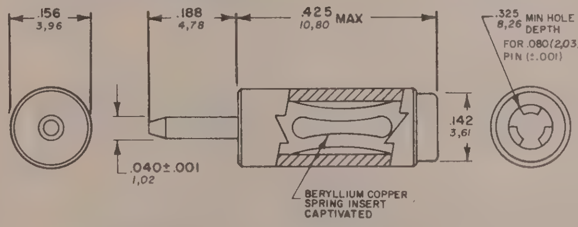

.015 0,38 REF
.203 5,16 REF
.125 3,18
.025±.001 0,64
.126 3,20 DIA REF
JACK-PLUG 09-9014
INSULATION ASSEMBLED

ACCEPTS .040 (1,02) PIN (±.001)

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)	INSULATION (POLYOLEFIN PLASTIC)
09-9010-1-0310	GOLD/COPPER	GOLD/COPPER	BLACK
0410	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER	BLACK

09-9040-1-XX .080 JACK-.040 PLUG

BASIC PART NO. FINISH


.156 3,96
.188 4,78
.425 10,80 MAX
.325 8,26 MIN HOLE DEPTH FOR .080 (2,03) PIN (±.001)
.142 3,61
.040±.001 1,02
BERYLLIUM COPPER SPRING INSERT CAPTIVATED

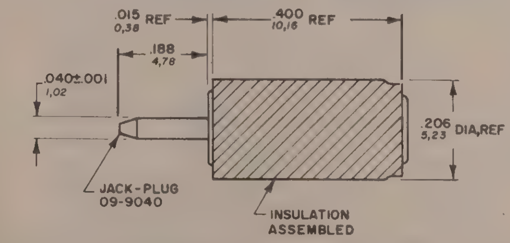
ACCEPTS .080 (2,03) PIN

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9040-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER

09-9063-1-XX 10 .080 JACK-.040 PLUG-INSULATED

BASIC PART NO. FINISH COLOR

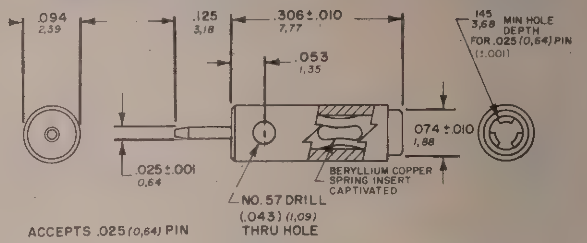

.015 0,38 REF
.400 10,16 REF
.188 4,78
.040±.001 1,02
.206 5,23 DIA REF
JACK-PLUG 09-9040
INSULATION ASSEMBLED

ACCEPTS .080 (2,03) PIN (±.001)

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)	INSULATION (POLYOLEFIN PLASTIC)
09-9063-1-0310	GOLD/COPPER	GOLD/COPPER	BLACK
0410	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER	BLACK

09-9054-1-XX .025 JACK-.025 PLUG

BASIC PART NO. FINISH


.094 2,39
.125 3,18
.306±.010 7,77
.145 3,68 MIN HOLE DEPTH FOR .025 (0,64) PIN (±.001)
.053 1,35
.074±.010 1,88
.025±.001 0,64
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
NO. 57 DRILL (.043) (1,09) THRU HOLE

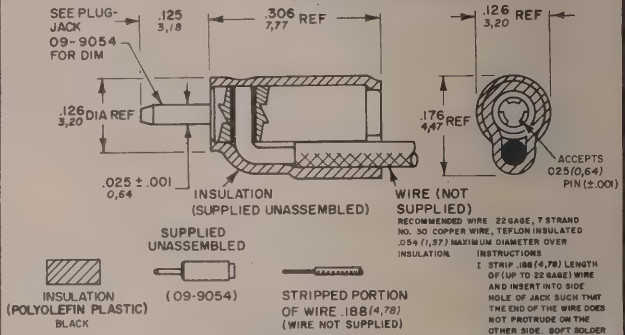
ACCEPTS .025 (0,64) PIN

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9054-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9055-1-XX 10 PLUG-JACK AND INSULATION FOR PATCH CORD ASSEMBLY

BASIC PART NO. FINISH COLOR


SEE PLUG-JACK 09-9054 FOR DIM
.125 3,18
.306 7,77 REF
.126 3,20 REF
.126 3,20 DIA REF
.176 4,47 REF
ACCEPTS .025 (0,64) PIN (±.001)
.025±.001 0,64
INSULATION (SUPPLIED UNASSEMBLED)
WIRE (NOT SUPPLIED)
SUPPLIED UNASSEMBLED
INSULATION (POLYOLEFIN PLASTIC) BLACK
(09-9054)
STRIPPED PORTION OF WIRE .188 (4,78) (WIRE NOT SUPPLIED)

RECOMMENDED WIRE 22 GAGE, 7 STRAND NO. 30 COPPER WIRE, TEFLON INSULATED .054 (1,37) MAXIMUM DIAMETER OVER INSULATION.

INSTRUCTIONS

I STRIP .188 (4,78) LENGTH OF (UP TO 22 GAGE) WIRE AND INSERT INTO SIDE HOLE OF JACK SUCH THAT THE END OF THE WIRE DOES NOT PROTRUDE ON THE OTHER SIDE. SOFT SOLDER WIRE TO JACK.

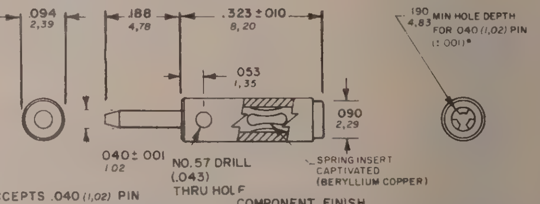
II SLIDE INSULATION OVER PIN END SO AS TO COVER JACK AND WIRE AS SHOWN IN ASSEMBLED VIEW HEAT FOR ABOUT 2 MIN AT 275° F

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9055-1-0310	GOLD/COPPER	GOLD/COPPER
1-0410	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER

09-9082-1-03 .040 JACK .040 PLUG

BASIC PART NO. FINISH


.094 2,39
.188 4,78
.323±.010 8,20
.190 4,83 MIN HOLE DEPTH FOR .040 (1,02) PIN (±.001)
.053 1,35
.090 2,29
.040±.001 1,02
NO. 57 DRILL (.043) THRU HOLE
SPRING INSERT CAPTIVATED (BERYLLIUM COPPER)

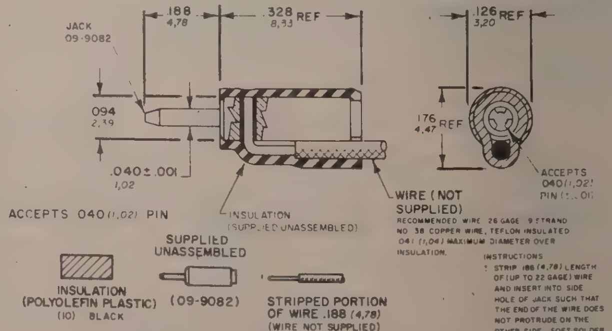
ACCEPTS .040 (1,02) PIN

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9082-1-03	GOLD/COPPER	GOLD/COPPER

09-9083-1-03 10 PLUG-JACK AND INSULATION FOR PATCH CORD ASSEMBLY

BASIC PART NO. FINISH COLOR


JACK 09-9082
.188 4,78
.328 8,33 REF
.126 3,20 REF
.094 2,39
.176 4,47 REF
.040±.001 1,02
ACCEPTS .040 (1,02) PIN (±.001)
INSULATION (SUPPLIED UNASSEMBLED)
WIRE (NOT SUPPLIED)
SUPPLIED UNASSEMBLED
INSULATION (POLYOLEFIN PLASTIC) (10) BLACK
(09-9082)
STRIPPED PORTION OF WIRE .188 (4,78) (WIRE NOT SUPPLIED)

ACCEPTS .040 (1,02) PIN

RECOMMENDED WIRE 26 GAGE 9 STRAND NO 38 COPPER WIRE, TEFLON INSULATED .041 (1,04) MAXIMUM DIAMETER OVER INSULATION.

INSTRUCTIONS

I STRIP .188 (4,78) LENGTH OF (UP TO 22 GAGE) WIRE AND INSERT INTO SIDE HOLE OF JACK SUCH THAT THE END OF THE WIRE DOES NOT PROTRUDE ON THE OTHER SIDE. SOFT SOLDER WIRE TO JACK

II SLIDE INSULATION OVER PIN END SO AS TO COVER JACK AND WIRE AS SHOWN IN ASSEMBLED VIEW HEAT FOR ABOUT 1 MIN AT 275°F

COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9083-1-0310	GOLD/COPPER	GOLD/COPPER

CONCORD

THE COMPONENT PEOPLE

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

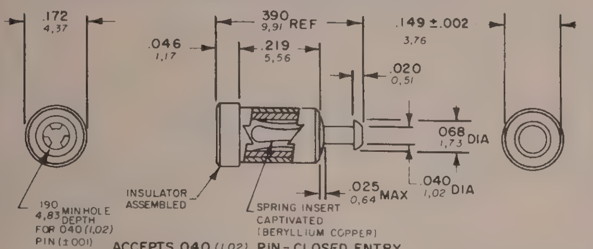
BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

JACKS-TEFLON INSULATED-CLOSED ENTRY

09-9011-1-XX XX JACK FOR .040 PIN

BASIC PART NO. FINISH COLOR


.172
4,37
.046
1,17
390
9,91 REF
.219
5,56
.149 ±.002
3,76
.020
0,51
068
1,73 DIA
.025
0,64 MAX
.040
1,02 DIA
INSULATOR ASSEMBLED
SPRING INSERT CAPTIVATED (BERYLLIUM COPPER)
190
4,83 MIN HOLE DEPTH
FOR 040 (1,02) PIN (±001)

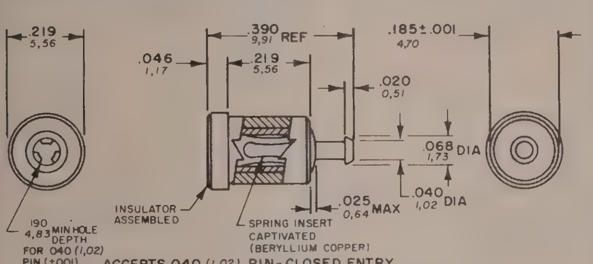
ACCEPTS .040 (1,02) PIN - CLOSED ENTRY
BOARD THICKNESS .031 (0,79) TO .094 (2,39)

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9011-1-03XX	GOLD/COPPER	GOLD/COPPER
04XX	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06XX	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE
.136 DIA

09-9012-1-XX XX JACK FOR .040 PIN

BASIC PART NO. FINISH COLOR


.219
5,56
.046
1,17
.390
9,91 REF
.219
5,56
.185±.001
4,70
.020
0,51
.068
1,73 DIA
.025
0,64 MAX
.040
1,02 DIA
INSULATOR ASSEMBLED
SPRING INSERT CAPTIVATED (BERYLLIUM COPPER)
190
4,83 MIN HOLE DEPTH
FOR 040 (1,02) PIN (±001)

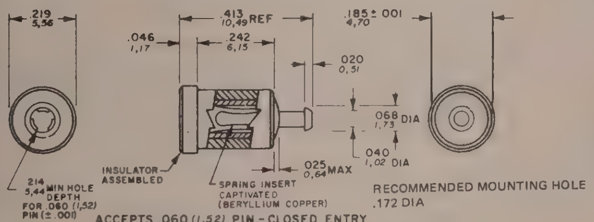
ACCEPTS .040 (1,02) PIN - CLOSED ENTRY
BOARD THICKNESS .031 (0,79) TO .094 (2,39)

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9012-1-03XX	GOLD/COPPER	GOLD/COPPER
04XX	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06XX	ELECTRO-TIN/COPPER	GOLD/COPPER

RECOMMENDED MOUNTING HOLE
.172 DIA

09-9092-1-0319 JACK FOR .060 PIN

BASIC PART NO. FINISH COLOR


.219
5,56
.046
1,17
.413
10,49 REF
.242
6,15
.185±.001
4,70
020
0,51
068
1,73 DIA
040
1,02 DIA
025
0,64 MAX
INSULATOR ASSEMBLED
SPRING INSERT CAPTIVATED (BERYLLIUM COPPER)
214
5,44 MIN HOLE DEPTH
FOR .060 (1,52) PIN (±.001)

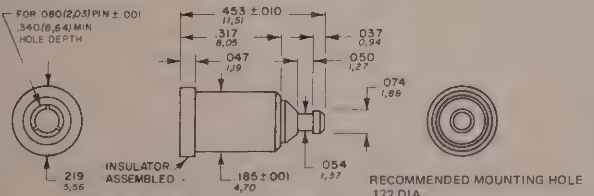
RECOMMENDED MOUNTING HOLE
.172 DIA

ACCEPTS .060 (1,52) PIN - CLOSED ENTRY
BOARD THICKNESS .031 (0,79) TO .094 (2,39)

PART NO	BODY (BRASS)	SPRING (BERYLLIUM COPPER)	INSULATION (TEFLON)
09 9092-1-0319	GOLD/COPPER	GOLD/COPPER	WHITE

09-9084-1-XX XX JACK FOR .080 PIN

BASIC PART NO. FINISH COLOR


FOR 080 (2,03) PIN ± 001
.340 (8,64) MIN HOLE DEPTH
453 ±.010
11,51
.317
8,05
047
1,19
037
0,94
050
1,27
074
1,88
054
1,37
.185±.001
4,70
219
5,56
INSULATOR ASSEMBLED

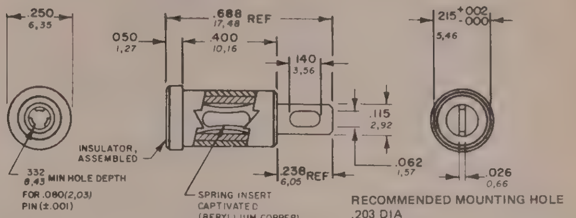
RECOMMENDED MOUNTING HOLE
.172 DIA

ACCEPTS .080 (2,03) PIN

PART NO	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9084-1-03XX	GOLD/COPPER	GOLD/COPPER

09-9060-1-XX XX JACK FOR .080 PIN

BASIC PART NO. FINISH COLOR


.250
6,35
.688 REF
17,48
050
1,27
.400
10,16
140
3,56
.115
2,92
.062
1,57
215 +.002 -.000
5,46
.026
0,66
.238
6,05 REF
INSULATOR, ASSEMBLED
332
8,43 MIN HOLE DEPTH
FOR .080 (2,03) PIN (±.001)
SPRING INSERT CAPTIVATED (BERYLLIUM COPPER)

RECOMMENDED MOUNTING HOLE
.203 DIA

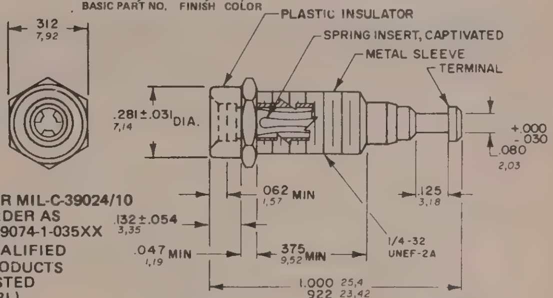
ACCEPTS .080 (2,03) PIN - CLOSED ENTRY

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9060-1-03XX	GOLD/COPPER	GOLD/COPPER
04XX	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06XX	ELECTRO-TIN/COPPER	GOLD/COPPER

PANEL JACK-CLOSED ENTRY-THREAD MOUNT

09-9074-1-03XX
09-9075-1-03XX JACK FOR .080 PIN

BASIC PART NO. FINISH COLOR


PLASTIC INSULATOR
SPRING INSERT, CAPTIVATED
METAL SLEEVE
TERMINAL
312
7,92
.281±.031 DIA.
7,14
+.000 -.030
.080
2,03
062 MIN
1,57
.125
3,18
.132±.054
3,35
.047 MIN
1,19
375 MIN
9,52
1/4-32 UNEF-2A
1.000 25,4
922 23,42

▶ FOR MIL-C-39024/10
ORDER AS
09-9074-1-035XX
QUALIFIED
PRODUCTS
LISTED
(QPL)

ACCEPTS .080 (2,03) PIN (±.001)

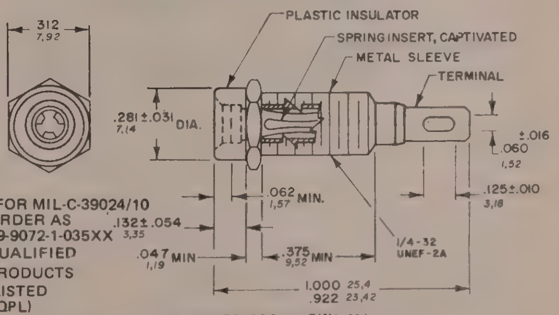
COMPONENT COLOR/FINISH & (MATERIAL)

PART NUMBER	INSULATION	METAL SLEEVE	JACK BODY	JACK SPRING
09-9074-1-03XX	SEE COLOR CHART (NYLON)	NICKEL (BRASS)	GOLD/COPPER (BRASS)	GOLD/COPPER (BERYLLIUM COPPER)
09-9075-1-03XX	(19) NATURAL (TEFLON)	NICKEL (BRASS)	GOLD/COPPER (BRASS)	GOLD/COPPER (BERYLLIUM COPPER)

SUPPLIED UNASSEMBLED: NICKEL PLATED BRASS MOUNTING HEX NUT
NICKEL PLATED PHOSPHOR BRONZE INTERNAL TOOTH LOCKWASHER

09-9072-1-03XX
09-9073-1-03XX JACK FOR .080 PIN

BASIC PART NO. FINISH COLOR


PLASTIC INSULATOR
SPRING INSERT, CAPTIVATED
METAL SLEEVE
TERMINAL
312
7,92
.281±.031 DIA.
7,14
±.016
.060
1,52
.062 MIN.
1,57
.125±.010
3,18
.132±.054
3,35
.047 MIN
1,19
.375 MIN
9,52
1/4-32 UNEF-2A
1.000 25,4
.922 23,42

▶ FOR MIL-C-39024/10
ORDER AS
09-9072-1-035XX
QUALIFIED
PRODUCTS
LISTED
(QPL)

ACCEPTS .080 (2,03) PIN (±.001)

COMPONENT COLOR/FINISH & (MATERIAL)

PART NUMBER	INSULATION	METAL SLEEVE	JACK BODY	JACK SPRING
09-9072-1-03XX	SEE COLOR CHART (NYLON)	NICKEL (BRASS)	GOLD/COPPER (BRASS)	GOLD/COPPER (BERYLLIUM COPPER)
09-9073-1-03XX	(19) NATURAL (TEFLON)	NICKEL (BRASS)	GOLD/COPPER (BRASS)	GOLD/COPPER (BERYLLIUM COPPER)

SUPPLIED UNASSEMBLED: NICKEL PLATED BRASS MOUNTING HEX NUT
NICKEL PLATED PHOSPHOR BRONZE INTERNAL TOOTH LOCKWASHER

CONCORD
THE COMPONENT PEOPLE

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

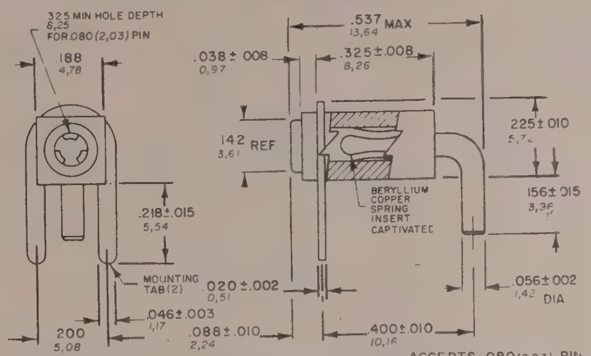
BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. JACKS-CLOSED ENTRY & FOR PATCH CORD ASSY

09-9094-1-XX TEST POINT-SIDE MOUNT P.C. JACK FOR .080 PIN

BASIC PART NO. FINISH

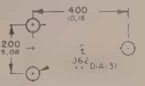


.325 MIN HOLE DEPTH
8,25
FOR .080 (2,03) PIN
.188
4,78
.038 ± .008
0,97
.537 MAX
13,64
.325 ± .008
8,26
.142 REF
3,61
.225 ± .010
5,72
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.156 ± .015
3,96
.218 ± .015
5,54
MOUNTING TAB (2)
.020 ± .002
0,51
.056 ± .002
1,42 DIA
.046 ± .003
1,17
.200
5,08
.088 ± .010
2,24
.400 ± .010
10,16

ACCEPTS .080 (2,03) PIN

PART NO.	COMPONENT FINISH BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9094-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO TIN/COPPER	ELECTRO TIN/COPPER
06	ELECTRO TIN/COPPER	GOLD/COPPER

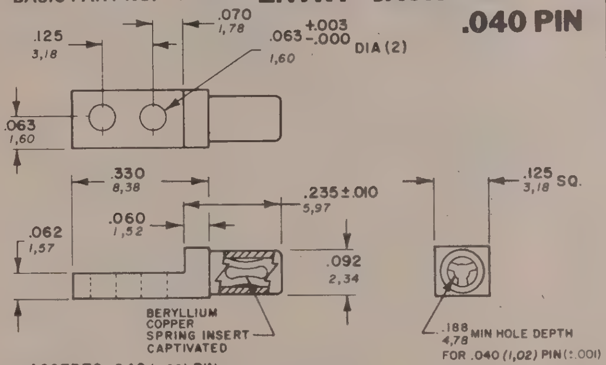
RECOMMENDED MOUNTING HOLES (TOL ±.003)



.400
10,16
.200
5,08
.062
DIA. 3)

09-9069-1-XX EDGE MOUNT-CLOSED ENTRY-JACK FOR .040 PIN

BASIC PART NO. FINISH



.125
3,18
.070
1,78
.063 +.003 -.000 DIA (2)
1,60
.063
1,60
.330
8,38
.235 ± .010
5,97
.125 SQ.
3,18
.062
1,57
.060
1,52
.092
2,34
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.188 MIN HOLE DEPTH
4,78
FOR .040 (1,02) PIN (±.001)

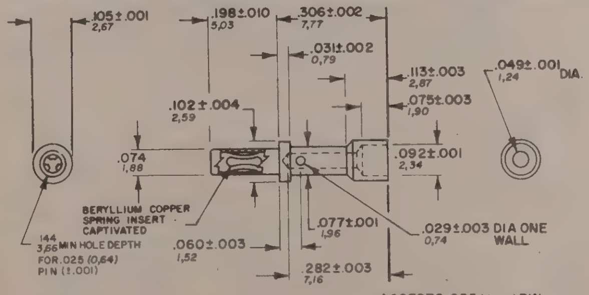
ACCEPTS .040 (1,02) PIN

PART NO.	COMPONENT FINISH BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9069-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

JACKS FOR PATCH CORD ASSEMBLY

09-9058-1-XX JACK FOR .025 PIN-MS 3190 CRIMP BARREL, SIZE 20A

BASIC PART NO. FINISH



.105 ± .001
2,67
.198 ± .010
5,03
.306 ± .002
7,77
.031 ± .002
0,79
.113 ± .003
2,87
.049 ± .001 DIA.
1,24
.075 ± .003
1,90
.102 ± .004
2,59
.074
1,88
.092 ± .001
2,34
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.077 ± .001
1,96
.029 ± .003 DIA ONE WALL
0,74
.144 MIN HOLE DEPTH
3,66
FOR .025 (0,64) PIN (±.001)
.060 ± .003
1,52
.282 ± .003
7,16

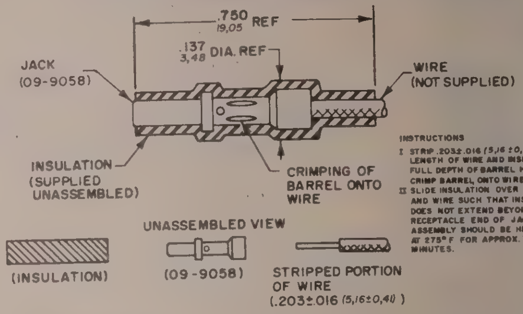
ACCEPTS .025 (0,64) PIN

PART NO.	COMPONENT FINISH BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9058-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

NOTE JACK 09-9058 USED IN JACK ASSEMBLY 09-9059

09-9059-1-XX10 JACK AND INSULATION FOR PATCH CORD ASSEMBLY MS 3190 CRIMP BARREL, SIZE 20A

BASIC PART NO. FINISH COLOR



.750 REF
19,05
.137 DIA. REF
3,48
JACK (09-9058)
WIRE (NOT SUPPLIED)
INSULATION (SUPPLIED UNASSEMBLED)
CRIMPING OF BARREL ONTO WIRE
UNASSEMBLED VIEW
(INSULATION)
(09-9058)
STRIPPED PORTION OF WIRE
(.203 ± .016 (5,16 ± 0,41))

INSTRUCTIONS

I STRIP .203 ± .016 (5,16 ± 0,41) LENGTH OF WIRE AND INSERT TO FULL DEPTH OF BARREL HOLE. CRIMP BARREL ONTO WIRE.

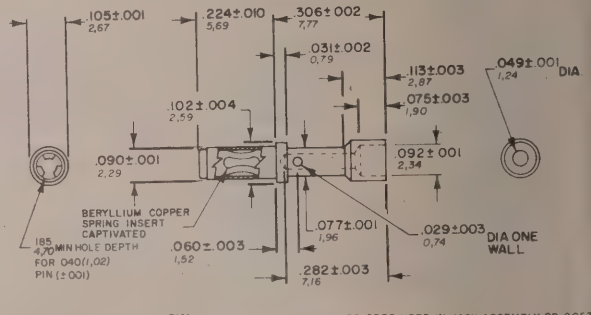
II SLIDE INSULATION OVER JACK AND WIRE SUCH THAT INSULATION DOES NOT EXTEND BEYOND RECEPTACLE END OF JACK ASSEMBLY SHOULD BE HEATED AT 275° F FOR APPROX. TWO MINUTES.

ACCEPTS .025 (0,64) PIN (±.001)

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)	INSULATION (POLYOLEFIN PLASTIC)
09-9059-1-0310	GOLD/COPPER	GOLD/COPPER	BLACK
0410	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER	BLACK
0610	ELECTRO-TIN/COPPER	GOLD/COPPER	BLACK

09-9056-1-XX JACK FOR .040 PIN-MS 3190 CRIMP BARREL, SIZE 20A

BASIC PART NO. FINISH



.105 ± .001
2,67
.224 ± .010
5,69
.306 ± .002
7,77
.031 ± .002
0,79
.113 ± .003
2,87
.049 ± .001 DIA.
1,24
.075 ± .003
1,90
.102 ± .004
2,59
.090 ± .001
2,29
.092 ± .001
2,34
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.077 ± .001
1,96
.029 ± .003 DIA ONE WALL
0,74
.185 MIN HOLE DEPTH
4,70
FOR .040 (1,02) PIN (±.001)
.060 ± .003
1,52
.282 ± .003
7,16

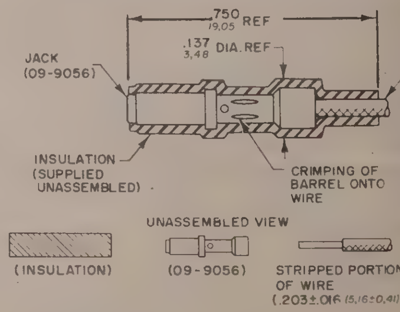
ACCEPTS .040 (1,02) PIN

NOTE JACK 09-9056 USED IN JACK ASSEMBLY 09-9057

PART NO.	COMPONENT FINISH BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9056-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9057-1-XX10 JACK AND INSULATION FOR PATCH CORD ASSEMBLY MS 3190 CRIMP BARREL, SIZE 20A

BASIC PART NO. FINISH COLOR



.750 REF
19,05
.137 DIA. REF
3,48
JACK (09-9056)
WIRE (NOT SUPPLIED)
INSULATION (SUPPLIED UNASSEMBLED)
CRIMPING OF BARREL ONTO WIRE
UNASSEMBLED VIEW
(INSULATION)
(09-9056)
STRIPPED PORTION OF WIRE
(.203 ± .016 (5,16 ± 0,41))

INSTRUCTIONS

I STRIP .203 ± .016 (5,16 ± 0,41) LENGTH OF WIRE AND INSERT TO FULL DEPTH OF BARREL HOLE CRIMP BARREL ONTO WIRE

II SLIDE INSULATION OVER JACK AND WIRE SUCH THAT INSULATION DOES NOT EXTEND BEYOND RECEPTACLE END OF JACK ASSEMBLY SHOULD BE HEATED AT 275°F FOR APPROX TWO MINUTES

ACCEPTS .040 (1,02) PIN (±.001)

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)	INSULATION (POLYOLEFIN PLASTIC)
09-9057-1-0310	GOLD/COPPER	GOLD/COPPER	BLACK
0410	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER	BLACK
0610	ELECTRO-TIN/COPPER	GOLD/COPPER	BLACK

CONCORD
THE COMPONENT PEOPLE

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

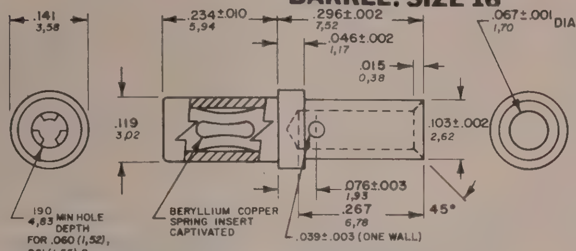
BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

JACKS FOR PATCH CORD ASSEMBLY

09-9070-1-XX JACK FOR .060, 061 AND .062 PINS* MS 3190 CRIMP BARREL. SIZE 16

BASIC PART NO. FINISH



.141
3,58
.234±.010
5,94
.296±.002
7,52
.067±.001 DIA
1,70
.046±.002
1,17
.015
0,38
.119
3,02
.103±.002
2,62
.076±.003
1,93
.267
6,78
45°
.190
4,83 MIN HOLE DEPTH
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.039±.003 (ONE WALL)

FOR .060 (1,52), .061 (1,55) & .062 (1,57) PINS (±.001)*

ACCEPTS .060 (1,52), .061 (1,55) AND .062 (1,57) PINS

COMPONENT FINISH

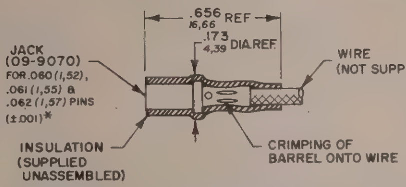
PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9070-1-03	GOLD/COPPER	GOLD/COPPER
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

NOTE JACK 09-9070 USED IN JACK ASSEMBLY 09-9071

09-9071-1-XX10 JACK AND INSULATION FOR MS 3190 CRIMP BARREL, SIZE 16

BASIC PART NO. FINISH COLOR

ASSEMBLED VIEW



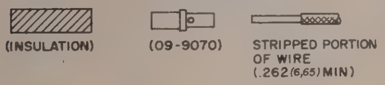
.656 REF
16,66
.173 DIA REF
4,39
JACK (09-9070) FOR .060 (1,52), .061 (1,55) & .062 (1,57) PINS (±.001)*
WIRE (NOT SUPPLIED)
INSULATION (SUPPLIED UNASSEMBLED)
CRIMPING OF BARREL ONTO WIRE

INSTRUCTIONS

I STRIP .262 (6,65) MIN. LENGTH OF WIRE AND INSERT TO FULL DEPTH OF BARREL HOLE. CRIMP BARREL ONTO WIRE.

II SLIDE INSULATION OVER JACK AND WIRE SUCH THAT INSULATION DOES NOT EXTEND BEYOND RECEPTACLE END OF JACK. ASSEMBLY SHOULD BE HEATED AT 275°F FOR APPROX TWO MINUTES.

UNASSEMBLED VIEW



(INSULATION)
(09-9070)
STRIPPED PORTION OF WIRE (.262 (6,65) MIN)

RECOMMENDED WIRE
NO. 20 GAGE, 7 STRAND
NO. 28 COPPER WIRE,
TEFLON INSULATION

ACCEPTS .060 (1,52), .061 (1,55) AND .062 (1,57) PINS.

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)	INSULATION (POLYOLEFIN PLASTIC)
09-9071-1-0310	GOLD/COPPER	GOLD/COPPER	BLACK
0410	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER	BLACK
0610	ELECTRO-TIN/COPPER	GOLD/COPPER	BLACK

TEFLON TEST POINT JACKS

1138-XX-XX XX

BASIC PART NO. FINISH COLOR (SEE COLOR CHART)

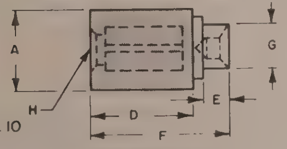
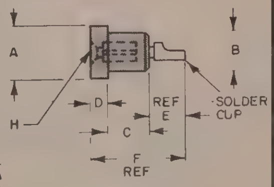


FIG. 10



A
B
H
D
REF E
C
F REF
SOLDER CUP

FIG. 12

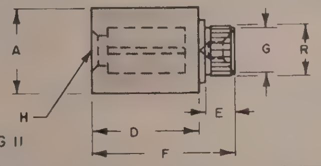


FIG 11

PART NO.	FIG	A	B †	C	D	E	F	G	PROBE DIA H *	R	PROBE LENGTH T
1138-01	10	187			.281	.090	.381	062	080		250
-02	10	218			281	.080	.381	.112	.080		.250
-03	10	218			343	.078	.441	.112	.080		.250
-04	10	187			281	.080	.376	066	.080		.200
-05	11	187			281	.100	.391	.048	.080	.056	.250
-06	10	.187			.281	.085	.376	.066	080		.200
-25††	12	187	.148	.154	.065	.140	.359		.040		.125
-26††	12	172	148	.154	.065	.140	.359		.040		.125
-27††	12	218	171	.216	.065	.156	.437		.062		.187
-29††	12	250	185*	216	.065	.156	.437		.080		.187
-30††	12	245	203	.334	.050	.147	.531		042		250

† = +.002 −.000 †† = FLOATING CONTACT

* = ± 001

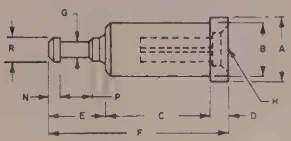
TERMINAL JACK: (BERYLLIUM COPPER CONTACTS) GOLD PLATED

BUSHING: TEFLON

TEFLON TEST POINT JACKS

1128-XX-XXXX

BASIC PART NO. FINISH COLOR (SEE COLOR CHART)



G
R
B
A
N
P
H
E
C
D
F

FIG 1

PART NO	FIG	A	B †	C	D	E	F ‡	G	PROBE DIA H *	N	P	R	PROBE LENGTH T
1128-01	1	150	120	.113	.030	.060	203	046	040	.010	040	080	078
02	1	142	.120	244	046	.120	.410	.040	.040	.023	.071	.060	205
03	1	142	120	283	046	120	449	040	040	023	.071	060	245
04	1	172	140	.179	.046	.120	.345	040	040	.023	.071	060	140
05	1	.172	.140	.143	.050	.060	253	046	040	010	.040	080	125
06	1	.172	.148	.094	.046	.050	.190	046	040	.010	.030	080	078
07	1	172	.148	.097	.046	.060	.203	.046	040	.010	040	080	078
08	1	.172	.148	.179	.046	.120	.345	.040	.040	.023	.071	060	140
09	1	218	170	269	.046	.060	.375	.046	.090	.010	040	078	250
11	1	218	.185*	300	.050	.105	.455	080	.080	.020	.065	.125	.315
12	1	218	185*	.174	.046	.120	340	054	090	026	.057	.074	.140
13	1	218	185*	.271	.046	120	.437	.054	.080	.037	.046	074	195
15	1	218	185*	.271	046	.120	.437	.054	.090	.037	.046	074	.195
16	1	218	185*	301	046	120	467	054	080	035	.047	.074	225
17	1	218	185*	.287	046	120	453	.054	.050	037	048	074	.195
18	1	218	.185*	.400	.050	187	.640	.054	.080	.037	111	074	.280
19	1	.375	200	.417	.230	.187	834	054	.093	035	.114	074	.518
20	1	.218	200	.367	.187	.187	.761	.054	093	.035	.116	.074	455
28	1	218	.200	.387	.125	.187	699	054	.093	035	116	074	390
29	1	250	218	.294	046	060	400	066	.105	.010	.040	098	250
30	1	.250	.204*	.271	.046	.120	437	.054	.080	.035	.046	.074	.195
31	1	.218	.185*	.271	.046	.187	504	.054	.080	037		.074	.187
32	1	.172	.148	.285	065	.120‡	.470	.040	.040		.070	.060	.225

† = +.002 −.000

* = ±.001

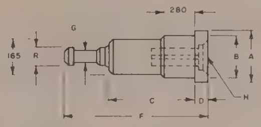
‡ = REFERENCE DIMENSION

TERMINAL JACK: (BERYLLIUM COPPER CONTACTS) GOLD PLATED

BUSHING: TEFLON

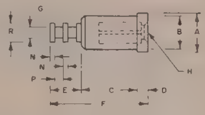
1128-XX-XXXX

BASIC PART NO. FINISH COLOR (SEE COLOR CHART)



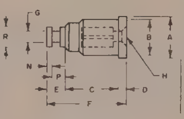
280
G
165
R
B
A
H
C
D
F

FIG 2



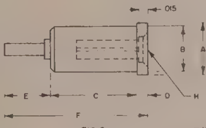
G
R
B
A
N
N
P
H
E
C
D
F

FIG 3



G
R
B
A
N
P
H
E
C
D
F

FIG 4



015
B
A
G
E
C
D
F
H

FIG 5

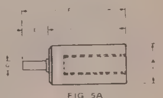
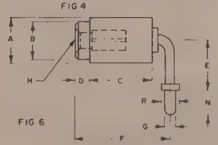
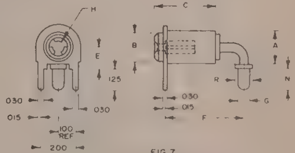


FIG 5A



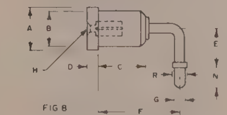
A
B
H
D
C
E
R
N
G
F

FIG 6



H
E
125
030
015
030
100 REF
200
C
B
A
R
N
030
015
G
F

FIG 7



A
B
H
D
C
R
E
N
G
F

FIG 8

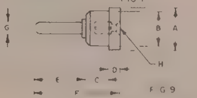


FIG 9

PART NO.	FIG	A	B †	C	D	E	F ‡	G	PROBE DIA H *	N	P	R	PROBE LENGTH T
1128-33	2	218	185*	700	046		896	054	050			070	300
34	3	172	148	204	.046	175	425	.040	032	020	.060	080	200
35	4	218	184	284	.046	.105	.435	.080	.080	020	065	125	310
36	5	172	148	175	046	187	408	060	040				.135
37	4	.172	.148	.424	.046	187	657	062	040	0 5	.61	093	400
50	6	219	185*	316	062	.233	385	050	080	125		080	250
51	7	.218	187‡‡	689		.140	.500	.050	080	125		080	.300
52	7	218	.187‡‡	378		140	400	050	080	.125		.080	.250
53	7	218	.187‡‡	.378		.140	.400	.035	.080	187		.080	.250
54	7	.218	187‡‡	378		140	500	050	080	125		.080	260
55	7	.218	.187‡‡	398		.140	.520	.040	.080	.130		080	.270
56	8	250	218	316	.062	250	.500	.050	.080	.125		.080	.250
57	8	.250	218	316	062	250	400	050	080	125		.080	250
58	5A	.218		.430		.150	.580	050	.080				.200
59	5A	.218		.500		150	650	.050	.080				.280
65	9	.172	148	204	046	150	400	040*	.033				200
66	9	250	218	318	060	176	554	040	080				250

† = +.002 −.001 ‡ = REFERENCE DIMENSION

* = ±.001 ‡‡ = ±.005

TERMINAL JACK: (BERYLLIUM COPPER CONTACTS) GOLD PLATED

BUSHING TEFLON

CONCORD

THE COMPONENT PEOPLE

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

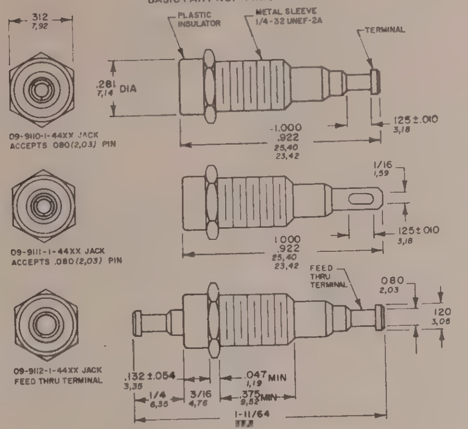
COLOR CODE FOR ORDERING

BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

PANEL JACKS AND FEED THRU TERMINAL

09-9110-1-044XX
09-9111-1-044XX
09-9112-1-044XX
BASIC PART NO. FINISH COLOR


.312
7,92
PLASTIC INSULATOR
METAL SLEEVE 1/4-32 UNEF-2A
TERMINAL
.281 DIA
7,14
09-9110-1-44XX JACK ACCEPTS .080(2,03) PIN
1.000
.922
25,40
23,42
.125±.010
3,18
1/16
1,59
09-9111-1-44XX JACK ACCEPTS .080(2,03) PIN
1.000
.922
25,40
23,42
.125±.010
3,18
FEED THRU TERMINAL
.080
2,03
.120
3,05
09-9112-1-44XX JACK FEED THRU TERMINAL
.132±.054
3,35
1/4
6,35
3/16
4,76
.047 MIN
1,19
.375 MIN
9,52
1-11/64

COMPONENT COLOR/FINISH & MATERIAL

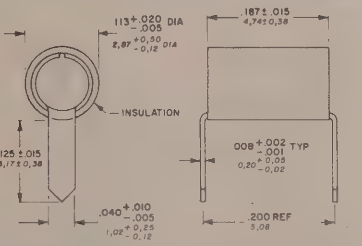
PART NUMBER	INSULATION	METAL SLEEVE	TERMINAL BODY
09-9110-1-044XX	SEE COLOR CHART (NYLON)	NICKEL (BRASS)	BRIGHT ELECTRO-TIN (PHOSPHOR BRONZE)
09-9111-1-044XX	SEE COLOR CHART (NYLON)	NICKEL (BRASS)	BRIGHT ELECTRO-TIN (PHOSPHOR BRONZE)
09-9112-1-044XX	SEE COLOR CHART (NYLON)	NICKEL (BRASS)	BRIGHT ELECTRO-TIN (BRASS)

SUPPLIED UNASSEMBLED NICKEL PLATED BRASS MOUNTING HEX NUT
NICKEL PLATED PHOSPHOR BRONZE INTERNAL TOOTH LOCKWASHER

TEST & POINT JACKS

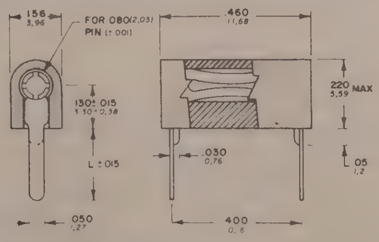
09-9350-1-03XX TEFLON INSULATED-
09-9350-1-04XX SIDE MOUNT TEST
BASIC PART NO FINISH COLOR **JACK FOR .080 PROBE**

MIL-C-39024/18B


.113 +.020 −.005 DIA
2,87 +0,50 −0,12 DIA
.187±.015
4,74±0,38
INSULATION
.125±.015
3,17±0,38
.008 +.002 −.001 TYP
0,20 +0,05 −0,02
.040 +.010 −.005
1,02 +0,25 −0,12
.200 REF
5,08

09-9350-1-03XX TEFLON INSULATED
09-9350-1-04XX SIDE MOUNT TEST JACK FOR .080 PROBE

09-9201-1-03XX NYLON INSULATED-SIDE
09-9301-1-03XX MOUNT-JACK FOR .080 PIN
BASIC PART NO FINISH COLOR


.156
3,96
FOR .080(2,03) PIN (±.001)
.460
11,68
.220 MAX
5,59
.130±.015
3,30±0,38
L ±.015
.030
0,76
.05
1,2
.050
1,27
.400
0,6

UNLESS OTHERWISE SPECIFIED .XXX = ±.010

ACCEPTS .080 (2,03) PIN

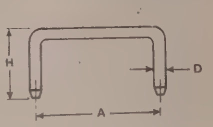
PART NUMBER	L	BOARD THICKNESS
09-9201-1	.130 3,30	1/16 1,59 MAX.
09-9301-1	.203 5,16	1/8 3,18 MAX.

▶FOR MIL–C–39024/11
ORDER AS
09-9201-1-035XX
QUALIFIED PRODUCTS
LISTED (QPL)

SHORTING PLUGS

09-3001-X-03
09-3004-X-03
BASIC PART NO. FINISH

NON-INSULATED SHORTING PLUGS

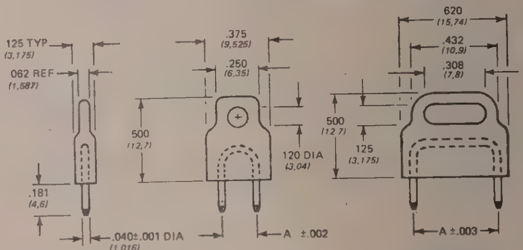


PART NO.	D	A	H
09-3001-1-03	.040	.200	.261±.010
09-3001-2-03	.040	.250	.261±.010
09-3001-3-03	.040	.300	.261±.010
09-3001-4-03	.040	.400	.261±.010
09-3001-5-03	.040	.500	.261±.010
09-3004-1-03	.025	.200	.200±.010
09-3004-2-03	.025	.250	.200± 010
09-3004-3-03	.025	.300	200± 010
09-3004-4-03	.025	400	200±.010
09-3004-5-03	025	500	.200± 010

GOLD PLATED

09-3010-X-03XX
09-3011-X-03XX
BASIC PART NO. FINISH COLOR

INSULATED SHORTING PLUGS WITH .040 DIAMETER PINS


.125 TYP
(3,175)
.062 REF
(1,587)
.375
(9,525)
.250
(6,35)
.620
(15,74)
.432
(10,9)
.308
(7,8)
.500
(12,7)
.500
(12,7)
.125
(3,175)
.120 DIA
(3,04)
.181
(4,6)
.040±.001 DIA
(1,016)
A ±.002
A ±.003

PART NO.		A
09-3010	-1	.200
	-2	.250
09-3011	-1	.400
	-2	.500

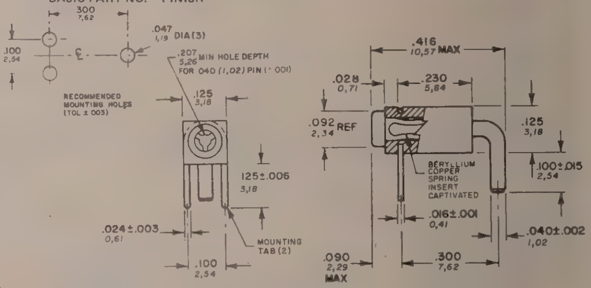
PIN FINISH NO.	
-03	Gold

INSULATION COLOR NUMBERS	
-10	Black
-12	Red
-16	Blue

COMPONENT	MATERIAL	FINISH
INSULATION	PLASTIC	–
PIN	BRASS	GOLD OVER COPPER

P.C. JACKS-CLOSED ENTRY-SIDE MOUNT

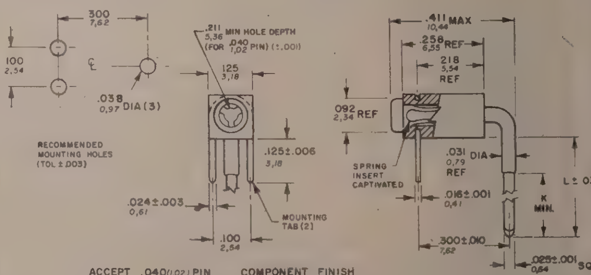
09-9064-1-XX TEST POINT-P.C. JACK FOR .040 PIN
BASIC PART NO. FINISH


.300
7,62
.100
2,54
.047
1,19 DIA(3)
.207
5,26 MIN HOLE DEPTH FOR .040 (1,02) PIN (±.001)
RECOMMENDED MOUNTING HOLES (TOL ±.003)
.125
3,18
.416
10,57 MAX
.028
0,71
.230
5,84
.092 REF
2,34
.125
3,18
BERYLLIUM COPPER SPRING INSERT CAPTIVATED
.100±.015
2,54
.125±.006
3,18
.016±.001
0,41
.024±.003
0,61
MOUNTING TAB (2)
.040±.002
1,02
.100
2,54
.090
2,29
MAX
.300
7,62

ACCEPTS .040 (1,02) PIN COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)
09-9064-1-03	GOLD/COPPER	GOLD/COPPER
-04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER
06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-9065-1-XX TEST POINT-P.C. JACK FOR .040 PIN-SQUARE WRAP
09-9088-1-XX
BASIC PART NO. FINISH


.300
7,62
.100
2,54
.211
5,36 MIN HOLE DEPTH (FOR .040 1,02 PIN) (±.001)
.125
3,18
.038
0,97 DIA (3)
RECOMMENDED MOUNTING HOLES (TOL ±.003)
.411 MAX
10,44
.258 REF
6,55
.218
5,54
REF
.092 REF
2,34
.125±.006
3,18
SPRING INSERT CAPTIVATED
.031 DIA
0,79
REF
L ± .030
.016±.001
0,41
K MIN.
.024±.003
0,61
MOUNTING TAB (2)
.100
2,54
.300±.010
7,62
.025±.001 SQ.
0,64

ACCEPT .040 (1,02) PIN COMPONENT FINISH

PART NO.	BODY (BRASS)	SPRING (BERYLLIUM COPPER)	L	K
09-9065-1-03	GOLD/COPPER	GOLD/COPPER		
04	ELECTRO-TIN/COPPER	ELECTRO-TIN/COPPER	.700	.570
06	ELECTRO-TIN/COPPER	GOLD/COPPER	17,78	14,48
09-9088-1-03	GOLD/COPPER	GOLD/COPPER		
04	ELECTRO-TIN/COPPER	ELECTRO-TIN	.430	.390
06	ELECTRO-TIN/COPPER	GOLD/COPPER	10,92	9,91

CONCORD
THE COMPONENT PEOPLE

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

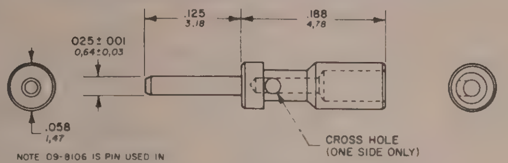
BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. PLUGS

09-8106-1-XX P.C. PLUG .025 PIN

BASIC PART NO. FINISH


.125
3,18
.188
4,78
025± 001
0,64±0,03
.058
1,47
CROSS HOLE
(ONE SIDE ONLY)

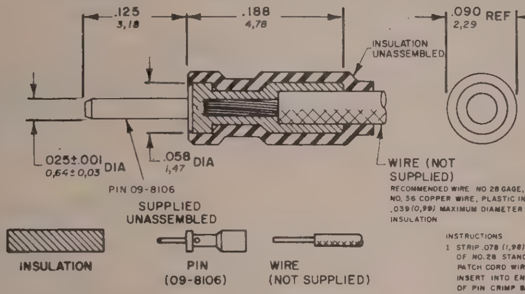
NOTE 09-8106 IS PIN USED IN THE ASSEMBLING OF 09 0007

MATERIAL BRASS

PART NO.	STANDARD (XX) FINISH
09-8106-1-03	GOLD/COPPER
04	ELECTRO-TIN/COPPER

09-0007-1-XX-10 PLUG-.025 PIN-INSULATED

BASIC PART NO. FINISH COLOR (BLACK)


.125
3,18
.188
4,78
.090 REF
2,29
INSULATION UNASSEMBLED
025±.001 DIA
0,64±0,03
.058 DIA
1,47
PIN 09-8106
WIRE (NOT SUPPLIED)
SUPPLIED UNASSEMBLED
INSULATION
PIN
(09-8106)
WIRE
(NOT SUPPLIED)

RECOMMENDED WIRE NO 28 GAGE, 7 STRAND NO. 36 COPPER WIRE, PLASTIC INSULATED .039 (0,99) MAXIMUM DIAMETER OVER INSULATION

INSTRUCTIONS

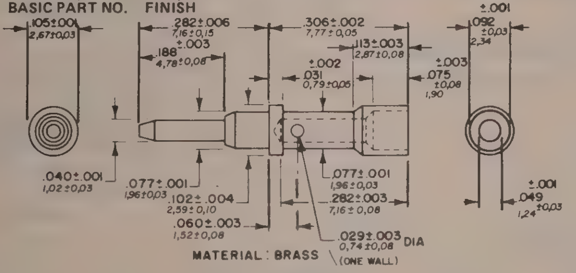
I STRIP .078 (1,98) LENGTH OF NO. 28 STANDARD PATCH CORD WIRE AND INSERT INTO END HOLE OF PIN CRIMP BARREL ONTO WIRE AND SOLDER THRU SIDE HOLE WIPE OFF EXCESS SOLDER

II SLIDE INSULATING SLEEVE OVER BARREL SO AS TO EXTEND UP TO, BUT NOT TO COVER PIN PORTION HEAT AT 275°F FOR APPROX 1 MINUTE.

PART NO.	PIN (BRASS)	INSULATION (POLYOLEFIN PLASTIC)
09-0007-1-03-10	GOLD/COPPER	BLACK
-04-10	ELECTRO-TIN/COPPER	BLACK

09-8026-1-XX PLUG .040 PIN CRIMP BARREL

BASIC PART NO. FINISH


.105±.001
2,67±0,03
.282±.006
7,16±0,15
±.003
.188
4,78±0,08
.306±.002
7,77±0,05
.113±.003
2,87±0,08
±.002
.031
0,79±0,05
±.003
.075
±0,08
1,90
±.001
.092
±0,03
2,34
.040±.001
1,02±0,03
.077±.001
1,96±0,03
.102±.004
2,59±0,10
.060±.003
1,52±0,08
.077±.001
1,96±0,03
.282±.003
7,16±0,08
.029±.003 DIA
0,74±0,08
(ONE WALL)
±.001
.049
±0,03
1,24

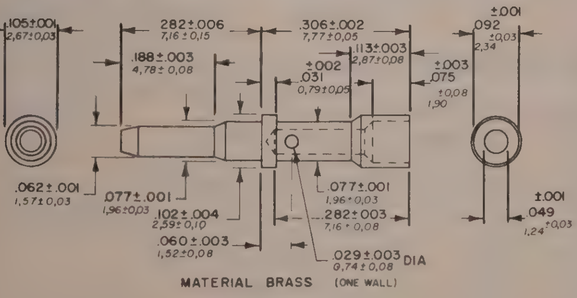
MATERIAL : BRASS

PART NO.	STANDARD (XX)FINISH
09-8026-1-XX	(03) GOLD OR (04) ELECTRO-TIN

RECOMMENDED WIRE FOR CRIMPING 22 GAGE, 7 STRAND, NO 30 COPPER WIRE, TEFLON INSULATED .054 (1,37) MAXIMUM DIAMETER OVER INSULATION

09-8086-1-XX PLUG-.062 PIN M.S. 3190 CRIMP BARREL, SIZE 20A

BASIC PART NO. FINISH


.105±.001
2,67±0,03
282±.006
7,16±0,15
.188±.003
4,78±0,08
.306±.002
7,77±0,05
.113±.003
2,87±0,08
±.002
.031
0,79±0,05
±.003
.075
±0,08
1,90
±.001
.092
±0,03
2,34
.062±.001
1,57±0,03
.077±.001
1,96±0,03
.102±.004
2,59±0,10
.060±.003
1,52±0,08
.077±.001
1,96±0,03
.282±.003
7,16±0,08
.029±.003 DIA
0,74±0,08
(ONE WALL)
±.001
.049
±0,03
1,24

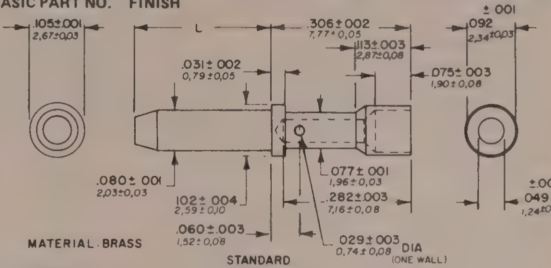
MATERIAL BRASS

PART NO.	STANDARD (XX)FINISH
09-8086-1-XX	(02) NICKEL (03) GOLD (04) ELECTRO-TIN

RECOMMENDED WIRE FOR CRIMPING 22 GAGE, 7 STRAND, NO. 30 COPPER WIRE, TEFLON INSULATED 054 (1,37) MAXIMUM DIAMETER OVER INSULATION

09-8085-X-XX PLUG-.080 PIN-CRIMP BARREL

BASIC PART NO. FINISH


.105±.001
2,67±0,03
L
.306±.002
7,77±0,05
.113±.003
2,87±0,08
±.001
.092
2,34±0,03
.031±.002
0,79±0,05
.075±.003
1,90±0,08
.080±.001
2,03±0,03
.077±.001
1,96±0,03
102±.004
2,59±0,10
.282±.003
7,16±0,08
±.001
049
1,24±0,03
.060±.003
1,52±0,08
029±.003 DIA
0,74±0,08
(ONE WALL)

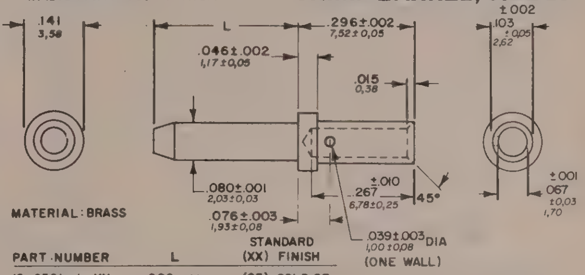
MATERIAL BRASS

PART NUMBER	L	STANDARD (XX) FINISH
09-8085-1-XX	.200 5,08	(03) GOLD OR
-2-XX	.375 9,52	(04) ELECTRO-
-3-XX	.500 12,7	TIN

RECOMMENDED HOOK-UP WIRE SIZE 22 GAGE, 7 STRAND, NO 30 COPPER WIRE, TEFLON INSULATED 054 (1,37) MAXIMUM DIAMETER OVER INSULATION

10-8501-X-XX PLUG-.080 PIN M.S. 3190 CRIMP BARREL, SIZE 16

BASIC PART NO. FINISH


.141
3,58
L
.296±.002
7,52±0,05
±.002
.103
±0,05
2,62
.046±.002
1,17±0,05
.015
0,38
.080±.001
2,03±0,03
±.010
.267
6,78±0,25
45°
±.001
067
±0,03
1,70
.076±.003
1,93±0,08
.039±.003 DIA
1,00±0,08
(ONE WALL)

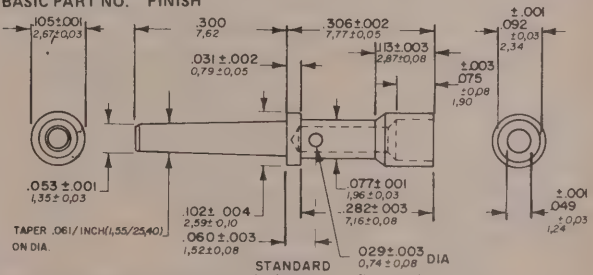
MATERIAL: BRASS

PART NUMBER	L	STANDARD (XX) FINISH
10-8501-1-XX	.200 5,08	(03) GOLD OR
-2-XX	.375 9,52	(04) ELECTRO-
-3-XX	.500 12,7	TIN

RECOMMENDED WIRE 20 GAGE, 7 STRAND, NO 28 COPPER WIRE, TEFLON INSULATED (INSULATION TO BE STRIPPED TO LENGTH OF MINIMUM HOLE DEPTH BEFORE CRIMPING)

09-8087-1-XX TAPER PLUG - CRIMP BARREL

BASIC PART NO. FINISH


.105±.001
2,67±0,03
.300
7,62
.306±.002
7,77±0,05
.113±.003
2,87±0,08
±.001
.092
±0,03
2,34
.031±.002
0,79±0,05
±.003
.075
±0,08
1,90
.053±.001
1,35±0,03
.077±.001
1,96±0,03
.102±.004
2,59±0,10
.282±.003
7,16±0,08
±.001
.049
±0,03
1,24
TAPER .061/INCH (1,55/25,40) ON DIA.
.060±.003
1,52±0,08
029±.003 DIA
0,74±0,08
(ONE WALL)

MATERIAL : BRASS

PART NO.	STANDARD (XX) FINISH
09-8087-1-XX	(03) GOLD OR (04) ELECTRO-TIN

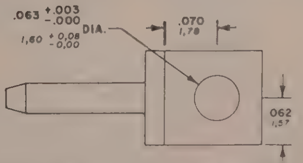
RECOMMENDED WIRE FOR CRIMPING 22 GAGE, 7 STRAND, NO 30 COPPER WIRE, TEFLON INSULATED .054 (1,37) MAXIMUM DIAMETER OVER INSULATION

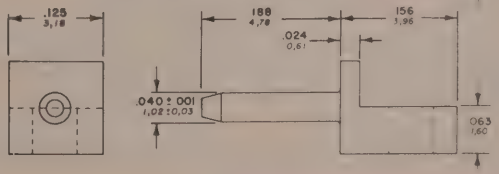
09-9501-1-XX P.C. PLUG EDGE MOUNT-HALF SLOT .040 PIN

BASIC PART NO. FINISH

MATERIAL: BRASS

PART NUMBER	STANDARD (XX) FINISH
09-9501-1-XX	(03) GOLD OR (04) ELECTRO-TIN


.063 +.003 -.000 DIA.
1,60 +0,08 -0,00
.070
1,78
062
1,57


.125
3,18
188
4,78
156
3,96
.024
0,61
.040±.001
1,02±0,03
063
1,60

CONCORD
THE COMPONENT PEOPLE

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

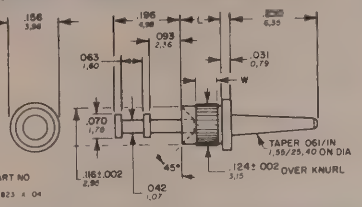
30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

PINS-TAPERED

10-823-X-04

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE .119 ± .001 DIA


.156 3,96
.196 4,98
L
.250 6,35
.093 2,36
.063 1,60
.031 0,79
W
.070 1,78
TAPER .061/IN 1,55/25,40 ON DIA
45°
.124±.002 3,15 OVER KNURL
.116±.002 2,95
.042 1,07

PART NO 10 823 X 04

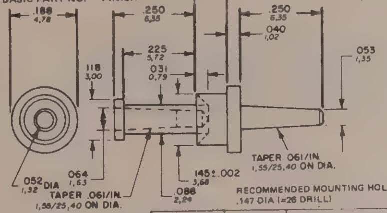
MATERIAL BRASS

STANDARD FINISH ELECTRO TIN/COPPER

PART NO	W	L	BOARD THICKNESS
10-823-1	.032 (0,81)	.057 (1,45)	1/32 (0,79)
10-823-2	.032 (0,81)	.087 (2,21)	1/16 (1,59)
10-823-3	.063 (1,60)	.120 (3,05)	3/32 (2,38)
10-823-4	.094 (2,39)	.151 (3,84)	1/8 (3,18)
10-823-6	.094 (2,39)	.214 (5,44)	3/16 (4,76)

10-824-X-04

BASIC PART NO. FINISH


.188 4,78
L
.250 6,35
.250 6,35
.040 1,02
.225 5,72
.031 0,79
.053 1,35
.118 3,00
TAPER .061/IN 1,55/25,40 ON DIA.
.064 1,63
.052 DIA 1,32
TAPER .061/IN. 1,55/25,40 ON DIA.
.145±.002 3,68
.088 2,24

RECOMMENDED MOUNTING HOLE .147 DIA (#26 DRILL)

PART NO 10 824-X-04

MATERIAL BRASS

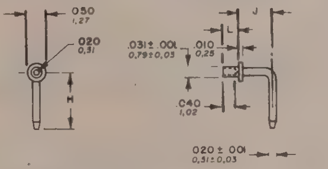
STANDARD FINISH ELECTRO-TIN/COPPER

PART NO	L	BOARD THICKNESS
10-824-1	.062 (1,57)	1/32 (0,79)
10-824-2	.094 (2,39)	1/16 (1,59)
10-824-3	.125 (3,18)	3/32 (2,38)
10-824-4	.156 (3,96)	1/8 (3,18)
10-824-6	.219 (5,56)	3/16 (4,76)
10-824-8	.281 (7,14)	1/4 (6,35)

P.C. PINS

09-8064-X-XX P.C. RIGHT ANGLE BENT PIN .020

BASIC PART NO. FINISH


.050 1,27
.020 0,31
.031±.001 0,79±0,03
.010 0,25
J
L
H
.040 1,02
.020±.001 0,51±0,03

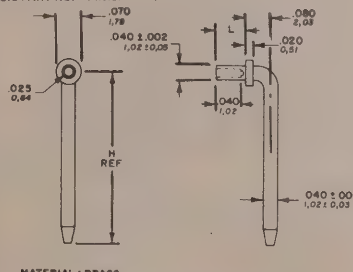
RECOMMENDED MOUNTING HOLE .033 ±.001 DIA

MATERIAL BRASS

PART NUMBER	L	H	J	BOARD THICKNESS	STANDARD (XX) FINISH
09-8064-5-05	.051 1,30	.165 4,19	.100 2,54	1/32 0,79	(05) ELECTRO SOLDER
-4-05	.051 1,30	.225 5,72	.200 5,08	1/32 0,79	

10-926-X-XX P.C. RIGHT ANGLE BENT PIN .040
09-8XXX-2-XX

BASIC PART NO. FINISH


.070 1,78
.040±.002 1,02±0,05
.080 2,03
L
.020 0,51
.025 0,64
.040 1,02
H REF
.040±.001 1,02±0,03

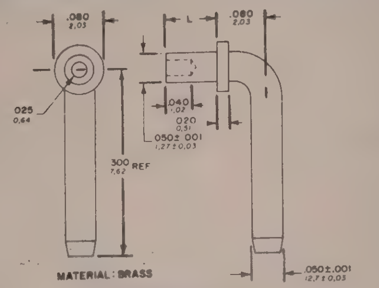
MATERIAL: BRASS

RECOMMENDED MOUNTING HOLE .043 ±.001 DIA (#57 DRILL)

PART NUMBER	L	H	BOARD THICKNESS	STANDARD (XX) FINISH
10-926-1-XX	.051 1,30	.257 6,53	1/32 0,79	(03) GOLD OR (04) ELECTRO-TIN
-2-XX	.082 2,08	.257 6,53	1/16 1,59	
-3-XX	.113 2,87	.257 6,53	3/32 2,38	
09-8193-2-03	.082 2,08	.357 9,07	1/16 1,59	(03) GOLD
09-8123-2-04	.082 2,08	.375 9,53	1/16 1,59	(04) ELECTRO-TIN
09-8048-2-04	.082 2,08	.562 14,27	1/16 1,59	(04) ELECTRO-TIN

09-8073-2-XX P.C. RIGHT ANGLE BENT PIN .050

BASIC PART NO. FINISH


.080 2,03
L
.080 2,03
.025 0,64
.040 1,02
.020 0,51
.050±.001 1,27±0,03
.300 REF 7,62
.050±.001 12,7±0,03

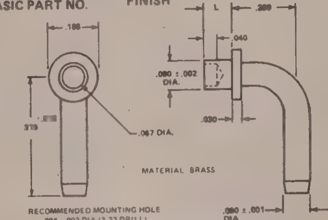
MATERIAL: BRASS

RECOMMENDED MOUNTING HOLE .063 ±.001 DIA

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8073-2-03	.082 2,08	1/16 1,59	(03) GOLD

10-8024-X-03 .080 PIN

BASIC PART NO. FINISH


.188
L
.280
.040
.080 ±.002 DIA.
.030
.067 DIA.
.375
.080 ±.001 DIA.

MATERIAL BRASS

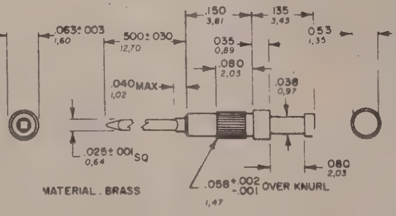
RECOMMENDED MOUNTING HOLE .094 ±.002 DIA (3/32 DRILL)

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-8024-1-03	.051	.031	(03) GOLD
10-8024-2-03	.082	.062	
10-8024-3-03	.113	.094	

P.C. PINS/SQUARE-WRAP®

09-6001-2-XX .025 SQUARE-WRAP® TERMINAL

BASIC PART NO. FINISH


.063±.003 1,60
.500±.030 12,70
.150 3,81
.135 3,43
.035 0,89
.080 2,03
.053 1,35
.040 MAX 1,02
.038 0,97
.025±.001 SQ 0,64
.080 2,03
.058 +.002 -.001 OVER KNURL 1,47

MATERIAL. BRASS

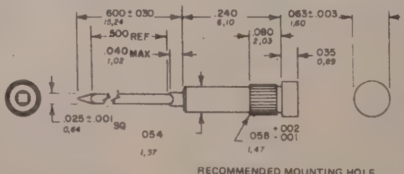
RECOMMENDED MOUNTING HOLE .055 DIA (#54 DRILL)

PART NO.	FINISH	BOARD THICKNESS	MOUNTING HOLE
09-6001-2-03	GOLD	.062(1,57) TO .125(3,18)	.055±.001 (1,40±0,03)
04	ELECTRO-TIN	.062(1,57) TO .125(3,18)	.055±.001 (1,40±0,03)

SQUARE-WRAP®

09-6002-2-XX .025 SQUARE-WRAP® TERMINAL

BASIC PART NO. FINISH


.600±.030 15,24
.240 6,10
.063±.003 1,60
.500 REF
.080 2,03
.040 MAX 1,02
.035 0,89
.025±.001 SQ 0,64
.054 1,37
.058 +.002 -.001 1,47

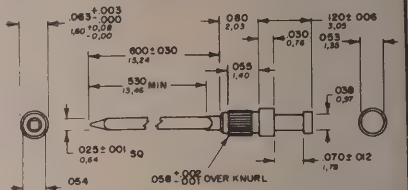
MATERIAL BRASS

RECOMMENDED MOUNTING HOLE .055 DIA (#54 DRILL)

PART NO	FINISH	BOARD THICKNESS	MOUNTING HOLE
09-6002-2-03	GOLD	.062(1,57) .188(4,78)	.055±.001 (1,40±0,03)
04	ELECTRO-TIN	.062(1,57) .188(4,78)	.055±.001 (1,40±0,03)

09-6003-2-XX .025 SQUARE-WRAP® TERMINAL

BASIC PART NO. FINISH


.063 +.003 -.000 1,60 +0,08 -0,00
.080 2,03
.120±.006 3,05
.030 0,76
.053 1,35
.600±.030 15,24
.055 1,40
.530 MIN 13,46
.038 0,97
.025±.001 SQ 0,64
.070±.012 1,78
.054 1,37
.058 +.002 -.001 OVER KNURL 1,47

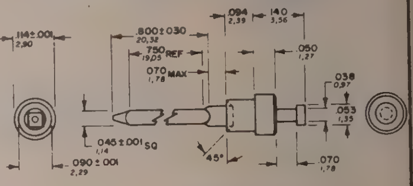
MATERIAL BRASS

RECOMMENDED MOUNTING HOLE .055 DIA (#54 DRILL)

PART NO.	FINISH	BOARD THICKNESS	MOUNTING HOLE
09-6003-2-03	GOLD/COPPER	.062(1,57) OR GREATER	.055±.001(1,40±0,03)
04	ELECTRO-TIN/COPPER	.062(1,57) OR GREATER	.055±.001(1,40±0,03)

09-6004-2-XX .045 SQUARE-WRAP® TERMINAL

BASIC PART NO. FINISH


.114±.001 2,90
.800±.030 20,32
.094 2,39
.140 3,56
.750 REF 19,05
.050 1,27
.070 MAX 1,78
.038 0,97
.053 1,35
.045±.001 SQ 1,14
45°
.090±.001 2,29
.070 1,78

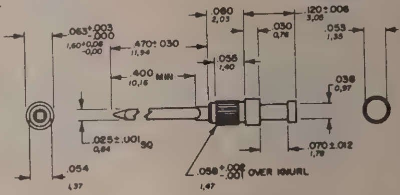
MATERIAL BRASS

RECOMMENDED MOUNTING HOLE .094 ±.002 (#42 DRILL)

PART NO	FINISH	BOARD THICKNESS	MOUNTING HOLE
09-6004-2-04	ELECTRO-TIN/COPPER	1/16 (1,59)	.094±.001(2,39±0,03)

09-6005-2-XX .025 SQUARE-WRAP® TERMINAL

BASIC PART NO. FINISH


.063 +.003 -.000 1,60 +0,08 -0,00
.080 2,03
.120±.006 3,05
.030 0,76
.053 1,35
.470±.030 11,94
.055 1,40
.400 MIN 10,16
.038 0,97
.025±.001 SQ 0,64
.070±.012 1,78
.054 1,37
.058 +.002 -.001 OVER KNURL 1,47

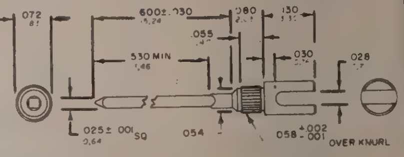
MATERIAL BRASS

RECOMMENDED MOUNTING HOLE .055 DIA (#54 DRILL)

PART NO.	FINISH	BOARD THICKNESS	MOUNTING HOLE
09-6005-2-03	GOLD/COPPER	.062(1,57) OR GREATER	.055±.001(1,40±0,03)
04	ELECTRO-TIN/COPPER	.062(1,57) OR GREATER	.055±.001(1,40±0,03)

09-6006-2-XX .025 SQUARE-WRAP® TERMINAL

BASIC PART NO. FINISH


.072
.600±.030 15,24
.080
.130
.055
.530 MIN 13,46
.030
.028
.025±.001 SQ 0,64
.054
.058 +.002 -.001 OVER KNURL

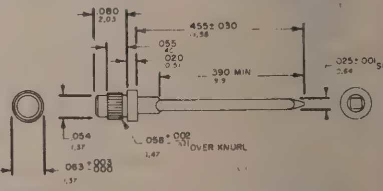
MATERIAL BRASS

RECOMMENDED MOUNTING HOLE .055 DIA (#54 DRILL)

PART NO	FINISH	BOARD THICKNESS	MOUNTING HOLE
09-6006-2-03	GOLD/COPPER	.062(1,57) OR GREATER	.055±.001(1,40±0,03)
04	ELECTRO-TIN/COPPER	.062(1,57) OR GREATER	.055±.001(1,40±0,03)

09-6007-2-XX .025 SQUARE-WRAP® TERMINAL

BASIC PART NO. FINISH


.080 2,03
.455±.030
.055
.020 0,51
.390 MIN
.025±.001 SQ 0,64
.054 1,37
.058 +.002 -.001 OVER KNURL 1,47
.063 +.003 -.000 1,37

MATERIAL BRASS

RECOMMENDED MOUNTING HOLE .055 DIA (#54 DRILL)

PART NO	FINISH	BOARD THICKNESS	MOUNTING HOLE
09-6007-2-03	GOLD	.062(1,57) OR GREATER	.055±.001 (1,40±0,03)
04	ELECTRO TIN	.062(1,57) OR GREATER	.055±.001 (1,40±0,03)

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
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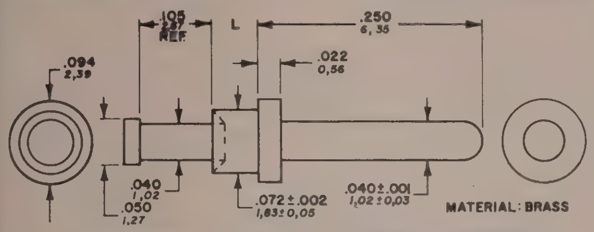
TWX 710-581-4930

P.C. PINS

10-8015-1-03 .040 PIN

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.076 ±.002 DIA (#48 DRILL)



.105
2,67
REF
L
.250
6,35
.094
2,39
.022
0,56
.040
1,02
.050
1,27
.072±.002
1,83±0,05
.040±.001
1,02±0,03

MATERIAL: BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-8015-1-03	.051 1,30	1/32 0,79	(03) GOLD
-2-03	.082 2,08	1/16 1,59	
-3-03	.113 2,87	3/32 2,38	
-4-03	.145 3,68	1/8 3,18	
-6-03	.207 5,26	3/16 4,76	
-8-03	.270 6,86	1/4 6,35	

09-81XX-X-XX PIN .040
09-0038-4-04

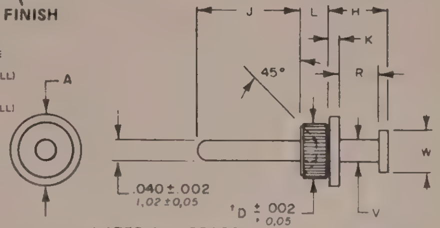
BASIC PART NO. FINISH

PN	RECOMMENDED MOUNTING HOLE
09-8136	.125 DIA (1/8 DRILL)
09-8114	.086 DIA
09-8137	.085 DIA
09-0038	.125 DIA (1/8 DRILL)

STANDARD (XX)FINISH

(01) SILVER

(04) ELECTRO-TIN



A
J
L
H
K
45°
R
W
.040±.002
1,02±0,05
*D ± .002
± 0,05
V

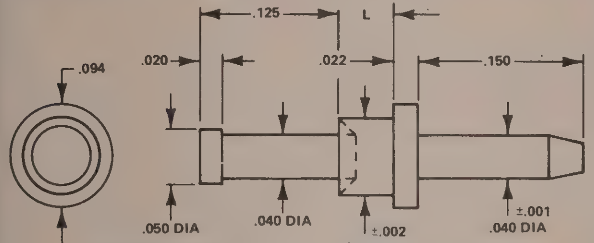
MATERIAL BRASS

PART NUMBER	J	L	H	D	A	K	W	R	V	BOARD THICKNESS
09-8136-1-01	.218 5,54	.062 1,57	.136 3,45	.120 3,05	.156 3,96	.025 0,64	.093 2,36	.091 2,31	.046 1,17	1/32 0,79
2-01	.218 5,54	.093 2,36	.136 3,45	.120 3,05	.156 3,96	.025 0,64	.093 2,36	.091 2,31	.046 1,17	1/16 1,59
3-01	.218 5,54	.125 3,18	.136 3,45	.120 3,05	.156 3,96	.025 0,64	.093 2,36	.091 2,31	.046 1,17	3/32 2,38
4-01	.218 5,54	.156 3,96	.136 3,45	.120 3,05	.156 3,96	.025 0,64	.093 2,36	.091 2,31	.046 1,17	1/8 3,18
09-8114-2-01	.250 6,35	.082 2,08	.078 1,98	.080 2,03	.094 2,39	.022 0,56	.050 1,27	.041 1,04	.040 1,02	1/16 1,59
09-8137 2-01	.250 6,35	.082 2,08	.209 5,31	.080 2,03	.125 3,18	.022 0,56	.070 1,78	.165 4,19	.040 1,02	1/16 1,59
09-0038-4-04	.616 15,65	.165 4,19	.190 4,83	.123 3,12	.160 4,06	.045 1,14	.093 2,36	*.125 3,18	.050 1,27	1/8 3,18

10-8025-X-03 .040 PIN

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.076 ±.002 DIA (#48 DRILL)



.125
L
.094
.020
.022
.150
.050 DIA
.040 DIA
±.002
.072 DIA
±.001
.040 DIA

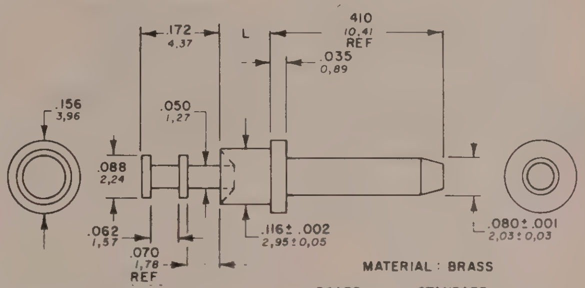
MATERIAL: BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-8025-1-03	.051	.031	(03) GOLD
10-8025-2-03	.082	.062	
10-8025-3-03	.113	.094	
10-8025-4-03	.145	.125	

10-8007-X-XX PIN .080

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.120 ±.002 DIA (#31 DRILL)



.172
4,37
L
.410
10,41
REF
.035
0,89
.156
3,96
.050
1,27
.088
2,24
.062
1,57
.070
1,78
REF
.116±.002
2,95±0,05
.080±.001
2,03±0,03

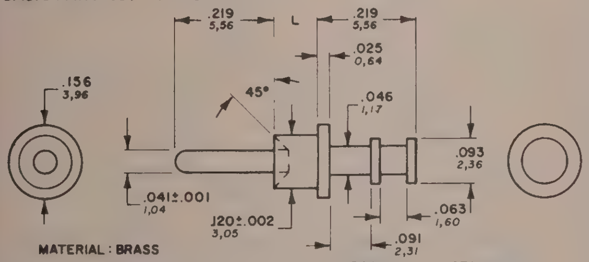
MATERIAL : BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX)FINISH
10-8007-2-XX	.105 2,67	1/16 1,59	(03) GOLD OR (04) ELECTRO-TIN
3-XX	.135 3,43	3/32 2,38	
4-XX	.165 4,19	1/8 3,18	

09-8117-2-01 .041 PIN

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.126 ±.002 DIA



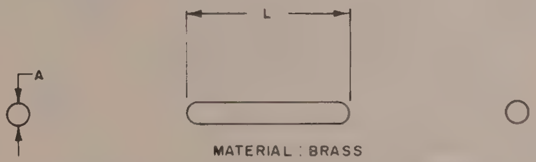
.219
5,56
L
.219
5,56
.025
0,64
.156
3,96
45°
.046
1,17
.093
2,36
.041±.001
1,04
.063
1,60
.120±.002
3,05
.091
2,31

MATERIAL : BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8117-2-01	.094 2,39	1/16 1,59	(01) SILVER

10-895-X-XX P.C. PINS .020, 032, 040, 062

BASIC PART NO. FINISH



MATERIAL : BRASS

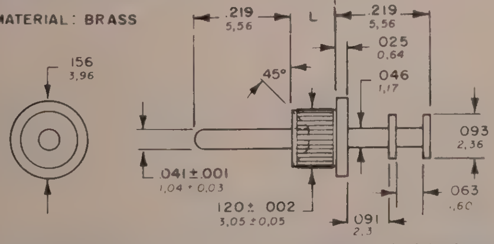
PART NUMBER	A	L	STANDARD (XX) FINISH
10-895-1-02	.020 0,51	.400 10,16	(02) NICKEL
2-02	.020 0,51	.600 15,24	
3-02	.020 0,51	.900 22,86	
4-02	.032 0,81	.400 10,16	
5-02	.032 0,81	.600 15,24	
6-02	.032 0,81	.900 22,86	
7-02	.040 1,02	.400 10,16	
8-02	.040 1,02	.600 15,24	
9-02	.040 1,02	.900 22,86	
10-02	.062 1,57	.400 10,16	
11-02	.062 1,57	.600 15,24	
12-02	.062 1,57	.900 22,86	

10-804-X-01 PIN .041

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.125 DIA (1/8 DRILL)

MATERIAL : BRASS



.219
5,56
L
.219
5,56
.025
0,64
.156
3,96
45°
.046
1,17
.093
2,36
.041±.001
1,04 ± 0,03
.063
1,60
.120± .002
3,05 ±0,05
.091
2,31

PART NUMBER	L	THICKNESS	(XX) FINISH
10-804-1-01	.062 1,57	1/32 0,79	(01) SILVER
2-01	.094 2,39	1/16 1,59	
3-01	.125 3,18	3/32 2,38	
4-01	.156 3,96	1/8 3,18	

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

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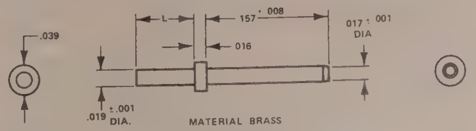
TWX 710-581-4930

P.C. PINS

09-8301-X-03 P.C. PIN .019

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.025 +.002 DIA (=72 DRILL)


.039
L
157 +.008
016
017 ± 001 DIA
.019 ±.001 DIA.

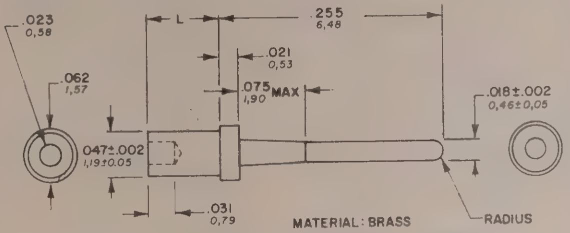
MATERIAL BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8301-1-03	.061	.025	(03) GOLD
09-8301-2-03	075	.040	

09-8080-2-03 P.C. PIN .018

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
052 DIA (=56 DRILL)


.023
0,58
.062
1,57
047±.002
1,19±0.05
L
.255
6,48
.021
0,53
.075 MAX
1,90
.018±.002
0,46±0,05
.031
0,79
RADIUS

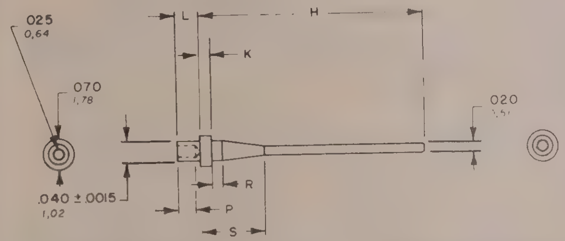
MATERIAL: BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8080-2-03	.082 2,08	1/16 1,59	(03) GOLD

09-8XXX-XX .020 PINS

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.043 ±.001 DIA (#57 DRILL)


025
0,64
070
1,78
.040 ± .0015
1,02
L
H
K
020
0,51
R
P
S

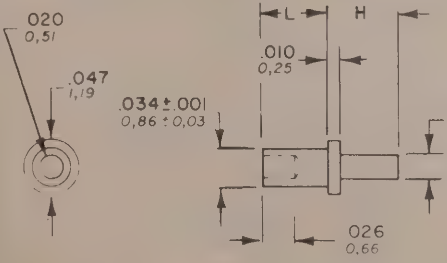
MATERIAL: BRASS

PART NUMBER	H	L	K	S	R	P	BOARD THICKNESS	STANDARD (XX) FINISH
09-8068-1-03	.310 7,87	.051 1,30	.025 0,64	120 3,05	.020 0,51	.045 1,14	1/32 0,79	(03) GOLD
09-8063-1-05	.455 11,56	.051 1,30	.025 0,64	.120 3,05	.020 0,51	045 1,14	1/32 0,79	(05) ELECTRO-SOLDER
09-8012-1-03	.580 14,73	051 1,30	025 0,64	.120 3,05	.020 0,51	.045 1,14	1/32 0,79	(03) GOLD
-2-03	.580 14,73	082 2,08	.025 0,64	120 3,05	.020 0,51	.045 1,14	1/16 1,59	
09-8008-2-03	.750 19,05	082 2,08	.020 0,51	350 8,89	.230 5,84	.045 1,14	1/16 1,59	(03) GOLD
09-8015-1-03	.950 24,13	051 1,30	.025 0,64	.120 3,05	.020 0,51	.045 1,14	1/32 0,79	(03) GOLD
09-8065-1-03	1.140 28,96	051 1,30	025 0,64	600 15,24	445 11,30	030 0,76	1/32 0,79	(03) GOLD

09-81XX-X-XX P.C. PIN .020

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.037 DIA (=63 DRILL)


020
0,51
.047
1,19
.034±.001
0,86 ±0,03
L
H
.010
0,25
.020±.002
0,51±0,05
026
0,66

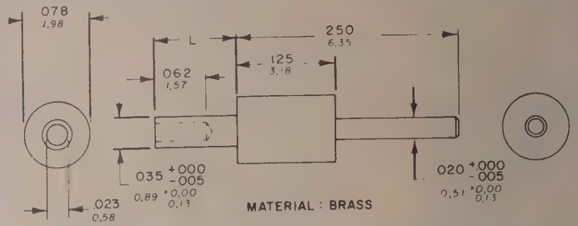
MATERIAL BRASS

PART NUMBER	H	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8138-1Γ-05	.040 1,02	037 0,94	1/64 0,40	(05) ELECTRO-SOLDER
-1-05	.040 1,02	.053 1,35	1/32 0,79	
-2-05	.040 1,02	.084 2,13	1/16 1,59	
09-8139-1-05	.060 1,52	.053 1,35	1/32 0,79	(05) ELECTRO-SOLDER
-2-05	.060 1,52	.084 2,13	1/16 1,59	

10-963-2-03 P.C. PIN .020

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.036 DIA (#64 DRILL)


078
1,98
L
250
6,35
062
1,57
125
3,18
035 +000 -005
0,89 +0,00 -0,13
.023
0,58
020 +.000 -.005
0,51 +0,00 -0,13

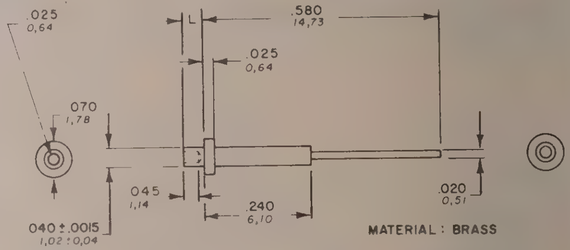
MATERIAL : BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-963-2-03	.094 2,39	1/16 1,59	(03) GOLD

09-8031-1-03 P.C. PIN .020

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.043 DIA (#57 DRILL)


.025
0,64
L
.580
14,73
.025
0,64
070
1,78
045
1,14
.240
6,10
040±.0015
1,02±0,04
.020
0,51

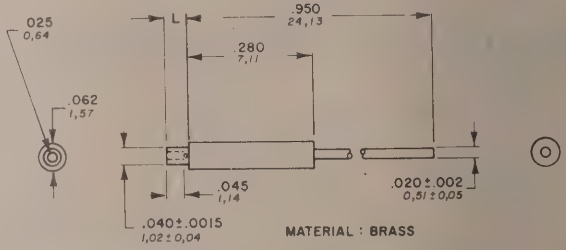
MATERIAL : BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8031-1-03	.051 1,30	1/32 0,79	(03) GOLD

09-8058-1-03 P.C. PIN .020

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.043 DIA (#57 DRILL)

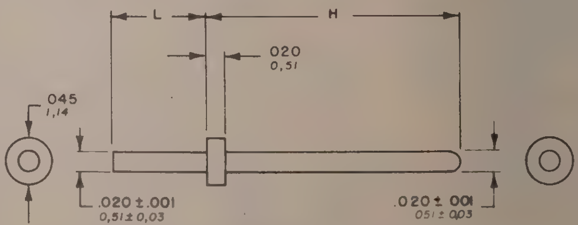

025
0,64
L
.950
24,13
.280
7,11
.062
1,57
.045
1,14
.040±.0015
1,02±0,04
.020±.002
0,51±0,05

MATERIAL : BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8058-1-03	.051 1,30	1/32 0,79	(03) GOLD

09-8XXX-2-03 P.C. PINS .020

BASIC PART NO. FINISH


L
H
020
0,51
045
1,14
.020±.001
0,51±0,03
.020± 001
051± 003

MATERIAL BRASS

PART NUMBER	H	L	THICKNESS	(XX) FINISH
09-8090-2-03	.270 6,86	.100 2,54	1/16 1,59	(03) GOLD
09-8017-2-03	.445 11,30	.100 2,54	1/16 1,59	(03) GOLD
09-8187-2-03	.545 13,84	.100 2,54	1/16 1,59	(03) GOLD
09-8001-2-03	570 14,48	100 2,54	1/16 1,59	(03) GOLD
09-8018-2-03	.950 24,13	100 2,54	1/16 1,59	(03) GOLD

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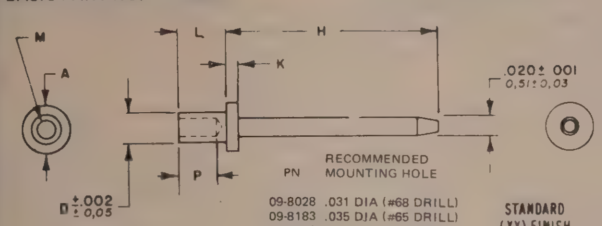
TWX 710-581-4930

P.C. PINS

09-8XXX-X-XX P.C. PINS .020

BASIC PART NO. FINISH



MATERIAL · BRASS

PN	RECOMMENDED MOUNTING HOLE
09-8028	.031 DIA (#68 DRILL)
09-8183	.035 DIA (#65 DRILL)
09-8179	.039 DIA (#61 DRILL)
09-8027	.031 DIA (#68 DRILL)
09-8056	.031 DIA (#68 DRILL)
09-8181	.035 DIA (#65 DRILL)
09-8046	.043 DIA (#57 DRILL)
09-8180	.039 DIA (#61 DRILL)
09-8182	.035 DIA (#65 DRILL)

STANDARD (XX) FINISH
(05) ELECTRO-SOLDER
(03) GOLD

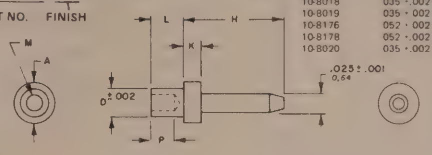
PART NUMBER	H	L	D	A	K	M	P	BOARD THICKNESS
09-8028-1-05	.050 1,27	.051 1,30	.027 0,69	.050 1,27	010 0,25	.018 0,46	.040 1,02	1/32 0,79
-2-05	.050 1,27	.085 2,16	.027 0,69	.050 1,27	.010 0,25	.018 0,46	.040 1,02	1/16 1,59
09-8183-1-05	.125 3,18	.051 1,30	.031 0,79	.050 1,27	.010 0,25	.020 0,51	.040 1,02	1/32 0,79
09-8179-1-03	.125 3,18	.051 1,30	.036 0,91	.050 1,27	.050 1,27	.025 0,64	.040 1,02	1/32 0,79
09-8027-2-05	.130 3,30	.085 2,16	.027 0,69	.050 1,27	.010 0,25	.018 0,46	.040 1,02	1/16 1,59
09-8056-2-03	.160 4,06	.085 2,16	.027 0,69	.050 1,27	.010 0,25	.018 0,46	.040 1,02	1/16 1,59
09-8181-1-05	.225 5,72	.051 1,30	.031 0,79	.050 1,27	.010 0,25	.020 0,51	.040 1,02	1/32 0,79
09-8046-3-05	.275 6,99	.113 2,87	.040 1,02	.062 1,57	.025 0,64	.025 0,64	.035 0,89	3/32 2,38
09-8180-3-03	.350 8,89	.119 3,02	.036 0,91	.050 1,27	.020 0,51	.025 0,64	.045 1,14	3/32 2,38
09-8182-1-05	.375 9,53	.051 1,30	.031 0,79	.050 1,27	.010 0,25	.020 0,51	.040 1,02	1/32 0,79

10-9XX-X-XX .025 PINS
10-8XXX-X-XX
09-8XXX-X-XX

BASIC PART NO. FINISH

MATERIAL : BRASS

PN	RECOMMENDED MOUNTING HOLES
10-915	043 ±.001 DIA (#57 DRILL)
10-925	062 ± 002 (1/16 DRILL)
10-8017	035 ± 002 DIA (#65 DRILL)
10-8018	035 ±.002 DIA (#65 DRILL)
10-8019	035 ± 002 DIA (#65 DRILL)
10-8176	052 ± 002 DIA (#55 DRILL)
10-8178	052 ±.002 DIA (#55 DRILL)
10-8020	035 ±.002 DIA (#65 DRILL)



STANDARD (XX) FINISH
(03) GOLD OR (04) ELECTRO-TIN

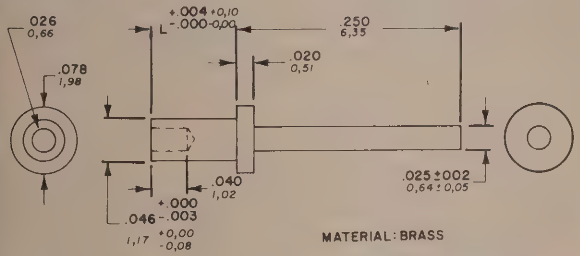
PART NUMBER	H	L	D	A	K	M	P	BOARD THICKNESS
10-915-1-03	.150 3,81	.051 1,30	*.040 1,02	.062 1,57	.025 0,64	.025 0,64	.035 0,89	1/32 0,79
-2-03	.150 3,81	.082 2,08	*.040 1,02	.062 1,57	025 0,64	.025 0,64	.035 0,89	1/16 1,59
-3-03	.150 3,81	.113 2,87	*.040 1,02	.062 1,57	025 0,64	.025 0,64	.035 0,89	3/32 2,38
-3A-03	.150 3,81	.125 3,18	*.040 1,02	.062 1,57	.025 0,64	.025 0,64	.035 0,89	
10-925-1-XX	.155 3,94	.062 1,57	.058 1,47	.078 1,98	.030 0,76	.040 1,02	.040 1,02	1/32 0,79
-2-XX	.155 3,94	.094 2,39	.058 1,47	.078 1,98	.030 0,76	.040 1,02	.062 1,57	1/16 1,59
-3-XX	.155 3,94	.125 3,18	.058 1,47	.078 1,98	.030 0,76	.040 1,02	062 1,57	3/32 2,38
-4-XX	.155 3,94	.156 3,96	.058 1,47	.078 1,98	.030 0,76	.040 1,02	.062 1,57	1/8 3,18
10-8017-1-03	.170 4,32	.051 1,30	†.031 0,79	.050 1,27	.020 0,51	.020 0,51	.031 0,79	1/32 0,79
-2-03	.170 4,32	.082 2,08	†.031 0,79	.050 1,27	.020 0,51	.020 0,51	.031 0,79	1/16 1,59
10-8018-1-03	.320 8,13	.051 1,30	†.031 0,79	.050 1,27	.020 0,51	.020 0,51	.031 0,79	1/32 0,79
-2-03	.320 8,13	.082 2,08	†.031 0,79	.050 1,27	.020 0,51	.020 0,51	.031 0,79	1/16 1,59
10-8019-1-03	.320 8,13	.051 1,30	†.031 0,79	.050 1,27	.170 4,32	.020 0,51	.031 0,79	1/32 0,79
-2-03	.320 8,13	.082 2,08	†.031 0,79	.050 1,27	.170 4,32	.020 0,51	.031 0,79	1/16 1,59
09-8176-1-03	.437 11,10	.054 1,37	.048 1,22	.062 1,57	.020 0,51	.032 0,81	.031 0,79	1/32 0,79
09-8178-2-03	.437 11,10	.094 2,39	.047 1,19	.062 1,57	.062 1,57	.032 0,81	.031 0,79	1/16 1,59
10-8020-1-03	.570 14,48	.051 1,30	†.031 0,79	.050 1,27	.420 10,67	.020 0,51	.031 0,79	1/32 0,79
-2-03	.570 14,48	.082 2,08	†.031 0,79	.050 1,27	.420 10,67	.020 0,51	.031 0,79	1/16 1,59

* TOLERANCE IS ±.001 (±0,03) † TOLERANCE IS ±.0015 (±0,04)

09-8172-2-03 P.C. PIN .025

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.0465 DIA (#56 DRILL)



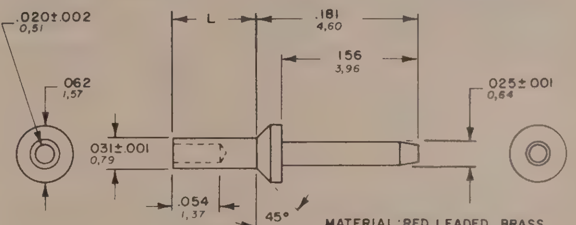
MATERIAL: BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8172-2-03	.084 2,13	1/16 1,59	(03) GOLD

14-991-2-03 .025 PIN

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.033 DIA (#66 DRILL)



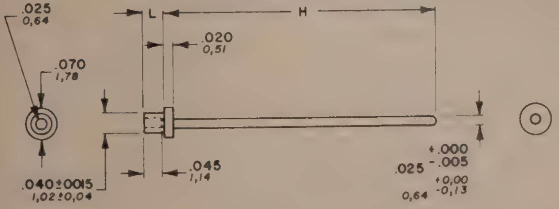
MATERIAL: RED LEADED BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
14-991-2-03	.094 2,39	1/16 1,59	(03) GOLD

09-81XX-1-03 P.C. PIN .025

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.043 DIA (#57 DRILL)



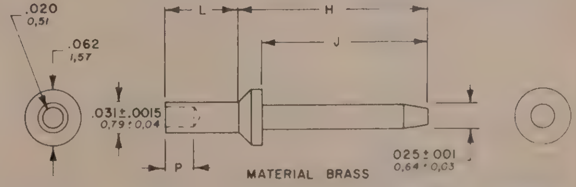
MATERIAL : BRASS

PART NUMBER	H	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8173-1-03	.600 15,24	.051 1,30	1/32 0,79	(03) GOLD
09-8174-1-03	.900 22,86	.051 1,30	1/32 0,79	(03) GOLD

10-9XX-X-XX P.C. PIN .025
09-8170-2-04

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.035 DIA (#65 DRILL)



MATERIAL BRASS

PART NUMBER	H	L	J	P	BOARD THICKNESS	STANDARD (XX) FINISH
10-964-2-04	.092 2,34	.082 2,08	.067 1,70	.062 1,57	1/16 1,59	(04) ELECTRO-TIN
10-927-1-XX	.213 5,41	.047 1,19	.188 4,78	.031 0,79	1/32 0,79	(03) GOLD OR
-2-XX	.213 5,41	.082 2,08	.188 4,78	.031 0,79	1/16 1,59	(04) ELECTRO-TIN
09-8170-2-04	.337 8,56	.078 1,98	.312 7,92	.031 0,79	1/16 1,59	(04) ELECTRO-TIN

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TWX 710-581-4930

P.C. PINS

09-8XXX-X-XX P.C. PIN .031

BASIC PART NO. FINISH

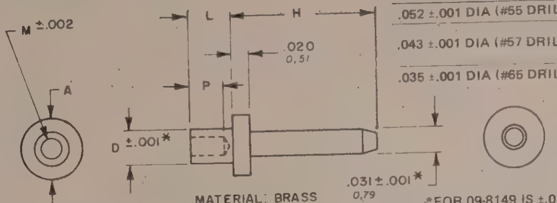
RECOMMENDED MOUNTING HOLE

.043 ±.001 DIA (#57 DRILL)

.052 ±.001 DIA (#55 DRILL)

.043 ±.001 DIA (#57 DRILL)

.035 ±.001 DIA (#65 DRILL)


M ±.002
A
L
H
.020
0,51
P
D ±.001*
.031±.001*
0,79

MATERIAL: BRASS

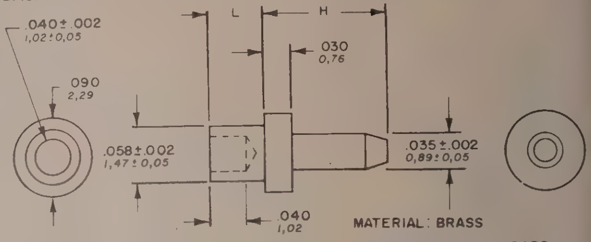
*FOR 09-8149 IS ±.002

PART NUMBER	H	L	D	A	M	P	BOARD THICKNESS	STANDARD (XX) FINISH
09-8045-1-XX	.170 4,32	.051 1,30	.040 1,02	.070 1,78	.025 0,64	.040 1,02	1/32 0,79	(03) GOLD (04) ELECTRO-TIN
2-XX	.170 4,32	.082 2,08	.040 1,02	.070 1,78	.025 0,64	.040 1,02	1/16 1,59	
3-XX	.170 4,32	.113 2,87	.040 1,02	.070 1,78	.025 0,64	.040 1,02	3/32 2,38	
09-8149-1-01	.176 4,47	.050 1,27	.047 1,19	.062 1,57	.020 0,51	.020 0,51	1/32 0,79	(01) SILVER
09-8044-1-XX	.320 8,13	.051 1,30	.040 1,02	.070 1,78	.025 0,64	.040 1,02	1/32 0,79	(03) GOLD (04) ELECTRO-TIN
2-XX	.320 8,13	.082 2,08	.040 1,02	.070 1,78	.025 0,64	.040 1,02	1/16 1,59	
3-XX	.320 8,13	.113 2,87	.040 1,02	.070 1,78	.025 0,64	.040 1,02	3/32 2,38	
09-8024-1-03	.320 8,13	.051 1,30	.031 0,79	.050 1,27	.015 0,38	.040 1,02	1/32 0,79	(03) GOLD

10-849-1-03 P.C. PIN .035
09-81XX-1-03

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.0625 DIA (1/16 DRILL)


.040±.002
1,02±0,05
L
H
.030
0,76
.090
2,29
.058±.002
1,47±0,05
.035±.002
0,89±0,05
.040
1,02

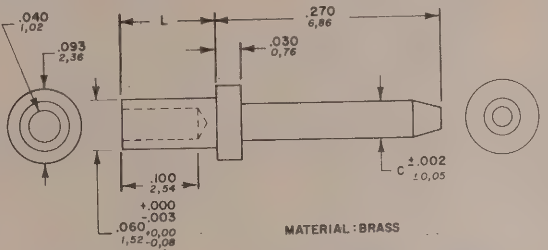
MATERIAL: BRASS

PART NUMBER	H	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-849-1-03	.130 3,30	.062 1,57	1/32 0,79	(03) GOLD
09-8152-1-03	.155 3,94	.062 1,57	1/32 0,79	(03) GOLD
09-8153-1-03	.180 4,57	.062 1,57	1/32 0,79	(03) GOLD

12-8XX-3-03 P.C. PIN .040

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.0635 DIA (#52 DRILL)


.040
1,02
.093
2,36
L
.270
6,86
.030
0,76
C ±.002
±0,05
.100
2,54
+.000
-.003
.060
1,52
+0,00
-0,08

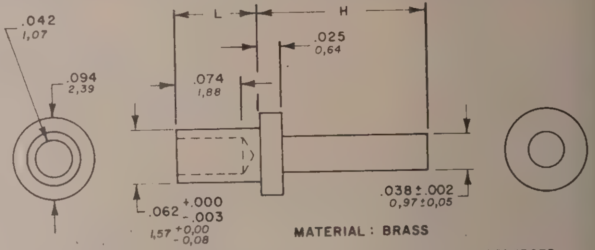
MATERIAL: BRASS

PART NUMBER	L	C	BOARD THICKNESS	STANDARD (XX) FINISH
12-886-3-03	.125 3,18	.030 0,76	3/32 2,38	(03) GOLD
12-890-3-03	.125 3,18	.040 1,02	3/32 2,38	(03) GOLD

09-81XX-2-03 P.C. PIN .038

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.064 DIA (#52 DRILL)


.042
1,07
L
H
.025
0,64
.094
2,39
.074
1,88
.062 +.000
-.003
1,57 +0,00
-0,08
.038±.002
0,97±0,05

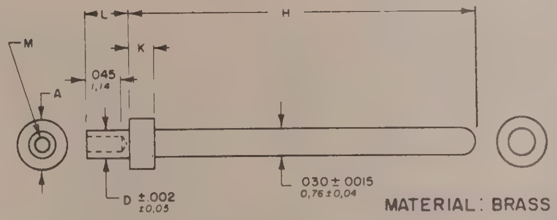
MATERIAL: BRASS

PART NUMBER	H	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8150-2-03	.187 4,75	.094 2,39	1/16 1,59	(03) GOLD
09-8151-2-03	.250 6,35	.094 2,39	1/16 1,59	(03) GOLD

09-8XXX-X-XX P.C. PIN .030

BASIC PART NO. FINISH

PN	RECOMMENDED MOUNTING HOLE
09-8147	.033 DIA (#66 DRILL)
09-8055	.043 DIA (#57 DRILL)


M
L
H
K
.045
1,14
A
D ±.002
±0,05
.030±.0015
0,76±0,04

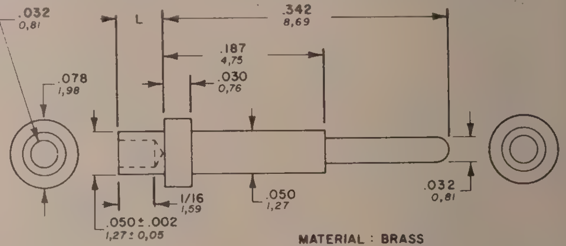
MATERIAL: BRASS

PART NUMBER	H	L	D	A	K	M	BOARD THICKNESS	STANDARD (XX) FINISH
09-8147-1-04	.421 10,69	.051 1,30	.030 0,76	.062 1,57	.030 0,76	.015 0,38	1/32 0,79	(04) ELECTRO-TIN
09-8055-1-03	.600 15,24	.051 1,30	.040 1,02	.070 1,78	.020 0,51	.025 0,64	1/32 0,79	(03) GOLD
2-03	.600 15,24	.082 2,08	.040 1,02	.070 1,78	.020 0,51	.025 0,64	1/16 1,59	

10-877-1-05 P.C. PIN .032

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.055 DIA (#54 DRILL)

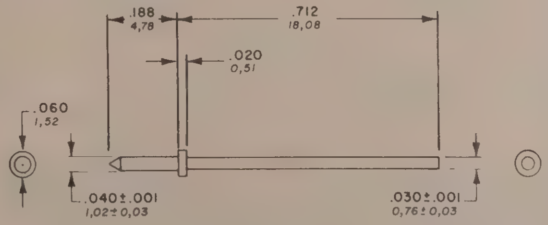

.032
0,81
L
.342
8,69
.187
4,75
.030
0,76
.078
1,98
1/16
1,59
.050
1,27
.050±.002
1,27±0,05
.032
0,81

MATERIAL: BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-877-1-05	.051 1,30	1/32 0,79	(05) ELECTRO-SOLDER
2-05	.082 2,08	1/16 1,59	
3-05	.113 2,87	3/32 2,38	

09-0008-1-03 P.C. PIN .030

BASIC PART NO. FINISH

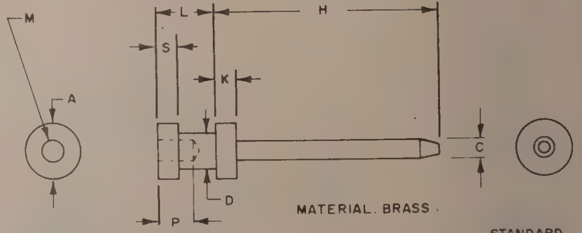

.188
4,78
.712
18,08
.020
0,51
.060
1,52
.040±.001
1,02±0,03
.030±.001
0,76±0,03

MATERIAL: BRASS

PART NUMBER	STANDARD (XX) FINISH
09-0008-1-03	(03) GOLD

12-8XX-1-03 P.C. PIN MOLDED

BASIC PART NO. FINISH



MATERIAL. BRASS

PART NUMBER	H	L	C	A	D	K	S	M	P	STANDARD (XX) FINISH
12-887-1-03	.250 6,35	.065 1,65	*.023 0,56	.062 1,57	.040 1,02	.025 0,64	.025 0,64	.025 0,64	.040 1,02	(03) GOLD
12-885-1-03	.270 6,86	.125 3,18	†.030 0,76	.094 2,39	.060 1,52	.030 0,76	.030 0,76	.040 1,02	.100 2,54	(03) GOLD

* ± .001 (±0,03)
† ± .002 (±0,05)

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

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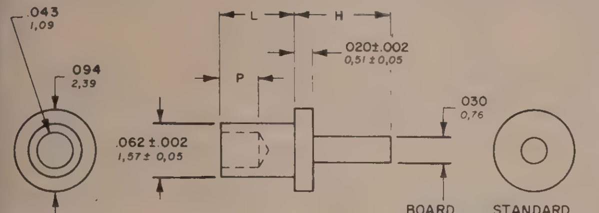
P.C. PINS

10-8XX-X-XX P.C. PIN .030
09-8XXX-X-XX

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.067 DIA (#51 DRILL)

MATERIAL : BRASS

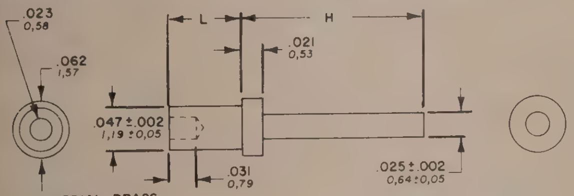


PART NUMBER	H	L	P	BOARD THICKNESS	STANDARD (XX) FINISH
10-865-2-XX	080 2,03	084 2,13	045 1,14	1/16 1,59	(03) GOLD OR (04) ELECTRO-TIN
10-866-2-XX	.115 2,92	084 2,13	045 1,14	1/16 1,59	(03) GOLD OR (04) ELECTRO-TIN
10-867-11-XX	154 3,91	.037 0,94	026 0,66	1/64 0,40	(03) GOLD OR (04) ELECTRO-TIN
-1-XX	154 3,91	053 1,35	031 0,79	1/32 0,79	
-2-XX	154 3,91	084 2,13	045 1,14	1/16 1,59	
-3-XX	.154 3,91	115 2,92	045 1,14	3/32 2,38	
-4-XX	.154 3,91	147 3,73	045 1,14	1/8 3,18	
10-868-2-XX	250 6,35	084 2,13	045 1,14	1/16 1,59	(03) GOLD OR (04) ELECTRO-TIN
10-869-4-XX	281 7,14	147 3,73	045 1,14	1/8 3,18	(03) GOLD OR (04) ELECTRO-TIN
10-870-4-XX	312 7,92	.147 3,73	045 1,14	1/8 3,18	(03) GOLD OR (04) ELECTRO-TIN
10-871-2-XX	.344 8,74	.084 2,13	.045 1,14	1/16 1,59	(03) GOLD OR (04) ELECTRO-TIN
09-8190-2-04	.550 13,97	.084 2,13	.045 1,14	1/16 1,59	(04) ELECTRO-TIN
09-8148-1-03	580 14,73	.053 1,35	.031 0,79	1/32 0,79	(03) GOLD
09-8002-1-04	1.000 25,40	.053 1,35	.031 0,79	1/32 0,79	(04) ELECTRO-TIN

10-8XX-X-XX P.C. PIN .025
09-80XX-X-XX

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.052 DIA (#55 DRILL)



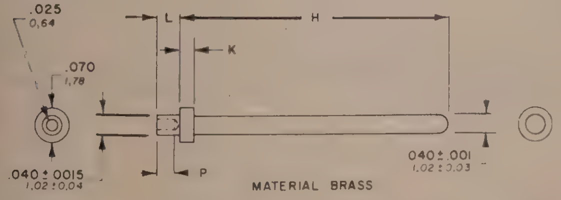
MATERIAL :BRASS

PART NUMBER	H	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-875-1-05	.100 2,54	.051 1,30	1/32 0,79	(05) ELECTRO-SOLDER
-2-05	.100 2,54	.082 2,08	1/16 1,59	
10-876-1-05	.200 5,08	.051 1,30	1/32 0,79	(05) ELECTRO-SOLDER
-2-05	.200 5,08	.082 2,08	1/16 1,59	
09-8082-1-04	.500 12,7	.051 1,30	1/32 0,79	(04) ELECTRO-TIN
09-8081-1-05	.700 17,78	.051 1,30	1/32 0,79	(05) ELECTRO-SOLDER

09-8XXX-X-03 P.C. PIN .040

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.043 DIA (#57 DRILL)



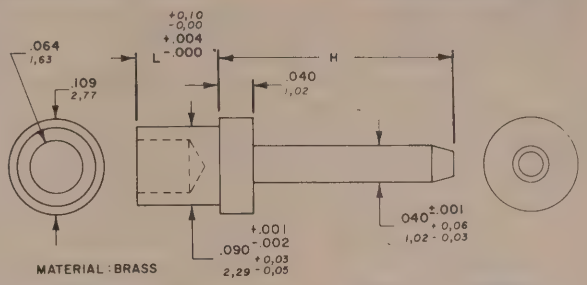
MATERIAL BRASS

PART NUMBER	H	L	K	P	BOARD THICKNESS	STANDARD (XX) FINISH
09-8154-1-03	.623 15,82	.051 1,30	033 0,84	045 1,14	1/32 0,79	(03) GOLD
09-8070-1-03	.684 17,37	.051 1,30	.035 0,89	031 0,79	1/32 0,79	(03) GOLD
09-8155-1-03	.772 19,61	.051 1,30	.033 0,84	.045 1,14	1/32 0,79	(03) GOLD
09-8165-2-03	1.290 32,77	.085 2,16	035 0,89	.031 0,79	1/16 1,59	(03) GOLD

10-850-X-01 P.C. PIN .040

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.094 DIA (3/32 DRILL)



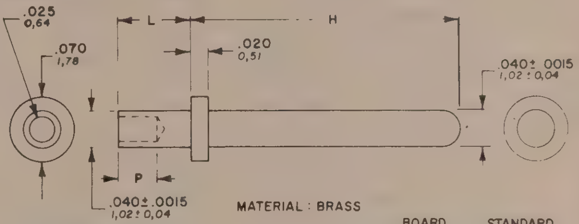
MATERIAL : BRASS

PART NUMBER	H	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-850-11-01	.224 5,69	.047 1,19	1/64 0,40	(01) SILVER
-1-01	.240 6,10	.063 1,60	1/32 0,79	
-2-01	.270 6,86	.093 2,36	1/16 1,59	
-3-01	.300 7,62	.123 3,12	3/32 2,38	
-4-01	.330 8,38	.153 3.89	1/8 3,18	

09-8XXX-X-XX P.C. PIN .040
10-8XX-X-XX

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.043 DIA (#57 DRILL)



MATERIAL : BRASS

PART NUMBER	H	L	P	BOARD THICKNESS	STANDARD (XX) FINISH
09-8075-1-03	.200 5,08	.051 1,30	.045 1,14	1/32 0,79	(03) GOLD
-2-03	.200 5,08	.082 2,08	.045 1,14	1/16 1,59	
09-8084-2-03	.250 6,35	.082 2,08	.045 1,14	1/16 1,59	(03) GOLD
10-891-1-03	.300 7,62	.051 1,30	.045 1,14	1/32 0,79	(03) GOLD
-2-03	.300 7,62	.082 2,08	.045 1,14	1/16 1,59	
09-8156-4-03	.300 7,62	.150 3,81	.045 1,14	1/8 3,18	(03) GOLD
09-8083-1-03	.400 10,16	.051 1,30	.045 1,14	1/32 0,79	(03) GOLD
-2-03	.400 10,16	.082 2,08	.045 1,14	1/16 1,59	
09-8157-1-03	.458 11,63	.051 1,30	.045 1,14	1/32 0,79	(03) GOLD
09-8059-1-03	.500 12,7	.051 1,30	.045 1,14	1/32 0,79	(03) GOLD
-2-03	.500 12,7	.082 2,08	.045 1,14	1/16 1,59	
09-8159-1-03	.570 13,97	.051 1,30	.045 1,14	1/32 0,79	(03) GOLD
10-892-1-03	.600 15,24	.051 1,30	.045 1,14	1/32 0,79	(03) GOLD
-2-03	.600 15,24	.082 2,08	.045 1,14	1/16 1,59	
09-8013-2-03	.625 15,88	.084 2,13	.040 1,02	1/16 1,59	(03) GOLD
09-8007-2-03	.650 16,51	.082 2,08	.045 1,14	1/16 1,59	(03) GOLD
09-8158-2-03	.675 17,15	.082 2,08	.045 1,14	1/16 1,59	(03) GOLD
09-8043-2-03	.690 17,53	.082 2,08	.045 1,14	1/16 1,59	(03) GOLD
09-8076-1-03	.700 17,78	.051 1,30	.045 1,14	1/32 0,79	(03) GOLD
-2-03	.700 17,78	.082 2,08	.045 1,14	1/16 1,59	
09-8160-2-03	.710 18,03	.082 2,08	.045 1,14	1/16 1,59	(03) GOLD
09-8067-1-03	.720 18,29	.051 1,30	.045 1,14	1/32 0,79	(03) GOLD
-2-03	.720 18,29	.082 2,08	.045 1,14	1/16 1,59	
09-8042-1-03	.740 18,80	.051 1,30	.045 1,14	1/32 0,79	(03) GOLD
09-8184-2-03	.750 19,05	.084 2,13	.040 1,02	1/16 1,59	(03) GOLD
09-8060-1-03	.800 20,32	.051 1,30	.045 1,14	1/32 0,79	(03) GOLD
-2-03	.800 20,32	.082 2,08	.045 1,14	1/16 1,59	
09-8185-2-03	.843 21,41	.084 2,13	.040 1,02	1/16 1,59	(03) GOLD
10-893-1-03	.900 22,86	.051 1,30	.045 1,14	1/32 0,79	(03) GOLD
-2-03	.900 22,86	.082 2,08	.045 1,14	1/16 1,59	
-3-03	.900 22,86	.113 2,87	.045 1,14	3/32 2,38	
09-8161-2-03	1.000 25,4	.084 2,13	.040 1,02	1/16 1,59	(03) GOLD
09-8039-3	1.020 25,91	.113 2,87	.045 1,14	3/32 2,38	
09-8061-1-03	1.060 26,92	.051 1,30	.045 1,14	1/32 0,79	(03) GOLD
-2-03	1.060 26,92	.082 2,08	.045 1,14	1/16 1,59	
09-8162-2-03	1.088 27,64	.084 2,13	.040 1,02	1/16 1,59	(03) GOLD
09-8163-1-05	1.220 30,99	.051 1,30	.045 1,14	1/32 0,79	(05) ELECTRO-SOLDER

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

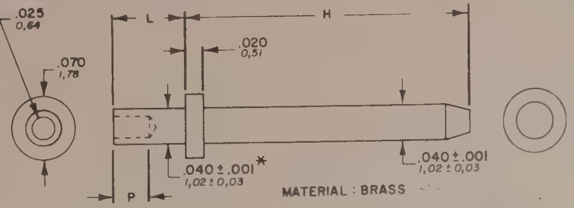
30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. PINS

09-8XXX-X-XX P.C. PINS .040
10-9XX-X-XX
10-8XXX-X-XX

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.043 ± .001 DIA (#57 DRILL)



MATERIAL : BRASS

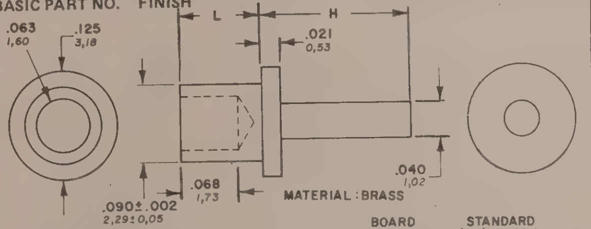
PART NUMBER	H	L	P	BOARD THICKNESS	STANDARD (XX) FINISH
09-8053-3-05	.120 3,05	.125 3,18	.062 1,57	3/32 2,38	(05) ELECTRO-SOLDER
09-8115-2-03	.150 3,81	.090 2,29	.060 1,52	1/16 1,59	(03) GOLD
10-917-1-XX	.170 4,32	.051 1,30	.040 1,02	1/32 0,79	(03) GOLD OR
-2-XX	.170 4,32	.082 2,08	.040 1,02	1/16 1,59	(04) ELECTRO-
-3-XX	.170 4,32	.113 2,87	.040 1,02	3/32 2,38	TIN
10-8023-1-XX	.208 5,28	.051 1,30	.040 1,02	1/32 0,79	(03) GOLD OR
-2-XX	.208 5,28	.082 2,08	.040 1,02	1/16 1,59	(04) ELECTRO-
-3-XX	.208 5,28	.113 2,87	.040 1,02	3/32 2,38	TIN
10-916-1-XX	.320 8,13	.051 1,30	.040 1,02	1/32 0,79	(03) GOLD OR
-2-XX	.320 8,13	.082 2,08	.040 1,02	1/16 1,59	(04) ELECTRO-
-3-XX	.320 8,13	.113 2,87	.040 1,02	3/32 2,38	TIN
10-990-1-XX	.520 13,21	.051 1,30	.040 ,02	1/32 0,79	(03) GOLD OR
-2-XX	.520 13,21	.082 2,08	.040 1,02	1/16 1,59	(04) ELECTRO-
-3-XX	.520 13,21	.113 2,87	.040 1,02	3/32 2,38	TIN
10-972-1-XX	.770 19,56	.051 1,30	.040 1,02	1/32 0,79	(03) GOLD OR
-2-XX	.770 19,56	.082 2,08	.040 1,02	1/16 1,59	(04) ELECTRO-
-3-XX	.770 19,56	.113 2,87	.040 1,02	3/32 2,38	TIN
10-974-1-XX	1.020 25,91	.051 1,30	.040 1,02	1/32 0,79	(03) GOLD OR
-2-XX	1.020 25,91	.082 2,08	.040 1,02	1/16 1,59	(04) ELECTRO-
-3-XX	1.020 25,91	.113 2,87	.040 1,02	3/32 2,38	TIN

*FOR 10-8023 IS .040± .0015 (1,02 ±0,04)

10-8XX-X-XX P.C. PIN .040

RECOMMENDED MOUNTING HOLE
.094 DIA (#42 DRILL)

BASIC PART NO. FINISH



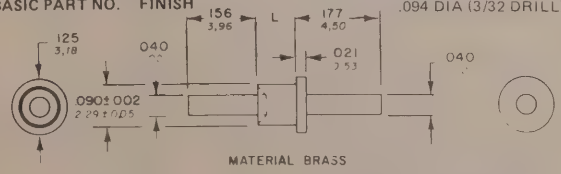
MATERIAL : BRASS

PART NUMBER	H	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-861-2-XX	.172 4,37	.094 2,39	1/16 1,59	(03) GOLD OR (04) ELECTRO-TIN
-3-XX	.172 4,37	.125 3,18	3/32 2,38	
-4-XX	.172 4,37	.156 3,96	1/8 3,18	
10-862-2-XX	.250 6,35	.094 2,39	1/16 1,59	
-3-XX	.250 6,35	.125 3,18	3/32 2,38	
10-863-3-XX	.313 7,95	.125 3,18	3/32 2,38	
10-864-2-XX	.521 13,23	.094 2,39	1/16 1,59	

10-821-X-01 P.C. PIN .040, FEED THRU

RECOMMENDED MOUNTING HOLE
.094 DIA (3/32 DRILL)

BASIC PART NO. FINISH



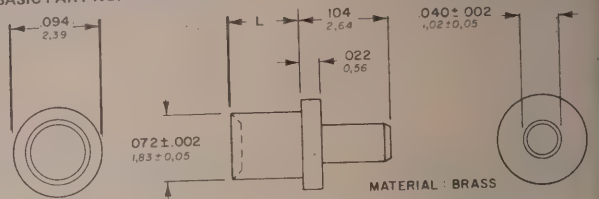
MATERIAL BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-821-1-01	.075 1,90	1/32 0,79	(01) SILVER
-2-01	.105 2,67	1/16 1,59	
-3-01	.135 3,43	3/32 2,38	
-4-01	.165 4,19	1/8 3,18	

09-8171-X-03 P.C. PIN .040

RECOMMENDED MOUNTING HOLE
.076 DIA (#48 DRILL)

BASIC PART NO. FINISH



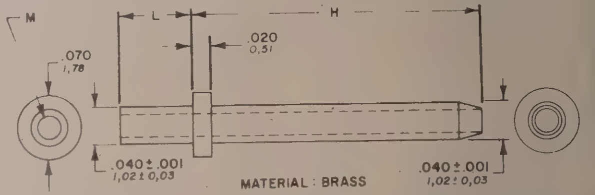
MATERIAL : BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8171-1-03	.051 1,30	1/32 0,79	(03) GOLD
-2-03	.082 2,08	1/16 1,59	
-3-03	.113 2,87	3/32 2,38	
-4-03	.145 3,68	1/8 3,18	

09-8XXX-X-XX P.C. PINS .040 THRU HOLE
10-9XX-X-XX

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.043 ±.001 DIA (#57 DRILL)



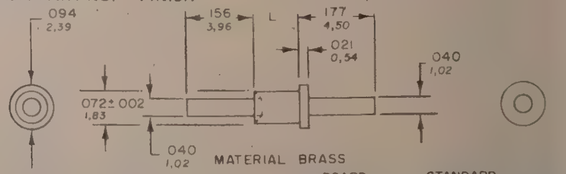
MATERIAL : BRASS

PART NUMBER	H	L	M	BOARD THICKNESS	STANDARD (XX) FINISH
09-8113-1-XX	.120 3,05	.051 1,30	.021 0,53	1/32 0,79	(03) GOLD OR
-2-XX	.120 3,05	.082 2,08	.021 0,53	1/16 1,59	(04) ELECTRO-
-3-XX	.120 3,05	.113 2,87	.021 0,53	3/32 2,38	TIN
10-920-1-XX	.120 3,05	.051 1,30	.026 0,66	1/32 0,79	(03) GOLD OR
-2-XX	.120 3,05	.082 2,08	.026 0,66	1/16 1,59	(04) ELECTRO-
-3-XX	.120 3,05	.113 2,87	.026 0,66	3/32 2,38	TIN
09-8112-1-XX	.170 4,32	.051 1,30	.021 0,53	1/32 0,79	(03) GOLD OR
-2-XX	.170 4,32	.082 2,08	.021 0,53	1/16 1,59	(04) ELECTRO-
-3-XX	.170 4,32	.113 2,87	.021 0,53	3/32 2,38	TIN
10-919-1-XX	.170 4,32	.051 1,30	.026 0,66	1/32 0,79	(03) GOLD OR
-2-XX	.170 4,32	.082 2,08	.026 0,66	1/16 1,59	(04) ELECTRO-
-3-XX	.170 4,32	.113 2,87	.026 0,66	3/32 2,38	TIN
09-8025-1-XX	.190 4,83	.045 1,14	.025 0,64	1/32 0,79	(03) GOLD
09-8144-3-03	.280 7,11	.113 2,87	.021 0,53	3/32 2,38	(03) GOLD
09-8111-1-XX	.320 8,13	.051 1,30	.021 0,53	1/32 0,79	(03) GOLD OR
-2-XX	.320 8,13	.082 2,08	.021 0,53	1/16 1,59	(04) ELECTRO-
-3-XX	.320 8,13	.113 2,87	.021 0,53	3/32 2,38	TIN
10-918-1-XX	.320 8,13	.051 1,30	.026 0,66	1/32 0,79	(03) GOLD OR
-2-XX	.320 8,13	.082 2,08	.026 0,66	1/16 1,59	(04) ELECTRO-
-3-XX	.320 8,13	.113 2,87	.026 0,66	3/32 2,38	TIN
10-971-1-XX	.520 13,21	.051 1,30	.026 0,66	1/32 0,79	(03) GOLD OR
-2-XX	.520 13,21	.082 2,08	.026 0,66	1/16 1,59	(04) ELECTRO-
-3-XX	.520 13,21	.113 2,87	.026 0,66	3/32 2,38	TIN
10-973-1-XX	.770 19,56	.051 1,30	.026 0,66	1/32 0,79	(03) GOLD OR
-2-XX	.770 19,56	.082 2,08	.026 0,66	1/16 1,59	(04) ELECTRO-
-3-XX	.770 19,56	.113 2,87	.026 0,66	3/32 2,38	TIN
10-975-1-XX	1.020 25,91	.051 1,30	.026 0,66	1/32 0,79	(03) GOLD OR
-2-XX	1.020 25,91	.082 2,08	.026 0,66	1/16 1,59	(04) ELECTRO-
-3-XX	1.020 25,91	.113 2,87	.026 0,66	3/32 2,38	TIN

13-878-X-05 .040 PIN

RECOMMENDED MOUNTING HOLE
.076 DIA (#48 DRILL)

BASIC PART NO. FINISH



MATERIAL BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
13-878-1-05	.051 1,30	1/32 0,79	(05) ELECTRO-SOLDER
-2-05	.082 2,08	1/16 1,59	
-3-05	.113 2,87	3/32 2,38	

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

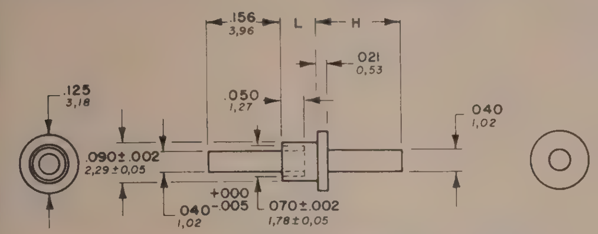
30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. PINS

10-8XX-X-XX P.C. PIN .040, FEED THRU

BASIC PART NO. FINISH

RECOMMENDED MOUNTING H
.094 DIA (3/32 DRILL)


.156
3,96
L
H
.021
0,53
.125
3,18
.050
1,27
.040
1,02
.090±.002
2,29±0,05
+000
040 -.005
1,02
070±.002
1,78±0,05

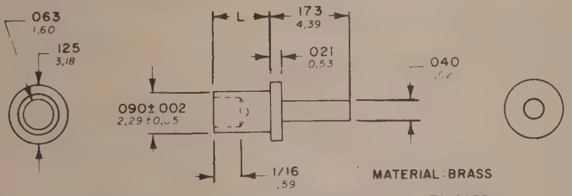
MATERIAL BRASS

PART NUMBER	H	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-857-2-XX	.172 4,37	.094 2,39	1/16 1,59	
-3-XX	.172 4,37	.125 3,18	3/32 2,38	
-4-XX	.172 4,37	.156 3,96	1/8 3,18	(03) GOLD OR
10-858-3-XX	.313 7,95	.125 3,18	3/32 2,38	(04) ELECTRO-
-4-XX	.313 7,95	.156 3,96	1/8 3,18	TIN
10-859-2-XX	.345 8,76	.094 2,39	1/16 1,59	
10-860-2-XX	.407 10,34	.094 2,39	1/16 1,59	

10-820-X-01 P.C. PIN .040

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.094 DIA (3/32 DRILL)


063
1,60
125
3,18
L
173
4,39
.021
0,53
040
090±.002
2,29±0,05
1/16
,59

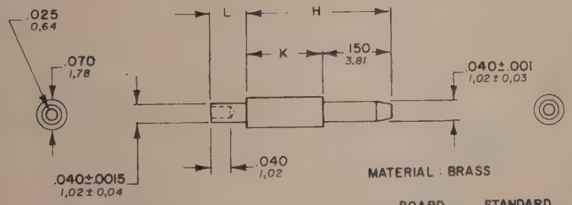
MATERIAL: BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-820-1-01	.075 1,90	1/32 0,79	
-2-01	.105 2,67	1/16 1,59	(01) SILVER
-3-01	.135 3,43	3/32 2,38	
-4-01	.165 4,19	1/8 3,18	

10-80XX-X-03 P.C. PIN .040

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.043 ±.001 DIA (#57 DRILL)


.025
0,64
.070
1,78
L
H
K
.150
3,81
.040±.001
1,02±0,03
.040
1,02
.040±.0015
1,02±0,04

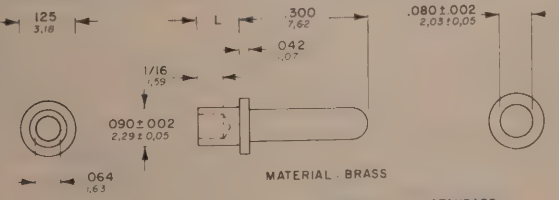
MATERIAL : BRASS

PART NUMBER	H	L	K	BOARD THICKNESS	STANDARD (XX) FINISH
10-8021-1-03	.320 8,13	.051 1,30	.170 4,32	1/32 0,79	
-2-03	.320 8,13	.082 2,08	.170 4,32	1/16 1,59	(03) GOLD
-3-03	.320 8,13	.113 2,87	.170 4,32	3/32 2,38	
10-8022-1-03	.570 14,48	.051 1,30	.420 10,67	1/32 0,79	
-2-03	.570 14,48	.082 2,08	.420 10,67	1/16 1,59	(03) GOLD
-3-03	.570 14,48	.113 2,87	.420 10,67	3/32 2,38	

09-8003-1-03 P.C. PIN .080

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
094 DIA (3/32 DRILL)


125
3,18
L
.300
7,62
.080±.002
2,03±0,05
042
1,07
1/16
1,59
090±.002
2,29±0,05
064
1,63

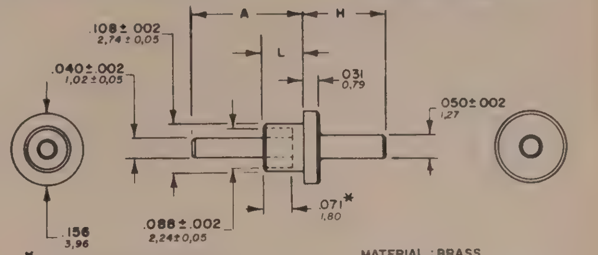
MATERIAL . BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8003-1-03	.105 2,67	1/16 1,59	(03) GOLD

10-8XX-X-04 P.C. PINS .040 FEED THRU

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.111 DIA (#34 DRILL)


A
H
.108±.002
2,74±0,05
L
.040±.002
1,02±0,05
.031
0,79
.050±.002
1,27
.071*
1,80
.156
3,96
.088±.002
2,24±0,05

*FOR -1 .071(1,80) BECOMES .063

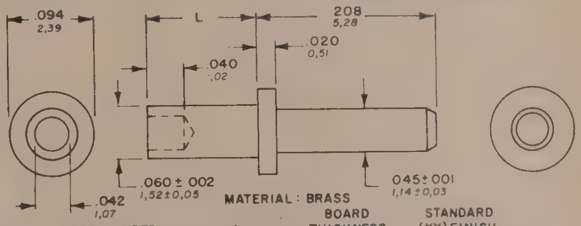
MATERIAL : BRASS

PART NUMBER	H	L	A	BOARD THICKNESS	STANDARD (XX) FINISH
10-837-1-04	.188 4,78	.063 1,60	.219 5,56	1/32 0,79	
-2-04	.188 4,78	.094 2,39	.250 6,35	1/16 1,59	
-3-04	.188 4,78	.125 3,18	.281 7,14	3/32 2,38	(04) ELECTRO-
-4-04	.188 4,78	.156 3,96	.313 7,95	1/8 3,18	TIN
-6-04	.188 4,78	.219 5,56	.375 9,53	3/16 4,76	
-8-04	.188 4,78	.281 7,14	.438 11,13	1/4 6,35	
10-838-1-04	.375 9,53	.063 1,60	.219 5,56	1/32 0,79	
-2-04	.375 9,53	.094 2,39	.250 6,35	1/16 1,59	
-3-04	.375 9,53	.125 3,18	.281 7,14	3/32 2,38	(04) ELECTRO-
-4-04	.375 9,53	.156 3,96	.313 7,95	1/8 3,18	TIN
-6-04	.375 9,53	.219 5,56	.375 9,53	3/16 4,76	
-8-04	.375 9,53	.281 7,14	.438 11,13	1/4 6,35	
10-839-1-04	.375 9,53	.063 1,60	.406 10,31	1/32 0,79	
-2-04	.375 9,53	.094 2,39	438 11,13	1/16 1,59	
-3-04	.375 9,53	.125 3,18	.469 11,91	3/32 2,38	(04) ELECTRO-
-4-04	.375 9,53	.156 3,96	.500 12,7	1/8 3,18	TIN
-6-04	.375 9,53	.219 5,56	.563 14,30	3/16 4,76	
-8-04	.375 9,53	.281 7,14	.625 15,87	1/4 6,35	

10-921-X-05 P.C. PINS .045

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.064 ±.002 DIA (#52 DRILL)


.094
2,39
L
208
5,28
.020
0,51
.040
1,02
.060±.002
1,52±0,05
045±.001
1,14±0,03
.042
1,07

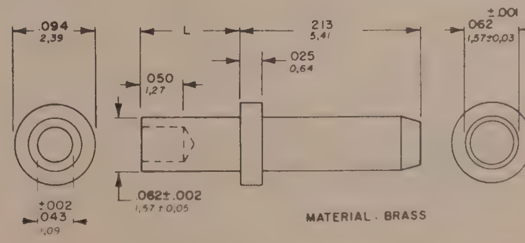
MATERIAL : BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-921-1-05	.062 1,57	1/32 0,79	
-2-05	.094 2,39	1/16 1,59	(05) ELECTRO-SOLDER
-3-05	125 3,18	3/32 2,38	
-4-05	.156 3,96	1/8 3,18	

10-8009-X-XX P.C. PINS .062

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.067 ±.002 DIA (#51 DRILL)


.094
2,39
L
213
5,41
±.001
062
1,57±0,03
.025
0,64
050
1,27
.062±.002
1,57±0,05
±002
.043
1,09

MATERIAL . BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-8009-1-XX	.053 1,35	1/32 0,79	(03) GOLD
-2-XX	.084 2,13	1/16 1,59	(04) ELECTRO-TIN
-3-XX	.115 2,92	3/32 2,38	

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

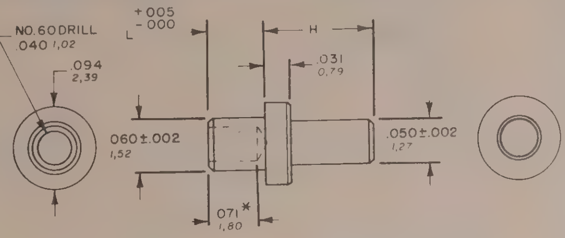
30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. PINS

10-8XX-X-04 P.C. PINS .050

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.064 DIA (#52 DRILL)


NO. 60 DRILL
.040 1,02
.094
2,39
+.005
-.000
L
H
.031
0,79
060±.002
1,52
.050±.002
1,27
071*
1,80

*FOR -1A .071 BECOMES .056 (1,80 / 1,42)   FOR -1 .071 BECOMES .063 (1,80 / 1,60)

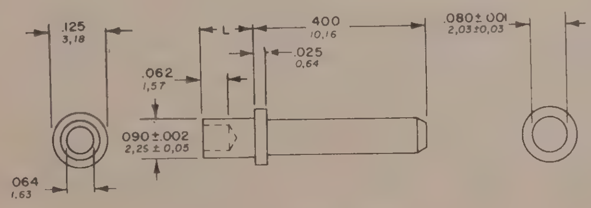
MATERIAL : BRASS

PART NUMBER	H	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-829-11-04	.125 3,18	.047 1,19	1/64 0,40	(04) ELECTRO-TIN
-1-04	.125 3,18	.063 1,60	1/32 0,79	
-2-04	.125 3,18	.094 2,39	1/16 1,59	
-3-04	.125 3,18	.125 3,18	3/32 2,38	
-4-04	.125 3,18	.156 3,96	1/8 3,18	
10-831-11-04	.188 4,78	.047 1,19	1/64 0,40	(04) ELECTRO-TIN
-1-04	.188 4,78	.063 1,60	1/32 0,79	
-2-04	.188 4,78	.094 2,39	1/16 1,59	
-3-04	.188 4,78	.125 3,18	3/32 2,38	
-4-04	.188 4,78	.156 3,96	1/8 3,18	
-6-04	.188 4,78	.219 5,56	3/16 4,76	
-8-04	.188 4,78	.281 7,14	1/4 6,35	
10-832-1-04	.250 6,35	.063 1,60	1/32 0,79	(04) ELECTRO-TIN
-2-04	.250 6,35	.094 2,39	1/16 1,59	
-3-04	.250 6,35	.125 3,18	3/32 2,38	
-4-04	.250 6,35	.156 3,96	1/8 3,18	
10-833-1-04	.313 7,95	.063 1,60	1/32 0,79	(04) ELECTRO-TIN
-2-04	.313 7,95	.094 2,39	1/16 1,59	
-3-04	.313 7,95	.125 3,18	3/32 2,38	
-4-04	.313 7,95	.156 3,96	1/8 3,18	
10-834-1-04	.375 9,53	.063 1,60	1/32 0,79	(04) ELECTRO-TIN
-2-04	.375 9,53	.094 2,39	1/16 1,59	
-3-04	.375 9,53	.125 3,18	3/32 2,38	
-4-04	.375 9,53	.156 3,96	1/8 3,18	
-6-04	.375 9,53	.219 5,56	3/16 4,76	
-8-04	.375 9,53	.281 7,14	1/4 6,35	
10-835-2-04	.438 11,13	.094 2,39	1/16 1,59	(04) ELECTRO-TIN
-3-04	.438 11,13	.125 3,18	3/32 2,38	
-4-04	.438 11,13	.156 3,96	1/8 3,18	
10-836-2-04	.500 12,7	.094 2,39	1/16 1,59	(04) ELECTRO-TIN
-3-04	.500 12,7	.125 3,18	3/32 2,38	
-4-04	.500 12,7	.156 3,96	1/8 3,18	

10-8008-X-XX P.C. PIN .080

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.094 ±.002 DIA (3/32 DRILL)


.125
3,18
L
400
10,16
.025
0,64
.080±.001
2,03±0,03
.062
1,57
090±.002
2,25±0,05
064
1,63

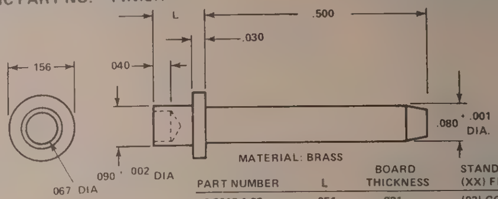
MATERIAL : BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-8008-2-XX	.094 2,39	1/16 1,59	(03) GOLD OR (04) ELECTRO-TIN
-3-XX	.125 3,18	3/32 2,38	
-4-XX	.156 3,96	1/8 3,18	

10-8016-X-03 P.C. PIN .080

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.094 +.002 DIA (3/32 DRILL)


L
.500
.030
156
040
.080 +.001 DIA.
090 +.002 DIA
067 DIA

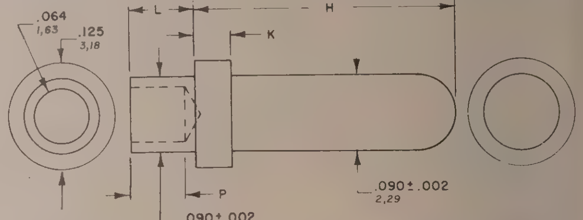
MATERIAL: BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-8016-1-03	.051	.031	(03) GOLD (04) ELECTRO-TIN
10-8016-2-03	.082	.062	
10-8016-3-03	.113	.094	

10-8XX-X-03
09-8XXX-X-XX P.C. PIN .090

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.094 DIA (3/32 DRILL)


.064
1,63
.125
3,18
L
H
K
P
.090±.002
2,29
.090±.002
2,29

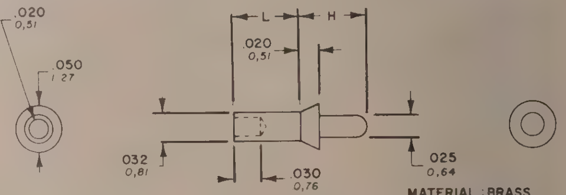
MATERIAL : BRASS

PART NUMBER	H	L	K	P	BOARD THICKNESS	STANDARD (XX) FINISH
10-873-1-03	.150 3,81	.075 1,90	.042 1,07	1/16 1,59	1/32 0,79	(03) GOLD
-2-03	.150 3,81	.105 2,67	.042 1,07	1/16 1,59	1/16 1,59	
-3-03	.150 3,81	.135 3,43	.042 1,07	1/16 1,59	3/32 2,38	
10-874-1-03	.300 7,62	.075 1,90	.042 1,07	1/16 1,59	1/32 0,79	(03) GOLD
-2-03	.300 7,62	.105 2,67	.042 1,07	1/16 1,59	1/16 1,59	
-3-03	.300 7,62	.135 3,43	.042 1,07	1/16 1,59	3/32 2,38	
09-8168-3-03	.555 14,10	.135 3,43	.042 1,07	1/16 1,59	3/32 2,38	(03) GOLD
09-8014-3-02	.625 15,88	.125 3,18	.063 1,60		3/32 2,38	(02) NICKEL

09-81XX-X-03 P.C. PIN .025

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.035 DIA (#64 DRILL)


.020
0,51
.050
1,27
L
H
.020
0,51
032
0,81
.030
0,76
025
0,64

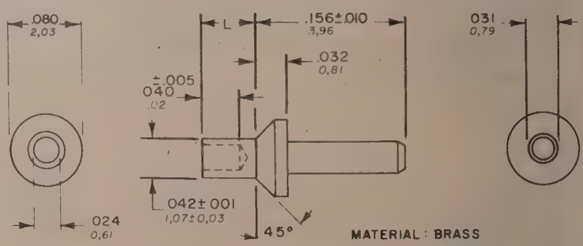
MATERIAL : BRASS

PART NUMBER	H	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8186-1-03	.070 1,78	.047 1,19	1/32 0,79	(03) GOLD
-2A-03	.070 1,78	.060 1,52	3/64 1,19	
-2-03	.070 1,78	.075 1,90	1/16 1,59	
09-8188-1-03	.090 2,29	.047 1,19	1/32 0,79	(03) GOLD
-2A-03	.090 2,29	.060 1,52	3/64 1,19	
-2-03	.090 2,29	.075 1,90	1/16 1,59	

09-8169-X-05 P.C. PIN .031

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.0465 DIA (#56 DRILL)


.080
2,03
L
.156±.010
3,96
031
0,79
.032
0,81
±.005
040
.02
042±001
1,07±0,03
024
0,61
45°

MATERIAL : BRASS

PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8169-1-05	.055 1,40	1/32 0,79	(05) ELECTRO-SOLDER
-2-05	.087 2,21	1/16 1,59	

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

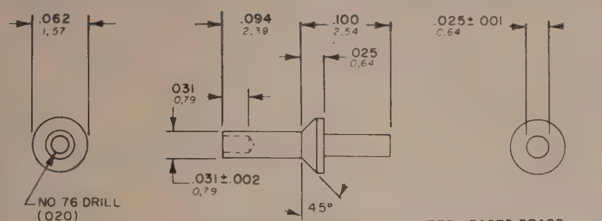
30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. PINS

09-8094-X-05 P.C. PIN .025

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.035 DIA (#65 DRILL)


.062
1,57
.094
2,39
.100
2,54
.025± .001
0,64
.025
0,64
.031
0,79
.031±.002
0,79
NO 76 DRILL
(.020)
(0,51)
45°

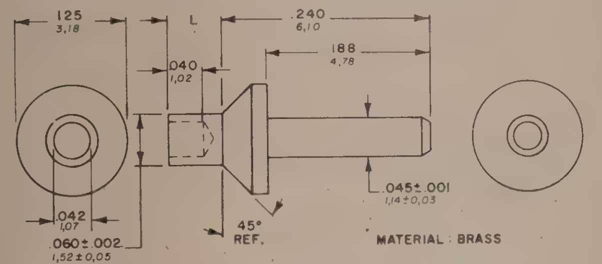
MATERIAL: RED LEADED BRASS

PART NO.	STANDARD (XX) FINISH
09-8094-2-05	(05) ELECTRO-SOLDER

10-922-X-05 P.C. PIN .045

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.064 ±.002 DIA (#52 DRILL)


.125
3,18
L
.240
6,10
.188
4,78
.040
1,02
.045±.001
1,14±0,03
.042
1,07
.060±.002
1,52±0,05
45° REF.

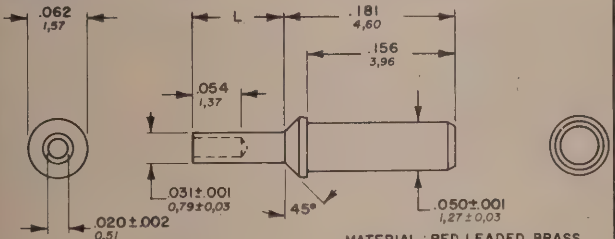
MATERIAL : BRASS

PART NUMBER	L		BOARD THICKNESS		STANDARD (XX) FINISH
10-922-1-05	.062	1,57	1/32	0,79	(05) ELECTRO-SOLDER
-2-05	.094	2,39	1/16	1,59	
-3-05	.125	3,18	3/32	2,38	
-4-05	.156	3,96	1/8	3,18	

14-986-2-03 P.C. PIN .050

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.035 DIA (#65 DRILL)


.062
1,57
L
.181
4,60
.156
3,96
.054
1,37
.031±.001
0,79±0,03
45°
.050±.001
1,27±0,03
.020±.002
0,51

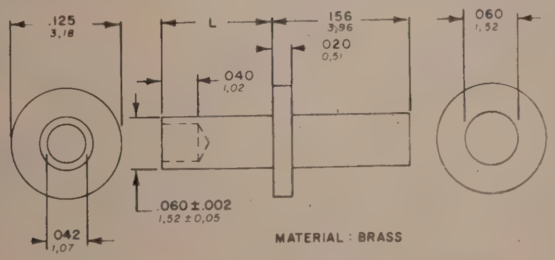
MATERIAL : RED LEADED BRASS

PART NUMBER	L		BOARD THICKNESS		STANDARD (XX) FINISH
14-986-2-03	.094	2,39	1/16	1,59	(03) GOLD

10-901-X-05 P.C. PIN .060

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.064 DIA (#52 DRILL)


.125
3,18
L
.156
3,96
.020
0,51
.060
1,52
.040
1,02
.060±.002
1,52±0,05
.042
1,07

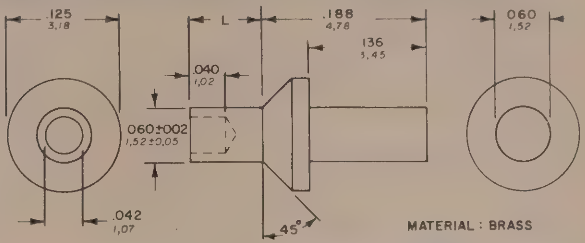
MATERIAL : BRASS

PART NUMBER	L		BOARD THICKNESS		STANDARD (XX) FINISH
10-901-1-05	.062	1,57	1/32	0,79	(05) ELECTRO-SOLDER
-2-05	.094	2,39	1/16	1,59	
-3-05	.125	3,18	3/32	2,38	
-4-05	.156	3,96	1/8	3,18	

10-902-X-05 FOR .060 PINS

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.064 DIA (#52 DRILL)

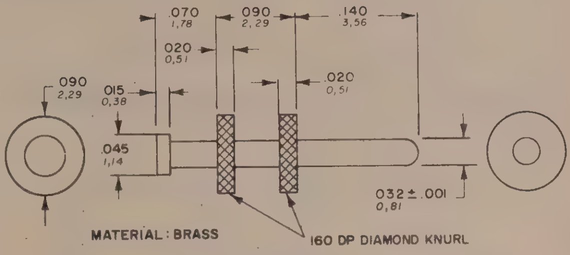

.125
3,18
L
.188
4,78
.136
3,45
.060
1,52
.040
1,02
.060±.002
1,52±0,05
.042
1,07
45°

MATERIAL : BRASS

PART NUMBER	L		BOARD THICKNESS		STANDARD (XX) FINISH
10-902-1-05	.062	1,57	1/32	0,79	(05) ELECTRO-SOLDER
-2-05	.094	2,39	1/16	1,59	
-3-05	.125	3,18	3/32	2,38	
-4-05	.156	3,96	1/8	3,18	

10-992-3-05 FOR .032 PIN

BASIC PART NO. FINISH

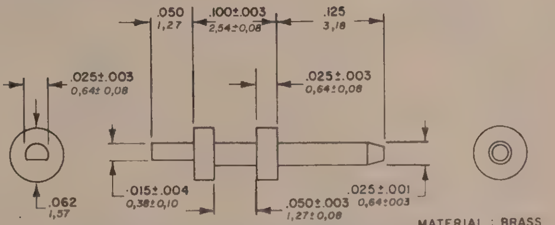

.070
1,78
.090
2,29
.140
3,56
.020
0,51
.020
0,51
.090
2,29
.015
0,38
.045
1,14
.032±.001
0,81
160 DP DIAMOND KNURL

MATERIAL : BRASS

PART NUMBER	STANDARD (XX) FINISH	APPLICATION
10-992-3-05	(05) ELECTRO-SOLDER	FOR MOLDED ASSEMBLIES

10-924-1-XX P.C. PINS .025 FOR MOLDING

BASIC PART NO. FINISH

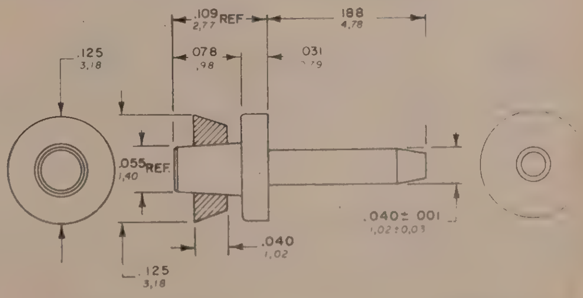

.050
1,27
.100±.003
2,54±0,08
.125
3,18
.025±.003
0,64±0,08
.025±.003
0,64±0,08
.015±.004
0,38±0,10
.025±.001
0,64±0,03
.050±.003
1,27±0,08
.062
1,57

MATERIAL : BRASS

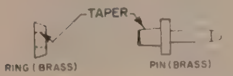
PART NUMBER	APPLICATION	STANDARD (XX) FINISH
10-924-1-XX	FOR MOLDED ASSEMBLIES	(03) GOLD OR (04) ELECTRO-TIN

10-8013-1-XX P.C. FLEXIBLE CABLE PIN .040

BASIC PART NO. FINISH


.109 REF
2,77
.188
4,78
.125
3,18
.078
1,98
.031
0,79
.055 REF.
1,40
.040± .001
1,02±0,03
.040
1,02
.125
3,18

SUPPLIED UNASSEMBLED


TAPER
RING (BRASS)
PIN (BRASS)

PART NO	STANDARD (XX) FINISH
10-8013-1-XX	(03) GOLD OR (04) ELECTRO-TIN

TO BE ASSEMBLED AND SOLDERED ONTO FLAT FLEXIBLE CABLE

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

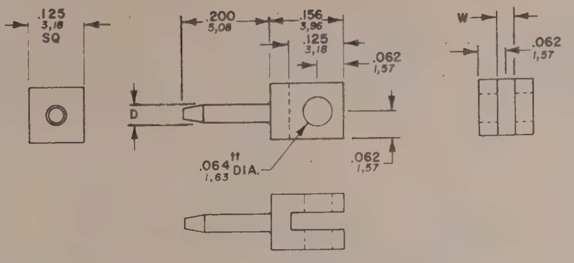
CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

P.C. PLUG

09-9502-1-XX P.C. PLUG EDGE MOUNT-SLOTTED .040
09-9504-1-XX P.C. PLUG EDGE MOUNT-SLOTTED .045
09-9503-1-XX P.C. PLUG EDGE MOUNT-SLOTTED .062

BASIC PART NO. FINISH



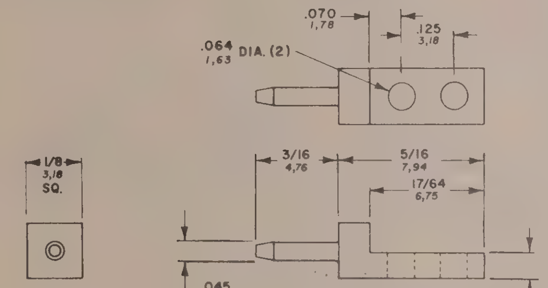
.125
3,18
SQ
.200
5,08
.156
3,96
.125
3,18
.062
1,57
D
.064 DIA.
1,63
††
.062
1,57
W
.062
1,57

PART NUMBER	D	W	BOARD THICKNESS	STANDARD (XX) FINISH
09-9502-1-XX	*.040 1,02	†.039 0,99	1/32 0,79	(03) GOLD OR (04) ELECTRO-TIN
-2-XX	*.040 1,02	†.072 1,83	1/16 1,59	
09-9504-1-XX	.045 1,14	.039 0,99	1/32 0,79	(03) GOLD OR (08) BRIGHT ALLOY
-2-XX	.045 1,14	.072 1,83	1/16 1,59	
09-9503-1-XX	.062 1,57	.039 0,99	1/32 0,79	(03) GOLD OR (08) BRIGHT ALLOY
-2-XX	.062 1,57	.072 1,83	1/16 1,59	

†† FOR 09-9502 IS $.063^{+.003}_{-.000}$ $(1,60^{+0,08}_{-0,00})$ * ±.001 ±0,03 † $^{+.005}_{-.000}$ $^{+0,13}_{-0,00}$

09-9505-1-XX P.C. PLUG SIDEMOUNT .045 PIN

BASIC PART NO. FINISH



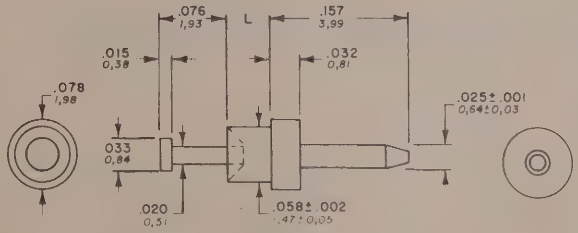
.070
1,78
.125
3,18
.064
1,63
DIA. (2)
1/8
3,18
SQ.
3/16
4,76
5/16
7,94
17/64
6,75
.045
1,14
062
1,57

PART NUMBER	STANDARD (XX) FINISH
09-9505-1-XX	(03) GOLD OR (08) BRIGHT ALLOY

MATERIAL . BRASS

10-935-X-XX PLUG-.025 PIN

BASIC PART NO. FINISH



.076
1,93
L
.157
3,99
.015
0,38
.032
0,81
.078
1,98
.025±.001
0,64±0,03
033
0,84
.020
0,51
.058±.002
1,47±0,05

RECOMMENDED MOUNTING HOLE
.062 ±.002 DIA (1/16 DRILL)

MATERIAL . BRASS

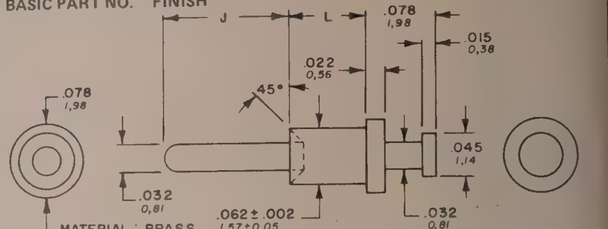
PART NUMBER	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-935-1-XX	.051 1,30	1/32 0,79	(03) GOLD OR (04) ELECTRO-TIN
2-XX	082 2,08	1/16 1,59	
3-XX	.113 2,87	3/32 2,38	

P.C. PINS

09-8XXX-X-XX PIN .032
10-802-X-01

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.067 DIA (#51 DRILL)



J
L
.078
1,98
.015
0,38
.022
0,56
45°
.078
1,98
.045
1,14
.032
0,81
.062±.002
1,57±0,05
.032
0,81

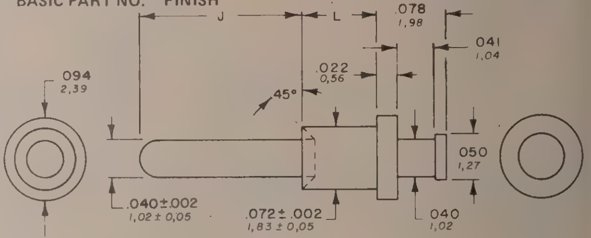
MATERIAL : BRASS

PART NUMBER	J	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8041-1-01	.090 2,29	.054 1,37	1/32 0,79	(01) SILVER
2-01	.090 2,29	.084 2,13	1/16 1,59	
3-01	.090 2,29	.115 2,92	3/32 2,38	
4-01	.090 2,29	.147 3,73	1/8 3,18	
09-8131-2-03	.111 2,82	.082 2,08	1/16 1,59	(03) GOLD
10-802-1-01	.140 3,56	.054 1,37	1/32 0,79	(01) SILVER
2-01	.140 3,56	.084 2,13	1/16 1,59	
3-01	.140 3,56	.115 2,92	3/32 2,38	
4-01	.140 3,56	.147 3,73	1/8 3,18	

09-81XX-X-XX PIN .040
10-801-X-01

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.076 ±.002 DIA (#48)



J
L
.078
1,98
041
1,04
094
2,39
.022
0,56
45°
050
1,27
.040±.002
1,02±0,05
.072±.002
1,83±0,05
040
1,02

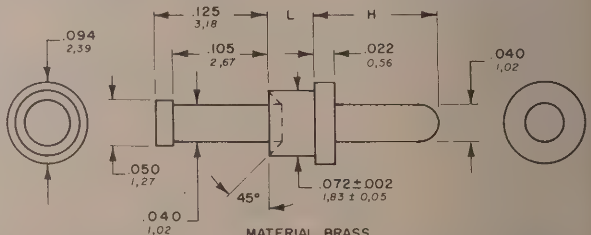
MATERIAL BRASS

PART NUMBER	J	L	BOARD THICKNESS	STANDARD (XX) FINISH
09-8132-2-03	.111 2,82	.082 2,08	1/16 1,59	(03) GOLD
09-8133-2-03	.141 3,58	.082 2,08	1/16 1,59	(03) GOLD
09-8134-2-044	.180 4,57	.082 2,08	1/16 1,59	(044) BRIGHT ELECTRO-TIN
10-801-1-01	.250 6,35	.051 1,30	1/32 0,79	(01) SILVER
2-01	.250 6,35	.082 2,08	1/16 1,59	
3-01	.250 6,35	.113 2,87	3/32 2,38	
4-01	.250 6,35	.145 3,68	1/8 3,18	
6-01	.250 6,35	.207 5,26	3/16 4,76	
8-01	.250 6,35	.270 6,86	1/4 6,35	

10-8XX-X-XX PIN .040

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.076 ±.002 DIA (#48 DRILL)



.125
3,18
L
H
.094
2,39
.105
2,67
.022
0,56
.040
1,02
.050
1,27
45°
.072±.002
1,83±0,05
.040
1,02

MATERIAL BRASS

PART NUMBER	H	L	BOARD THICKNESS	STANDARD (XX) FINISH
10-894-1-01	.140 3,56	.051 1,30	1/32 0,79	(01) SILVER
2-01	.140 3,56	.082 2,08	1/16 1,59	
3-01	.140 3,56	.113 2,87	3/32 2,38	
10-803-1-01	.250 6,35	.051 1,30	1/32 0,79	(01) SILVER
2-01	.250 6,35	.082 2,08	1/16 1,59	
3-01	.250 6,35	.113 2,87	3/32 2,38	
4-01	.250 6,35	.145 3,68	1/8 3,18	
6-01	.250 6,35	.207 5,26	3/16 4,76	
8-01	.250 6,35	.270 6,86	1/4 6,35	

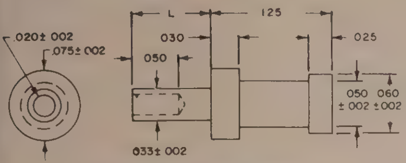
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TERMINALS

10-115-X-044


L
125
.020± .002
.075± .002
030
025
050
050 ± 002
060 ± 002
033± 002

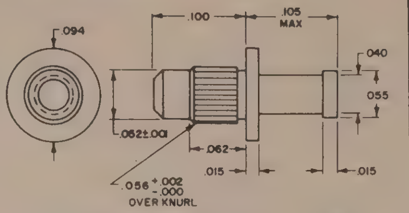
RECOMMENDED MOUNTING HOLE
.037 DIA (#63 DRILL)

NO.	L	T
10-115-1	.051	1/32
10-115-2	.084	1/16
10-115-28	.096	1/16

MATERIAL
Brass

FINISH
Tintillate

10-129-X-04


094
.100
.105 MAX
040
055
.062±.001
.062
.015
.015
.056 +.002 -.000
OVER KNURL

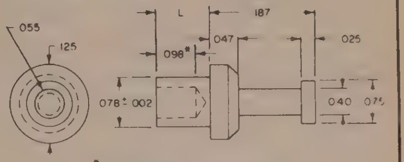
RECOMMENDED MOUNTING HOLE
.055 DIA (#54 DRILL)

NO.	L	T
10-129-2	.100	062

MATERIAL
Brass

FINISH
Electro-Tin

10-102-X-XX


055
125
L
187
047
098*
025
078± 002
040
075

*FOR-1 IS 068

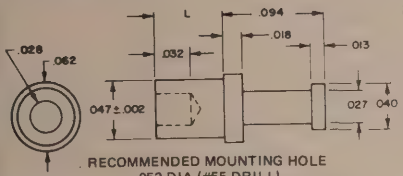
RECOMMENDED MOUNTING HOLE
.082 DIA (#45 DRILL)

NO.	L	T
10-102-1	078	1/32
10-102-2	109	1/16
10-102-3	141	3/32
10-102-4	172	1/8

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper

10-104-X-XX


L
.094
.018
013
.028
.062
.032
047±.002
027
040

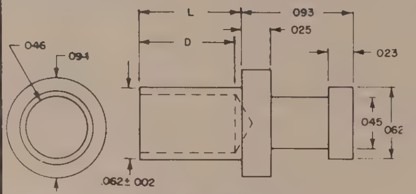
RECOMMENDED MOUNTING HOLE
.052 DIA (#55 DRILL)

NO.	L	T
10-104-11	.035	1/64
10-104-1	.051	1/32
10-104-2	.082	1/16
10-104-3	.113	3/32
10-104-4	.145	1/8

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper

10-107-X-01


L
093
025
046
094
D
023
045
062
.062± 002

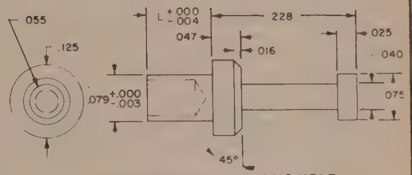
RECOMMENDED MOUNTING HOLE
067 DIA (#51 DRILL)

NO	L	T	D
10-107-11	025	1/64	.020
10-107-1	.045	1/32	040
10-107-2	.094	1/16	089
10-107-3	125	3/32	.089

MATERIAL
Brass

FINISH
Silver

11-119-X-01


055
L +.000 -.004
228
047
016
025
040
.125
.079 +.000 -.003
075
45°

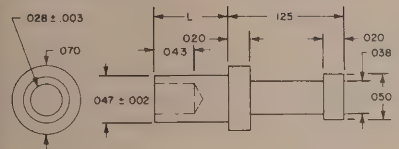
RECOMMENDED MOUNTING HOLE
.082 DIA (#45 DRILL)

NO	L	T
11-119-1	.075	1/32
11-119-2	105	1/16
11-119-3	.135	3/32
11-119-4	165	1/8

MATERIAL
Brass

FINISH
Silver

10-121-X-05


028 ± .003
L
125
020
043
020
038
070
047 ± 002
050

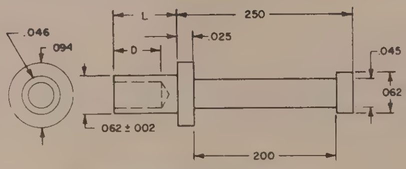
RECOMMENDED MOUNTING HOLE
.052 DIA (#55 DRILL)

NO	L	T
10-121-1	.051	1/32
10-121-2	.082	1/16

MATERIAL
Brass

FINISH
Electro-Solder

10-138-X-XX


L
250
.046
094
.025
D
.045
062
062 ± 002
200

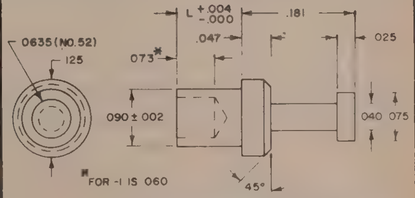
RECOMMENDED MOUNTING HOLE
.067 DIA (#51 DRILL)

NO	L	T	D
10-138-1	.045	1/32	.040
10-138-2	.094	1/16	.062
10-138-3	.125	3/32	.062
10-138-4	.156	1/8	.062

MATERIAL
Brass

FINISHES
(01) Silver
(04) Electro-Tin

11-111-X-01


L +.004 -.000
.181
0635 (NO.52)
.047
025
125
073*
090 ± 002
040
075
*FOR -1 IS 060
45°

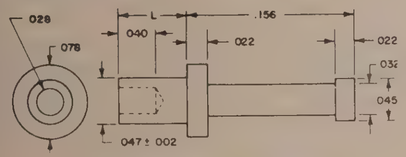
RECOMMENDED MOUNTING HOLE
.094 DIA (3/32 DRILL)

NO	L	T
11-111-1	075	1/32
11-111-2	.105	1/16
11-111-3	.135	3/32
11-111-4	165	1/8
11-111-5	195	5/32

MATERIAL
Brass

FINISH
Silver

10-120-X-01


028
L
.156
040
022
022
078
032
045
047 ± 002

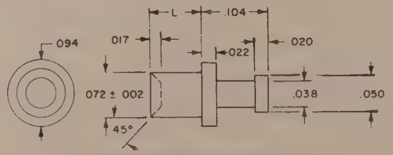
RECOMMENDED MOUNTING HOLE
.052 DIA (#55 DRILL)

NO.	L	T
10-120-2	.094	1/16

MATERIAL
Brass

FINISH
Silver

10-101-X-XX


L
.104
094
017
022
020
072 ± 002
.038
.050
45°

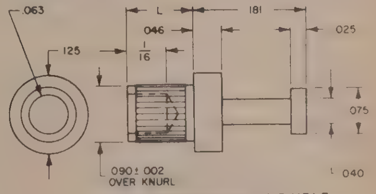
RECOMMENDED MOUNTING HOLE
.076 DIA (#48 DRILL)

NO	L	T
10-101-1	051	1/32
10-101-2	.082	1/16
10-101-3	.113	3/32
10-101-4	.145	1/8
10-101-6	207	3/16
10-101-8	.270	1/4

MATERIAL
Brass

FINISHES
(01) Silver
(05) Electro-Solder

13-106-X-01


.063
L
181
046
025
125
1/16
075
090± 002
OVER KNURL
040

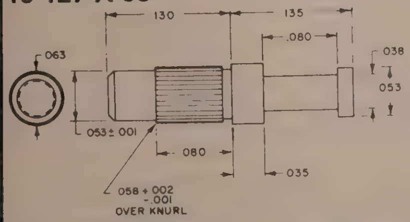
RECOMMENDED MOUNTING HOLE
.094 DIA (3/32 DRILL)

NO	L	T
13-106-1	075	1/32
13-106-2	105	1/16
13-106-3	135	3/32
13-106-4	165	1/8

MATERIAL
Brass

FINISH
Silver

10-127-X-05


130
135
.080
063
038
053
053± 001
080
035
058 +002 -.001
OVER KNURL

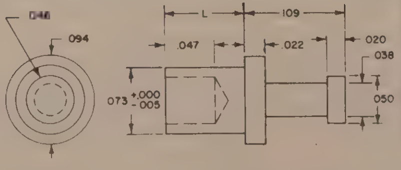
RECOMMENDED MOUNTING HOLE
.055 DIA (#54 DRILL)

NO.	L	T
10-127-1	.130	.062 TO .094

MATERIAL
Brass

FINISH
Silver

12-105-X-01

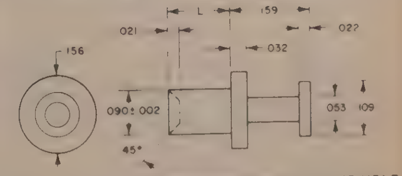

046
L
109
094
.047
.022
020
038
073 +.000 -.005
050

NO.	L	T
12-105-11	037	1/64
12-105-1	053	1/32
12-105-2	.084	1/16
12-105-3	.115	3/32
12-105-4	147	1/8

MATERIAL
Brass

FINISH
Silver

10-109-X-01


L
159
021
022
156
032
090± 002
053
109
45°

RECOMMENDED MOUNTING HOLE
.094 DIA (#42 DRILL)

NO	L	T
10 109-1	062	1/32
10 109-2	094	1/16
10 109-3	125	3/32
10 109-4	156	1/8
10 109-6	219	3/16

MATERIAL
Brass

FINISH
Silver

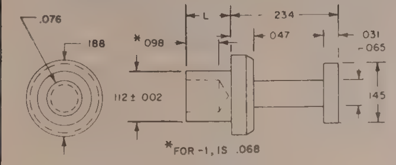
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TERMINALS

10-103-X-XX


.076
188
*098
L
234
047
031
065
112± 002
145

*FOR -1, IS .068

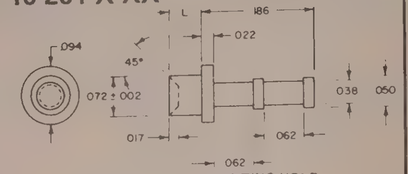
RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

NO.	L	T
10-103-1	.078	1/32
10-103-2	.109	1/16
10-103-3	.141	3/32
10-103-4	.172	1/8
10-103-6	234	3/16
10-103-8	.297	1/4

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper

10-201-X-XX


L
186
022
.094
45°
072 ± 002
038
050
017
062
062

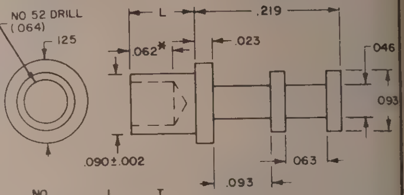
RECOMMENDED MOUNTING HOLE
.076 DIA (#48 DRILL)

NO	L	T
10-201-1	.051	1/32
10-201-2	.082	1/16
10-201-3	.113	3/32
10-201-4	.145	1/8
10-201-6	.207	3/16
10-201-8	.270	1/4

MATERIAL
Brass

FINISH
Electro-Solder
Silver

10-228-X-01


NO 52 DRILL
(.064)
.125
L
.219
.062*
.023
.046
.093
.090±.002
.063
.093

NO.	L	T
10-228-1	.062	1/32
10-228-2	.094	1/16
10-228-3	.125	3/32
10-228-4	.156	1/8
10-228-6	219	3/16
10-228-8	.281	1/4

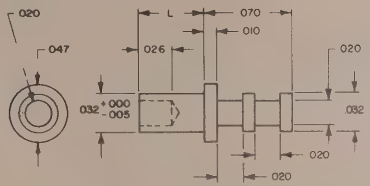
RECOMMENDED MOUNTING HOLE
.094 DIA
(#42 DRILL)

MATERIAL
Aluminum

FINISH
Silver

*FOR -1 IS .047

12-229-X-01

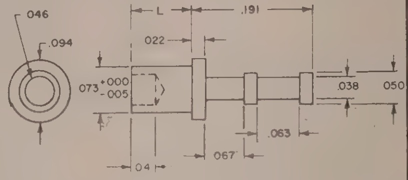

020
047
L
070
010
026
020
032 +.000 -.005
.032
020
020

NO	L	T
12-229-1	053	1/32
12-229-2	084	1/16
12-229-3	115	3/32

MATERIAL
Brass

FINISH
Silver

12-206-X-01

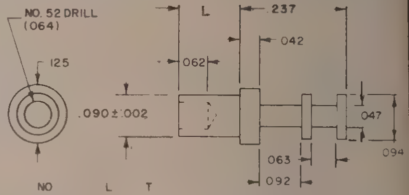

046
.094
L
.191
022
073 +.000 -.005
.038
050
.063
067
04

NO.	L	T
12-206-1	.053	1/32
12-206-2	.084	1/16
12-206-3	.115	3/32
12-206-4	.147	1/8

MATERIAL
Brass

FINISH
Silver

10-216-X-XX


NO. 52 DRILL
(064)
L
.237
042
125
.062
.090±.002
.047
063
092
.094

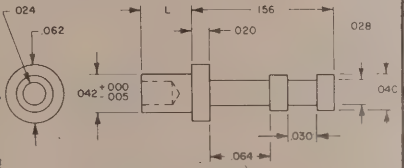
NO	L	T
10-216-1	.075	1/32
10-216-2	105	1/16
10-216-3	135	3/32
10-216-4	165	1/8
10-216-6	230	3/16
10-216-8	293	1/4

RECOMMENDED MOUNTING HOLE
.094 DIA
(#42 DRILL)

MATERIAL
Brass

FINISHES
(01) Silver
(05) Electro-Solder

12-227-X-01

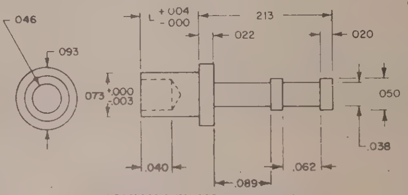

024
.062
L
156
020
028
042 +.000 -.005
040
.030
.064

NO	L	T	NO.	L	T
12-227-11	037	1/64	12-227-3	115	3/32
12-227-1	.053	1/32	12-227-4	.147	1/8
12-227-2	.084	1/16			

MATERIAL
Brass

FINISH
Silver

11-221-X-01


046
093
L +.004 -.000
213
022
020
073 +.000 -.003
050
.038
.040
.089
.062

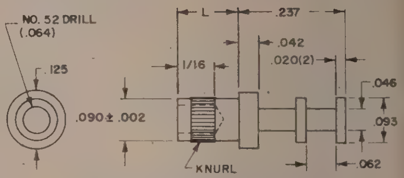
RECOMMENDED MOUNTING HOLE
.076 DIA (#48 DRILL)

NO.	L	T
11-221-1	.053	1/32
11-221-2	.084	1/16
11-221-3	115	3/32
11-221-4	147	1/8

MATERIAL
Brass

FINISH
Silver

13-218-X-01


NO. 52 DRILL
(.064)
.125
L
.237
1/16
.042
.020(2)
.046
.090± .002
.093
KNURL
.062

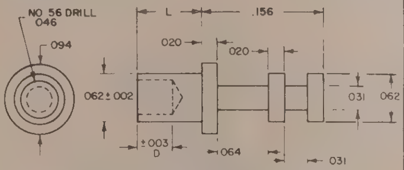
RECOMMENDED MOUNTING HOLE
.094 DIA (3/32 DRILL)

NO.	L	T
13-218-1	.075	1/32
13-218-2	.105	1/16
13-218-3	.135	3/32
13-218-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

10-214-X-XX


NO 56 DRILL
.046
.094
L
.156
020
020
062± 002
031
062
±.003
D
.064
031

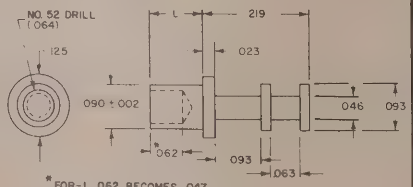
RECOMMENDED MOUNTING HOLE
.067 DIA (#51 DRILL)

NO.	L	D	T
10-214-11	037	.025	1/64
10-214-1	.053	045	1/32
10-214-2	.084	.045	1/16
10-214-3	.115	.045	3/32
10-214-4	.147	.045	1/8

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper
(05) Electro-Solder

10-209-X-XX


NO 52 DRILL
(.064)
.125
L
219
023
090 ± 002
046
093
*062
093
.063

*FOR-1 .062 BECOMES .047

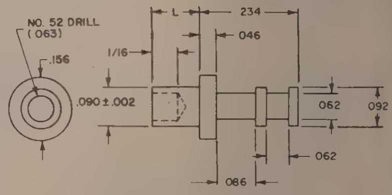
NO.	L	T
10-209-1	.078	1/32
10-209-2	.109	1/16
10-209-3	.141	3/32
10-209-4	.172	1/8
10-209-6	.234	3/16
10-209-8	.297	1/4

RECOMMENDED MOUNTING
HOLE .094 DIA (3/32 DRILL)

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper

13-207-X-01


NO. 52 DRILL
(.063)
.156
L
234
1/16
046
.090±.002
062
092
062
086

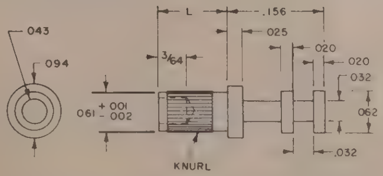
RECOMMENDED MOUNTING HOLE
.094 DIA (3/32 DRILL)

NO	L	T
13-207-1	075	1/32
13-207-2	.105	1/16
13-207-3	.135	3/32
13-207-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

13-220-X-01


043
094
L
.156
025
3/64
020
020
.032
061 +.001 -.002
062
.032
KNURL

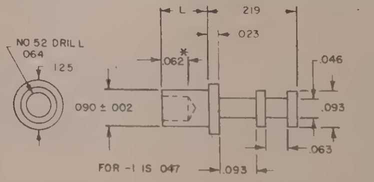
RECOMMENDED MOUNTING HOLE
.064 DIA (#52 DRILL)

NO.	L	T
13-220-11	.037	1/64
13-220-1	054	1/32
13-220-2	084	1/16
13-220-3	.115	3/32
13-220-4	.147	1/8

MATERIAL
Brass

FINISH
Silver

10-259-X-01


NO 52 DRILL
064
125
L
219
023
.062*
.046
090 ± 002
.093
.063
.093

FOR -1 IS 047

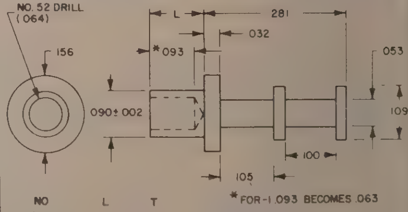
NO	L	T
10-259-1	.062	1/32
10-259-2	094	1/16
10-259-3	125	3/32
10-259-4	156	1/8
10-259-6	219	3/16
10-259-8	281	1/4

RECOMMENDED MOUNTING HOLE
.094 DIA (3/32 DRILL)

MATERIAL
Brass

FINISH
Silver

10-203-X-01


NO. 52 DRILL
(.064)
156
L
281
*093
032
053
090± 002
109
100
105

*FOR-1 .093 BECOMES .063

NO	L	T
10-203-1	.078	1/32
10-203-2	.109	1/16
10-203-3	.141	3/32
10-203-4	.172	1/8
10-203-6	.234	3/16
10-203-8	.297	1/4

RECOMMENDED MOUNTING HOLE
.094 DIA
(#42 DRILL)

MATERIAL
Brass

FINISH
Silver

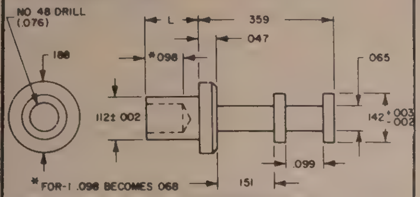
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TERMINALS

10-204-X-XX


NO 48 DRILL (.076)
188
L
359
047
*098
065
112± 002
142 +003 -002
.099
151
*FOR-1 .098 BECOMES 068

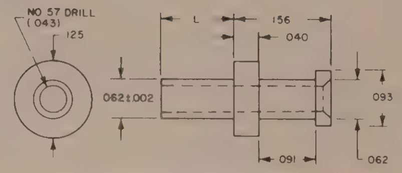
NO.	L	T
10-204-1	078	1/32
10-204-2	109	1/16
10-204-3	141	3/32
10-204-4	.172	1/8
10-204-6	.234	3/16
10-204-8	297	1/4

RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper
(05) Electro-Solder

10-302-X-05


NO 57 DRILL (.043)
125
L
156
040
062±.002
093
091
062

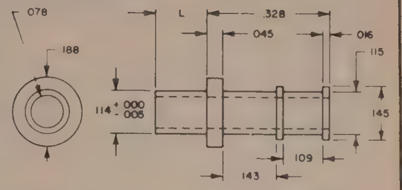
RECOMMENDED MOUNTING HOLE
.067 DIA (#51 DRILL)

NO	L	T
10-302-2	084	1/16
10-302-3	.115	3/32
10-302-4	.147	1/8

MATERIAL
Brass

FINISH
Electro
Solder Plate

12-303-X-01

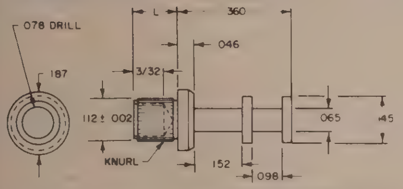

078
188
L
.328
045
016
115
114 +.000 -.005
145
109
143

NO	L	T
12-303-1	075	1/32
12-303-2	105	1/16
12-303-3	135	3/32
12-303-4	165	1/8

MATERIAL
Brass

FINISH
Silver

13-205-X-01


078 DRILL
187
L
360
046
3/32
112± 002
065
145
KNURL
152
098

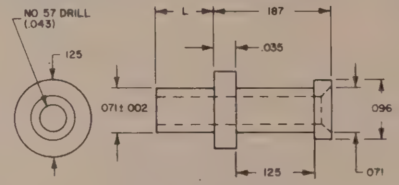
NO	L	T
13-205-1	075	1/32
13-205-2	105	1/16
13-205-3	135	3/32
13-205-4	165	1/8
13-205-5	195	5/32
13-205-6	230	3/16

RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

MATERIAL
Brass

FINISH
Silver

10-301-X-01


NO 57 DRILL (.043)
125
L
187
.035
071± 002
096
125
071

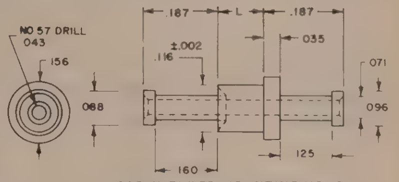
RECOMMENDED MOUNTING HOLE.
.076 DIA (#48 DRILL)

NO	L	T
10-301-1	.062	1/32
10-301-2	094	1/16
10-301-3	.125	3/32
10-301-4	156	1/8

MATERIAL
Brass

FINISH
Silver

10-321-X-01


NO 57 DRILL 043
156
.187
L
.187
±.002
.116
035
071
088
096
125
160

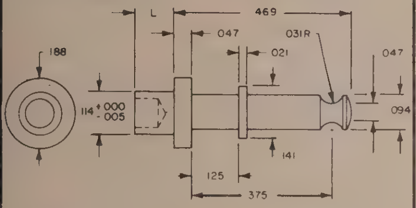
RECOMMENDED MOUNTING HOLE
.120 DIA (#31 DRILL)

NO	L	T
10-321-1	062	1/32
10-321-2	094	1/16
10-321-3	125	3/32
10-321-4	156	1/8

MATERIAL
Brass

FINISH
Silver

12-210-X-01

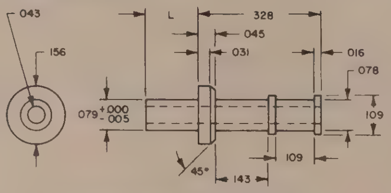

188
L
469
047
031R
021
047
114 +.000 -.005
094
141
125
375

NO	L	T
12-210-2	105	1/16
12-210-3	135	3/32
12-210-4	165	1/8

MATERIAL
Brass

FINISH
Silver

12-312-X-01


043
156
L
328
045
031
016
078
079 +.000 -.005
109
45°
143
109

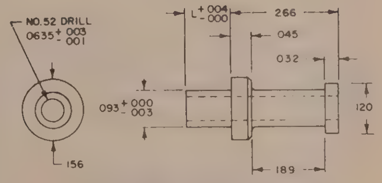
RECOMMENDED MOUNTING HOLE

NO.	L	T
12-312-1	075	1/32
12-312-2	.105	1/16
12-312-3	.135	3/32
12-312-4	165	1/8

MATERIAL
Brass

FINISH
Silver

11-307-X-01


NO.52 DRILL 0635 +.003 -.001
L +.004 -.000
266
045
032
093 +.000 -.003
120
156
189

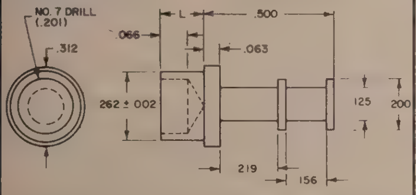
RECOMMENDED MOUNTING HOLE
.096 DIA (#41 DRILL)

NO	L	T
11-307-1	075	1/32
11-307-2	105	1/16
11-307-3	135	3/32
11-307-4	165	1/8

MATERIAL
Brass

FINISH
Silver

10-211-X-XX


NO. 7 DRILL (.201)
.312
.066
L
.500
.063
262 ± 002
125
200
219
156

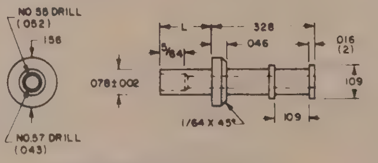
RECOMMENDED MOUNTING HOLE .266 DIA (17/64 DRILL)

NO.	L	T
10-211-2	.109	1/16
10-211-3	.141	3/32
10-211-4	172	1/8
10-211-6	234	3/16
10-211-8	.297	1/4

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper

13-315-X-01


NO 58 DRILL (052)
156
L
328
5/64
046
016 (2)
078±002
109
1/64 X 45°
109
NO.57 DRILL (043)

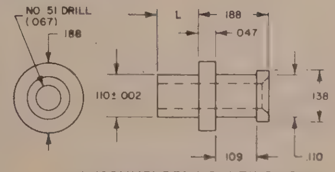
RECOMMENDED MOUNTING HOLE
.082 DIA (#45 DRILL)

NO	L	T
13-315-1	075	1/32
13-315-2	105	1/16
13-315-3	135	3/32
13-315-4	165	1/8

MATERIAL
Brass

FINISH
Silver

10-305-X-01


NO 51 DRILL (067)
188
L
188
047
110± 002
138
109
.110

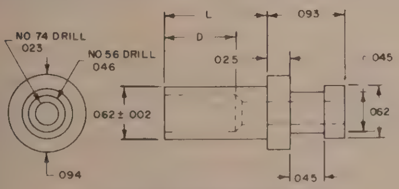
RECOMMENDED MOUNTING HOLE
.113 DIA (#33 DRILL)

NO	L	T
10-305-1	078	1/32
10-305-2	109	1/16
10-305-3	141	3/32
10-305-4	172	1/8

MATERIAL
Brass

FINISH
Silver

10-308-X-01


NO 74 DRILL 023
NO 56 DRILL 046
L
D
093
025
045
062± 002
062
094
045

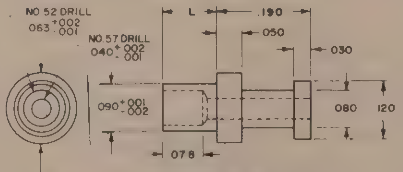
RECOMMENDED MOUNTING HOLE
.067 DIA (#51 DRILL)

10-308-11	025	1/64	020
10-308-1	045	1/32	040
10-308-2	094	1/16	089
10-308-3	125	3/32	089

MATERIAL
Brass

FINISH
Silver

11-320-X-01


NO 52 DRILL 063 +.002 -.001
NO.57 DRILL 040 +.002 -.001
L
.190
050
030
090 +.001 -.002
080
120
078
140

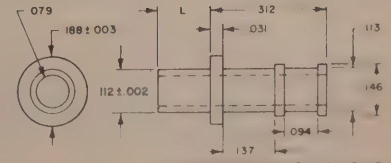
RECOMMENDED MOUNTING HOLE
.094 DIA (3/32 DRILL)

NO	L	T
11-320-1	075	1/32
11-320-2	105	1/16
11-320-3	135	3/32
11-320-4	165	1/8

MATERIAL
Brass

FINISH
Silver

10-311-X-01


079
188± 003
L
312
.031
113
112±.002
146
094
137

RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

NO	L	T
10-311-1	078	1/32
10-311-2	109	1/16
10-311-3	141	3/32
10-311-4	172	1/8
10-311-6	234	3/16
10-311-8	297	1/4

MATERIAL
Brass

FINISH
Silver

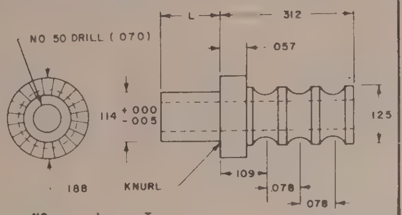
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TERMINALS

12-317-X-01

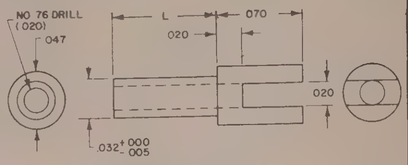

NO 50 DRILL (070)
L
312
057
114 +000 -005
125
188
KNURL
109
078
078

NO.	L	T
12-317-1	.075	1/32
12-317-2	.105	1/16
12-317-3	.135	3/32
12-317-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

12-464-X-01

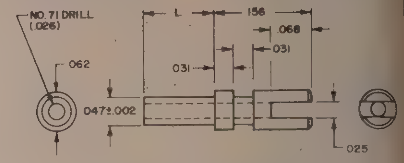

NO 76 DRILL (020)
047
L
070
020
020
.032 +000 -005

NO.	L	T
12-464-11	.037	1/64
12-464-1	.053	1/32
12-464-2	.084	1/16
12-464-3	.115	3/32
12-464-4	.147	1/8

MATERIAL
Brass

FINISH
Silver

10-413-X-01


NO. 71 DRILL (.026)
062
L
156
.068
031
031
047±.002
025

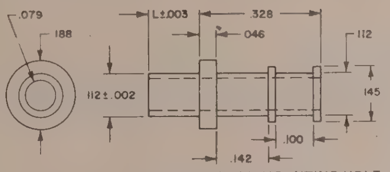
NO.	L	T
10-413-11	.035	1/64
10-413-1	.051	1/32
10-413-2	.082	1/16
10-413-3	.113	3/32
10-413-4	.145	1/8
10-413-6	.207	3/16
10-413-8	270	1/4

RECOMMENDED MOUNTING HOLE .052 DIA (#55 DRILL)

MATERIAL
Brass

FINISH
Silver

10-349-X-05


.079
188
L±.003
.328
046
112
112±.002
145
.100
.142

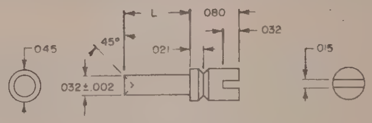
RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

NO.	L	T
10-349-2	.109	1/16
10-349-3	.141	3/32
10-349-4	.172	1/8

MATERIAL
Brass

FINISH
Electro
Solder Plate

10-431-X-05


L
080
032
045
45°
021
015
032±.002

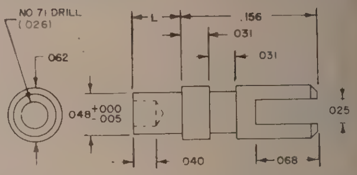
RECOMMENDED MOUNTING HOLE
.036 DIA (#64 DRILL)

NO	L	T
10-431-11	030	1/64
10-431-1	045	1/32
10-431-2	077	1/16
10-431-3	108	3/32
10-431-4	139	1/8

MATERIAL
Brass

FINISH
Electro-Solder

12-462-X-01

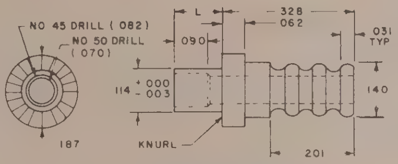

NO 71 DRILL (026)
062
L
.156
031
031
048 +000 -005
025
040
068

NO.	L	T
12-462-11	037	1/64
12-462-1	053	1/32
12-462-2	084	1/16
12-462-3	115	3/32
12-462-4	147	1/8
12-462-6	.209	3/16

MATERIAL
Brass

FINISH
Silver

11-318-X-01


NO 45 DRILL (082)
NO 50 DRILL (070)
L
328
062
090
031 TYP
114 +000 -003
140
187
KNURL
201

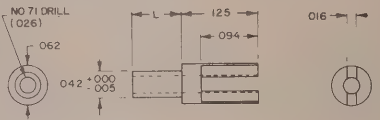
RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

NO	L	T
11-318-1	.075	1/32
11-318-2	105	1/16
11-318-3	.135	3/32
11-318-4	165	1/8

MATERIAL
Brass

FINISH
Silver

12-444-X-01

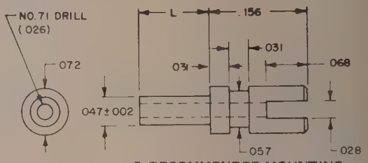

NO 71 DRILL (026)
062
L
125
094
016
042 +000 -005

NO	L	T
12-444-11	037	1/64
12-444-1	053	1/32
12-444-2	084	1/16
12-444-3	115	3/32
12-444-4	147	1/8

MATERIAL
Brass

FINISH
Silver

10-414-X-01


NO. 71 DRILL (026)
072
L
.156
031
031
068
047±002
057
028

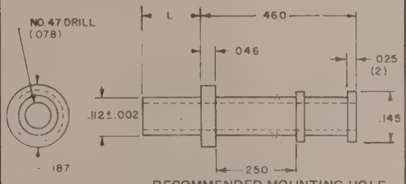
NO	L	T
10-414-11	035	1/64
10-414-1	051	1/32
10-414-2	082	1/16
10-414-3	113	3/32
10-414-4	.145	1/8
10-414-6	207	3/16
10-414-8	270	1/4

RECOMMENDED MOUNTING HOLE
.052 DIA. (#55 DRILL)

MATERIAL
Brass

FINISH
Silver

13-316-X-01


NO. 47 DRILL (078)
L
460
046
025 (2)
.112±.002
.145
187
250

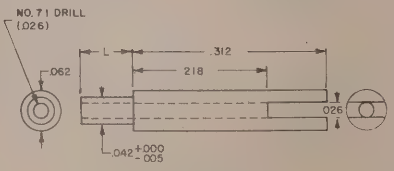
RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

NO	L	T
13-316-1	075	1/32
13-316-2	.105	1/16
13-316-3	135	3/32
13-316-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

12-461-X-01

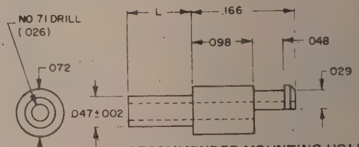

NO. 71 DRILL (026)
062
L
.312
218
026
042 +000 -005

NO.	L	T
12-461-11	.037	1/64
12-461-1	.053	1/32
12-461-2	.084	1/16
12-461-3	.115	3/32
12-461-4	.147	1/8

MATERIAL
Brass

FINISH
Silver

10-415-X-01


NO 71 DRILL (026)
072
L
.166
098
048
029
047±002

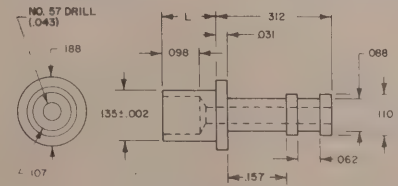
RECOMMENDED MOUNTING HOLE
.052 DIA (#55 DRILL)

NO.	L	T
10-415-11	035	1/64
10-415-1	051	1/32
10-415-2	.082	1/16
10-415-3	.113	3/32
10-415-4	.145	1/8
10-415-6	207	3/16
10-415-8	270	1/4

MATERIAL
Brass

FINISH
Silver

10-304-X-01


NO. 57 DRILL (.043)
188
L
312
031
098
088
135±.002
110
062
107
.157

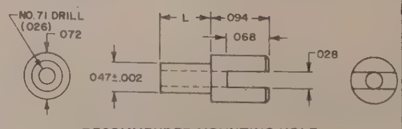
RECOMMENDED MOUNTING HOLE
.1405 DIA (#28 DRILL)

NO	L	T
10-304-2	109	1/16
10-304-3	.141	3/32
10-304-4	.172	1/8
10-304-6	.234	3/16

MATERIAL
Brass

FINISH
Silver

10-453-X-01


NO. 71 DRILL (026)
072
L
094
068
028
047±.002

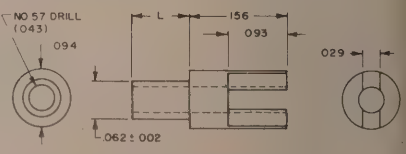
RECOMMENDED MOUNTING HOLE
.052 DIA (#55 DRILL)

NO.	L	T
10-453-11	.035	1/64
10-453-1	.051	1/32
10-453-2	.082	1/16
10-453-3	.113	3/32
10-453-4	.145	1/8
10-453-6	.207	3/16
10-453-	[illegible]	[illegible]

MATERIAL
Brass

FINISH
Silver

10-401-X-01


NO 57 DRILL (043)
094
L
156
093
029
.062±002

NO.	L	T
10-401-11	.025	1/64
10-401-1	.045	1/32
10-401-2	.094	1/16
10-401-3	.125	3/32
10-401-4	.156	1/8
10-401-6	.219	3/16
10-401-8	281	1/4

RECOMMENDED MOUNTING HOLE
.067 DIA (#51 DRILL)

MATERIAL
Brass

FINISH
Silver

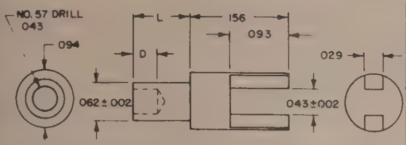
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TERMINALS

10-489-X-01


NO. 57 DRILL
.043
094
L
156
093
D
029
062 ± 002
043±002

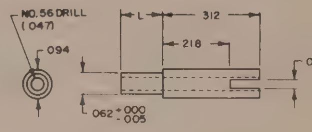
RECOMMENDED MOUNTING HOLE .067 DIA (#51 DRILL)

NO.	L	T	D
10-489-11	.025	1/64	.040
10-489-01	.045	1/32	.040
10-489-02	.094	1/16	.062
10-489-03	.125	3/32	.062
10-489-04	.156	1/8	.062

MATERIAL
Brass

FINISH
Silver

12-448-X-01

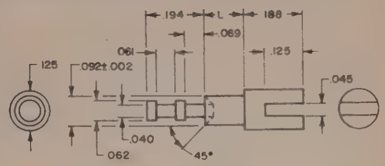

NO. 56 DRILL
(.047)
094
L
312
218
025
062 +000 -005

NO.	L	T
12-448-11	.037	1/64
12-448-1	.053	1/32
12-448-2	.084	1/16
12-448-3	.115	3/32
12-448-4	.147	1/8

MATERIAL
Brass

FINISH
Silver

10-446-X-XX


194
L
188
069
061
125
125
092± 002
045
040
062
45°

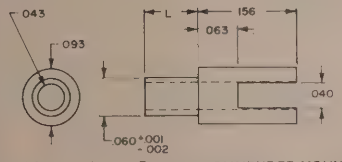
RECOMMENDED MOUNTING HOLE
.096 DIA (#41 DRILL)

NO.	L	T
10-446-2	.094	1/16
10-446-3	125	3/32
10-446-4	156	1/8

MATERIAL
Brass

FINISHES
(01) Silver
(05) Electro-Solder

10-477-X-01


043
093
L
156
063
040
060 +001 -002

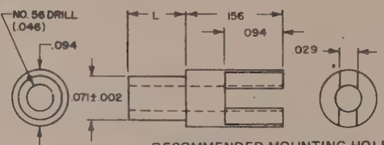
NO.	L	T
10-477-11	.037	1/64
10-477-1	.053	1/32
10-477-2	.084	1/16
10-477-3	.115	3/32
10-477-4	.147	1/8
10-477-5	.179	5/32
10-477-6	.218	3/16

RECOMMENDED MOUNTING HOLE .064 DIA (#51 DRILL)

MATERIAL
Brass

FINISH
Silver

10-457-X-XX


NO. 56 DRILL
(.046)
.094
L
156
094
.029
.071± .002

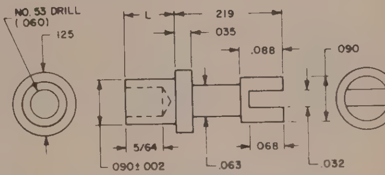
RECOMMENDED MOUNTING HOLE
.076 DIA (#48 DRILL)

NO.	L	T
10-457-11	.025	1/64
10-457-1	.045	1/32
10-457-2	.094	1/16
10-457-3	.125	3/32
10-457-4	.156	1/8
10-457-6	.219	3/16
10-457-8	.281	1/4

MATERIAL
Brass

FINISHES
(01) Silver
(05) Electro-Solder

13-426-X-01


NO. 53 DRILL
(.060)
125
L
219
035
.088
090
5/64
068
090± 002
.063
.032

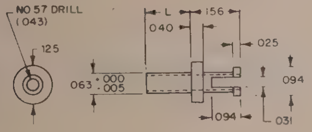
RECOMMENDED MOUNTING HOLE
.094 DIA (3/32 DRILL)

NO.	L	T
13-426-1	.075	1/32
13-426-2	.105	1/16
13-426-3	.135	3/32
13-426-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

12-416-X-01

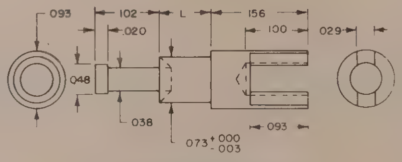

NO 57 DRILL
(.043)
125
L
156
040
025
063 +.000 -.005
094
094
031

NO.	L	T
12-416-11	.037	1/64
12-416-1	.053	1/32
12-416-2	.084	1/16
12-416-3	115	3/32
12-416-4	147	1/8

MATERIAL
Brass

FINISH
Silver

11-466-X-01


093
102
L
156
.020
100
029
048
038
073 +.000 -.003
093

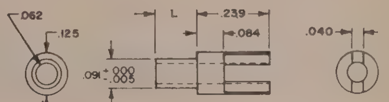
RECOMMENDED MOUNTING HOLE
.076 DIA (#48 DRILL)

NO.	L	T
11-466-1	.051	1/32
11-466-2	.082	1/16
11-466-3	113	3/32
11-466-4	145	1/8

MATERIAL
Brass

FINISH
Silver

12-412-X-01

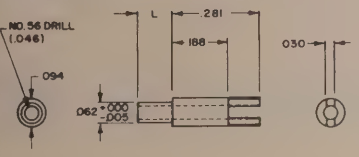

.062
.125
L
.239
.084
.040
.091 +.000 -.005

NO.	L	T
12-412-1	.075	1/32
12-412-2	.105	1/16
12-412-3	.135	3/32
12-412-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

12-447-X-01

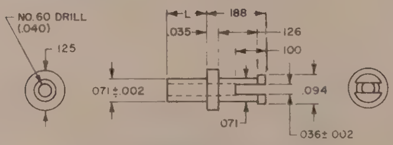

NO. 56 DRILL
(.046)
094
L
.281
188
030
062 +.000 -.005

NO.	L	T
12-447-11	.037	1/64
12-447-1	.053	1/32
12-447-2	.084	1/16
12-447-3	.115	3/32
12-447-4	.147	1/8

MATERIAL
Brass

FINISH
Silver

10-458-X-01


NO. 60 DRILL
(.040)
125
L
188
.035
126
100
071 ± .002
.094
071
036± 002

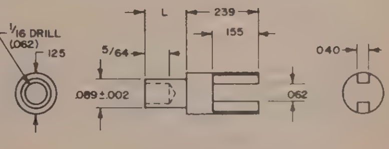
RECOMMENDED MOUNTING HOLE
.076 DIA (#48 DRILL)

NO	L	T
10-458-1	062	1/32
10-458-2	.094	1/16
10-458-3	.125	3/32
10-458-4	156	1/8

MATERIAL
Brass

FINISH
Silver

12-468-X-01

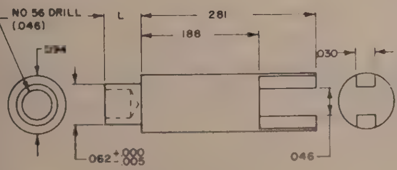

1/16 DRILL
(.062)
125
L
239
155
5/64
040
.089 ± .002
062

NO.	L	T
12-468-1	.075	1/32
12-468-2	.105	1/16
12-468-3	.135	3/32
12-468-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

12-460-X-01

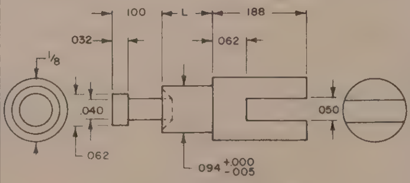

NO 56 DRILL
(.046)
L
281
188
030
062 +.000 -.005
046

NO.	L	T
12-460-11	.037	1/64
12-460-1	.053	1/32
12-460-2	.084	1/16
12-460-3	.115	3/32
12-460-4	147	1/8

MATERIAL
Brass

FINISH
Silver

12-445-X-01

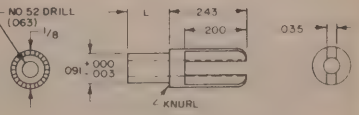

100
L
188
032
062
1/8
.040
050
062
094 +.000 -.005

NO.	L	T
12-445-2	.094	1/16
12-445-3	.125	3/32
12-445-4	.156	1/8

MATERIAL
Brass

FINISH
Silver

11-423-X-01


NO 52 DRILL
(.063)
1/8
L
243
200
035
091 +.000 -.003
KNURL

RECOMMENDED MOUNTING HOLE
.094 DIA (3/32 DRILL)

NO.	L	T
11-423-1	075	1/32
11-423-2	105	1/16
11-423-3	135	3/32
11-423-4	165	1/8

MATERIAL
Brass

FINISH
Silver

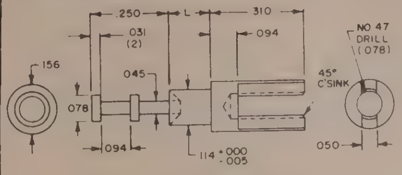
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TERMINALS

12-442-X-01

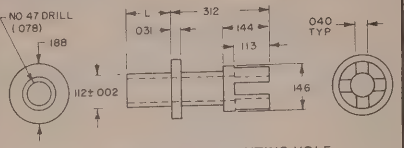

.250
L
310
031
(2)
094
NO 47
DRILL
(.078)
156
045
45°
C'SINK
078
094
114 +.000 -.005
050

NO	L	T
12-442-2	105	1/16
12-442-3	.135	3/32
12-442-4	165	1/8

MATERIAL
Brass

FINISH
Silver

10-438-X-01


NO 47 DRILL
(.078)
L
312
031
144
113
040
TYP
188
112± 002
146

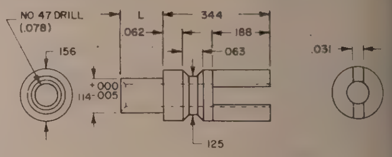
RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

NO.	L	T
10-438-1	.078	1/32
10-438-2	.109	1/16
10-438-3	.141	3/32
10-438-4	.172	1/8
10-438-6	234	3/16
10-438-8	297	1/4

MATERIAL
Brass

FINISH
Silver

12-472-X-01

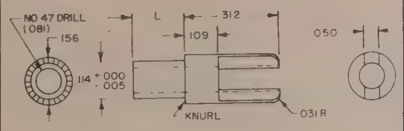

NO 47 DRILL
(.078)
L
344
062
188
063
156
.031
+.000
114-.005
125

NO	L	T
12-472-2	.105	1/16
12-472-3	135	3/32
12-472-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

12-408-X-01

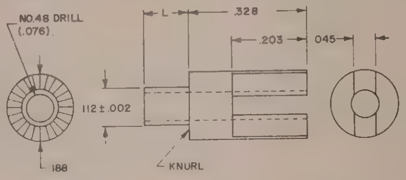

NO 47 DRILL
(081)
156
L
312
109
050
114 +.000 -.005
KNURL
031 R

NO	L	T
12-408-1	075	1/32
12-408-2	105	1/16
12-408-3	.135	3/32
12-408-4	.165	1/8
12-408-5	195	5/32
12 408-6	.230	3/16

MATERIAL
Brass

FINISH
Silver

12-403-X-01

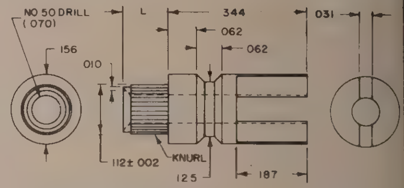

NO.48 DRILL
(.076)
L
.328
.203
045
112±.002
188
KNURL

NO.	L	T
12-403-1	.075	1/32
12-403-2	.105	1/16
12-403-3	.135	3/32
12-403-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

10-402-X-XX


NO 50 DRILL
(070)
L
344
031
062
062
156
010
112± 002
KNURL
125
187

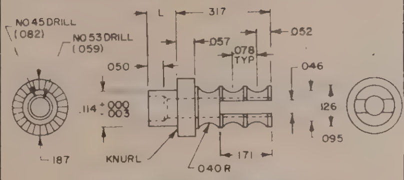
RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

NO	L	T
10-402-2	109	1/16
10-402-3	141	3/32
10-402-4	172	1/8

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper

11-404-X-01


NO 45 DRILL
(082)
NO 53 DRILL
(059)
L
317
052
057
078
TYP
050
046
.114 +.000 -.003
126
095
187
KNURL
040 R
171

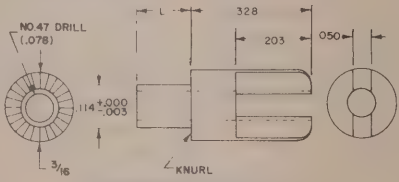
RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

NO	L	T
11-404-1	.075	1/32
11-404-2	105	1/16
11-404-3	135	3/32
11-404-4	165	1/8

MATERIAL
Brass

FINISH
Silver

11-483-X-01


NO.47 DRILL
(.078)
L
328
203
050
114 +.000 -.003
3/16
KNURL

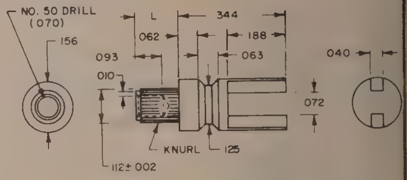
RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

NO.	L	T
11-483-1	.075	1/32
11-483-2	.105	1/16
11-483-3	.135	3/32
11-483-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

10-451-X-01


NO. 50 DRILL
(070)
L
344
062
188
156
093
063
040
010
072
KNURL
125
112± 002

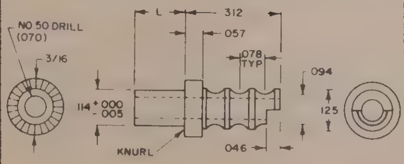
RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

NO.	L	T
10-451-2	.109	1/16
10-451-3	.141	3/32
10-451-4	.172	1/8

MATERIAL
Brass

FINISH
Silver

12-422-X-01

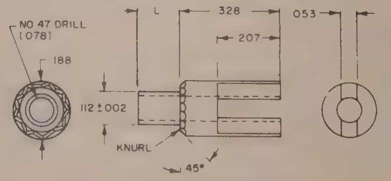

NO 50 DRILL
(070)
L
312
057
078
TYP
3/16
094
114 +.000 -.005
125
KNURL
046

NO	L	T
12-422-2	.105	1/16
12-422-3	135	3/32
12-422-4	.165	1/8
12-422-5	195	5/32

MATERIAL
Brass

FINISH
Silver

10-411-X-01


NO 47 DRILL
(078)
L
328
053
207
188
112 ±002
KNURL
45°

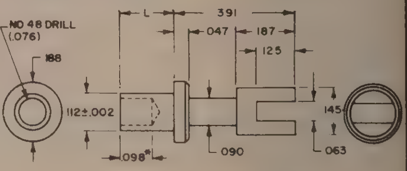
NO.	L	T
10-411-1	.078	1/32
10-411-2	.109	1/16
10-411-3	141	3/32
10-411-4	172	1/8
10-411-6	.234	3/16

RECOMMENDED HOLE DIA
.116 DIA (#32 DRILL)

MATERIAL
Brass

FINISH
Silver

10-417-X-01


NO 48 DRILL
(.076)
L
391
047
187
125
188
112±.002
145
098*
090
063

*FOR -1 ONLY IS .068

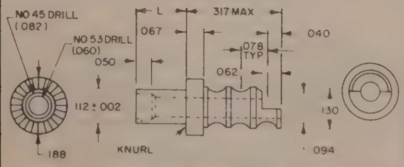
NO.	L	T
10-417-1	.078	1/32
10-417-2	.109	1/16
10-417-3	.141	3/32
10-417-4	.172	1/8
10-417-6	.234	3/16
10-417-8	297	1/4

RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

MATERIAL
Brass

FINISH
Silver

10-405-X-01


NO 45 DRILL
(082)
NO 53 DRILL
(060)
L
317 MAX
067
078
TYP
040
050
062
112 ± 002
130
188
KNURL
094

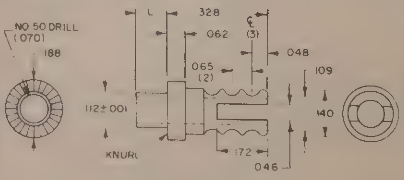
RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

NO	L	T
10-405-1	.078	1/32
10-405-2	109	1/16
10-405-3	141	3/32
10-405-4	172	1/8
10-405-6	234	3/16
10-405-8	297	1/4

MATERIAL
Brass

FINISH
Silver

10-410-X-01


NO 50 DRILL
(070)
188
L
328
℄
(3)
062
048
065
(2)
109
112± 001
140
KNURL
172
046

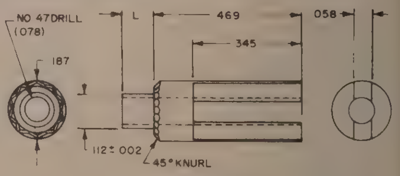
RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

NO	L	T
10-410-1	075	1/32
10-410-2	105	1/16
10-410-3	135	3/32
10-410-4	165	1/8

MATERIAL
Brass

FINISH
Silver

13-421-X-01


NO 47 DRILL
(078)
L
469
058
345
187
112± 002
45° KNURL

NO	L	T
13-421-1	.075	1/32
13-421-2	105	1/16
13-421-3	.135	3/32
13-421-4	.165	1/8

RECOMMENDED
MOUNTING
HOLE
.116 DIA
(#32 DRILL)

MATERIAL
Brass

FINISH
Silver

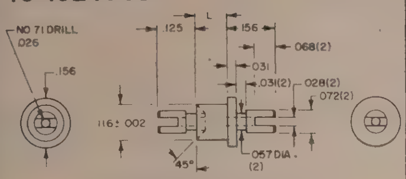
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TERMINALS

10-492-X-05


NO 71 DRILL
.026
.156
.125
L
.156
.068(2)
.031
.031(2)
.028(2)
.072(2)
.116± .002
45°
.057 DIA.
(2)

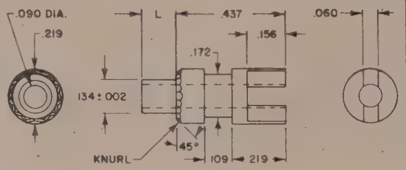
RECOMMENDED MOUNTING HOLE
.120 DIA (#31 DRILL)

NO.	L	T
10-492-1	075	1/32
10-492-2	105	1/16
10-492-3	135	3/32
10-492-4	165	1/8

MATERIAL
Brass

FINISH
Electro
Solder/Copper

13-424-X-01


.090 DIA.
.219
L
.437
.060
.156
.172
134 ± 002
KNURL
45°
109
219

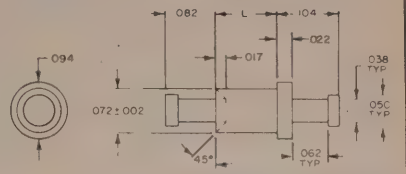
NO.	L	T
13-424-1	.075	1/32
13-424-2	.105	1/16
13-424-3	.135	3/32
13-424-4	.165	1/8

RECOMMENDED
MOUNTING
HOLE
.141 DIA
(#28 DRILL)

MATERIAL
Brass

FINISH
Silver

10-501-X-XX


082
L
104
022
094
017
038 TYP
05C TYP
072 ± 002
45°
062 TYP

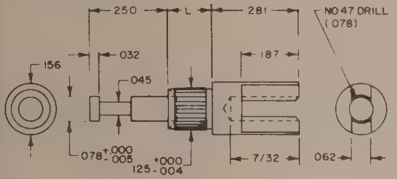
NO	L	T
10-501-1	051	1/32
10-501-2	.082	1/16
10-501-3	.113	3/32
10-501-4	145	1/8
10-501-6	207	3/16
10-501-8	270	1/4

RECOMMENDED MOUNTING HOLE
.076 DIA (#48 DRILL)

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper
(05) Electro-Solder

11-418-X-01


250
L
281
NO 47 DRILL
(078)
156
032
187
045
078 +.000 -.005
125 +000 -004
7/32
062

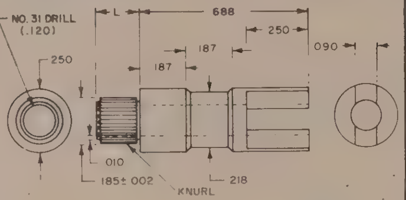
NO.	L	T
11-418-1	.075	1/32
11-418-2	.105	1/16
11-418-2A	.091	1/16
11-418-3	.135	3/32
11-418-3A	.123	3/32
11-418-4	.165	1/8
11-418-4A	.153	1/8

RECOMMENDED MOUNTING HOLE
.128 DIA (#30 DRILL)

MATERIAL
Brass

FINISH
Silver

10-433-X-XX

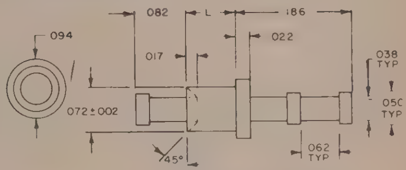

NO. 31 DRILL
(.120)
L
688
250
187
187
090
250
010
185± 002
KNURL
218

NO	L	T
10-433-3	141	3/32
10-433-4	.172	1/8
10-433-6	234	3/16
10-433-8	.297	1/4

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper

10-502-X-XX


082
L
186
094
022
017
038 TYP
05C TYP
072 ± 002
45°
062 TYP

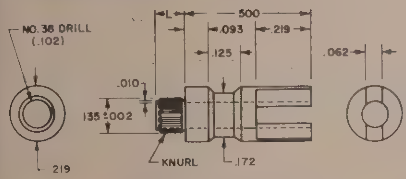
NO	L	T
10-502-1	051	1/32
10-502-2	.082	1/16
10-502-3	113	3/32
10-502-4	145	1/8
10-502-6	207	3/16
10-502-8	.270	1/4

RECOMMENDED MOUNTING
.076 DIA (#48 DRILL)

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper
(05) Electro-Solder

10-407-X-XX


NO. 38 DRILL
(.102)
L
500
.093
.219
.125
.062
.010
135 ± 002
KNURL
.172
219

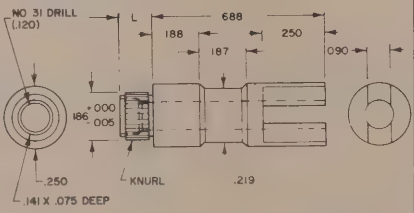
RECOMMENDED MOUNTING DIA
.140 DIA (#28 DRILL)

NO.	L	T
10-407-2	.109	1/16
10-407-3	.141	3/32
10-407-4	.172	1/8

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper

12-467-X-01

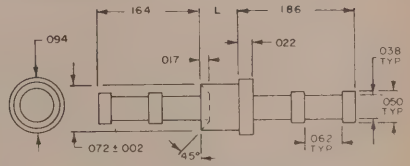

NO 31 DRILL
(.120)
L
688
188
250
187
090
186 +.000 -.005
.250
KNURL
.219
.141 X .075 DEEP

NO	L	T
12-467-3	.135	3/32
12-467-4	.165	1/8
12-467-5	195	5/32
12-467-6	230	3/16

MATERIAL
Brass

FINISH
Silver

10-503-X-XX


164
L
186
094
022
017
038 TYP
050 TYP
072 ± 002
45°
062 TYP

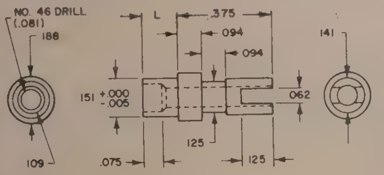
RECOMMENDED MOUNTING HOLE
.076 DIA (#48 DRILL)

NO.	L	T
10-503-1	.051	1/32
10-503-2	.082	1/16
10-503-3	.113	3/32
10-503-4	145	1/8
10-503-6	.207	3/16
10-503-8	.270	1/4

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper
(05) Electro-Solder

12-470-X-01

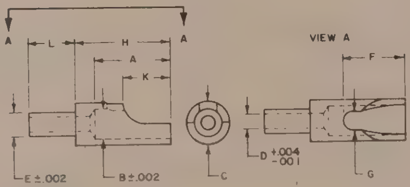

NO. 46 DRILL
(.081)
188
L
.375
094
094
141
151 +.000 -.005
062
125
109
.075
125

NO.	L	T
12-470-1	075	1/32
12-470-2	.105	1/16
12-470-3	135	3/32
12-470-4	165	1/8

MATERIAL
Brass

FINISH
Silver

10-454-X-01 10-456-X-01
10-455-X-01 10-465-X-01


A
A
L
H
A
K
VIEW A
F
E ±.002
B ±.002
C
D +.004 -.001
G

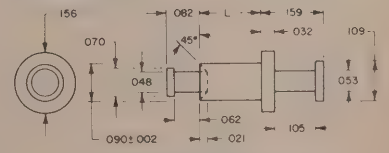
NO.	L	T	H	A	B	C	D	E	F	G	K
10-454-2	089	1/16									
10-454-3	125	3/32	.250	200	.081	.112	038	.062	165	.045	125
10-454-[illegible]	156	1/8									
10-455-2	089	1/16									
10-455-3	.125	3/32	.250	200	094	125	043	070	165	.045	125
10-455-4	156	1/8									
10-456-2	.109	1/16									
10-456-3	.141	3/32	.312	.252	125	.156	.070	.112	.180	.062	.125
10-456-4	.172	1/8									
10-465-2	.109	1/16									
10-465-3	.141	3/32	.375	.310	.162	200	.099*	135	.240	100	160
10-465-4	172	1/8									

* ± 002

MATERIAL
Brass

FINISH
Silver

10-544-X-01


156
082
L
159
070
45°
032
109
048
053
062
105
090 ± 002
021

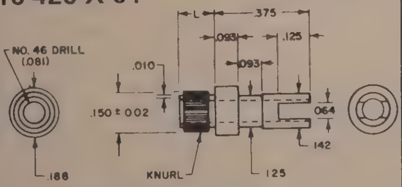
RECOMMENDED MOUNTING HOLE
.094 DIA (#42 DRILL)

NO.	L	T
10-544-1	.062	1/32
10-544-2	094	1/16
10-544-3	125	3/32
10-544-4	156	1/8
10-544-6	219	3/16

MATERIAL
Brass

FINISH
Silver

10-420-X-01


L
375
NO. 46 DRILL
(.081)
.093
.125
.093
.010
.150 ± 002
064
142
.188
KNURL
125

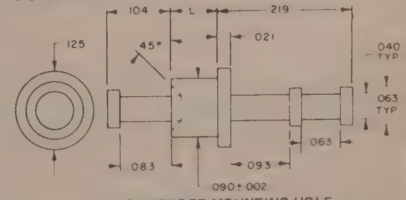
RECOMMENDED MOUNTING HOLE
.154 DIA (#23 DRILL)

NO.	L	T
10-420-2	.109	1/16
10-420-3	.141	3/32
10-420-4	.172	1/8
10-420-6	.234	3/16

MATERIAL
Brass

FINISH
Silver

10-505-X-XX


104
L
219
125
45°
021
040 TYP
063 TYP
063
083
093
090 ± 002

RECOMMENDED MOUNTING HOLE
.094 DIA (#42 DRILL)

NO.	L	T
10-505-1	062	1/32
10-505-2	094	1/16
10-505-3	125	3/32
10-505-4	156	1/8

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper

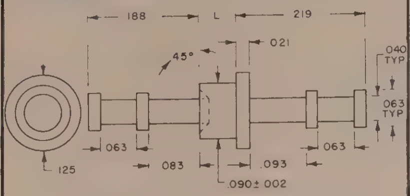
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TERMINALS

10-504-X-XX



188
L
219
021
45°
040 TYP
063 TYP
063
083
093
063
125
.090± 002

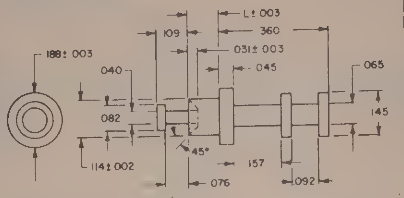
RECOMMENDED MOUNTING HOLE .094 DIA (#42 DRILL)

NO.	L	T
10-504-1	062	1/32
10-504-2	.094	1/16
10-504-3	.125	3/32
10-504-4	156	1/8

MATERIAL
Brass

FINISHES
(01) Silver
(93) Gold/Copper

10-541-X-05



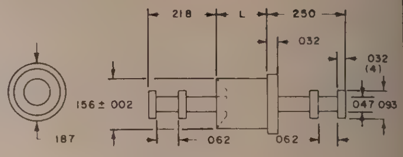
L± 003
109
360
188± 003
031± 003
040
045
065
082
145
45°
114± 002
157
076
092

NO	L	T
10-541-2	.105	1/16
10-541-3	.135	3/32
10-541-4	.165	1/8

MATERIAL
Brass

FINISH
Electro
Solder/Copper

13-532-X-01



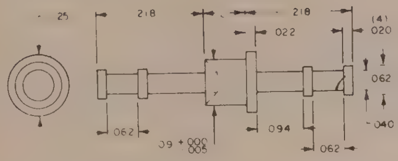
218
L
250
032
032 (4)
156± 002
047 093
187
062
062

NO	L	T
13-532-1	.075	1/32
13-532-2	.105	1/16
13-532-3	.135	3/32
13-532-4	.165	1/8
13-532-5	.195	5/32
13-532-6	.230	3/16

MATERIAL
Brass

FINISH
Silver

12-525-X-01



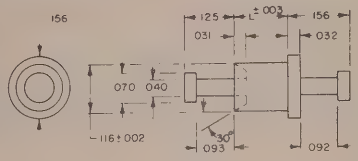
25
218
L
218
(4) 020
022
062
040
062
094
09 +.000 -.005
062

NO.	L	T
12-525-1	.053	1/32
12-525-2	.084	1/16
12-525-3	.115	3/32
12-525-4	.147	1/8

MATERIAL
Brass

FINISH
Silver

10-576-X-05



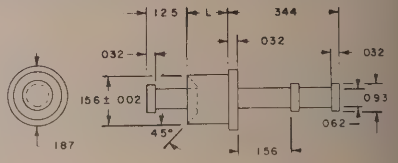
156
125
L ± 003
156
031
032
070
040
30°
116± 002
093
092

NO	L	T
10-576-2	105	1/16
10-576-3	135	3/32
10-576-4	165	1/8

MATERIAL
Brass

FINISH
Electro-Solder

13-530-X-05



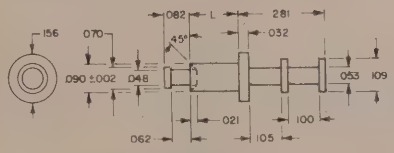
125
L
344
032
032
032
156± 002
093
062
45°
187
156

NO	L	T
13-530-1	.075	1/32
13-530-2	1/16	
13-530-3	.135	3/32
13-530-4	.165	1/8
13-530-5	.195	5/32
13-530-6	230	3/16

MATERIAL
Brass

FINISH
Electro
Solder Plate

10-542-X-01



156
082
L
281
070
45°
032
090 ±002
048
053
109
021
100
062
105

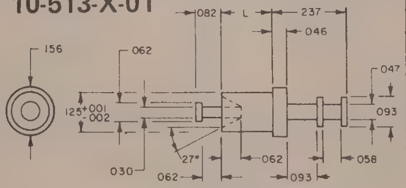
RECOMMENDED MOUNTING HOLE .094 DIA (#42 DRILL)

NO.	L	T
10-542-1	.062	1/32
10-542-2	.094	1/16
10-542-3	125	3/32
10-542-4	156	1/8
10-542-6	219	3/16

MATERIAL
Brass

FINISH
Silver

10-513-X-01



082
L
237
046
156
062
047
125 +.001 -.002
093
27°
062
058
030
062
093

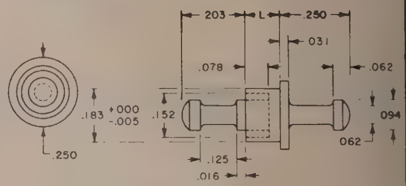
RECOMMENDED MOUNTING HOLE .129 DIA (#30 DRILL)

NO	L	T
10-513-1	.075	1/32
10-513-2	.105	1/16
10-513-3	.135	3/32
10-513-4	.165	1/8
10-513-6	228	3/16
10-513-8	.290	1/4

MATERIAL
Brass

FINISH
Silver

12-521-X-01



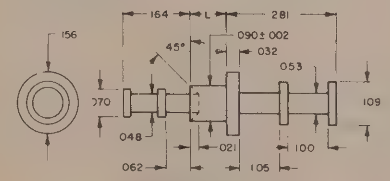
203
L
.250
031
.078
.062
.183 +.000 -.005
.152
094
062
.125
.016
.250

NO.	L	T
12-521-2	.105	1/16
12-521-3	.135	3/32
12-521-4	.165	1/8
12-521-5	.195	5/32
12-521-6	.230	3/16

MATERIAL
Brass

FINISH
Silver

10-543-X-01



164
L
281
156
45°
090± 002
032
053
070
109
048
021
100
062
105

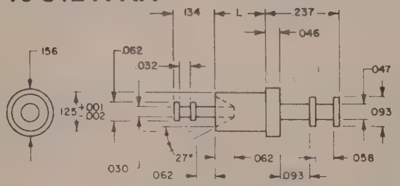
RECOMMENDED MOUNTING HOLE .094 DIA (#42 DRILL)

NO	L	T
10-543-1	062	1/32
10-543-2	.094	1/16
10-543-3	125	3/32
10-543-4	156	1/8
10-543-6	219	3/16

MATERIAL
Brass

FINISH
Silver

10-512-X-XX



134
L
237
046
156
062
032
047
125 +.001 -.002
093
27°
062
058
030
062
093

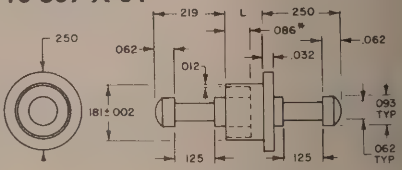
RECOMMENDED MOUNTING HOLE 129 DIA (#30 DRILL)

NO	L	T
10-512-1	075	1/32
10-512-2	105	1/16
10-512-3	135	3/32
10-512-4	165	1/8
10-512-6	.228	3/16
10-512-8	290	1/4

MATERIAL
Brass

FINISHES
(01) Silver
(05) Electro-Solder

10-507-X-01



219
L
250
086*
250
062
.062
012
.032
181± 002
093 TYP
062 TYP
125
125

*FOR-1 ONLY IS .073

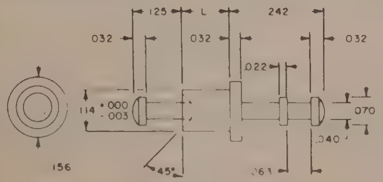
RECOMMENDED MOUNTING HOLE .185 DIA (#13 DRILL)

NO.	L	T
10-507-1	.078	1/32
10-507-2	.109	1/16
10-507-3	.141	3/32
10-507-4	.172	1/8
10-507-6	.234	3/16
10-507-8	.297	1/4

MATERIAL
Brass

FINISH
Silver

11-510-X-01



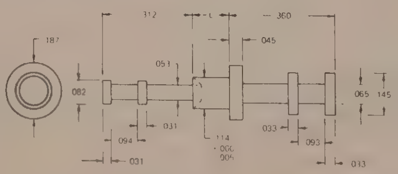
125
L
242
032
032
032
022
114 +.000 -.003
070
040
156
45°
063

NO	L	T
11-510-1	.075	1/32
11-510-2	.105	1/16
11-510-3	.135	3/32
11-510-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

12-511-X-01



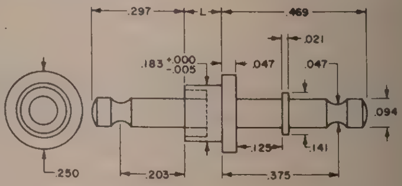
312
L
360
187
045
051
082
065
145
031
033
094
093
031
013

PART NO.	L	T
12-511-2	.105	1/16
12-511-3	.135	3/32
12-511-4	.165	1/8
12-511-6	.230	3/16

MATERIAL
Brass

FINISH
Silver

12-515-X-01



.297
L
.469
.021
.183 +.000 -.005
.047
.047
.094
.125
.141
.250
.203
.375

NO.	L	T
12-515-2	.105	1/16
12-515-3	.135	3/32
12-515-4	.165	1/8
12-515-5	.195	5/32
12-515-6	.230	3/16

MATERIAL
Brass

FINISH
Silver

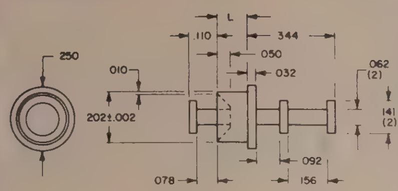
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TERMINALS

10-508-X-01

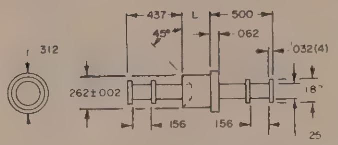

L
110
344
250
010
050
032
062 (2)
141 (2)
202±.002
078
092
156

NO.	L	T
10-508-1	.062	1/32
10-508-2	.094	1/16
10-508-3	.125	3/32
10-508-4	.156	1/8
10-508-6	.219	3/16

MATERIAL
Brass

FINISH
Silver

13-520-X-01

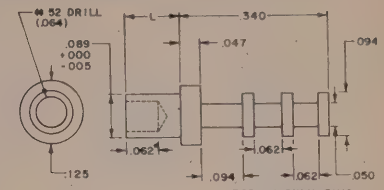

437
L
500
45°
062
312
032(4)
262±002
187
156
156
25

NO	L	T
13-520-2	.105	1/16
13-520-3	135	3/32
13-520-4	.165	1/8
13-520-5	.195	5/32
13-520-6	.230	3/16
13-520-8	293	1/4

MATERIAL
Brass

FINISH
Silver

10-615-X-05


* 52 DRILL (.064)
L
340
.089 +.000 -.005
.047
094
.062
.062
.125
.094
.062
.050

* FOR -1 ONLY, THIS DIMENSION IS .047

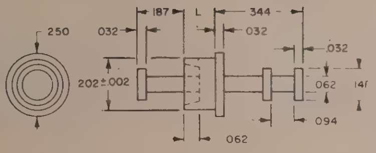
RECOMMENDED MOUNTING HOLE .089 DIA (#43 DRILL)

NO	L	T
10-615-1	.075	1/32
10-615-2	.105	1/16
10-615-3	135	3/32
10-615-4	165	1/8

MATERIAL
Brass

FINISH
Electro
Solder/Copper

10-526-X-01

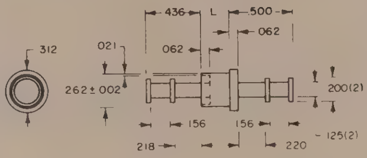

187
L
344
250
032
032
032
202±.002
062
141
094
062

NO	L	T
10-526-2	094	1/16
10-526-3	.125	3/32
10-526-4	156	1/8

MATERIAL
Brass

FINISH
Silver

10-519-X-XX

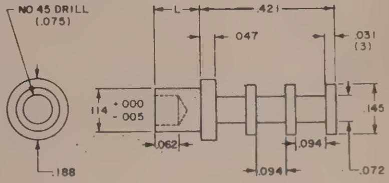

436
L
500
312
021
062
062
262±.002
200(2)
156
156
218
220
125(2)

NO	L	T
10-519-2	094	1/16
10-519-3	125	3/32
10-519-4	156	1/8
10-519-6	219	3/16
10-519-8	281	1/4

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper

12-607-X-01

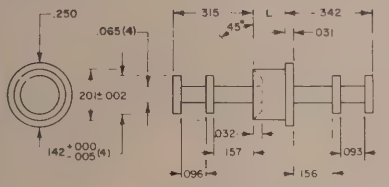

NO 45 DRILL (.075)
L
.421
.047
.031 (3)
114 +.000 -.005
.145
.062
.094
.188
.094
.072

NO.	L	T
12-607-1	.075	1/32
12-607-2	.105	1/16
12-607-3	.135	3/32
12-607-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

10-509-X-XX


.250
315
L
342
.065(4)
45°
031
201±.002
142 +.000 -.005 (4)
032
157
093
096
156

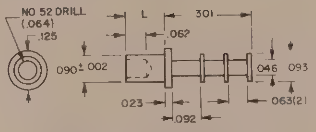
RECOMMENDED MOUNTING HOLE
.204 DIA (#6 DRILL)

NO.	L	T
10-509-2	.094	1/16
10-509-3	.125	3/32
10-509-4	156	1/8
10-509-6	219	3/16
10-509-8	281	1/4

MATERIAL
Brass

FINISHES
(01) Silver
(05) Electro-Solder

10-601-X-XX


NO 52 DRILL (.064)
.125
L
301
.062*
090±.002
046
093
023
063(2)
092

*FOR -1 ONLY, THIS DIMENSION IS .047

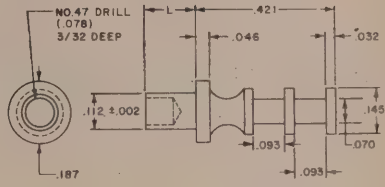
RECOMMENDED MOUNTING HOLE
.094 DIA (#42 DRILL)

NO.	L	T
10-601-1	.062	1/32
10-601-2	.094	1/16
10-601-3	.125	3/32
10-601-4	.156	1/8
10-601-6	.219	3/16

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper

13-603-X-01

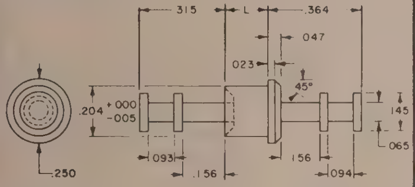

NO.47 DRILL (.078) 3/32 DEEP
L
.421
.046
.032
.112 ±.002
.145
.093
.070
.187
.093

NO.	L	T
13-603-1	.075	1/32
13-603-2	.105	1/16
13-603-3	.135	3/32
13-603-4	165	1/8

MATERIAL
Brass

FINISH
Silver

12-549-X-01

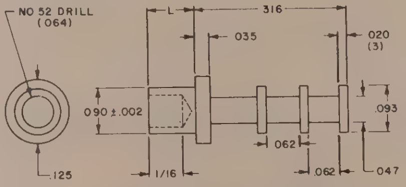

315
L
.364
047
023
45°
.204 +.000 -.005
145
065
.250
093
156
.156
094

NO.	L	T
12-549-2	.105	1/16
12-549-3	.135	3/32
12-549-4	.165	1/8
12-549-5	.195	5/32
12-549-6	.230	3/16

MATERIAL
Brass

FINISH
Silver

13-606-X-01


NO 52 DRILL (.064)
L
316
035
020 (3)
090 ±.002
.093
062
.125
1/16
.062
.047

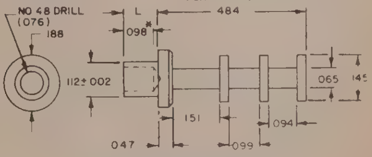
NO.	L	T
13-606-1	.075	1/32
13-606-2	.105	1/16
13-606-3	.135	3/32
13-606-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

10-602-X-XX

*FOR -1 ONLY, THIS DIMENSION IS .068


NO 48 DRILL (.076)
L
484
188
098*
112±.002
065
145
151
094
047
099

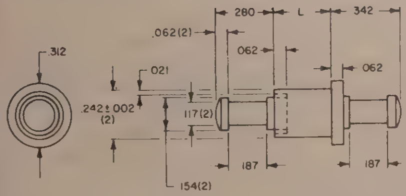
RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

NO	L	T
10-602-1	078	1/32
10-602-2	.109	1/16
10-602-3	.141	3/32
10-602-4	172	1/8
10-602-6	.234	3/16
10-602-8	297	1/4

MATERIAL
Brass

FINISHES
(01) Silver
(03) Gold/Copper

10-523-X-01

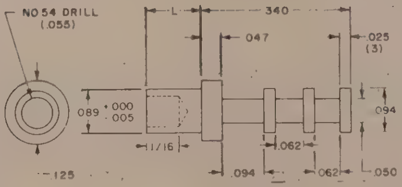

280
L
342
.062(2)
312
062
062
021
242±.002 (2)
117(2)
187
187
154(2)

NO.	L	T
10-523-8	.281	1/4

MATERIAL
Brass

FINISH
Silver

12-605-X-01

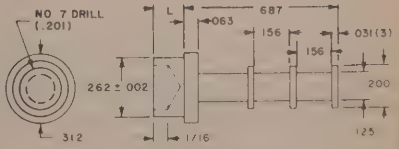

NO 54 DRILL (.055)
L
340
047
.025 (3)
089 +.000 -.005
.094
1/16
.062
.125
.094
.062
.050

NO.	L	T
12-605-1	.075	1/32
12-605-2	105	1/16
12-605-3	135	3/32
12-605-4	165	1/8

MATERIAL
Brass

FINISH
Silver

10-604-X-01


NO 7 DRILL (.201)
L
.063
687
156
156
.031(3)
262 ± 002
200
125
312
1/16

NO	L	T
10-604-2	109	1/16
10-604-3	141	3/32
10-604-4	172	1/8
10-604-6	.234	3/16
10-604-8	297	1/4

MATERIAL
Brass

FINISH
Silver

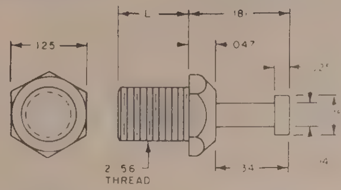
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TERMINALS

12-703-X-01

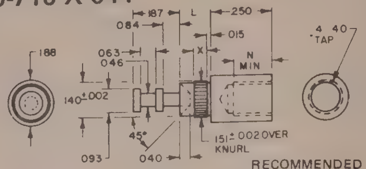

L
18
125
047
2 56
THREAD
34

NO	L
12-703-2	1/16
12-703-4	1/8
12-703-6	3/16
12-703-8	1/4
12-703-10	5/16

MATERIAL
Brass

FINISH
Silver

10-710-X-044


187
084
L
250
015
4 40
TAP
188
063
046
X
N
MIN
140±002
45°
151± 002 OVER
KNURL
093
040

NO.	L	N	X	T
10-710-2	094	125	031	1/16
10-710-3	125	156	.062	3/32
10-710-4	156	156	.094	1/8
10-710-6	222	156	094	3/16
10-710-8	.285	156	094	1/4

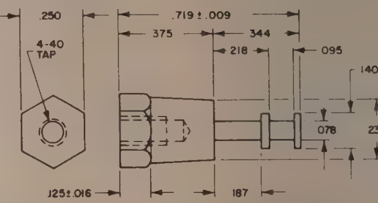
MOUNTING: Hardware (Unassembled)
SCREW: Binding Head (Nickel Plated)
WASHER: Internal Tooth (Nickel Plated)

RECOMMENDED
MOUNTING
HOLE
.144 DIA
(#27 DRILL)

MATERIAL
Brass

FINISH
Bright Electro-Tin

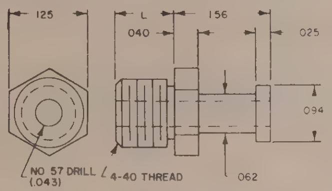
10-712-X-05


.250
4-40
TAP
.719 ± .009
375
344
218
095
140
078
125± 016
187

MATERIAL
Brass

FINISH
Electro
Solder/Copper

12-704-X-01

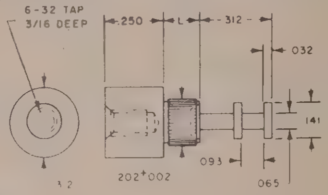

125
L
156
040
025
094
NO 57 DRILL
(.043)
4-40 THREAD
062

NO	L
12-704-3	3/32
12-704-4	1/8
12-704-6	3/16
12-704-8	1/4
12-704-10	5/16

MATERIAL
Brass

FINISH
Silver

13-714-X-01

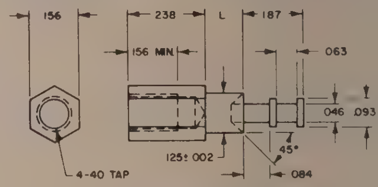

6-32 TAP
3/16 DEEP
.250
L
312
032
141
093
202+002
065
3 2

NO	L	T
13-714-1	.075	1/32
13-714-2	.105	1/16
13-714-3	.135	3/32
13-714-4	.165	1/8
13-714-5	.195	5/32
13-714-6	.230	3/16

MATERIAL
Brass

FINISH
Silver

10-709-X-01


156
238
L
187
156 MIN
063
046
093
125± 002
45°
4-40 TAP
084

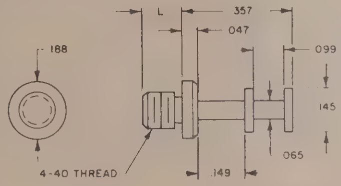
RECOMMENDED MOUNTING HOLE
.129 DIA (#30 DRILL)

NO	L	T
10-709-3	.125	3/32

MATERIAL
Brass

FINISH
Silver

10-706-X-XX

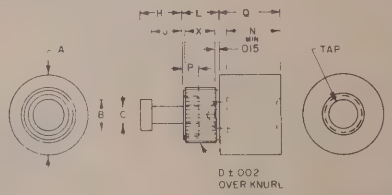

L
357
047
188
099
145
065
4-40 THREAD
.149

NO	L
10-706-1	125
10-706-2	188

MATERIAL
Brass

FINISHES
(01) Silver
(05) Electro-Solder

10-753-754-756-X-044


H
L
Q
J
X
N
MIN
015
P
A
B
C
TAP
D ± 002
OVER KNURL

No	A	B	C	D	H	J	L	N	P	Q	X	TAP	T
10-753-3	312	125	068	220	.172	125	141	218	.062	250	117	6-32	3/32
10-754-4	344	141	078	250	203	156	172	250	078	312	148	8-32	1/8
10-756-6	375	156	094	257	203	156	.234	.312	093	375	210	10-32	3/16

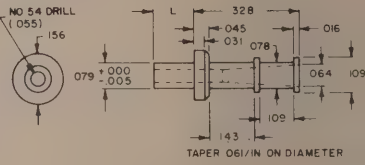
MOUNTING HARDWARE (UNASSEMBLED)
SCREW BINDING HEAD (NICKEL PLATED)
WASHER INTERNAL TOOTH (NICKEL PLATED)

RECOMMENDED MOUNTING HOLE
10-753-3 .213 DIA (#3 DRILL)
10-754-4 .242 DIA (C DRILL)
10-756-6 .250 DIA (1/4 DRILL)

MATERIAL
Brass

FINISH
Bright
Electro-Tin

10-825-X-01

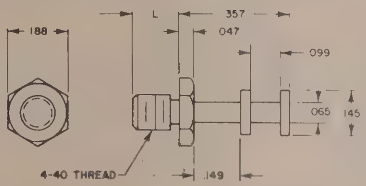

NO 54 DRILL
(055)
156
L
328
045
031
078
016
079 +000 -.005
064
109
109
143
TAPER 061/IN ON DIAMETER

NO.	L	T
10-825-1	075	1/32
10-825-2	105	1/16
10-825-3	.135	3/32
10-825-4	.165	1/8

MATERIAL
Brass

FINISH
Silver

10-702-X-XX

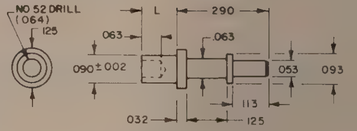

L
357
047
188
099
065
145
4-40 THREAD
.149

NO	L
10-702-4	125
10-702-6	188

MATERIAL
Brass

FINISHES
(01) Silver
(05) Electro-Solder

10-805-X-01


NO 52 DRILL
(064)
125
L
290
063
.063
090±002
053
093
113
032
125

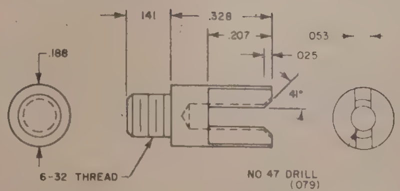
RECOMMENDED MOUNTING HOLE
.094 DIA (#42 DRILL)

NO	L	T
10-805-1	.078	1/32
10-805-2	.109	1/16
10-805-3	.141	3/32
10-805-4	.172	1/8
10-805-6	234	3/16
10-805-8	297	1/4

MATERIAL
Brass

FINISH
Silver

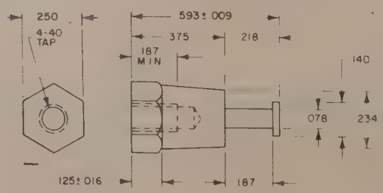
10-707-1-01


141
.328
.207
053
025
.188
41°
6-32 THREAD
NO 47 DRILL
(079)

MATERIAL
Brass

FINISH
Silver

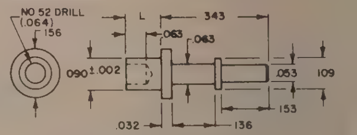
10-711-X-05


250
4-40
TAP
593± 009
375
218
187
MIN
140
078
234
125± 016
187

MATERIAL
Brass

FINISH
Electro
Solder/Copper

10-807-X-01


NO 52 DRILL
(.064)
156
L
343
.063
.063
090±.002
.053
109
153
.032
136

RECOMMENDED MOUNTING HOLE
.094 DIA (#42 DRILL)

NO.	L	T
10-807-1	.078	1/32
10-807-2	109	1/16
10-807-3	.141	3/32
10-807-4	.172	1/8
10-807-6	.234	3/16
10-807-8	297	1/4

MATERIAL
Brass

FINISH
Silver

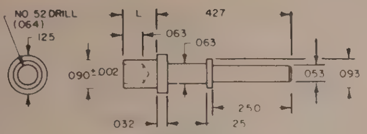
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREE
NEW YORK, N.Y. 100
(212) 777-65
TWX 710-581-49

TERMINALS

10-806-X-01


NO 52 DRILL
(064)
125
L
427
063
063
090 ± 002
053
093
250
032
25

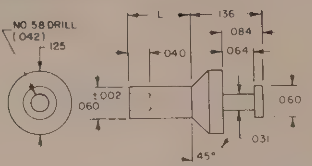
RECOMMENDED MOUNTING HOLE
.094 DIA (#42 DRILL)

NO	L	T
10-806-1	078	1/32
10-806-2	109	1/16
10-806-3	141	3/32
10-806-4	172	1/8
10-806-6	234	3/16
10-806-8	297	1/4

MATERIAL
Brass

FINISH
Silver

10-904-X-05


NO 58 DRILL
(042)
125
L
136
084
040
064
± 002
060
060
031
45°

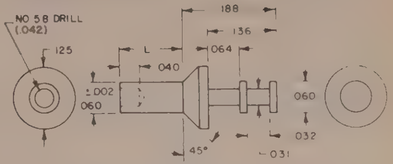
RECOMMENDED MOUNTING HOLE
.064 DIA (#52 DRILL)

NO	L	T
10-904-1	062	1/32
10-904-2	094	1/16
10-904-3	125	3/32
10-904-4	156	1/8

MATERIAL
Brass

FINISH
Electro
Solder Plate

10-905-X-05


NO 58 DRILL
(.042)
188
136
125
L
064
040
± 002
060
060
032
45°
031

RECOMMENDED MOUNTING HOLE
.064 DIA (#52 DRILL)

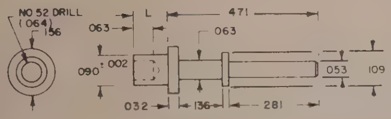
NO	L	T
10-905-1	062	1/32
10-905-2	094	1/16
10-905-3	.125	3/32
10-905-4	.156	1/8

MATERIAL
Brass

ORDER AS 14-905-X-05
FOR COMMERCIAL
BRONZE MATERIAL

FINISH
Electro
Solder Plate

10-808-X-01


NO 52 DRILL
(064)
156
063
L
471
063
090 ± 002
053
109
032
136
281

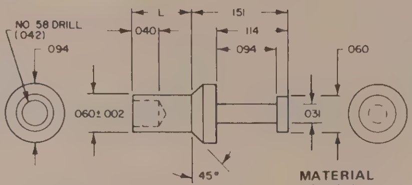
RECOMMENDED MOUNTING HOLE
.094 DIA (#42 DRILL)

NO	L	T
10-808-1	.078	1/32
10-808-2	109	1/16
10-808-3	141	3/32
10-808-4	.172	1/8
10-808-6	234	3/16
10-808-8	297	1/4

MATERIAL
Brass

FINISH
Silver

14-946-X-05

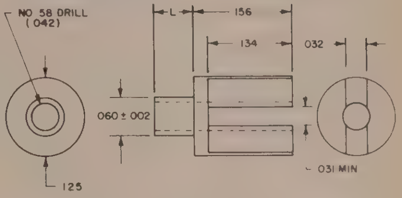

NO 58 DRILL
(042)
094
L
151
040
114
094
060
060 ± 002
031
45°

NO.	L	T
14-946-1	.062	1/32
14-946-2	.094	1/16
14-946-3	.125	3/32
14-946-4	.156	1/8

MATERIAL
Leaded
Commercial
Bronze

FINISH
Electro
Solder/Copper

12-932-X-03

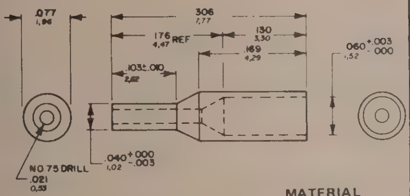

NO 58 DRILL
(042)
L
156
134
032
060 ± 002
031 MIN
125

NO.	L	T
12-932-1	.062	1/32
12-932-2	.094	1/16
12-932-3	.125	3/32
12-932-4	.156	1/8

MATERIAL
Brass

FINISH
Gold

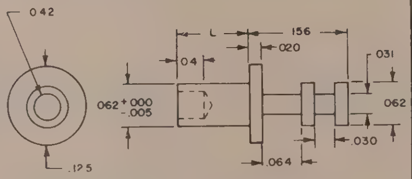
10-8012-1-01 WIRE ADAPTER


.077
1,96
306
7,77
176
4,47
REF
130
3,30
.169
4,29
.103±.010
2,62
060 +.003 -.000
1,52
.040 +.000 -.003
1,02
NO 75 DRILL
.021
0,53

MATERIAL
Brass

FINISH
Silver

12-931-X-03

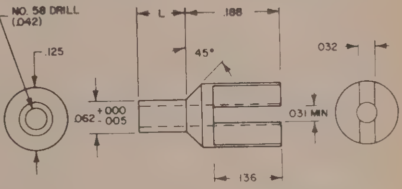

042
L
156
04
020
031
062 +.000 -.005
062
030
064
.125

NO	L	T
12-931-1	.062	1/32
12-931-2	.094	1/16
12-931-3	.125	3/32
12-931-4	.156	1/8

MATERIAL
Brass

FINISH
Gold

12-940-X-03

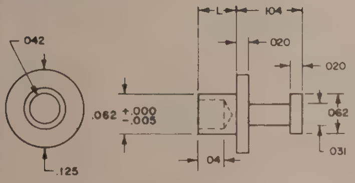

NO. 58 DRILL
(.042)
L
.188
.125
45°
032
.062 +.000 -.005
031 MIN
136

NO	L	T
12-940-1	.062	1/32
12-940-2	.094	1/16
12-940-3	125	3/32
12-940-4	156	1/8

MATERIAL
Brass

FINISH
Copper Strike/
Gold

12-930-X-03

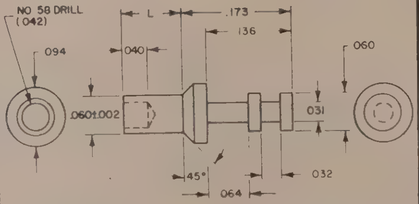

L
104
042
020
020
.062 +.000 -.005
062
04
031
.125

NO	L	T
12-930-1	.062	1/32
12-930-2	.094	1/16
12-930-3	.125	3/32
12-930-4	.156	1/8

MATERIAL
Brass

FINISH
Gold

14-947-X-05

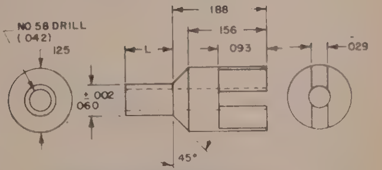

NO 58 DRILL
(042)
094
L
.173
040
136
060
.060±.002
031
45°
032
064

NO	L	T
14-947-1	.062	1/32
14-947-2	.094	1/16
14-947-3	.125	3/32
14-947-4	.156	1/8

MATERIAL
Leaded
Commercial
Bronze

FINISH
Electro
Solder/Copper

10-903-X-05


188
NO 58 DRILL
(042)
156
125
L
093
029
± 002
060
45°

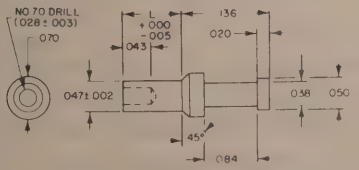
RECOMMENDED MOUNTING HOLE
.064 DIA (#52 DRILL)

NO	L	T
10-903-1	062	1/32
10-903-2	094	1/16
10-903-3	125	3/32
10-903-4	156	1/8

MATERIAL
Brass

FINISH
Electro
Solder Plate

10-939-X-05

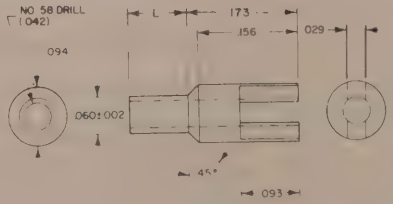

NO 70 DRILL
(028 ± 003)
070
L
+ 000
- 005
136
043
020
047± 002
038
050
45°
084

NO	L	T
10-939-1	052	1/32
10-939-2	085	1/16

MATERIAL
Brass

FINISH
Electro
Solder Plate

14-948-X-05

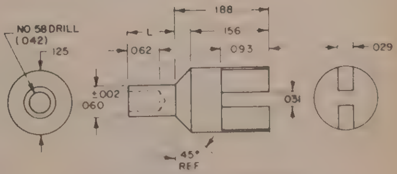

NO 58 DRILL
(042)
L
173
.156
029
094
060± 002
45°
093

NO.	L	T
14-948-1	062	1/32
14-948-2	094	1/16
14-948-3	.125	3/32
14-948-4	.156	1/8

MATERIAL
Leaded
Commercial
Bronze

FINISH
Electro
Solder/Copper

10-914-X-05


188
NO 58 DRILL
(042)
L
156
125
062
093
029
± 002
060
031
45°
REF

RECOMMENDED MOUNTING HOLE
.064 DIA (#52 DRILL)

NO	L	T
10-914-1	062	1/32
10-914-2	094	1/16
10-914-3	.125	3/32
10-914-4	.156	1/8

MATERIAL
Brass

FINISH
Electro Solder

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

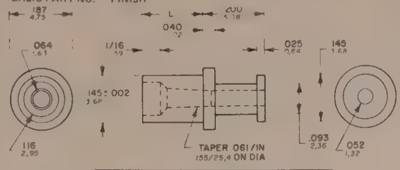
30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TAPERED SOCKETS/TERMINALS

13-815-X-01

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
1495 DIA (#25 DRILL)


187 4,75
L
200 5,08
040 1,02
064 1,63
1/16 1,59
025 0,64
145 3,68
145 ± 002 3,68
116 2,95
TAPER 061/IN 155/25,4 ON DIA
.093 2,36
052 1,32

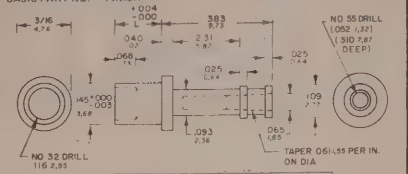
PART NO	L	BOARD THICKNESS
13 - 815 - 1	075 (1,90)	1/32 (0,79)
13 - 815 - 2	105 (2,67)	1/16 (1,59)
13 - 815 - 3	135 (3,43)	3/32 (2,38)
13 - 815 - 4	165 (4,18)	1/8 (3,18)
13 - 815 - 5	195 (4 95)	5/32 (3,97)
13 - 815 - 6	230 (5,84)	3/16 (4,76)

PART NO.	MATERIAL	STANDARD FINISH
13 815 X-01	BRASS	SILVER

11-840-X-01

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
1495 DIA (#25 DRILL)


3/16 4,76
+.004 -.000
L
383 9,73
040 1,02
2 31
068
025 0,64
025 0,64
NO 55 DRILL (.052 1,32) (.310 7,87 DEEP)
145 +.000 -.003 3,68
109 2,77
.093 2,36
065 1,65
TAPER 061/1,55 PER IN. ON DIA
NO 32 DRILL 116 2,95

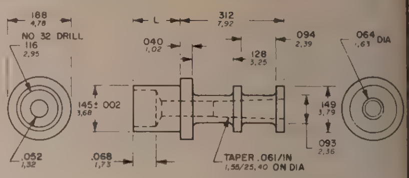
PART NO	L	BOARD THICKNESS
11 - 840 - 1	.075 (1,90)	1/32 (0,79)
11 - 840 - 2	105 (2,67)	1/16 (1,59)
11 - 840 - 3	135 (3,43)	3/32 (2,38)
11 - 840 - 4	.165 (4,19)	1/8 (3,18)
11 - 840 - 5	.195 (4,95)	5/32 (3,97)

PART NO.	MATERIAL	STANDARD FINISH
11-840-X-01	BRASS	SILVER

10-811-X-04

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.1495 DIA (#25 DRILL)


188 4,78
NO 32 DRILL
116 2,95
L
312 7,92
040 1,02
128 3,25
094 2,39
064 1,63 DIA
145 ± 002 3,68
149 3,79
.052 1,32
.068 1,73
TAPER .061/IN 1,55/25,40 ON DIA
093 2,36

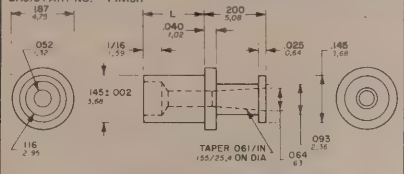
PART NO	MATERIAL	STANDARD FINISH
10-811-X-04	BRASS	ELECTRO-TIN/COPPER

PART NO	L	BOARD THICKNESS
10 - 811 - 1	.078 (1,98)	1/32 (0,79)
10 - 811 - 2	.109 (2,77)	1/16 (1,59)
10 - 811 - 3	141 (3,58)	3/32 (2,38)
10 - 811 - 4	172 (4,37)	1/8 (3,18)
10 - 811 - 6	234 (5,94)	3/16 (4,76)
10 - 811 - 8	.297 (7,54)	1/4 (6,35)

13-816-X-01

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.1495 DIA (#25 DRILL)


187 4,75
L
200 5,08
.040 1,02
052 1,32
1/16 1,59
.025 0,64
.145 3,68
145 ± 002 3,68
116 2 95
TAPER 061/IN 155/25,4 ON DIA
093 2,36
064 63

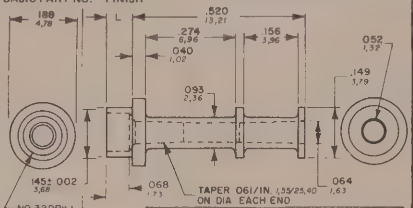
PART NO	L	BOARD THICKNESS
13 - 816 - 1	075 (1,90)	1/32 (0,79)
13 - 816 - 2	105 (2,67)	1/16 (1,59)
13 - 816 - 3	.135 (3,43)	3/32 (2,38)
13 - 816 - 4	.165 (4,18)	1/8 (3,18)
13 - 816 - 5	195 (4,95)	5/32 (3,97)
13 - 816 - 6	.230 (5,84)	3/16 (4,76)

PART NO.	MATERIAL	STANDARD FINISH
13-816-X-01	BRASS	SILVER

10-817-X-04

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.1495 DIA (#25 DRILL)


188 4,78
L
.520 13,21
.274 6,96
.156 3,96
040 1,02
052 1,32
.149 3,79
093 2,36
145 ± 002 3,68
068 1,73
TAPER 061/IN. 1,55/25,40 ON DIA EACH END
064 1,63
NO. 32 DRILL .116 2,95

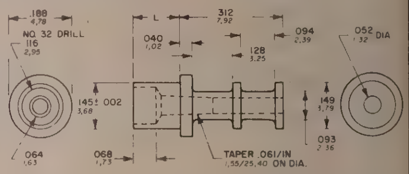
PART NO	MATERIAL	STANDARD FINISH
10-817-X-04	BRASS	ELECTRO-TIN/COPPER

PART NO.	L	BOARD THICKNESS
10 - 817 - 1	.078 (1,98)	1/32 (0,79)
10 - 817 - 2	.109 (2,77)	1/16 (1,59)
10 - 817 - 3	.141 (3,58)	3/32 (2,38)
10 - 817 - 4	172 (4,37)	1/8 (3,18)
10 - 817 - 6	.234 (5,94)	3/16 (4,76)
10 - 817 - 8	297 (7,54)	1/4 (6,35)

10-810-X-04

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
1495 DIA (=25 DRILL)

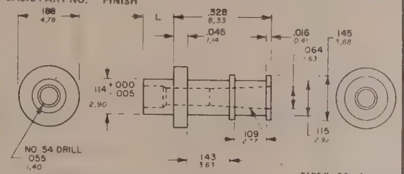

.188 4,78
NO. 32 DRILL
116 2,95
L
312 7,92
040 1,02
128 3,25
094 2,39
052 DIA 1,32
145 ± 002 3,68
149 3,79
093 2 36
064 1,63
068 1,73
TAPER .061/IN 1,55/25,40 ON DIA.

PART NO	MATERIAL	STANDARD FINISH
10-810-X-04	BRASS	ELECTRO-TIN/COPPER

PART NO	L	BOARD THICKNESS
10 - 810 - 1	.078 (1,98)	1/32 (0,79)
10 - 810 - 2	109 (2,77)	1/16 (1,59)
10 - 810 - 3	.141 (3,58)	3/32 (2,38)
10 - 810 - 4	.172 (4,37)	1/8 (3,18)
10 - 810 - 6	.234 (5,94)	3/16 (4,76)
10 - 810 - 8	.297 (7,54)	1/4 (6,35)

12-845-X-01

BASIC PART NO. FINISH


188 4,78
L
.328 8,33
.045 1,14
.016 0,41
145 3,68
064 1,63
114 +.000 -.005 2,90
115 2,92
109 2,77
NO 54 DRILL 055 1,40
143 3,63
TAPER 061/IN 1,55/25,40 ON DIA

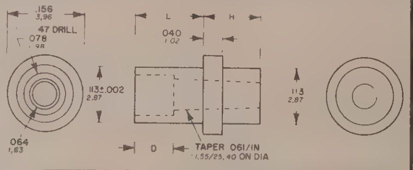
PART NO	L	BOARD THICKNESS
12 - 845 - 1	.075 (1,90)	1/32 (0,79)
12 - 845 - 2	.105 (2,67)	1/16 (1,59)
12 - 845 - 3	135 (3,43)	3/32 (2,38)
12 - 845 - 4	.165 (4,18)	1/8 (3,18)
12 - 845 - 5	195 (4,95)	5/32 (3,97)
12 - 845 - 6	230 (5,84)	3/16 (4,76)

PART NO	MATERIAL	STANDARD FINISH
2 845 X 01	BRASS	SILVER

10-809-X-04

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.116 ±.001 DIA (#32 DRILL)


.156 3,96
47 DRILL
078 1,98
L
H
040 1,02
113±.002 2,87
113 2,87
064 1,63
D
TAPER 061/IN 1,55/25,40 ON DIA

PART NO.	L	H	D	BOARD THICKNESS
10 - 809 - 1	078 (1,98)	180 (4,57)	082 (2,08)	1/32 (0,79)
10 - 809 - 2	109 (2,77)	149 (3,79)	082 (2,08)	1/16 (1,59)
10 - 809 - 3	141 (3,58)	117 (2,97)	.082 (2,08)	3/32 (2,38)
10 - 809 - 4	172 (4,37)	.086 (2,18)	.082 (2,08)	1/8 (3,18)
10 - 809 - 6	.234 (5,94)	086 (2,18)	144 (3,66)	3/16 (4,76)
10 - 809 - 8	297 (7,54)	.086 (2,18)	.207 (5,26)	1/4 (6,35)

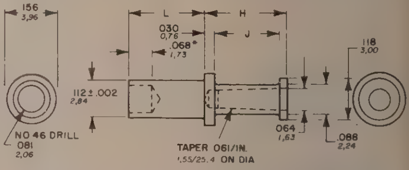
PART NO.	MATERIAL	STANDARD FINISH
10 809 - X-04	BRASS	ELECTRO-TIN/COPPER

10-814-X-04

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

*FOR -01 ONLY, THIS DIMENSION IS .042 (1,07)

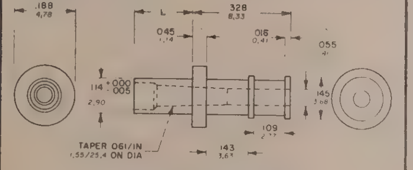

156 3,96
L
H
030 0,76
J
068* 1,73
118 3,00
112 ± .002 2,84
064 1,63
.088 2,24
NO 46 DRILL 081 2,06
TAPER 061/IN. 1,55/25.4 ON DIA

PART NO.	L	H	J	BOARD THICKNESS
10 - 814 - 1	.078 (1,98)	.281 (7,14)	.231 (5,87)	1/32 (0,79)
10 - 814 - 2	.109 (2,77)	281 (7,14)	231 (5,87)	1/16 (1,59)
10 - 814 - 3	.141 (3,58)	.250 (6,35)	.200 (5,08)	3/32 (2,38)
10 - 814 - 4	.172 (4,37)	.250 (6,35)	.200 (5,08)	1/8 (3,18)
10 - 814 - 6	.234 (5,94)	.250 (6,35)	.200 (5,08)	3/16 (4,76)
10 - 814 - 8	.297 (7,54)	.250 (6,35)	.200 (5,08)	1/4 (6,35)

PART NO.	MATERIAL	STANDARD FINISH
10 - 814 - X - 04	BRASS	ELECTRO-TIN /COPPER

12-846-X-01

BASIC PART NO. FINISH


.188 4,78
L
328 8,33
045 1,14
016 0,41
055
114 +.000 -.005 2,90
145 3,68
109 2,77
TAPER 061/IN 1,55/25,4 ON DIA
143 3,63

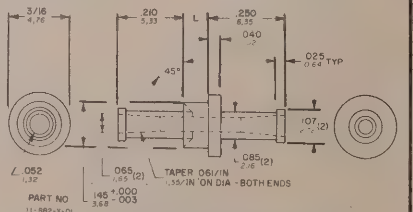
PART NO.	L	BOARD THICKNESS
12 - 846 - 1	075 (1,90)	1/32 (0,79)
12 - 846 - 2	.105 (2,67)	1/16 (1,59)
12 - 846 - 3	135 (3,43)	3/32 (2,38)
12 - 846 - 4	165 (4,18)	1/8 (3,18)
12 - 846 - 5	195 (4,95)	5/32 (3,97)
12 - 846 - 6	230 (5,84)	3/16 (4,76)

PART NO	MATERIAL	STANDARD FINISH
12-846-X-01	BRASS	SILVER

11-882-X-01

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
147 DIA (=26 DRILL)


3/16 4,76
.210 5,33
L
.250 6,35
040 1,02
025 0,64 TYP
45°
107 (2)
.052 1,32
065 1,65 (2)
TAPER 061/IN 1,55/IN ON DIA - BOTH ENDS
085 2,16 (2)
145 +.000 -.003 3,68

PART NO	MATERIAL	STANDARD FINISH
11-882-X-01	BRASS	SILVER

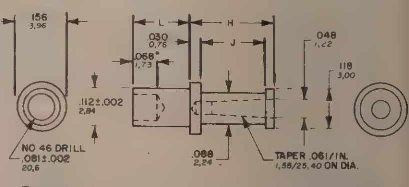
PART NO	L	BOARD THICKNESS
11 - 882 - 1	075 (1,90)	1/32 (0,79)
11 - 882 - 2	105 (2,67)	1/16 (1,59)
11 - 882 - 3	135 (3,43)	3/32 (2,38)
11 - 882 - 4	165 (4,18)	1/8 (3,18)
11 - 882 - 5	195 (4,95)	5/32 (3,97)

10-8011-X-04

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.116 DIA (#32 DRILL)

*FOR -01 ONLY, THIS DIMENSION IS 042 (1,07)

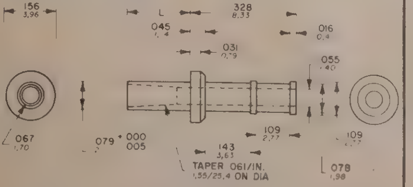

156 3,96
L
H
J
.030 0,76
068* 1,73
048 1,22
118 3,00
.112±.002 2,84
NO 46 DRILL .081±.002 20,6
.088 2,24
TAPER .061/IN. 1,55/25,40 ON DIA.

PART NO.	L	H	J	BOARD THICKNESS
10-8011 - 1	.078 (1,98)	.281 (7,14)	.231 (5,87)	1/32 (0,79)
10-8011 - 2	.109 (2,77)	.281 (7,14)	.231 (5,87)	1/16 (1,59)
10-8011 - 3	.141 (3,58)	.250 (6,35)	.200 (5,08)	3/32 (2,38)
10-8011 - 4	.172 (4,37)	.250 (6,35)	.200 (5,08)	1/8 (3,18)
10-8011 - 6	.234 (5,94)	250 (6,35)	200 (5,08)	3/16 (4,76)
10-8011 - 8	.297 (7,54)	.250 (6,35)	200 (5,08)	1/4 (6,35)

PART NO.	MATERIAL	STANDARD FINISH
10-8011-X-04	BRASS	ELECTRO-TIN/COPPER

12-826-X-01

BASIC PART NO. FINISH


156 3,96
L
328 8,33
045 1,14
016 0,4
031 0,79
055 1,40
067 1,70
079 +.000 -.005
109 2,77
109 2,77
143 3,63
TAPER 061/IN. 1,55/25,4 ON DIA
078 1,98

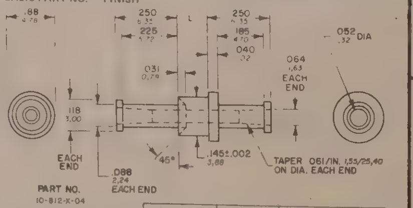
PART NO.	MATERIAL	STANDARD FINISH
12-826-X-01	BRASS	SILVER

PART NO	L	BOARD THICKNESS
12 - 826 - 1	075 (1,90)	1/32 (0,79)
12 - 826 - 2	105 (2,67)	1/16 (1,59)
12 - 826 - 3	135 (3,43)	3/32 (2,38)
12 - 826 - 4	165 (4,18)	1/8 (3,18)
12 - 826 - 5	195 (4,95)	5/32 (3,97)
12 - 826 - 6	230 (5,84)	3/16 (4,76)

10-812-X-04

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.147 DIA (#26 DRILL)


.188 4,78
250 6,35
225 5,72
L
250 6,35
185 4,70
040 1,02
052 DIA 1,32
031 0,79
064 1,63 EACH END
118 3,00
EACH END
45°
.145±.002 3,68
TAPER 061/IN. 1,55/25,40 ON DIA. EACH END
.088 2,24 EACH END

PART NO.	MATERIAL	STANDARD FINISH
10-812-X-04	BRASS	ELECTRO-TIN/COPPER

PART NO	L	BOARD THICKNESS
10 - 812 - 1	062 (1,57)	1/32 (0,79)
10 - 812 - 2	094 (2,39)	1/16 (1,59)
10 - 812 - 3	.125 (3,18)	3/32 (2,38)
10 - 812 - 4	156 (3,96)	1/8 (3,18)
10 - 812 - 6	219 (5,56)	3/16 (4,76)
10 - 812 - 8	281 (7,14)	1/4 (6,35)

MOST ITEMS ARE IN STOCK AND SHIPPED OUT THE SAME DAY

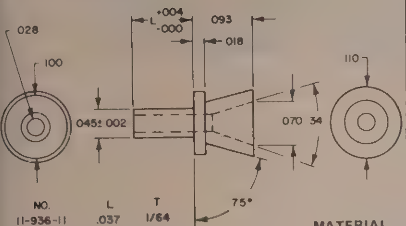
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TERMINALS AND SQUARE WRAP

11-936-X-01

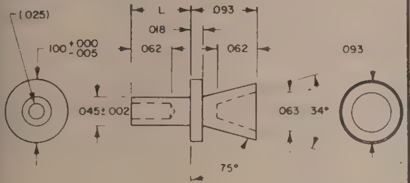

028
100
L +.004 -.000
093
018
110
045± 002
070 34
75°

NO.	L	T
11-936-11	.037	1/64
11-936-1	.053	1/32
11-936-2	.084	1/16
11-936-3	.115	3/32
11-936-4	.147	1/8

MATERIAL
Brass

FINISH
Silver

10-929-2-03

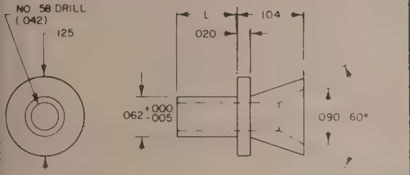

(025)
L
093
018
100 +.000 -.005
062
062
093
045± 002
063 34°
75°

NO	L	T
10-929-2	084 +.004 -.000	1/16

MATERIAL
Brass

FINISH
Gold

12-961-X-03

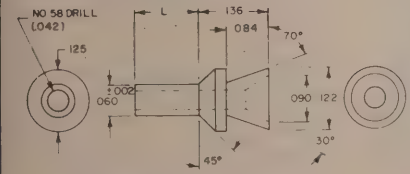

NO 58 DRILL (.042)
125
L
104
020
062 +.000 -.005
090 60°

NO	L	T
12-961-1	062	1/32
12-961-2	094	1/16
12-961-3	125	3/32
12 961 4	156	1/8

MATERIAL
Brass

FINISH
Gold

10-906-X-05


NO 58 DRILL (.042)
125
L
136
084
70°
+.002
060
090 122
30°
45°

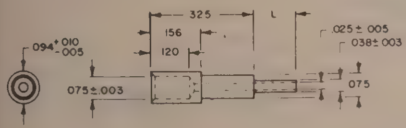
RECOMMENDED MOUNTING HOLE
.064 DIA (#52 DRILL)

NO.	L	T
10-906-1	.062	1/32
10-906-2	094	1/16
10-906-3	.125	3/32
10-906-4	.156	1/8

MATERIAL
Brass

FINISH
Electro
Solder Plate

12-938-X-03

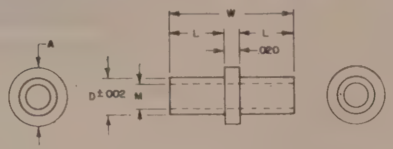

325
L
156
120
094 +.010 -.005
.025± 005
038± 003
075
075±.003

NO.	L	T
12-938-11	.045	1/64
12-938-1	.060	1/32
12-938-2	.092	1/16
12-938-3	.132	3/32

MATERIAL
Brass

FINISH
Gold/Copper

10-910-X-05 10-911-X-05
10-912-X-05 10-913-X-05


W
L
L
.020
A
D ± 002
M

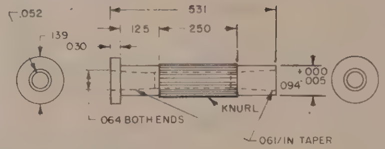
NO	L	W	M	D	A	T
10-910-2-XX	080	180	.022	039	062	1/16
10-911-2-XX	.090	.200	.028	046	078	1/16
10-912-2-XX	090	200	.033	050	078	1/16
10-913-2-XX	.090	.200	.040	059	094	1/16

MATERIAL
Brass

FINISH
Electro
Solder Plate

RECOMMENDED MOUNTING HOLE DIA .043 (#57 DRILL) .055 (#54 DRILL) .052 (#55 DRILL) .064 (#52 DRILL)

12-928-X-01

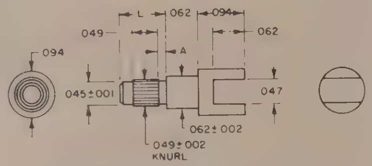

.052
139
030
531
125
250
+.000
094 -.005
KNURL
064 BOTH ENDS
061/IN TAPER

NO	L	T
12-928	.531	.500

MATERIAL
Brass

FINISH
Silver

10-907-1-05


L
062
094
049
062
094
A
045±001
047
062± 002
049± 002
KNURL

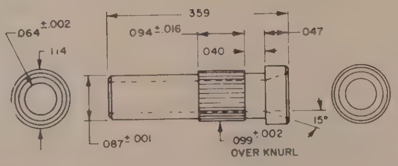
RECOMMENDED MOUNTING HOLE
.047 DIA (#56 DRILL)

NO	L	A
10-907-1	297	.031
10-907-2	100	.015

MATERIAL
Brass

FINISH
Electro
Solder Plate

10-909-1-05


359
064 ±.002
094 ±.016
047
114
040
15°
087± 001
099 +.002
OVER KNURL

RECOMMENDED MOUNTING HOLE
.089 DIA (#43 DRILL)

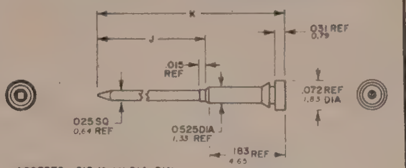
MATERIAL
Brass

FINISH
Electro
Solder Plate

MASTER CROSS REFERENCE OF OTHER MAJOR MANUFACTURERS AVAILABLE

09-6010-1-XX P.C. JACK FOR .018 PIN-SQUARE-WRAP®

BASIC PART NO. FINISH


K
J
.031 REF 0,79
.015 REF
.072 REF 1,83 DIA
025 SQ 0,64 REF
0525DIA 1,33 REF
183 REF 4 65

ACCEPTS 018 (0.46) DIA PIN

RECOMMENDED MOUNTING HOLE
.055 ±.001 DIA (#55 DRILL)

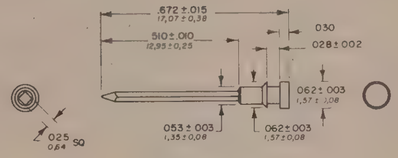
PART NO.	K	J	BOARD THICKNESS
09-6010-1	443 (11,25)	250 (6,35)	1/16 (1,59)
09-6010-2	563 (14,30)	370 (9,40)	1/16 (1,59)
09-6010-3	693 (17,60)	500 (12,7)	1/16 (1,59)

	COMPONENT FINISH	
PART NO	BODY (BRASS)	SPRING(BERYLLIUM COPPER)
09 6010 x 03	GOLD / COPPER	GOLD/COPPER
09-6010 x-06	ELECTRO-TIN/COPPER	GOLD/COPPER

09-6011-2-XX .025 SQUARE WRAP® TERMINAL

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
.057 ±.001 DIA


.672 ±.015 17,07 ± 0,38
510±.010 12,95 ± 0,25
030
028± 002
062± 003 1,57 ± 0,08
025 0,64 SQ
053 ± 003 1,35 ± 0,08
062± 003 1,57 ± 0,08

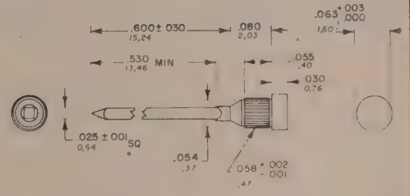
MATERIAL : BRASS

PART NO.	FINISH	BOARD THICKNESS	MOUNTING HOLE
09-6011-03	GOLD	062(1,59) MIN	.055(1,40)
04	TIN	062(1,59) MIN	055(1,40)

09-6016-1-XX .025 SQUARE-WRAP® TERMINAL

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
055 DIA (#54 DRILL)


.600± 030 15,24
.080 2,03
.063 +.003 -.000 1,60
.530 MIN 13,46
.055 .40
.030 0,76
.025 ± 001 SQ 0,64
.054 .37
058 +002 -001 .47

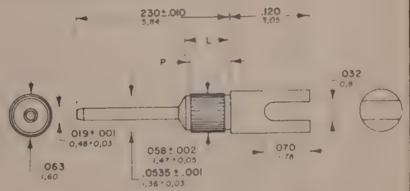
MATERIAL BRASS

PART NO	FINISH	BOARD THICKNESS	MOUNTING HOLE
09 6016-2-03	GOLD	062 (1,57)	055 (1,40)
04	ELECTRO-TIN	062 (1,57)	055 (1,40)

10-8014-2-XX PIN .019-PLUG SLOTTED-KNURL MOUNT

BASIC PART NO. FINISH

RECOMMENDED MOUNTING HOLE
055 ± 002 DIA (#54 DRILL)


230±.010 5,84
.120 3,05
L
P
032 0,8
019± 001 0,48±0,03
063 1,60
058± 002 1,47 ± 0,05
.0535 ±.001 1,36 ± 0,03
070 1,78

MATERIAL : BRASS

PART NUMBER	L	P	BOARD THICKNESS	STANDARD (XX) FINISH
0-8014-2-XX	068 (1,73)	.055 (1,40)	1/16 (1,59)	(03) GOLD OR (04) ELECTRO-TIN

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TEFLON SNAP ON STANDOFFS (SPACERS)

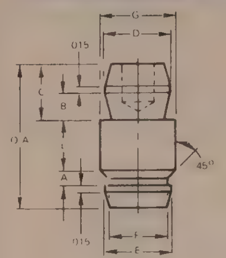

G
D
015
C
B
O A
A
45°
015
F
E

FIG. 985

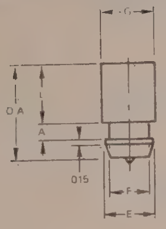

G
O A
L
A
015
F
E

FIG. 990

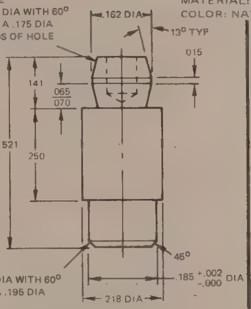
MATERIAL. TEFLON
COLOR NATURAL WHITE

FIG	PART NO.	O.A.	L	A	B	C	D	E	F	G	CHASSIS THICKNESS FOR A	CHASSIS THICKNESS FOR B	MOUNTING HOLE (± 002) FOR F	MOUNTING HOLE (± 002) FOR D
985	801-0562	.363	.125	.032	.065	.141	.162	165	.150	.187	.031 .040	062	.152	.152
	801-0565	.613	.375	.032	.065	.141	.162	165	.150	.187	.031 .040	.062	.152	.152
	801-0566	.863	.625	.032	.065	.141	.162	.165	.150	.187	.031 040	.062	.152	.152
	801-0561	.306	054	.055	070	146	162	165	150	.187	052	.065	.152	152
	801-0569	783	482	.095	.065	141	185	.185	.173	.281	093	062	.175	.175
	801-0563	.518	187	.125	.065	.141	162	.165	.150	.187	.125	.062	.152	.152
	801-0564	.518	.187	.125	.065	.141	154	.165	.150	.187	.125	.062	.152	.144
	801-0543	.756	425	.125	065	.141	.162	165	150	187	125	.062	.152	.152
990	801 0574	255	125	065				165	150	187	062		152	
	801-0575	318	188	065				.165	.150	.187	062		152	
	801-0576	380	250	065				165	.150	.187	062		.152	
	801-0577	.510	380	065				165	150	.187	062		.152	
	801-0578	603	500	.043				165	150	.187	035		.152	
	801-0579	.692	562	065				165	150	.187	062		152	
	801-0580	.760	625	.065				.165	150	.187	062		.152	

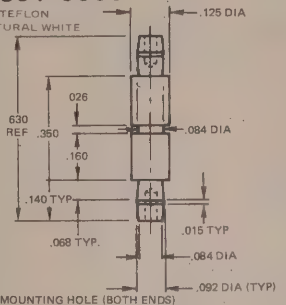
801-0597 | 801-0598

NOTE:
MTG. HOLE
152 ± .002 DIA WITH 60°
C'SINK TO A .175 DIA
BOTH ENDS OF HOLE

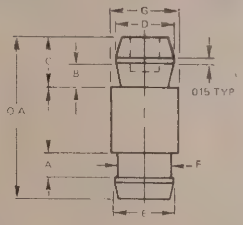
MATERIAL: TEFLON
COLOR: NATURAL WHITE


.162 DIA
13° TYP
015
141
065
070
521
250
46°
.185 +.002 -.000 DIA
218 DIA

NOTE:
MTG. HOLE
172 ± .002 DIA WITH 60°
C'SINK TO A .195 DIA


.125 DIA
630 REF
.350
026
.084 DIA
.160
.140 TYP
.068 TYP.
.015 TYP
.084 DIA
.092 DIA (TYP)

MOUNTING HOLE (BOTH ENDS)
.082 ± .002 DIA


G
D
C
B
015 TYP
O A
A
F
E

MATERIAL: TEFLON
COLOR: NATURAL WHITE

FIG 980

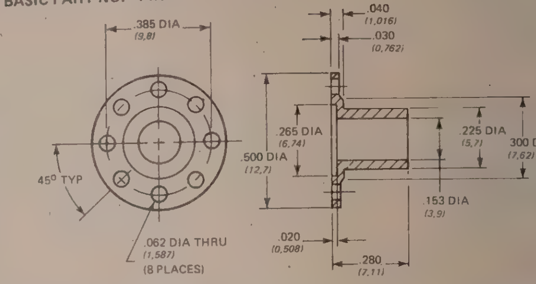
PART NO.	O.A.	L	A	B	C	D	E	F	G	CHASSIS THICKNESS FOR A	CHASSIS THICKNESS FOR B	MOUNTING HOLE (±.002) FOR F	MOUNTING HOLE (±.002) FOR D
801-0502	.392	.160	.028	.068	.140	.092	.092	.084	.125	.023	.063	.086	.082
801-0506	.490	.250	.030	.068	.140	.100	.098	.084	.125	.025	.063	.086	.090
801-0503	.400	.160	.036	.068	.140	.092	.092	.084	.125	.031	.063	.086	.082
801-0518	.657	.375	.045	.098	.175	.151	.151	.136	.187	.040	.093	.140	.141
801-0519	.782	.500	.045	.098	.175	.151	.151	.136	.187	.040	.093	.140	.141
801-0524	.384	.125	.053	.065	.141	.162	.165	.150	.187	.050	.062	.152	.152
801 0528	544	250	055	098	177	162	165	150	187	050	093	152	152
801-0510	.396	.125	.065	.065	.141	.135	.165	.150	.187	.062	.062	.152	.125
801-0515	.396	.125	.065	.065	.141	.151	.165	.150	.187	.062	.062	.152	.141
801-0521	.356	.085	.065	.065	.141	.162	.165	.150	.187	.062	.062	.152	.152
801-0526	.396	.125	.065	.065	.141	.162	.165	.150	.187	.062	.062	.152	.152
801-0527	.458	.187	.065	.065	.141	.162	.165	.150	.187	.062	.062	.152	.152
801-0530	.521	.250	.065	.065	.141	.162	.165	.150	.187	.062	.062	.152	.152
801-0531	.583	.312	.065	.065	.141	.162	.165	150	.187	.062	.062	.152	.152
801-0533	.646	.375	.065	.065	.141	.162	.165	.150	.187	.062	.062	.152	.152
801-0534	.708	.437	.065	.065	141	.162	.165	.150	.187	.062	.062	.152	.152
801-0536	.771	.500	.065	.065	.141	.162	.165	.150	.187	.062	.062	.152	.152
801-0537	.833	.562	.065	.065	.141	.162	.165	.150	.187	.062	.062	.152	.152
801-0538	.896	.625	.065	.065	.141	.162	.165	.150	.187	.062	.062	.152	.152
801-0539	.958	.687	.065	.065	.141	.162	.165	.150	.187	.062	.062	.152	.152
801-0540	1.021	.750	.065	.065	.141	.162	.165	.150	.187	.062	.062	.152	.152
801-0516	.708	.437	.065	.065	.141	.168	.171	.156	.187	.062	.062	.158	.158
801-0522	.365	.093	.065	.098	.142	.162	.165	.150	.187	.062	.093	.152	.152
801-0523	.400	.093	.065	.098	.177	.162	.165	.150	.187	.062	.093	.152	.152
801-0525	.414	.125	.083	.065	.141	.162	.165	.150	.187	.080	.062	.152	.152
801-0535	.771	.482	.083	.065	.141	.162	.165	.150	.187	.080	.062	.152	.152
801-0517	.424	.125	.093	.065	.141	.162	.129	.110	.187	.090	.062	.116	.152
801-0529	.549	.250	.093	.065	.141	.162	.165	.150	.187	.090	.062	.152	.152
801-0513	.674	.375	.093	.065	.141	.138	.165	.150	.187	.090	.062	.152	.128
801-0532	.674	.375	.093	.065	.141	.162	.165	.150	.187	.090	.062	.152	.152
801-0541	1.021	.720	.100	.065	.141	.162	.165	.150	.187	.095	.062	.152	.152
801-0542	.557	.280	.065	.098	.177	.162	.165	.150	.187	.062	.093	.152	.152

HARDWARE

CIRCULAR MULTIPLE GROUNDING TERMINALS

09-0016-1-05

BASIC PART NO. FINISH

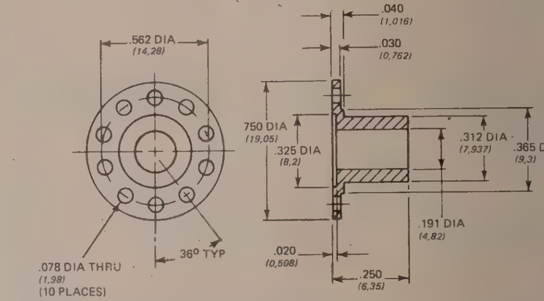

.385 DIA
(9,8)
.040
(1,016)
.030
(0,762)
45° TYP
.265 DIA
(6,74)
.500 DIA
(12,7)
.225 DIA
(5,7)
300 DIA
(7,62)
.153 DIA
(3,9)
.062 DIA THRU
(1,587)
(8 PLACES)
.020
(0,508)
.280
(7,11)

BASIC PART NO.	COMPONENT	MATERIAL	FINISH
09-0016-1	TERMINAL	BRASS	.0003 Electro-Solder over 0001 Copper

FINISH DASH NO.	
-05	Electro-Solder

09-0017-1-05

BASIC PART NO. FINISH

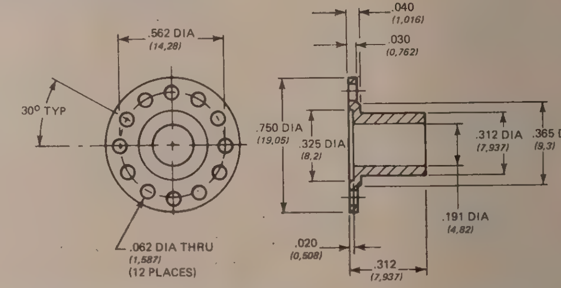

.562 DIA
(14,28)
.040
(1,016)
.030
(0,762)
750 DIA
(19,05)
.325 DIA
(8,2)
.312 DIA
(7,937)
.365 DIA
(9,3)
.191 DIA
(4,82)
36° TYP
.078 DIA THRU
(1,98)
(10 PLACES)
.020
(0,508)
.250
(6,35)

BASIC PART NO.	COMPONENT	MATERIAL	FINISH
09-0017-1	TERMINAL	BRASS	.0003 Electro-Solder over .0001 Copper

FINISH DASH NO.	
-05	Electro-Solder

09-0018-1-05

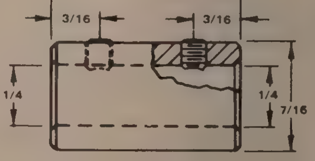
BASIC PART NO. FINISH


.562 DIA
(14,28)
.040
(1,016)
.030
(0,762)
30° TYP
.750 DIA
(19,05)
.325 DIA
(8,2)
.312 DIA
(7,937)
.365 DIA
(9,3)
.191 DIA
(4,82)
.062 DIA THRU
(1,587)
(12 PLACES)
.020
(0,508)
.312
(7,937)

BASIC PART NO.	COMPONENT	MATERIAL	FINISH
09-0018-1	TERMINAL	BRASS	.0003 Electro-Solder over .0001 Copper

FINISH DASH NO.	
-05	Electro-Solder

SHAFT COUPLERS
40-4305-1-02


3/4
3/16
3/16
1/4
1/4
7/16

Brass Nickel Plated shaft couplers. Supplied with two 6-32 x 1/8" slotted cup-point set screws.

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TEFLON BUSHINGS AND WASHERS

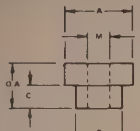


FIG. 1110

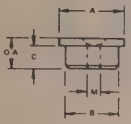


FIG. 1115

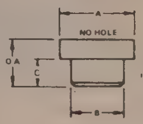
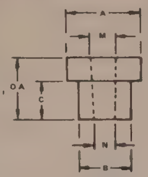


FIG. 1125



TAPERED HOLES
FIG. 1120

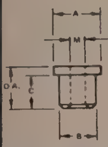
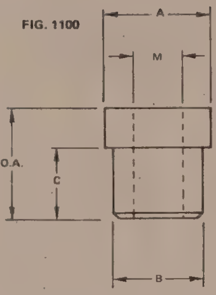


FIG. 1105

COLOR:
NATURAL WHITE

		A	B	O.A.	C	M	N
FIG. 1105	801-0022	.125	.093	.100	.080	.040	
FIG. 1110	801-0201	.180	.120	.120	.060	.060	
	801-0200	.180	.120	.118	.058	.050	
	801-0204	.281	.123	.124	.093	.086	
	801-0207	.240	.135	.112	.062	.115	
	801-0208	.240	.135	.143	.093	.115	
	801-0209	.240	.135	.175	.125	.115	
	801-0210	.240	.135	.227	.177	.115	
	801-0215	.250	.150	.091	.045	.118	
	801-0216	.250	.150	.155	.109	.118	
	801-0220	.194	.184	.045	.025	.150	
	801-0223	.320	.203	.062	.031	.144	
	801-0225	.405	.205	.120	.100	.173	
	801-0228	.375	.242	.093	.047	.157	
	801-0232	.375	.247	.090	.040	.145	
	801-0231	.500	.247	.178	.128	.140	
	801-0235	.312	.250	.125	.062	.130	
	801-0238	.375	.296	.500	.469	.120	
	801-0239	.375	.296	.500	.469	.210	
	801-0243	.375	.304	.045	.015	.204	
FIG. 1115	801-0250	.172	.148	.080	.060	.030	
	801-0253	.250	.183	.250	.204	.140	
	801-0260	.218	.185	.130	.090	.120	
	801-0259	.218	.185	.116	.094	.120	
	801-0257	.218	.185	.053	.031	.120	
	801-0258	.218	.185	.108	.083	.120	
	801-0261	.250	.185	.250	.204	.140	
	801-0262	.225	.198	.130	.080	.156	
	801-0265	.260	.232	.265	.140	.088	
	801-0266	.260	.232	.188	.093	.088	
	801-0267	.260	.232	.188	.093	.117	
	801-0268	.262	.232	.188	.120	.098	
	801-0271	.260	.234	.265	.125	.093	
FIG. 1120	801-0650	.203	.141	.167	.105	.078	.062
	801-0652	.203	.141	.200	.138	.078	.062
	801-0655	.203	.154	.175	.115	.084	.062
	801-0656	.200	.156	.153	.108	.102	.064
FIG. 1125	801-0675	.172	.148	.125	.075		
	801-0676	.172	.148	.193	.100		
	801-0677	.172	.148	.190	.150		
	801-0680	.187	.165	.275	.150		
	801-0683	.218	.185	.250	.204		
	801-0684	.218	.185	.330	.250		
	801-0685	.218	.185	.327	.140		
	801-0686	.218	.185	.672	.626		
	801-0689	.250	.200	.160	.100		
	801-0690	.250	.204	.317	.271		
	801-0691	.250	.218	.140	.075		
	801-0692	.250	.218	.240	.200		
	801-0695	.312	.264	.140	.100		
	801-0696	.323	.290	.155	.115		

FIG. 1100



COLOR: NATURAL WHITE

	PART NO.	A	B	O.A.	C	M
FIG. 1100	801-0013	.093	.067	.120	.080	.031
	801-0014	.093	.075	.140	.100	.042
	801-0017	.095	.075	.140	.100	.025
	801-0019	.161	.090	.076	.045	.063
	801-0028	.125	.093	.140	.100	.040
	801-0027	.125	.093	.140	.100	.035
	801-0026	.125	.093	.100	.060	.037
	801-0023	.125	.093	.100	.080	.038
	801-0024	.125	.093	.100	.080	.048
	801-0029	.125	.095	.060	.040	.038
	801-0030	.150	.099	.075	.027	.065
	801-0033	.172	.106	.140	.100	.040
	801-0035	.128	109	.085	.059	.032
	801-0038	.187	.115	.090	.060	.050
	801-0040	.130	.120	.103	.053	.040
	801-0043	.145	.125	.120	.095	.080
	801-0041	.150	.125	.060	.040	.030
	801-0044	.150	.125	.140	.100	.031
	801-0047	.169	.136	.140	.100	.060
	801-0050	.160	.140	.100	.080	.089
	801-0058	.172	.148	.140	.100	.060
	801-0054	.172	.148	.140	.100	.040
	801-0059	.172	.148	.160	.120	.073
	801-0062	.172	.148	.165	.125	.084
	801-0057	.172	.148	.140	.100	.073
	801-0060	.172	.148	.140	.100	.065
	801-0053	.172	.148	.140	.100	.030
	801-0067	.172	.148	.150	.125	.084
	801-0055	.172	.148	.140	.100	.052
	801-0073	.172	148	.220	.125	.052
	801-0034	.172	.148	.170	.100	.059
	801-0069	.172	.148	.113	.093	.045
	801-0056	.220	.148	.140	.100	.060
	801-0039	.220	.148	.140	.100	.090
	801-0076	.172	.157	.093	.078	.089
	801-0077	.172	.157	.074	.059	.089
	801-0081	.180	.165	.310	.190	.060
	801-0079	.186	.165	.140	.100	.060
	801-0085	.187	.171	.402	.215	.060
	801-0084	.218	.171	.160	.110	.063
	801-0088	.195	.172	.140	.100	.051
	801-0089	.200	.172	.200	.125	.089
	801-0090	.200	.172	.200	.125	.071
	801-0093	.210	.175	.312	.250	.093
	801-0095	.200	.179	.140	.100	.085
	801-0102	.215	.185	.303	.210	.046
	801-0103	.218	.185	.333	.287	.041
	801-0107	.218	.185	.380	.287	.050
	801-0101	.218	.185	.225	.185	.120
	801-0100	.218	.185	.130	.090	.120
	801-0104	.218	.185	.327	.140	.128
	801-0108	.218	.185	.450	.400	.150
	801-0106	.218	.185	.333	.287	.093
	801-0105	.218	.185	.330	.250	.074
	801-0113	.250	.187	.187	.125	.062
	801-0117	.218	.188	.130	.100	.080
	801-0116	.218	.188	.170	.130	.080
	801-0120	.250	.200	.195	.155	.125
	801-0122	.226	.203	.140	.100	.060
	801-0125	.250	.205	.120	.060	.090
	801-0128	.250	.214	.437	.375	.090
	801-0264	.250	.215	.115	.075	.050
	801-0130	.250	.218	.240	.200	.028
	801-0134	.281	.241	.150	.110	.213
	801-0133	.281	.241	.150	.110	.187
	801-0136	.308	.245	.250	.157	.156
	801-0140	.273	.250	.140	.100	.060
	801-0270	.283	.255	.255	.215	.156
	801-0146	.312	.265	.312	.250	.136
	801-0150	.310	.287	.140	.100	.060
	801-0154	.437	.395	.170	.130	.312

GROMMET TYPE
BUSHINGS

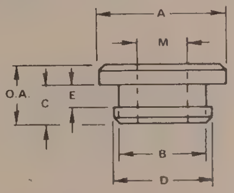
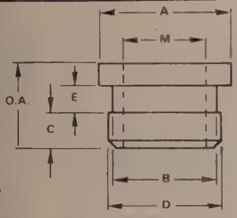


FIG. 1130

FIG. 1130

	A	B	D	O.A.	C	E	M
801-0300	.145	.103	.115	.080	.040	.017	.067
801-0304	.187	.123	.143	.070	.040	.020	.052
801-0310	.195	.154	.164	.085	.035	.015	.085
801-0313	.195	.154	.164	.094	.044	.025	.085
801-0322	.218	.154	.164	.104	.054	.025	.085
801-0328	.218	.154	.164	.104	.069	.040	.120
801-0314	.218	.154	.164	.094	.044	.015	.099
801-0316	.218	.154	.164	.104	.069	.040	.085
801-0311	.218	.154	.164	.094	.044	.015	.085
801-0312	.218	.154	.164	.094	.044	.015	.120
801-0317	.218	.154	.164	.104	.069	.040	.099
801-0327	.218	.154	.164	.134	.099	.070	.120
801-0318	.218	.154	.164	.104	.054	.025	.099
801 0323	.218	154	164	104	069	040	120
801-0320	.218	.154	.164	.104	.054	.025	.120
801-0324	.218	.154	.164	.125	.075	.060	.120
801-0315	.218	.154	.164	.104	.054	.035	.099
801-0326	.218	.154	.164	.140	.105	.075	.120
801-0325	.218	.154	.164	.135	.085	.060	.085
801-0321	.218	.154	.164	.104	.054	.035	.128
801-0335	.218	.168	.178	.156	.106	.076	.089
801-0338	.248	.184	.194	.104	.069	.040	.150
801-0341	.250	.190	.200	.104	.054	.035	.157
801-0342	.250	.190	.200	.104	.054	.035	.120
801-0347	.230	.199	.210	.190	.140	.120	.128
801-0346	.260	.199	.210	.104	.069	.040	.128
801-0350	.268	.204	.214	.104	.069	.040	.170
801-0351	.268	.204	.214	.104	.069	.040	.125
801-0352	.268	.204	.214	.124	.089	.060	.099
801-0353	.268	.204	.214	.124	.089	.060	.170



GROMMET TYPE
BUSHINGS

COLOR: NATURAL WHITE

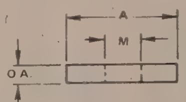


FIG. 1140

WASHERS
SPACERS
BUSHINGS

FIG. 1135	A	B	D	O.A.	C	E	M
801-0354	.250	.200	.210	.163	.070	.053	.166
801-0355	.312	.206	.208	.249	.142	.045	.089-.093
FIG. 1140							
801-0601	.093			.120			.025
801-0602	.125			.080			.062
801-0603	.125			.160			.062
801-0606	.132			.025-.031			.045
801-0608	.170			.125			.109
801-0611	.187			.031			.062
801-0615	.250			.161			.152
801-0617	.280			.045			.195
801-0618	.280			.090			.195
801-0619	.280			.125			.195
801-0622	.281			.062			.187
801-0627	.312			.046			.250
801-0634	.400			.090			.325
801-0636	.437			.062			.250

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COLOR CODE FOR ORDERING

BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TEFLON INSULATED TERMINALS

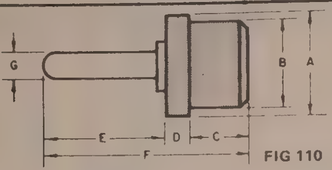

FIG 110

PART NO.	A	B +.002 -.000	C	D	E	F	G
1100-56-0519	.093	.075	.060	.030	.210	.300	.030
1100-01-0519	.125	.093	.060	.032	.093	.185	.032
1100-02-0519	.125	.093	.089	.031	.093	.213	.040
1100-03-0519	.125	.093	.084	.031	.130	.245	.040
1100-04-0519	.125	.093	.089	.031	.130	.250	.040
1100-05-0519	.125	.093	.075	.040	.147	.262	.040
1100-06-0519	.125	.093	.085	.040	.174	.299	.040
1100-07-0519	.125	.093	.100	.040	.210	.350	.040
1100-61-0519	.125	.093	.100	.040	.885	1.025	.040
1100-08-0519	.125	.104	.089	.031	.130	250	.040
1100-09-0519	.172	.112	.120	.020	.210	.350	.040
1100-57-0519	.150	.125	.075	.050	.210	.335	.040
1100-11-0519	.172	.148	.100	.040	.110	.250	.040
1100-13-0519	.172	.148	.100	.040	.125	.265	.040
1100-14-0519	.172	.148	.115	.040	.125	.280	.040
1100-15-0519	.172	.148	.075	.040	.145	.260	.040
1100-16-0519	.172	.148	.100	.040	.145	.285	.040
1100-17-0519	.172	.148	.110	.050	.145	.305	.040
1100-18-0519	.172	.148	.050	.050	.147	.247	.040
1100-19-0319	.172	.148	.070	.030	.150	.250	.040*
1100-20-0519	.172	.148	.132	.040	.193	.365	.040
1100-22-0519	.172	.148	.050	.050	.210	.310	.040
1100-24-0519	.172	.148	.075	.050	.210	.335	.040
1100-25-0519	.172	.148	.075	.060	.210	.345	.040
1100-28-0519	.172	.148	.100	.040	.210	.350	.040
1100-29-0519	.172	.148	.062	.078	.210	.350	.040
1100-31-0519	.172	.148	.120	.040	.210	.370	.040
1100-32-0519	.172	.148	.110	.050	.210	.370	.040
1100-34-0519	.172	.148	.160	.040	.210	.410	.040
1100-35-0519	.172	.148	.250	.040	.210	.500	.040
1100-37-0519	.172	.148	.100	.040	.320	.460	.040
1100-40-0519	.172	.148	.100	.040	.450	.590	.040
1100-42-0519	.172	.148	.100	.040	.610	.750	.040
1100-59-0519	.172	.148	.100	.040	.545	.685	.040
1100-21-0519	.172	.148	.110	.046	.204	.360	.046
1100-43-0519	.187	165	.150	.125	.210	.485	.040
1100-44-0519	.187	.165	.150	.187	.210	.547	040
1100-45-0519	.187	.165	.218	.187	.312	.718	040
1100-73-0119	.187	.171	.100	.040	.440	.580	.063
1100-46-0519	.195	.172	.100	.040	.210	.350	.040
1100-47-0519	.200	.179	.100	.040	.210	.350	.040
1100-48-0519	.200	.180	.175	.125	.300	.600	.062
1100-49-0519	.250	.218	.100	.040	.210	.350	.040

*±.001

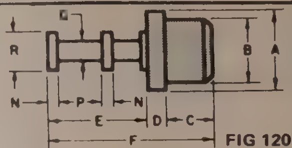

FIG 120

PART NO	A	B +.002 -.000	C	D	E	F	G	N	P	R
1102-01-0519	125	.093	.100	.040	.170	.310	.030	.020	.060	.060
1102-02-0519	125	.093	080	.040	.210	.330	.040	.020	.100	.080
1102-03-0519	.125	.093	100	.040	.210	.350	.040	.020	.100	.080
1102-04-0119	.125	.104	.087	.103	.156	.346	.046	.020	.046	.093
1102-05-0119	.125	.104	.100	.103	.156	.359	.046	.020	.046	.093
1102-06-0119	.156	127	.156	.219	.156	.531	.046	.020	.046	.093
1102-07-0519	.172	130	190	.040	.250	.480	.040	.020	093	.093
1102-08-0119	187	135	150	.250	.250	.647	.040	.020	.093	.093
1102-10-0519	172	148	060	.040	.154	.254	.046	020	.047	.093
1102-12-0519	172	.148	140	.040	154	.334	.046	.020	.047	093
1102-13-0519	.172	.148	100	.040	.210	350	.040	.020	.100	.080
1102-14-0519	172	.148	.110	.040	.210	.360	.040	020	.100	.080
1102-15-0519	.172	.148	.125	.040	.210	.375	.040	.020	100	.080
1102-16-0519	172	.148	.125	.093	.210	428	.040	.020	.100	.080
1102-17-0519	172	.148	.158	.093	.210	.461	.040	020	.100	080
1102-18-0519	172	.148	.250	.040	.210	.500	.040	.020	100	.080
1102-21-0519	172	.148	.165	.040	.250	.455	.040	.020	.093	.093
1102-22-0519	172	148	180	.040	.250	470	.040	.020	093	.093
1102-23-0119	.172	.148	110	125	.250	.482	.040	.020	.093	.093
1102-24-0519	172	148	250	.040	.250	.540	.040	.020	.093	.093
1102-25-0119	.172	148	.165	.187	.250	.598	.040	020	.093	.093
1102-26-0519	172	152	.100	.040	.156	.296	.047	020	047	093
1102-27-0519	.172	.152	.150	.040	.156	346	.047	020	047	093
1102-28-0519	.172	.152	.165	.040	.156	.361	.047	.020	.047	.093
1102-29-0519	.172	.152	.088	.040	.207	.335	.047	.020	.100	.093
1102-30-0519	.172	152	100	040	.207	347	.047	.020	.100	.093
1102-31-0119	187	165	150	.125	.156	.431	.046	.020	.046	093
1102-32-0119	.187	.165	125	.187	.156	468	.046	.020	.046	.093
1102-33-0119	.187	.165	150	.187	.156	.493	.046	.020	.046	.093
1102-34-0119	.187	.165	150	250	.156	556	.046	.020	046	.093
1102-35-0119	.187	165	.100	.400	.156	656	.046	.020	.046	.093
1102-36-0119	187	.165	.300	250	156	.706	.046	.020	.046	.093
1102-37-0119	.187	165	150	.400	.156	.706	.046	.020	.046	.093
1102-38-0119	.187	.165	.150	.125	.210	.485	.040	.020	100	.093
1102-40-0119	187	.165	150	.125	246	.522	.040	.020	.093	.093
1102-41-0119	187	.165	150	.187	.246	.583	.040	.020	.093	.093
1102-42-0119	.187	.165	.150	.250	.246	.646	040	020	.093	.093
1102-43-0119	.187	.165	.150	400	.246	796	.040	020	093	.093
1102-44-0119	187	165	100	.400	.250	.750	.040	020	.093	.093
1102-45-0119	187	165	150	.125	.281	556	.046	.031	.093	125
1102-46-0119	187	165	100	175	281	.556	046	.031	.093	125
1102-47-0119	.187	.165	150	.187	.281	.618	.046	.031	.093	.125
1102-48-0119	187	165	200	.200	.281	.681	.046	.031	.093	.125
1102-49-0119	.187	165	.150	.250	281	.681	.046	.031	.093	125
1102-50-0119	187	.165	.200	.350	.281	.831	.046	.031	.093	.125
1102-51-0119	187	165	150	400	.281	831	.046	031	.093	.125
1102-52-0119	.187	165	.200	.350	343	893	.047	.031	.125	.125
1102-53-0119	187	.171	.150	.125	156	431	.046	.020	.046	.093
1102-54-0119	.187	.171	.150	.187	.156	.493	.046	.020	.046	.093
1102-55-0119	187	.171	150	250	156	.556	046	.020	.046	.093

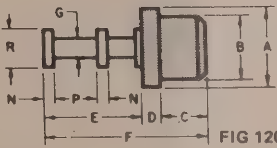

FIG 120

PART NO.	A	B +.002 -.000	C	D	E	F	G	N	P	R
1102-56-0119	.187	171	.187	.250	.156	593	.046	020	.046	.093
1102-57-0119	.187	.171	.300	.250	.156	706	.046	.020	.046	.093
1102-60-0119	187	.171	.150	125	.210	.485	.040	.020	.100	.080
1102-61-0119	.187	.171	.150	250	.210	.610	.040	.020	100	.080
1102-63-0119	.187	.171	.147	187	.250	.584	.040	.020	.093	.093
1102-64-0119	.187	.171	.150	.125	.281	.556	.046	.031	.093	.125
1102-65-0119	187	.171	.150	.125	.281	.556	.062	.031	.093	.125
1102-66-0119	187	.171	.215	.125	.281	.621	.062	.031	.093	.125
1102-67-0119	187	.171	.150	.250	.281	.681	.046	.031	.093	.125
1102 68-0119	187	.171	.300	250	281	831	046	031	093	.125
1102-69-0119	.187	.171	150	400	281	831	046	031	093	125
1102 59 0119	218	.171	150	125	210	485	040	020	100	080
1102-70-0119	250	171	.187	500	.281	.968	.046	.031	.093	.125
1102-71-0119	250	171	.187	.800	.281	1.268	.046	.031	.093	.125
1102-72-0519	200	179	100	040	210	350	040	020	100	080
1102 75-0519	.218	185	.100	.040	.210	.350	.040	.020	.100	.080
1102-74-0519	218	.185	.125	.040	.210	.375	.040	.020	.100	.080
1102-78-0119	.218	.185	.140	.125	.281	.546	.046	.031	.093	.125
1102-79-0519	.250	.204	.100	.040	.210	.350	.040	.020	.100	.080
1102-80-0119	250	.215	187	500	156	843	047	020	046	093
1102-81-0119	.250	.215	.187	.800	.156	1.143	.046	.020	.046	.093
1102-82-0119	.250	.215	187	500	250	934	040	020	.093	.093
1102-83-0119	.250	.215	.187	.800	.250	1.234	.040	.020	.093	093
1102-84-0119	.250	.215	.187	.250	.281	.718	.046	.031	.093	.126
1102-85-0119	.250	.215	.317	.370	.281	968	046	031	093	125
1102-86-0119	250	.215	.187	.500	281	968	046	031	093	125
1102-87 0119	.250	.215	.187	800	281	1 268	046	031	093	125

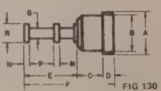

FIG 130

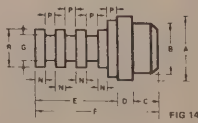

FIG 140

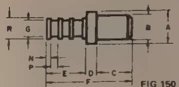

FIG 150

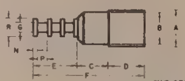

FIG 160

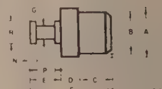

FIG 170

FIG 130

PART NO	A	B +.002 -.000	C	D	E	F	G	N	P	R
1102R-01 0519	125	093	100	040	170	310	030	020	060	060
1102R-11-0519	172	148	100	040	156	296	046	020	046	093
1102R-13-0519	172	148	100	040	210	350	040	020	100	080
1102R-15-0519	172	148	125	040	210	375	040	.020	100	080
1102R-93-0519	172	148	165	040	210	415	040	020	100	080
1102R-18-0519	172	148	250	040	210	500	040	020	100	080
1102R-24-0519	172	148	250	.040	.250	540	.040	020	.093	080
1102R-58-0519	.188	.171	.155	.040	.210	405	040	020	100	080
1102R-72-0519	.200	.179	.100	.040	.210	350	040	020	100	080
1102R-73-0119	.218	.185**	.287	.046	.154	487	047	020	047	094
1102R-74-0519	.218	.185	.125	.040	.210	375	.040	020	100	080
1102R-75-0519	.218	.185	.100	.040	.210	350	040	020	100	080
1102R-77-0119	.218	.185**	.287	.046	.250	583	047	020	094	094
1102R-79-0519	.250	.204	.100	.040	.210	350	040	020	100	080
1102R-95-0119	.375	.312	.250	.062	.500	812	125	032	200	187
FIG 140										
1104-03-0519	.172	.148	.080	.050	.232	.362	.070	029	031	109
1104-04-0519	.172	.148	.110	.050	.232	.392	.070	029	031	.109
FIG 150										
1104-51-0519	.125	.093	.075	.030	.150	.255	.068	.015	.031	078
1104-52-0519	.125	.093	.140	.041	.153	.334	.068	.015	.031	078
1104-53-0119	.187	.171	.150	.187	.218	.555	.046	.020	.046	093
FIG 160										
1104R-53-0119	187	171	150	187	218	555	046	020	046	093
FIG 170										
1103-01-0519	172	148	100	040	110	250	040	020	.080	080
1103-02-0519	172	148	087	050	125	262	040	020	085	080
1103-05-0519	172	148	187	040	227	455	040	020	187	080
1103-06-0119	187	165	150	250	120	520	048	020	080	090
1103-07-0119	187	171	212	187	120	519	048	020	080	090
1103-08 0519	200	172	125	075	120	320	048	020	080	090

**+ 001

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

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NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TEFLON INSULATED TERMINALS

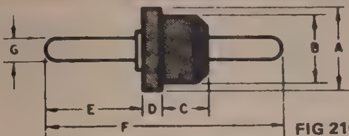

FIG 210

PART NO.	A	B +.002 -.000	C	D	E	F	G
1110-72-0519	.093	.075	.100	.040	.275	.550	.030
1110-85-0519	.120	.080	.330	.120	.255	.975	.035
1110-62-0519	.125	.093	.100	.040	.090	.320	.040
1110-59-0519	.125	.093	.100	.040	.093	.398	.040
1110-75-0519	.125	.093	.100	.040	.125	.343	.040
1110-02-0319	.125	.093	.100	.040	.125	.438	.040*
1110-03-0519	.125	.093	.075	.040	.147	.375	.040
1110-04-0519	.125	.093	.100	.040	.156	.453	.040
1110-60-0519	.125	.093	.100	.040	.210	.443	.040
1110-05-0519	.125	.093	.100	.040	.210	.515	.040
1110-06-0319	.125	.093	.100	.040	.687	.987	.040*
1110-07-0519	.150	.125	.060	.025	.125	.335	.040
1110-08-0519	.150	.125	.060	.040	.125	.335	.040
1110-09-0519	.150	.125	.100	.040	.125	.375	.040
1110-64-0519	.150	.125	.100	.040	.210	.443	.040
1110-11-0519	.150	.125	.060	.040	.210	.515	.040
1110-63-0519	.150	.125	.110	.050	.210	.534	.040
1110-13-0519	.172	.148	.100	.040	.075	.325	.040*
1110-14-0519	.172	.148	.100	.040	.093	.443	.040
1110-15-0519	.172	.148	.110	.050	.106	.431	.040
1110-16-0519	.172	.148	.100	.040	.125	.375	.040*
1110-17-0519	.172	.148	.132	.040	.125	.407	.040
1110-18-0519	.172	.148	.110	.050	.147	.410	.040
1110-19-0119	.172	.148	.105	.140	.187	.619	.040
1110-20-0519	.172	.148	.100	.040	.210	.443	.040
1110-21-0519	.172	.148	.100	.040	.210	.515	.040
1110-22-0519	.172	.148	.132	.040	.210	.515	.040
1110-23-0519	.172	.148	.050	.050	.210	.515	.040
1110-24-0519	.172	.148	.120	.040	.210	.535	.040
1110-25-0519	.172	.148	.132	.040	.210	.535	.040
1110-26-0519	.172	.148	.160	.040	.210	.535	.040
1110-27-0519	.172	.148	.110	.050	.210	.535	.040
1110-28-0519	.172	.148	.100	.040	.210	.562	.040
1110-29-0519	.172	.148	.160	.040	.210	.571	.040
1110-67-0519	.172	.148	.165	.040	.210	.580	.040
1110-30-0519	.172	.148	.170	.040	.210	.630	.040
1110-31-0519	.172	.148	.217	.040	.210	.630	.040
1110-32-0519	.172	.148	.250	.040	.210	.710	.040
1110-68-0519	.172	.148	.250	.093	.210	.719	.040
1110-33-0519	.172	.148	.100	.040	.210	.725	.040**
1110-69-0519	.172	.148	.160	.040	.210	.725	.040
1110-66-0519	.172	.148	.100	.040	.210	.890	.040
1110-34-0519	.172	.148	.100	.040	.210	1.000	.040
1110-36-0519	.172	.148	.100	.040	.320	.585	.045
1110-37-0519	.172	.148	.100	.040	.625	.890	.045
1110-39-0519	.172	.157	.100	.040	.210	.515	.040
1110-40-0519	.187	.165	.150	.125	.200	.675	.040
1110-45-0519	.219	.169	.100	.040	.460	2.500	.040
1110-41-0519	.219	.169	.100	.040	.125	.937	.049
1110-42-0519	.218	.169	.100	.040	.125	1.250	.049
1110-43-0519	.218	.169	.100	.040	.125	1.875	.049
1110-70-0519	.219	.169	.100	.040	.200	1.950	.049
1110-44-0519	.219	.169	.100	.040	.460	2.500	.049
1110-46-0119	.187	.171	.212	.187	.125	.740	.063
1110-47-0119	.187	.171	.275	.250	.125	.865	.050
1110-48-0519	.187	.171	.171	.063	.133	.540	.046
1110-49-0519	.218	.171	.110	.050	.680	1.090	.040
1110-71-0519	.218	.171	.110	.050	.680	2.000	.040
1110-51-0519	.195	.172	.100	.040	.210	.515	.040
1110-52-0519	.195	.172	.100	.040	.210	.560	.040
1110-55-0519	.200	.179	.100	.040	.210	.515	.040
1110-56-0519	.250	.218	.100	.040	.210	.515	.040

*±.001
**±.002

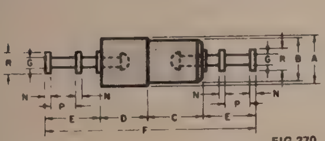

FIG 270

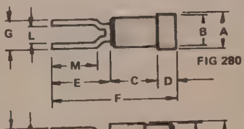

FIG 280

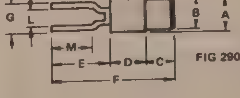

FIG 290

FIG 270

PART NO.	A	B +.002 -.000	C	D	E	F	G	H	L	M	N	P	R
1108-05-0119	.187	.148	.212	.187	.210	.819	.040				.020	.100	.080
1108-03-0519	.205	.169	.170	.050	.210	.640	.040				.020	.100	.080
1108-04-0119	.187	.171	.212	.187	.210	.819	.040				.020	.100	.080
1108-06-0119	.218	.187	.212	.187	.210	.819	.040				.020	.100	.080
1108-07-0119	.250	.218	.375	.250	.281	1.187	.046				.031	.093	.125
1108-01-0119	.250	.218	.625	.500	.281	1.687	.046				.031	.093	.125
1108-02-0119	.250	.218	.925	.800	.281	2.287	046				.031	.093	.125
FIG 280													
1106R-41-0119	.187	.171	.240	.093	.296	.629	.150		.090	.234			
FIG 290													
1106-40-0119	.187	.171	.150	.187	.296	.633	.150		.090	.234			

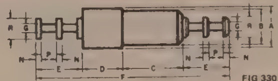

FIG 330

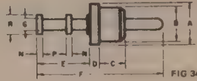

FIG 340

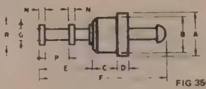

FIG 350

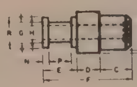

FIG 360

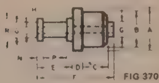

FIG 370

FIG 330

PART NO.	A	B +.002 -.000	C	D	E	F	G	H	N	P	R
1105-01-0119	.250	.218	.375	.250	.281	1.187	.062	–	.031	.093	.125
1105-02-0119	.250	.218	.625	.500	.281	1.687	.062	–	.031	.093	.125
FIG 340											
1133-03-0519	.125	.093	.100	.040	.210	.500	.040	–	.020	.100	.080
1133-01-0519	.172	.148	.100	.040	.210	.500	.040	–	.020	.100	.080
1133-02-0519	.172	.148	.230	.125	.250	.836	.040	–	.020	.093	.093
1133-11-0319	.218	.185*	.287	.046	.281	1.052	.060	–	.031	.093	.125
FIG 350											
1111R-01-0519	.125	.093	.100	.040	.210	.500	.040	–	.020	.100	.080
1111R-15-0519	.172	.148	.125	.093	.210	.609	.040	–	.020	.100	.080
1111R-36-0519	.218	.185	.125	.040	.210	.531	.040	–	.020	.100	.080
1111R-11-0519	.172	.148	.100	.040	.210	.531	.040	–	.020	.100	.080
1111R-04-0519	.150	.125	.060	.040	.210	.500	.040	–	.020	.100	.080
1111R-13-0519	.172	.148	.165	.040	.210	.531	.040	–	.020	.100	.080
1111R-12-0519	.172	.148	.125	.040	.210	.531	.040	–	.020	.100	.080
1111R-09-0519	.172	.148	.100	.040	.210	.500	.040	–	.020	.100	.080
1111R-14-0519	.172	.148	.165	.040	.210	.609	.040	–	.020	.100	.080
FIG 360											
1112-15-0519	.172	.148	.125	.093	.133	.351	.082	.062	.020	.093	.125
1112-17-0519	.188	.171	.155	.093	.133	.381	.082	.062	.020	.093	.125
1112-32-0519	.172	.148	.126	.093	.133	.351	.100	.062	.020	.093	.125
FIG 370											
1113-02-0519	.150	.125	.080	.060	.133	.303	.060	.030	.020	.093	.090
1113-01-0519	.172	.148	.100	.040	.133	.303	.060	.030	.020	.093	.090
1113-03-0519	.172	.148	.110	.050	.133	.333	.060	.030	.020	.093	.090
1113-04-0519	.172	.148	.125	.093	.133	.411	.082	.062	.020	.093	.125
1113-05-0519	.172	.148	.100	.040	.133	.460	.060	.040	.020	.093	.090

*±.001 ■ CHAMFER WHERE FIGURE SHOWS RADIUS

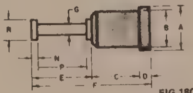

FIG 180

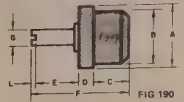

FIG 190

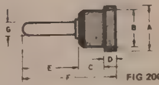

FIG 200

FIG 180

PART NO	A	B +.002 -.000	C	D	E	F	G	L	M	N	P	R
1103R-01-0519	.172	.148	.100	.040	.110	.250	.040			.020	.080	.080
1103R-03-0519	.172	.148	.100	.040	.156	.296	.046			.020	.116	.093
1103R-04-0519	.172	.148	.130	.025	.227	.382	.040			.020	.187	080
1103R-05-0519	.172	.148	.187	.040	.227	.455	.040			.020	.187	.080
1103R-09-0519	.188	.171	.155	.040	.125	.320	.040			.020	.080	.080
1103R-08-0519	.200	172	125	075	120	320	048			.020	.080	.090
FIG 190												
1136-30-0519	172	148	100	040	125	.265	040	010	010			
FIG 200												
1100R-04-0519	.125	.093	.089	.031	130	250	.040					
1100R-07-0519	.125	.093	.100	.040	.210	.350	.040					
1100R-63-0519	.125	.093	.100	.040	.532	.672	.040▲					
1100R-61-0319	.125	.093	.100	.040	.885	1.025	.040*					
1100R-08-0519	.125	.104	.089	.031	.130	.250	.040					
1100R-08A-0519	.125	.106	.089	.031	130	250	040					
1100R-09-0519	.172	.112	.120	.020	.210	.350	.040					
1100R-09A-0519	.172	.112	.126	.015	.210	.350	.040					
1100R-51-0519	.150	.125	.060	.040	.210	.310	.040					
1100R-66-0519	.150	.125	.100	.040	.210	.350	.040					
1100R-69-0519	.172	.148	.090	.020	.110	.220	.040					
1100R-13-0519	.172	.148	100	.040	.125	.265	.040					
1100R-22-0519	.172	.148	.050	.050	.210	.310	.040					
1100R-23-0519	.172	.148	.100	.020	.210	.330	.040					
1100R-23A-0519	.170	.148	.074	.046	.210	.330	.040					
1100R-25-0519	.172	.148	.075	.060	.210	.345	.040					
1100R-26-0519	.172	.148	.125	.015	.210	.350	.040*					
1100R-27-0519	.172	.148	.120	.020	.210	.350	.040					
1100R-28-0519	.172	.148	.100	.040	.210	.350	.040					
1100R-35-0519	.172	.148	.250	.040	.210	.500	.040					
1100R-36-0519	.172	.148	.132	.040	218	390	040					
1100R-68-0519	.172	.148	.100	.040	.280	.420	.040					
1100R-70-0519	.172	.148	.132	.040	.578	.750	.040					
1100R-42-0519	.172	.148	.100	.040	.610	.750	.040					
1100R-33-0519	.172	.148	.132	.040	.210	.382	.046					
1100R-50-0519	.196	.172	.100	.040	.360	.500	.040					
1100R-52-0119	.218	.185	.287	.046	.210	.543	.040					
1100R-53-0119	.218	.185	.500	.046	.210	.756	.040					
1100R-54-0119	.218	.185*	.287	.046	.800	1.133	.040					

▲ +.002 -.000

*±.001

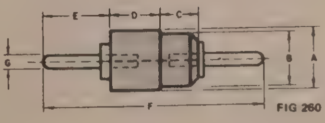

FIG 260

FIG 260

PART NO.	A	B +.002 -.000	C	D	E	F	G	H	L	M	N	P	R
1107-10-0519	.172	.148	.160	.040	.155	.515	.040						
1107-01-0519	.172	.148	.210	.080	.155	.600	.040						
1107-02-0519	.172	.148	.160	.040	.180	.560	.040						
1107-03-0119	.172	.148	.212	.187	.210	.819	.040						
1107-04-0119	.187	.148	.212	.187	.210	.819	.040						
1107-06-0119	.187	.171	.212	.140	.110	.572	.040						
1107-07-0119	.187	.171	.150	.187	.125	.587	.040						
1107-08-0119	.187	.171	.212	.140	.172	.696	.040						
1107-09-0119	.187	.171	.212	.187	.210	.819	.040						

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BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
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TWX 710-581-4930

TEFLON INSULATED TERMINALS

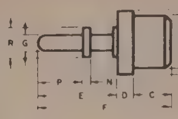

FIG 215

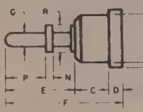

FIG 220

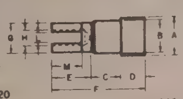

FIG 240

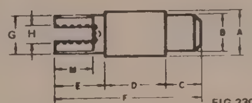

FIG 230

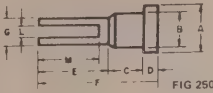

FIG 250

FIG 215

PART NO.	A	B +.002 -.000	C	D	E	F	G	H	L	M	N	P	R
1101-09-0319	.218	.133	.187	.040	.398	.625	.080*				.025	.250	.156
1101-11-0519	.172	.148	.100	.040	.190	.330	.040				.020	.113	.080
1101-01-0519	.172	.148	.078	.040	.210	.328	.040				.020	.120	.080
1101-02-0519	.172	.148	.100	.040	.210	.350	.040				.020	.120	.080
1101-04-0519	.172	.148	.165	.040	.210	.415	.040				.020	.120	.080
1101-05-0519	.172	.148	.125	.093	.210	.428	.040				.020	.120	.080

FIG 220

PART NO.	A	B +.002 -.000	C	D	E	F	G	H	L	M	N	P	R
1101R-01-0519	.172	.148	.078	.040	.210	.328	.040				.020	.120	.080
1101R-02-0519	.172	.148	.100	.040	.210	.350	.040				.020	.120	.080

FIG 230

PART NO.	A	B +.002 -.000	C	D	E	F	G	H	L	M	N	P	R
1106-22-0119	.172	.148	.125	.060	.190	.375	.125	.062		.140			
1106-01-0119	.187	.165	.150	.250	.203	.603	.148	.078		.156			
1106-02-0119	.187	.171	.150	.125	.203	.478	.148	.046		.156			
1106-04-0119	.187	.171	.150	.187	.203	.540	.148	.046		.156			
1106-06-0119	.187	.171	.165	.187	.203	.555	.148	.046		.156			
1106-08-0119	.187	.171	.150	.250	.203	.603	.148	.046		.156			
1106-12-0119	.187	.171	.150	.400	.203	.753	.148	.046		.156			
1106-03-0119	.187	.171	.150	.125	.203	.478	.148	.078		.156			
1106-05-0119	.187	.171	.150	.187	.203	.540	.148	.078		.156			
1106-07-0119	.187	.171	.212	.187	.203	.602	.148	.078		.156			
1106-09-0119	.187	.171	.150	.250	.203	.603	.148	.078		.156			
1106-10-0119	.187	.171	.230	.187	.203	.620	.148	.078		.156			
1106-11-0119	.187	.171	.100	.400	.203	.703	.148	.078		.156			
1106-13-0119	.187	.171	.150	.400	.203	.753	.148	.078		.156			
1106-14-0119	.250	.171	.187	.500	.203	.890	.148	.078		.156			
1106-15-0119	.250	.171	.187	.800	.203	1.190	.148	.078		.156			
1106-16-0119	.250	.217	.187	.500	.203	.890	.148	.046		.156			
1106-18-0119	.250	.217	.187	.800	.203	1.190	.148	.046		.156			
1106-17-0119	.250	.217	.187	.500	.203	.890	.148	.078		.156			
1106-19-0119	.250	.217	.187	.800	.203	1.190	.148	.078		.156			

FIG 240

PART NO.	A	B +.002 -.000	C	D	E	F	G	H	L	M	N	P	R
1106R-23-0119	.172	.148	.125	.060	.190	.375	.125	.046		.140			
1106R-20-0119	.187	.165	.150	.125	.203	.478	.148	.078		.156			

FIG 250

PART NO.	A	B +.002 -.000	C	D	E	F	G	H	L	M	N	P	R
1106R-50-0519	.125	.104	.100	.040	.210	.350	.080		.036	.180			
1106R-51-0519	.150	.125	.063	.025	.062	.150	.050		.020	.047			

*± 001

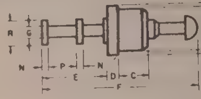

FIG 300

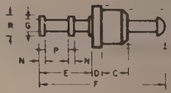

FIG 310

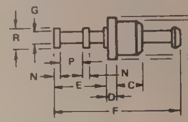

FIG 320

FIG 300

PART NO	A	B +.002 .000	C	D	E	F	G	N	P	R
1111-02-0519	.172	.112	.100	.040	.210	.535	.040	.020	.100	.080
1111-04-0519	.150	.125	.060	.040	.210	.500	.040	.020	.100	.080
1111-08-0519	.172	.148	.060	.040	.210	.500	.040	.020	.100	.080
1111-11-0519	.172	.148	.100	.040	.210	.531	.040	.020	.100	.080
1111-12-0519	.172	.148	.125	.040	.210	.531	.040	.020	.100	.080
1111-14S-0519	.172	.148	.165	.040	.210	.609	.040	.020	.100	.080
1111-15-0519	.172	.148	.125	.093	.210	.609	.040	.020	.100	.080
1111-21-0519	.172	.148	.060	.040	.395	.685	.040	.020	.070	.080
1111-22-0519	.172	.152	.088	.040	.156	.437	.047	.020	.047	.093
1111-23-0519	.172	.152	.100	.040	.156	.437	.047	.020	.047	.093
1111-24-0519	.172	.152	.150	.040	.156	.500	.047	.020	.047	.093
1111-30-0119	.187	.171	.200	.125	.281	.828	.062	.032	.093	.125
1111 32 0519	218	175	100	040	210	531	.040	020	.100	080
1111 35-0519	218	185	100	040	210	.531	040	.020	.100	.080
1111-36-0519	218	185	125	040	.210	531	040	020	.100	080
1111-40-0519	.218	.185	.125	.093	.210	.609	.040	.020	.100	.080
1111-41-0119	.218	.185*	.210	.094	.281	.828	.062	.031	.093	.125
1111-42-0119	.218	.185	.212	.187	.281	.828	.062	.031	.093	.125
1111-48-0519	.312	.264	.100	.040	.210	.531	.040	.020	.100	.080

FIG 310

PART NO	A	B +.002 .000	C	D	E	F	G	N	P	R
1111-01-0519	.125	.093	.100	.040	.210	.500	.040	.020	.100	.080
1111-03-0519	.172	.116	.100	.040	.210	.500	.040	.020	.100	.080
1111-06-0519	.172	.148	.083	.040	.210	.438	.040	.020	.100	.080
1111-07-0519	.172	.148	.100	.040	.210	.438	.040	.020	.100	.080
1111-09-0519	.172	.148	.100	.040	.210	.500	.040	.020	.100	.080
1111-10-0519	.172	.148	.165	.040	.210	.500	.040	.020	.100	.080
1111-50-0519	.172	.148	.165	.040	.210	.531	.040	.020	.100	.080
1111-14-0519	.172	.148	.165	.040	.210	.609	.040	.020	.100	.080
1111-16-0519	.172	.148	.158	.093	.210	.609	.040	.020	.100	.080
1111-17-0519	.172	.148	.165	.040	.210	.812	.040	.020	.100	.080
1111-55-0119	.172	.148	.287	.046	.210	.812	.040	.020	.100	.080
1111-18-0519	.172	.148	.125	.040	.245	.550	.040	.020	.070	.080
1111-19-0119	.172	.148	.230	.125	.250	.836	.050	.020	.093	.093
1111-20-0119	.172	.148	.165	.187	.250	.836	.050	.020	.093	.093
1111-25-0119	.187	.165	.212	.187	.250	.836	.050	.020	.093	.093
1111-26-0119	.187	.171	.212	.187	.250	.836	.050	.020	.093	.093
1111-29-0119	.187	.171	.150	.250	.250	.836	.050	.020	.093	.093
1111-31-0119	.187	.171	.400	.375	.281	1.337	.050	.031	.093	.093
1111-33-0519	.200	.179	.100	.040	.210	.500	.040	.020	.100	.080
1111-34-0519	.218	.185	.100	.040	.210	.438	.040	.020	.100	.080
1111-44-0119	.250	.204	.212	.187	.250	.836	.050	.020	.093	.093
1111-46-0119	.250	.230	.212	.187	.250	.836	.050	.020	.093	.093
1111-47-0519	.250	.234	100	.040	.210	.500	.040	.020	.100	.080

FIG 320

PART NO	A	B +.002 .000	C	D	E	F	G	N	P	R
1111-54-0119	.250	.200	.138	.040	.290	.650	.093	.020	.120	.125

*±.001 **±.002

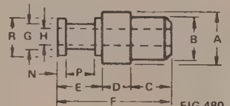

FIG 480

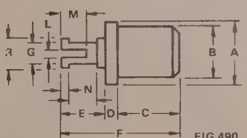

FIG 490

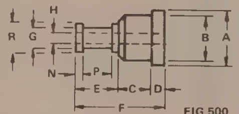

FIG 500

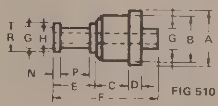

FIG 510

FIG 480

PART NO.	A	B +.002 .000	C	D	E	F	G	H	L	M	N	P	R
1112-02-0519	.125	.093	.050	.040	.125	.215	.040	.030			.020	.095	.080
1112-05-0519	.150	.125	.060	.050	.090	.200	.060	.030			.020	.050	.090
1112-06-0519	.150	.125	.060	.040	.133	.233	.060	.030			.020	.103	.090
1112-07-0519	.150	.125	.100	.040	.133	.273	.060	.030			.020	.093	.090
1112-08-0519	150	125	.080	060	133	273	060	030			020	093	090
1112-09-0519	.150	.125	.110	.050	.133	.293	.060	.030			.020	.093	.090
1112-11-0519	.172	.148	.065	.040	.133	.238	.060	.040			.020	.093	.093
1112-10-0519	.172	.148	.130	.040	.133	.303	.060	.030			.020	.093	.090
1112-13-0519	.172	.148	.100	.040	.133	.273	.060	.030			.020	.093	.090
1112-14-0519	.172	.148	.110	.050	.133	.293	.060	.030			.020	.093	.093
1112.19-0519	.250	.218	.075	.065	.133	.273	.060	.030			.020	.093	.090
1112-20-0519	.297	.263	.160	.040	.133	.333	.060	.030			.020	.093	.090

FIG 490

PART NO.	A	B +.002 .000	C	D	E	F	G	H	L	M	N	P	R
1106-52-0519	.125	.093	.140	.041	.095	.276	.068		.030	.075	.015		.078

FIG 500

PART NO.	A	B +.002 .000	C	D	E	F	G	H	L	M	N	P	R
1112R-01-0519	.125	093	.080	.020	.100	.200	.050	.030			.010	.080	.070
1112R-04-0519	.150	.123	.075	.025	.100	.200	.060	.030			.010	.080	.090
1112R-15-0519	.172	.148	.125	.093	.133	.351	.082	.062			.020	.093	.125
1112R-16-0519	.172	.148	.130	.100	.162	.392	.060	.042			.020	.130	.093
1112R-18-0519	.188	.177	.155	.093	.133	.381	.090	.062			.020	.093	.125

FIG 510

PART NO.	A	B +.002 .000	C	D	E	F	G	H	L	M	N	P	R
1113R-08-0519	.172	.148	.100	.040	.133	.333	.060	.030			.020	.093	.093
1113R-07-0519	.172	.148	.130	.040	.133	.333	.060	.030			.020	.093	.093

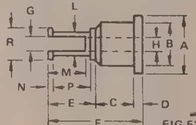

FIG 520

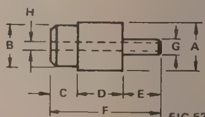

FIG 530

FIG 520

PART NO.	A	B +.002 -.000	C	D	E	F	G	H	L	M	N	P	R
1112R-61-0519	.125	.093	.080	.020	.100	.200	.030	.030	.050	.080	.010	.080	.070
1112R-62-0519	.125	.093	.140	.020	.100	.260	.030	.030	.050	.040	.010	.080	.070
1112R-64-0519	.160	.143	.080	.020	.100	.200	.030	.060	.085	.090	.010	.080	.115

FIG 530

PART NO.	A	B +.002 -.000	C	D	E	F	G	H
1114R-80-0519	.172	.148	.093	.157	.130	.380	.055	.030

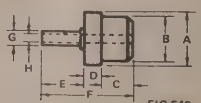

FIG 540

FIG 540

PART NO.	A	B +.002 -.000	C	D	E	F	G	H
1114-03-0519	.125	.093	.050	.040	.125	.215	.040	.030
1114-04-0519	.125	.093	.060	.040	.125	.225	.040	.030
1114-05-0519	.125	.093	.090	.040	.187	.317	.040	.030
1114-06-0519	.125	.093	.060	.040	.207	.312	.040	.030
1114-07-0519	.125	093	.090	.040	.275	.405	.040	.030
1114-08-0519	.130	.120	.053	.050	.207	.310	.040	.030
1114-10-0519	.150	.125	.060	.040	.125	.225	.040	.030
1114-13-0519	.172	.148	.100	.060	.074	.234	.040	.030
1114-16-0519	.172	.148	.100	.060	.136	.296	.040	.030
1114-18-0519	.172	.148	.053	.050	.147	.250	.040	.030
1114-20-0519	.172	.148	.053	.050	.207	.310	.040	.030
1114-21-0519	.172	.148	.055	.050	.207	.312	.085	.063
1114-22-0519	.172	.148	.075	.050	.207	.332	.085	.063
1114-23-0519	.172	.148	.110	.050	.207	.367	.085	.063
1114-24-0519	.172	.148	.110	050	.207	.367	085	.070
1114-25-0519	.172	.148	.156	.050	.207	.413	.085	.063
1114-26-0519	.218	.171	.110	.050	.207	.367	.040	.030
1114-27-0519	.218	.171	.110	.050	.207	.367	.085	.063
1114-28-0519	.240	.200	.110	.050	.207	.367	.085	.063

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BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
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30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TEFLON INSULATED TERMINALS

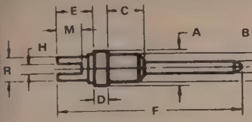

FIG 380

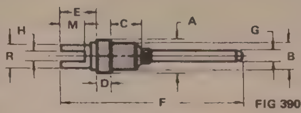

FIG 390

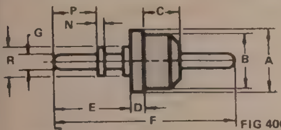

FIG 400

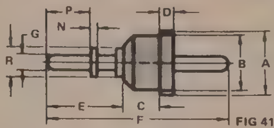

FIG 410

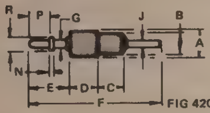

FIG 420

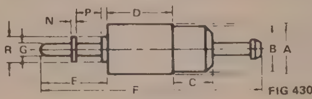

FIG 430

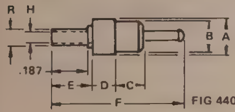

FIG 440

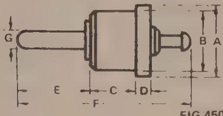

FIG 450

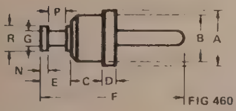

FIG 460

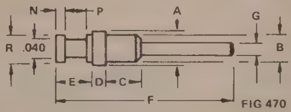

FIG 470

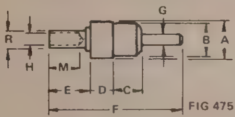

FIG 475

PART NO	A	B $^{+.002}_{-.000}$	C	D	E	F	G	H	J	M	N	P	R
FIG 380													
1137-03-0519	.093	.075	.100	.040	.100	.320	.030*	.024		.080			.060
1137-01-0519	.093	.075	.100	.040	.100	.510	.030*	.024		.080			.060
1137-02-0519	.093	.075	.100	.040	.100	.552	.030*	.024		.080			.060
FIG 390													
1135-02-0519	.093	.075	.090	.040	.100	.471	.030	.024		.075			.060
1135-01-0519	.093	.075	.090	.040	.100	.510	.030	.024		.075			.060
1135-03-0519	.093	.075	.090	.040	.225	.635	.030	.024		.075			.060
FIG 400													
1119-20-0519	.172	.148	.100	.040	.210	.500	.040				.020	.120	.080
FIG 410													
1119R-20-0519	.172	.148	.100	.040	.210	.500	.040				.020	120	.080
FIG 420													
1119-25-0519	.093	.075	.125	.040	.210	1.500	.032**		.030		.020	.100	.060
FIG 430													
1119-02-0119	.188	.171	.150	.250	.250	.836	.050				.020	.093	.093
FIG 440													
1111-57-0119	.187	.171	.150	.125	.207	.680		.063					.085
FIG 450													
1131R-50-0319	.218	.185*	.135	.052	.250	.562	.050**						
FIG 460													
1121R-50-0519	.172	.148	.100	.040	.093	.443	.040				.020	.062	.080
FIG 470													
1121-51-0519	.093	.075	.100	.040	.100	.510	.030				.020	.060	.060
FIG 475													
1113-54-0319	.093	.075	.100	.040	.125	.327	.030	.040		.080			.060
1113-51-0519	.093	.075	.100	.040	.125	.588	.030	.040		.080			.060

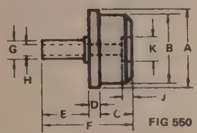

FIG 550

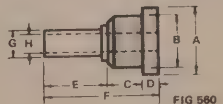

FIG 560

PART NO.	A	B $^{+.002}_{-.000}$	C	D	E	F	G	H	J	K
FIG 550										
1115-02-0519	.172	.148	.075	.060	.147	.282	.040	.030	.042	.070
1115-03-0519	.172	.148	.110	.050	.207	.367	.040	.030	.057	.050
1115-05-0519	.218	.171	.160	.050	.207	.417	.085	.063	.050	.085
1115-04-0519	.218	.171	.160	.050	.500	.710	.085	.063	.050	.085
1115-06-0519	.240	.200	.110	.050	.207	.367	.040	.030	.057	.050
1115-07-0519	.250	218	.100	.040	147	287	060	030	030	.050
FIG 560										
1114R-09-0519	.150	.125	.063	.025	.105	.193	.050	.030		
1114R-11-0519	.150	.125	.075	.025	.125	.225	.045†	.030		
1114R-12-0519	.150	.125	.075	.025	.147	.247	.045†	.030		
1114R-14-0519	.172	.148	.063	.025	.105	.193	.080	.052		
1114R-16-0519	172	148	100	060	136	296	040	030		
1114R-17-0519	.172	.148	.053*	.045	.147	.250	040	030		
1114R-18-0519	.172	.148	.053*	.050	.147	.250	.040	.030		
1114R-19-0519	.172	.148	.110	.050	.150	.310	.085	.063		
1114R-20-0519	.172	.148	.063*	.050	.207	.310	.040	.030		
1114R-23-0519	.172	.148	.110	.050	.207	.367	.085	.063		

*+.005 −.000 †+.000 −.005

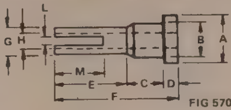

FIG 570

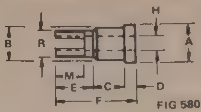

FIG 580

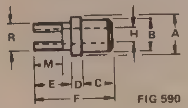

FIG 590

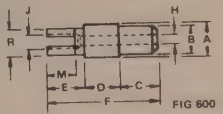

FIG 600

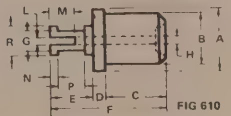

FIG 610

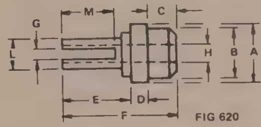

FIG 620

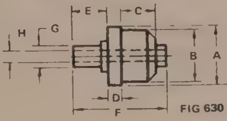

FIG 630

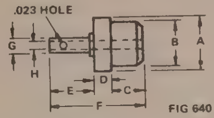

FIG 640

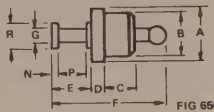

FIG 650

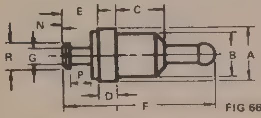

FIG 660

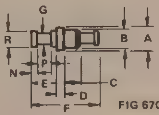

FIG 670

PART NO.	A	B $^{+.002}_{-.000}$	C	D	E	F	G	H	J	L	M	N	P	R
FIG 570														
1114R-68-0519	.150	.125	.063	.025	.062	.150	.050	.030		.020	.047			
1114R-64-0519	.150	.136	.125	.025	.160	.310	.060	.030		.028	.100			
FIG 580														
1123R-75-0119	.218	.185	.163	.060	.203	.426		.078			.156			.148
FIG 590														
1123-75-0119	.218	.185	.163	.060	.203	426		.078			156			148
FIG 600														
1123-73-0119	.187	.171	.212	.187	.203	.602		.052	.078		.158			.148
FIG 610														
1118-30-0519	.205	.169	.160	.040	.133	.333	.060	.030		.032	.080	.020	.093	.093
FIG 620														
1114-73-0519	.172	.148	.080	.050	.190	.320	.085	.050		.030	.175			
1114-72-0519	.172	.148	.053	.050	.207	.310	.040	.030		.010	.125			
1114-75-0519	.218	.171	.110	.050	.207	.367	.085	.062		.030	.175			
FIG 630														
1114-50-0519	.172	.148	.100	.040	.100	.270	.060	.030						
FIG 640														
1115-11-0519	.172	.148	.100	.060	.136	.296	.040	.030						
FIG 650														
1121-31-0519	.172	.148	.100	.040	.190	.520	.040					.020	.160	.080
1116-02-0119	.187	.171	.171	.063	.133	.540	.046					.020	.093	.093
1116-03-0319	.312	.171	.171	.063	.133	.540	.046					.020	.093	.093
FIG 660														
1116-01-0319	.312	.171	.171	.063	.099	.506	.125					.020	.048	.188
FIG 670														
1121-32-0519	.093	.075	.060	.030	.090	.260	.040					.020	.050	.060

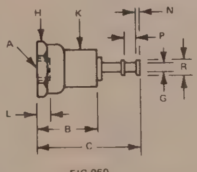

FIG 960

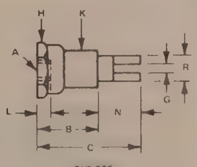

FIG 965

PART NO	A	B	C ±.015	F	G	H	K	L	N	P	R
FIG 960											
1125-05-0519	2-56	.237	.390	–	.031	5/32	.121	.062	.020	.030	.062
1125-25-0519	2-56	.313	.550	–	.047	1/4	.203	.062	.020	.063	.094
1125-26-0519	4-40	.313	.550	–	.047	1/4	.203	.062	.020	.063	.094
1125-31-0519	4-40	.391	.630	–	.047	5/16	.230	.094	.020	.063	.094
1125-30-0519	6-32	.391	.630	–	.047	5/16	.230	.094	.020	.063	.094
FIG 965											
1125-16-0519	2-56	.237	.390	–	.031	5/32	.121	.062	.094	–	.094
1125-91-0519	2-56	.313	.550	–	.031	1/4	.203	–	.156	–	.125
1125-92-0519	4-40	.313	.550	–	.031	1/4	.203	–	.156	–	.125
1125-33-0519	4-40	.391	.630	–	.062	5/16	.230	.094	.156	–	.156
1125-32-0519	6-32	.391	.630	–	.062	5/16	.230	.094	.156	–	.156

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COLOR CODE FOR ORDERING

BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TEFLON INSULATED TERMINALS

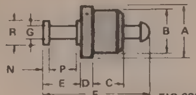

FIG 680

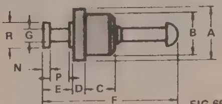

FIG 690

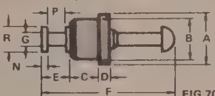

FIG 700

FIG 680										
PART NO.	A	B +.002 .000	C	D	E	F	G	N	P	R
1121-01-0519	125	093	100	040	125	350	040	020	085	080
1121-03-0519	172	148	100	040	090	380	040	020	060	080
1121-08-0519	172	148	100	040	125	350	040	020	095	080
1121-09-0519	172	148	100	040	160	385	040	020	130	093
1121-15-0119	187	171	125	187	125	740	050	031	062	093
1121-16-0119	187	171	212	187	125	740	050	031	062	093
1121-13-0119	187	171	150	250	125	740	050	031	062	093
1121-17-0119	187	171	275	250	125	865	050	031	062	093
1121-21-0119	187	171	318	365	125	1 115	050	031	062	125
1121-20-0119	187	171	340	375	125	1 115	050	031	062	125
1121-19-0119	187	171	400	375	125	1 115	050	031	062	125
1121-18-0119	187	171	212	562	125	1 115	050	031	062	125
1121-30-0119	187	171	171	063	133	540	046	020	093	093
1121-14-0119	250	171	212	187	125	740	050	031	062	093
1121-22-0119	250	171	525	500	125	1 365	050	031	062	125
1121-23-0119	250	171	825	800	125	1 965	050	031	062	125
1121 24-0119	215	.185*	.210	093	133	640	046	020	093	093
1121-28-0119	215	185*	288	093	133	718	046	020	093	093
1121-27-0119	250	217	.525	.500	125	1 365	050	031	062	125
1121-26-0119	.250	217	825	800	125	1 965	050	031	062	125
FIG 690										
1121-02-0519	.150	.125	.060	.040	.125	.350	.040	.020	.095	.080
1121-05-0519	.172	.148	.170	.020	.093	.493	.040	.020	.063	.080
1121-04-0519	.172	.148	.100	.040	.093	.443	.040	.020	.062	.080
1121-06-0519	.172	.148	.150	.040	.093	.493	.040	.020	.062.	.080
1121-10-0519	.172	.148	.125	.040	.250	.640	.040	.020	.210	.080
1121-11-0519	.200	.172	.125	.075	.120	.500	.048	.020	.080	.090
1121-12-0119	.200	.172	.125	.075	.120	.500	.080	.020	.080	.125
FIG 700										
1121R-04-0519	.172	.148	.100	.040	.093	.443	.040	.020	.062	.080
1121R-06-0519	.172	.148	.150	.040	.093	.493	.040	.020	.062	.080
1121R-07-0519	.172	.148	.130	.040	.120	.500	.040	.020	.080	.080
1121R-08-0519	.172	.148	.100	.040	.125	.350	.040	.020	.094	.080

*±.001

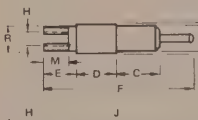

FIG 710

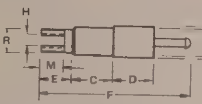

FIG 720

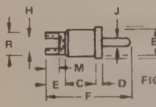

FIG 730

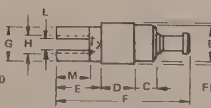

FIG 740

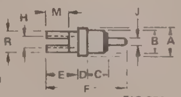

FIG 750

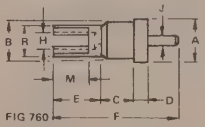

FIG 760

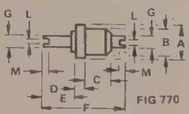

FIG 770

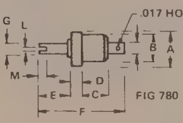

FIG 780

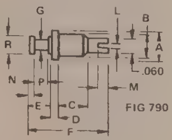

FIG 790

FIG 710														
PART NO.	A	B +.002 .000	C	D	E	F	G	H	J	L	M	N	P	R
1123-02-0119	.187	.171	.212	.187	.203	.821		.078			.156			.148
1123-03-0119	.187	.171	.230	.187	.203	.821		.078			.156			.148
1123-05-0119	.187	.171	.275	.250	.203	.947		.078			.156			.148
1123-07-0119	.187	.171	.400	.375	.203	1.197		.078			.156			.148
1123-08-0119	.187	.171	.525	.250	.203	1.197		.078			.156			.148
1123-09-0119	.187	.171	.550	.225	.203	1.197		.078			.156			.148
FIG 720														
1123R-02-0119	.187	.171	.212	.187	.203	.821		.078			156			.148
1123R-05-0119	.187	171	275	250	203	947		078			156			.148
1123R-07-0119	.187	.171	.400	.375	.203	1.197		.078			.156			.148
FIG 730														
1123R-60-0119	.187	.171	.187	.040	.125	.477		.078	.050		.078			148
1123R-61-0119	.187	.171	.187	.040	.125	.532		.078	.050		.078			.148
1123R-62-0119	.187	.171	.140	.040	.125	.586		.078	.050		.078			.148
FIG 740														
1123-50-0119	.187	.171	.100	.150	.203	.593		.078			.156			.148
FIG 750														
1123-70-0119	.172	.148	.125	.060	.190	.495		.062	.040		.140			.125
FIG 760														
1123R-70-0119	.172	.148	.125	.060	.190	.495		.062	.040		.140			.125
FIG 770														
1136-01-0519	.125	.106	.100	.040	.116	.312	.040			.010	.020			
1118-03-0519	.205	.169	.160	.040	.140	480	060			.032	.110			
FIG 780														
1118-01-0519	.125	.106	.100	.040	.116	.312	.040			.010	.020			
FIG 790														
1118-40-0319	.125	.106	.130	.030	.093	.346	.040			.015	.040	.020	.060	.080

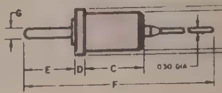

FIG 800

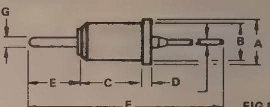

FIG 810

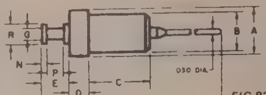

FIG 820

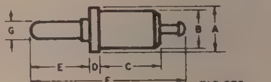

FIG 830

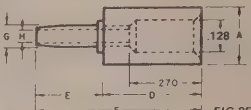

FIG 850

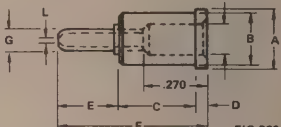

FIG 860

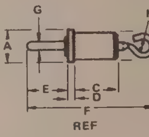

FIG 840

FIG 800													
PART NO.	A	B +.002 -.000	C	D	E	F	G	H	K	L	N	P	R
1130-01-0319	.172	.148	.165	.046	.250	1.937	.050						
1130-02-0319	.218	.185*	.250	.046	.120	1.870	.040*						
1130-04-0319	.218	.185*	.287	.046	.250	.906	.050*						
1130-05-0319	.218	.185*	.287	.046	.250	1.531	.050*						
1130-06-0319	.218	.185*	.141	.046	.250	1.937	.050*						
1130-07-0319	.218	.185*	.287	.046	.250	2.083	.050*						
FIG 810													
1130R-03-0319	.218	.185*	.320	.046	.120	1.940	.040*						
FIG 820													
1129-01-0319	.218	.185*	.287	.093	.125	1.000	.050				.020	.085	.093
1129-02-0319	.218	.185*	.287	.093	.125	2.000	.050				.020	.085	.093
1129-03-0319	.218	.185*	.150	.230	.125	2.000	.050				.020	.085	.093
FIG 830													
1131-01-0319	.187	.171	.212	.040	.272	.687	.040*						
1131-02-0319	.218	.185*	.287	.046	.190	.648	.090*						
1131-03-0319	.218	.185	.135	.052	.250	.562	.050*						
1131-04-0319	.218	.185	.141	.046	.250	.562	.050*						
1131-05-0319	.218	.185	.141	.046	.250	.562	.081*						
1131-06-0319	.218	.185*	.141	.046	.250	.612	.062*						
1131-07-0319	.218	.185	.287	.046	.250	.906	.050*						
1131-08-0319	.218	.185*	.287	.046	.281	.739	.081*						
FIG 840													
1120-01-0319	.218	.185*	.287	.046	.250	.833	.050		3/32				
1120-02-0319	.218	.185*	.141	.046	.250	.682	.050		1/16				
FIG 850													
1132-01-0219	.218			.375	.270	.645	.090*	.062					
1132-02-0219	.218			.375	.270	.645	.080*	.062					
FIG 860													
1114-30-0219	.250	.218	.325	.050	.270	.645	.080			.062			

* ±.001

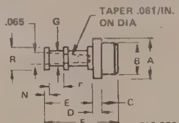

FIG 870

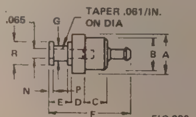

FIG 880

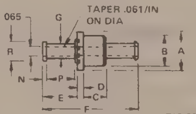

FIG 890

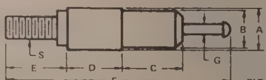

FIG 900

FIG 870											
PART NO.	A	B +.002 -.000	C	D	E	F	G	N	P	R	S
1115-51-0419	.250	.200*	.100	.060	.293	.453	.093	.025	.093	.149	
1115-52-0419	.250	.200	.140	.080	.293	.513	.093	.025	.093	.149	
FIG 880											
1115-54-0419	.250	.200	.140	.080	.133	.500	.093	.020	.093	.149	
FIG 890											
1115-53-0419	.250	.200	.143	.040	.210	.593	.093	.020	.180	.125	
FIG 900											
1124-01-0119	187	171	.212	187	.281	.899	.050				4-36
1124-02-0119	.187	.171	.275	.250	.281	1.024	.050				4-36
1124-03-0119	.187	.171	.400	.375	.281	1 274	.050				4-36
1124-10 0119	187	.171	212	.187	.281	.899	.050				4-40
1124-11-0119	187	171	275	250	.281	1 024	.050				4-40
1124-12-0119	187	171	400	375	281	1.274	.050				4-40

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COLOR CODE FOR ORDERING

BLK	BRN	RED	ORN	YEL	GRN	BLU	PUR	GRY	WHT
10	11	12	13	14	15	16	17	18	19

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TEFLON INSULATED TERMINALS

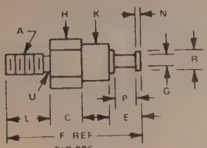

FIG 905

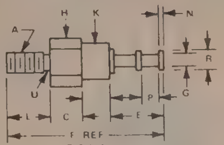

FIG 910

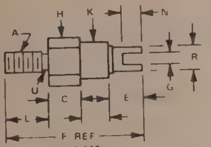

FIG 915

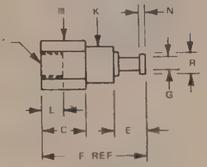

FIG 920

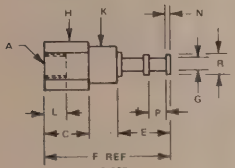

FIG 925

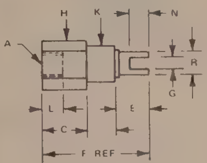

FIG 930

PART NO	A	C	E	F ±.015	G	H	K	L	N	P	R
FIG 905											
1125-96-0519	4-40	128	079	.672	045	5/32	125	250	.018	.049	.066
1125-97-0519	6-32	128	.079	672	045	5/32	125	250	018	049	066
1126-35-0519	4-40	180	180	766	.069	1/4	245	.250	.031	120	140
1126-34-0519	6-32	180	180	766	069	1/4	245	250	031	120	140
1126-40-0519	4-40	.180	180	1.344	069	1/4	245	250	031	120	.140
1126-41-0519	6-32	180	.180	1 344	.069	1/4	.245	.250	.031	.120	.140
FIG 910											
1125-43-0519	4-40	128	148	750	045	5/32	125	250	018	.031	066
1126-37-0519	6-32	128	148	750	045	5/32	125	250	.018	.031	066
1126-36-0519	4-40	180	.310	.890	069	1/4	245	250	.025	100	140
1125-45-0519	6-32	180	310	890	069	1/4	245	250	025	100	.140
1126-38-0519	4-40	180	310	1 469	069	1/4	245	250	025	100	140
1126-39-0519	6-32	180	310	1 469	.069	1/4	245	250	025	100	140
FIG 915											
1126-44-0519	4-40	128	087	.672	.036	5/32	125	.250	067	–	.066
1126-47-0519	6-32	.128	087	672	036	5/32	.125	250	.067	–	.066
1126-43-0519	4-40	.180	174	766	.060	1/4	.245	250	.101	–	.140
1126-42-0519	6-32	180	174	766	.060	1/4	245	250	.101	–	.140
1126-45-0519	4-40	.180	.174	1 343	.060	1/4	245	250	.101	––	.140
1126-46-0519	6-32	.180	.174	1.343	060	1/4	245	250	.101	–	140
FIG 920											
1126-27-0519	4-40	181	079	.484	.045	5/32	125	100	.018	–	.066
1126-26-0519	4-40	258	.180	594	.069	1/4	245	156	.031	–	.140
1126-25-0519	6-32	258	180	.594	.069	1/4	245	156	.031	–	.140
1125-58-0519	4-40	.258	180	1.172	.069	1/4	245	.156	.031	–	.140
1126-30-0519	6-32	.258	180	1 172	.069	1/4	.245	.156	.031	–	.140
FIG 925											
1125-42-0519	4-40	.181	.148	.547	.045	5/32	125	100	.018	.031	.066
1125-44-0519	4-40	.258	.310	.718	.069	1/4	.245	.156	.025	.100	.140
1125-46-0519	6-32	.258	.310	.718	.069	1/4	.245	156	.025	.100	.140
1125-61-0519	4-40	.258	.310	1.297	.069	1/4	.245	.156	.025	.100	.140
1125-60-0519	6-32	258	310	1 297	069	1/4	245	156	025	100	140
FIG 930											
1126-31-0519	4-40	.181	.087	.484	.036	5/32	.125	.100	.067	–	.066
1125-93-0519	4-40	.258	.174	.594	.060	1/4	.245	.156	.101	–	.140
1125-80-0519	6-32	.258	.174	.594	.060	1/4	.245	.156	.101	–	.140
1126-32-0519	4-40	.258	.174	1.172	.069	1/4	.245	.156	.101	–	.140
1126-33-0519	6-32	.258	.174	1.172	.069	1/4	.245	.156	.101	–	.140

TERMINAL · ELECTRO-SOLDER PLATE
BASE · CADMIUM PLATE, COLORED CHROMATE

U · UNDERCUT AT MANUFACTURERS OPTION

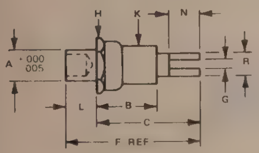

FIG 970

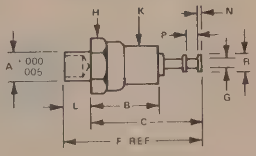

FIG 975

PART NO	A	B	C ±.015	F	G	H	K	L	N	P	R
FIG 970											
1125-10-0519	.114	.206	.360	.414	.031	5/32	121	054	094		094
1125-11-0519	.114	.206	.360	.454	.031	5/32	.121	.094	.094	–	.094
1125-94-0519	.115	.270	.510	.615	.031	1/4	.203	.105	.156	–	.125
1125-95-0519	.115	.270	.510	.645	.031	1/4	.203	.135	.156	–	.125
1125-81-0519	.189	.359	.600	.654	.060	5/16	.230	.054	.156	–	.156
1125-82-0519	.189	.359	.600	.694	.060	5/16	.230	.094	156	–	156
1125-83-0519	.189	.359	.600	.725	.060	5/16	.230	.125	.156	–	.156
1125-84-0519	.189	.359	.600	.756	.060	5/16	.230	.156	.156	–	.156
FIG 975											
1125-06-0519	.114	.206	.360	.414	.031	5/32	.121	.054	.022	.030	.062
1125-07-0519	.114	.206	.360	.454	.031	5/32	.121	.094	.022	.030	.062
1125-08-0519	.114	.206	.360	.485	.031	5/32	.121	.125	.022	.030	.062
1125-09-0519	.114	.206	.360	.516	.031	5/32	.121	.156	.022	.030	.062
1125-27-0519	.115	.270	.510	.585	.047	1/4	.203	.075	.020	.063	.094
1125-28-0519	.115	.270	.510	.615	.047	1/4	.203	.106	.020	.063	.094
1125-29-0519	.115	.270	.510	.645	.047	1/4	.203	.135	.020	.063	.094

TERMINAL · ELECTRO-SOLDER PLATE
BASE · CADMIUM PLATE, COLORED CHROMATE

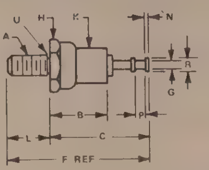

FIG 950

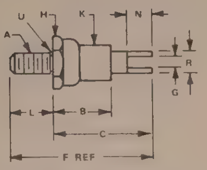

FIG 955

PART NO	A	B ±.010	C ±.015	F	G	H	K	L	N	P	R
FIG 950											
1125-01-0519	2-56	206	.360	485	.031	5/32	.121	125	020	030	062
1125-02-0519	2-56	.206	360	578	031	5/32	.121	218	.020	.030	062
1125-03-0519	4-40	206	360	485	.031	5/32	.121	125	.020	030	062
1125-04-0519	4-40	.206	.360	578	.031	5/32	121	.218	.020	030	.062
1125-21-0519	4-40	270	510	698	047	1/4	203	188	020	063	094
1125-22-0519	4-40	270	510	.760	047	1/4	.203	.250	020	063	094
1125-23-0519	4-40	.270	510	822	.047	1/4	.203	312	020	063	094
1125-24-0519	4-40	.270	.510	.885	.047	1/4	.203	375	020	063	094
1125-17-0519	6-32	.270	.510	698	.047	1/4	203	188	020	063	094
1125-18-0519	6-32	270	510	760	047	1/4	203	250	020	063	094
1125-19-0519	6-32	270	510	822	047	1/4	203	312	020	063	094
1125-20-0519	6-32	.270	.510	885	.047	1/4	203	.375	020	063	094
1125-54-0519	4-40	.359	.600	788	047	5/16	.230	188	.023	063	.094
1125-55-0519	4-40	.359	600	.850	.047	5/16	230	.250	023	063	094
1125-56-0519	4-40	359	600	912	047	5/16	230	312	023	063	094
1125-57-0519	4-40	.359	600	.975	047	5/16	.230	375	023	063	094
1125-50-0519	6-32	359	600	.788	.047	5/16	230	188	.023	063	.094
1125-51-0519	6-32	359	.600	850	.047	5/16	230	250	023	063	094
1125-52-0519	6-32	359	.600	.912	.047	5/16	.230	312	023	063	094
1125-53-0519	6-32	359	.600	.975	.047	5/16	230	375	023	063	.094
FIG 955											
1125-12-0519	2-56	.206	360	485	.031	5/32	121	125	094	–	094
1125-13-0519	2-56	206	.360	.578	.031	5/32	121	218	.094	–	.094
1125-14-0519	4-40	206	.360	.485	031	5/32	121	125	094	–	.094
1125-15-0519	4-40	.206	360	.578	.031	5/32	121	.218	094	–	094
1125-89-0519	4-40	.270	.510	.698	.031	1/4	203	188	.156	–	125
1125-90-0519	4-40	270	510	760	.031	1/4	.203	.250	156	–	125
1125-85-0519	6-32	.270	510	760	.031	1/4	203	.188	156	–	125
1125-86-0519	6-32	270	510	760	.031	1/4	.203	.250	.156	–	.125
1125-38-0519	4-40	360	.600	788	.062	5/16	.230	.188	.156	–	156
1125-39-0519	4-40	.360	600	.850	.062	5/16	230	.250	.156	–	.156
1125-40-0519	4-40	.360	600	.912	062	5/16	.230	312	156	–	156
1125-41-0519	4-40	360	.600	975	.062	5/16	.230	375	156	–	156
1125-34-0519	6-32	360	.600	.788	.062	5/16	.230	.188	.156	–	156
1125-35-0519	6-32	.360	.600	.850	.062	5/16	.230	250	.156	–	156
1125-36-0519	6-32	360	.600	.912	.062	5/16	.230	.312	156	–	.156
1125-37-0519	6-32	.360	.600	.975	.062	5/16	230	.375	.156	–	.156

TERMINAL · ELECTRO-SOLDER PLATE
BASE · CADMIUM PLATE, COLORED CHROMATE

U · UNDERCUT AT MANUFACTURERS OPTION

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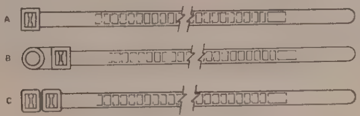
HARDWARE

MIL SPEC CABLE CLAMPS AND TIES



SELF-LOCKING CABLE TIES
Meets Applicable MIL Specs

Double Pawled Head.
Double sided serration with positive locking.
White Nylon — Flexible & Conformable — Flame Retardant — Fungus Inert — Resistant to Solvents, Alkalines and Grease. Operating temperature ranges from -40°F to 185°F.
Various sizes, heavy duty-screw mounting types.
Self adhesive mounting plate available for some ties.

REGULAR (FIG. A)

Concord No.	Tensile Strength	M.S. No.	Bundle Dia. Min.-Max.	Length	Width	Thick
770-1751	18	3367-4	1/16-5/8	3-3/4	.144	.053
770-1752	30	3367-5	1/16-1-1/4	5-13/16	.187	.053
770-1753	50	3367-1	1/16-1-3/4	7-15/16	.187	.053
770-1754	50	3367-7	1/16-3	12-1/16	.187	.053
770-1755	50	3367-2	1/16-4	15-1/16	.187	.053
770-1756	120	3367-3	3/16-4	15-1/16	.298	.080

SCREW MOUNTING (FIG. B)

Concord No.	Tensile Strength	Bundle Dia. Min.-Max.	Length	Width	Thick	Stud
770-1761	50	1/16-1-3/4	8-7/16	.187	.053	10
770-1762	50	1/16-4	15-9/16	.187	.053	10
770-1763	120	3/16-4	15-21/32	.298	.080	1/4

DOUBLE LOOP (FIG. C)

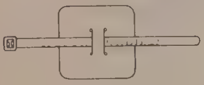
Double Loop to permit Double Looping, saving time and cost of additional ties.

770-1757	50	1/16-4	15-7/32	.187	.080	–
770-1758	120	3/16-4	15-11/32	.298	.080	–

MOUNTING PLATE

Self Adhesive — 1½" x 1½"

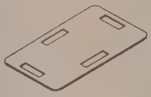
Concord No. 770-1760

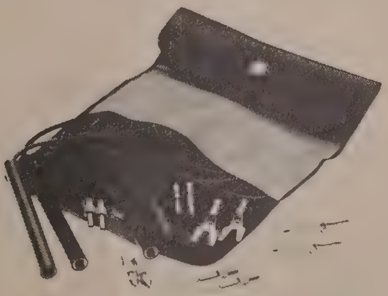


NYLON WIRE MARKER PLATES

Made of Nylon, attaches to wire harness with any type of wire tie or lacing cord. Write in identification.
Reusable.

Concord No.	Size
770-1770	3/4 x 1-1/2
770-1771	3/4 x 1-3/4
770-1772	3/4 x 2





UNIVERSAL TEST LEAD KIT

CONCORD No.
01-5500

KNOBS, INSTRUMENT CASES & COVERS
BLACK BAKELITE

INSTRUMENT

Black Bakelite with Molded in Brass Insert for 1/4" Shaft with set screw

Part No.	O.D.	Height
790-1000	1-1/8	5/8
790-1001	1-3/8	11/16
790-1002	1-5/8	3/4
790-1003	2-3/8	7/8

FLUTED INSTRUMENT

Black Bakelite with White Indicator Line on Skirt Supplied with Set Screw

Part No.	Shaft Dia.	Skirt Dia.	Height
790-1051	1/4	3/4	1/2
790-1052	1/4	1-1/8	5/8

CONTROL

Molded Bakelite, Fits 1/4 Dia. Shafts Supplied with Set Screw

Fig.	Part No.	O.D.	Height	Recessed for Locknut
A	790-1104	11/16	13/32	
A	790-1106	1	1/2	
B	790-1110	11/16	13/32	X
C	790-1122	1	1/2	X
D	790-1124	1-1/8	9/16	X
E	790-1126	1-1/2	11/16	X
F	790-1130	29/32	19/32	X
G	790-1132	1-1/8	5/8	X

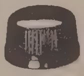


Fig A

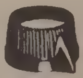


Fig B

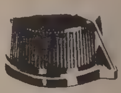


Fig C

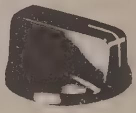


Fig D

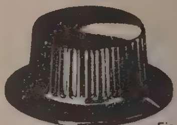


Fig E

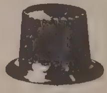


Fig F

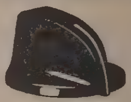


Fig G

POINTER

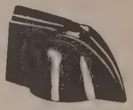


FIG A

Molded Black Bakelite for 1/4" Shafts Supplied with Set Screw

Fig.	Part No.	Length	Height	Brass Insert
A	790-1202	1-1/4	5/8	
A	790-1204	1-1/4	5/8	X
B	790-1208	2	5/8	X

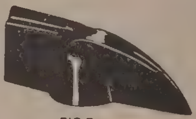
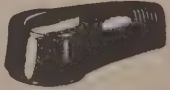


FIG B

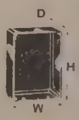
LEVER

Molded Brass Insert for 1/4" Dia. Shafts — Supplied with Set Screw



Part No.	Length	Height
790-1170	1-5/8	19/32

INSTRUMENT CASES



Part No.	H	W	D	Mating Cover Part No.
790-2219	[illegible]-1/2	2-1/2	1-1/4	790-2239
790-2220	4	2-7/8	1-9/16	790-2240
790-2222	5	4-1/4	1-3/4	790-2242
790-2224	6-1/4	3-3/4	2	790-2244
790-2226	6-13/16	5-9/32	2-5/16	790-2246
790-2228	8-7/16	7-7/16	3-1/64	790-2248

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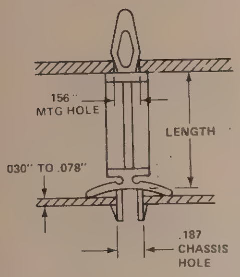
HARDWARE

NYLON BOARD SUPPORTS

Snaps into circuit board and chassis. Chassis hole .187 diameter, thickness from .034 to .080 P.C. board hole .156, 1/16 thick.

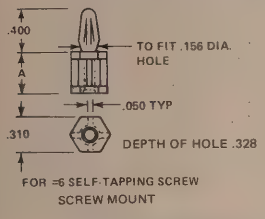

.156" MTG HOLE
LENGTH
.030" TO .078"
.187 CHASSIS HOLE

Concord No.	Length
770-4301	3/16"
770-4302	1/4"
770-4303	3/8"
770-4304	1/2"
770-4305	5/8"
770-4306	3/4"
770-4307	7/8"

SAME EXCEPT SELF-EXTINGUISHING

Concord No.	Length
770-4325	3/16"
770-4326	1/4"
770-4327	3/8"
770-4328	1/2"
770-4329	5/8"
770-4330	3/4"
770-4331	7/8"

NYLON P.C. BOARD SUPPORT

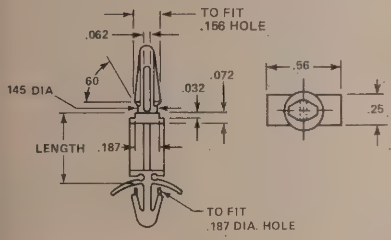

.400
A
TO FIT .156 DIA. HOLE
.050 TYP
.310
DEPTH OF HOLE .328
FOR #6 SELF-TAPPING SCREW
SCREW MOUNT

Concord No.	Length "A"
770-4370 *	.250"
770-4371	.375"
770-4372	.500"
770-4373	.625"
770-4374	.750"
770-4375	.875"
770-4376	1.12"
770-4377	1.43"

*Depth of hole .203.

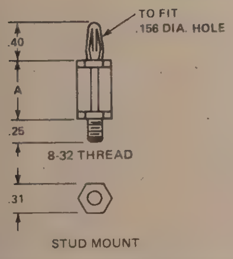
LONG NOSE P.C. BOARD SUPPORTS

Nylon. Extended nose to locate connector pins and sockets. Snaps into .187 dia. chassis holes.


TO FIT .156 HOLE
.062
60
145 DIA
.032
.072
LENGTH
.187
.56
.25
TO FIT .187 DIA. HOLE

Concord No.	Length
770-4351	3/16"
770-4352	1/4"
770-4353	3/8"
770-4354	1/2"
770-4355	5/8"
770-4356	3/4"
770-4357	7/8"

NYLON P.C. BOARD SUPPORT


TO FIT .156 DIA. HOLE
.40
A
.25
8-32 THREAD
.31
STUD MOUNT

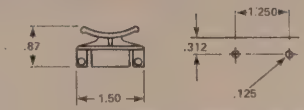
Concord No.	Length "A"
770-4361	.250"
770-4362	.375"
770-4363	.500"
770-4364	.625"
770-4365	.750"
770-4366	.875"
770-4367	1.12"
770-4368	1.43"

MASTER CROSS REFERENCE OF OTHER MAJOR MANUFACTURERS AVAILABLE

PRINTED CIRCUIT ACCESSORIES, NYLON

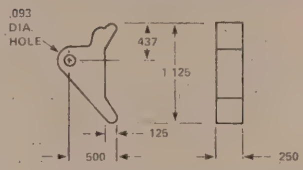
NYLON P.C. CARD HANDLE

For use as a handle or puller for card insertion and removal


.87
1.50
1.250
.312
.125

Concord No. 770-4498

NYLON P.C. CARD EJECTOR

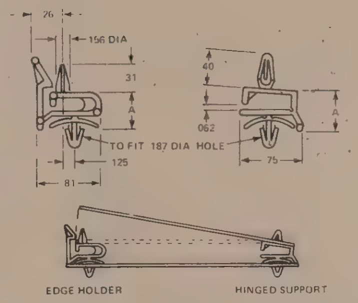

.093 DIA. HOLE
.437
1.125
.125
.500
.250

For removal of circuit boards. Lever action for removal of cards and components. For use with cards to 1/16" thick. Supplied with pin.

Concord No. 770-4497

HINGED P.C. BOARD SUPPORTS

Nylon. Board is hinged on one end, other end has locking edge holder. Fits .187 dia. chassis holes and .156 dia. P.C. board hole.


.26
.156 DIA
.31
A
.40
.062
A
TO FIT .187 DIA HOLE
.125
.81
.75
EDGE HOLDER
HINGED SUPPORT

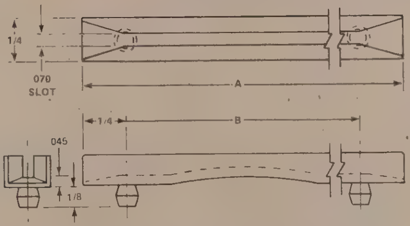
HINGED SUPPORT

Concord No.	Length "A"
770-4380	7/16"
770-4381	5/8"
770-4382	7/8"

EDGE SUPPORT

Concord No.	Length "A"
770-4390	7/16"
770-4391	5/8"
770-4392	7/8"

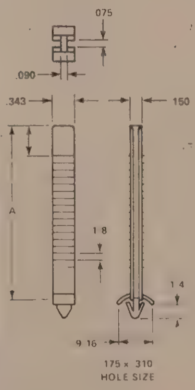
RACK CARD GUIDES


1/4
.070 SLOT
A
1/4
B
.045
1/8

Concord No.	A	B
770-4455	3"	2½"
770-4456	4"	3½"
770-4457	6"	5½"
770-4458	8½"	8"

For mounting circuit boards in rack chassis. Guides snap into .125" dia. hole at both ends. Natural nylon

BOARD GUIDES


.075
.090
.343
.150
A
1/8
1/4
9/16
.175 x .310 HOLE SIZE

Accommodates P.C. Boards of any width; Natural Nylon. Snaps into place. Double channeled for stacking. Accepts board thicknesses from .030" to .075", fits into panel hole .175" x .310". Add .100" to board width for mounting hole centers

Concord No.	Length A
770-4449	1"
770-4450	2"
770-4451	3"

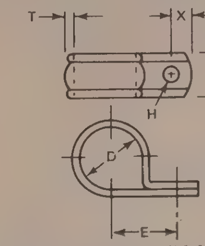
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

HARDWARE

CABLE CLAMPS



PROPIONATE CELLULOSE

T = .060 X = 7/32"
W = 1/2" H = .204

Meets MIL-P-46074A, Type I, Grade H2, Color: CLEAR

Concord No.	Hole (D)	E
770-1501	1/8	.360
770-1502	3/16	.423
770-1503	1/4	.457
770-1504	5/16	.498
770-1505	3/8	.529
770-1506	7/16	.560
770-1507	1/2	.592
770-1508	9/16	.623
770-1509	5/8	.654
770-1510	11/16	.752
770-1511	3/4	.783
770-1512	7/8	.845
770-1513	1	.908
770-1514	1-1/8	.970
770-1515	1-1/4	1.602

NYLON

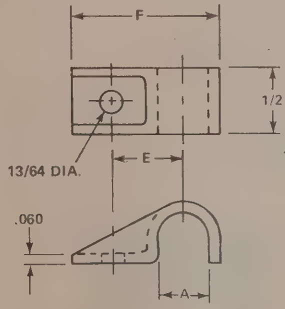
HOLE D 1/8" TO 1/2"
T = .040 X = 5/32"
W = 3/8" H = .167

HOLE D 9/16" TO 1-1/4"
T = .060 X = 13/64"
W = 1/2" H = .204

Meets MIL-P-46074A, Type I, Grade H2, Black

Concord No.	Hole (D)	E
770-1601	1/8	.310
770-1602	3/16	.373
770-1603	1/4	.407
770-1604	5/16	.448
770-1605	3/8	.479
770-1606	7/16	.510
770-1607	1/2	.542
770-1608	9/16	.623
770-1609	5/8	.654
770-1610	11/16	.752
770-1611	3/4	.783
770-1612	7/8	.845
770-1613	1	.908
770-1614	1-1/8	1.002
770-1615	1-1/4	1.062

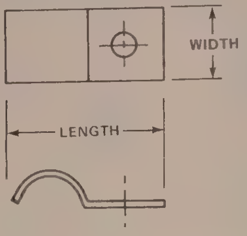
NYLON "HALF" CABLE CLAMPS



Solvent resistant Nylon, unaffected by most solvents, alkalies, dilute mineral acids and most organic acids

Concord No.	Wire Size	A	B	E	F
770-1401	1/8	.115	.115	.307	.675
770-1402	3/16	.172	.172	.336	.732
770-1403	1/4	.234	.234	.366	.793
770-1404	5/16	.297	.297	.400	.859
770-1405	3/8	.359	.359	.430	.920
770-1406	7/16	.422	.422	.460	.980
770-1407	1/2	.484	.484	.492	1.044

STEEL CABLE CLAMPS



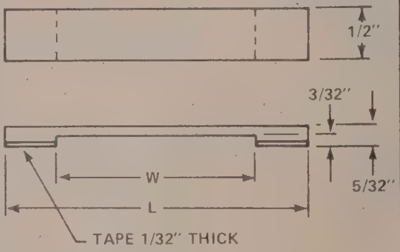
Cadmium-plated No. 8 Mtg. Hole.

Concord No.	Length	Width	Cable
770-1421	5/8"	3/8"	1/8"
770-1420	3/4"	3/8"	1/4"
770-1422	1"	3/8"	1/2"

FLAT WIRE CABLE CLAMPS

Self-extinguishing PVC with self-cohesive back for quick installation of flat cable.

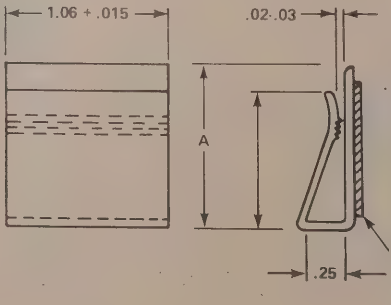
Concord No.	Clamp Width 'L'	Clamp Width 'W'
770-4401	1½"	½"
770-4402	2"	1"
770-4403	3"	2"
770-4404	4"	3"



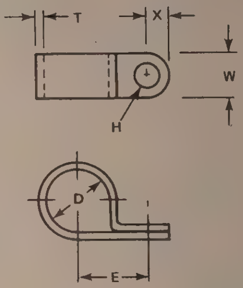
FLAT WIRE CABLE CLAMPS ROUTING TYPE

Nylon with serrated gripper and self-adhesive back for flat or woven cables.

Concord No.	Width "A"
770-4410	½"
770-4411	1"



TAPE 1/16" THICK



POLYPROPYLENE WHITE

T = .060 X = 7/32"
W = 1/2" H = 13/64"

Concord No.	Hole (D)	E
770-1001	1/8	.360
770-1002	3/16	.423
770-1003	1/4	.457
770-1004	5/16	.498
770-1005	3/8	.529
770-1006	7/16	.560
770-1007	1/2	.592
770-1008	9/16	.623
770-1009	5/8	.654
770-1010	11/16	.752
770-1011	3/4	.783
770-1012	7/8	.845
770-1013	1	.908

CELLULOSE AMBER

T = .060 X = 7/32"
W = 1/2" H = 13/64"

Concord No.	Hole (D)	E
770-1101	1/8	.328
770-1102	3/16	.390
770-1103	1/4	.421
770-1104	5/16	.453
770-1105	3/8	.483
770-1106	7/16	.531
770-1107	1/2	.562
770-1108	9/16	.625
770-1109	5/8	.625
770-1110	11/16	.666
770-1111	3/4	.765
770-1112	7/8	.825
770-1113	1	.900

NYLON

T = .050 X = 7/32"
W = 1/2" H = 13/64"

Concord No.	Hole (D)	E
770-1201	1/8	.360
770-1202	3/16	.423
770-1203	1/4	.457
770-1204	5/16	.495
770-1205	3/8	.529
770-1206	7/16	.560
770-1207	1/2	.592
770-1208	9/16	.623
770-1209	5/8	.654
770-1210	11/16	.752
770-1211	3/4	.783
770-1212	7/8	.845
770-1213	1	.908

T = .050 X = 7/32"
W = 3/8" H = 13/64"

770-1301	1/8	.325
770-1302	3/16	.378
770-1303	1/4	.409
770-1304	5/16	.441
770-1305	3/8	.471
770-1306	7/16	.519
770-1307	1/2	.550

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

HARDWARE

ALLIGATOR CLIPS

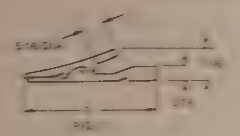


FIG. 1

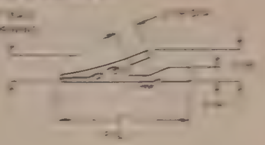


FIG. 2

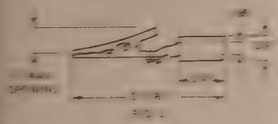


FIG. 3

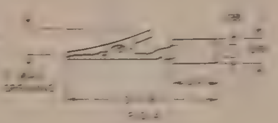


FIG. 4

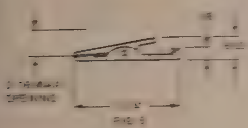


FIG. 5

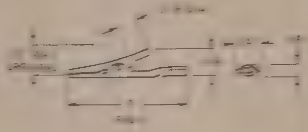


FIG. 6

STANDARD ALLIGATOR CLIPS

Concord No.	Fig.	Insul Uninsul	Clip Mat'l	Wire Connect	Rated Amps
790-7001	1	Uninsul	Steel	Solder	5
790-7035	3	Insul	Steel	Screw	5
790-7006	1	[illegible]	Copper	[illegible]	5
790-7005	2	Uninsul	Steel	Screw	5
790-7007	2	Uninsul	Copper	Screw	5
790-7030	4	Insul	Steel	Solder	5

MINIATURE ALLIGATOR CLIPS

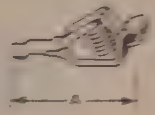
Concord No.	Fig.	Insul Uninsul	Clip Mat'l	Wire Connect	Rated Amps
790-7020	5	Uninsul	Steel	Solder	1
790-7021	5	Uninsul	Copper	Solder	1

STANDARD ADAPTERS

Concord No.	Fig.	Insul Uninsul	Clip Mat'l	Wire Connect	Rated Amps
790-7065	6	Uninsul	Steel	Tip	5

BATTERY CLIPS

STEEL ELECTROPLATED



Concord No.	Current Capacity	[illegible]	Length	Spring
790-7101	6 Amps	3/8"	1-5/8"	7 lbs
790-7102	10 Amps	[illegible]	2"	15 lbs
790-7103	15 Amps	[illegible]	2-1/2"	17 lbs
790-7104	30 Amps	[illegible]	3-1/8"	33 lbs
790-7105	100 Amps	1-1/8	5"	40 lbs

SOLID COPPER

Concord No.	Current Capacity	[illegible]	Length	Spring
790-7106	50 Amps	[illegible]	2-1/2"	17 lbs
790-7107	100 Amps	[illegible]	4-3/4"	33 lbs
790-7108	300 Amps	1-1/8	5-3/4"	40 lbs

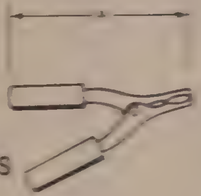
NOTES:
Steel Clips: Cadmium Plated
Brass Clips: Nickel Plated
Insulators 3/4" Long Available
Available in Red & Blk
Boots Available per
the Following Color Chart

COLOR CODE FOR ORDERING

BLK	RED	YEL	GRN	BLU	WHT
10	12	14	15	16	19

PLIER TYPE BATTERY CLIPS

Insulated Vinylite Handles, Red or Black
Specify Color



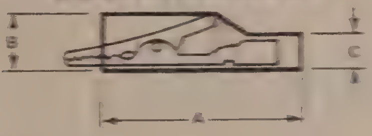
Concord No.	Amps	Material	Overall Size
790-7120	35	Steel, Cad. Pl.	3-1/4
790-7121	75	Steel, Cad. Pl.	4-1/2"
790-7122	100	Steel, Cad. Pl.	7-1/2"
790-7123	300	Solid Copper	7-1/2"

BATTERY CLIP INSULATORS

Red or Black, Specify Color

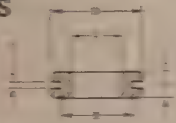
Concord No.	MADE TO FIT	Material
790-7130	790-7101	[illegible]

INSULATOR BOOTS



Concord No.	Type	Mat'l	A	B	C
790-7025	Std	Vinyl	2	19/32	9/32
790-7026	Min	Vinyl	1-1/2	11/32	7/32

GROMMETS



RUBBER GROMMETS

Concord No.	A	B	C	D	E
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	3/16	5/16	1/16	7/16	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	5/16	7/16	1/16	5/8	1/4
[illegible]	3/8	1/2	1/16	23/32	1/4
[illegible]	7/16	9/16	1/16	3/4	1/4
[illegible]	1/2	3/4	1/16	11/16	5/16
[illegible]	9/16	13/16	1/16	11/16	5/16
[illegible]	5/8	7/8	1/16	1-1/8	5/16
[illegible]	3/4	7/8	1/32	–	5/32

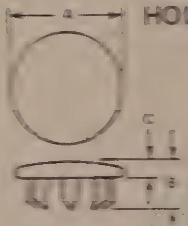
Concord No.	A	B	C	D	E
[illegible]	1/16	1/4	1/16	11/32	3/16
[illegible]	3/16	5/16	1/16	7/16	[illegible]
[illegible]	3/16	15/32	1/8	9/16	3/8
[illegible]	1/4	[illegible]	1/32	1/2	5/32
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	5/16	7/16	1/8	19/32	3/8
[illegible]	5/16	1/2	1/8	3/4	3/8
[illegible]	5/16	1/2	3/16	5/8	1/2
[illegible]	[illegible]	7/16	1/16	5/8	1/2
[illegible]	3/8	7/16	3/32	5/8	5/16
[illegible]	3/8	1/2	[illegible]	3/4	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

VINYL GROMMETS

Concord No.	A	B	C	D	E
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

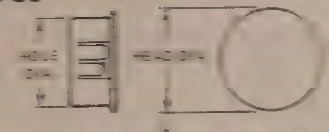
HOLE PLUGS

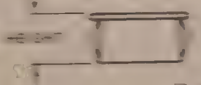
HOLE PLUGS NICKEL PLATED STEEL



Concord No.	Hole Size Ref	A	B	C	Prongs
790-3002	1/4	13/32	15/64	1/16	6
790-3004	5/16	7/16	1/4	1/16	6
790-3006	3/8	1/2	15/64	1/16	6
790-3008	1/2	21/32	9/32	5/64	8
790-3010	5/8	13/16	19/64	5/64	8
790-3012	3/4	59/64	19/64	5/64	12
790-3014	7/8	1-1/16	19/64	1/16	12
790-3016	1"	1-3/64	21/64	3/32	12
790-3018	1" [illegible]	1-5/32	19/64	5/64	6
790-3020	1-1/8	1-5/16	11/32	5/64	12
790-3022	1-1/4	1-7/16	11/32	3/32	12
790-3024	1-3/8	1-9/16	13/32	5/64	12
790-3026	1-1/2	1-41/64	13/32	3/32	12

HOLE PLUGS PLASTIC

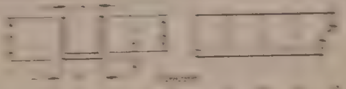




Concord No.	Hole Dia.	Head Dia.	Height	Maximum Panel Thickness
790-3150	1/4	5/16	5/16	1/16
790-3152	5/16	3/8	5/16	1/16
790-3154	3/8	15/32	13/32	1/8
790-3156	1/2	37/64	13/32	1/8
790-3158	5/8	25/32	13/32	1/8
790-3160	3/4	27/32	13/32	1/8
790-3162	1	1-1/8	25/64	1/8
790-3164	1" [illegible]	1-13/64	25/64	1/8
790-3166	1-1/8	1-7/32	25/64	1/8
790-3168	1-1/4	1-3/8	[illegible]	1/8
790-3170	1-3/8	1-15/32	25/64	1/8
790-3172	1-1/2	1-39/64	25/64	1/8

"CATERPILLAR" STRIP GROMMETING EXTRUDED NYLON

[illegible]



Concord No.	A	B	C	D	E
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

FOR MIL SPEC, ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

HARDWARE

LACING CORD AND TAPE

ROUND NYLON CORD

Meets MIL-T-713D Type P MW Finish Supplied 1/2 lb. Spools

Concord No.	Class	Dia.	Test	Yds/Lb.	Color
770-8001	1	.050	70	560	Natural
770-8004	1	.050	70	560	Blk
770-8002	2	.035	48	750	Natural
770-8005	2	.035	48	750	Blk
770-8003	3	.030	32	1180	Natural
770-8006	3	.030	32	1180	Blk

FLAT NYLON TAPE

Meets MIL T 43435 Type 1 Polyamide Nylon B Finish

Concord No.	Size	Width	Thk	Test	Yds/Spool	Color
770-8010	1	.225	.014	135	250	Natural
770-8020	1	.225	.014	135	250	Blk
770-8011	2	125	.013	80	250	Natural
770-8021	2	.125	.013	80	250	Blk
770-8012	3	.090	.012	50	500	Natural
770-8022	3	.090	.012	50	500	Blk
770-8013	4	.062	.012	25	500	Natural
770-8023	4	.062	.012	25	500	Blk
770-8014	5	.048	.008	15	500	Natural
770-8024	5	.048	.008	15	500	Blk

FLAT-DACRON TAPE

Meets MIL-T-43434 Type 2 Polyester (Dacron) B Finish, 500 Yds per Spool

Concord No.	Size	Width	Thk	Test	Yds	Color
770-8030	1	.225	.014	135	500	Natural
770-8033	1	.225	.014	135	500	Blk
770-8031	2	.090	.014	50	500	Natural
770-8034	2	.090	.014	50	500	Blk
770-8032	4	.062	.010	25	500	Natural
770-8035	4	.062	.010	25	500	Blk

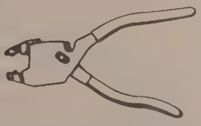
ROUND LINEN CORD

Meets MIL-T-713D TY N

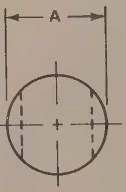
Concord No.	Class	Ply	Yds	Color
770-8044	1	12	300	Natural
770-8042	2	8	470	Natural
770-8041	3	6	600	Natural
770-8040	–	4	850	Natural
770-8043	–	9	400	Natural

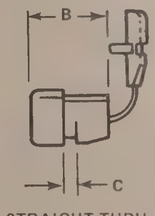
SETTING PLIERS FOR STRAIN RELIEFS

Concord No.
770-4030

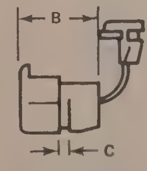


STRAIN RELIEFS



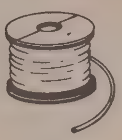


STRAIGHT THRU



RIGHT ANGLE

TEFLON TUBING



Meets and exceeds MIL-1-22129B, AMS-3655, or 3654, CS252-63. For slipon insulation. Provides greater reliability and resistance to high temperatures. Shrink-back is virtually eliminated. Individually packed.

SPECIFY COLOR

If no color is specified, Natural Teflon will be supplied.

STANDARD WALL

Concord No.	Awg Wire Size	Nom. I.D.	Nom. Wall Thk.	Std. Pkg. Ft.
770-9901	24	.022	.012	100
770-9902	22	.027	.012	100
770-9903	20	.034	.016	100
770-9904	19	.038	.016	100
770-9905	18	.042	.016	100
770-9906	17	.047	.016	100
770-9907	16	.053	.016	100
770-9908	15	.059	.016	100
770-9909	14	.066	.016	100
770-9910	13	.076	.016	100
770-9911	12	.085	.016	100
770-9912	11	.095	.016	100
770-9913	10	.106	.016	100
770-9914	9	.118	.020	100
770-9915	1/8″	.125	.020	100
770-9916	8	.133	.020	50
770-9917	7	.148	.020	50
770-9918	6	.166	.020	50
770-9919	5	.186	.020	50
770-9920	4	.208	.020	50
770-9921	3	.234	.020	50
770-9922	1/4″	.250	.020	50
770-9923	2	.263	.020	50
770-9924	1	.294	.020	50
770-9925	5/16″	.312	.020	50
770-9926	0	.330	.020	50

LIGHTWEIGHT

Concord No.	Awg Wire Size	Nom. I.D.	Nom. Wall Thk.	Std. Pkg. Ft.
770-9965	28	.015	.006	100
770-9966	26	.018	.006	100
770-9967	24	.022	.006	100
770-9968	22	.027	.006	100
770-9969	20	.034	.006	100
770-9970	19	.038	.006	100
770-9971	18	.042	.006	100
770-9972	17	.047	.006	100
770-9973	16	.053	.006	100
770-9974	15	.059	.006	100
770-9975	14	.066	.008	100
770-9976	13	.076	.008	100
770-9977	12	.085	.008	100
770-9978	11	.095	.008	100
770-9979	10	.106	.008	100
770-9981	9	.118	.008	50
770-9982	1/8″	.125	.008	50
770-9983	8	.133	.008	50
770-9984	7	.148	.008	50
770-9985	6	.166	.010	50
770-9986	5	.186	.010	50
770-9987	4	.208	.010	50
770-9988	3	.234	.010	50
770-9989	1/4″	.250	.010	50
770-9990	2	.263	.010	50
770-9991	1	.294	.010	50
770-9992	5/16″	.312	.012	50
770-9993	0	.330	.012	50

THINWALL

Concord No.	Awg Wire Size	Nom. I.D.	Nom. Wall Thk.	Std. Pkg. Ft.	Concord No.	Awg Wire Size	Nom. I.D.	Nom. Wall Thk.	Std. Pkg. Ft.
770-9930	30	.012	.009	100	770-9945	10	.106	.012	100
770-9931	28	.015	.009	100	770-9946	9	.118	.015	100
770-9932	26	.018	.009	100	770-9947	1/8″	.125	.015	100
770-9933	24	.022	.010	100					
770-9934	22	.027	.010	100	770-9948	8	.133	.015	50
770-9935	20	.034	.012	100	770-9949	7	.148	.015	50
770-9936	19	.038	.012	100	770-9950	6	.166	.015	50
770-9937	18	.042	.012	100	770-9951	5	.186	.015	50
770-9938	17	.047	.012	100	770-9952	4	.208	.015	50
770-9939	16	.053	.012	100	770-9953	3	.234	.015	50
770-9940	15	.059	.012	100	770-9954	1/4″	.250	.015	50
770-9941	14	.066	.012	100	770-9955	2	.263	.015	50
770-9942	13	.076	.012	100	770-9956	1	.294	.015	50
770-9943	12	.085	.012	100	770-9957	5/16″	.312	.015	50
770-9944	11	.095	.012	100	770-9958	0	.330	.015	50

STRAIN RELIEFS

Absorbs pull and twist. Wire fully anchored and insulated in chassis. Straight thru and right angle types. UL Listed.

A = Chassis Hole. B = Length. C = Max. Chassis Thickness.

STRAIGHT THRU

Concord No.	Wire Type	Approx. Wire Size	A	B	C
770-4021	AWM	1/8-3/16	.375″	.410″	.060″
770-4022	SP-1, SPT-1	.12 x .22	.437″	.410″	.062″
770-4023	SV. SVT, HPD	.250-.290	.500″	.438″	.100″
770-4024	SPT-1, SPT-2, SP-2, HPN	.12 to .30	.500″	.406″	.062″
770-4025	SJ, SJT, SJO	.325-.360	.625″	.580″	.062″
RIGHT ANGLE					
770-4026	SPT-1, SPT-2, SP-2, HPN	.12 to .30	.500″	.687″	.100″
770-4027	SV, SVT, HPD	.250-.290	.500″	.687″	.100″
770-4028	S, ST	.360-.430	.750″	1.085″	.125″

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CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
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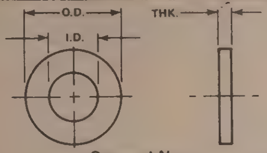
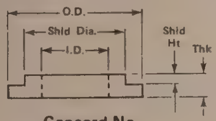
HARDWARE



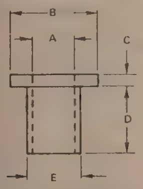
FLAT WASHERS FIBRE AND NYLON

Concord No. FIBRE	Concord No. NYLON	Clear Screw	I.D.	O.D.	Thk
760-1501	760-2501	2	.093	.250	1/32
760-1502	760-2502	4	.115	.250	1/16
	760-2503	4	.115	.281	3/64
760-1504	760-2504	6	.141	.250	1/16
	760-2505	6	.141	.312	3/64
760-1506	760-2506	6	.141	.375	1/16
	760-2507	8	.172	.375	1/16
760-1508	760-2508	8	.170	.375	1/16
760-1509	760-2509	10	.196	.375	1/16
	760-2510	10	.196	.437	1/16
760-1511	760-2511	1/4	.253	.500	1/16
760-1512	760-2512	1/4	.253	.500	3/32
	760-2513	1/4	.253	.562	1/16
760-1514	760-2514	5/16	.315	.500	1/16
760-1515	760-2515	3/8	.385	.625	1/16
760-1516	760-2516	3/8	.378	.750	1/16



SHOULDER WASHERS FIBRE AND NYLON

Concord No. FIBER	Concord No. NYLON	Screw Clear	I.D.	O.D.	Thk	Shld Ht.	Shld Dia.
760-1002	760-2002	2	.093	.250	.055	.025	.154
760-1004	760-2004	4	.115	.250	.062	.031	.187
760-1006	760-2006	6	.141	.250	.093	.031	.187
760-1008	760-2008	6	.141	.312	.093	.031	.187
760-1010	760-2010	6	.141	.375	.093	.031	.240
760-1012	760-2012	8	.167	.375	.093	.031	.246
760-1014	760-2014	10	.194	.375	.093	.031	.308
760-1016	760-2016	1/4″	.253	.500	.093	.031	.308
760-1018	760-2018	17/64″	.265	.500	.093	.031	.365
760-1020	760-2020	3/8″	.385	.625	.093	.031	.498
760-1022	760-2022	3/8″	.378	.750	.093	.031	.498



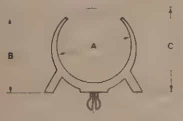
SPACER BUSHINGS

Natural Color. MIL-P-20693A.

Concord No.	I.D. (A)	B	C	D	E
760-2025	#4(.115)	.235	3/64	1/4	.147
760-2026	#6(.140)	.290	3/64	1/4	.170
760-2027	#8(.170)	.344	1/16	3/8	.205
760-2028	#10(.200)	.399	1/16	3/8	.260
760-2029	1/4″(.260)	.513	1/16	3/8	.312

COMPONENT CLAMPS

Nylon.
For chassis or P.C. board mounting of components.
Panel thickness 1/16″, hole size 5/32″.

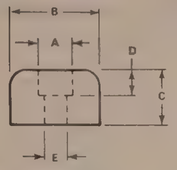


Concord No.	A	B	C
770-4001*	.218	.265	.343
770-4002	.250	.343	.375
770-4004	.375	.437	.500
770-4006	.500	.546	.625
770-4008	.625	.685	.750
770-4010	.750	.800	.875
770-4011	.800	.781	.925
770-4012	1.000	1.000	1.125

*Hole size 1/8″

THREADED ROD

BRASS 1-Ft. Length Concord No.	BRASS 2-Ft. Length Concord No.	Threaded	NYLON 1-Ft. Length Concord No.	NYLON 2-Ft. Length Concord No.
701-8000-1	701-8000-2	6-32	701-8050-1	701-8050-2
701-8001-1	701-8001-2	8-32	701-8051-1	701-8051-2
701-8002-1	701-8002-2	10-32	701-8052-1	701-8052-2
701-8003-1	701-8003-2	1/4-20	701-8053-1	701-8053-2



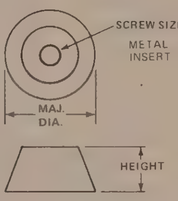
RUBBER RECESS BUMPERS

Concord No.	A	B	C	D	E	With Screw & Nut Concord No.	Screw Size
760-3520	1/4	17/32	1/4	5/32	1/8	760-3530	4-40 X 3/8
760-3521	5/16	5/8	5/8	5/16	11/64	760-3531	8-32 X 1/2
760-3522	1/4	11/16	13/32	7/32	1/8	760-3532	4-40 X 3/8
760-3523	7/32	23/32	17/32	1/4	3/32	760-3533	2-56 X 1/2
760-3524	1/4	3/4	17/64	1/8	1/8	760-3534	4-40 X 3/8
760-3525	3/8	25/32	9/16	5/16	3/16	760-3535	8-32 X 1/2
760-3526	1/4	1	1	5/8	1/8	760-3536	4-40 X 1
760-3501	1/4	1/2	1/4	5/32	1/8	760-3505	6-32 X 1/2
760-3502	1/4	5/8	5/16	5/32	1/8	760-3506	6-32 X 1/2
760-3503	9/32	3/4	3/8	3/32	9/64	760-3507	6-32 X 1/2
760-3504	9/32	5/8	9/32	1/8	1/8	760-3508	6-32 X 1/2

WITH MOLDED IN WASHERS

	A	B	C	D	E		
760-3540	1/4	17/32	1/4	5/32	1/8	760-3550	4-40 X 3/8
760-3541	1/4	11/16	13/32	7/32	1/8	760-3551	4-40 X 3/8
760-3542	1/4	3/4	17/64	1/8	1/8	760-3552	4-40 X 3/8
760-3543	3/8	25/32	9/16	5/16	3/16	760-3553	8-32 X 1/2
760-3509	3/8	31/32	3/8	–	–	760-3510	8-32 X 1/2

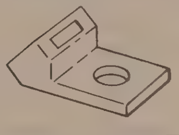
VINYL CABINET FEET



Concord No.	Screw Size	HT	Maj. Dia.	Color
760-3570	4	3/8	9/16	Blk
760-3571	6	7/16	3/4	Blk
760-3572	8	5/8	15/16	Blk
760-3573	6	1/4	11/16	Gray
760-3574	8	5/16	7/8	Gray
760-3575	10	7/16	1-1/16	Gray

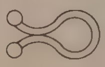
NYLON MOUNTING TABS

For use with No. 770-1701 cable ties.
Furnished with .203 mounting hole.



Concord No.
770-1702

TWIST LOCK CABLE TIES



Cost saving white Nylon re-usable cable ties.
Twists to lock wire, twists to unlock.

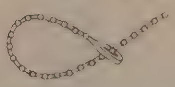
Concord No.	For Wire Dia.
770-1706	.200-.300
770-1707	.400-.500
770-1708	.700-.800

BEADED WIRE TIES

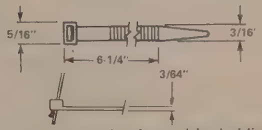
White Nylon

Concord No. 770-1765

5 Inches Long



CABLE TIES NYLON LOCKING CLAMP

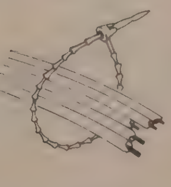


Ratchet design makes for positive holding. Accommodates cables from 1/8″ to 1-3/4″. Just slip clamp around cable, insert tongue and pull tight.

Concord No. 770-1701

NYLON ADJUSTABLE CABLE TIE

Replaces lacing cord, tape and other fasteners in wrap-around applications. Once applied it will not slip.



Concord No.
770-1766

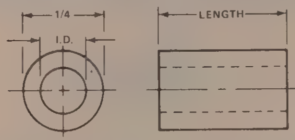
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

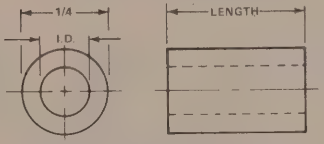
HARDWARE

CLEAR 1/4" ROUND FIBRE SPACERS



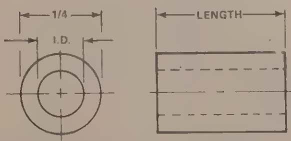
Clear Hole #4 (.115)	Clear Hole #6 (.140)	Clear Hole #8 (.171)	Length
750-1501	750-1502	750-1503	.125
750-1504	750-1505	750-1506	.187
750-1507	750-1508	750-1509	.250
750-1510	750-1511	750-1512	.312
750-1513	750-1514	750-1515	.375
750-1516	750-1517	750-1518	.437
750-1519	750-1520	750-1521	.500
750-1522	750-1523	750-1524	.562
750-1525	750-1526	750-1527	.625
750-1528	750-1529	750-1530	.687
750-1531	750-1532	750-1533	.750
750-1534	750-1535	750-1536	.812
750-1537	750-1538	750-1539	.875
750-1540	750-1541	750-1542	.937
750-1543	750-1544	750-1545	1.000

CLEAR 1/4" ROUND PHENOLIC SPACERS



Clear Hole #4 (.115)	Clear Hole #6 (.140)	Clear Hole #8 (.171)	Length
750-1801	750-1802	750-1803	.125
750-1804	750-1805	750-1806	.187
750-1807	750-1808	750-1809	.250
750-1810	750-1811	750-1812	.312
750-1813	750-1814	750-1815	.375
750-1816	750-1817	750-1818	.437
750-1819	750-1820	750-1821	.500
750-1822	750-1823	750-1824	.562
750-1825	750-1826	750-1827	.625
750-1828	750-1829	750-1830	.687
750-1831	750-1832	750-1833	.750
750-1834	750-1835	750-1836	.812
750-1837	750-1838	750-1839	.875
750-1840	750-1841	750-1842	.937
750-1843	750-1844	750-1845	1.000

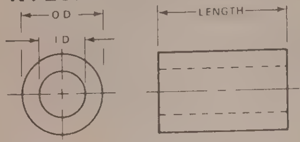
CLEAR 1/4 ROUND PLASTIC SPACERS CPVC SELF EXTINGUISHING GRAY



Clear Hole #4 (.115)	Clear Hole #6 (.140)	Clear Hole #8 (.170)	Length
750-1701	750-1702	750-1703	.250
750-1704	750-1705	750-1706	.375
750-1707	750-1708	750-1709	.500
750-1710	750-1711	750-1712	.625
750-1713	750-1714	750-1715	.750
750-1716	750-1717	750-1718	1.000

MOST ITEMS ARE IN STOCK AND SHIPPED OUT THE SAME DAY

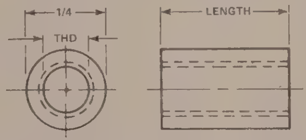
NYLON SPACERS CLEAR



.091 I.D. #2 SCREW Concord No.	.115 I.D. #4 SCREW Concord No.	3/16 OD Length
750-1001	750-1016	.125
750-1002	750-1017	.187
750-1003	750-1018	.250
750-1004	750-1019	.312
750-1005	750-1020	.375
750-1006	750-1021	.437
750-1007	750-1022	.500
750-1008	750-1023	.562
750-1009	750-1024	.625
750-1010	750-1025	.687
750-1011	750-1026	.750
750-1012	750-1027	.812
750-1013	750-1028	.875
750-1014	750-1029	.937
750-1015	750-1030	1.000

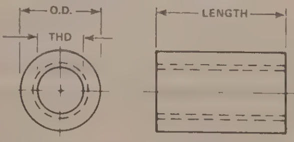
.115 I.D. #4 SCREW Concord No.	.140 I.D. #6 SCREW Concord No.	.171 I.D. #8 SCREW Concord No.	1/4 OD Length
750-1100	750-1101	750-1102	.125
750-1103	750-1104	750-1105	.187
750-1106	750-1107	750-1108	.250
750-1109	750-1110	750-1111	.312
750-1112	750-1113	750-1114	.375
750-1115	750-1116	750-1117	.437
750-1118	750-1119	750-1120	.500
750-1121	750-1122	750-1123	.562
750-1124	750-1125	750-1126	.625
750-1127	750-1128	750-1129	.687
750-1130	750-1131	750-1132	.750
750-1133	750-1134	750-1135	.812
750-1136	750-1137	750-1138	.875
750-1139	750-1140	750-1141	.937
750-1142	750-1143	750-1144	1.000

THREADED 1/4" ROUND PHENOLIC SPACERS



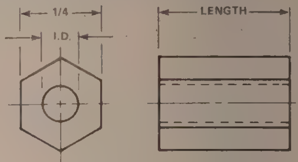
4-40 THD	6-32 THD	8-32 THD	Length
750-1601	750-1602	750-1603	.250
750-1604	750-1605	750-1606	.312
750-1607	750-1608	750-1609	.375
750-1610	750-1611	750-1612	.437
750-1613	750-1614	750-1615	.500
750-1616	750-1617	750-1618	.562
750-1619	750-1620	750-1621	.625
750-1622	750-1623	750-1624	.687
750-1625	750-1626	750-1627	.750
750-1628	750-1629	750-1630	.812
750-1631	750-1632	750-1633	.875
750-1634	750-1635	750-1636	.937
750-1637	750-1638	750-1639	1.000

1/4" ROUND NYLON THREADED SPACERS



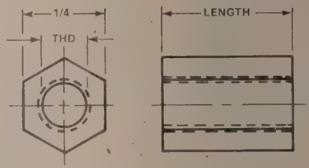
4-40 THD	6-32 THD	8-32 THD	Length
750-1201	750-1202	750-1203	.250
750-1204	750-1205	750-1206	.375
750-1207	750-1208	750-1209	.500
750-1210	750-1211	750-1212	.750
750-1213	750-1214	750-1215	1.000

SELF-TAPPING HOLE SIZE 1/4" HEX NYLON SPACERS



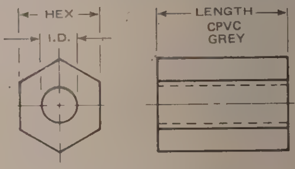
#4 (.091)	#6 (.115)	#8 (.140)	Length
750-1301	750-1302	750-1303	.250
750-1304	750-1305	750-1306	.375
750-1307	750-1308	750-1309	.500
750-1310	750-1311	750-1312	.750
750-1313	750-1314	750-1315	.875
750-1316	750-1317	750-1318	1.000

THREADED HEX NYLON SPACERS



4-40 Thread	Concord 6-32 Thread	8-32 Thread	Length
750-1401	750-1402	750-1403	.250
750-1404	750-1405	750-1406	.375
750-1407	750-1408	750-1409	.500
750-1410	750-1411	750-1412	.750
750-1413	750-1414	750-1415	.875
750-1416	750-1417	750-1418	1.000

HEX PLASTIC (SELF TAPPING)



3/16 Hex X .092 I.D.
(For #4 Self Tapping Screw)

Concord No.	Length
750-1750	.375
750-1751	.500
750-1753	.625
750-1756	.750
750-1759	.875
750-1762	1.000

1/4 Hex X .110 I.D.
(For #6 Self Tapping Screw)

Concord	Length
750-1752	.500
750-1754	.625
750-1757	.750
750-1760	.875
750-1763	1.000

3/8 Hex X .141 I.D.
(For #8 Self Tapping Screw)

Concord	Length
750-1755	.625
750-1758	.750
750-1761	.875
750-1764	1.000

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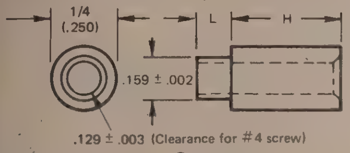
HARDWARE

STANDOFFS, THRUHOLE, ROUND

BRASS & ALUMINUM

598-5XXX-07
698A-5XXX-19

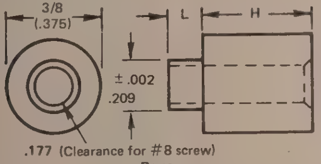
BASIC PART NO. FINISH



Board Thickness	H	L	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
1/32	.125	.078	598-5001-07	698A-5001-19
1/32	.188	.078	598-5002-07	698A-5002-19
1/32	.250	.078	598-5003-07	698A-5003-19
1/32	.375	.078	598-5004-07	698A-5004-19
1/32	.500	.078	598-5005-07	698A-5005-19
1/32	.625	.078	598-5006-07	698A-5006-19
1/32	.750	.078	598-5007-07	698A-5007-19
1/32	1.000	.078	598-5008-07	698A-5008-19
1/16	.125	.109	598-5009-07	698A-5009-19
1/16	.188	.109	598-5010-07	698A-5010-19
1/16	.250	.109	598-5011-07	698A-5011-19
1/16	.375	.109	598-5012-07	698A-5012-19
1/16	.500	.109	598-5013-07	698A-5013-19
1/16	.625	.109	598-5014-07	698A-5014-19
1/16	.750	.109	598-5015-07	698A-5015-19
1/16	1.000	.109	598-5016-07	698A-5016-19
3/32	.125	.141	598-5017-07	698A-5017-19
3/32	.188	.141	598-5018-07	698A-5018-19
3/32	.250	.141	598-5019-07	698A-5019-19
3/32	.375	.141	598-5020-07	698A-5020-19
3/32	.500	.141	598-5021-07	698A-5021-19
3/32	.625	.141	598-5022-07	698A-5022-19
3/32	.750	.141	598-5023-07	698A-5023-19
3/32	1.000	.141	598-5024-07	698A-5024-19
1/8	.125	.172	598-5025-07	698A-5025-19
1/8	.188	.172	598-5026-07	698A-5026-19
1/8	.250	.172	598-5027-07	698A-5027-19
1/8	.375	.172	598-5028-07	698A-5028-19
1/8	.500	.172	598-5029-07	698A-5029-19
1/8	.625	.172	598-5030-07	698A-5030-19
1/8	.750	.172	598-5031-07	698A-5031-19
1/8	1.000	.172	598-5032-07	698A-5032-19

599-5XXX-07
699A-5XXX-19

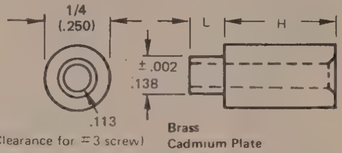
BASIC PART NO. FINISH



Board Thickness	H	L	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
1/32	.125	.078	599-5001-07	699A-5001-19
1/32	.188	.078	599-5002-07	699A-5002-19
1/32	.250	.078	599-5003-07	699A-5003-19
1/32	.375	.078	599-5004-07	699A-5004-19
1/32	.500	.078	599-5005-07	699A-5005-19
1/32	.625	.078	599-5006-07	699A-5006-19
1/32	.750	.078	599-5007-07	699A-5007-19
1/32	1.000	.078	599-5008-07	699A-5008-19
1/16	.125	.109	599-5009-07	699A-5009-19
1/16	.188	.109	599-5010-07	699A-5010-19
1/16	.250	.109	599-5011-07	699A-5011-19
1/16	.375	.109	599-5012-07	699A-5012-19
1/16	.500	.109	599-5013-07	699A-5013-19
1/16	.625	.109	599-5014-07	699A-5014-19
1/16	.750	.109	599-5015-07	699A-5015-19
1/16	1.000	.109	599-5016-07	699A-5016-19
3/32	.125	.141	599-5017-07	699A-5017-19
3/32	.188	.141	599-5018-07	699A-5018-19
3/32	.250	.141	599-5019-07	699A-5019-19
3/32	.375	.141	599-5020-07	699A-5020-19
3/32	.500	.141	599-5021-07	699A-5021-19
3/32	.625	.141	599-5022-07	699A-5022-19
3/32	.750	.141	599-5023-07	699A-5023-19
3/32	1.000	.141	599-5024-07	699A-5024-19
1/8	.125	.172	599-5025-07	699A-5025-19
1/8	.188	.172	599-5026-07	699A-5026-19
1/8	.250	.172	599-5027-07	699A-5027-19
1/8	.375	.172	599-5028-07	699A-5028-19
1/8	.500	.172	599-5029-07	699A-5029-19
1/8	.625	.172	599-5030-07	699A-5030-19
1/8	.750	.172	599-5031-07	699A-5031-19
1/8	1.000	.172	599-5032-07	699A-5032-19

548-5XXX-07
648A-5XXX-19

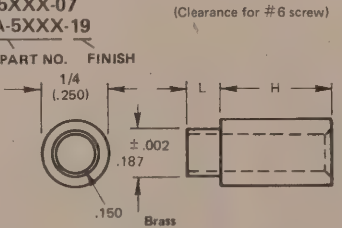
BASIC PART NO. FINISH



Board Thickness	H	L	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
1/32	.125	.062	548-5001-07	648A-5001-19
1/32	.188	.062	548-5002-07	648A-5002-19
1/32	.250	.062	548-5003-07	648A-5003-19
1/32	.375	.062	548-5004-07	648A-5004-19
1/32	.500	.062	548-5005-07	648A-5005-19
1/32	.625	.062	548-5006-07	648A-5006-19
1/32	.750	.062	548-5007 07	648A-5007-19
1/32	1.000	.062	548-5008-07	648A-5008-19
1/16	.125	.094	548-5009-07	648A-5009-19
1/16	.188	.094	548-5010-07	648A-5010-19
1/16	.250	.094	548-5011-07	648A-5011-19
1/16	.375	.094	548-5012-07	648A-5012-19
1/16	.500	.094	548-5013-07	648A-5013-19
1/16	.625	.094	548-5014-07	648A-5014-19
1/16	.750	.094	548-5015-07	648A-5015-19
1/16	1.000	.094	548-5016-07	648A-5016-19
3/32	.125	.125	548-5017-07	648A-5017-19
3/32	.188	.125	548-5018-07	648A-5018-19
3/32	.250	.125	548-5019-07	648A-5019-19
3/32	.375	.125	548-5020-07	648A-5020-19
3/32	.500	.125	548-5021-07	648A-5021-19
3/32	.625	.125	548-5022 07	648A-5022-19
3/32	.750	.125	548-5023-07	648A-5023-19
3/32	1.000	.125	548-5024-07	648A-5024-19
1/8	.125	.156	548-5025-07	648A-5025-19
1/8	.188	.156	548-5026-07	648A-5026-19
1/8	.250	.156	548-5027-07	648A-5027-19
1/8	.375	.156	548-5028-07	648A-5028-19
1/8	.500	.156	548-5029-07	648A-5029-19
1/8	.625	.156	548-5030-07	648A-5030-19
1/8	.750	.156	548-5031-07	648A-5031-19
1/8	1.000	.156	548-5032-07	648A-5032-19
3/16	.125	.219	548-5033-07	648A-5033-19
3/16	.188	.219	548-5034-07	648A-5034-19
3/16	.250	.219	548-5035-07	648A-5035-19
3/16	.375	.219	548-5036-07	648A-5036-19
3/16	.500	.219	548-5037-07	648A-5037-19
3/16	.625	.219	548-5038-07	648A-5038-19
3/16	.750	.219	548-5039-07	648A-5039-19
3/16	1.000	.219	548-5040-07	648A-5040-19
1/4	.125	.281	548-5041-07	648A-5041-19
1/4	.188	.281	548-5042-07	648A-5042-19
1/4	.250	.281	548-5043-07	648A-5043-19
1/4	.375	.281	548-5044-07	648A-5044-19
1/4	.500	.281	548-5045-07	648A-5045-19
1/4	.625	.281	548-5046-07	648A-5046-19
1/4	.750	.281	548-5047-07	648A-5047-19
1/4	1.000	.281	548-5048-07	648A-5048-19

547-5XXX-07
647A-5XXX-19

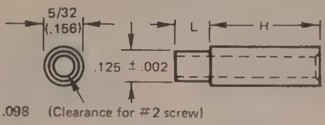
BASIC PART NO. FINISH



Board Thickness	H	L	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
1/32	.125	.078	547-5001-07	647A-5001-19
1/32	.188	.078	547-5002-07	647A-5002-19
1/32	.250	.078	547-5003-07	647A-5003-19
1/32	.375	.078	547-5004-07	647A-5004-19
1/32	.500	.078	547-5005-07	647A-5005-19
1/32	.625	.078	547-5006-07	647A-5006-19
1/32	.750	.078	547-5007-07	647A-5007-19
1/32	1.000	.078	547-5008-07	647A-5008-19
1/16	.125	.109	547-5009-07	647A-5009-19
1/16	.188	.109	547-5010-07	647A-5010-19
1/16	.250	.109	547-5011-07	647A-5011-19
1/16	.375	.109	547-5012-07	647A-5012-19
1/16	.500	.109	547-5013-07	647A-5013-19
1/16	.625	.109	547-5014-07	647A-5014-19
1/16	.750	.109	547-5015-07	647A-5015-19
1/16	1.000	.109	547-5016-07	647A-5016-19
3/32	.125	.141	547-5017-07	647A-5017-19
3/32	.188	.141	547-5018-07	647A-5018-19
3/32	.250	.141	547-5019-07	647A-5019-19
3/32	.375	.141	547-5020-07	647A-5020-19
3/32	.500	.141	547-5021-07	647A 5021-19
3/32	.625	.141	547-5022-07	647A-5022 19
3/32	.750	.141	547-5023-07	647A 5023 19
3/32	1.000	.141	547-5024-07	647A-5024-19
1/8	.125	.172	547-5025-07	647A-5025-19
1/8	.188	.172	547-5026-07	647A-5026-19
1/8	250	.172	547-5027-07	647A-5027 19
1/8	.375	.172	547-5028-07	647A-5028-19
1/8	.500	.172	547-5029-07	647A-5029-19
1/8	.625	.172	547-5030-07	647A-5030-19
1/8	.750	.172	547-5031-07	647A-5031-19
1/8	1.000	.172	547-5032-07	647A-5032-19
3/16	.125	.234	547-5033-07	647A-5033-19
3/16	.188	.234	547-5034-07	647A-5034-19
3/16	.250	.234	547-5035-07	647A-5035-19
3/16	.375	.234	547-5036-07	647A-5036-19
3/16	.500	.234	547-5037-07	647A-5037-19
3/16	.625	.234	547-5038-07	647A-5038-19
3/16	.750	.234	547-5039-07	647A-5039-19
3/16	1.000	.234	547-5040-07	647A-5040-19
1/4	.125	.297	547-5041-07	647A-5041-19
1/4	.188	.297	547-5042-07	647A-5042-19
1/4	.250	.297	547-5043-07	647A-5043-19
1/4	.375	.297	547-5044-07	647A-5044-19
1/4	.500	.297	547-5045-07	647A-5045-19
1/4	.625	.297	547-5046-07	647A-5046-19
1/4	.750	.297	547-5047-07	647A-5047-19
1/4	1.000	.297	547-5048-07	647A-5048-19

549-5XXX-07
649A-5XXX-19

BASIC PART NO. FINISH



Board Thickness	H	L	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
1/32	.125	.062	549-5001-07	649A-5001-19
1/32	.188	.062	549-5002-07	649A-5002-19
1/32	.250	.062	549-5003-07	649A-5003-19
1/32	.375	.062	549-5004-07	649A-5004-19
1/32	.500	.062	549-5005-07	649A-5005-19
1/32	.625	.062	549-5006-07	649A-5006-19
1/32	.750	.062	549-5007-07	649A-5007-19
1/32	1.000	.062	549-5008-07	649A-5008-19
1/16	.125	.094	549-5009-07	649A-5009-19
1/16	.188	.094	549-5010-07	649A-5010-19
1/16	.250	.094	549-5011-07	649A-5011-19
1/16	.375	.094	549-5012-07	649A-5012-19
1/16	.500	.094	549-5013-07	649A-5013-19
1/16	.625	.094	549-5014-07	649A-5014-19
1/16	.750	.094	549-5015-07	649A-5015-19
1/16	1.000	.094	549-5016-07	649A-5016-19
3/32	.125	.125	549-5017-07	649A-5017-19
3/32	.188	.125	549-5018-07	649A-5018-19
3/32	.250	.125	549-5019-07	649A-5019-19
3/32	.375	.125	549-5020-07	649A-5020-19
3/32	.500	.125	549-5021-07	649A-5021-19
3/32	.625	.125	549-5022-07	649A-5022-19
3/32	.750	.125	549-5023-07	649A-5023-19
3/32	1.000	.125	549-5024-07	649A-5024-19
1/8	.125	.156	549-5025-07	649A-5025-19
1/8	.188	.156	549-5026-07	649A-5026-19
1/8	.250	.156	549-5027-07	649A-5027-19
1/8	.375	.156	549-5028-07	649A-5028-19
1/8	.500	.156	549-5029-07	649A-5029-19
1/8	.625	.156	549-5030-07	649A-5030-19
1/8	.750	.156	549-5031-07	649A-5031-19
1/8	1.000	.156	549-5032-07	649A-5032-19
3/16	.125	.219	549-5033-07	649A-5033-19
3/16	.188	.219	549-5034-07	649A-5034-19
3/16	.250	.219	549-5035-07	649A-5035-19
3/16	.375	.219	549-5036-07	649A-5036-19
3/16	.500	.219	549-5037-07	649A-5037-19
3/16	.625	.219	549-5038-07	649A-5038-19
3/16	.750	.219	549-5039-07	649A-5039-19
3/16	1.000	.219	549-5040-07	649A-5040-19
1/4	.125	.281	549-5041-07	649A-5041-19
1/4	.188	.281	549-5042-07	649A-5042-19
1/4	.250	.281	549-5043-07	649A-5043-19
1/4	.375	.281	549-5044-07	649A-5044-19
1/4	.500	.281	549-5045-07	649A-5045-19
1/4	.625	.281	549-5046-07	649A-5046-19
1/4	.750	.281	549-5047-07	649A-5047-19
1/4	1.000	.281	549-5048-07	649A-5048-19

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

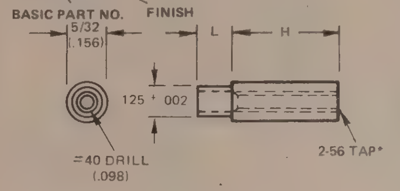
HARDWARE

STANDOFFS, THREADED, ROUND

BRASS & ALUMINUM

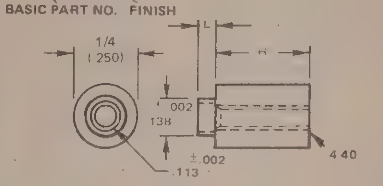
588-5XXX-07
688A-5XXX-19

*FOR H= .750 AND H= 1.000 ONLY, NOT TAPPED THRU



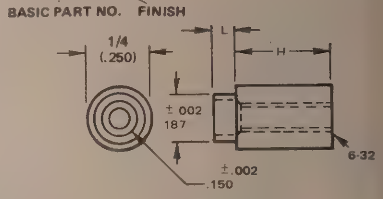
Board Thickness	H	L	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
1/32	.125	.062	588-5001-07	688A-5001-19
1/32	.188	.062	588-5002-07	688A-5002-19
1/32	.250	.062	588-5003-07	688A-5003-19
1/32	.375	.062	588-5004-07	688A-5004-19
1/32	.500	.062	588-5005-07	688A-5005-19
1/32	.625	.062	588-5006-07	688A-5006-19
1/32	.750	.062	588-5007-07	688A-5007-19
1/32	1.000	.062	588-5008-07	688A-5008-19
1/16	.125	.094	588-5009-07	688A-5009-19
1/16	.188	.094	588-5010-07	688A-5010-19
1/16	.250	.094	588-5011-07	688A-5011-19
1/16	.375	.094	588-5012-07	688A-5012-19
1/16	.500	.094	588-5013-07	688A-5013-19
1/16	.625	.094	588-5014-07	688A-5014-19
1/16	.750	.094	588-5015-07	688A-5015-19
1/16	1.000	.094	588-5016-07	688A-5016-19
3/32	.125	.125	588-5017-07	688A-5017-19
3/32	.188	.125	588-5018-07	688A-5018-19
3/32	.250	.125	588-5019-07	688A-5019-19
3/32	.375	.125	588-5020-07	688A-5020-19
3/32	.500	.125	588-5021-07	688A-5021-19
3/32	.625	.125	588-5022-07	688A-5022-19
3/32	.750	.125	588-5023-07	688A-5023-19
3/32	1.000	.125	588-5024-07	688A-5024-19
1/8	.125	.156	588-5025-07	688A-5025-19
1/8	.188	.156	588-5026-07	688A-5026-19
1/8	.250	.156	588-5027-07	688A-5027-19
1/8	.375	.156	588-5028-07	688A-5028-19
1/8	.500	.156	588-5029-07	688A-5029-19
1/8	.625	.156	588-5030-07	688A-5030-19
1/8	.750	.156	588-5031-07	688A-5031-19
1/8	1.000	.156	588-5032-07	688A-5032-19
3/16	.125	.219	588-5033-07	688A-5033-19
3/16	.188	.219	588-5034-07	688A-5034-19
3/16	.250	.219	588-5035-07	688A-5035-19
3/16	.375	.219	588-5036-07	688A-5036-19
3/16	.500	.219	588-5037-07	688A-5037-19
3/16	.625	.219	588-5038-07	688A-5038-19
3/16	.750	.219	588-5039-07	688A-5039-19
3/16	1.000	.219	588-5040-07	688A-5040-19
1/4	.125	.281	588-5041-07	688A-5041-19
1/4	.188	.281	588-5042-07	688A-5042-19
1/4	.250	.281	588-5043-07	688A-5043-19
1/4	.375	.281	588-5044-07	688A-5044-19
1/4	.500	.281	588-5045-07	688A-5045-19
1/4	.625	.281	588-5046-07	688A-5046-19
1/4	.750	.281	588-5047-07	688A-5047-19
1/4	1.000	.281	588-5048-07	688A-5048-19

513-5XXX-07
613A-5XXX-19



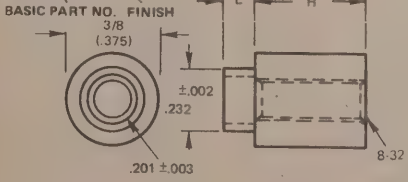
Board Thickness	H	L	Brass Cadmium Plate plus colored chrome	Aluminum Clear Chromate
1/32	.125	.062	513-5001-07	613A-5001-19
1/32	.188	.062	513-5002-07	613A-5002-19
1/32	.250	.062	513-5003-07	613A-5003-19
1/32	.375	.062	513-5004-07	613A-5004-19
1/32	.500	.062	513-5005-07	613A-5005-19
1/32	.625	.062	513-5006-07	613A-5006-19
1/32	.750	.062	513-5007-07	613A-5007-19
1/32	1.000	.062	513-5008-07	613A-5008-19
1/16	.125	.094	513-5009-07	613A-5009-19
1/16	.188	.094	513-5010-07	613A-5010-19
1/16	.250	.094	513-5011-07	613A-5011-19
1/16	.375	.094	513-5012-07	613A-5012-19
1/16	.500	.094	513-5013-07	613A-5013-19
1/16	.625	.094	513-5014-07	613A-5014-19
1/16	.750	.094	513-5015-07	613A-5015-19
1/16	1.000	.094	513-5016-07	613A-5016-19
3/32	.125	.125	513-5017-07	613A-5017-19
3/32	.188	.125	513-5018-07	613A-5018-19
3/32	.250	.125	513-5019-07	613A-5019-19
3/32	.375	.125	513-5020-07	613A-5020-19
3/32	.500	.125	513-5021-07	613A-5021-19
3/32	.625	.125	513-5022-07	613A-5022-19
3/32	.750	.125	513-5023-07	613A-5023-19
3/32	1.000	.125	513-5024-07	613A-5024-19
1/8	.125	.156	513-5025-07	613A-5025-19
1/8	.188	.156	513-5026-07	613A-5026-19
1/8	.250	.156	513-5027-07	613A-5027-19
1/8	.375	.156	513-5028-07	613A-5028-19
1/8	.500	.156	513-5029-07	613A-5029-19
1/8	.625	.156	513-5030-07	613A-5030-19
1/8	.750	.156	513-5031-07	613A-5031-19
1/8	1.000	.156	513-5032-07	613A-5032-19
3/16	.125	.219	513-5033-07	613A-5033-19
3/16	.188	.219	513-5034-07	613A-5034-19
3/16	.250	.219	513-5035-07	613A-5035-19
3/16	.375	.219	513-5036-07	613A-5036-19
3/16	.500	.219	513-5037-07	613A-5037-19
3/16	.625	.219	513-5038-07	613A-5038-19
3/16	.750	.219	513-5039-07	613A-5039-19
3/16	1.000	.219	513-5040-07	613A-5040-19
1/4	.125	.281	513-5041-07	613A-5041-19
1/4	.188	.281	513-5042-07	613A-5042-19
1/4	.250	.281	513-5043-07	613A-5043-19
1/4	.375	.281	513-5044-07	613A-5044-19
1/4	.500	.281	513-5045-07	613A-5045-19
1/4	.625	.281	513-5046-07	613A-5046-19
1/4	.750	.281	513-5047-07	613A-5047-19
1/4	1.000	.281	513-5048-07	613A-5048-19

512-5XXX-07
612A-5XXX-19



Board Thickness	H	L	Brass Cadmium Plate plus colored chrome	Aluminum Clear Chromate
1/32	.125	.078	512-5001-07	612A-5001-19
1/32	.188	.078	512-5002-07	612A-5002-19
1/32	.250	.078	512-5003-07	612A-5003-19
1/32	.375	.078	512-5004-07	612A-5004-19
1/32	.500	.078	512-5005-07	612A-5005-19
1/32	.625	.078	512-5006-07	612A-5006-19
1/32	.750	.078	512-5007-07	612A-5007-19
1/32	1.000	.078	512-5008-07	612A-5008-19
1/16	.125	.109	512-5009-07	612A-5009-19
1/16	.188	.109	512-5010-07	612A-5010-19
1/16	.250	.109	512-5011-07	612A-5011-19
1/16	.375	.109	512-5012-07	612A-5012-19
1/16	.500	.109	512-5013-07	612A-5013-19
1/16	.625	.109	512-5014-07	612A-5014-19
1/16	.750	.109	512-5015-07	612A-5015-19
1/16	1.000	.109	512-5016-07	612A-5016-19
3/32	.125	.141	512-5017-07	612A-5017-19
3/32	.188	.141	512-5018-07	612A-5018-19
3/32	.250	.141	512-5019-07	612A-5019-19
3/32	.375	.141	512-5020-07	612A-5020-19
3/32	.500	.141	512-5021-07	612A-5021-19
3/32	.625	.141	512-5022-07	612A-5022-19
3/32	.750	.141	512-5023-07	612A-5023-19
3/32	1.000	.141	512-5024-07	612A-5024-19
1/8	.125	.172	512-5025-07	612A-5025-19
1/8	.188	.172	512-5026-07	612A-5026-19
1/8	.250	.172	512-5027-07	612A-5027-19
1/8	.375	.172	512-5028-07	612A-5028-19
1/8	.500	.172	512-5029-07	612A-5029-19
1/8	.625	.172	512-5030-07	612A-5030-19
1/8	.750	.172	512-5031-07	612A-5031-19
1/8	1.000	.172	512-5032-07	612A-5032-19
3/16	.125	.234	512-5033-07	612A-5033-19
3/16	.188	.234	512-5034-07	612A-5034-19
3/16	.250	.234	512-5035-07	612A-5035-19
3/16	.375	.234	512-5036-07	612A-5036-19
3/16	.500	.234	512-5037-07	612A-5037-19
3/16	.625	.234	512-5038-07	612A-5038-19
3/16	.750	.234	512-5039-07	612A-5039-19
3/16	1.000	.234	512-5040-07	612A-5040-19
1/4	.125	.297	512-5041-07	612A-5041-19
1/4	.188	.297	512-5042-07	612A-5042-19
1/4	.250	.297	512-5043-07	612A-5043-19
1/4	.375	.297	512-5044-07	612A-5044-19
1/4	.500	.297	512-5045-07	612A-5045-19
1/4	.625	.297	512-5046-07	612A-5046-19
1/4	.750	.297	512-5047-07	612A-5047-19
1/4	1.000	.297	512-5048-07	612A-5048-19

523-5XXX-07
623A-5XXX-19



Board Thickness	H	L	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
1/32	.125	.078	523-5001-07	623A-5001-19
1/32	.188	.078	523-5002-07	623A-5002-19
1/32	.250	.078	523-5003-07	623A-5003-19
1/32	.375	.078	523-5004-07	623A-5004-19
1/32	.500	.078	523-5005-07	623A-5005-19
1/32	.625	.078	523-5006-07	623A-5006-19
1/32	.750	.078	523-5007-07	623A-5007-19
1/32	1.000	.078	523-5008-07	623A-5008-19
1/16	.125	.109	523-5009-07	623A-5009-19
1/16	.188	.109	523-5010-07	623A-5010-19
1/16	.250	.109	523-5011-07	623A-5011-19
1/16	.375	.109	523-5012-07	623A-5012-19
1/16	.500	.109	523-5013-07	623A-5013-19
1/16	.625	.109	523-5014-07	623A-5014-19
1/16	.750	.109	523-5015-07	623A-5015-19
1/16	1.000	.109	523-5016-07	623A-5016-19
3/32	.125	.141	523-5017-07	623A-5017-19
3/32	.188	.141	523-5018-07	623A-5018-19
3/32	.250	.141	523-5019-07	623A-5019-19
3/32	.375	.141	523-5020-07	623A-5020-19
3/32	.500	.141	523-5021-07	623A-5021-19
3/32	.625	.141	523-5022-07	623A-5022-19
3/32	.750	.141	523-5023-07	623A-5023-19
3/32	1.000	.141	523-5024-07	623A-5024-19
1/8	.125	.172	523-5025-07	623A-5025-19
1/8	.188	.172	523-5026-07	623A-5026-19
1/8	.250	.172	523-5027-07	623A-5027-19
1/8	.375	.172	523-5028-07	623A-5028-19
1/8	.500	.172	523-5029-07	623A-5029-19
1/8	.625	.172	523-5030-07	623A-5030-19
1/8	.750	.172	523-5031-07	623A-5031-19
1/8	1.000	.172	523-5032-07	623A-5032-19
3/16	.125	.234	523-5033-07	623A-5033-19
3/16	.188	.234	523-5034-07	623A-5034-19
3/16	.250	.234	523-5035-07	623A-5035-19
3/16	.375	.234	523-5036-07	623A-5036-19
3/16	.500	.234	523-5037-07	623A-5037-19
3/16	.625	.234	523-5038-07	623A-5038-19
3/16	.750	.234	523-5039-07	623A-5039-19
3/16	1.000	.234	523-5040-07	623A-5040-19
1/4	.125	.297	523-5041-07	623A-5041-19
1/4	.188	.297	523-5042-07	623A-5042-19
1/4	.250	.297	523-5043-07	623A-5043-19
1/4	.375	.297	523-5044-07	623A-5044-19
1/4	.500	.297	523-5045-07	623A-5045-19
1/4	.625	.297	523-5046-07	623A-5046-19
1/4	.750	.297	523-5047-07	623A-5047-19
1/4	1.000	.297	523-5048-07	623A-5048-19

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

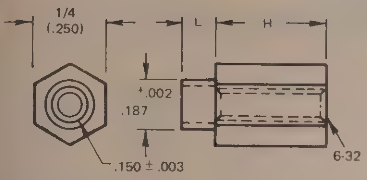
CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

HARDWARE

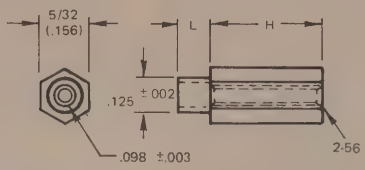
STANDOFFS, THREADED, HEX

BRASS & ALUMINUM



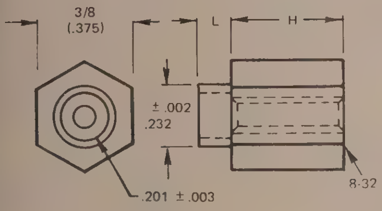
528-5XXX-07
628A-5XXX-19
BASIC PART NO. FINISH

Board Thickness	H	L	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
1/16	.125	.109	528-5009-07	628A-5009-19
1/16	.188	.109	528-5010-07	628A-5010-19
1/16	.250	.109	528-5011-07	628A-5011-19
1/16	.375	.109	528-5012-07	628A-5012-19
1/16	.500	.109	528-5013-07	628A-5013-19
1/16	.625	.109	528-5014-07	628A-5014-19
1/16	.750	.109	528-5015-07	628A-5015-19
1/16	1.000	.109	528-5016-07	628A-5016-19
3/32	.125	.141	528-5017-07	628A-5017-19
3/32	.188	.141	528-5018-07	628A-5018-19
3/32	.250	.141	528-5019-07	628A-5019-19
3/32	.375	.141	528-5020-07	628A-5020-19
3/32	.500	.141	528-5021-07	628A-5021-19
3/32	625	.141	528-5022-07	628A-5022-19
3/32	.750	.141	528-5023-07	628A-5023-19
3/32	1.000	.141	528-5024-07	628A-5024-19
1/8	.125	.172	528-5025-07	628A-5025-19
1/8	.188	.172	528-5026-07	628A-5026-19
1/8	.250	.172	528-5027-07	628A-5027-19
1/8	.375	.172	528-5028-07	628A-5028-19
1/8	.500	.172	528-5029-07	628A-5029-19
1/8	.625	.172	528-5030-07	628A-5030-19
1/8	.750	.172	528-5031-07	628A-5031-19
1/8	1.000	.172	528-5032-07	628A-5032-19



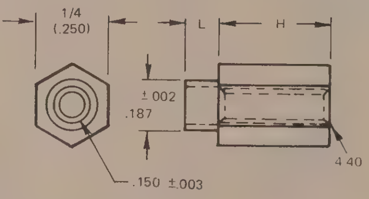
525-5XXX-07
625A-5XXX-19
BASIC PART NO. FINISH

Board Thickness	H	L	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
1/16	.125	.094	525-5009-07	625A-5009-19
1/16	.188	.094	525-5010-07	625A-5010-19
1/16	.250	.094	525-5011-07	625A-5011-19
1/16	.375	.094	525-5012-07	625A-5012-19
1/16	.500	.094	525-5013-07	625A-5013-19
1/16	.625	.094	525-5014-07	625A-5014-19
1/16	.750	.094	525-5015-07	625A-5015-19
1/16	1.000	.094	525-5016-07	625A-5016-19
3/32	.125	.125	525-5017-07	625A-5017 19
3/32	.188	.125	525-5018-07	625A-5018-19
3/32	.250	.125	525-5019-07	625A-5019-19
3/32	.375	.125	525-5020-07	625A-5020-19
3/32	500	125	525 5021-07	625A-5021-19
3/32	.625	125	525 5022-07	625A-5022-19
3/32	.750	.125	525-5023-07	625A 5023-19
3/32	1.000	.125	525-5024-07	625A-5024-19
1/8	.125	.156	525-5025-07	625A-5025-19
1/8	188	156	525 5026 07	625A 5026 19
1/8	.250	.156	525-5027-07	625A-5027-19
1/8	.375	.156	525-5028-07	625A-5028-19
1/8	.500	.156	525-5029-07	625A-5029-19
1/8	.625	.156	525-5030-07	625A-5030-19
1/8	.750	.156	525-5031-07	625A-5031-19
1/8	1.000	.156	525-5032-07	625A-5032-19



529-5XXX-07
629A-5XXX-19
BASIC PART NO. FINISH

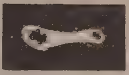
Board Thickness	H	L	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
1/16	.125	.109	529-5009-07	629A-5009-19
1/16	.188	.109	529-5010-07	629A-5010-19
1/16	.250	.109	529-5011-07	629A-5011-19
1/16	.375	.109	529-5012-07	629A-5012-19
1/16	.500	.109	529-5013-07	629A-5013-19
1/16	.625	.109	529-5014-07	629A-5014-19
1/16	.750	.109	529-5015-07	629A-5015-19
1/16	1.000	109	529-5016-07	629A-5016 19
3/32	.125	.141	529-5017-07	629A-5017-19
3/32	.188	.141	529-5018-07	629A-5018-19
3/32	.250	.141	529-5019-07	629A-5019-19
3/32	.375	.141	529-5020-07	629A-5020-19
3/32	.500	.141	529-5021-07	629A-5021 19
3/32	.625	141	529-5022-07	629A-5022-19
3/32	.750	.141	529-5023-07	629A-5023-19
3/32	1.000	.141	529-5024-07	629A-5024-19
1/8	.125	.172	529-5025-07	629A-5025-19
1/8	.188	.172	529-5026-07	629A-5026-19
1/8	.250	.172	529-5027-07	629A-5027-19
1/8	.375	.172	529-5028-07	629A-5028-19
1/8	.500	.172	529-5029-07	629A-5029-19
1/8	.625	.172	529-5030-07	629A-5030-19
1/8	.750	.172	529-5031-07	629A-5031-19
1/8	1.000	.172	529-5032-07	629A-5032-19



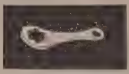
527-5XXX-07
627A-5XXX-19
BASIC PART NO. FINISH

Board Thickness	H	L	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
1/16	.125	.109	527-5009-07	627A-5009-19
1/16	.188	.109	527-5010-07	627A-5010-19
1/16	.250	.109	527-5011-07	627A-5011-19
1/16	.375	.109	527-5012-07	627A-5012-19
1/16	.500	.109	527-5013-07	627A-5013-19
1/16	.625	.109	527-5014-07	627A-5014-19
1/16	.750	.109	527-5015-07	627A-5015-19
1/16	1 000	109	527 5016-07	627A 5016-19
3/32	.125	.141	527-5017-07	627A-5017-19
3/32	.188	.141	527-5018-07	627A-5018-19
3/32	.250	.141	527-5019-07	627A-5019-19
3/32	.375	.141	527-5020-07	627A-5020-19
3/32	.500	.141	527-5021-07	627A-5021-19
3/32	625	141	527 5022 07	627A 5022 19
3/32	.750	.141	527-5023-07	627A-5023-19
3/32	1,000	.141	527-5024-07	627A-5024-19
1/8	.125	.172	527-5025-07	627A-5025-19
1/8	.188	.172	527-5026-07	627A-5026-19
1/8	.250	.172	527-5027-07	627A-5027-19
1/8	.375	.172	527-5028-07	627A-5028-19
1/8	.500	.172	527-5029-07	627A-5029-19
1/8	.625	.172	527-5030-07	627A-5030-19
1/8	.750	.172	527-5031-07	627A-5031-19
1/8	1.000	.172	527-5032-07	627A-5032-19

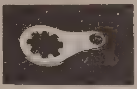
SOLDER LUGS & TERMINALS



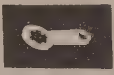
Part No.	"H"
707-1004	No. 4
707-1006	No. 6
707-1008	No. 8



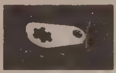
Part No.	"H"
707-1010	No. 10



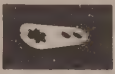
Part No.	"H"
707-1014	1/4



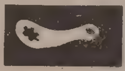
Part No.	"H"
707-1104	No. 4
707-1106	No. 6
707-1108	No. 8



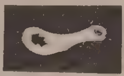
Part No.	"H"
707-1204	No. 4
707-1206	No. 6
707-1208	No. 8



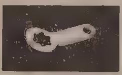
Part No.	"H"
707-1304	No. 4
707-1306	No. 6
707-1308	No. 8



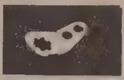
Part No.	"H"
707-1404	No. 4
707-1406	No. 6
707-1408	No. 8



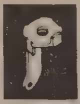
Part No.	"H"
707-1410	No. 10



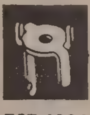
Part No.	"H"
707-1504	No. 4
707-1506	No. 6
707-1508	No. 8



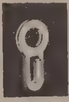
Part No.	"H"
707-1604	No. 4
707-1606	No. 6
707-1608	No. 8



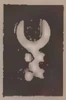
707-1902
With
Screw



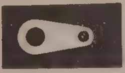
707-1904
With
Screw



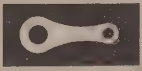
707-1700



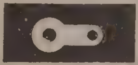
707-1770



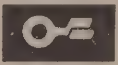
Part No.	"H"
707-1704	.120
707-1706	.144
707-1708	.169
707-1710	.196



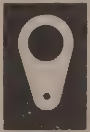
Part No.	"H"
707-1724	.120
707-1726	.144
707-1728	.169
707-1730	.196



Part No.	"H"
707-1744	.120
707-1746	.144
707-1748	.169



Part No.	"H"
707-1756	.144
707-1758	.169



Part No.	"H"
707–1774	.375
707–1775	.315

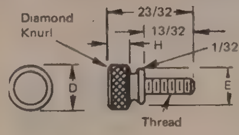
FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

HARDWARE

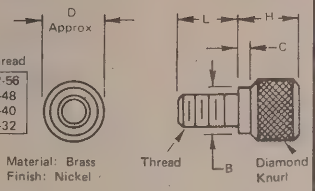
THUMB SCREWS



Material: Brass
Finish: Nickel

PART NO.	D	E	Thread	H
40-4205-02	3/8	5/16	6-32	.187
40-4210-02	3/8	5/16	8-32	.187
40-4215-02	3/8	5/16	10-32	.187
40-4220-02	7/16	3/8	6-32	.187
40-4225-02	7/16	3/8	8-32	.187
40-4230-02	7/16	3/8	10-32	.187
40-4235-02	1/2	7/16	6-32	.187
40-4240-02	1/2	7/16	8-32	.187
40-4245-02	1/2	7/16	10-32	,187
40-4250-02	7/16	3/8	6-32	.250
40-4255-02	7/16	3/8	8-32	.250
40-4260-02	7/16	3/8	10-32	.250

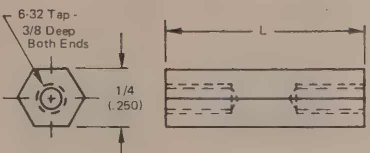
PART NO.	L	B	C	D	H	Thread
40-4275-02	.188	.125	.031	.164	188	2-56
40-4276-02	.250	156	031	.196	188	3-48
40-4277-02	250	.156	.031	.196	188	4-40
40-4278-02	.250	.203	.050	.261	.250	6-32



Material: Brass
Finish: Nickel

SPACER, HEX, THRD

Material: Brass per QQB-626A,
Comp. 22, 1/2 Hard
Finish: Cadmium per QQP-416A,
Type II, Class B,
Colored Chromate



PART NO.	L
506-5305-07	1
506-5310-07	1-1/4
506-5315-07	1-1/2
506-5320-07	1-3/4
506-5325-07	2
506-5330-07	2-1/4
506-5335-07	2-1/2

SCREWS, NUTS, & WASHERS

MACHINE SCREWS ROUND HEAD
Steel, cadmium plated

2-56 x 1/4	701-7002
2-56 x 1/2	701-7004
2-5/6 x 3/4	701-7006
3-48 x 3/4	701-7010
4-40 x 1/4	701-7015
4-40 x 3/8	701-7016
4-40 x 1/2	701 7017
4 40 x 5/8	701 7018
4-40 x 3/4	701-7019
6-32 x 1/4	701-7024
6-32 x 3/8	701-7025
6-32 x 1/2	701-7026
6-32 x 5/8	701-7027
6-32 x 3/4	701-7028
6-32 x 1	701-7029
8-32 x 1/4	701-7035
8-32 x 3/8	701-7036
8-32 x 1/2	701-7037
8-32 x 5/8.	701-7038
8-32 x 3/4	701-7039
10-32 x 1/4	701-7045
10-32 x 1/2	701 7046
10-32 x 3/4	701 7047
10-32 x 1	701-7048

MACHINE SCREWS ROUND HEAD
Brass, nickel-plated

4-40 x 1/4	701-7215
4-40 x 3/8	701-7216
4-40 x 1/2	701-7217
6-32 x 1/4	701-7224
6-32 x 3/8	701-7225
6-32 x 1/2	701-7226
8-32 x 1/4	701-7235
8-32 x 3/8	701-7236
8-32 x 1/2	701 7237

MACHINE SCREWS BINDING HEAD
Steel, nickel-plated

2-56 x 1/4	701-7102
2-56 x 1/2	701-7104
2-56 x 5/8	701-7105
3 48 x 1 4	701 7110
4 40 x 1,4	701 7115
4-40 x 1/2	701-7117
4-40 x 3/4	701-7119
6-32 x 1/8	701-7122
6 32 x 3/16	701-7123
6 32 x 1/4	701-7124
6-32 x 3/8	701-7125
6-32 x 1/2	701 7126
6-32 x 5/8	701-7127
6 32 x 3/4	701 7128
8-32 x 1/4	701-7135
8-32 x 5/16	701-7136
8-32 x 3/8	701-7137
8-32 x 1/2	701-7138
8-32 x 3/4	701-7139
10-32 x 1/2	701-7145
10-32 x 3/4	701-7147

MACHINE SCREWS OVAL HEAD RACK SCREWS
Steel, nickel-plated

6 32 x 3/4	701 7178
8-32 x 3/4	701-7188
10 32 x 1/2	701 7196
10 32 x 3/4	701 7198

COUNTER SUNK WASHERS
Brass, nickel-plated

No. 6	701-7796
No. 8	701-7798
No. 10	701-7799

HEXAGON NUTS
Brass, nickel-plated

2-56 x 3/16 x 1/16	701-7312
3-48 x 3/16 x 1/16	701-7315
4-40 x 1/4 x 3/32	701-7317
6-32 x 1/4 x 3/32	701-7319
6-32 x 5/16 x 7/64	701-7320
8-32 x 1/4 x 3/32	701-7322
8-32 x 5/16 x 7/64	701 7324
10 32 x 5/16 x 7/64	701 7325

VOLUME CONTROL–SWITCH AND POTENTIOMETER NUTS
Hex brass, nickel-plated

1/4-20 x 7/16 x 3/16	701-7410
1/4-28 x 3/8 x 3/32	701-7411
1/4-28 x 3/8 x 1/8	701-7412
1/4-32 x 5/16 x 5/64	701-7413
1/4-32 x 11/32 x 3/32	701-7414
1/4-32 x 3/8 x 3/32	701-7415
5/16 32 x 7/16 x 101	701 7420
3/8-32 x 1/2 x 3/32	701-7425
*3/8-32 x 1/2 x 3/32	701-7426
3/8-32 x 9/16 x 3/32	701-7427
15/32-32 x 9/16 x 5/64	701-7430
15/32-32 x 9/16 x 3/32	701-7432

*Steel, cadmium-plated

RING NUTS
Brass, nickel-plated

3/8-32 x 1/2 x 1/16

DRESS NUT
Brass, nickel-plated

15/32 32 x 5/8 x 3 32

HEXAGON NUTS
Steel, cadmium-plated

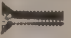
2-56 x 3/16 x 1/16	701-7352
3-48 x 3/16 x 1/16	701-7355
4-40 x 1/4 x 3/32	701-7357
6-32 x 1/4 x 3/32	701 7359
6 32 x 5/16 x 7/64	701 7360
8-32 x 5616 x 7/64	701-7364
8-32 x 5/16 x 7/64	701-7364
10-32 x 3/8 x 1/8	701-7365
1/4-20 x 7/16 x 3/16	701-7370

NYLON SCREWS
Binding Head

4-40x1/4	701-6515	6-32x5/8	701-6528
4-40x3/8	701-6516	6-32x3/4	701-6529
4-40x1/2	701-6517	8-32x1/4	701-6544
6-32x1/4	701-6525	8-32x3/8	701-6545
6-32x3/8	701-6526	8-32x1/2	701-6546
6-32x1/2	701-6527	8-32x5/8	701-6547

NYLON SCREWS
Round Head

4-40x1/4	701-6615	6-32x5/8	701-6628
4-40x3/8	701-6616	6-32x3/4	701-6629
4-40x1/2	701-6617	8-32x1/4	701 6644
6-32x1/4	701-6625	8-32x3/8	701-6645
6-32x3/8	701-6626	8-32x1/2	701-6646
6 32x1 2	701 6627	8 32x5/8	701 6647



NYLON SCREWS
Flat Head

4-40x1/4	701-6715	6-32x5/8	701-6728
4-40x3/8	701-6716	6-32x3/4	701-6729
4-40x1/2	701-6717	8-32x1/4	701-6744
6-32x1/4	701-6725	8-32x3/8	701-6745
6-32x3/8	701-6726	8-32x1/2	701-6746
6-32x1/2	701-6727	8-32x5/8	701-6747

NYLON NUTS HEXAGON

4-40 x 1/4	701-7570
6-32 x 5/16	701-7572
8-32 x 11/32	701-7574
10-32 x 3/8	701-7576

KNURLED THUMB NUTS
Brass, nickel plated

6-32 x 3/8 x 1/4	701-7601
8-32 x 7/16 x 5/16	701-7602
10-24 x 1/2 x 21/64	701-7603
10-32 x 1/2 x 21/64	701-7604
1/4-20 x 5/8 x 3/8	701-7605

BATTERY NUTS
Brass, nickel-plated

6-32 x 11/32 x 13/64	701-7606
8-32 x 11/32 x 13/64	701-7608

ROUND LOCK NUTS
Brass, nickel-plated

1/8P x 9/16 x 3/32
1/8P x 3/4 x 3/32

HEX LOCK NUT
Brass, nickel-plated

1/8P x 1/2 x 1/8

LOCKWASHER
Internal tooth
Steel, cadmium-plated

I D Clear	O D	THK	
No. 2	3/16	1/32	701-7702
No. 2	7/32	1/32	701-7703
No. 4	1/4	1/32	701-7704
No. 6	9/32	1/32	701-7706
No. 8	11/32	3/64	701-7708
No. 10	3/8	3/64	701-7710
1/4	15/32	1/16	701-7714
3/8	11/16	1/16	701-7718
3/8	1/2	3/64	701-7719
15/32	19/32	1/32	701 7720

External tooth
Steel, cadmium-plated

I.D. Clear	O.D.	THK.	
No. 4	1/4	1/32	701-7724
No. 6	5/16-	1/32	701-7726
No. 8	3/8	1/32	701-7728
No. 10	13/32	3/64	701-7730
1/4	1/2	1/16	701-7734
3/8	11/16	5/64	701-7738

FLAT WASHERS
Steel, nickel plated

I.D. Clear	O.D.	THK.	
No. 2	1/4	1/32	701-7742
No 4	5/16	1/32	701 7744
No 6	3/8	1/32	701 7746
No 8	3/8	1/32	701 7748
No. 10	3/8	1/32	701-7750
1/4	9/16	3/64	701-7754
3/8	5/8	1/32	701-7758

Miniature Diameters on Request.

Prices on Bulk Quantities available on request.

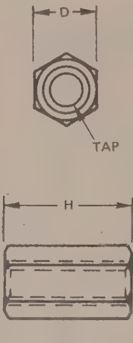
Available in Brass, Stainless Steel, and all Finishes.

Available in all Head Styles, both Slotted and Phillips.

SPACERS
BRASS & ALUMINUM

THREADED, HEX

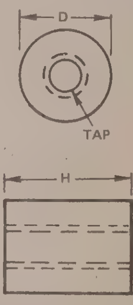
53X-5XXX-07
63XA-5XXX-19
BASIC PART NO. FINISH



H	D	TAP	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
.188	.156	2-56	532-5002-07	632A-5002-19
.250	.156	2-56	532-5003-07	632A-5003-19
.312	.156	2-56	532-5004-07	632A-5004-19
.375	.156	2-56	532-5005-07	632A-5005-19
.438	.156	2-56	532-5006-07	632A-5006-19
.500	.156	2-56	532-5007-07	632A-5007-19
.250	.188	4-40	534-5003-07	634A-5003-19
.312	.188	4-40	534-5004-07	634A-5004-19
.375	.188	4-40	534-5005-07	634A-5005-19
.438	.188	4-40	534-5006-07	634A-5006-19
.500	.188	4-40	534-5007-07	634A-5007-19
.250	.250	6-32	535-5003-07	635A-5003-19
.312	.250	6-32	535-5004-07	635A-5004-19
.375	.250	6-32	535-5005-07	635A-5005-19
.438	.250	6-32	535-5006-07	635A-5006-19
.500	.250	6-32	535-5007-07	635A-5007-19
.625	.250	6-32	535-5008-07	635A-5008-19
.750	.250	6-32	535-5009-07	635A-5009-19
.875	.250	6-32	535-5010-07	635A-5010-19
1.000	.250	6-32	535-5011-07	635A-5011-19
.375	.312	8-32	536-5005-07	636A-5005-19
.438	.312	8-32	536-5006-07	636A-5006-19
.500	.312	8-32	536-5007-07	636A-5007-19

THREADED, ROUND

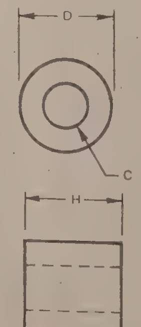
54X-5XXX-07
64XA-5XXX-19
BASIC PART NO. FINISH



H	D	TAP	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
.250	.188	4-40	542-5003-07	642A-5003-19
.500	.188	4-40	542-5007-07	642A-5007-19
1.000	.188	4-40	542-5011-07	642A-5011-19
.250	.250	6-32	543-5003-07	643A-5003-19
.375	.250	6-32	543-5005-07	643A-5005-19
.500	.250	6-32	543-5007-07	643A-5007-19
.625	.250	6-32	543-5008-07	643A-5008-19
.750	.250	6-32	543-5009-07	643A-5009-19
1.000	.250	6-32	543-5011-07	643A-5011-19
.375	.375	8-32	544-5005-07	644A-5005-19
.500	.375	8-32	544-5007-07	644A-5007-19
.625	.375	8-32	544-5008-07	644A-5008-19
.750	.375	8-32	544-5009-07	644A-5009-19
1.000	.375	8-32	544-5011-07	644A-5011-19

ROUND, THRU HOLE

5XX-5XXX-07
6XXA-5XXX-19
BASIC PART NO. FINISH



H	D	C	Clearance Hole For Max Screw Size	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
.250	.250	.129	#4	502-5001-07	602A-5001-19
.375	.250	.129	#4	502-5002-07	602A-5002-19
.500	.250	.129	#4	502-5003-07	602A-5003-19
.250	.312	.154	#6	505-5001-07	605A-5001-19
.375	.312	.154	#6	505-5002-07	605A-5002-19
.500	.312	.154	#6	505-5003-07	605A-5003-19
.625	.312	.154	#6	505-5004-07	605A-5004-19
750	.312	.154	#6	505-5005-07	605A-5005-19
.250	.375	.180	#8	517-5001-07	617A-5001-19
.375	.375	.180	#8	517-5002-07	617A-5002-19
.500	.375	.180	#8	517-5003-07	617A-5003-19
.625	.375	.180	#8	517-5004-07	617A-5004-19
.750	.375	.180	#8	517-5005-07	617A-5005-19

DECIMAL EQUIVALENT CHART

.156 = 5/32
.188 = 3/16
.250 = 1/4
.312 = 5/16
.375 = 3/8
.438 = 7/16
.500 = 1/2
.625 = 5/8
.750 = 3/4
.875 = 7/8

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

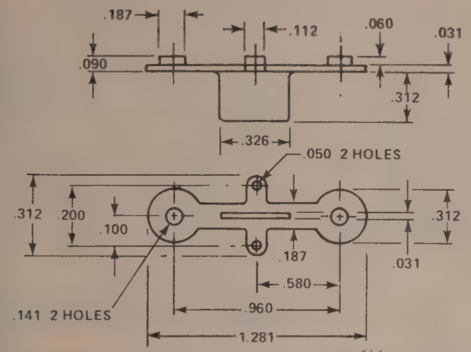
CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

HARDWARE

TRANSISTOR MOUNTS, WAFERS & COVERS

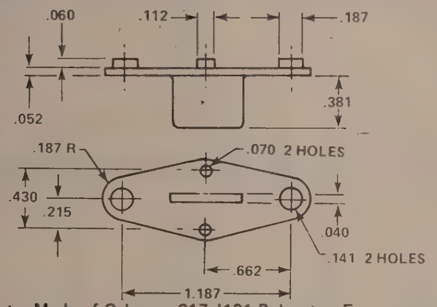
NYLON POWER TRANSISTOR MOUNTS



Replaces six pieces of conventional insulation. Built-in barrier separates and insulates base and emitter pins from each other. Screw insulators require 3/16" clearance holes, pin insulators .113 dia. clearance. Mounting centers for types TO-3 and TO-66 power transistors.

Concord No.	Transistor Type
770-1821	TO-3
770-1822	TO-66

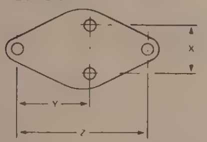
HIGH TEMPERATURE TRANSISTOR MOUNTS



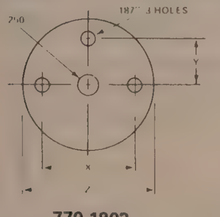
Heavy Duty, Made of Celanese 917 J101 Polyester. For excessive temperature and electrical requirements. Rated for SE-O UL, 400°F Cont.

Concord No.	
770-1830	TO-3
770-1831	TO-66

MICA INSULATING WAFERS FOR TO-3, TO-66 AND TO-36 CASE STYLES



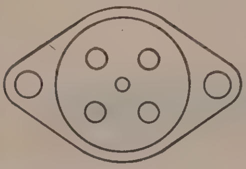
Concord No.	Case Style	Dimensions X	Y	Z
770-1801	TO-3	.430"	.665"	1.187"
770-1802	TO-66	.200"	.580"	.960"



770-1803

Concord No.	Dimensions X	Y	Z
770-1803	.690"	.345"	1.187"

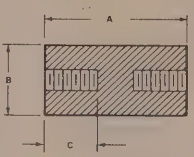
NYLON PROTECTIVE COVERS SE-0 MATERIAL



Concord No.	For Case Style
770-1810	TO-3
770-1811	TO-66
770-1812	TO-5
770-1813	TO-18

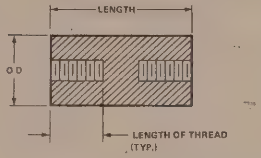
SPACERS

COMMERCIAL CERAMIC STANDOFFS GRADE L5 GLAZED OUTSIDE



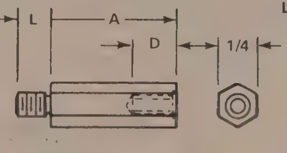
Concord No.	A	B	Thrd.	C
500-1050	1/4	1/4	6-32	Thru
500-1051	1/2	1/4	6-32	5/32
500-1052	3/8	3/8	6-32	5/32
500-1053	1/2	3/8	6-32	3/16
500-1054	1/2	1/2	6-32	9/64
500-1055	3/4	1/2	6-32	1/4
500-1056	1	1/2	6-32	3/8
500-1057	1-1/2	1/2	6-32	9/16
500-1058	2-1/2	1/2	6-32	1/2
500-1059	2-1/2	3/4	1/4-20	3/4
500-1060	4	3/4	1/4-20	3/4

GLAZED CERAMIC GRADE L-5 MEETS MIL-1-10



Concord No.	Length	Depth of Thread	Mil. Number
6-32 THREAD 3/8" O.D.			
500-1005	1/2"	5/32"	NL-523-W01-004
500-1010	5/8"	1/4"	NL-523-W01-005
500-1011	3/4"	1/4"	NL-523-W01-006
500-1012	1"	3/8"	NL-523-W01-008
500-1013	1-1/4"	3/8"	NL-523-W01-010
500-1014	1-1/2"	3/8"	NL-523-W01-012
500-1015	2"	3/8"	NL-523-W01-016
8-32 THREAD 1/2" O.D.			
500-1020	5/8"	3/16"	NL-523-W02-005
500-1021	3/4"	1/4"	NL-523-W02-006
500-1022	1"	3/8"	NL-523-W02-008
500-1023	1-1/4"	3/8"	NL-523-W02-010
500-1024	1-1/2"	3/8"	NL-523-W02-012
500-1025	2"	3/8"	NL-523-W02-016
500-1026	2-1/2"	3/8"	NL-523-W02-020
500-1027	3"	3/8"	NL-523-W02-024
10-32 THREAD 3/4" O.D.			
500-1030	1"	3/8"	NL-523-W03-008
500-1031	1-1/4"	3/8"	NL-523-W03-010
500-1032	1-1/2"	3/8"	NL-523-W03-012
500-1033	2"	3/8"	NL-523-W03-016
500-1034	2-1/2"	3/8"	NL-523-W03-020
500-1035	3"	3/8"	NL-523-W03-024
500-1036	4"	3/8"	NL-523-W03-032
1/4-20 THREAD 1" O.D.			
500-1040	1-1/4"	7/16"	NL-523-W04-010
500-1041	1-1/2"	1/2"	NL-523-W04-012
500-1042	2"	5/8"	NL-523-W04-016
500-1043	2-1/2"	5/8"	NL-523-W04-020
500-1044	3"	5/8"	NL-523-W04-024
500-1045	4"	5/8"	NL-523-W04-032
500-1046	5"	5/8"	NL-523-W04-040
500-1047	6"	5/8"	NL-523-W04-048

MALE-FEMALE NYLON SPACERS 1/4" HEX



Thread Size	L	D
4-40	3/16"	1/4"
6-32	1/4"	3/8"
8-32	3/8"	7/16"

Lgth "A"	4/40	6/32	8/32
.250	775-1801	775-1821	775-1841
.375	775-1802	775-1822	775-1842
.500	775-1803	775-1823	775-1843
.625	775-1804	775-1824	775-1844
.750	775-1805	775-1825	775-1845
.875	775-1806	775-1826	775-1846
1.000	775-1807	775-1827	775-1847
1.125	775-1808	775-1828	775-1848
1.250	775-1809	775-1829	775-1849
1.375	775-1810	775-1830	775-1850
1.500	775-1811	775-1831	775-1851
1.625	775-1812	775-1832	775-1852
1.750	775-1813	775-1833	775-1853
2.000	775-1814	775-1834	775-1854

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

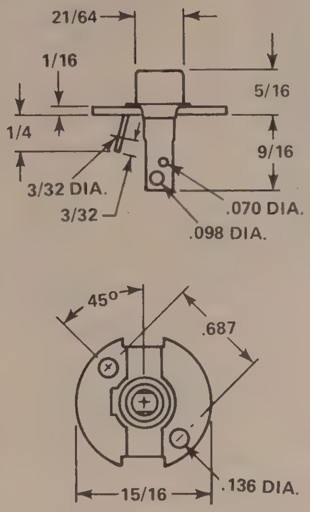
CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

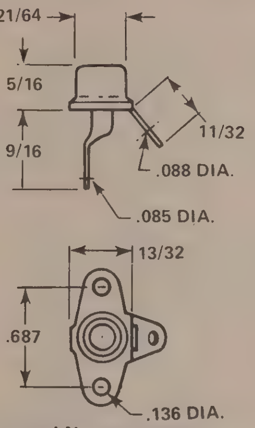
HARDWARE

PHONO JACKS

Concord No.
790-5015



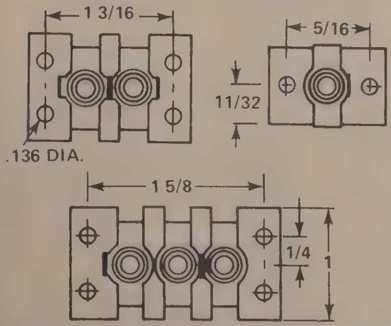
Female for No. **790-5005-6-3842**
Single prong mounted on 1/16" bakelite with 11/16" mounting centers



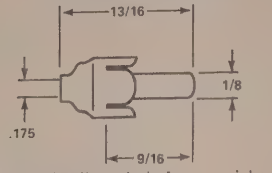
Concord No. 790-5035

Used on recording units, phono players, ect.

Concord No.	
790-5020	Single Jack
790-5025	Double Jack
790-5030	Triple Jack

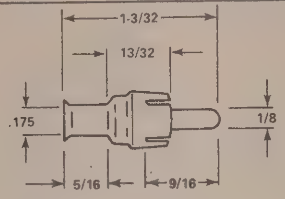


PHONO PLUGS

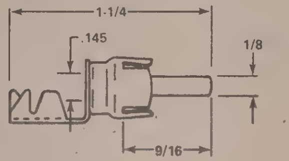


RCA Type .175" cap hole for co-axial cable.

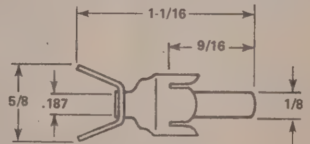
Concord No.	Type
790-5005	Long Pin (1" overall)
790-5006	Short Pin (13/16" overall)



Concord No.
790-5038 Crimp or Solder Type



Concord No.
790-5040 Crimp Type



Concord No.
790-5007 Finger Grip

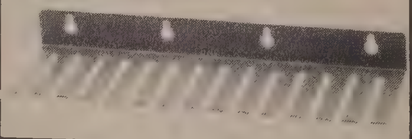
HAND GRIP PHONO PLUGS

Fits all Standard Phono Jacks

TEST LEAD RACK

Blue Enameled Finished Steel
11" Long, 14 Slots

Concord No.
01-5525-14

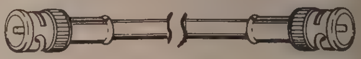


MOST ITEMS ARE IN STOCK AND SHIPPED OUT THE SAME DAY

RF CABLES

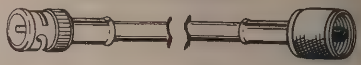
Weatherproof seal on both male and female connectors
Greater flexibility and strain relief.
RG-58/U Coaxial cable; Polyethylene insulation; Vinyl jacket; 50 Ohm impedance Nom Cap.

BNC MALE/MALE



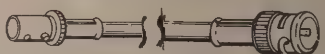
Concord No.	Length
795-3001	12"
795-3002	24"
795-3003	36"
795-3004	48"
795-3005	60"

BNC MALE/UHF MALE



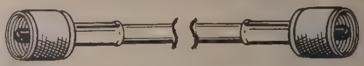
Concord No.	Length
795-3011	12"
795-3012	24"
795-3013	36"
795-3014	48"
795-3015	60"

BNC FEMALE/MALE



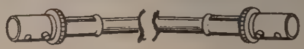
Concord No.	Length
795-3031	12"
795-3032	24"
795-3033	36"
795-3034	48"
795-3035	60"

UHF MALE/UHF MALE



Concord No.	Length
795-3041	12"
795-3042	24"
795-3043	36"
795-3044	48"
795-3045	60"

BNC FEMALE/FEMALE

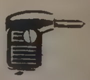


Concord No.	Length
795-3021	12"
795-3022	24"
795-3023	36"
795-3024	48"
795-3025	60"

METER TIP PLUG

Molded plastic handle retains plug. Rated 12 AMPS A.C. Nut and screw supplied for assembly. Fits standard Phone Tip Jacks.

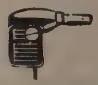
01-2125-1-0210 (BLACK)
01-2125-1-0212 (RED)



METER BANANA PLUG

Molded plastic handle retains plug. Nickel plated beryllium copper spring insures positive contact. Rated 10 AMPS A.C. Nut and screw supplied for assembly. Fits standard Banana Jacks.

01-2126-1-0210 (BLACK)
01-2126-1-0212 (RED)



FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

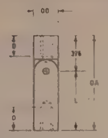
30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

HARDWARE

STANDOFFS

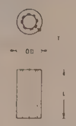
HINGED STANDOFFS FEMALE THREAD

MATERIAL
BRASS



SPACERS FOR FRONT OF BOARD

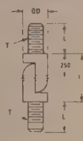
MATERIAL
BRASS



HINGED PART NO.	O.D.	T	L	M	D	O.A.		FRONT SPACER PART NO.	L	T	O.D.
555-7001	3/16	4-40	.375	.375	.172	3/4"	↔	542-4412	3/4"	4-40	3/16
555-7002	3/16	4-40	.625	.375	.250	1"	↔	542-4416	1"	4-40	3/16
555-4016	3/16	4-40	.625	.625	.250	1¼"	↔	543-4420	1¼"	8-32	1/4
555-7003	1/4	6-32	.375	.375	.172	3/4"	↔	543-4612	3/4"	6-32	1/4
555-7004	1/4	6-32	.625	.375	.250	1"	↔	543-4616	1"	6-32	1/4
555-4017	1/4	6-32	.625	.625	.250	1¼"	↔	543-4620	1¼"	8-32	1/4
555-7005	1/4	8-32	.375	.375	.172	3/4"	↔	543-4812	3/4"	8-32	1/4
555-7006	1/4	8-32	.625	.375	.250	1"	↔	543-4816	1"	8-32	1/4
555-4018	1/4	8-32	.625	.625	.250	1¼"	↔	543-4820	1¼"	8-32	1/4

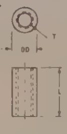
HINGED STANDOFF MALE THREAD

MATERIAL
BRASS



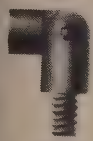
SPACERS FOR FRONT OF BOARD

MATERIAL
BRASS

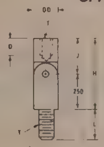


HINGED PART NO.	O.D.	T	L		FRONT SPACER PART NO.	L	T	O.D.
555-7007	3/16	4-40	.250	↔	542-4408	1/2"	4-40	3/16
555-7008	1/4	6-32	.312	↔	543-4608	1/2"	6-32	1/4
555-7009	1/4	8-32	.312	↔	543-4808	1/2"	8-32	1/4

HINGED STANDOFF MALE/FEMALE THREAD

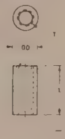


MATERIAL
BRASS



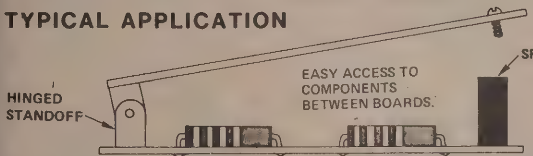
SPACERS FOR FRONT OF BOARD

MATERIAL
BRASS

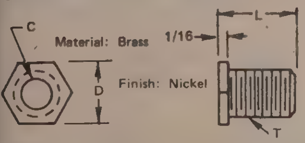


HINGED PART NO.	O.D.	T	L	D	H	J		FRONT SPACER PART NO.	L	T	O.D.
555-4010	3/16	4-40	.250	.172	.625	.375	↔	542-4410	.625	4-40	3/16
555-4011	3/16	4-40	.250	.250	.875	.625	↔	542-4414	.875	4-40	3/16
555-4012	1/4	6-32	.312	.172	.625	.375	↔	543-4610	.625	6-32	1/4
555-4013	1/4	6-32	.312	.250	.875	.625	↔	543-4614	.875	6-32	1/4
555-4014	1/4	8-32	.312	.172	.625	.375	↔	543-4810	.625	8-32	1/4
555-4015	1/4	8-32	.312	.250	.875	.625	↔	543-4814	.875	8-32	1/4

TYPICAL APPLICATION



PANEL BUSHINGS, SERIES 90-90XX-02

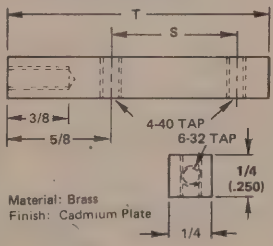


Material: Brass
Finish: Nickel

PART NO.	L	D	C	T
90-9010-02	3/8	1/2	.252	3/8-32
90-9020-02	1/2	1/2	.252	3/8-32
90-9025-02	1/2	7/16	.252	3/8-32
90-9030-02	5/8	1/2	.252	3/8-32
90-9040-02	3/8	11/32	.127	1/4-32
90-9050-02	3/8	3/8	.127	1/4-28
90-9060-02	1/2	3/8	.127	1/4-28
90-9070-02	5/8	3/8	.127	1/4-28

MOUNTING NUT & INTERNAL TOOTH LOCK WASHER SUPPLIED

BRACKET, SERIES 90-940X-077



Material: Brass
Finish: Cadmium Plate

PART NO.	S	T
90-9401-077	1-1/2	2-3/8
90-9402-077	2	2-7/8
90-9403-077	2-1/2	3-3/8

SHAFT LOCK SERIES 90-91XX

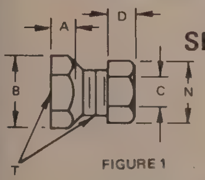


FIGURE 1

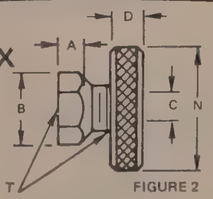
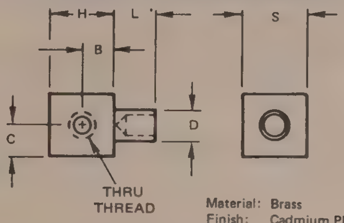


FIGURE 2

Material: Brass
Finish: Nickel

PART NO.	FIG.	A	D	B	N	Hole	Thread
90-9110-02	1	3/16	7/32	1/2 Hex	7/16 Hex	1/4	3/8-32
90-9120 02	2	3/16	1/4	1/2 Hex	1" Rd	1/4	3/8-32
90-9130 1 02	1	1/8	7/32	1/2 Hex	7/16 Hex	1/4	3/8-32

CHASSIS FASTENERS



Material: Brass
Finish: Cadmium Plate

Part No.	D	H	B	S	C	L	T	Thread
90-9X50-1-077	.126	.250	.125	.250	.125	.075	1/32	4-40
90-9X51-1-077	.126	.250	.125	.250	.125	.105	1/16	4-40
90-9X52-1-077	.126	.250	.125	.250	.125	.135	3/32	4-40
90-9X53-1-077	.126	.250	.125	.250	.125	.165	1/8	4-40
90-9X55-1-077	.188	.380	.219	.310	.156	.105	1/16	6-32
90-9X56-1-077	.188	.380	.219	.310	.156	.135	3/32	6-32
90-9X57-1-077	.188	.380	.219	.310	.156	.165	1/8	6-32

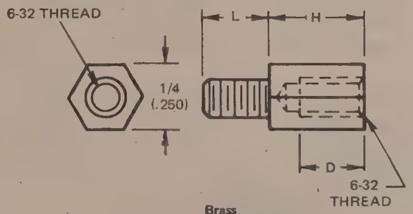
PART NO. CHANGES FOR BRASS OR ALUMINUM PER THIS EXAMPLE

90-9450 — BRASS
90-9550 — ALUMINUM

THREAD MOUNT MALE & FEMALE STANDOFFS, HEX

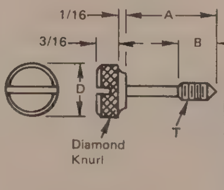
560-5XXX-07
660A-5XXX-19

BASIC PART NO. FINISH



H	L	D	Brass Cadmium Plate Plus Colored Chromate	Aluminum Clear Chromate
.375	1/4	1/4 MIN	560-5001-07	660A-5001-19
.500	1/4	1/4 MIN	560-5002-07	660A-5002-19
1.000	1/4	~~3/8~~	560-5005-07	
1.500	1/4	~~3/8~~	560-5010-07	
2.000	1/4	~~3/8~~	560-5015-07	

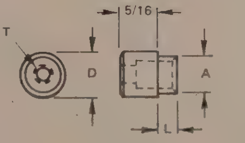
CAPTIVE SCREWS SERIES 40-4000



Finish: Nickel Plate (Brass)
Passivated (St. Steel)

PART NO.	A	B	D	T	Material
40-4005-02	3/4	5/16	7/16	6-32	Brass Nickel Plated
40-4010-22	3/4	5/16	7/16	6-32	St. St.
40-4015-02	3/4	3/8	7/16	8-32	Brass Nickel Plated
40-4020 22	3/4	3/8	7/16	8-32	St. St.
40-4025-02	7/8	3/8	5/8	10-32	Brass Nickel Plated
40-4030-22	7/8	3/8	7/16	10-32	St. St.
40-4035-02	7/8	3/8	5/8	1/4-20	Brass Nickel Plated
40-4040-22	7/8	3/8	1/2	1/4-20	St. St

CAPTIVE SCREW BUSHINGS, SERIES 40-4100



Material: Brass
Finish: Nickel

PART NO.	D	A	L	T	Panel Thick
40-4105-02	3/8	5/16	5/32	6-32	1/8
40-4110-02	3/8	5/16	5/32	8-32	1/8
40-4115-02	9/16	13/32	5/32	10-32	1/8
40-4120-02	9/16	13/32	5/32	1/4-20	1/8
40-4125-02	3/8	5/16	7/32	6-32	3/16
40-4130-02	3/8	5/16	7/32	8-32	3/16
40-4135-02	9/16	13/32	7/32	10-32	3/16
40-4140-02	9/16	13/32	7/32	1/4-20	3/16
40-4145-02	3/8	5/16	9/32	6-32	1/4
41-4150-02	3/8	5/16	9/32	8-32	1/4
40-4155-02	9/16	13/32	9/32	10-32	1/4
40-4160-02	9/16	13/32	9/32	1/4-20	1/4

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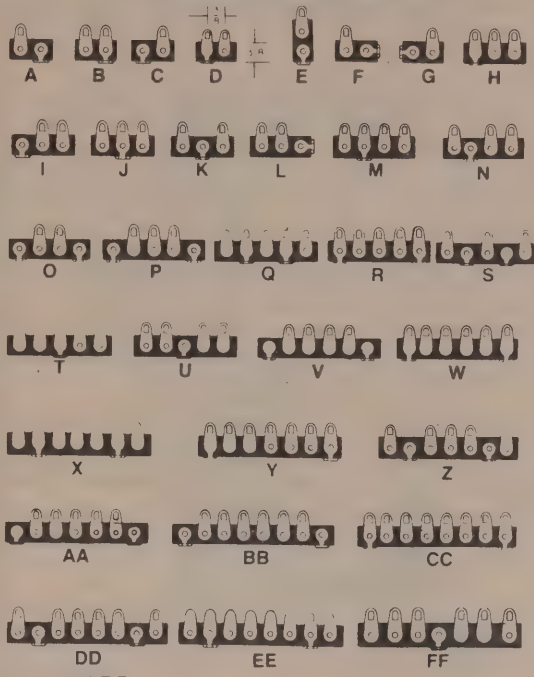
TWX 710-581-4930

HARDWARE

TERMINAL STRIPS



STANDARD

LUG: STEEL, cadmium-plated, spaced 3/8".
STRIP: Phenolic 3/8" wide x .062 thick.
MOUNT: .140 hole for No. 6 screw.

Concord No.	Fig.	Concord No.	Fig.
707-5001	A	707-5017	Q
707-5002	B	707-5018	R
707-5003	C	707-5019	S
707-5004	D	707-5020	T
707-5005	E	707-5021	U
707-5006	F	707-5022	V
707-5007	G	707-5023	W
707-5008	H	707-5024	X
707-5009	I	707-5025	Y
707-5010	J	707-5026	Z
707-5011	K	707-5027	AA
707-5012	L	707-5028	BB
707-5013	M	707-5029	CC
707-5014	N	707-5030	DD
707-5015	O	707-5031	EE
707-5016	P	707-5032	FF

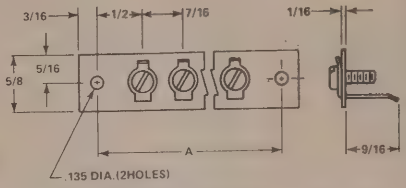
MINIATURE

LUG: STEEL, cadmium-plated, spaced 1/4" centers.
STRIP: XP Phenolic 5/16" wide x .062 thick.
MOUNT: .096 hole for No. 3 screw or 3/32 rivet.

Concord No.	Fig.	Concord No.	Fig.
707-5101	A	707-5117	Q
707-5102	B	707-5118	R
707-5103	C	707-5119	S
707-5104	D	707-5120	T
707-5105	E	707-5121	U
707-5106	F	707-5122	V
707-5107	G	707-5123	W
707-5108	H	707-5124	X
707-5109	I	707-5125	Y
707-5110	J	707-5126	Z
707-5111	K	707-5127	AA
707-5112	L	707-5128	BB
707-5113	M	707-5129	CC
707-5114	N	707-5130	DD
707-5115	O	707-5131	EE
707-5116	P		

SCREW TYPE

LUGS: BRASS, hot tinned, 7/16" centers.
SCREW: Steel, cadmium-plated 6-32 x 3/8".
STRIP: XP Phenolic 5/8" wide x .062 thick.

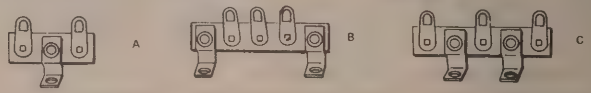


Concord No.	Terminals	"A"
707-5301	1	7/8"
707-5302	2	1-7/16"
707-5303	3	1-3/4"
707-5304	4	2-3/16"
707-5305	5	2-5/8"
707-5306	6	3-1/16"
707-5307	7	3-1/2"
707-5308	8	3-15/16"
707-5309	9	4-3/8"
707-5310	10	4-13/16"
707-5311	Shorting Link	

BRACKET TYPE

BRACKETS: Brass, cadmium-plated.
MOUNT: .140 I.D. for No. 6 screw.
LUGS: STEEL, cadmium-plated, 3/8" centers.
STRIPS: XP Phenolic 3/8" wide x .062 thick.

Concord	Fig.	Lugs
707-5151	A	2
707-5152	C	3
707-5153	B	3
707-5154	B	4
707-5155	B	5
707-5156	B	6

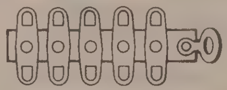


CONCORD

"THE COMPONENT PEOPLE"

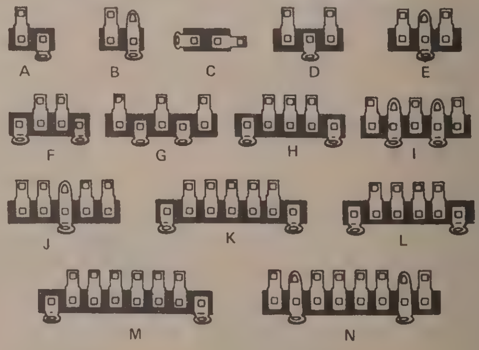
"T" TYPE

STRIP: XP Phenolic, 3/8" wide x .062 thick.
MOUNT: .140 I.D. for No. 6 screw.
LUGS: Steel, cadmium-plated, spaced 3/8" centers.



Concord No.	Lugs
707-5221	1
707-5222	2
707-5223	3
707-5224	4
707-5225	5

QUICK SLIDE OR SOLDER



LUG: Steel, cadmium-plated, spaced 3/8".
STRIP: XP Phenolic 3/8" wide x .062 thick.
MOUNT: 140" hole for No. 6 screw.
DESCR.: Quick Connect-disconnect:
Tie point solder.
Wrap and Solder.

Concord No.	Fig.	Concord No.	Fi
707-5201	A	707-5208	H
707-5202	B	707-5209	I
707-5203	C	707-5210	J
707-5204	D	707-5211	K
707-5205	E	707-5212	L
707-5206	F	707-5213	M
707-5207	G	707-5214	N

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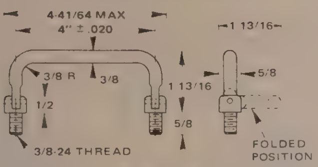
TWX 710-581-4930

HARDWARE

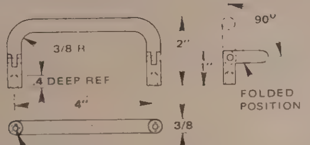
FOLDING HANDLES


4-41/64 MAX
4" ± .020
1 13/16
3/8 R
3/8
1/2
1 13/16
5/8
5/8
3/8-24 THREAD
FOLDED POSITION

BRASS

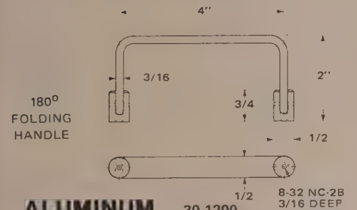
SUPPLIED WITH NUTS AND LOCKWASHERS

Nickel Plate	Black Oxide	Folds
30-1000-1-1	30-1000-1-2	90°
30-1000-2-1	30-1000-2-2	180°


90°
3/8 R
2"
1"
.4 DEEP REF
4"
FOLDED POSITION
3/8
10/32 TAP

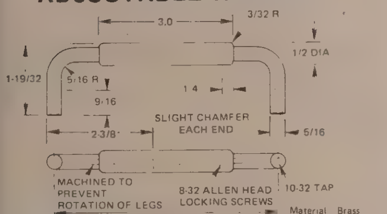
BRASS

Nickel Plate
30-1100-1


4"
3/16
2"
180° FOLDING HANDLE
3/4
1/2
1/2
8-32 NC-2B
3/16 DEEP

ALUMINUM 30-1200

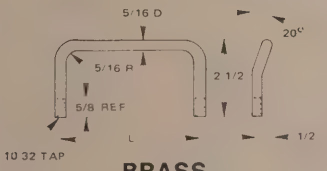
ADJUSTABLE HANDLE


3.0
3/32 R
1/2 DIA
1-19/32
5/16 R
1 4
9/16
SLIGHT CHAMFER EACH END
2-3/8
5/16
MACHINED TO PREVENT ROTATION OF LEGS
8-32 ALLEN HEAD LOCKING SCREWS
10-32 TAP

MOUNTING CENTERS ADJUSTABLE FROM 4-1/2 TO 6-5/8 **30-1300-1**

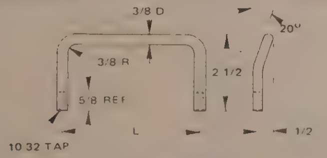
Material Brass
Finish Nickel Plate

OFFSET ROUND HANDLES


5/16 D
20°
5/16 R
2 1/2
5/8 REF
L
1/2
10 32 TAP

BRASS

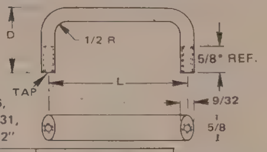
Nickel Plate	Black Oxide	L
30-3405-1	30-3405-2	4½"
30-3410-1	30-3410-2	6½"


3/8 D
20°
3/8 R
2 1/2
5/8 REF
L
1/2
10 32 TAP

ALUMINUM

SEMI-FROST ANODIZE	BLACK ANODIZE	L
30-3505-12	30-3505-11	4½"
30-3510-12	30-3510-11	6½"

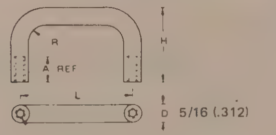
OVAL HANDLES


D
1/2 R
5/8* REF.
TAP
L
9/32
5/8

* FOR 30-3106, 30-3121, 30-3131, 30-3136 IS 9/32"

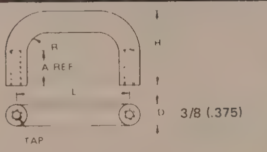
BRASS		ALUMINUM				
Nickel Plate	Black Oxide	Semi-frost Anodze	Black Anodize	L	D	Tap
30-3005-1	30-3005-2	30-3105-12	30-3105-11	3"	1-9/32	10-32
——	——	30-3106-12	30-3106-11	3"	1-9/32	10-24
30-3010-1	30-3010-2	30-3110-12	30-3110-11	3"	1-3/4	10-32
30-3015-1	30-3015-2	30-3115-12	30-3115-11	4"	1-3/4	10-32
30-3020-1	30-3020-2	30-3120-12	30-3120-11	4-9/16"	1-1/2	10-32
——	——	30-3121-12	30-3121-11	4-9/16"	1-1/2	10-24
30-3025-1	30-3025-2	30-3125-12	30-3125-11	4-9/16"	1-3/4	10-32
30-3030-1	30-3030-2	30-3130-12	30-3130-11	6-7/16"	1-3/4	10-32
——	——	30-3131-12	30-3131-11	6-7/16"	1-3/4	10-24
30-3035-1	30-3035-2	30-3135-12	30-3135-11	9"	1-3/4	10-32
——	——	30-3136-12	30-3136-11	9"	1-3/4	10-24

ROUND HANDLES


R
H
A REF
L
D
5/16 (.312)

BRASS

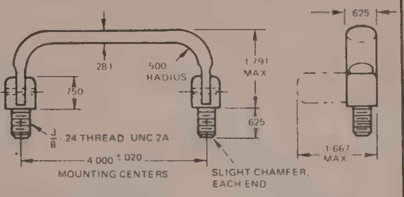
Nickel Plate	Black Oxide	D	L	H	TAP	A	R
30-3209-1	30-3209-2	.312	2.000	1.312	8-32	.438	.312
30-3210-1	30-3210-2	.312	2.000	1.312	10-32	.625	.312
30-3205-1	30-3205-2	.312	2.000	1.500	10-32	.625	.312
30-3216-1	30-3216-2	.312	3.000	1.312	8-32	.438	.312
30-3215-1	30-3215-2	.312	3.000	1.312	10-32	.625	.312
30-3220-1	30-3220-2	.312	3.000	1.500	10-32	.625	.312
30-3230-1	30-3230-2	.312	4.000	1.500	10-32	.625	.312
30-3235-1	30-3235-2	.312	4.000	1.875	10-32	.625	.312
30-3225-1	30-3225-2	.312	4.250	1.500	10-32	.625	.312
30-3240-1	30-3240-2	.312	4.500	1.500	10-32	.625	.312
30-3245-1	30-3245-2	.312	4.562	1.500	10-32	.625	.312
30-3250-1	30-3250-2	.312	6.000	1.500	10-32	.625	.312
30-3255-1	30-3255-2	.312	6.438	1.500	10-32	.625	.312
30-3260-1	30-3260-2	.312	6.438	1.750	10-32	.625	.312
30-3265-1	30-3265-2	.312	6.500	1.500	10-32	.625	.312
30-3270-1	30-3270-2	.312	6.500	1.750	10-32	.625	.312


R
H
A REF
L
D
3/8 (.375)
TAP

ALUMINUM

Black Anodize	Semi-frost Anodize	D	L	H	TAP	A	R
30-3305-11	30-3305-12	.375	2.000	1.312	10-32	.625	.375
30-3310-11	30-3310-12	.375	2.000	1.750	10-32	.625	.375
30-3315-11	30-3315-12	.375	2.500	1.750	10-32	.625	.375
30-3320-11	30-3320-12	.375	3.000	1.750	10-32	.625	.375
30-3325-11	30-3325-12	.375	4.000	1.750	10-32	.625	.375
30-3327-11	30-3327-12	.375	4.000	1.875	10-32	.625	.375
30-3328-11	30-3328-12	.375	4.000	1.875	12-24	.562	.375
30-3330-11	30-3330-12	.375	4.500	1.500	10-32	.625	.375
30-3335-11	30-3335-12	.375	4.500	1.750	10-32	.625	.375
30-3340-11	30-3340-12	.375	6.000	1.750	10-32	.625	.375
30-3345-11	30-3345-12	.375	6.438	1.750	10-32	.625	.375
30-3350-11	30-3350-12	.375	6.500	1.750	10-32	.625	.375

OVAL FOLDING HANDLE (BRASS)

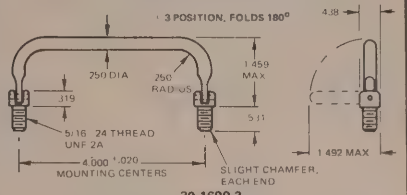

625
281
500 RADIUS
1 791 MAX
750
625
3/8 - 24 THREAD UNC 2A
4 000 ± 020
MOUNTING CENTERS
SLIGHT CHAMFER, EACH END
1 667 MAX

Nickel Plate	Black Oxide		
30-1400-1-1	30-1400-1-2	2 Positions	90°
30-1400-2-1	30-1400-2-2	3 Positions	180°

MOUNTING HARDWARE
2 Hex Brass Nuts
2 Bronze Lock Washers

STAINLESS STEEL FOLDING HANDLE

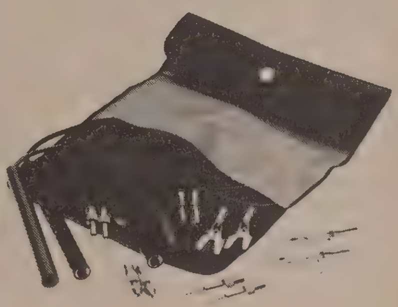
3 POSITION, FOLDS 180°

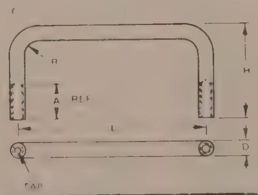

438
250 DIA
250 RADIUS
1 459 MAX
319
511
5/16 24 THREAD UNF 2A
4.000 ±.020
MOUNTING CENTERS
SLIGHT CHAMFER, EACH END
1 492 MAX

30-1600-2

MOUNTING HARDWARE
2 Hex Nuts S S
2 Lock Washers S S

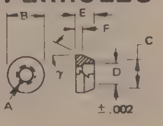
UNIVERSAL TEST LEAD KIT CONCORD No. 01-5500




R
H
A REF
L
D
TAP

BRASS		ALUMINUM							
Nickel Plate	Black Oxide	Black Anodize	Semi-frost Anodize	D	L	H	TAP	A	R
30-3282-1	30-3282-2	——	——	.156	.750	1.000	4-40	.380	.156
30-3285-1	30-3285-2	30-3370-11	30-3370-12	.156	1.250	1.000	4-40	380	.188
30-3286-1	30-3286-2	30-3372-11	30-3372-12	.156	2.000	1.000	4-40	.380	.188
30-3287-1	30-3287-2	30-3374-11	30-3374-12	.156	3.000	1 000	4-40	.380	188
30-3292-1	30-3292-2	30-3380-11	30-3380-12	250	2.000	1 500	8-32	560	250
30-3294-1	30-3294-2	30-3385-11	30-3385-12	.250	3 000	1 500	8-32	560	250
30-3295-1	30-3295-2	30-3390-11	30-3390-12	250	4 000	1.500	8-32	560	250
30-3296-1	30-3296-2	30-3395-11	30-3395-12	250	6 000	1 500	8-32	560	.250

FERRULES


B
E
F
C
γ
D
A
± .002

BRASS		ALUMINUM									
Nickel Plate	Black Oxide	Semi-frost Anodize	Black Anodize	D	A	B	C	E	F	γ	For Handle Dia
30-3951-1	30-3951-2	30-3952-12	30-3952-11	.161	.116	.250	.200	.125	.047	22°	.156
30-3950-1	30-3950-2	30-3955-12	30-3955-11	.260	.204	.375	.320	.187	.062	16°	.250
30-3954-1	30-3954-2	——	——	.320	.221	.469	.406	.250	.062	13°	.312
30-3980-1	30-3980-2	——	——	.320	.221	.562	.406	.250	.062	30°	.312
——	——	30-3990-12	30-3990-11	.382	.250	.625	.469	.375	093	30°	.375

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

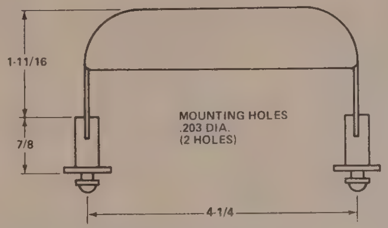
CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

HARDWARE

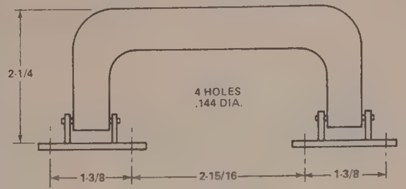
EQUIPMENT HANDLES

Molded Grip Handles



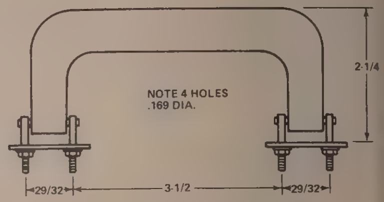
Manufactured of high impact styrene and nickel plated steel. Mounts with 10-32 machine screws — (supplied). Max. panel thickness 1/4", 76 lb. max. load.

Part No.	Color
790-2301	Black
790-2302	Grey



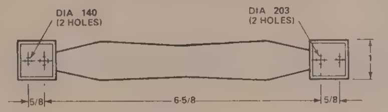
Mounts with rivets or #6 screws — (not supplied). Max. panel thickness — unlimited 60 lb. max. load. Folds flat to case.

Part No.	Color
790-2303	Black
790-2304	Grey



Mounts with integral 8-32 studs and nuts — (supplied). Max. panel thickness 3/8". 60 lb. max. load. Folds flat to case

Part No.	Color
790-2305	Black



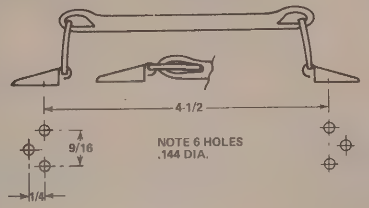
Spring Glide Handles

Manufactured of black genuine leather. Contoured stitched, and chrome plated steel.

Mounts on panels up to 1/4" thick, 120 lb. max. load. Designed to lie flat on case when not in use. Will not rattle under vibration. Attaches with fold tabs on cap against rear bearing.

Washer Plate, Spring and Washer Plate can be Secured with Optional Screws.

Part No.
790-2306

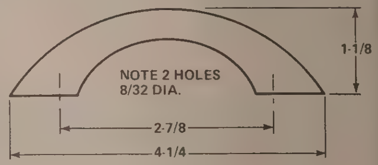


RETRACTO LINK HANDLES

Manufactured of black genuine leather with matching stitching and nickel plated steel.

Mounts on panels up to 1/2" thk., 60 lb. max. load. Lies flat when not in use. Attaches with fold tabs against rear bearing plate which can be secured with #6 screws — (not supplied).

Part No.	"A"	"B"
790-2307	4-1/2	5-3/4
790-2308	5-1/2	6-5/8
790-2309	6-3/4	7-7/8



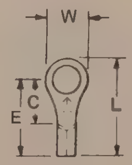
BAKELITE HANDLE

BLACK MOLDED PHENOLIC

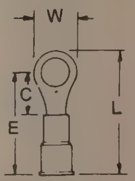
Mounts with 8-32 screws — (not supplied). 40 lb. max. load.

Part No.
790-2260

RING TONGUE



SOLDERLESS TERMINALS



									NON-INSULATED			INSULATED			
Wire Range (AWG)	Stud Size	W	C	L	E	Thick ness	Barrel Length	Barrel I.D.	Butted Seam Concord No.	Brazed Seam Concord No.	Max. Insul. Dia.	L	E	Vinyl Concord No.	Nylon Concord No.
*26-24	2	.14	.12	31	.24	.020	.13	.030	701-2300	–	.093	.47	.40	–	701-2305
	4	.20	.21	45	.35	.020	.14	.030	701-2301	–	.093	.60	.49	–	701-2306
	6	.20	.21	45	.35	.020	.14	.030	701-2302	–	.093	.60	.49	–	701-2307
	8	.26	.28	53	.40	.020	.13	.030	701-2303	–	.093	.69	.56	–	701-2308
	10	25	28	53	.40	.020	.13	.030	701-2304	–	.093	.69	.56	–	701-2349
22-18	2	25	23	.60	.48	.030	.25	.070	701-2315	701-2325	.145	.79	67	701-2335	701-2345
	4	25	22	.60	.47	.030	.25	.070	701-2001	701-2005	.145	.79	.66	701-2009	701-2346
	6	.25	.22	60	.47	.030	.25	.070	701-2002	701-2006	.145	.79	.66	701-2010	701-2347
	8	.33	.29	70	.54	.030	.25	.070	701-2003	701-2007	.145	.89	.73	701-2011	701-2348
	10	.33	.29	70	.54	.030	.25	.070	701-2004	701-2008	.145	.89	.73	701-2012	701-2349
	1/4	.47	40	88	.65	.030	.25	.070	701-2320	701-2330	.145	1.07	.84	701-2340	710-2350
	5/16	47	40	88	.65	.030	.25	.070	701-2321	701-2331	.145	1.07	.84	701-2341	–
	5/16	56	40	93	65	030	25	070	–	–	.145	1.12	.84	–	701-2351
	3/8	56	40	93	65	030	25	070	701-2322	701-2332	.145	1 12	84	701-2342	701-2352
16-14	2	25	22	60	47	.030	.25	090	701-2458	701-2466	.170	.79	.66	701-2475	701-2485
	4	25	22	60	.47	.030	.25	.090	701-2459	701-2467	.170	.79	.66	701-2476	701-2486
	6	.25	.22	60	.47	.030	.25	.090	701-2013	701-2016	.170	.79	.66	701-2019	701-2487
	8	.33	29	70	.54	.030	.25	.090	701-2014	701-2017	.170	.89	.73	701-2020	701-2488
	10	.33	.29	70	.54	.030	.25	.090	701-2015	701-2018	.170	.89	.73	701-2021	701-2489
	1/4	.47	.40	89	.65	.030	.25	.090	701-2463	701-2471	.170	1.07	.84	701-2480	701-2490
	5/16	47	40	88	65	030	25	.090	701-2464	701-2472	.170	1.07	.84	701-2481	701-2491
	3/8	56	40	93	65	030	25	090	701-2465	701-2473	.170	1 12	84	701-2482	701-2492
12-10	4	28	29	.68	.54	.040	.25	.135	701-2620	701-2630	.250	.98	.84	701-2640	701-2650
	6	.28	29	.68	.54	.040	.25	.135	701-2013	701-2026	.250	.98	.84	701-2030	701-2651
	8	.38	.29	73	.54	.040	.25	.135	701-2023	701-2027	.250	1.03	.84	701-2031	701-2652
	10	.38	.29	73	.54	.040	.25	.135	701-2024	701-2028	.250	1.03	.84	701-2032	701-2653
	1/4	.61	44	99	.69	.040	.25	.135	701-2025	701-2029	.250	1.29	.99	701-2033	701-2654
	5/16	.61	44	.99	.69	.040	.25	.135	701-2625	701-2635	.250	1.29	.99	701-2645	701-2655
	3/8	.61	.44	99	.69	.040	.25	.135	701-2626	701-2636	.250	1.29	.99	701-2646	701-2656
	1/2	75	57	1.20	.82	.040	.25	.135	701-2627	701-2637	.250	1.50	1.12	701-2647	701-2657

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CHART

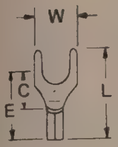
CLEAR (AMBER):	26-24AWG	BLUE:	16-14AWG
RED:	22-18AWG	YELLOW:	12-10AWG

CONCORD
THE COMPONENT PEOPLE

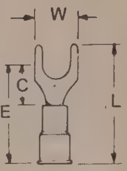
30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

HARDWARE

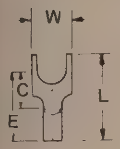
SPADE



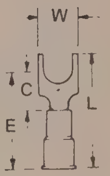
NON-INSULATED												INSULATED			
Wire Range (AWG)	Stud Size	W	C	L	E	Thickness	Barrel Length	Barrel I.D.	Butted Seam Concord No.	Brazed Seam Concord No.	Max. Insul. Dia.	L	E	Vinyl Concord No.	Nylon Concord No.
26-	4	.20	.21	46	.35	.020	.14	.030	701-2310	–	–	–	–	–	701-2313
24	6	.25	.28	.53	.40	.020	.13	.030	701-2311	–	–	–	–	–	701-2314
22-	6	.34	.29	.70	.54	.030	.25	.070	701-2034	701-2037	–	–	–	701-2040	701-2385
18	8	.34	.29	.70	.54	.030	.25	.070	701-2035	701-2038	–	–	–	701-2041	701-2386
	10	.34	.29	.70	.54	.030	.25	.070	701-2036	701-2039	–	–	–	701-2042	701-2387
16-	6	.34	.29	.70	.54	.030	.25	.090	701-2043	701-2046	–	–	–	701-2050	701-2531
14	8	.34	.29	.70	.54	.030	.25	.090	701-2044	701-2047	–	–	–	701-2051	701-2532
	10	.34	.29	.70	.54	.030	.25	.090	701-2045	701-2048	–	–	–	701-2051	701-2532
12-	6	.38	.29	.73	.54	.040	.25	.135	701-2052	701-2055	–	–	–	701-2058	701-2680
10	8	.38	.29	.73	.54	.040	.25	.135	701-2053	701-2056	–	–	–	701-2059	701-2681
	10	.38	.29	.73	.54	.040	.25	.135	701-2054	701-2057	–	–	–	701-2060	701-2682



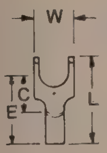
BLOCK SPADE



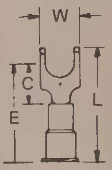
NON-INSULATED												INSULATED			
Wire Range (AWG)	Stud Size	W	C	L	E	Thickness	Barrel Length	Barrel I.D.	Butted Seam Concord No.	Brazed Seam Concord No.	Max. Insul. Dia.	L	E	Vinyl Concord No.	Nylon Concord No.
22-	6	.30	.25	.65	.50	.030	.25	.070	701-2400	701-2405	.145	.85	.70	701-2410	701-2415
18	8	.30	.25	.65	.50	.030	.25	.070	701-2401	701-2406	.145	.85	.70	701-2411	701-2416
	10	.30	.25	.65	.50	.030	.25	.070	701-2402	701-2407	.145	.85	.70	701-2412	701-2417
16-	6	.30	.25	.65	.50	.030	.25	.090	701-2550	701-2555	.175	.85	.70	701-2560	701-2565
14	8	.30	.25	.65	.50	.030	.25	.090	701-2551	701-2556	.175	.85	.70	701-2561	701-2566
	10	.30	.25	.65	.50	.030	.25	.090	701-2552	701-2557	.175	.85	.70	701-2562	701-2567
12-	6	.32	.29	.73	.54	.040	.25	.135	701-2700	701-2705	.255	.103	.84	701-2710	701-2715
10	8	.32	.29	.73	.54	.040	.25	.135	701-2701	701-2706	.255	.103	.84	701-2711	701-2716
	10	.32	.29	.73	.54	.040	.25	.135	701-2702	701-2707	255	.103	.84	701-2712	701-2717



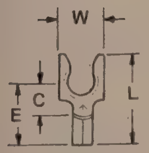
FLANGED BLOCK SPADE



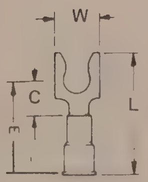
NON-INSULATED												INSULATED			
Wire Range (AWG)	Stud Size	W	C	L	E	Thickness	Barrel Length	Barrel I.D.	Butted Seam Concord No.	Brazed Seam Concord No.	Max. Insul. Dia.	L	E	Vinyl Concord No.	Nylon Concord No.
22-	6	.30	.25	.65	.50	.030	.25	.070	701-2420	701-2425	.145	.85	.70	701-2430	701-2435
18-	8	.30	.25	.65	.50	.030	.25	.070	701-2421	701-2426	.145	.85	.70	701-2431	701-2436
	10	.30	.25	.65	.50	.030	.25	.070	701-2422	701-2427	.145	.85	.70	701-2432	701-2437
16-	6	.30	.25	.65	.50	.030	.25	.090	701-2570	701-2575	.170	.85	.70	701-2580	701-2585
14-	8	.30	.25	.65	.50	.030	.25	.090	701-2571	701-2576	.170	.85	.70	701-2581	701-2586
	10	.30	.25	.65	.50	.030	.25	.090	701-2572	701-2577	.170	.85	.70	701-2582	701-2587



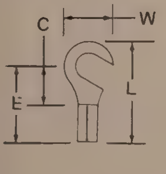
SNAP-SPADE



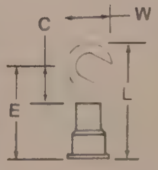
NON-INSULATED											INSULATED		
Wire Range (AWG)	Stud Size	W	C	L	E	Thickness	Barrel Length	Barrel I.D.	Butted Seam Concord No.	Max. Insul. Dia.	L	E	Vinyl Concord No.
	4	.25	.25	.68	.60	.030	.25	.070	701-2390	.145	.88	.70	701-2395
22-	6	.25	.25	.68	.50	.030	.25	.070	701-2391	.145	.88	.70	701-2396
18	8	.30	.25	.68	.50	.030	.25	.070	701-2392	.145	.88	.70	701-2397
	10	.32	.25	.68	.50	.030	.25	.070	701-2393	.145	.88	.70	701-2598
	4	.25	.25	.68	.50	.030	.25	.090	701-2536	.170	.88	.70	701-2540
16-	6	.25	.25	.68	.50	.030	.25	.090	701-2536	.170	.88	.70	701-2541
14	8	.30	.25	.68	.50	.030	.25	.090	701-2537	.170	.88	.70	701-2542
	10	.32	.25	.68	.50	.030	.25	.090	701-2538	.170	.88	.70	701-2543
	6	.28	.28	.73	.53	.040	.25	.135	701-2685	.250	1.03	.83	701-2690
12-	8	.32	.28	.73	.53	.040	.25	.135	701-2686	.250	1.03	.83	701-2691
10	10	.32	.28	.73	.53	.040	.25	.135	701-2687	.250	1.03	.83	701-2692
	1/4	.43	.44	.94	.69	.040	.25	.135	701-2688	.250	1.24	.99	701-2693



HOOK



NON-INSULATED											INSULATED			
Wire Range (AWG)	Stud Size	W	C	L	E	Thickness	Barrel Length	Barrel I.D.	Butted Seam Concord No.	Max. Insul. Dia.	L	E	Vinyl Concord No.	Nylon Concord No.
22-	6	.33	.29	.70	.54	.030	.25	.070	701-2440	.145	.90	.73	701-2450	701-2455
18	8	.33	.29	.70	.54	.030	.25	.070	701-2441	.145	.90	.73	701-2451	701-2456
	10	.33	.29	.70	.54	.030	.25	.070	701-2442	.145	.90	.73	701-2452	701-2457
16-	6	.33	.29	.70	.54	.030	.25	.090	701-2600	.170	.90	.73	701-2610	701-2615
14	8	.33	.29	.70	.54	.030	.25	.090	701-2601	.170	.90	.73	701-2611	701-2616
	10	.33	.29	.70	.54	.030	.25	.090	701-2602	.170	.90	.73	701-2612	701-2617
12-	6	.38	.29	.73	.54	.040	.25	.135	701-2720	.250	1.03	.89	701-2730	701-2735
10	8	.38	.29	.73	.54	.040	.25	.135	701-2721	.250	1.03	.89	701-2731	701-2736



CONCORD
THE COMPONENT PEOPLE

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

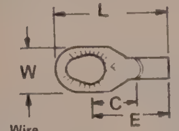
COLOR CHART

CLEAR (AMBER):	26-24AWG	BLUE:	16-14AWG
RED:	22-18AWG	YELLOW:	12 10AWG

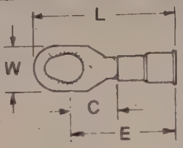
30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

HARDWARE

MULTI-STUD

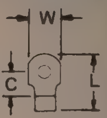


NON-INSULATED
MULTI-STUD



Wire Range (AWG)	Stud Size	W	C	L	E	Thick-ness	Barrel Length	Barrel I.D.	Butted Seam Concord No.	Max. Insul. Dia.	L	E	Vinyl Concord No.
22- 18	2-4-6	.28	.28	.74	.53	.030	.25	.070	701-2360	.145	.94	.73	701-2365
	6-8-10	.34	.31	.81	.56	.030	.25	.070	701-2361	.145	1.01	.76	701-2366
16- 14	2-4-6	.28	.28	.74	.53	.030	.25	.090	701-2505	.170	.94	.73	701-2510
	6-8-10	.34	.31	.81	.56	.030	.25	.090	701-2506	.170	1.01	.76	701-2511
12- 10	6-8-10	.39	.35	.89	.60	.040	.25	.135	701-2665	.250	1.19	.80	701-2667

FLAG TERMINAL

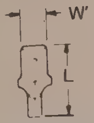


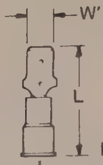
NON-INSULATED
FLAG TERMINAL

Wire Range (AWG)	Stud Size	W	C	L	E	Thick-ness	Barrel Length	Barrel I.D.	Butted Seam Concord No.
22- 18	6	.38	.34	.66		.030	.26	.070	701-2355
	8	.38	.34	.66		.030	.26	.070	701-2356
	10	.38	.34	.66		.030	.26	.070	701-2357
16- 14	6	.38	.34	.69		.030	.25	.090	701-2500
	8	.38	.34	.69		.030	.25	.090	701-2501
	10	.38	.34	.69		.030	.25	.090	701-2502
12- 10	6	.38	.28	.68		.040	.25	.135	701-2660
	8	.38	.28	.68		.040	.25	.135	701-2661
	10	.38	.28	.68		.040	.25	.135	701-2662

QUICK SLIDES

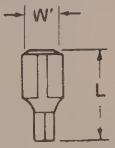
MALE

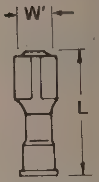




	NON-INSULATED					INSULATED	VINYL	
Wire Range (AWG)	Male Tab Width (W') x Thickness	L	Barrel Length	Barrel I.D.	Concord No.	Max Insul. Dia.	L	Concord No.
22-18	.250 x .032	.73	.25	.065	701-2075	.145	.93	701-2073
16-14	.187 x .020	.64	.24	.080	701-2740	.170	.85	701-2743
	.250 x .032	.73	.25	.085	701-2076	.170	.93	701-2074

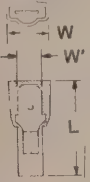
FEMALE





	NON-INSULATED					INSULATED	VINYL	
Wire Range (AWG)	Mates with Male Tab Width (W') x Thickness	L	Barrel Length	Barrel I.D.	Concord No.	Max. Insul. Dia.	L	Concord No.
22-18	.187 x .020	.58	.25	.085	701-2071	.145	.78	701-2069
	.250 x .032	.66	.25	.080	701-2066	.145	.87	701-2061
	—	—	—	—	—	—	—	—
16-14	.187 x .020	.58	.25	.085	701-2072	.145	.78	701-2070
	.250 x .032	.66	.25	.080	701-2067	.145	.87	701-2062
14-12	.250 x .032	.56	.16	.115	701-2068	—	—	—
12-10	.250 x .032	.93	.25	.165	—	.250	.96	701-2063

MALE

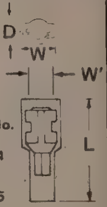


FULLY INSULATED
NYLON

Wire Range (AWG)	Male Tab Width (W') x Thickness	L	W	D	Barrel Length	Barrel I.D.	Max. Insul. Dia.	Concord No.
22-18	250 x .032	95	.44	.30	.25	.065	.145	701-2752
16-14	.250 x .032	.95	.44	.30	.25	.085	.170	701-2753

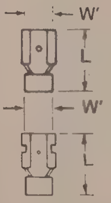
FEMALE

FULLY INSULATED
NYLON



Wire Range (AWG)	Mates with Male Tab Width (W') x Thickness	L	W	D	Barrel Length	Barrel I.D.	Max. Insul. Dia.	Concord No.
22-18	.250 x .032	.87	.37	.23	.25	.080	.145	701-2064
16-14	.250 x .032	.87	.37	.23	.25	.080	.170	701-2065

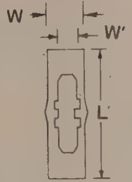
FEMALE QUICK SLIDE FLAG



NON-INSULATED
BUTTED SEAM

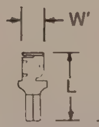
Wire Range (AWG)	Mates with Male Tab Width (W') x Thickness	L	Barrel Length	Barrel I.D.	Concord No.
22-18	.187 x .020	.46	.20	.075	701-2760
	.250 x .032	.50	.25	.075	701-2761
16-14	.187 x .020	.47	.20	.095	701-2762
	.250 x .032	.51	.26	.095	701-2763

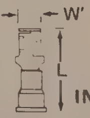
VINYL INSULATED DOUBLE MALE



Male Tab Width (W') x Thickness	L	Width (W)	Concord No.
.250 x .030	2.13	.44	701-2771

SELF-MATING CROSS-LOCK





			NON-INSULATED			INSULATED	
Wire Range (AWG)	Tab Width W'	Tab Thick-ness	Barrel Length	Concord No.	Max. Insul. Dia.	L	Concord No.
22-18	.250	Self-mating parts	.74	701-2773	.145	.94	701-2776
16-14	.250		.74	701-2774	.170	.94	701-2777

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

COLOR CHART

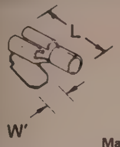
CLEAR (AMBER):	26-24AWG	BLUE:	16-14AWG
RED:	22-18AWG	YELLOW:	12-10AWG

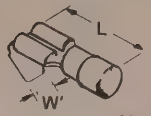
30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

HARDWARE

MULTI-STACK DISCONNECT

QUICK SLIDE ACCESSORIES

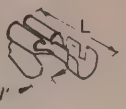




NON-INSULATED BUTTED SEAM / INSULATED

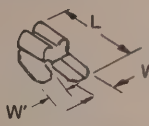
Wire Range (AWG)	Mates with Fem. & Male Width (W') x Thickness	L	Barrel Length	I.D.	Concord No.	Max. Insul. Dia.	L	VINYL Concord No.
22-18	.250 x .032	.66	.23	.070	701-2780	.145	.87	701-2784
16-14	.250 x .032	.66	.23	.090	701-2781	.170	.87	701-2785

OPEN BARREL



Wire Range (AWG)	Mates with Fem. & Male Width (W') x Thickness	L	Barrel Length	Concord No.
20-14	.250 x .032	.76	.16	701-2782

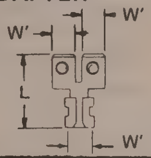
FEMALE DOUBLE ADAPTER



Width (W) x Thickness	L	Concord No.
.250 x .032	.78	701-2788

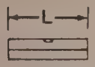
MALE DOUBLE ADAPTER

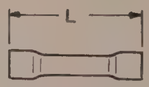
Width (W) x Thickness	L	Concord No.
.250 x .032	.76	701-2789



CONNECTORS

BUTT CONNECTOR

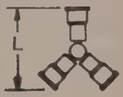




NON-INSULATED / INSULATED

Wire Range (AWG)	L	Thickness	Barrel Length	I.D.	Butted Seam Concord No.	Max. Insul. Dia.	L	Vinyl Concord No.	Nylon Concord No.
26-24	.38	.020	.12	.030	701-2800	.093	.88	–	701-2810
22-18	.56	.030	.25	.070	701-2089	.145	1.00	701-2095	–
16-14	.56	.030	.25	.090	701-2090	.170	1.00	701-2096	–
12-10	.56	.040	.25	.135	701-2091	.250	1.02	701-2097	–

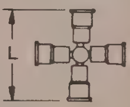
3-WAY CONNECTOR



INSULATED

Wire Range (AWG)	L	Thickness	Barrel Length	I.D.	Max. Insul Dia.	Vinyl Concord No.
22-18	1.23	.030	.25	.070	.145	701-2830
16-14	1.23	.030	.25	.090	.170	701-2831
12-10	1.39	.040	.25	.135	.250	701-2832

4-WAY CONNECTOR

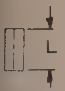


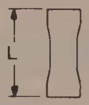
INSULATED

Wire Range (AWG)	L	Thickness	Barrel Length	I.D.	Max. Insul. Dia.	Vinyl Concord No.
22-18	1.48	.030	.25	.070	.145	701-2840
16-14	1.48	.030	.25	.090	.170	701-2841
12-10	1.68	.040	.25	.135	.250	701-2842

PARALLEL CONNECTOR

NON-INSULATED PARALLEL CONNECTOR / INSULATED

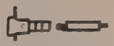




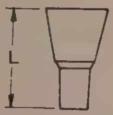
Wire Range (AWG)	L	Thickness	Barrel I.D. In.	CMA	Butted Seam Concord No.	Max. Insul. Dia.	L	Vinyl Concord No.
22-18	.31	.030	.070	4900	701-2080	.145	.67	701-2086
16-14	.31	.030	.090	8100	701-2081	.170	.67	701-2087
12-10	.31	.040	.135	18225	701-2082	.250	.87	701-2088

T-TAP CONNECTORS WITH MATING PLUG

Wire Range (AWG)	Vinyl Concord No.
18-14	701-



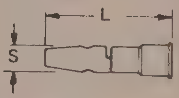
CLOSED END CONNECTOR



INSULATED

Wire Range (AWG)	L	Barrel Length	I.D.	Nylon Concord No.
22-14	.61	.31	.091	701-2077
18-10	.73	.34	.152	701-2079

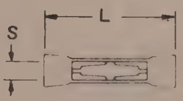
MALE SNAP PLUG



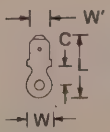
Wire Range (AWG)	Mating Snap Dia. S	L	Barrel Length	I.D.	Max. Insul. Dia.	Vinyl Concord No.
16-14	.156	.85	.19	.090	.170	701-2850
16-14	.180	.85	.19	.090	.170	701-2851

DOUBLE FEMALE SNAP RECEPTACLE

Mating Snap Dia. S	L	Vinyl Concord No.
.156	.131	701-2855



MALE TABS (RING TONGUE)



Stud Size	Male Tab Width (W') x Thickness	W	C	L	Concord No.
6	.250 x .030	.34	.26	.83	701-2795
8	.250 x .030	.34	.26	.83	701-2796
10	.250 x .030	.34	.26	.83	701-2797

CONCORD
THE COMPONENT PEOPLE

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

COLOR CODE FOR ORDERING

COLOR CHART

CLEAR (AMBER):	26-24AWG	BLUE:	16-14AWG
RED:	22-18AWG	YELLOW:	12-10AWG

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

TEST LEADS

SPECIFICATIONS

Wire — #20 26/34 strands 500 volts .125 O.D.
Extra-flexible, kinkless rubber covered
approximately 48 inches long.
Handles — Butyrate
Solderless Tip — Brass Nickel Plate
Needle — Steel Nickel Plate

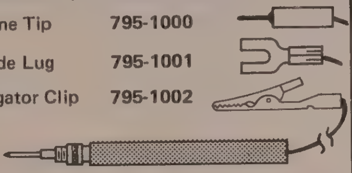
Meter Plug Handle — Molded Plastic
Body — Brass Nickel Plate
Banana Plug Spring — Phos. Bronze Nickel Plate
Alligator Clip — Steel Cad Plate
Boot — Vinyl
Lug — Brass Nickel Plate

SUPPLIED IN SETS CONTAINING (1) RED AND (1) BLACK LEAD

Solderless Tip Test Lead

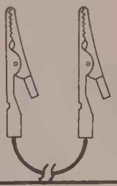
Solderless Tip: Brass Nickel Plate

Phone Tip	795-1000
Spade Lug	795-1001
Alligator Clip	795-1002

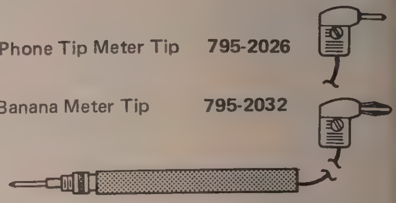


Alligator Clip Test Leads

Part No.	Wire Length
795-2001	12 inches
795-2002	24 inches
795-2003	36 inches
795-2004	48 inches

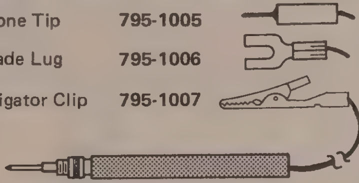


Phone Tip Meter Tip	795-2026
Banana Meter Tip	795-2032



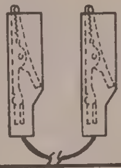
Phono Needle Test Lead

Phone Tip	795-1005
Spade Lug	795-1006
Alligator Clip	795-1007



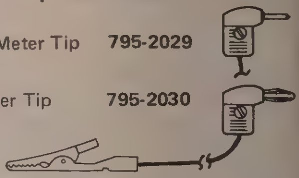
Alligator Clip Test Leads with Boots

Part No.	Wire Length
795-2010	12 inches
795-2012	24 inches
795-2013	36 inches
795-2014	48 inches



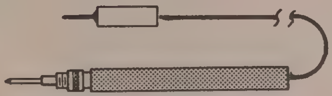
Alligator Clip Test Lead

Phone Tip Meter Tip	795-2029
Banana Meter Tip	795-2030



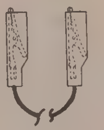
Solderless Test Lead

795-1003



Midget Alligator Clip Test Leads

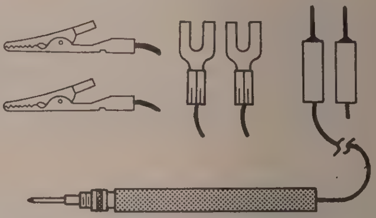
Part No.	Wire Length
795-2015	12 inches
795-2016	24 inches
795-2017	36 inches
795-2018	48 inches



Test Lead Kit

Each kit contains one set of test leads, one end terminated with test prods. The other with banana plugs.
Supplied with two each: phone tips, alligator clips, and spade lugs.

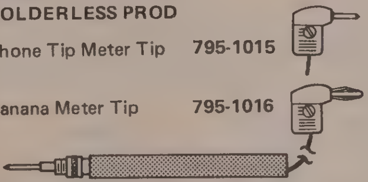
Solderless Prod	795-1035
Needle Tip Prod	795-1036



Meter Test Leads

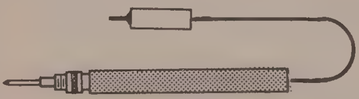
SOLDERLESS PROD

Phone Tip Meter Tip	795-1015
Banana Meter Tip	795-1016



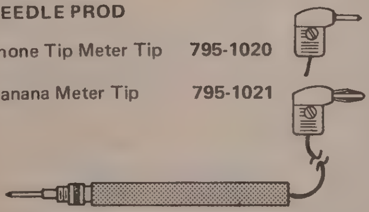
Short Tip Test Lead

795-1031



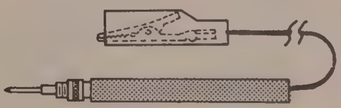
NEEDLE PROD

Phone Tip Meter Tip	795-1020
Banana Meter Tip	795-1021



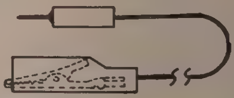
Alligator Clip Test Lead

795-2027



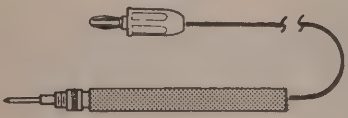
Alligator Clip Test Lead

795-2028



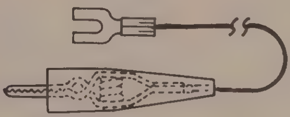
Banana Plug Test Lead

795-1030



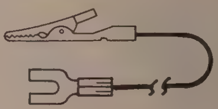
Crocodile Clip Test Lead

795-2025



Alligator Clip Test Lead

795-2022



FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

30 GREAT JONES STREET
NEW YORK, N.Y. 10012
(212) 777-6571
TWX 710-581-4930

"SAFETY" PROD TEST LEADS

SPECIFICATIONS

SUPPLIED IN SETS CONTAINING (1) RED AND (1) BLACK LEAD

All Test Lead Set Supplied With .080 Combination Phone and Insulation Piercing Tip, With Radial Notch for Wire Buss Layovers.

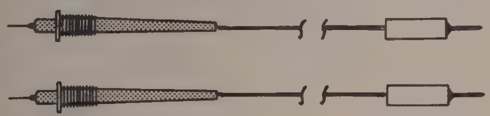
Tip Accepts Screw on Alligator Clips Part Nos. 795-2307 and 795-2308

Safety Prod Handle — KJB Type ABS Plastic (94V-O)
Wire — #20 Awg Rubber Covered 48" Nominal Length
Lug — Brass Nickel Plate
Boot — Vinyl
Alligator Clip — Steel Cad Plate

Banana Plug Spring — Phos. Bronze Nickel Plate
Meter Plug Handle — Molded Plastic
Combination Tip — Brass Nickel Plate
Input Handles — Molded Plastic

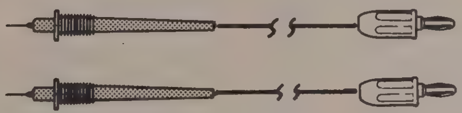
795-2300

Combination Tip To Phone Tip Instrument Input



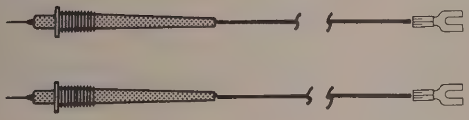
795-2304

Combination Tip To Standard Banana Plug Instrument Input.



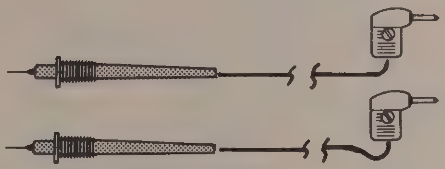
795-2301

Combination Tip To Spade Lug Instrument Input.



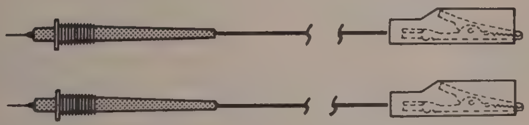
795-2305

Combination Tip To Right Angle Phone Tip Instrument Input.



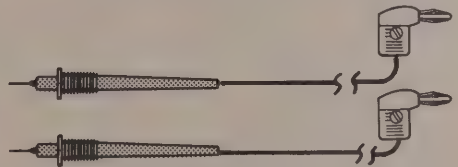
795-2302

Combination Tip To Booted Alligator Clip Instrument Input



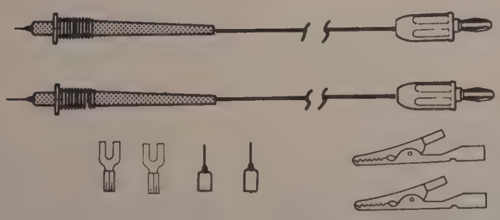
795-2306

Combination Tip To Right Angle Banana Plug Instrument Input.



795-2303

Combination Tip to Banana Plug Instrument Input. Also Supplied 2 Each Phone Tip Alligator Clip & Spade Lug Inputs.



Screw on Alligator Clip Adapter

795-2307
Standard

795-2308
Miniature

FOR MIL SPEC., ADDITIONAL SIZES AND MATERIALS CONTACT FACTORY

CONCORD
THE COMPONENT PEOPLE

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NEW YORK, N.Y. 10012
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We're just showing some of Connector Corp.'s capabilities

Our 2nd Quarter Century: Providing design solutions to help packaging engineers achieve max. unit performance.
5 Plants: Complete in-house mfg./QC from basic raw materials to finished product.
Highly Efficient Cost-Saving Mfg. Techniques: Already tooled on many thousands of items, one of which can be adapted for you or a new one made to your individual requirement.
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Innovative designs . . . engineering service . . . production quality have built C/C's reputation.
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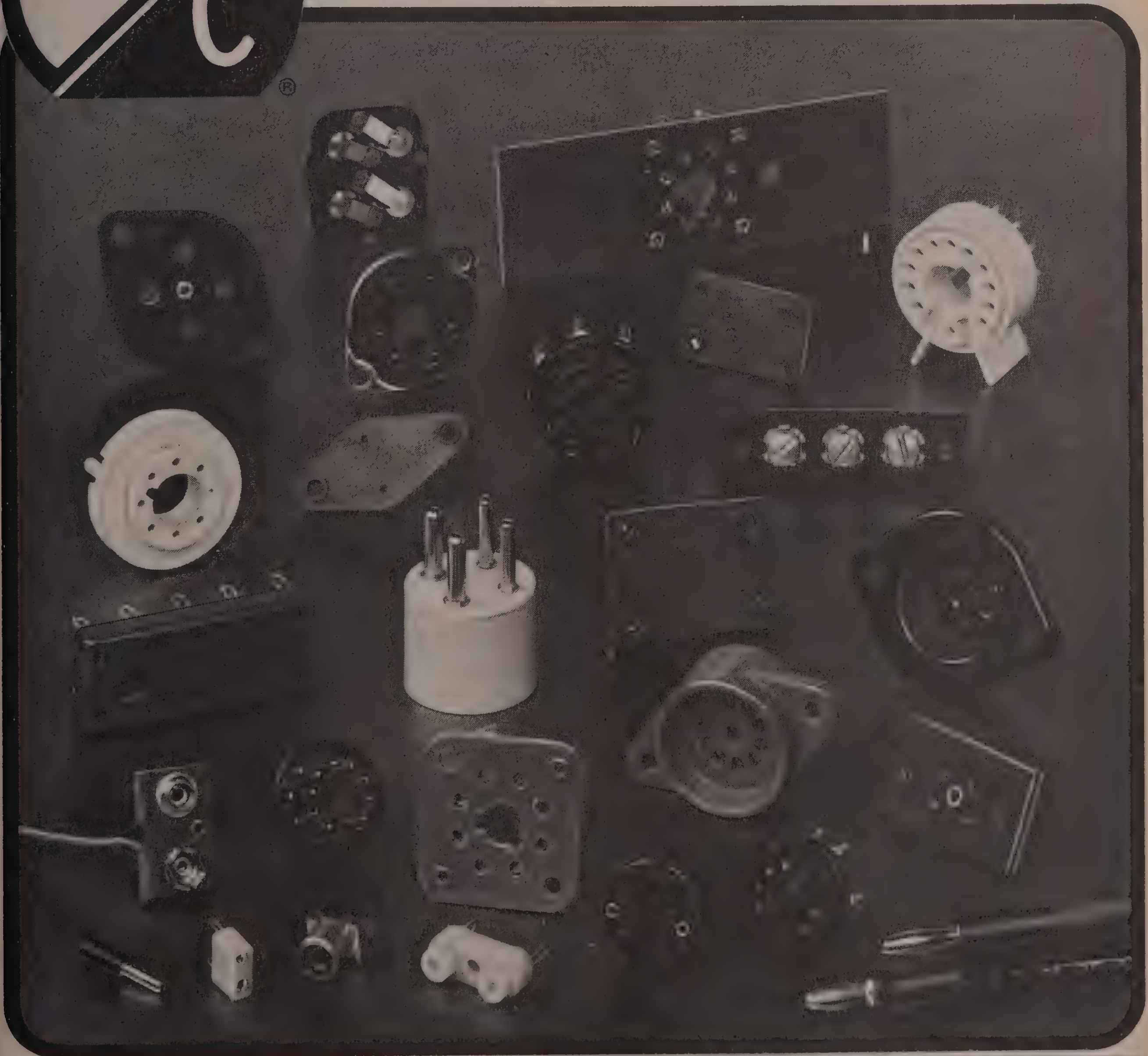
CONNECTOR CORPORATION
6025 N. Keystone Avenue, Chicago, Ill. 60646 (312) 539-3108
SPECIALISTS IN INNOVATIVE AMERICAN MADE CONNECTIONS

SAVE TOOLING COSTS

We have product tooling no one else may have, including tools for many hard-to-find items. By never obsoleting tooling, we've accumulated a huge product tool library, increasing as new products are added. It's a great cost-saving combination of always-new applications for our basic lines plus new products too.

PRODUCTS: Too many to list. Includes numerous types of Multi-Purpose Phono Connectors (male & female, molded & laminated) • Audio Types of Connectors • Tube Sockets including transmitter & high voltage • CRT Socket Assemblies with & without integral spark gaps • Nuvistor Sockets • IC Sockets • Fuse Holders • Battery Hardware: sockets, plugs, snaps, pads, connectors & wire assemblies • Precision Metal Stampings • Transistor Sockets for T03, T05, T06, T066, etc. • Spark Gap Assemblies • Automotive Radio Antenna Connectors • Customized Tube Bases • Laminated Plugs • Receptacles • Molded Plugs • Crystal Sockets • UHF TV Antennae, etc., etc. for many, many military, industrial & commercial market applications. A representative sampling is shown.

COMPLETE-IN-HOUSE MFG/QC in 5 plants from basic raw materials to finished product.
OUR 2nd QUARTER CENTURY helping packaging engineers achieve max. unit performance.
Put our COST-SAVING MFG. TECHNIQUES to work for you. Contact our Engineering Dept. for help in solving your current connections problems.



CONNECTOR CORPORATION

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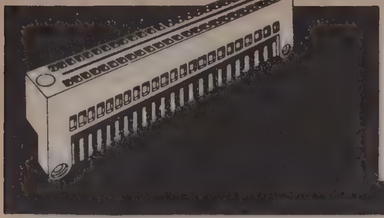
SPECIALISTS IN INNOVATIVE AMERICAN MADE CONNECTIONS



CTS® FABRI-TEK CORP
CONNECTOR DIVISION

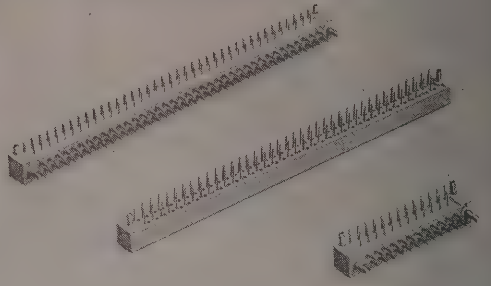
molded PC headers

DOD CONNECTORS
FIFTY-FIVE CONTACTS

200230-01

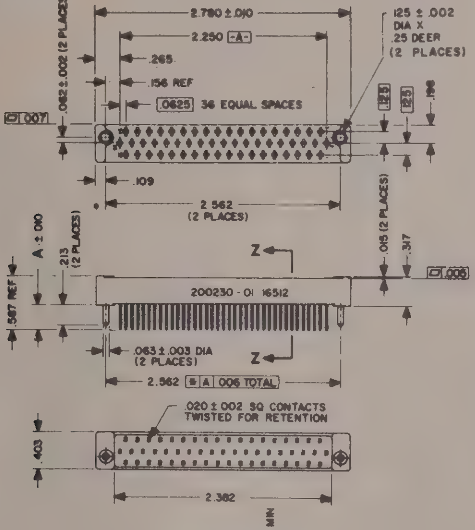
200231-01

DOD CONNECTORS
TWENTY-FIVE, THIRTY-THREE, FORTY-ONE, SEVENTY-SEVEN CONTACTS

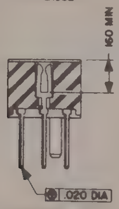


200610-04 200609-04 200611-01

FEMALE
Catalog No. 200230
ON056655


2.780 ± .010
2.250 -A-
.265
.156 REF
.0625 36 EQUAL SPACES
.125 ± .002 DIA X .25 DEEP (2 PLACES)
.062 ± .002 (2 PLACES)
.007
.109
2.562 (2 PLACES)
A ± .010
.213 (2 PLACES)
.567 REF
.015 (2 PLACES)
.317
.005
Z
200230 - 01 16512
.063 ± .003 DIA (2 PLACES)
2.562 A .006 TOTAL
.020 ± .002 SQ CONTACTS TWISTED FOR RETENTION
.403
2.362

"A" DIMENSION	
200230-01	.275
200230-02	.185
200230-03	.170
200230-04	.500


.150 MIN
.020 DIA

SECTION Z-Z

SPECIFICIATIONS

Material:

Contact: Beryllium Copper per QQ-C-533, Copper Alloy Number 172, full hard.

Insulator Body: Diallyl Phthalate per MIL-M-14, Type SDG-F, Color - Blue.

Guide Pin: Stainless Steel per ASTM A582, Type 303, Condition A.

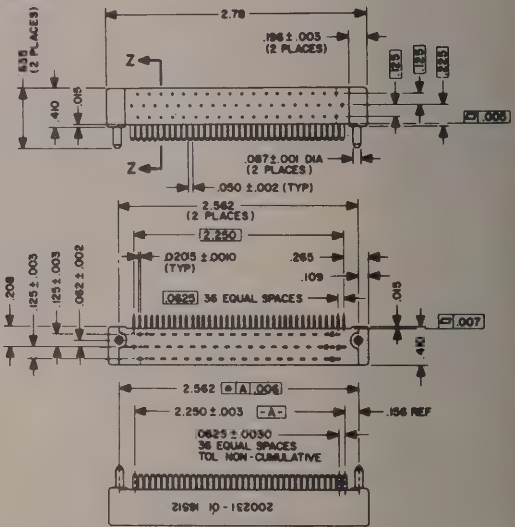
Finish:

Contact: Gold Plate .000050 min per MIL-G-45204, Type II, Class 1 over Nickel Plate .000100 min per QQ-N-290, Class 2.

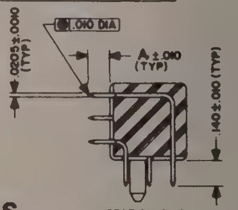
Guide Pin: Passivate per MIL-STD-171, Finish 5.4.1.

This connector assembly mates with 200231, 200366 and 2308.

MALE
Catalog No. 200231, 200366 and 2308
ON056648


2.78
.196 ± .003 (2 PLACES)
.535 (2 PLACES)
.125
.125
.323
Z
.410
.015
.005
.087 ± .001 DIA (2 PLACES)
.050 ± .002 (TYP)
2.562 (2 PLACES)
2.250
.0205 ± .0010 (TYP)
.265
.109
.208
.125 ± .003
.125 ± .003
.062 ± .002
.0625 36 EQUAL SPACES
.015
.007
.410
2.562 A .006
2.250 ± .003 -A-
.156 REF
.0625 ± .0030 36 EQUAL SPACES TOL NON-CUMULATIVE
200231 - 01 16512

"A" DIMENSION	
200231	.115
200366	.140
2308	.195


.0205 ± .0010 (TYP)
.010 DIA
A ± .010 (TYP)
.140 ± .010 (TYP)

SECTION Z-Z

SPECIFICATIONS

Material:

Contact: Brass per QQ-B-613, Copper Alloy Number 260, half hard.

Insulator Body: Diallyl Phthalate per MIL-M-14, Type SDG-F, Color - Blue.

Guide Pin: Stainless Steel per ASTM A582, Type 303, Condition A.

Finish:

Contact: Gold Plate .000050 min per MIL-G-45204, Type II, Class 1 over Nickel Plate .000100 min per QQ-N-290, Class 2.

Guide Pin: Passivate per MIL-STD-171, Finish 5.4.1.

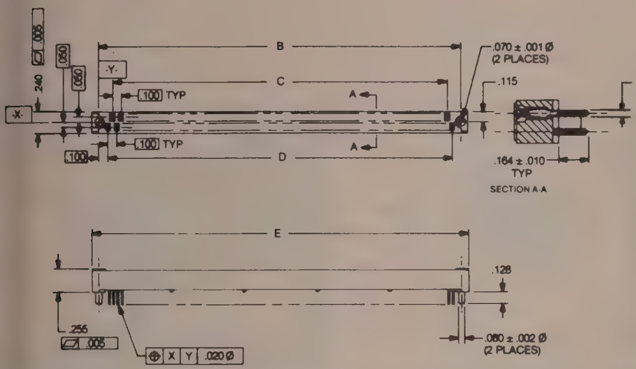
This connector assembly mates with 200230.

CTS® FABRI-TEK CORP.*
CONNECTOR DIVISION

FEMALE
Catalog No. 200609
ON503090

DOD Connectors are designed and manufactured in accordance with Department of Defense Specification MIL-C-55302/6 (Ref ON503090-TAB).

These printed circuit board receptacles are designed to be soldered to a PC motherboard. These receptacles will mate with PC board right angle headers manufactured to DOD Specification MIL-C-55302/4 (Ref ON503091-TAB).



SPECIFICATIONS

Material:

Contact: Phosphor Bronze per QQ-B-750, Copper Alloy 510, Composition A, Spring Temper.

Guide Socket and Rivet: Stainless Steel per ASTM A582, Type 303, Condition A.

Insulator Body: Diallyl Phthalate per MIL-M-14, Type SDG-F, Color - Green.

Finish:

Contact: Gold Plate .000050 min per MIL-G-45204, Type II, Class 1 over Nickel Plate .000050 min per QQ-N-290, Class 2.

Current Ratings: 3 Amperes.

Working Voltage: 300 VAC.

Insulation Resistance: 1000 Megohms.

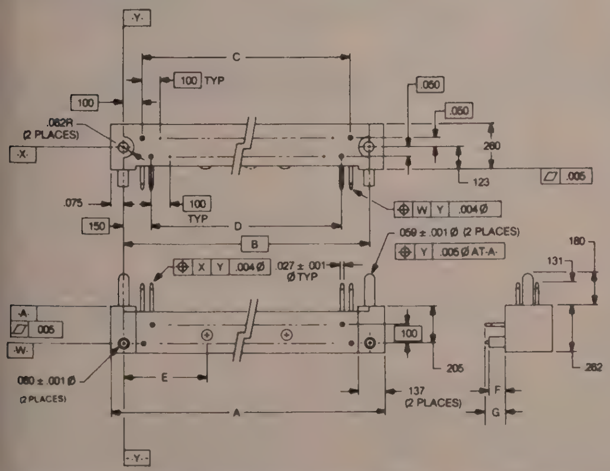
Environmental Requirements:
- a. Durability: 500 insertion and withdrawal cycles with mating connector (male) contacts per MIL-C-55302 without mechanical or electrical breakdown.
- b. Temperature Cycling: per MIL-STD-1344, Method 1003.
- c. Humidity: per MIL-STD-1344, Method 1002, Type II.
- d. Vibration: per MIL-STD-1344, Method 2005.
- e. Shock: per MIL-STD-1344, Method 2004.
- f. Salt Spray: per MIL-STD-1344, Method 1001.

200609-04	77	4.000	3.700	3.800	4.15
200609-03	41	2.200	1.900	2.000	2.35
200609-02	33	1.800	1.500	1.600	1.95
200609-01	25	1.400	1.100	1.200	1.55
PART NO.	NO OF CONTACTS	B	C	D	E

MALE
Catalog No. 200610 and 200611
ON503091
ON198946

DOD Connectors are designed and manufactured in accordance with Department of Defense Specification MIL-C-55302/4 (Ref ON503091-TAB).

These printed circuit board headers are designed to be soldered to the edge of a PC card. These headers will mate with female connectors manufactured to DOD Specification MIL-C-55302/6 (Ref ON503090-TAB).



SPECIFICATIONS

Material:

Contact: Phosphor Bronze per QQ-W-321, Copper Alloy 510, Spring Temper.

Guide Pin and Rivet: Stainless Steel per ASTM A582, Type 303, Condition A.

Insulator Body: Diallyl Phthalate per MIL-M-14, Type SDG-F, Color - Green.

Finish:

Contact: Gold Plate .000050 min per MIL-G-45204, Type II, Class 1 over Nickel Plate .000050 min per QQ-N-290, Class 2.

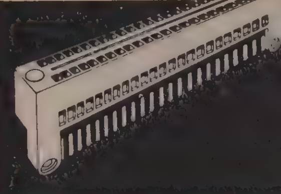
Current Ratings: 3 Amperes.

Working Voltage: 300 VAC.

Insulation Resistance: 1000 Megohms.

Environmental Requirements:
- a. Durability: 500 insertion and withdrawal cycles with mating connector (female) contacts per MIL-C-55302 without mechanical or electrical breakdown.
- b. Temperature Cycling: per MIL-STD-1344, Method 1003.
- c. Humidity: per MIL-STD-1344, Method 1002, Type II.
- d. Vibration: per MIL-STD-1344, Method 2005.
- e. Shock: per MIL-STD-1344, Method 2004.
- f. Salt Spray: per MIL-STD-1344, Method 1001.

200611-01	25	1.56	1.400	1.200	1.100	500 (2 PL)	128	140
200610-04	77	4.15	4.000	3.800	3.700	1.000 (4 PL)	090	110
200610-03	41	2.35	2.200	2.000	1.900	600 (2 PL)	090	110
200610-02	33	1.95	1.800	1.600	1.500	600 (2 PL)	090	110
200610-01	25	1.55	1.400	1.200	1.100	500 (2 PL)	090	110
PART NO	NO OF CONTACTS	A	B	C REF	D REF	E ± 020	F	G



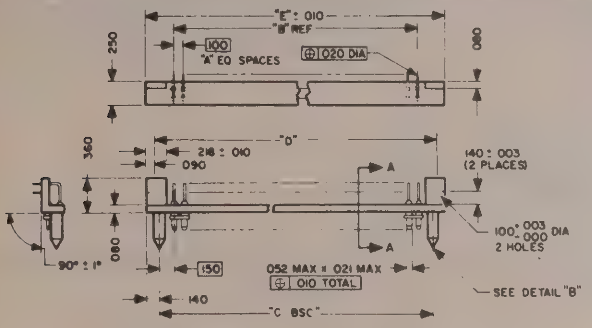
CTS® FABRI-TEK COR
CONNECTOR DIVISION

molded PC headers

501294-01

ALTERNATIVE APPROACH (METAL CHASSIS)

Custom metal PC Headers have the same applications as our Molded Headers except that more size flexibility is afforded at minimum tooling cost. They are more economical for smaller quantity requirements. In addition to the suggested configurations shown below, "U" shaped body is available for greater rigidity and strength.


"E" ± .010
"B" REF
.250
.100
"A" EQ. SPACES
⊕ .020 DIA
.080
.360
.218 ± .010
.090
"D"
.140 ± .003 (2 PLACES)
A
.080
90° ± 1°
.150
.052 MAX × .021 MAX
⊕ .010 TOTAL
.100 +.003 −.000 DIA 2 HOLES
SEE DETAIL "B"
.140
"C" BSC

N = TOTAL NUMBER OF CONTACTS

$A = \frac{N}{2} - 1$

$B = .100\left(\frac{N}{2} - 1\right)$

$D = .100\left(\frac{N}{2} - 1\right) + .400$

$C = .100\left(\frac{N}{2} - 1\right) + .300$

$E = .100\left(\frac{N}{2} - 1\right) + .580$

SPECIFICATIONS

Material:

Mounting Plate: Aluminum Alloy 6061-T6 per QQ-A-200/8 or 6063-T5 per QQ-A-200/9. (Standard configuration shown. Consult FTI/NCD Sales for other sizes available.)

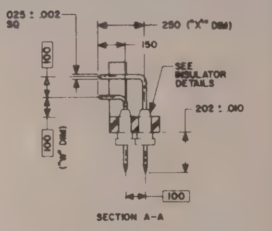
Contacts: Brass per QQ-B-613, Alloy 260, half hard.

Insulators: Polyamide (Nylon) Type I, Composition A per MIL-M-20693.

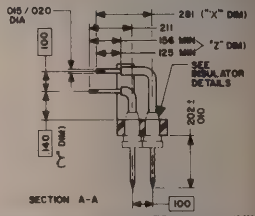
Contacts and insulators are designed to meet all electrical and mechanical requirements of MIL-C-28754.

Contact blade configuration per MIL-C-28754.

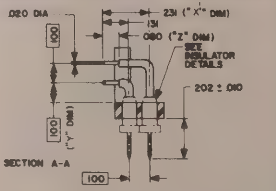
Guide Pins: Stainless Steel, Type 303, Condition A per QQ-S-764.


.025 ± .002 SQ
.250 ("X" DIM)
.150
.100
SEE INSULATOR DETAILS
.202 ± .010
.100
("Y" DIM)
.100
SECTION A-A

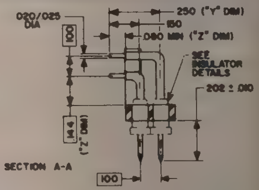
Standard Contact 540169 shown. "W" Dim can vary from .100 to .668. "X" Dim can vary from .112 to .500. Suggested configuration. (Also available in straight form. Consult FTI/NCD Sales.)


.015/.020 DIA
.281 ("X" DIM)
.211
.156 MIN
.125 MIN
"Z" DIM
SEE INSULATOR DETAILS
.100
.202 ± .010
.140
("Y" DIM)
SECTION A-A
.100

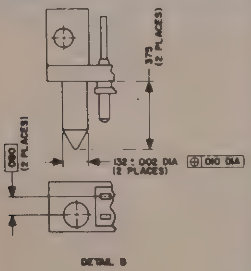
Standard Contact 540179 shown. "X" Dim can vary from .145 to .435. "Y" Dim can vary from .110 to .450. "Z" Dim can vary from .060 to .200 except transition from .015/.020 dia to .025 sq cannot be in bend radius area. Suggested configuration. (Also available in straight form. Consult FTI/NCD Sales.)


.020 DIA
.231 ("X" DIM)
.131
.080 ("Z" DIM)
SEE INSULATOR DETAILS
.100
.202 ± .010
.100
("Y" DIM)
SECTION A-A
.100

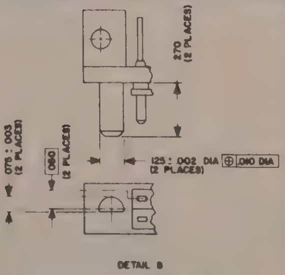
Standard Contact 540217 shown. "X" Dim can vary from .130 to .610. "Y" Dim can vary from .100 to .500. "Z" Dim can vary from .075 to .438 except transition from .020 dia to .025 sq cannot be in bend radius area. Suggested configuration. (Also available in straight form. Consult FTI/NCD Sales.)


.020/.025 DIA
.250 ("Y" DIM)
.150
.080 MIN ("Z" DIM)
SEE INSULATOR DETAILS
.100
.202 ± .010
.144
("Z" DIM)
SECTION A-A
.100

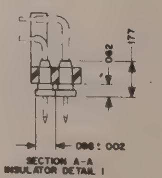
Standard Contact 540135 shown. "X" Dim can vary from .100 to .438. "Y" Dim can vary from .112 to .412. "Z" Dim can vary from .075 to .175 except transition from .020/.025 dia to .025 sq cannot be in bend radius area. Suggested configuration. (Also available in straight form. Consult FTI/NCD Sales.)


.375 (2 PLACES)
.080 (2 PLACES)
.132 ± .002 DIA (2 PLACES)
⊕ .010 DIA
DETAIL B

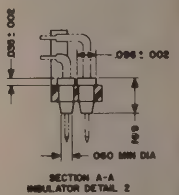
("VAST" Polarizing pin used in conjunction with NCD bushings 550102 & 550103. Consult FTI/NCD Sales for additional information.)


.270 (2 PLACES)
.075 ± .003 (2 PLACES)
.080 (2 PLACES)
.125 ± .002 DIA (2 PLACES)
⊕ .010 DIA
DETAIL B

"NAFI" POLARIZING GUIDE PIN. (Pin loaded as req'd. on 45° increments to provide polarizing action. Used in conjunction with MIL-C-28754/37 bushings.)


.062
.177
.088 ± .002
SECTION A-A
INSULATOR DETAIL 1

Standard Insulator 550136 shown. This insulator is molded on a strip in groups of 25 or 26 positions on .100 centers. Mounting hole is .073 ± .001 dia. (Also available strip molded on .125 and .150 centers.)

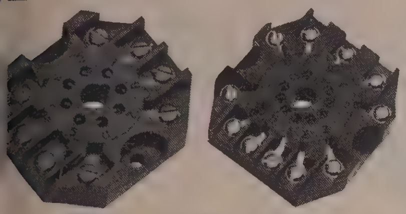

.030 ± .002
.098 ± .002
.149
.060 MIN DIA
SECTION A-A
INSULATOR DETAIL 2

Standard Insulator 550122 shown. This insulator is molded on a strip in groups of 12 or 13 positions on .100 centers. Mounting hole is .073 ± .001 dia. (Also available strip molded on .150 centers.)

Fabri-tek, Inc., 9210 Science Center Drive, New Hope, Minnesota 55428 • (612) 533-3533 • TWX 910 576 271
In Minnesota *dba as CTS Electronic Corporation

Custom Connector Corporation

RELAY SOCKETS

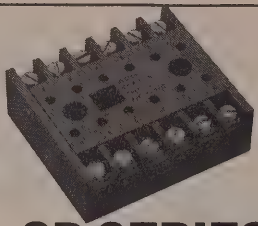


RB SERIES

SPECIFICATIONS:

- Description: 8 and 11 Pin Octal Sockets
- Electrical Rating: 600 Volts, 10 Amps

Part No.	Description	Terminal Type
RB08	DPDT, 8 Pin	Binder Head Screws
RB08-PC	DPDT, 8 Pin	Pressure Clamp Screws
RB11	3PDT, 11 Pin	Binder Head Screws
RB11-PC	3PDT, 11 Pin	Pressure Clamp Screws

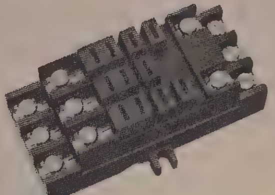


SD SERIES

SPECIFICATIONS:

- Description: 12 and 14 Pin Heavy Duty Sockets
- Electrical Rating: 300 Volts, 10 Amps

Part No.	Description	Terminal Type
SD12	12 Pin	Binder Head Screws
SD12-PC	12 Pin	Pressure Clamp Screws
SD14	14 Pin	Binder Head Screws
SD14-PC	14 Pin	Pressure Clamp Screws



QC SERIES

SPECIFICATIONS:

- Description: 8 and 11 Pin Square Base Sockets
- Electrical Rating: 300 Volts, 10 Amps

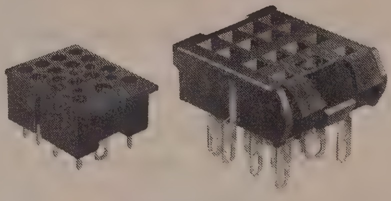
Part No.	Description	Terminal Type
QC08	DPDT, 8 Pin	Binder Head Screws
QC08-PC	DPDT, 8 Pin	Pressure Clamp Screws
QC11	3PDT, 11 Pin	Binder Head Screws
QC11-PC	3PDT, 11 Pin	Pressure Clamp Screws

MS SERIES

SPECIFICATIONS:

- Description: 14 Pin Miniature Socket
- Electrical Rating: 300 Volts, 5 Amps

Part No.	Description	Terminal Type
MS14-PC	DPDT or 4PDT, Miniature	Pressure Clamp Screws



MR SERIES

SPECIFICATIONS:

- Description: 8 and 14 Pin Miniature Sockets
- Electrical Rating: 120 Volts, 5 Amps

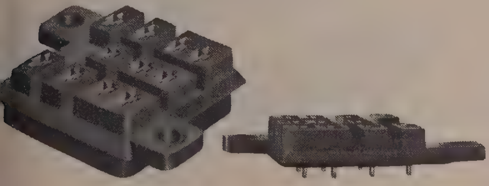
Part No.	Description	Terminal Type
MR14-PCB-2	DPDT, 8 Pin	PC Board
MR14-PCB	4PDT, 14 Pin	PC Board
MR14-SLD-2	DPDT, 8 Pin	Solder
MR14-SLD	4PDT, 14 Pin	Solder

GR SERIES

SPECIFICATIONS:

- Description: 8 Pin Midget Sockets
- Electrical Rating: 300 Volts, 10 Amps

Part No.	Description	Terminal Type
GR108	DPDT, 8 Pin	Binder Head Screws
GR108-PC	DPDT, 8 Pin	Pressure Clamp Screws
GR108-PCB	DPDT, 8 Pin	PC Board
GR108-SLD	DPDT, 8 Pin	Solder



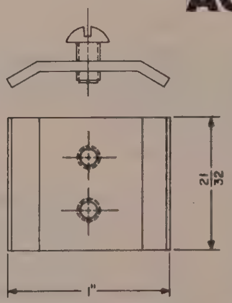
CM SERIES

SPECIFICATIONS:

- Description: 5, 8 and 11 Pin Square Base Sockets
- Electrical Rating: 300 Volts, 10 Amps

Part No.	Description	Terminal Type
CM05-PCB-1S	SPDT, 5 Pin No Mount Ends	PC Board
CM05-PCB	SPDT, 5 Pin	PC Board
CM05-SLD	SPDT, 5 Pin	Solder
CM05-QDC	SPDT, 5 Pin	Quick Disconnect
CM08-PCB-1S	DPDT 8 Pin No Mount Ends	PC Board
CM08-PCB	DPDT, 8 Pin	PC Board
CM08-SLD	DPDT, 8 Pin	Solder
CM08-QDC	DPDT, 8 Pin	Quick Disconnect
CM11-PCB-1S	3PDT 11 Pin No Mount Ends	PC Board
CM11-PCB	3PDT, 11 Pin	PC Board
CM11-SLD	3PDT, 11 Pin	Solder
CM11-QDC	3PDT, 11 Pin	Quick Disconnect

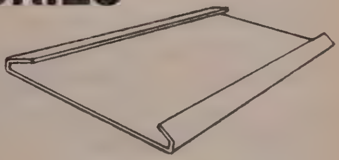
ACCESSORIES



C100 CLAMP

CLAMP
Steel-Cadmium plated

SCREW
Steel-Cadmium plated



C101 CHANNEL

CHANNEL
Aluminum 6 Ft. Lengths

Most models carry UL SP approval.

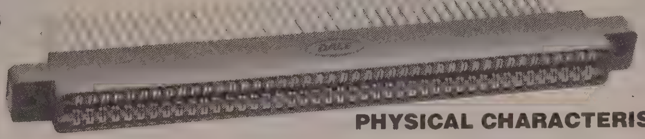
Custom
Connector
Corporation
1738 E. 30th Street
Cleveland, Ohio 44114
216/241-1679

DALE® EDGEBOARD CONNECTORS

[Numbers in brackets indicate millimeters]

SERIES EB4, DUAL READOUT—.100 C-C x .200 GRID [2.54 x 5.08]
SERIES EB6, DUAL READOUT—.125 C-C x .250 GRID [3.17 x 6.35]

**Military, Industrial &
Commercial Grades**



FEATURES

- Designed to meet the requirements of MIL-C-21097/23 (EB4) and MIL-C-21097/24 (EB6).
- Greater design latitude...
  3 body materials: Diallyl phthalate, phenolic, glass-filled polyester.
  3 contact termination styles.
  19 body sizes.
  5 mounting styles.
- Selective gold plating.
- Will accept printed circuit board thickness from .054 [1.37] to .071 [1.80].
- Polarization between contact positions permits polarizing without loss of contact position.
- Bifurcated Cantilever Beam.
- Right angle styles available—see below.

PHYSICAL CHARACTERISTICS

Number of Contacts (EB4): 10, 12, 15, 18, 20, 22, 25, 28, 30, 31, 35, 36, 40, 43, 44, 48, 49, 50 and 60 per side.

Number of Contacts (EB6): 6, 10, 14, 15, 18, 22, 24, 25, 28, 30, 31, 32, 35, 36, 40, 43, 44, 49 and 50 per side.

Contact Terminal Variation:
Type "C"—Dip Solder, .025 [0.63] square terminals, .175 [4.44] nominal terminal length below standoffs.
Type "D"—Dip Solder, .025 [0.63] square terminals, .115 [2.92] nominal terminal length below standoffs.
Type "K"—Wire Wrap, .025 [0.63] square terminals, .570 [14.47] nominal terminal length below standoffs.

Contact Spacing: EB4 = .100 [2.54] center to center.
EB6 = .125 [3.17] center to center.

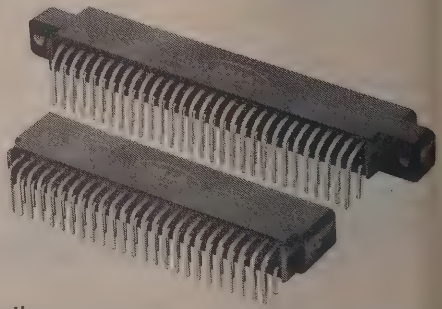
Contact Terminal Row Spacing: EB4 = .200 [5.08] nominal.
EB6 = .250 [6.35] nominal.

Card Slot Depth: .300 [7.62].

Connector Polarization: Between contact polarization key(s) are located to the right of the contact position(s) designated.

DALE® RIGHT ANGLE EDGEBOARD CONNECTORS

SERIES EB4, DUAL READOUT, RIGHT ANGLE—.100 C-C x .150 GRID [2.54 x 3.81] or .100 C-C x .200 GRID [2.54 x 5.08]
SERIES EB6 DUAL READOUT, RIGHT ANGLE—.125 C-C x .150 GRID [3.18 x 3.81] or .125 C-C x .200 GRID [3.18 x 5.08]



FEATURES

- Identical to Series EB4 and EB6 (shown above) but utilize right angle contacts for special mounting situations and are available in 4 mounting styles.
- Military, industrial and commercial grades in a wide choice of body sizes and materials. Termination and mounting styles.

PHYSICAL CHARACTERISTICS

Contact Type: Bifurcated Cantilever Beam.

Number of Contacts (EB4): 10, 12, 15, 18, 20, 22, 25, 28, 30, 31, 35, 36, 40, 43, 44, 48, 49, 50 and 60 per side.

Number of Contacts (EB6): 6, 10, 14, 15, 18, 22, 24, 25, 28, 30, 31, 32, 35, 36, 40, 43, 44, 49 and 50 per side.

Contact Spacing: EB4 = .100 [2.54] center to center
EB6 = .125 [3.17] center to center.

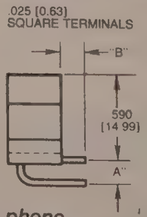
Contact Terminal Row Spacing: .200 [5.08] nominal and .150 [3.81] nominal.

Card Thickness: .054 [1.37] to .071 [1.80].

Card Slot Depth: .300 [7.62].

Connector Polarization: Between contact polarization key(s) are located to the right of the contact position(s) designated.

Contact Terminal Variation:
Type "1R"—Dip Solder, .025 [0.63] square terminals, .120 [3.05] nominal terminal length x .150 [3.81] nominal terminal row spacing.
Type "2R"—Dip Solder, .025 [0.63] square terminals, .120 [3.05] nominal terminal length x .200 [5.08] nominal terminal row spacing.
Type "3R"—Dip Solder, .025 [0.63] square terminals, .180 [4.57] nominal terminal length x .150 [3.81] nominal terminal row spacing.
Type "4R"—Dip Solder, .025 [0.63] square terminals, .180 [4.57] nominal terminal length x .200 [5.08] nominal terminal row spacing.



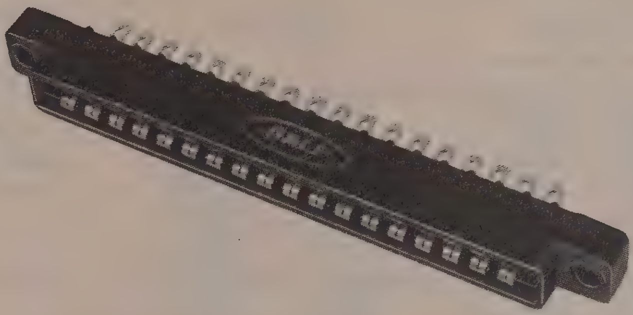
TYPE	"A"	"B"
1R	.150 [3.81]	.120 [3.05]
2R	.200 [5.08]	.120 [3.05]
3R	.150 [3.81]	.180 [4.57]
4R	.200 [5.08]	.180 [4.57]

For complete information write or phone
DALE ELECTRONICS, INC., East Highway 50, Yankton, SD 57078 • Phone 605-665-9301

DALE® EDGEBOARD CONNECTORS

[Numbers in brackets indicate millimeters]

SERIES EB 7S, SINGLE READOUT–.156 [3.96] C-C SPACING
SERIES EB 7D, DUAL READOUT–.156 C-C x .140 GRID [3.96 x 3.56]



FEATURES

- Bifurcated bellows contacts assure positive contact under adverse conditions such as vibration or P.C. board irregularities.
- Will accept printed circuit board thickness from .054 [1.37] to .071 [1.80].
- Polarization between contact positions permits polarizing without loss of contact position.
- Selective gold plating.
- Polarizing key is reinforced nylon, may be inserted by hand, requires no adhesive.
- Protected entry, provided by recessed leading edge of contact, permits the card slot to straighten and align the board before electrical contact is made. Prevents damage to contacts.
- Recognized under the Component Program of Underwriters Laboratories Inc. Listed under File E65524, Project 77CH3889.

PHYSICAL CHARACTERISTICS

Contact Type: Bifurcated bellows.

Number of Contacts: **EB 7S** = 6, 10, 12, 15, 18 and 22 per side.
EB 7D = 6, 10, 12, 15, 18, 22, 36 and 43 per side.

Card Thickness: .054 [1.37] to .071 [1.80].

Card Slot Depth: Single Readout = .300″ [7.62].
Dual Readout = .260″ [6.60].

Contact Spacing: .156 [3.96] center to center.

ELECTRICAL CHARACTERISTICS

	EB4*	EB6*	EB7S	EB7D
Current Ratings (Amps)	3	3	5	5
Test Voltage Between Contacts (VRMS) At Sea Level At 70,000 feet [21,336 meters]	650 275	1500 325	1800 450	1800 450
Operating Temperature (°C)	−65 to +150		−55 to +150	
Insulation Resistance	5000 megohms minimum at 500 VDC potential.			
Contact Resistance	30 millivolts maximum at rated current with gold plating			
Humidity	96 hours at 90% relative humidity at 40°C dried at room temperature for 3 hours minimum, insulation resistance was greater than 5000 megohms.			
Durability	After 500 cycles of insertion and withdrawal of a .070 [1.78] thick steel test board, contact resistance less than .030V at 3 amps for EB4, EB6, and 5 amps on EB7S and EB7D. Contacts were gold plated and individual contact pair separation force when measured with a .054 [1.37] thick steel test blade was greater than 1/2 oz.			
Shock	Three 50G shocks in each of 3 mutually perpendicular planes with no loss of continuity.			
Vibration	2 hours in each of 3 mutually perpendicular planes, frequency sweep 10 to 55 cps at .06 double amplitude with no loss of continuity.			

*Includes right angle styles

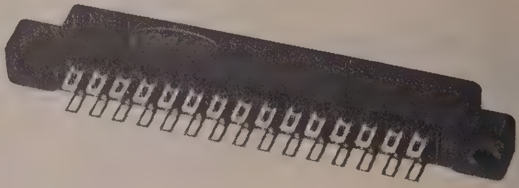
For complete information write or phone
DALE ELECTRONICS, INC., East Highway 50, Yankton, SD 57078 • Phone 605-665-9301

DALE® EDGEBOARD CONNECTORS

[Numbers in brackets indicate millimeters]

SERIES EB8, DUAL READOUT—.156 C-C x .200 GRID [3.96 x 5.08]

Military, Industrial & Commercial Grades



FEATURES

- Designed to meet MIL-C-21097C.
- Great design latitude...
  3 body materials: *Diallyl phthalate, phenolic, Valox™*.
  6 contact termination styles.
  8 body sizes.
  7 mounting styles.
- Selective gold plating.
- Bifurcated bellows contacts provide 2 flexing contact surfaces.
- Will accept printed circuit board thickness from .054 [1.37] to .071 [1.80].
- Polarization between contact positions in all sizes.

PHYSICAL CHARACTERISTICS

Contact Type: Bifurcated bellows.

Number of Contacts: 6, 10, 12, 15, 18, 22, 24 and 25 per side.

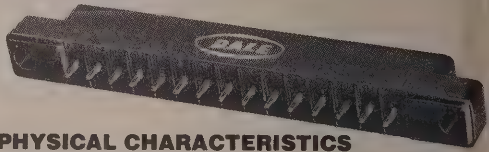
Contact Spacing: .156 [3.96] center to center.

Card Thickness: .054 [1.37] to .071 [1.80].

Card Slot Depth: .330 [8.38].

SERIES EBT 156, SINGLE READOUT—.156[3.96] C-C SPACING

Dip Solder, Eyelet and Wire Wrap™ Termination



FEATURES

- Modified tuning fork contacts reduce wear on printed circuit board contacts without sacrificing contact pressure and wiping action.
- Will accept printed circuit board thickness from .054 [1.37] to .070 [1.78].
- Polarization on or between contacts position permits polarizing without loss of contact position.
- Polarizing key is reinforced nylon, may be inserted by hand, requires no adhesive.
- Protected entry permits the card slot to straighten and align the board before electrical contact is made. Prevents damage to contacts.
- Optional terminal configurations, including eyelet (Type A), dip-solder (Type B, C, D and R) wire wrap (Type E and F).
- Meets or exceeds MIL-C-21097/6.
- Connectors with Type A, B, C, D or R contacts are recognized under the Component Program of Underwriters Laboratories Inc. Listed under File E65524, Project 77CH3889.

PHYSICAL CHARACTERISTICS

Number of Contacts: 6, 10, 12, 15, 18 and 22.

Contact Spacing: .156 [3.96]

Card Thickness: .054 [1.37] to .070 [1.78].

Card Slot Depth: .330 [8.38].

COMPONENT MATERIAL

Body: Glass-filled phenolic per MIL-M-14, Type MFH, black, flame retardant (UL 94V-0).

Contacts: Style(s) A, B, C, D, E and F = Alloy 688. Style "R" (Right Angle) = CA725.

Finish: -1 = Electro Tin Plate
-2 = Gold Flash

Polarizing Key: Glass-filled nylon.

Optional Threaded Mounting Insert: Nickel plated brass. (Type Y)

Optional Floating Mounting Bushing: Cadmium plated brass. (Type Z)

ELECTRICAL CHARACTERISTICS

	EB8	EBT 156
Current Ratings (Amps)	5	5
Test Voltage Between Contacts (VRMS) At Sea Level At 70,000 feet [21,336 meters]	 1800 450	 1800 450
Operating Temperature (°C)	−55 to +150	—
Insulation Resistance	5000 megohms minimum at 500 VDC potential.	
Contact Resistance	30 millivolts maximum at rated current with gold plating (gold flash, EBT 156)	
Humidity	96 hours at 90% relative humidity at 40°C dried at room temperature for 3 hours minimum, insulation resistance was greater than 5000 megohms.	
Durability	After 500 cycles of insertion and withdrawal of a .070 [1.78] thick steel test board, contact resistance less than .030V at 3 amps for EB8. Contacts were gold plated, and individual contact pair separation force when measured with a .054 [1.37] thick steel test blade was greater than 1/2 oz.	
Shock	Three 50G shocks in each of 3 mutually perpendicular planes with no loss of continuity.	
Vibration	2 hours in each of 3 mutually perpendicular planes, frequency sweep 10 to 55 cps at .06 double amplitude with no loss of continuity.	

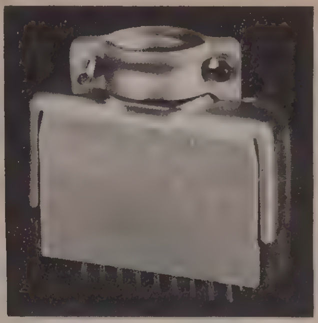
For complete information write or phone
DALE ELECTRONICS, INC., East Highway 50, Yankton, SD 57078 • Phone 605-665-9301

DALE®

MICROMINIATURE RECTANGULAR CONNECTOR

DALE SERIES MM22 and MM24

Rack and Panel with Optional Hoods



FEATURES

- Qualified to MIL-C-28748/7 and /8
- Solder cup contacts
- Dip solder contacts
- Fixed and turnable screwlocks
- Optional closed entry socket contacts

PHYSICAL CHARACTERISTICS

No. of Contacts: 5, 7, 9, 11, 14, 18, 20, 26, 29, 34, 44 or 50*

Contact Gauge:
MM22 Series = 22 AWG
MM24 Series = 24 AWG

Minimum Creepage Path between Contacts: .08 [2.03]

Minimum Air Space between Contacts: .05 [1.27]

ELECTRICAL CHARACTERISTICS

Current Rating: MM22 Series = 5 amps
MM24 Series = 3 amps

Breakdown Voltage: At Sea Level: 2000 VRMS
At 70,000 feet: 500 VRMS

COMPONENT MATERIAL

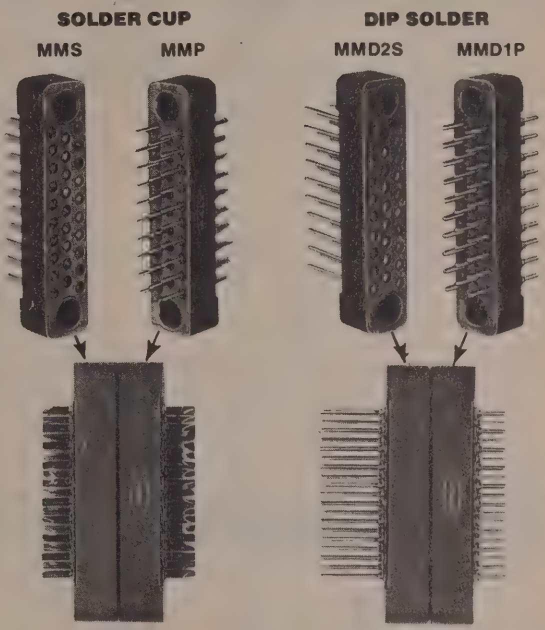
Contact Pin: Phosphor Bronze

Contact Socket: Phosphor Bronze (Beryllium copper available on request.)

Contact Plating: Gold

Screwlocks: Stainless steel, passivated

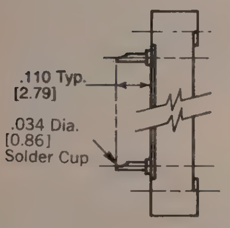
*Includes special 5-row contact arrangement.



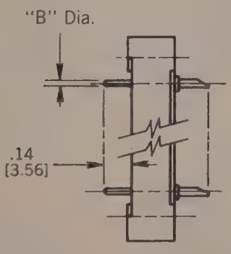
Guides: Brass, gold plated or stainless steel, passivated

Standard Body: Glass-filled diallyl phthalate per MIL-M-14, Type GDI-30F, green.

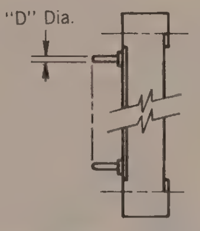
[Numbers in brackets indicate millimeters]



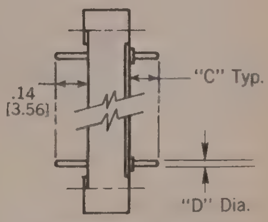
MMS WITH SOLDER CUP CONTACTS



MMP WITH SOLDER CUP CONTACTS



MMDS WITH DIP SOLDER CONTACTS



MMDP WITH DIP SOLDER CONTACTS

CONTACT GAUGE	"B" DIA.
22 AWG	.030 ± .001 [0.762 ± 0.025]
24 AWG	.025 ± .001 [0.635 ± 0.025]

CONTACT GAUGE	"C" DIP TAIL LENGTH	"D" DIA.
22 AWG	.16 or .35 Nom. [4.06 or 8.89]	.025 ± .002 [0.635] ± 0.05]
24 AWG	.16 or .35 Nom. [4.06 or 8.89]	.025 ± .002 [0.635 ± 0.051]

HARDWARE OPTIONS: Available with fixed guides, short turnable screwlocks, turnable screwlocks and fixed screwlocks. Consult factory for details.

HOOD VARIATIONS: Consult factory.

For complete information write or phone
DALE ELECTRONICS, INC., East Highway 50, Yankton, SD 57034 • Phone 605-665-9301

(T.M.W) TAJIMI CONNECTORS by DSA

RF COAXIAL CONNECTORS

MPX SERIES/TRIAXIAL

MDL MPX121P **MPX123-J** **MPX122-BR** **MPX124-PBR**

New MPX series which was specially developed for TV camera system. Features include water proof and push-pull connection without degrading performance of triaxial cable being used.

SPECIFICATIONS

- **Impedance:** 75Ω
- **Frequency range:** 1.5GHz max
- **VSWR:** 1.2 max
- **Withstand voltage:** AC3500V(rms) center contact to inner conductor AC2000V(rms) inner conductor to outer conductor
- **Insulation resistance:** DC500V 1000MΩ min
- **Contact resistance:** 5mΩ max DC0.1A max

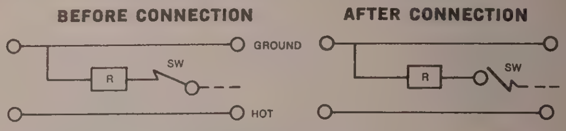
OTHER COAXIAL CONNECTORS

- Sub-miniature coaxial connector (MIL-C-39012, SMA, SMB and SMC types.
- Miniature coaxial connectors (MIL-C-39012, BNC type)

BNC SERIES/MIL-C-39012

Termination Receptacle

Built in resistor eliminates need for external terminator. Internal resistor can be used in or out of circuit.



BNC312-TBR	Bulkhead Receptacle
BNC313-TBR	Isolated Panel mounting
BNC314-TR	Panel Receptacle
BNC315-TR	PCB mounting

BNC223-R

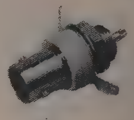
Isolated Panel Mounting Receptacle

Isolated receptacle is insured complete isolation between outer and center conductor.

This receptacle can be used in applications with ground line; must be isolated chassis ground. Metal thread insures a firm connection.

SPECIFICATIONS

- **Insulation resistance:** DC500V 5000MΩ min
- **Withstand voltage:** AC1500V
- **Contact resistance:** 3mΩ max
- **Max panel thickness:** 3mm

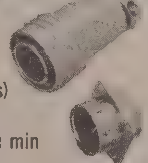


BNC284-BR

CIRCULAR CONNECTORS

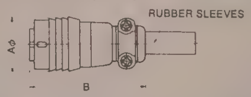
PRC03, 04 AND 05 SERIES

are our original push-pull action connection. Miniature quick connect-disconnect high quality multi conductor connector.

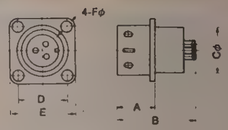


SPECIFICATIONS

- **Number of contacts:** 2 to 37
- **Voltage rating:** AC150V to AC600V(rms)
- **Current rating:** 2A to 10A
- **Insulation resistance:** DC500V 1000MΩ min
- **Contact resistance:** 5mΩ max at DC1A



Series	No. of Contacts	A	B	Max. Cable O.D.
PRC03	2~7	21.0	46.0	10.5
	8, 14	28.0	55.5	12.5
PRC04	12, 19	34.0	63.5	14.5
	21, 37	41.0	71.0	18.0
	2, 3, 5	13.5	32.0	5.2
PRC05	6, 8	16.7	34.0	6.2
	12	21.0	39.0	10.5



Series	No. of Contacts	A	B	C	D	E	F
PRC03	2~7	12.5	26.5	15.0	16.0	21.0	2.9
	8, 14	13.5	25.5	21.0	21.5	28.0	3.4
PRC04	12, 19	14.0	26.0	26.0	26.0	33.0	3.9
	21, 37	14.0	26.0	32.0	31.0	38.0	3.9
	2, 3, 5	9.5	18.0	9.0	11.5	16.0	2.2
PRC05	6, 8	9.5	18.0	12.0	13.5	18.0	2.2
	12	9.5	18.0	16.0	17.0	22.5	2.8

R03 AND R05 SERIES

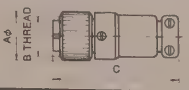
connectors are designed for subminiature application. High quality small size multi conductor connector and two types are available, thread and bayonet.

R03

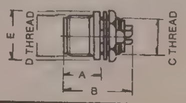
SPECIFICATIONS

- **Number of contacts:** 2 to 12
- **Insulation resistance:** DC500V 1000MΩ min
- **Contact resistance:** 5MΩ max at DC1A
- **Voltage rating:** AC150V to AC300V(rms)
- **Current rating:** 2A

R03-PB6M



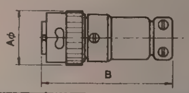
No. of Con-tacts	A	B	C	Max. Cable O.D.
2, 3, 5	12.0	M10.5P=0.75	32.0	5.2
6, 8	15.5	M14P=1	34.0	6.2
12	20.0	M18P=1	39.0	10.5



R03-R6F

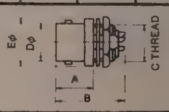
No. of Con-tacts	A	B	C	D	E
2, 3, 5	9.5	17.8	M 9P=0.5	M10.5P=0.75	12.0
6, 8	9.5	17.8	M12P=0.8	M14P=1	15.5
12	9.0	17.8	M16P=0.75	M18P=1	20.0

R05



R05-PB8M

No. of Con-tacts	A	B	Max. Cable O.D.
2, 3, 5	13.0	32.5	5.2
6, 8	16.0	34.5	6.2
12	20.0	39.5	10.5



R05-R8F

No. of Con-tacts	A	B	C	D	E
2, 3, 5	9.5	18.0	M 9P=0.5	9.5	12.0
6, 8	9.5	18.0	M12P=0.8	12.3	15.5
12	9.5	18.0	M16P=1	15.5	20.0

DSA-DAI-ICHI SHOJI OF AMERICA, INC. 150 Fifth Avenue, Suite 516, New York, NY 10011, (212) 691-9050.

For 100 years ASMANN has combined German ingenuity and Swiss precision to produce quality products. Now, literally thousands of high-quality popular-sized sockets and connectors are available in stock for immediate shipment. ASMANN sockets and connectors feature Swiss-machined-quality contacts and plastic bodies that meet UL 94-VO specifications.

You don't have to pay a premium for quality anymore.

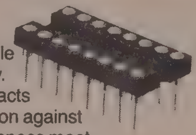
IDC Connectors

Available in 10-60 pins, these quality connectors are available in all popular sizes. Compatible with .050″ flat cable, AWG 28, they provide fast, easy assembly of mass terminations. Locking clips assure positive retention, instant removal. Four-sided shrouded header provides added pin protection.

D-Subminiature Connectors

Offered with 9-50 pins and four terminal versions, these highly reliable connectors feature permanent machined contacts. All contact points are gold plated. Interchangeable with MIL-C-24308 types. Plated steel shell minimizes EMI.

DIP Sockets



Available in 6-64 pins, these low profile sockets offer consistently high quality. Precision machined gold-plated contacts insure continuity and provide protection against capillary action. Shock and vibration specs meet MIL-STD-202.

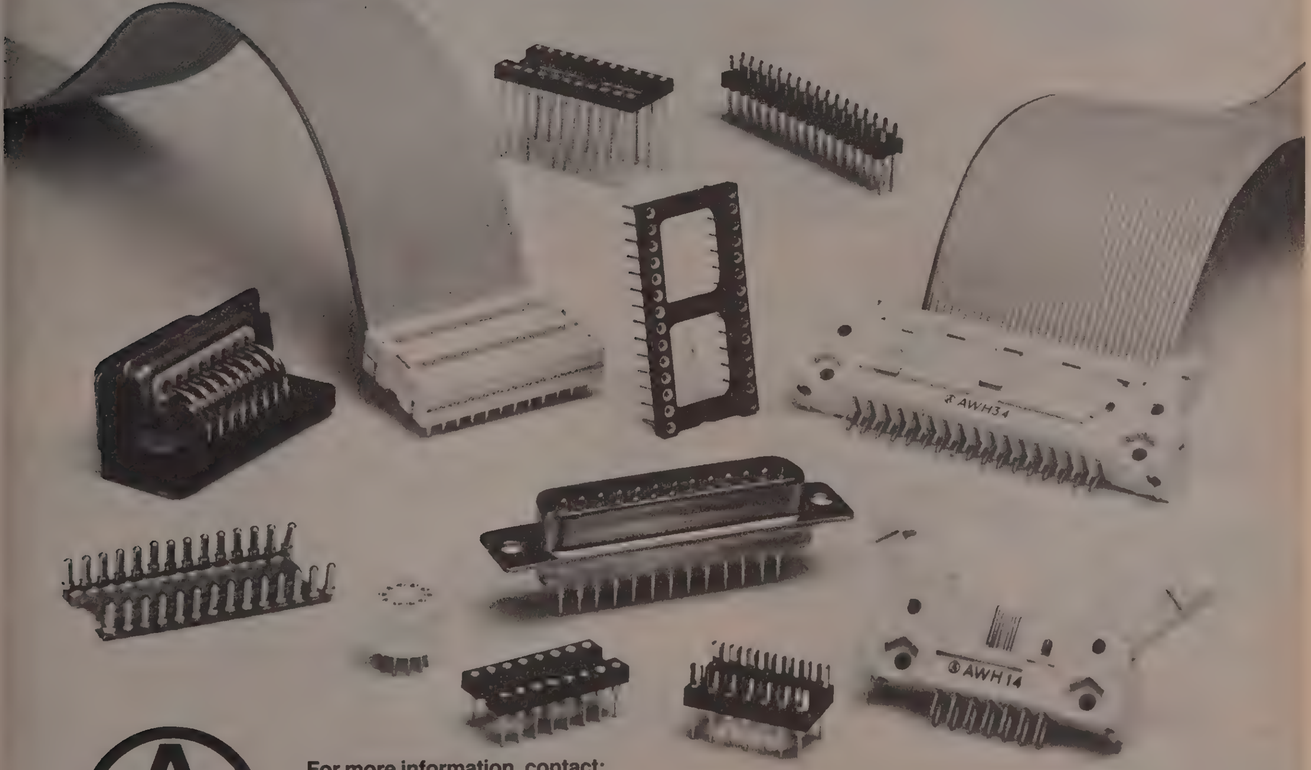
Additional ASMANN Components

Terminal Strips:	socket & wire wrap terminals; 5-20 pins; tin or gold-plated contacts.
Pin Headers:	dual in-line configuration; IDC compatible.
Carrier Assemblies:	6-40 pins; precision machined gold-plated contacts facilitate pc board assembly.
Test Sockets:	zero insertion force; 7 milliohms resistance after 1,000 insertions.
Transistor Sockets:	TO-5 and TO-3 styles; Teflon® or nylon insulators.

®Registered DuPont trademark

New ASMANN Connectors and Sockets

Now you don't have to pay a premium for premium components.

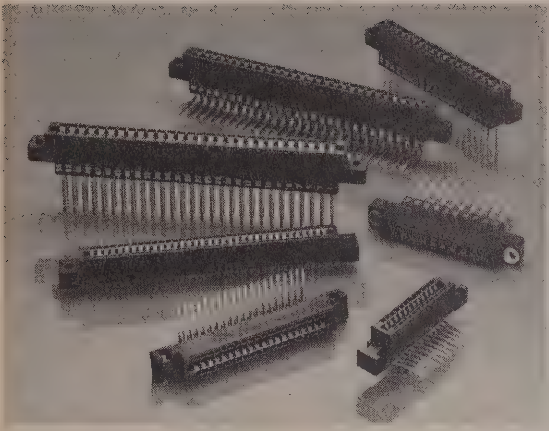


For more information, contact:

ASMANN Components

c/o ebm Industries, Inc.
525 New Britain Ave., Unionville, CT 06085
(203) 674-0118

eby . . . a "full-line" connector company

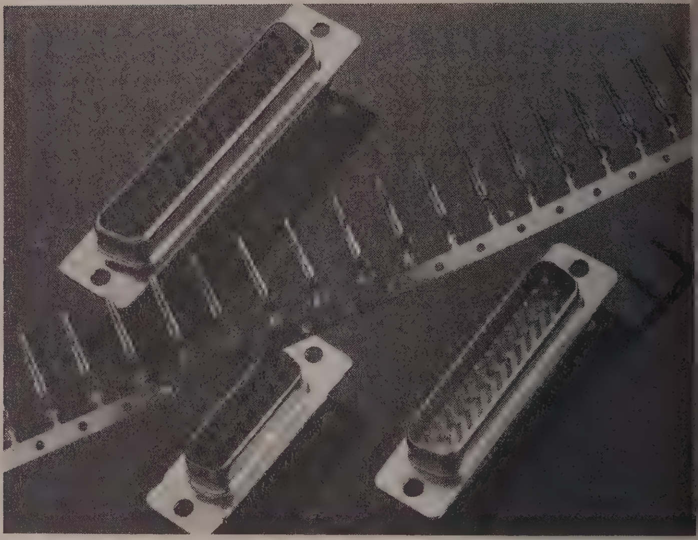


CARD EDGE PRINTED CIRCUIT CONNECTORS

Available in .100, .125, .150 and .156 centers. Straight and right angle tails. Choice of full-gold or selective plating. Various insulating materials available.

BOX CONNECTORS AND HEADERS

Full range in 2 thru 65 dual positions with .100 or .150 centers. Single row version with vertical and horizontal mounting on .100 centers in 2 thru 36 positions. Connectors can be plated with full gold, selective gold or tin. Headers, both straight and right angle, in a variety of sizes and platings.



D-SUBMINIATURE CONNECTORS

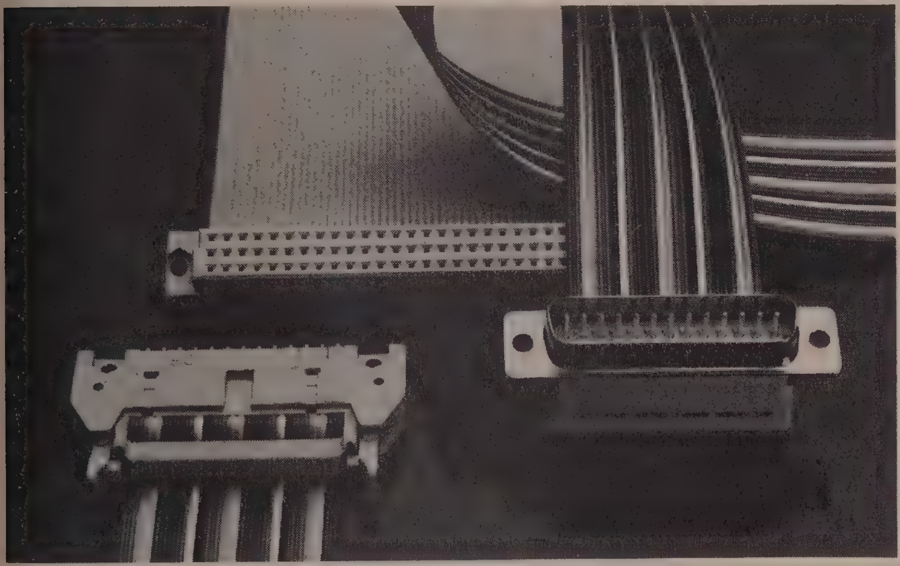
Crimp insertable and original "D" with 9, 15, 25, 37 and 5 pins. Standard mounting configurations. Available in crimp solder cup, printed circuit (straight and right angles) an solderless wrap tails.

TRANSISTOR SOCKETS AND BINDING POSTS

Transistor sockets for TO-3 and TO-66 outlines up to, and including, 50 amps. Binding posts for commercial and military applications that meet MIL-P-55149; waterproof and panel-mounted.

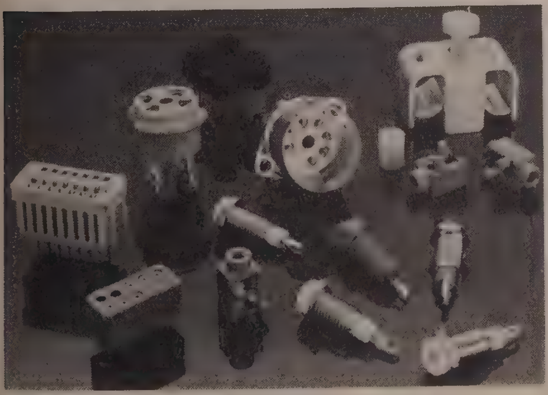
There are very few "full-line" connector companies in the country. Maybe five or six. If you've been searching for a reliable source to fill your broad-based requirements, it's time you discovered the advantages of connecting with Eby.

Eby components are interchangeable with many others and pricing is very competitive. We can duplicate your specs exactly or design innovatively. Test us with an order.



IDC FLAT CABLE CONNECTORS

Shrouded and Unshrouded Headers, Sockets, PCB Transition Sockets, D-Subminiatures, DIN's and DIP's. Full-gold and selective platings. Conform to MIL-C-83503.



SPECIAL PURPOSE CONNECTING DEVICES

Custom connectors. Tube and crystal sockets (commercial and military—MIL-S-12883/01 thru 11). Tip jacks. Relay sockets (rectangular 8 and 10 contact). Bond clamps.

connect with eby™

subsidiary of REDM Industries

2751 SOUTHAMPTON ROAD PHILADELPHIA, PA 19154
215/969/4200 TWX: 710-670-0452

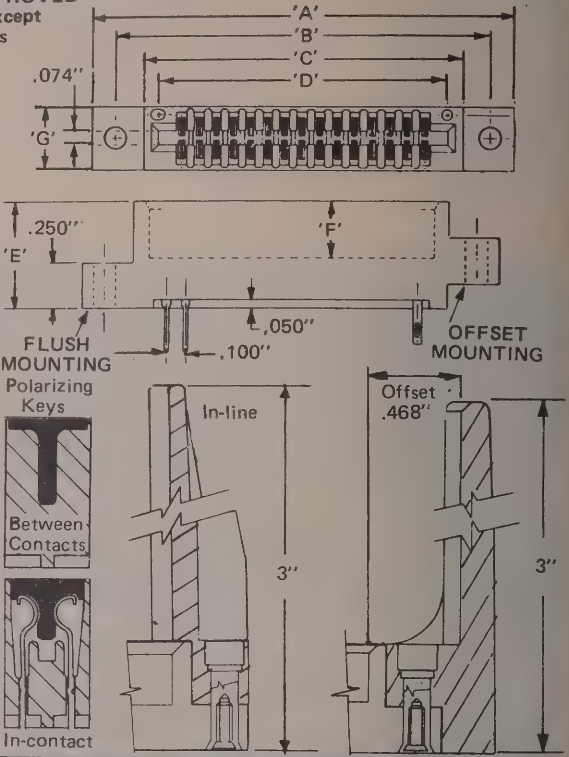
EDAC INC.

CARD-EDGE CONNECTORS
100" CONTACT SPACING

22/44 PINOUT DIMENSIONS IN INCHES

SERIES	A	B	C	D	E	F	G
341/391	3.075	2.775	2.475	2.300	.437	.295	.330 up to 27/54 .400 28/56 and up
245/345/395	3.035	2.775	2.460	2.300	.600	.330	.370

345/395 CSA APPROVED
UL Recognized except wire wrap contacts



SPECIFICATIONS

CURRENT RATING: 3 Amperes
CONTACT MATERIAL: Copper, Nickel, Tin alloy(CA725)
CONTACT PLATING: 30 microinches gold inlay on nose
CONTACT RESISTANCE: 6 milliohms, maximum
CONTACT DURABILITY: No mechanical or electrical degradation 500 insertions
INSULATOR MATERIAL: Diallyl Phthalate per MIL-M-14F, Type SDG-F, or, high impact, glass filled, black, Phenolic
DIELECTRIC WITHSTANDING VOLTAGE: 1500 V.A.C. at sea level
INSULATION RESISTANCE: 5000 megohms, mimimum
P.C. CARD SLOT: Accepts P.C. Boards from .054" to .070"
OPERATING TEMPERATURE: -65°C. to +125°C.

SERIES 245, 341, 345, 391, 395

Available with or without mounting lugs, with .128" and .156" mounting holes, .116" I.D. floating eyelets, No. 4-40 threaded inserts. Single or dual readout. In-contact or netween-contact polarizing.

SERIES 245

Contact termination: P.C. Tab; .018"x.030"x.175" tail length., .018" square x .175" tail length, .025" square x .145", .175" and .375" tail length, Wire Wrap; .025" square x .560", .645" and .750" tail length. In sizes 5/10 to 30/60 contacts. Flush or offset mounting. Card guides available. Thermoplastic insulators.

SERIES 341, 391

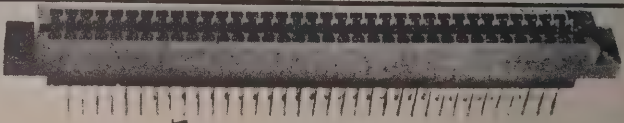
Contact termination: Solder Hole, P.C. Tab; .025"x.013"x.125", .260" and .375" tail length. Available in sizes 6/12 to 60/120 contacts. Flush mounting only. Insulators= 341 Dailly Phthalate, 391= Phenolic

SERIES 345, 395

Contact termination: Solder Hole, P.C. Tab; .018"x.030"x.175" tail length, .018" square x .175" tail length, .025" square x .150", .175" and .390" tail length, Wire Wrap; .025" square x .560", .645" and .750" tail length. Available in sizes 5/10 to 72/144 contacts. Flush or offset mounting. Insulators= 345 Diallyl Phthalate, 395 Phenolic

CARD GUIDES FOR FLUSH OR OFFSET MOUNTING

.125" CONTACT SPACING



SPECIFICATIONS

CURRENT RATING: 3 Amperes
CONTACT MATERIAL: Copper Nickel, Tin alloy(CA725)
CONTACT PLATING: 30 microinches gold inlay on nose
CONTACT RESISTANCE: 6 milliohms, maximum
CONTACT DURABILITY: No mechanical or electrical degradation 500 insertions
INSULATOR MATERIAL: Diallyl Phthalate per MIL-M-14F, Type SDG-F, Engineering Thermoplastic, rated UL94V-0, high impact, glass filled, electrical grade, black, Phenolic
INSULATION RESISTANCE: 5000 megohms, mimimum
DIELECTRIC WITHSTANDING VOLTAGE: 1500 V.A.C. RMS at sea level 1200 V.A.C. on Series 246
P.C. CARD SLOT: Accepts P.C. Boards from .054" to .070"
OPERATING TEMPERATURE: -65°C. to +125°C. -55°C. on Series 246

SERIES 246, 346, 396

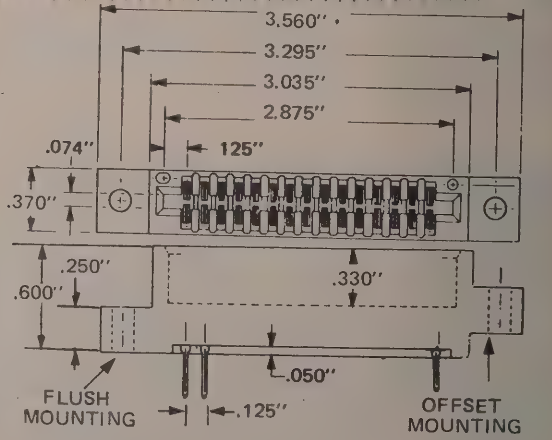
Available with or without mounting lugs, with .128" and .156" mounting holes, .116" I.D. floating eyelets, No. 4-40 threaded inserts. Between-contact or In-contact polarizing. Single or dual readout. In-line and offset card guides.

SERIES 246

Contact termination: P.C. Tab; .018" and .025" square x .175", 350", and .440" tail length, Wire Wrap; .025" square x .560" and .750" tail length. Available in sizes 6/12 to 25/50 contacts. Flush mounting. Thermoplastic insulators.

SERIES 346. 396

Contact termination: Solder Hole .025"x.030", P.C. Tab; .018"x.030" x.175" tail length, .018" and .025" square x .175" and .440" tail length. Wire Wrap; .025" square x .560" and .750" tail length. Available in sizes /612 to 50/100 contacts. Flush or offset mounting. In-line or offset card guides. Insulators= 346 Diallyl Phthalate, 396 Phenolic



For Card Guides and Polarizing Inserts see .100" Series

Note: Extender boards and 90° bends available.

Many sizes in stock. Contact distributor or representative for stock items.

346/396 CSA APPROVED
UL Recognized except wire wrap contacts

20 RAILSIDE ROAD ● DON MILLS, ONTARIO M3A 1A4, CANADA ● TEL (416) 445-2292 ● TWX 610-492-1398

EDAC INC.

CARD-EDGE CONNECTORS

.156" CONTACT SPACING

SPECIFICATIONS

CURRENT RATING: 5 Amperes
CONTACT MATERIAL: Copper, Nickel, Tin alloy (CA725) or phosphor bronze per QQ-B-750, Composition 'A'
CONTACT PLATING: 30 microinches gold inlay, or, 10-20 microinches gold over 30-150 microinches nickel
CONTACT RESISTANCE: 6 milliohms, maximum
CONTACT DURABILITY: No mechanical or electrical degradation (500 insertions)
INSULATOR MATERIAL: Diallyl Phthalate per MIL-M-14F, Type SDG-F, or, high impact, glass filled, black, Phenolic
INSULATION RESISTANCE: 5000 megohms, minimum
DIELECTRIC WITHSTANDING VOLTAGE: 2000 V.A.C. RMS at sea level
P.C. CARD SLOT: Accepts P.C. Boards from .054" to .070"
OPERATING TEMPERATURE: -65°C. to +125°C.

SERIES 305, 315, 355

.140" row spacing. Contact terminations: Solder Hole and P.C. Tab; .048"x.013"x.125" and .213" tail length. Gold inlay only. Available in sizes 12 to 86 contacts. Dual readout only.

SERIES 306, 316, 356

Center readout. Contact terminations: Solder Hole and P.C. Tab; .047"x.013"x.125" and .213" tail length. Available in sizes 6 to 43 contacts. Contacts plated or gold inlay.

SERIES 307, 357

.200" row spacing. Contact terminations: Solder Hole, P.C. Tab; .024"x.013" and .048"x.013", tail lengths .213" and .358", and Wire Wrap; .048"x.013", tail lengths .495", .520" and .708". Available in sizes 6/12 to 44/88 contacts. Single or dual readout. Contacts plated or gold inlay.

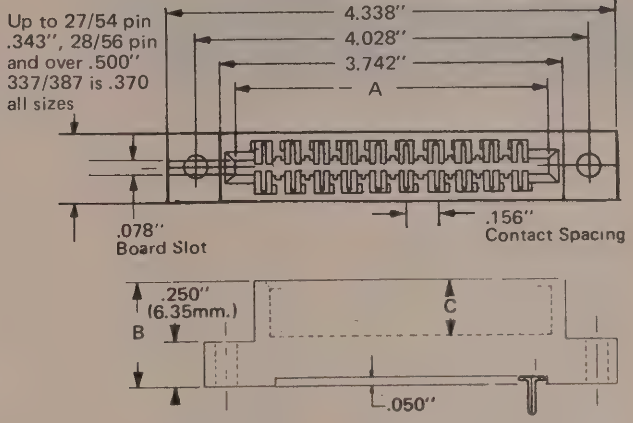
SERIES 337, 387

.200" row spacing. Contact terminations: Solder Hole, P.C. Tab; .018" and .025" square x .150", .175", .390" tail length. and Wire Wrap; .025" square x .560", .645" and .750" tail length. Available in sizes 6/12 to 43/86 contacts. Single and dual readout. Card guides field mounted only. Contacts gold inlay only. Current rating 3 amperes.

Series 305,306,307,337,355,356,357,387 CSA approved
Series 305,306,307 UL Recognized except wire wrap contacts

SERIES 355, 356, 357 and 387 ARE PHENOLIC
SOME SERIES ARE ALSO AVAILABLE IN THERMOPLASTIC

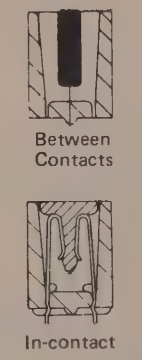
22/44 PINOUT DIMENSIONS



Up to 27/54 pin .343", 28/56 pin and over .500" 337/387 is .370 all sizes
4.338"
4.028"
3.742"
A
.078" Board Slot
.156" Contact Spacing
.250" (6.35mm.)
B
C
.050"

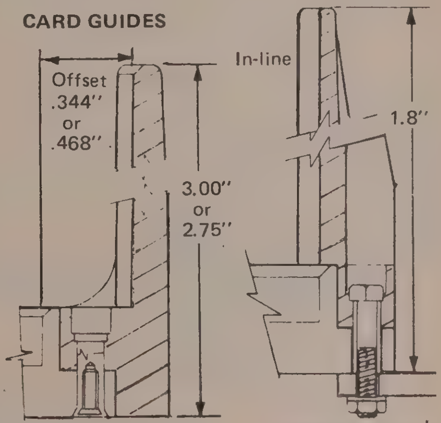
Series 305, 306, 307, 355, 356, 357 dimensions
A 3.596 B .460" C .300"
Series 315, 316 dimensions
A 3.576 B .460" C .300"
Series 337, 387 dimensions
A 3.596 B .600" C .330"

POLARIZING KEYS



Between Contacts
In-contact

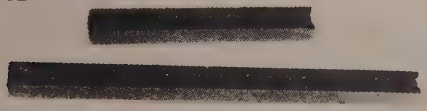
CARD GUIDES

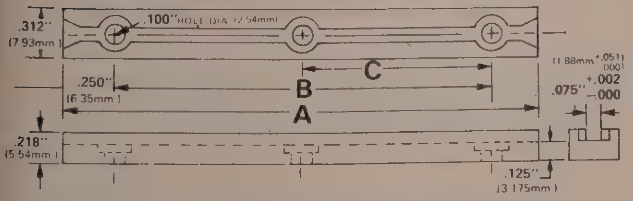


Offset .344" or .468"
In-line
1.8"
3.00" or 2.75"

Card guides are factory or field mounted except Series 337

SERIES 616 CARD GUIDES "UNI-GUIDE"



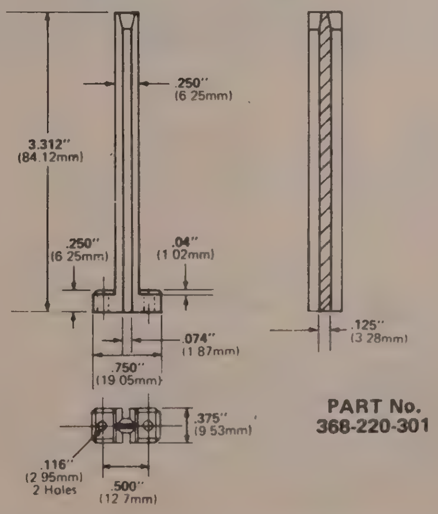


.312" (7.93mm)
.100" HOLE DIA (2.54mm)
C
.250" (6.35mm)
B
A
(1.88mm +.051 .000)
.075" +.002 -.000
.218" (5.54mm)
.125" (3.175mm)

The Series 616 card guides is an assortment of universal guides made of high temperature resistant grey polycarbonate.

Part Number	A	B	C
616-220-301	6.375"	5.875"	
616-220-302	2.500"	2.000"	
616-220-303	4.500"	4.000"	
616-220-304	5.500"	5.000"	
616-220-305	8.000"	7.500"	
616-220-306	9.000"	8.500"	4.250"
616-220-307	11.000"	10.500"	5.250"

368 SERIES CARD GUIDES



.250" (6.25mm)
3.312" (84.12mm)
.250" (6.25mm)
.04" (1.02mm)
.074" (1.87mm)
.750" (19.05mm)
.125" (3.28mm)
.375" (9.53mm)
.116" (2.95mm) 2 Holes
.500" (12.7mm)

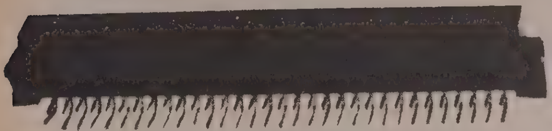
PART No.
368-220-301

20 RAILSIDE ROAD ● DON MILLS, ONTARIO M3A 1A4, CANADA ● TEL (416) 445-2292 ● TWX 610-492-1398

EDAC INC.

METAL-TO-METAL CONNECTORS

VG95324 DIN 41612



Picture shown is Series 463

SPECIFICATIONS

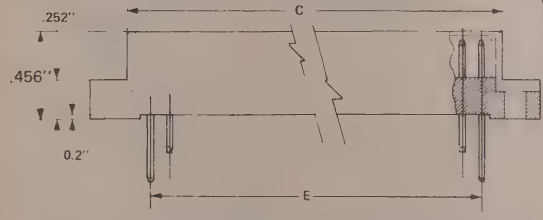
CURRENT RATING: 3 Amperes
CONTACT MATERIAL: Copper, Nickel, Tin alloy (CA725)
CONTACT PLATING: 30 microinches gold inlay on nose
CONTACT RESISTANCE: 10 milliohms, maximum
CONTACT DURABILITY: 1000 mating and unmating cycles
INSULATOR MATERIAL: Polyester Thermoplastic, UL94V-0
INSULATION RESISTANCE: 1.0 tera(10^{12}) ohms, mated
DIELECTRIC WITHSTANDING VOLTAGE: 1000 V.A.C. RMS at sea level
OPERATING TEMPERATURE: -55°C. to +125°C.
BASIC GRID: .100"

Series 461, 462, 463 and 464 are available in single or dual rows in sizes 32 and 64 contacts. Series 493, 494, 495 and 496 are available in single, dual or triple rows in sizes 48 and 96 contacts. Also staggered patterns. Series 461, 464, 493 and 496 contacts are Solder Hole, P.C. Tab and Wire Wrap. Series 462, 463, 494 and 495 contacts have 90° bends. All contacts are standard plated or with tin/lead dip on tails.

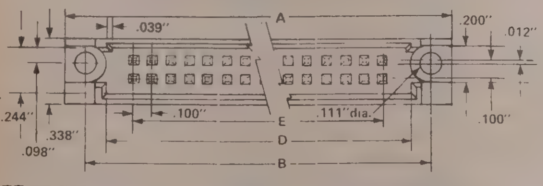
DIMENSIONS IN INCHES

SERIES	A		B		C	D	E
461/463 493/495	461 493	463 495	461 493	463 495			
16/32/64	2.165	2.100	1.968	1.900	1.854	1.755	1.500
32/64/96	3.740	3.700	3.500	3.543	3 454	3.355	3.100
SERIES 462/464 494/496	462 494	464 496	462 494	464 946			
16/32/48	2.100	2.165	1.900	1.968		1.746	1.500
32/64/96	3.700	3.740	3.543	3.500		3.346	3.100

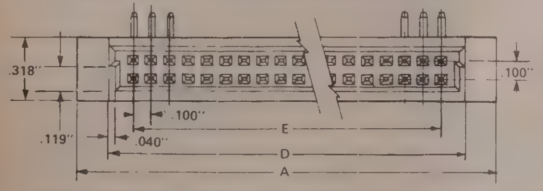
SERIES 461, 464, 493, 496


.252"
C
.456"
0.2"
E

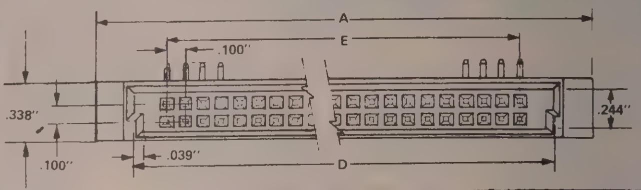
INVERSE DIN SERIES 461 PLUG


.039"
A
.200"
.012"
.244"
.100"
E
.111" dia.
.100"
.338"
D
.098"
B

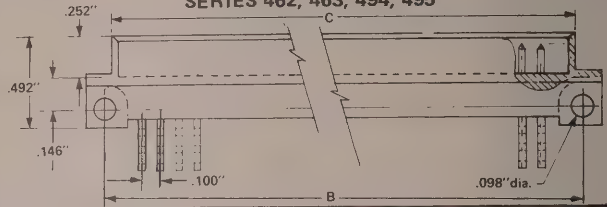
INVERSE DIN SERIES 462 RECEPTACLE


.318"
.100"
.100"
.119"
.040"
E
D
A

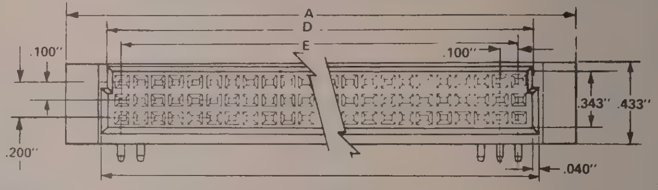
STANDARD DIN SERIES 463 PLUG


A
E
.100"
.338"
.244"
.039"
.100"
D

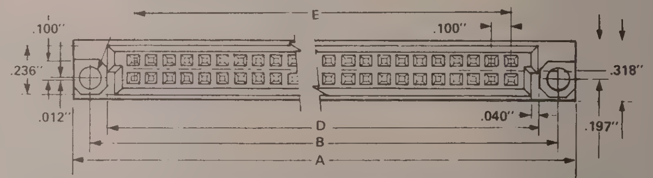
SERIES 462, 463, 494, 495


.252"
C
.492"
.146"
.100"
.098" dia.
B

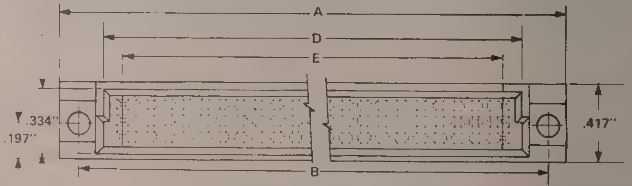
STANDARD DIN SERIES 495 PLUG


A
D
E
.100"
.100"
.343"
.433"
.200"
.040"

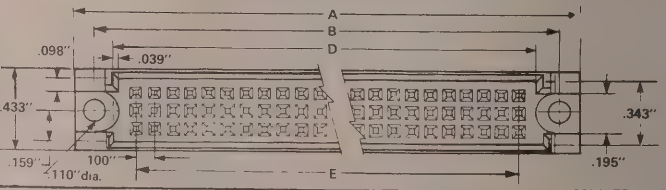
STANDARD DIN SERIES 464 RECEPTACLE


E
.100"
.100"
.236"
.318"
.012"
.040"
D
B
A
.197"

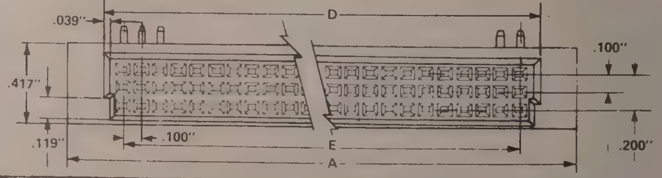
STANDARD DIN SERIES 496 RECEPTACLE


A
D
E
.334"
.197"
.417"
B

INVERSE DIN SERIES 493 PLUG


A
B
D
.098"
.039"
.433"
.343"
.159"
.100"
.110" dia.
E
.195"

INVERSE DIN SERIES 494 RECEPTACLE

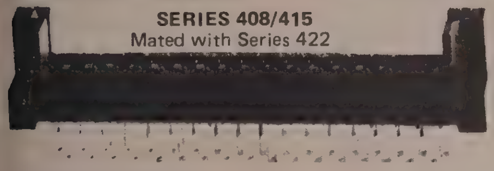

.039"
D
.100"
.417"
.119"
.100"
E
A
.200"

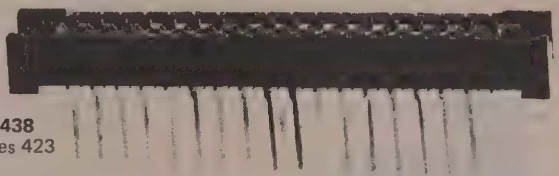
20 RAILSIDE ROAD ● DON MILLS, ONTARIO M3A 1A4, CANADA ● TEL (416) 445-2292 ● TWX 610-492-1398

EDAC INC.

METAL-TO-METAL CONNECTORS

SERIES 408, 415, 424, 438. RECEPTACLES


SERIES 408/415
Mated with Series 422


SERIES 424/438
Mates with Series 423

SPECIFICATIONS

CURRENT RATING: 8.5 Amperes
CONTACT RESISTANCE: 6 milliohms, maximum
CONTACT MATERIAL: Phosphor bronze per QQ-B-750, Composition 'A'
CONTACT PLATING: 10-20 microinches gold over 30-150 microinches nickel
INSULATOR MATERIAL: Diallyl Phthalate per MIL-M-14F, Type SDG-F
INSULATION RESISTANCE: 25,000 megohms
DIELECTRIC WITHSTANDING VOLTAGE: 2000 V.A.C. RMS at sea level

SERIES 408, 415, 424, 438 RECEPTACLES
Series 408 and 415 available with or without card guides. Series 424 and 438 without card guides only, and have open-ended card slots. Insulators are for 1/16" or 3/32" P.C. Boards. Series 408, 415, 438 sizes are 17, 23, 29, 35, 41 and 47 contacts. Series 424 sizes are 17, 23, 29, 35 and 41 contacts. Mounting holes are .128" diameter.

VARIATION CODE

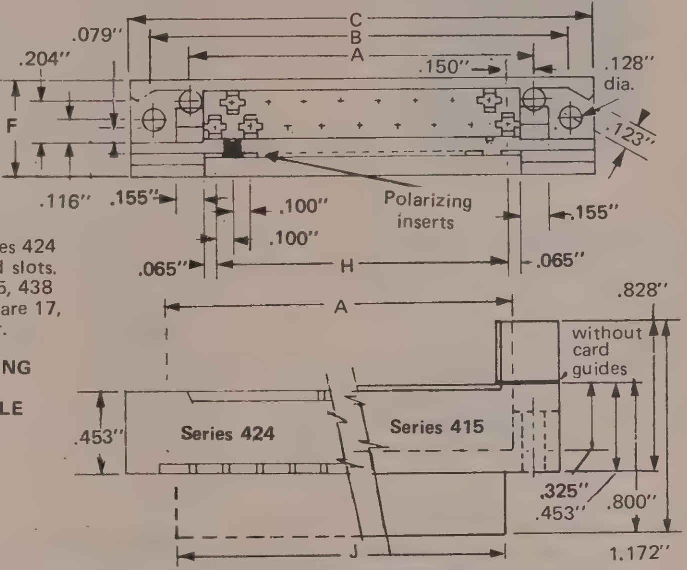
112	1/16" card slot .074" No card guides
122	3/32" card slot .105" No card guides
212	1/16" card slot .074" with card guides
222	3/32" card slot .105" with card guides

35 CONTACT — DIMENSIONS IN INCHES

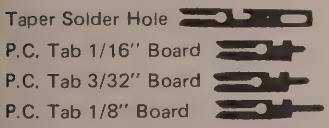
SERIES	A	B	C	F	J
408	3.720	3.934	4.206	.531	
415	3.720	3.934	4.206	.531	3.400
424	3.700	4.100	4.370	.531	
438	3.700	4.100	4.370	.531	3.400

POLARIZING KEYS AVAILABLE FOR SERIES
408
415
424
438

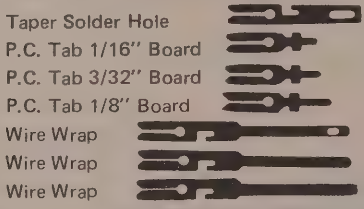
SERIES 424 - MILITARY SPECIFICATIONS MIL-C-21097/4E


C
B
A
.079"
.204"
.150"
.128" dia.
.123"
F
.116"
.155"
.100"
.100"
Polarizing inserts
.155"
.065"
H
.065"
.828"
A
without card guides
.453"
Series 424
Series 415
.325"
.453"
.800"
J
1.172"

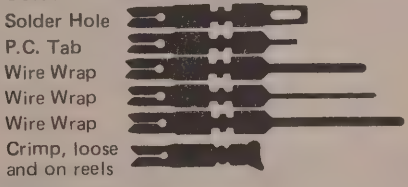
MILITARY SPECIFICATIONS CONTACTS SERIES 424


Taper Solder Hole
P.C. Tab 1/16" Board
P.C. Tab 3/32" Board
P.C. Tab 1/8" Board

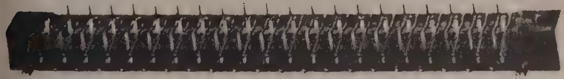
CONTACTS SERIES 408 and 424

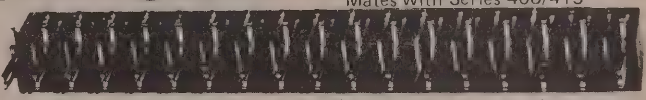

Taper Solder Hole
P.C. Tab 1/16" Board
P.C. Tab 3/32" Board
P.C. Tab 1/8" Board
Wire Wrap
Wire Wrap
Wire Wrap

CONTACTS SERIES 415 AND 438


Solder Hole
P.C. Tab
Wire Wrap
Wire Wrap
Wire Wrap
Crimp, loose and on reels

SERIES 422, 423. PLUGS


SERIES 423
Mates with Series 424/438

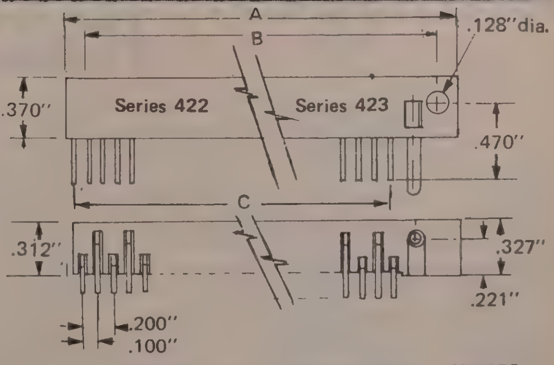

SERIES 422
Mates with Series 408/415

SERIES 423 - MILITARY SPECIFICATIONS MIL-C-21097/5E

SPECIFICATIONS:

CURRENT RATING: 10 Amperes
CONTACT RESISTANCE: 6 milliohms, maximum
CONTACT MATERIAL: Phosphor bronze, per QQ-B-750, Composition 'A'
CONTACT PLATING: 10-20 microinches gld over 30-150 microinches nickel
INSULATOR MATERIAL: Diallyl Phthalate, per MIL-M-14F, Type SDG-F
INSULATION RESISTANCE: 25,000 megohms
DIELECTRIC WITHSTANDING VOLTAGE: 2000 V.A.C. RMS at sea level

Series 422 and 423 are mounted to P.C. Boards by wave soldering or staking. Both series are available with P.C. tail contacts. Series 422 mates with Series 408, Series 423 has guide pins and mates with Series 424. Series 423 is available with contacts plated to Military Specifications M21097/5E. Series 422 sizes are 17, 23, 29, 35, 41, 47 and 51 contacts. Series 423 sizes are 17, 23, 29, 35, 41 and 47 contacts. Both series are available with 1/16" or 3/32" card slots.


A
B
.128" dia.
.370"
Series 422
Series 423
.470"
C
.312"
.327"
.221"
.200"
.100"

35 CONTACT - DIMENSIONS IN INCHES

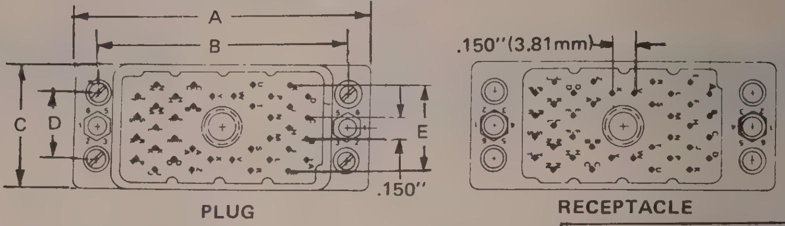
Series	A	B	C
422	3.514		3.400
423	4.270	4.000	3.400

20 RAILSIDE ROAD ● DON MILLS, ONTARIO M3A 1A4, CANADA ● TEL (416) 445-2292 ● TWX 610-492-1398

EDAC INC.

RACK AND PANEL CONNECTORS

SERIES 516



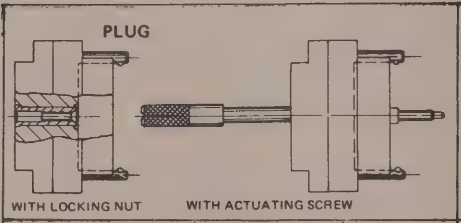
516 DIMENSIONS IN INCHES					
SIZE	A	B	C	D	E
20	1.312	1.125	.686	.410	.410
38	2.000	1.688	.875	.468	.600
56	2.592	2.282	.875	.468	.600
90	2.718	2.282	1.234	.765	.900
120	2.750	2.375	1.531	.876	1.200

SPECIFICATIONS

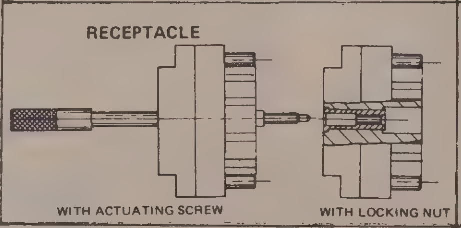
CURRENT RATING: 8.5 Amperes
CONTACT RESISTANCE: 6 milliohms, maximum
CONTACT MATERIAL: Phosphor bronze per QQ-B-750, Composition A
CONTACT PLATING: 10-20 microinches gold over 30-150 microinches nickel
INSULATOR MATERIAL: Diallyl Phthalate per MIL-M-14F, Type SDG-F. Also 20, 38, 56, 90 pin available in UL approved Polycarbonate
INSULATION RESISTANCE: 25,000 megohms
DIELECTRIC WITHSTANDING VOLTAGE: 1800 V.A.C. RMS at sea level

The Series 516 is a Rack and Panel connector for cable-to-cable or cable-to-panel applications. It is available in five standard sizes: 20, 38, 56, 90 and 120 positions. The insertable/removable contacts are: Taper Solder Eyelet, P.C. Tab, Wire Wrap and Crimp. All contacts fit plug or receptacle. Polarizing hardware permits 288 polarizing combinations. Guide pins and sockets ensure perfect alignment of mating pairs. Actuating screws ease mating and unmating of connectors. Metal and Polycarbonate covers are available.

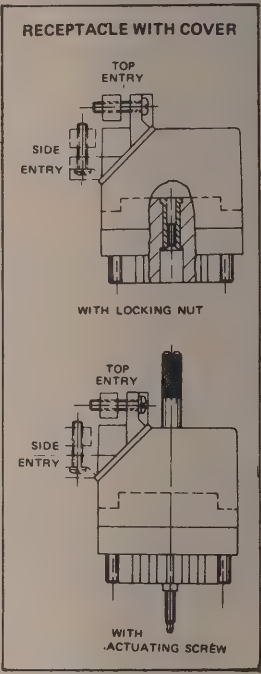
PLUG

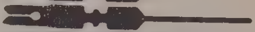
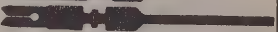
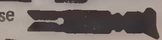
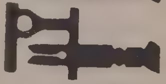


RECEPTACLE



RECEPTACLE WITH COVER



CODE	PART No.	DESCRIPTION
500	516-290-500	Solder Eyelet
520	516-290-520	P.C. Tab
540	516-290-540	Wire Wrap
541	516-290-541	Wire Wrap 
542	516-290-542	Wire Wrap 
590	516-290-590	Crimp Contact, loose 
591	516-290-591	Crimp, on reels 

VARIATION CODE D.A.P. WITH COVERS

CLAMP	STYLE	DESCRIPTION	LARGE CLAMP
111	PLUG	Actuating screw, Top entry	131
121		Actuating screw, Side entry	141
151		Actuating screw, Metal cover	151
112		Locking nut, Top entry	132
122		Locking nut, Side entry	142
152		Locking nut, Metal cover	152
110		No Hardware, Top entry	130
120		No Hardware, Side entry	140
150		No Hardware, Metal cover	150
211	RECPT.	Actuating screw, Top entry	231
221		Actuating screw, Side entry	241
251		Actuating screw, Metal cover	251
212		Locking nut, Top entry	232
222		Locking nut, Side entry	242
252		Locking nut, Metal cover	252
210		No Hardware, Top entry	230
220		No Hardware, Side entry	240
250		No Hardware, Metal cover	250

ORDERING CODE FOR COVERS ONLY

		STANDARD CLAMP		WITH LARGE CLAMP	
TYPE	SIZE	SIDE	TOP	SIDE	TOP
Plastic	20 Pin	516-230-120	516-230-220	Not available	Not available
Metal		516-230-520		516-230-520	
Plastic	38 Pin	516-230-138	516-230-238	516-230-338	516-230-438
Metal		516-230-538		516-230-538	
Plastic	56 Pin	516-230-156	516-230-256	516-230-356	516-230-456
Metal		516-230-556		516-230-556	
Plastic	90 Pin	516-290-190	516-230-290	Not available	Not available
Metal		516-230-590		516-230-590	
Plastic	120 Pin	516-230-112	516-230-212	Not available	Not available
Metal		516-230-512		516-230-512	

VARIATION CODE

D.A.P. CODE	STYLE	DESCRIPTION	POLY. CODE
101	PLUG	Actuating Screw	301
102		Locking Nut	302
100		No Hardware	300
202	RECP.	Locking Nut	402
201		Actuating Screw	401
200		No Hardware	400

UNITED STATES DISTRIBUTORS

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Huntsville, Alabama. 35805
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2130 East 5th St.
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Tel: 602-967-1464

Heilind Electronics
3271 East Grove St.
Phoenix, Arizona. 85040
Tel: 602-243-7171
TWX: 910-950-4651

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TWX: 910-583-3831

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Fort Lauderdale, Florida. 33309
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Savage, Maryland. 20863
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Philadelphia, Pa. 19107
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MINIGLOSSARY

CONNECTORS

Connector terminology is often quite confusing. This confusion starts with the very names of connectors. The name of a connector may derive from its shape, application, type of conductor or even method of termination.

Shape—Circular, cylindrical, and rectangular.

Electrical application—High voltage, RF, microwave, input/output, etc.

Mechanical application—Printed circuit, rack & panel, cable, etc.

Conductor type—Coaxial, flat cable, ribbon cable, flex circuit, etc.

Termination method—Wirewrap, soldercup, solderless, etc.

Hardware such as clamps, hoods, and adapters are frequently used to convert cable connectors to rack and panel types. This adds to the name confusion. A very common telephone connector, for example (the "C" type) got its name from the model number of the original maker.

Contact: The part(s) of the connector that actually provides circuit continuity between its two sections—the parts which are normally mated. The back end of the connector should properly be called the *termination*. This is the point where the wires or PC board is attached to the connector.

Contact alignments: Often called *contact float*. Describes the amount of allowable contact movement within the connector body. Permits self-alignment.

Male vs. female: In the U.S. this describes the contact construction. In Europe this term is more often used to describe the outer shell mating action which may be the reverse of the contacts.

Closed entry: A female contact which prevents entry of a male contact larger than a specific size.

Open entry: A female contact designed for a specific size of male contact but which will allow entry of larger male contacts by spring action.

Hermaphrodite: Contacts or connector bodies which are the same configuration. Male/female designations do not apply. Bodies usually have some mechanical means for maintaining polarity.

Hermetic seal: Glass-to-metal seals at terminations. Often used improperly to describe vacuum-tight seals.

Waterproof seal: May or may not be truly *waterproof*. May prevent easy entrance of casual water by means of a rubber or other boot.

Printed circuit connector: Connectors which are used in conjunction with printed circuit boards. There are two distinctly different styles.

Edgeboard. May be called *edge* or *card*. The printed circuit (PC) board edge enters the connector.

Two-piece: One part of the connecting pair is physically attached to the PC board itself. The other part is attached to something else such as a cable or a motherboard.

Readout: Describes the arrangement at the terminating edge of a PC board. May be single or double. A double readout PC board has termination strips on each side not usually interconnected.

Ribbon connectors: A type of connector which allows flat "ribbon" cable to be attached to a round or rectangular connector but also used interchangeably for flat connectors to flat cable.

Ribbon contact connector: Describes the contacts in a rectangular connector which have a self-wiping mating action. Not the same as ribbon connector.

Solderless terminal: Any style of termination which does not require solder for a permanent connection. See *crimp* and *insulation displacement*.

Crimp termination: A stripped wire is inserted into a barrel or trough which is then crimped to the conductor with a suitable tool.

Insulation displacement: Unstripped insulated wire is fitted into a channel containing metal teeth which are forced through the insulation to make contact with the conductor.

Service rating: The maximum rated voltage and/or current which may be applied continuously. May be called *working voltage*. Can be confused with the term used to describe how many times a connector may be mated and separated.

Withstanding voltage: Also called *test voltage*. The voltage a connector must withstand for one minute without breakdown. Applied between connectors and between connectors and shell and any grounding devices of the connector.

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES

TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 84/85 EDITION OF EEM

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Capacitors, Basic Formulas	**1A**•1093
Capacitors, Miniglossary	**1A**•1069
Capacitors, Product Selection Guide	**1A**•1003
Circuit Boards (Printed), Product Selection Guide	**2**•1089
Coils, Chokes, & Inductors, Product Selection Guide	**1A**•1219
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Connectors, Terminals, & Sockets, Product Selection Guide	**2**•1097
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Delay Lines, Product Selection Guide	**1A**•1445
Discrete Semiconductors, Product Selection Guide	**1A**•2087
Displays, Readouts, Lamps, & Lights, Product Selection Guide	**1B**•1021
EBCDIC Code	**3**•1153
Encapsulation, Miniglossary	**2**•1082
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide	**2**•1801
Filters, Product Selection Guide	**1A**•1577
Instruments, Graphic Recording, Product Selection Guide	**3**•1381
Instruments, Panel Meters, Product Selection Guide	**3**•1321
Instruments, Test & Measuring, Product Selection Guide	**3**•1182
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Keyboards & Keypads, Product Selection Guide	**1B**•1759
Microwave Components, Product Selection Guide	**1A**•1685
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Switches, Product Selection Guide	**1B**•1499
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Wire & Cable, Product Selection Guide	**2**•1935

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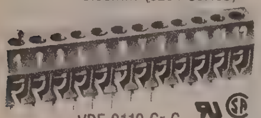
WIBA® TERMINAL STRIPS

PCB Terminal Strips

Pin Spacing: 5+10mm (8180 series)
5mm (8181 series)
5.08mm (8281 series)



VDE 0110 Gr.C (8181 and 8281); Gr.A (8180)

300V, 15 Amp; No. 14 AWG max
A series of fully enclosed strips molded of polyamid for pc board or panel connections. Available in up to 24 poles for 5 mm and 5.08 mm pin spacing; In up to 12 poles for 10 mm pin spacings. This is the most compact strip available. For example, 12-pole measures only 62 mm (2.4" long).

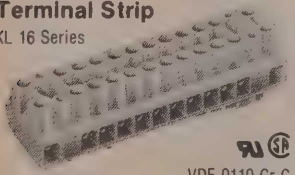
Porcelain Strip

VDE 0110 Gr.C

300V, 80 Amp; No. 6 AWG max
For high temperature applications including burn-in testing devices for solid state circuitry, appliances, ovens, and areas with a high degree of atmospheric contamination. Available with or without fixing holes and wire guards. Fixing holes can be provided with melamine insulation.

Compact Terminal Strip

KL 16 Series

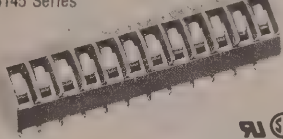


VDE 0110 Gr.C

250V, 20 Amp; No. 12 AWG max
A very compact strip for applications where space is critical. Molded of flame retardant polypropylene with nickel plated brass connectors. Available up to 20 poles consecutively numbered. As an indication of the compactness the 12-pole type measures only 3 inches (76.2 mm).

PCB Terminal Strip With 45° Angled Entry

8145 Series



300V, 15 Amp; No. 14 AWG max
A new terminal strip for printed circuits with a 45° angled, pressure screw entry. Available with pin spacings of 5 and 10 mm. Overall height above board surface is less than ½ inch. Molded of break resistant Polyamid 6.6, the 5 mm spacing strip is available in any number of poles from 2 to 24; the 10 mm from 2 to 12.

Disconnect 2-Piece Terminal Strip For PCB's

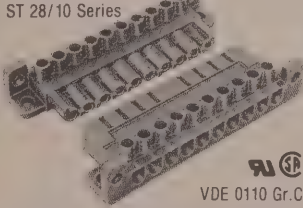
8112 Series

VDE 0110 GR.C

300V, 10 Amps, No. 14 AWG max
A new series available in 2 to 20 poles. A complete terminal is made of two parts: a plug with pressure screw connections, and a receptacle with 0.05" dia. (1.3 mm) solder pins for soldering into PC board. Solder pins available at right angle or horizontal position. Wire guard protects fine wire conductors.

Plug and Socket Connectors

ST 28/10 Series

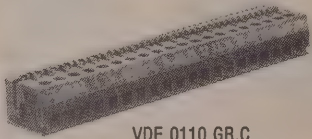


VDE 0110 Gr.C

A versatile 10-pole unit which can be mounted in any number of ways, including assembly rail. Connectors are silver-plated brass. Poles number 1 to 10. Coding pins for 28 coding schemes to ensure use of plug with appropriate socket.

PCB Edge Connectors

LPST Series

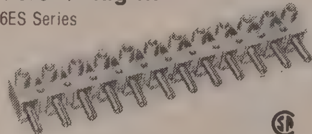


VDE 0110 GR.C

No. 16 AWG max
New, compact series for PC boards measuring 1.4 to 1.8 mm thick, including contact surfaces. Available with pressure connectors in any number of poles from 2 to 20 (each with or without solder lugs). Molded of fiberglass reinforced polycarbonate. Silver plated, phosphore bronze contact springs are spaced 5 mm apart.

Flexible Terminal Strip Screw/Plug-In

6ES Series

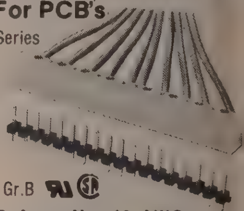


VDE 0110 GR.C

300V, 20 Amp; No. 12 AWG max
Polyamid strip in any number of poles from 1-10 and 12. Mates with 6E Series. Flexible, easily cut. Available with spacers for 600V applications. UL Recognition Pending.

Disconnect 2-Piece Terminal Strip For PCB's

8140 SS Series

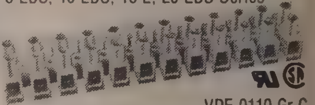


VDE 0110 Gr.B

250V, 10 Amp; No. 16 AWG max (field/factory wiring)
250V, 10 Amp; No. 14 AWG max (factory wiring)
Provides for quick connect or disconnect of wiring to PCB by means of a pin strip. The 8140 SS incorporates open housing design for easy circuit testing; (5 & 10 mm spacing, 2 to 20 poles); the 8141 SS closed body design and silver plated bushings (5 mm spacing, 2 to 20 poles).

Flexible Terminal Strip Screw/Screw

6 EDS, 16 EDS, 16 E, 20 EDS Series



VDE 0110 Gr.C

+6 EDS-300V, 10 Amp; No. 16 AWG
+10EDS-300V, 20 Amp; No. 12 AWG
+16E-300V, 40 Amp; No. 8 AWG
+20EDS-300V, 55 Amp; No. 6 AWG

Polyamid strip in any number of poles from 1-10 and 12. Flexible, easily cut. For 600V use with spacers.

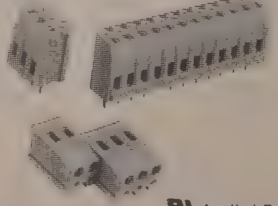
+Higher ratings on units without wireguard.

COMPACT MODULAR BLOCKS FOR PCB's

Easily interlocked to form any number of pole configurations, reducing inventory and simplifying ordering. Incorporates the versatility and features of the modular concept. All metal parts are recessed in the break resistant, polyamid insulating body, providing circuit protection and dead front safety.

Terminal for 0.197" (5.00 mm) spacing

8190 Series

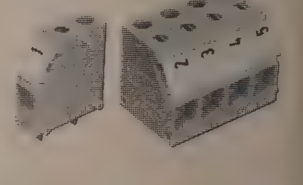


Applied For
VDE 0110 Gr.C

300 V, 20 Amp; No. 14 AWG max
Available in 2, 3, 8 and 12 poles. Molded of break resistant Polyamid 6.6 to withstand continuous service temperatures up to 212°F (100°C). Captive terminal block connectors and screws are steel, zinc-plated and chromated. Solder pin (E-Cu, tin-plated) is .9 × .8 mm (0.04 × 0.03"). Built-in socket for test plug. Available with or without molded-in markings.

Terminal for 0.275" (7 mm) spacing

8375 Series



VDE 0110 Gr.C

600 V, 36 Amp; No. 12 AWG max
Each block has 2 solder pins (E-Cu, tin-plated) which provide maximum retention when soldered to the PCB. Captive terminal block connectors and screws are steel, zinc-plated and chromated. Built-in socket for test plug. Accommodates up to 3 characters for marking, as well as the Wiba® Rapid Marking System.

MULTIPOLE CONNECTORS FOR HEAVY DUTY APPLICATIONS

Available in a wide variety of hood and housing combinations with either screw, solder or crimp type terminations, these environmentally protected connectors provide rapid and secure connections between remote equipment and their respective controls. The positive locking latch is zinc plated or stainless steel. Neoprene gasket seal resists aging and oil. Meets IP Code 55 (DIN) 40050, in locked position. UL Applied For.

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(914) 592-7322
Telex: 646-186

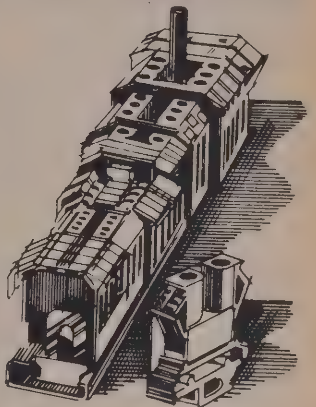
Southeast
Suite C
3115 Gateway Drive,
Norcross, Georgia 30071
(404) 441-3644
Telex 707-455

Midwest
9996 Bryn Mawr Avenue
Rosemont, Illinois 60018
(312) 678-5557
Telex: 721-518

Southwest
Suite 101
10969 Shady Trail
Dallas, Texas 75220
(214) 353-9950
Telex: 714-630-186

West
Suite D
1311 East Chestnut Ave.,
Santa Ana, California 92701
(714) 835-2033
Telex 685-669

WIBA® MODULAR BLOCKS



Versatile and space saving, all blocks mount on standard assembly rails and can be customed assembled by Electrovert to meet customer specifications. More than 75 different types of blocks are available, each offering dead front safety, excellent resistance to corrosion and vibration, rapid marking and a complete line of accessories for custom requirements.

The WKU Series . . . features a unique universal base providing secure attachment to *both* assymetrical rail TS 32 (DIN 46277) and symmetrical rail TS35 (DIN 46277 and EN 50022).

The WK Series . . . mounts to either rail TS32 or rail TS35, but not both. Funneled wire entrance and 4 digit marking area on each side of block are unique to the series.

The 9700B Series . . . features high creepage and clearance ratings. Insulating body is polyamid 6.6, and connectors are nickel plated brass. Designed exclusively for assymetrical rail.

The 9200 Series . . . a miniature block with its own specially designed rail specifically designed for low voltage applications, small equipment, and/or where space limitations exist.

The 9060 Series . . . features test terminals and fuse terminals with insulating bodies made of melamine type 150. For assymetrical rail only.

And More . . . including the RFK Series of high capacity blocks, and the 9040, 9050, and 9550 Series of melamine blocks which are all UL Recognized, CSA Certified, and VDE Rated 0110 Gr.C.

Modular Block Series	Mounts on Rail DIN Rail 46277	Insulating Material	Max. Voltage	AMP Rating	Max. Wire Size	Approvals
9200	TS15	Polyamid 6.6	600	8-30	No. 10	SP, ЯU, VDE 0110 Gr.C
9700	TS32 or TS35	Polyamid 6.6	600	25-140	No. 2/0	SP, ЯU, VDE 0110 Gr.C
WKU	TS32 and TS35	Polyamid 6.6	600	27-87	No. 4	SP, ЯU, VDE 0611 Gr.C
WK Double Deck	TS32 or TS35	Polyamid 6.6	600	40	No. 10	SP applied for, ЯU
Standard Double Deck	TS32	Polyamid 6.6	300	10	No. 14	SP, VDE 0110 Gr.C
Universal Disconnect	TS32 and TS35	Polyamid 6.6	600	20	No. 12	SP applied for, ЯU VDE 0611 Gr.C
Standard Disconnect	TS32	Polyamid 6.6	600	20	No. 12	SP, ЯU, VDE 0110 Gr.C
Modular Fuse	TS32 or TS35	Polyamid 6.6	300	15	No. 14	SP applied for, ЯU, VDE 0110 Gr.C
KK2.5 Compact	TS32 and TS35	Polyamid 6.6	600	25	No. 12	SP applied for, ЯU, VDE 0611 Gr.C
Adjustable Compen-sating	TS32	Polyamid 6.6	300	N/A	No. 10	VDE 0110 Gr.C
High Capacity	TS32	Melamine 150	600	500	500MCM	ЯU, VDE 0110 Gr.C
Test	TS32	Melamine 150	600	N/A	No. 8	VDE 0110 Gr.C
WK Ground Connector	TS32 or TS35	Polyamid 6.6	600	N/A	6	SP and ЯU applied for
Standard Ground Connector	TS32	Polyamid 6.6	600	N/A	6	ЯU, VDE 0611 T.3

Note: Consult Electrovert for other terminal versions, including solder lug, slide on connector, built-in-component, and spring loaded.

600V Terminals

9700 B Series

WKU Series

A series of blocks molded of polyamid and designed to meet most general circuit requirements for pressure connector terminals. Available in a wide variety of sizes for different AWG and amperage requirements.

Diode/Fuse: a series of blocks built to incorporate various components to meet specific circuit design requirements. Supplied with silicon diode 1N 4007. Can also serve as a fuse terminal (5 × 20 mm) equipped with LED. Other components available on request. Wiring diagrams printed on top side of all terminal blocks.

2-Tier Double Deck: screw terminal connectors are arranged in a 2-tier design. As a result, twice as many wires can be attached in a given width. Molded of polyamid, this unique block measures less than ¼" in width.

Melamine Insulating: several different series (9050, 9040, 9550, 9210) of pressure connector terminal blocks molded of melamine, all VDE rated 0110 Gr.C and CSA Listed.

Solder Lug: available in a variety of types with different combinations of solder lug and pressure connectors. Insulating body is polyamid and solder lugs hot dip tinned brass.

Disconnect/Test: a series of blocks for opening and closing the circuit without disturbing permanent wiring. Disconnect plug is captive at all times, and contacts can't be damaged or the plug misplaced. Supplied with socket type pressure connector screws which allow the use of test plugs. A barrier separates each plug so that only one at a time can be either raised or lowered. Rated VDE 0110 Gr.C.

Slide-On Connectors: for use with ¼" slide-on connectors. Very compact. Available in two types, with either 4 or 3 connectors.

Built-In Circuit Component: a new double-deck type terminal block with 4 pressure connectors to serve 2 distinct circuits. These circuits can be internally connected in a variety of ways and/or the block can incorporate various components (diodes, resistors, capacitors, etc.) to meet specific circuit design requirements.

High Capacity (to 500 mcm): melamine insulating body. Available in three types with various combinations of lug and pressure connectors. Particularly suitable for main connections where terminations for cables and/or busbars are required.

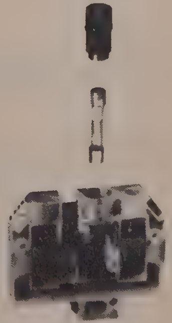
Compact: a series specifically designed for all assemblies where a great number of connections have to be made within a small amount of space.

Ground Connector: ground terminal supplied in universal color coding of green/yellow.

Pressure Terminals and Wire Wrap Connection: available with 2 orientations of wrap connector pin—one for horizontal and the other for vertical mounted blocks.

Micro Pressure Connector molded of polyamid with the 10 Amp version also available in polypropylene. Connectors are nickel plated brass, and suitable for solid or stranded wires.

Modular Fuse
Neon or incandescent failure indicating lamp comes into operation if the circuit is interrupted by a destroyed fuse.



WK10

Insulating body available in melamine (9060 Series) or polyamid (WK10 Series).

Spring Loaded: block is supplied with open clamping space. Clamping action (release of spring) is made with screwdriver. A simple turn of 90° releases the spring and clamps the conductor. Re-opening of clamping space is also by screwdriver. With slight pressure and turn of 90° the spring is loaded again. This combines the usual operation of a conventional terminal with spring contact techniques.

Adjustable Compensating: resistance terminal designed to allow for difference between actual external resistance and resistance for which an instrument is calibrated.

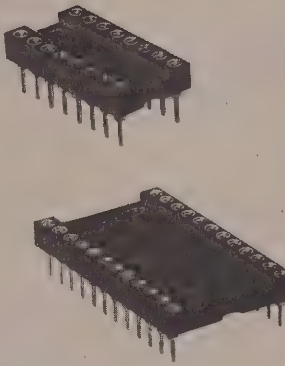
EMC **ELECTRONIC MOLDING CORPORATION**

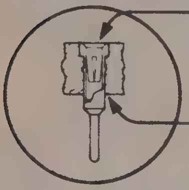
96 MILL ST., WOONSOCKET, R.I. 02895 U.S.A. (401) 769-3800 TWX NO. 710-387-1350

LOW PROFILE DIP SOCKETS
CLOSED FRAME SOCKETS/10000 SERIES
6 TO 64 PINS

DESIGN CONSIDERATIONS

TERMINAL FUNNEL ENTRY SCREW MACHINE DESIGN FOR EASE OF I.C. LEAD INSERTION. THE CLOSED-END BARREL IS DESIGNED TO PREVENT SOLDER WICKING UP INTO CONTACT AREA.





FUNNEL ENTRY FEATURE TO FACILITATE LOADING OF INTEGRATED CIRCUITS BY AUTOMATIC EQUIPMENT.

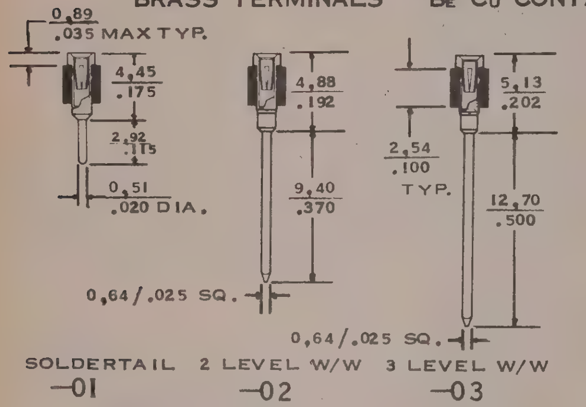
NO SOLDER WICKING

CLOSED END TERMINAL WILL NOT ALLOW SOLDER TO FLOW OR WICK UP INTO CONTACT AREA.

SHORT CONTACT

A BeCu STAMPED AND FORMED BURR-FREE FOUR FINGERED CONTACT .085" LONG TO ACCOMMODATE SHORT I.C. LEADS.

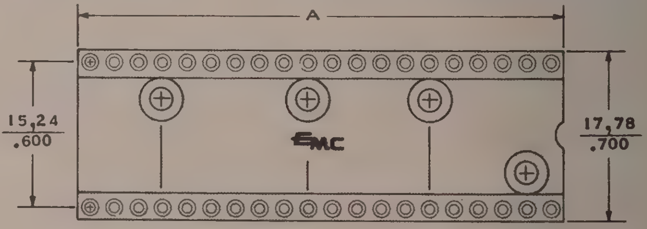
BRASS TERMINALS — BeCu CONTACTS



ALL WIDTH DIMENSIONS ARE MAXIMUM.
ALL TERMINALS IN-LINE .100 INCH SPACING.
DIMENSIONS ARE IN INCHES.

PART NUMBERS

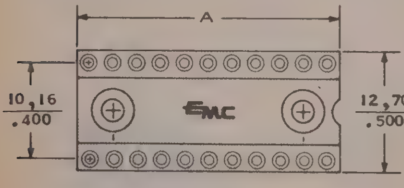
ADAPTOR SOCKET		A DIM.
10624	20624	1.200
10628	20628	1.400
10632	20632	1.600
10636	20636	1.800
10640	20640	2.000



SOLDERTAIL
-01 TERMINAL STYLE

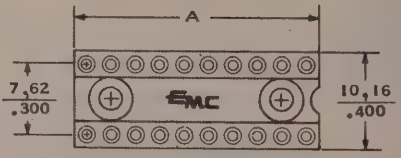
PART NO.	NO. OF PINS	CONTACT PLATING	TERMINAL PLATING
10306-01-446	6	GOLD	GOLD
10306-01-445		GOLD	TIN
10308-01-446	8	GOLD	GOLD
10308-01-445		GOLD	TIN
10310-01-446	10	GOLD	GOLD
10310-01-445		GOLD	TIN
10314-01-446	14	GOLD	GOLD
10314-01-445		GOLD	TIN
10316-01-446	16	GOLD	GOLD
10316-01-445		GOLD	TIN
10416-01-446	16	GOLD	GOLD
10416-01-445		GOLD	TIN
10318-01-446	18	GOLD	GOLD
10318-01-445		GOLD	TIN
10320-01-446	20	GOLD	GOLD
10320-01-445		GOLD	TIN
10422-01-446	22	GOLD	GOLD
10422-01-445		GOLD	TIN
10424-01-446	24	GOLD	GOLD
10424-01-445		GOLD	TIN
10624-01-446	24	GOLD	GOLD
10624-01-445		GOLD	TIN
10628-01-446	28	GOLD	GOLD
10628-01-445		GOLD	TIN
10632-01-446	32	GOLD	GOLD
10632-01-445		GOLD	TIN
10636-01-446	36	GOLD	GOLD
10636-01-445		GOLD	TIN
10640-01-446	40	GOLD	GOLD
10640-01-445		GOLD	TIN
10664-01-446	64	GOLD	GOLD
10664-01-445		GOLD	TIN

SUBSTITUTE TERMINALS
2 LEVEL W/W -02 TERMINAL STYLE
3 LEVEL W/W -03 TERMINAL STYLE



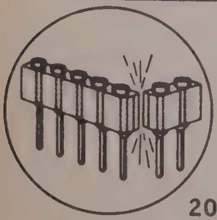
PART NUMBER

ADAPTOR SOCKET		A DIM.
10416	20416	.800
10422	20422	1.100
10424	20424	1.200



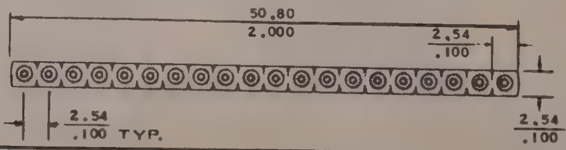
PART NUMBERS

ADAPTOR SOCKET		A DIM.
10306	20306	.300
10308	20308	.400
10310	20310	.500
10314	20314	.700
10316	20316	.800
10318	20318	.900
10320	20320	1.000



SNAP-SIP 20 PIN

20 PIN SNAP-SIP & SNAP-ADAPT

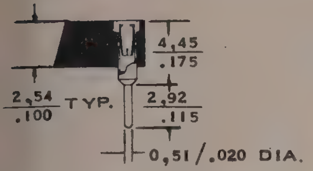


SOCKET TYPE	PART NUMBER	TERMINAL STYLE
SNAP-SIP	14120-01-445	SOLDERTAIL ____ -01
SNAP-SIP	14120-02-445	2 LEVEL W/W ____ -02
SNAP-SIP	14120-03-445	3 LEVEL W/W ____ -03
SUBSTITUTE -446 FOR GOLD/GOLD PLATING		
SNAP-ADAPT	14120-04-451	STRAIGHT PIN ____ -04
SNAP-ADAPT	14120-05-451	SOLDER CUP ____ -05
SNAP-ADAPT	14120-06-451	BIFURCATED PIN ____ -06
SNAP-ADAPT	14120-07-451	HOLLOW PIN ____ -07
SUBSTITUTE -455 FOR TIN PLATING		

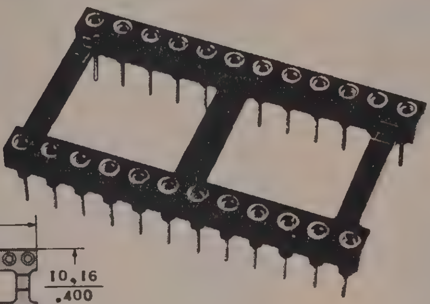
EMC **ELECTRONIC MOLDING CORPORATION**

96 MILL ST., WOONSOCKET, R.I. 02895 U.S.A. (401) 769–3800 TWX NO. 710–387–1350

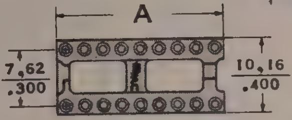
OPEN FRAME SOCKETS
17000 SERIES-6 TO 64 PINS



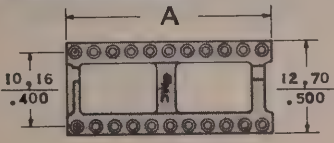
-01 SOLDERTAIL TERMINAL



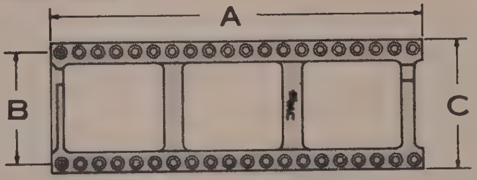
PART NO.	A DIM.
17306	.300
17308	.400
17310	.500
17314	.700
17316	.800
17318	.900
17320	1.000



PART NO.	A DIM.
17416	.800
17422	1.100
17424	1.200



PART NO.	A DIM.	B DIM.	C DIM.
17624	1.200	.700	.600
17628	1.400	.700	.600
17630	1.500	.700	.600
17632	1.600	.700	.600
17636	1.800	.700	.600
17640	2.000	.700	.600
17664	3.200	1.000	.900

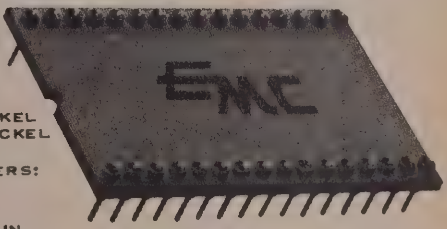


SOLDERTAIL
-01 TERMINAL STYLE

PART NO.	NO. OF PINS	CONTACT PLATING	TERMINAL PLATING
17306–01–446	6	GOLD	GOLD
17306–01–445		GOLD	TIN
17308–01–446	8	GOLD	GOLD
17308–01–445		GOLD	TIN
17310–01–446	10	GOLD	GOLD
17310–01–445		GOLD	TIN
17314–01–446	14	GOLD	GOLD
17314–01–445		GOLD	TIN
17316–01–446	16	GOLD	GOLD
17316–01–445		GOLD	TIN
17318–01–446	18	GOLD	GOLD
17318–01–445		GOLD	TIN
17320–01–446	20	GOLD	GOLD
17320–01–445		GOLD	TIN
17416–01–446	16	GOLD	GOLD
17416–01–445		GOLD	TIN
17422–01–446	22	GOLD	GOLD
17422–01–445		GOLD	TIN
17424–01–446	24	GOLD	GOLD
17424–01–445		GOLD	TIN
17624–01–446	24	GOLD	GOLD
17624–01–445		GOLD	TIN
17628–01–446	28	GOLD	GOLD
17628–01–445		GOLD	TIN
17630–01–446	30	GOLD	GOLD
17630–01–445		GOLD	TIN
17632–01–446	32	GOLD	GOLD
17632–01–445		GOLD	TIN
17636–01–446	36	GOLD	GOLD
17636–01–445		GOLD	TIN
17640–01–446	40	GOLD	GOLD
17640–01–445		GOLD	TIN
17664 01 446	64	GOLD	GOLD
17664 01 445		GOLD	TIN

MICROPROCESSOR/LSI SOCKETS
32 TO 64 PINS

NO. OF PINS	PART NO.	FIG. NO.	A	B	C
32	13932–10–446	2	41,91 1,650	26,67 1,050	22,86 .900
48	13648–10–446	2	62,23 2.450	19,05 .750	15,24 .600
48	13848–10–446	1	SEE DRAWING		
50	13950–10–446	2	64,77 2.550	26,67 1.050	22,86 .900
64	13964–10–446	2	82,55 3.250	26,67 1,050	22,86 .900



MATERIALS

TERMINAL–PHOSPHOR BRONZE GOLD/NICKEL
CONTACT –BERYLLIUM COPPER GOLD/NICKEL
INSULATION–LSI SOCKET: FR-4
MICROPROCESSOR & PROM CARRIERS:
GLASS FILLED POLYESTER

PLATING

–445	CONTACT–GOLD	TERMINAL–TIN
–446	CONTACT–GOLD	TERMINAL–GOLD

TOLERANCE UNLESS OTHERWISE SPECIFIED:
±0.13 /.005 MILLIMETER/INCH

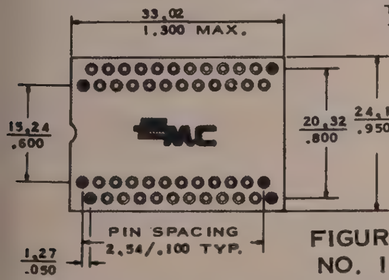
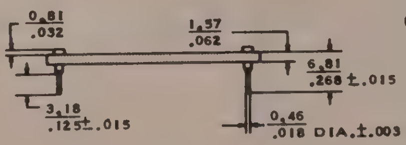


FIGURE NO. 1



TYP. SIDE VIEW FOR LSI SOCKET

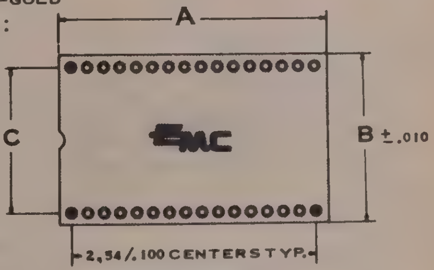


FIGURE NO. 2

TERMINALS AND ACCESSORIES

ALL TEST JACKS FEATURE BERYLLIUM COPPER CONTACT WITH PROBE DIAMETER OF .020, .025, .030, .040, .080 AND DIMENSIONS DESIGNED FOR STANDARD OR CUSTOM MOUNTING.

TYPE 140

TYPE 141

TYPE 140A

NON–INSULATED TEST JACKS

TYPE 77

TYPE 104

PRINTED CIRCUIT TEST JACKS

TYPE 2

TYPE 9

TYPE 8

FEED THRU TERMINALS

TYPE 89

TYPE 101

TYPE 90

TYPE 99

MOLDED STANDOFF TERMINALS

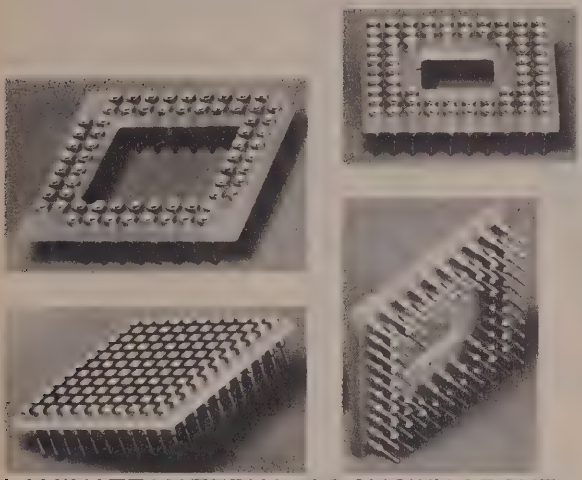
TYPE 85

TYPE 86

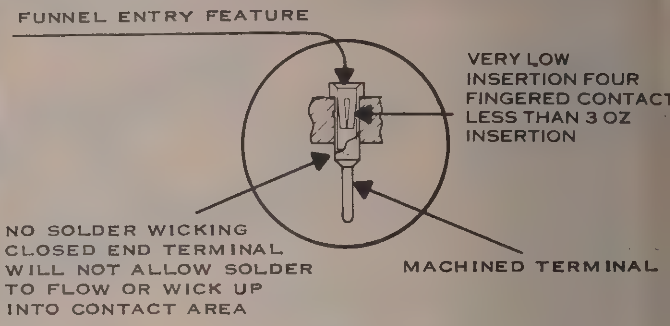
MILITARY TEST JACKS MIL–C–39024

EMC ELECTRONIC MOLDING CORPORATION
96 MILL ST., WOONSOCKET, R.I. 02895 U.S.A. (401) 769—3800 TWX NO. 710—387—1350

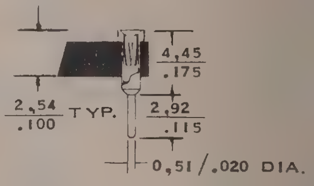
MOLDED PIN GRID ARRAY SOCKETS



LAMINATE MATERIAL (AS SHOWN ABOVE) IS ALSO AVAILABLE

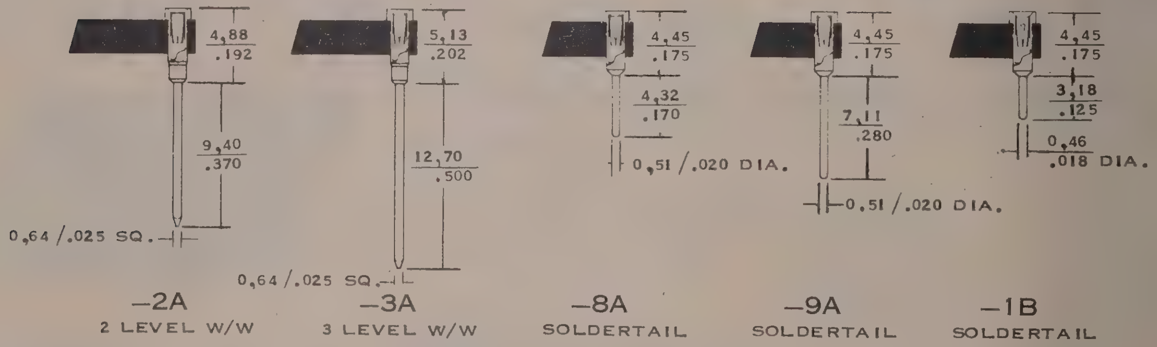

FUNNEL ENTRY FEATURE
VERY LOW INSERTION FOUR FINGERED CONTACT LESS THAN 3 OZ INSERTION
NO SOLDER WICKING CLOSED END TERMINAL WILL NOT ALLOW SOLDER TO FLOW OR WICK UP INTO CONTACT AREA
MACHINED TERMINAL

L.I.F. TERMINAL STYLE


4,45
.175
2,54
.100
TYP.
2,92
.115
0,51/.020 DIA.

—1A
SOLDERTAIL

OPTIONAL TERMINAL STYLES


4,88
.192
9,40
.370
0,64/.025 SQ.
—2A
2 LEVEL W/W
5,13
.202
12,70
.500
0,64/.025 SQ.
—3A
3 LEVEL W/W
4,45
.175
4,32
.170
0,51/.020 DIA.
—8A
SOLDERTAIL
4,45
.175
7,11
.280
0,51/.020 DIA.
—9A
SOLDERTAIL
4,45
.175
3,18
.125
0,46
.018 DIA.
—1B
SOLDERTAIL

HOW TO ORDER:

P18XXXX-XX-XXXX

- SERIES
- NUMBER OF PINS
- PIN & PATTERN CONFIGURATION (A, B OR C)
- TERMINAL STYLE
- PLATING CODE
- INSULATOR THICKNESS (A, B OR C)

EXAMPLE:

P18 064A—1A— 446 O

- P18 — GRID ARRAY
- 064 — 64 PINS
- A — PIN & PATTERN CONFIGURATION
- 1A — SOLDERTAIL
- 446 — GOLD/GOLD PLATING
- O — LAMINATE THICKNESS .062 STANDARD

INSULATOR THICKNESS:

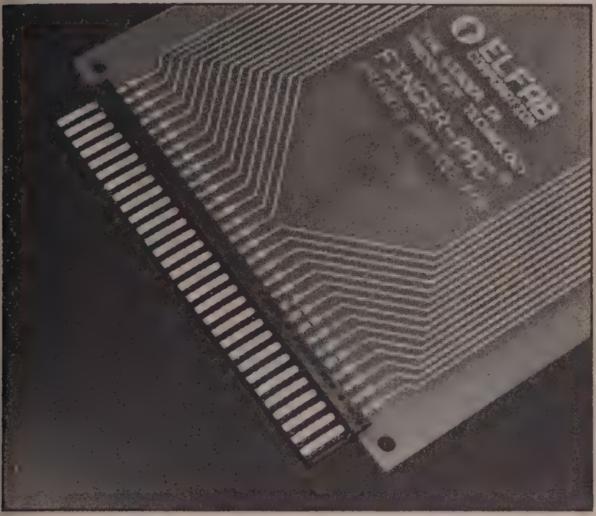
O—GLASS FILLED POLYESTER 94V-O
A—.062 (STANDARD)
B—.093 (OPTIONAL)
C—.125 (OPTIONAL)

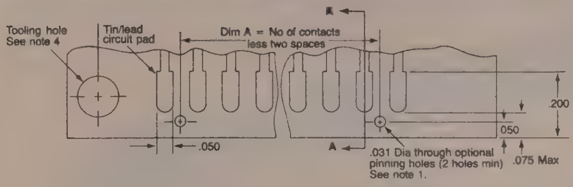
PLATING/MATERIALS

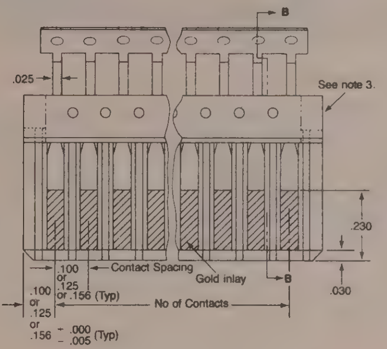
CODE	TERMINAL—BRASS PER QQ—B—626	CONTACT—BE CU PER QQ—C—533
—445	TIN PER MIL—T—10727	GOLD PER MIL—G—45204
—446	GOLD PER MIL—G—45204	GOLD PER MIL—G—45204

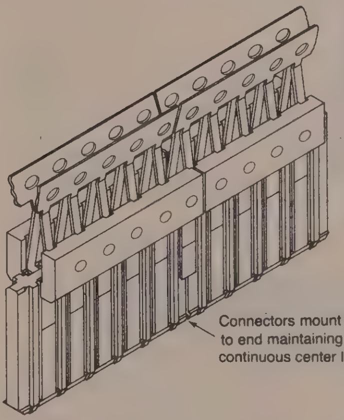
NOTE: TO ORDER LAMINATE MATERIAL, CHANGE P TO S AND O TO A, B, OR C FOR LAMINATE THICKNESS, EX, S 18064A-1A-446A

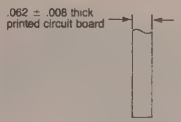
Finger-Pac™ surface mount connectors


ELFAB
FINGER-PAC

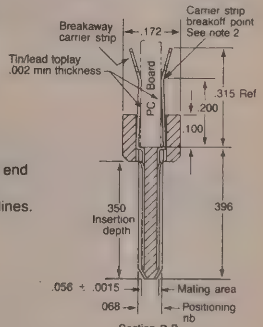

A
Tooling hole
See note 4
Tin/lead
circuit pad
Dim A = No of contacts
less two spaces
.200 Min
050
.050
A
.031 Dia through optional
pinning holes (2 holes min)
See note 1.
.075 Max


B
.025
See note 3.
.230
.100
or
.125
or .156 (Typ)
Contact Spacing
Gold inlay
B
.030
.100
or
.125
or
.156 + .000 − .005 (Typ)
No of Contacts


Connectors mount end
to end maintaining
continuous center lines.


.062 ± .008 thick
printed circuit board

Section A-A


Breakaway
carrier strip
.172
Carrier strip
breakoff point
See note 2
Tin/lead toplay
.002 min thickness
PC Board
.315 Ref
.200
.100
350
Insertion
depth
396
.056 ± .0015
Mating area
068
Positioning
rib

Section B-B

Elfab's bold new concept in card-edge fingers will open your eyes to a new world of production economy. This form, fit and function alternative to plated gold fingers gives solid, metal-to-metal, inlaid gold contact, with reduced insertion force and less gold wear — and significant savings on your PCB production line.

Finger-Pac eliminates gold plating on the PCB. Saves time, saves labor, saves gold. And *that saves money!*

- **Finger-Pac** saves gold. Inlaid wrought gold is only 30 μin thick — for the same durability as 50-μin plated gold.
- **Finger-Pac** affords true "step-and-repeat" processing of multiple boards on large sheets of laminate, without masking.
- **Finger-Pac** is easily repairable. Each individual finger may be replaced, if required, in minutes. In some situations it may even be used as a replacement repair for damaged plated-gold fingers.
- **Finger-Pac** saves wear on mating connectors. Uniform low insertion and withdrawal forces and smooth plastic leading edge help preserve gold surfaces.
- **Finger-Pac** mates with standard card-edge connectors designed for plated gold fingers, with no change in the system. Any PCB may be adapted to Finger-Pac with little or no alteration.
- **Finger-Pac** can save expensive scrapping of gold on defective cards, for it may be installed *after* they are tested.

Part Number

(Available in 0.100, 0.125 and 0.156 spacing)

FPA	0100	XX	069	CD396	CG2
Finger-Pac Assembly	No. of Contact Pairs 0.100, 69 max 0.125, 55 max 0.156, 44 max	Standard	Contact Spacing 0100 = 0.100 0125 = 0.125 0156 = 0.156	Length, card edge to tip	Card-Guide Notch 0 = none 1 = one end 2 = both ends

Specifications:

Insulator — Glass-filled Zytel nylon resin, UL rated 94VO.
Contact — Base material cupro-nickel alloy 725 80/95 KSI.
Plating — Gold inlay — 30 μin 18K gold/silver alloy over 50/150 μin nickel.

Notes:

1. Optional pinning holes accept press-fit strain-relief pins for applicable military applications.
2. Connectors supplied with carrier strip attached. Strip is notched for breakoff after connector soldering.
3. Optional relief required for mating with connectors using end-card guides.
4. One tooling hole is recommended which serves to locate the connector to PCB. For applications where a tooling hole cannot be provided, consult factory for alternative recommendations.

ELFAB interconnection innovators

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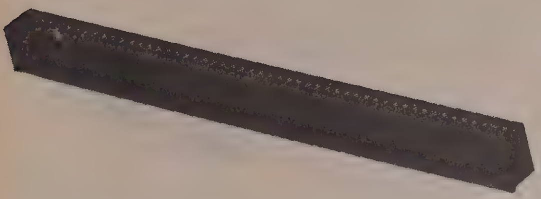
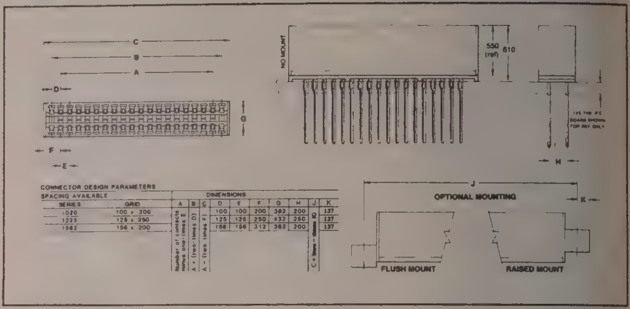
NEW INTERCONNECT SYSTEMS FROM ELFAB



Press-Pac™ card-edge connector

Press-Pac is designed to let you assemble your own backpanels with no special tooling required. Insert one or 100 Press-Pacs using a simple flat plate press. Our compliant-pin connector system is completely compatible and interchangeable with whatever connectors you're using now, regardless of size, spacing or configuration, from prototype through production. ELFAB offers both select-loading and select-plating of Press-Pac contacts, to even further reduce the overall connector cost. Additionally, Press-Pac contacts are individually replaceable in the field, using repair kits supplied by ELFAB.

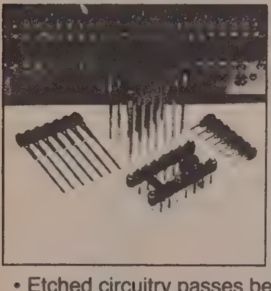

C
B
A
D
F
E
G
NO MOUNT
.550 (ref)
.610
H
J
K
OPTIONAL MOUNTING
FLUSH MOUNT
RAISED MOUNT

CONNECTOR DESIGN PARAMETERS

SPACING AVAILABLE		DIMENSIONS									
SERIES	GRID	A	B	C	D	E	F	G	H	J	K
1020	100 x 200	Number of contacts minus one-times E	A + (two-times D)	A + (two times F)	100	100	200	382	200	C + two-times [illegible]	137
1225	125 x 250				125	125	250	432	250		137
1562	156 x 200				156	156	312	382	200		137

Specifications

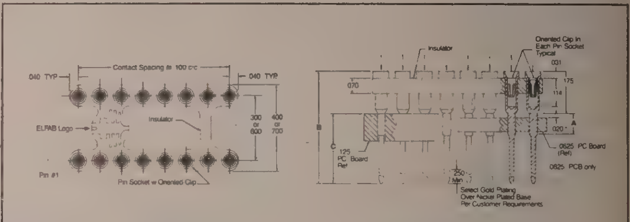
Insulator Housing: ZYTEL FR-50 nylon resins
Contacts: Phosphor-Bronze per QQ-B-750, Composition A, full hard plated with 50-150 μ inch nickel and gold flash with 30 μ inch gold in contact-engagement
Current Rating: 5 AMPS maximum
Contact Resistance: 6 milliohms @ 5 AMPS
Insertion Force: 8 oz. maximum per contact pair
Withdrawal Force: 1.0 oz. minimum per contact pair
Push-out Force: 8 lbs. minimum to remove contact from board
Insulator Retention: 1.0 lb. per contact pair
Normal Force: 3 oz. minimum per contact
Durability: 250 cycles minimum



Soc-Pac™ press-fit IC sockets

Soc-Pac SIP and DIP IC sockets permit significant increases in circuit density, improve ventilation of ICs, and allow reduction or elimination of external wiring. Plus lower contact resistance due to greater area contact.

- Etched circuitry passes between pins, eliminating one or more Wire-Wraps, reducing overall height of the board.
- Separate contacts, socket assemblies, and socket boards built to your specifications are available in solderable and press-fit configurations.
- Press-fit sockets and contacts available with up to three-wrap tails, for .062", .125" and .155" boards—including multilayer, Multi-Pac® and Pwr-Pac®.
- Oriented contact springs are beryllium-copper alloy 25, with 30 μin gold over nickel. Standard pin is nickel-plated overall, with optional selective-area platings of gold and tin available.


040 TYP
Contact Spacing ≅ 100 c/c
040 TYP
ELFAB Logo
Insulator
300 or 600
400 or 700
Pin #1
Pin Socket w Oriented Clip
Oriented Clip in Each Pin Socket Typical
.031
.175
.070
.114
A
B
C
.125 PC Board Ref
.020
.0625 PC Board (Ref)
.0625 PCB only
.250 Min
Select Gold Plating Over Nickel Plated Base Per Customer Requirements

Contact Tail Type	Interface Length: A	B	C
No wrap (0W)	075	345	170
No wrap (0W)	100	345	170
No wrap (0W)	.155	420	245
Two wrap (2W)	075	675	500
Two wrap (2W)	.100	675	500
Two wrap (2W)	155	738	563
Three wrap (3W)	075	815	640
Three wrap (3W)	100	815	640
Three wrap (3W)	155	878	703

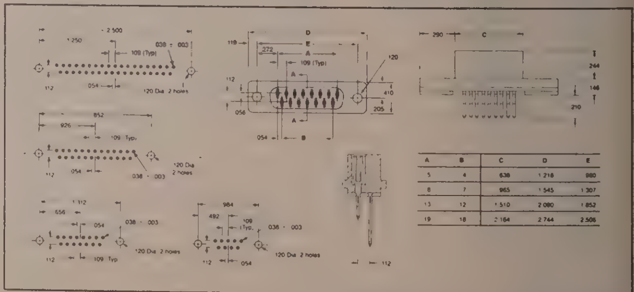
Specifications

Insulator body: Black, glass-filled polyester, UL94VO. 125°C operating temperature.
Contact: Half-hard brass with 50-150 μin nickel plate. Selective gold or tin plating
Contact spring: Beryllium-copper with 30 μin gold over nickel.
Electrical: Current rating 3 amperes. Contact resistance 10 mΩ maximum.

Press-Fit D-sub connectors

Now ELFAB offers all-plastic D-subminiature connectors—which are completely interchangeable with standard metal D-Subs—as a vital cost alternative to metal.

Our select-plating techniques, as well as our automated assembly procedures, make Elfab Plastic D-Subs—available in 9-, 15-, 25- and 37-pin configurations—your smartest cost decision.
(Also available with metal shells.)


2.500
1.250
.038 ± .003
.109 (Typ)
.112
.054
.120 Dia 2 holes
.852
.926
.984
.492
1.112
.656
D
E
A
B
C
.272
.118
.120
.410
.205
.056
.290
.244
.146
.210

A	B	C	D	E
5	4	638	1 218	980
8	7	965	1 545	1 307
13	12	1 510	2 090	1 852
19	18	2 164	2 744	2 506

Specifications

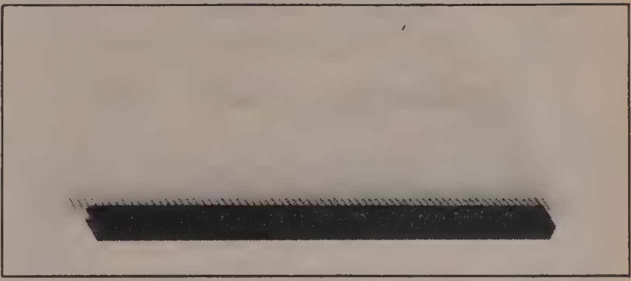
Insulator Housing: Celanex® thermoplastic polyester
Contacts: Phosphor-Bronze per QQ-B-750, Composition A, full hard plated with 50-150 μ inch nickel and gold flash with 30 μ inch gold in contact-engagement
Current Rating: 5 AMPS maximum
Contact Resistance: 6 milliohms @ 5 AMPS
Insertion Force: 12 oz. maximum per contact
Withdrawal Force: 4 oz. minimum per contact
Push-out Force: 8 lbs. minimum to remove contact from board
Normal Force: 15 oz. typical per contact
Durability: 250 cycles minimum

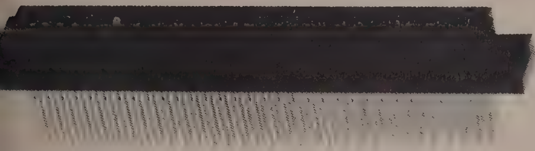
For detailed data sheets on these and other interconnect systems, contact ELFAB today!

NEW INTERCONNECT SYSTEMS FROM ELFAB

NEW! Box-Pac™ Surface Mount box connector

Now ELFAB brings you true surface mount interconnection with wo-row and four-row Box-Pac box connectors. Box-Pac reflow olders onto your PC boards without through-holes. Box-Pac is mounted co-planar to the board. Contact ELFAB for complete details regarding application, specifications and pricing.



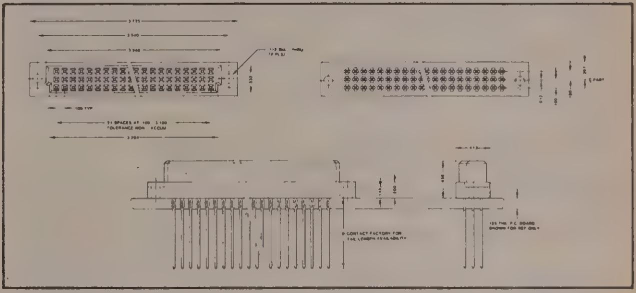


Press-Pac™ Standard Din (Female)

ELFAB's Press-Pac™ DIN connector is designed specifically for he customer needing a fast, cost-effective means of assembling ackpanels utilizing DIN connectors. It is completely compatible nd interchangeable with any DIN currently in use.

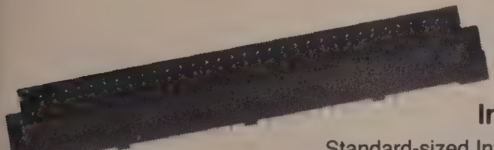
Press-Pac DIN can be inserted using a flat-plate press on the op of the connector housing in one simple motion, with no pecial tooling required. Thus, great numbers of Press-Pac DINs may be inserted into boards simultaneously, using larger-apacity presses.

Additionally, individual Press-Pac DIN contacts may be replaced n the field, utilizing repair kits available from ELFAB.



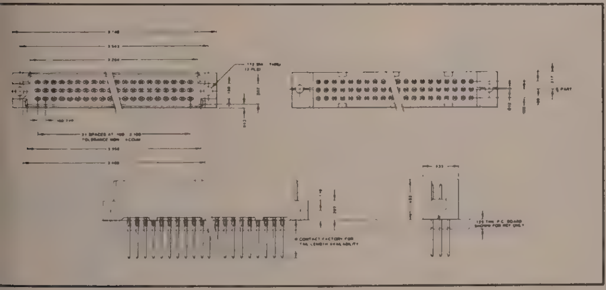
Specifications

Insulator Housing: Glass-filled ZYTEL FR-50 Nylon
Contacts: Phosphor-Bronze per QQ-B-750, Composition A, full hard plated with 50-150 μ inch nickel and gold flash with 30 μ inch gold in contact-engagement area.
Current Rating: 5 AMPS maximum
Contact Resistance: 6 milliohms maximum
Insertion Force: 2 oz. maximum
Withdrawal Force: 1 oz. minimum
Push-out Force: 8 lbs. minimum
Insulator Retention: .5 lb. per contact minimum
Normal Force: 3 oz. minimum
Durability: 500 cycles minimum



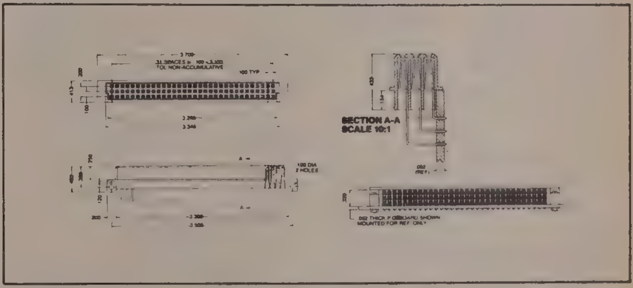
Inverse DIN System

Standard-sized Inverse DIN system offers ELFAB's press-fit compliant-pin male connector for backplace mounting, and right- angle female connector for reflow soldering to the daughter card. Contact ELFAB for detailed standard selective-plating options.



pecifications

nsulator Housing: Glass-filled elanex® thermoplastic polyester
ontacts: Phosphor-Bronze per QQ--750, Composition A, Full hard plated ith 50-150 μ inch nickel and gold flash ith 30 μ inch gold in contact-ngagement area.
Current Rating: 5 AMPS maximum
Contact Resistance: 6 milliohms maximum
Push-out Force: 8 lb. minimum
Insulator Retention: .5 lb. per contact minimum
Normal Force: 3 oz. minimum
Durability: 500 cycles minimum



Specifications

Insulator Housing: Glass-filled Celanex® thermoplastic polyester
Contacts: Phosphor-Bronze per QQ-B-750, Composition A, Full hard plated with 50-150 μ inch nickel and gold flash with 30 μ inch gold in contact-engagement area.
Current Rating: 5 AMPS maximum
Contact Resistance: 6 milliohms maximum
Insertion Force: 2 oz. maximum
Withdrawal Force: 1 oz. minimum
Push-out Force: N/A
Insulator Retention: 5 lb. per contact minimum
Normal Force: 3 oz. minimum
Durability: 500 cycles minimum

ELFAB interconnection innovators

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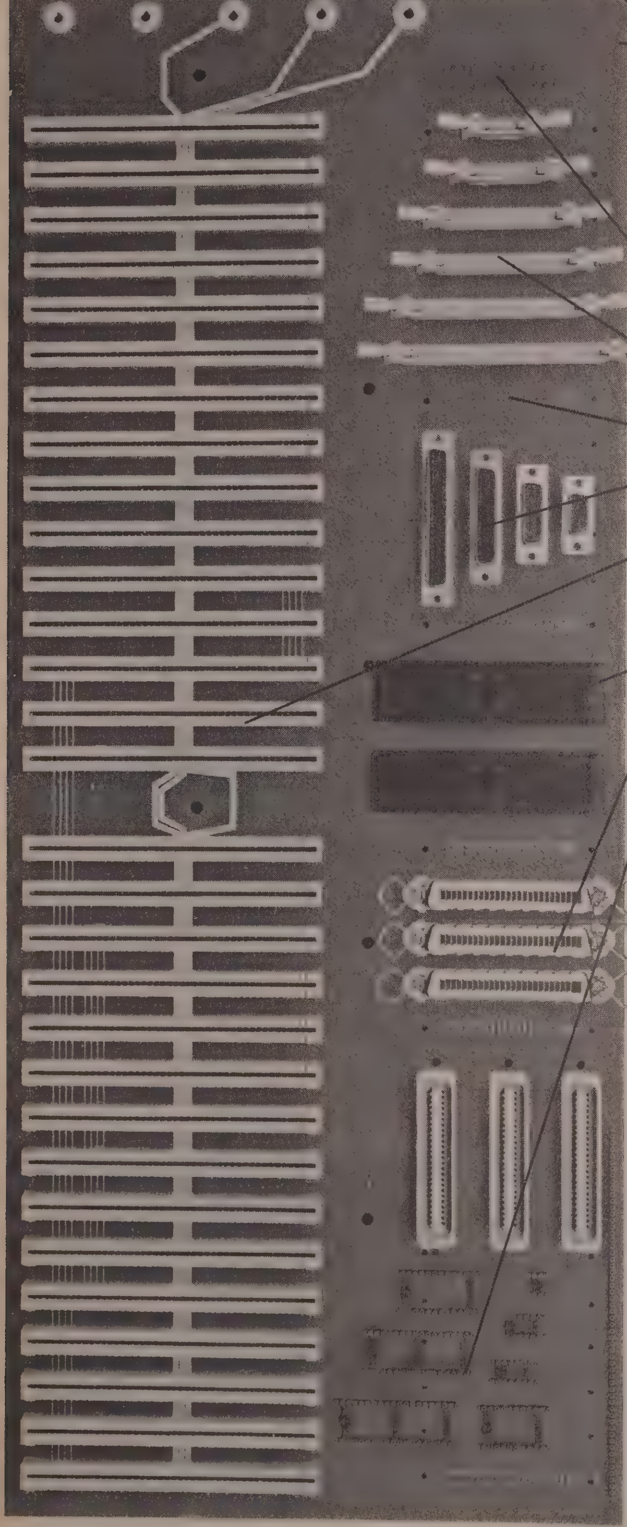
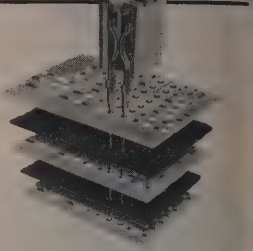
Press-fit, with a list of options.

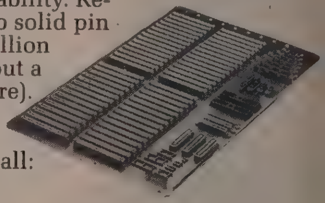
I/O's, I.C.'s, Edgecards, everything. Without solder.





- Your choice of single board, multi-board "sandwich" with up to 8 layers of circuitry or conventional multilayer systems. Hybrid systems (shown at right) can have copper sheets between any or all circuit layers for high current capacity. Systems that combine etched circuits with wire wrap take full advantage of the economies of press-fit.
- .031" x .062" I/O pins mate with many industry standard connectors.
- Ribbon cable headers in 10 to 60 pin counts. Latch-lock style shown.
- .025" straight posts for feed-thru I/O applications.
- Popular metal shell or plastic D subminiatures from 9 to 37 pin count.
- Modular edge card housings are cut from strips to match desired pin counts. Available in several different card guide styles with seven grid spacings to handle virtually any system.
- Housings mateable with the Cannon DL Series ZIF connector.
- 25 pair telephone and telecommunications I/O's. Male or female receptables.
- DIP and SIP sockets in popular pin counts that feature oriented contact clips with four points of I.C. contact and oriented tails that will accept mating connectors. Two and three wrap tails with exclusive contact select plating for greater cost savings.

Only Elfab offers all this without solder. Backpanel systems can now do more and cost less thanks to the inherent economy of press-fit. Of course the greatest economy of all is reliability. Reliability you get with the Elfab solid pin gas tight interface (nearly 3 billion contacts are now in use without a single reported interface failure).



For more information contact your Elfab Representative or call:

ELFAB interconnection innovators

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FISCHER AMERICA, INC.

Precision, Swiss Made, Circular Connectors

Why Fischer?
Design, reliability and consistent quality make Fischer superior to similar type connectors.

These precision connectors are in use by Tektronix, Hewlett Packard, Texas Instruments, Phillips, Bosch and many more quality conscious companies around the world.

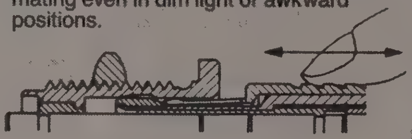
Prices are extremely competitive with manufacturers of similar types of connectors.

Delivery times are outstanding. Scheduled delivery on production orders can be arranged.

Applications
Audio, Video, Medical, R.F., Military, Aerospace, Industrial, Broadcast and Scientific.

Types
50 & 75 ohm coax, triax, waterproof, gas tight, vacuum, high radiation, thermocouple, P.C. mount, low resistance, light weight plastic, compound connectors, high temperature, high voltage, and hermetically sealed.

Automatic Locking
Superior locking/unlocking arrangement with metal half shells means easy mating even in dim light or awkward positions.



Materials
Brass, stainless steel, plastics, etc.

Insulation
PTFE (Teflon ©Dupont), ceramic, PBTP, High temperature plastics, etc.

Contacts
Machined, not stamped. Brass per QQ-B-626 or QQ-B-750 or Beryllium Bronze.

Plating
1 micron gold to MIL-G-45204C, type II over 5 microns nickel to QQ-N-290, class II.

Finish
Extremely rugged yet attractive connectors available with bright gold, satin or polished chrome finish. Other finishes may be specified. Protective rubber boots and plugs are also available.

Contact resistance
Less than 3 milliohms.

Radiation resistance
To 10^8 Rads, higher with ceramic insulators.

High temperatures
To 400°C with ceramic insulators.

Compatibility
Certain series intermate with Lemo and Kings connectors.

Other features
Space-saving design for dense panels. Simple one piece cable collet clamp for unshielded cables. Easily assembled 2 piece collet for shielded cable.

Custom & specials
When quantities warrant, connectors can be made to customer specifications. Often, existing parts can be modified at low cost for special applications.

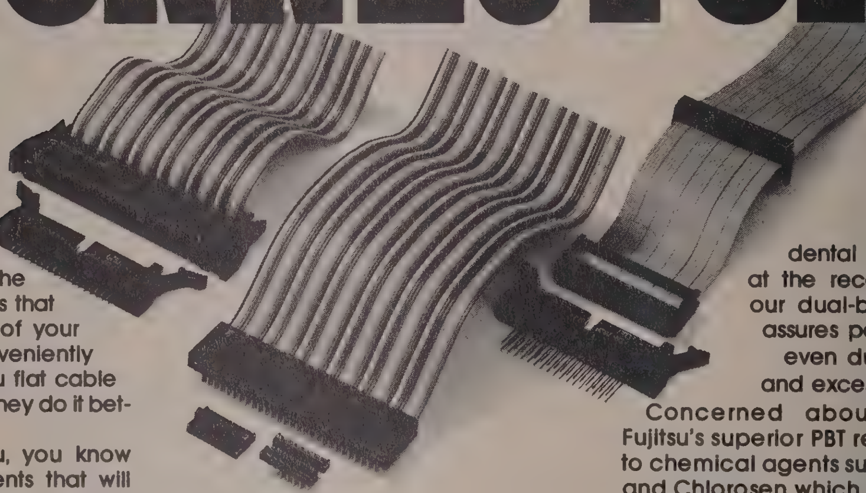
Delivery
Small quantities are usually in factory stock. Production quantities: 4-8 weeks on standard items.

Other products
Delay lines from 0.5 nS to 64 nS.

FISCHER AMERICA, INC.

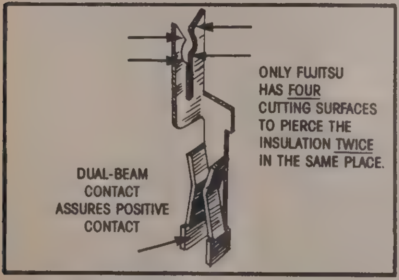
13756 GLENOAKS BOULEVARD SYLMAR, CALIFORNIA 91342 (818)362-9396 TLX: 4994182 COCOM

FUJITSU: FLAT CABLE CONNECTORS

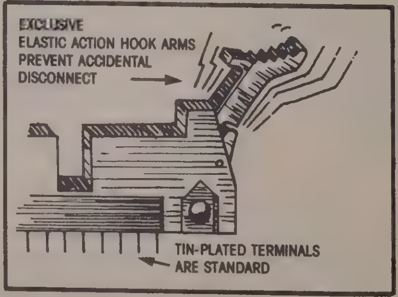


Flat cable connectors are easy enough to find. The trick is finding connectors that can handle every one of your needs consistently, conveniently and economically. Fujitsu flat cable connectors do it all. And they do it better than most.

When you buy Fujitsu, you know you're getting components that will always fit your usage because our connectors are compatible with 3M and other major brands. You won't be getting hit-or-miss construction, either. Thanks to Fujitsu's standardized automated manufacturing. Each piece must meet our rigid quality control standards before it is shipped.


ONLY FUJITSU HAS FOUR CUTTING SURFACES TO PIERCE THE INSULATION TWICE IN THE SAME PLACE.
DUAL-BEAM CONTACT ASSURES POSITIVE CONTACT

Assembling Fujitsu connectors is a snap, too, because of their simplified design. Like u-contacts that pierce the insulation twice at the same place to provide a gas-tight metal surface that is electrically reliable. And can withstand excessive pulling forces. And when you order Fujitsu flat cable connectors, you know you will always get tin-plated terminals that improve solderability and prevent gold contamination of the solder bath. Can your source say that?


EXCLUSIVE
ELASTIC ACTION HOOK ARMS PREVENT ACCIDENTAL DISCONNECT
TIN-PLATED TERMINALS ARE STANDARD

A Fujitsu exclusive is the ingenious elastic hook arm that prevents accidental disconnection at the receptacle. And our dual-beam contact assures positive contact even during vibration and excessive handling.

Concerned about cleaning? Fujitsu's superior PBT resin stands up to chemical agents such as Trickren and Chlorosen which can't be used on cheaper, conventional thermoplastics.

Fujitsu considers it a point of pride, as well as good business, to cater to your company's needs before, during and after the sale is made. Our warehouse is stocked to supply your company with samples of our fine products. And Fujitsu can match *any* source's lead time for processing and shipping ... at a competitive price.

The FCN-700 series offers vertical, right angle and wire wrap plugs *and* open or closed covers for both end-cable and through-cable applications.

Considering all these points, you'd be smart to come to the source with the best connections. Where quality, reliability and service are part of our product. Fujitsu.

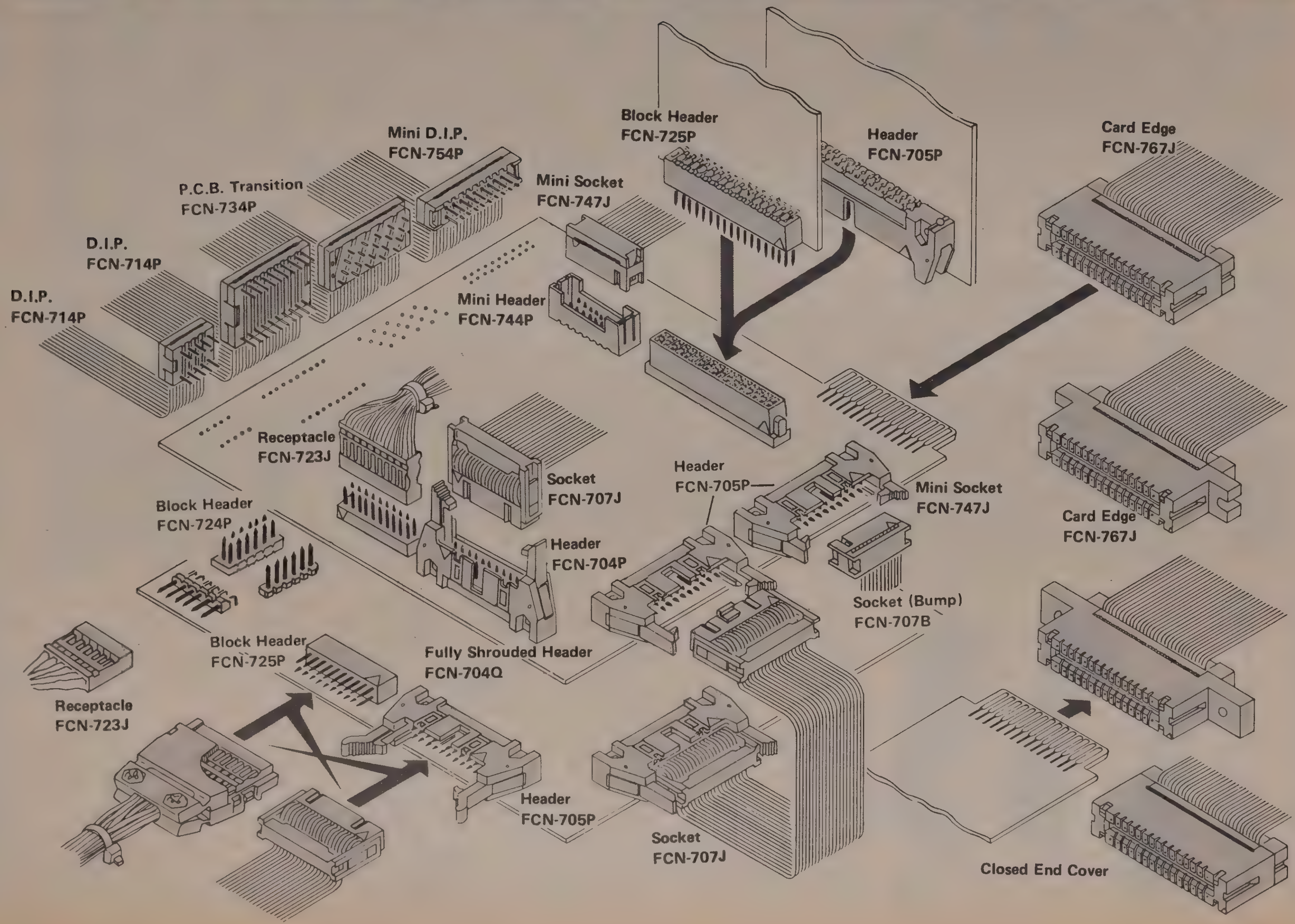
For more information on our superior components, call or write us today.

FUJITSU

Fujitsu America Inc. Component Sales Division
918 Sherwood Drive, Lake Bluff, IL 60044 / (312) 295-2610, Telex: 206196, TWX 910-651-2259

Fujitsu FCN-700 Series Flat-Cable Connectors

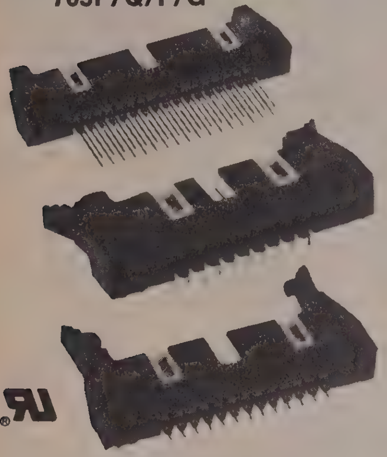
FUJITSU


Mini D.I.P.
FCN-754P
Block Header
FCN-725P
Header
FCN-705P
Card Edge
FCN-767J
P.C.B. Transition
FCN-734P
Mini Socket
FCN-747J
D.I.P.
FCN-714P
D.I.P.
FCN-714P
Mini Header
FCN-744P
Receptacle
FCN-723J
Socket
FCN-707J
Header
FCN-705P
Mini Socket
FCN-747J
Card Edge
FCN-767J
Block Header
FCN-724P
Header
FCN-704P
Socket (Bump)
FCN-707B
Block Header
FCN-725P
Fully Shrouded Header
FCN-704Q
Receptacle
FCN-723J
Header
FCN-705P
Socket
FCN-707J
Closed End Cover

FUJITSU

HEADERS

FCN-702P/Q/F/G, 704P/Q/F/G, 705P/Q/F/G



- 2.54mm grid contact/terminal spacing
- ☐ 0.64mm contact and ☐ 0.5mm terminal
- Selective plating (gold-plated contact and solder-plated terminal)
- Elastic lock/eject hook
- Many variations (partially shrouded headers/fully shrouded headers, 10 to 60 pins, long terminal/standard terminal, wire-wrap/straight/right-angle)
- UL recognized (E-71597)
- Solvent-resistant resin (PBT)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 3A DC

Contact Resistance (when mated with SOCKET): 20mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

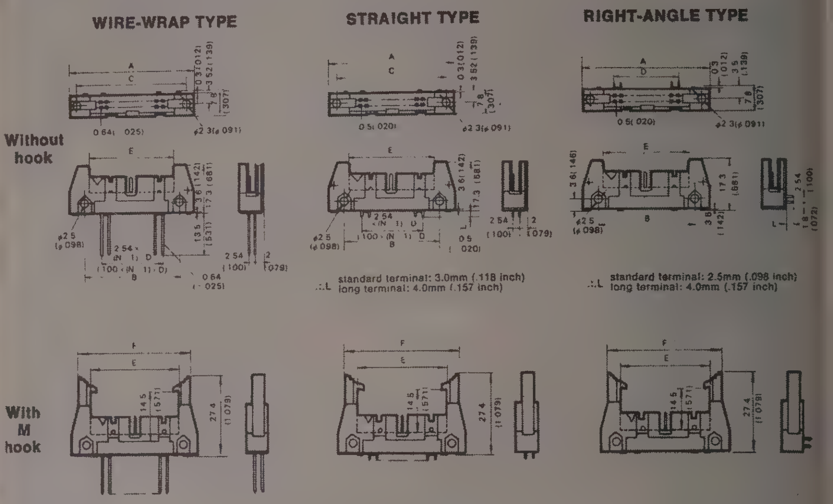
Dielectric Withstanding Voltage: 500V AC for 1 minute

Wire Size — Discrete Wire For Wire-Wrap: AWG #26 (ϕ0.41mm) to #30 (ϕ0.26mm)

Thickness of PC Board (Standard): 1.6mm (1/16 inch)

Materials — Contacts: Phosphor-bronze
Pagos plating (gold over palladium over nickel)
Insulators: PBT (UL 94V-0)

DIMENSIONS Unit: mm (inch)
(Partially Shrouded Headers)

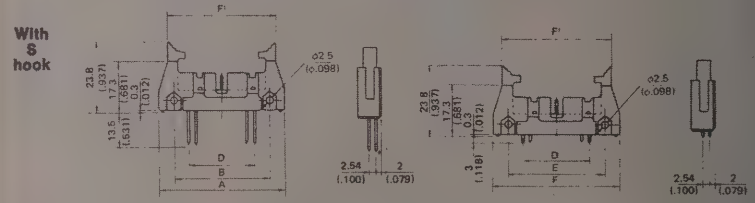

WIRE-WRAP TYPE
STRAIGHT TYPE
RIGHT-ANGLE TYPE
Without hook
With M hook
A
C
D
E
F
B
0.3(.012)
3.52(.139)
3.5(.139)
7.8(.307)
0.64(.025)
0.5(.020)
ϕ2.3(ϕ.091)
3.6(.142)
3.6(.146)
17.3(.681)
13.5(.531)
ϕ2.5(ϕ.098)
2.54×(N−1)=D
(.100×(N−1)=D)
2.54(.100)
2(.079)
1.8(.072)
3.6(.142)
L
14.5(.571)
27.4(1.079)

∴L standard terminal: 3.0mm (.118 inch)
long terminal: 4.0mm (.157 inch)

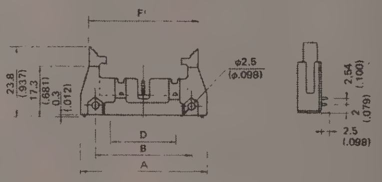
∴L standard terminal: 2.5mm (.098 inch)
long terminal: 4.0mm (.157 inch)

WIRE-WRAP TYPE

STRAIGHT TYPE

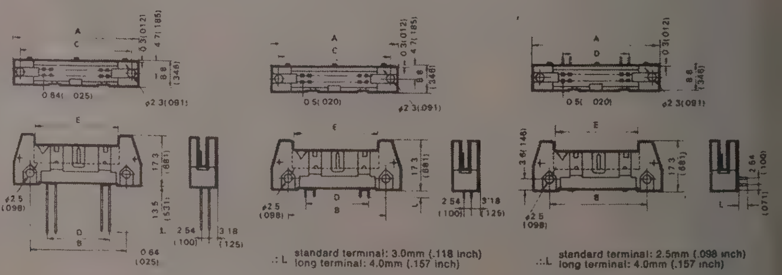

With S hook
F'
ϕ2.5
(ϕ.098)
23.8
(.937)
17.3
(.681)
0.3
(.012)
13.5
(.531)
3
(.118)
D
B
A
E
F
2.54
(.100)
2
(.079)

RIGHT-ANGLE TYPE


F'
ϕ2.5
(ϕ.098)
23.8
(.937)
17.3
(.681)
0.3
(.012)
2.54
(.100)
2
(.079)
2.5
(.098)
D
B
A

DIMENSIONS Unit: mm (inch)
(Fully Shrouded Headers)

Without hook


A
C
D
E
B
0.3(.012)
4.7(.185)
8.8(.346)
0.64(.025)
0.5(.020)
ϕ2.3(.091)
17.3(.681)
13.5(.531)
3.6(.146)
ϕ2.5(.098)
2.54(.100)
3.18(.125)
1.8(.071)
L

∴L standard terminal: 3.0mm (.118 inch)
long terminal: 4.0mm (.157 inch)

∴L standard terminal: 2.5mm (.098 inch)
long terminal: 4.0mm (.157 inch)

Top view of fully shrouded M and S hook types are same as partially shrouded headers.

FUJITSU

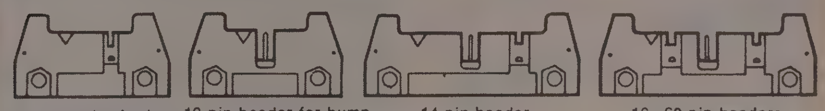
HEADERS

FCN-702P/Q/F/G, 704P/Q/F/G, 705P/Q/F/G

No. of Contacts	Hook	Standard Terminal — Straight: 3.0mm/Right-angle: 2.5mm			Long Terminal — 4mm	
		Wire-wrap type	Straight type	Right-angle type	Straight type	Right-angle type (P type only)
10~60	Without	FCN-702☐XXX-AU/O	FCN-704☐XXX-AU/O	FCN-705☐XXX-AU/O	FCN-704☐XXX-AU/A	FCN-705PXXX-AU/A
	M hook	FCN-702☐XXX-AU/M	FCN-704☐XXX-AU/M	FCN-705☐XXX-AU/M	FCN-704☐XXX-AU/C	FCN-705PXXX-AU/C
	S hook	FCN-702☐XXX-AU/S	FCN-704☐XXX-AU/S	FCN-705☐XXX-AU/S	Not Available	Not Available

Notes: 1. Blank ☐ indicates P (Partially shrouded headers) or Q (Fully shrouded headers). For 10 pin header for bump polarized socket, blank ☐ indicates F in place of P or G in place of Q.
2. XXX indicates number of pins (010, 014, 016, 020, 026, 030, 034, 040, 050, 060).

MAIN BODY CONFIGURATION



10 pin header for key polarized socket (P and Q)

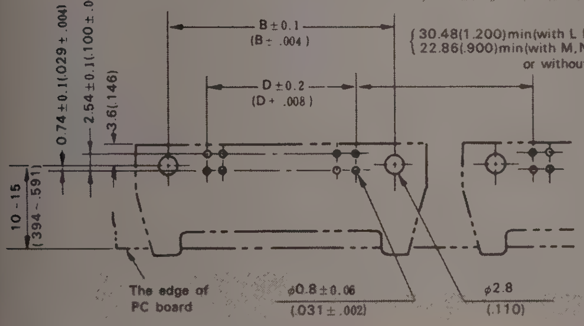
10 pin header for bump polarized socket (F and G)

14 pin header (One key slot)

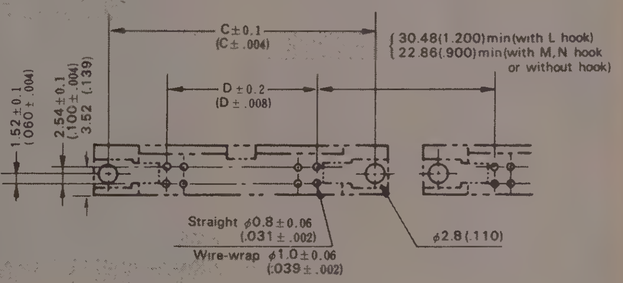
16~60 pin headers (Two key slots)

MOUNTING HOLE LAYOUT

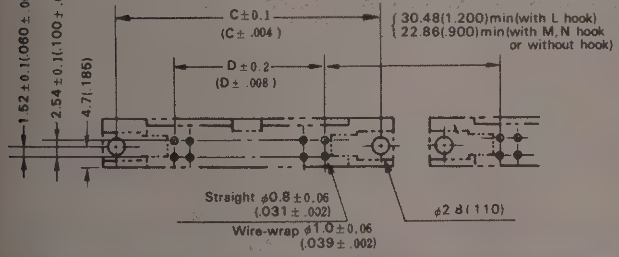
RIGHT-ANGLE TYPE


B±0.1
(B± .004)
30.48(1.200)min(with L hook)
22.86(.900)min(with M,N hook or without hook)
D±0.2
(D± .008)
0.74±0.1(.029±.004)
2.54±0.1(.100±.004)
3.6(.146)
10~15
(.394~.591)
The edge of PC board
ϕ0.8±0.06
(.031±.002)
ϕ2.8
(.110)

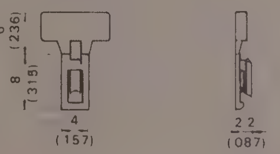
STRAIGHT (PARTIALLY SHROUDED HEADERS):


C±0.1
(C± .004)
30.48(1.200)min(with L hook)
22.86(.900)min(with M,N hook or without hook)
D±0.2
(D± .008)
1.52±0.1
(.060±.004)
2.54±0.1
(.100±.004)
3.52 (.139)
Straight ϕ0.8±0.06
(.031±.002)
Wire-wrap ϕ1.0±0.06
(.039±.002)
ϕ2.8(.110)

STRAIGHT (Q), WIRE-WRAP (Q) TYPE


C±0.1
(C± .004)
30.48(1.200)min(with L hook)
22.86(.900)min(with M,N hook or without hook)
D±0.2
(D± .008)
1.52±0.1(.060±.004)
2.54±0.1(.100±.004)
4.7(.185)
Straight ϕ0.8±0.06
(.031±.002)
Wire-wrap ϕ1.0±0.06
(.039±.002)
ϕ2.8(110)

POLARIZING KEY
FCN-700A2


6
(.236)
8
(.315)
4
(.157)
2.2
(.087)

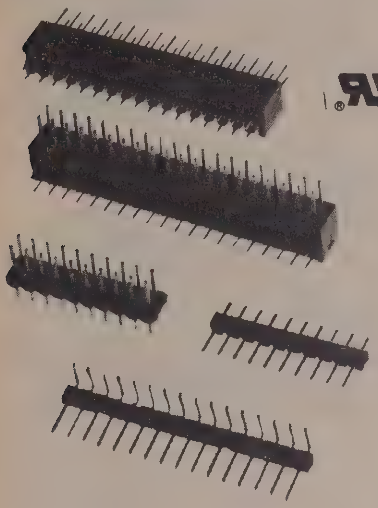
Unit: mm (inch)

	A	B	C	D	E	F	F'	G	H
10	32.0 (1.260)	21.8 (.858)	27.9 (1.098)	10.16 (.400)	18.3 (.720)	32.2 (1.272)	26.3 (1.035)	17.3 (.691)	11.43 (.450)
14	37.1 (1.461)	26.9 (1.059)	33.0 (1.299)	15.24 (.600)	23.4 (.921)	37.4 (1.472)	31.4 (1.236)	22.4 (.882)	16.51 (.650)
16	39.6 (1.559)	29.4 (1.157)	35.5 (1.398)	17.78 (.700)	25.9 (1.020)	39.9 (1.571)	33.9 (1.335)	24.9 (.981)	19.05 (.750)
20	44.7 (1.760)	34.5 (1.358)	40.6 (1.598)	22.86 (.900)	31.0 (1.220)	45.0 (1.772)	39.0 (1.535)	30.0 (1.181)	24.13 (.950)
26	52.3 (2.059)	42.2 (1.661)	48.3 (1.902)	30.48 (1.200)	38.6 (1.520)	52.6 (2.071)	46.6 (1.835)	37.6 (1.480)	31.75 (1.250)
30	57.4 (2.260)	47.2 (1.858)	53.3 (2.098)	35.56 (1.400)	43.7 (1.720)	57.7 (2.272)	51.7 (2.035)	42.7 (1.681)	36.83 (1.450)
34	62.5 (2.461)	52.3 (2.059)	58.4 (2.299)	40.64 (1.600)	48.8 (1.921)	62.8 (2.472)	56.8 (2.236)	47.8 (1.882)	41.91 (1.650)
40	70.1 (2.760)	59.9 (2.358)	66.0 (2.598)	48.26 (1.900)	56.4 (2.220)	70.4 (2.772)	64.4 (2.535)	55.4 (2 181)	49.53 (1.950)
50	82.8 (3.260)	72.6 (2.858)	78.7 (3.098)	60.96 (2.400)	69.0 (2.716)	83.0 (3.268)	77 0 (3.031)	68.1 (2.681)	62.23 (2.450)
60	95.5 (3.760)	85.3 (3.358)	91.4 (3.598)	73.66 (2.900)	81.8 (3.220)	95.8 (3 772)	89.8 (3.535)	80.8 (3.181)	74.93 (2.950)

FUJITSU

BLOCK HEADERS

FCN-722P, 724P, 725P



- High-density installation on PC board
- 2.54mm grid contact/terminal spacing
- ☐ 0.64mm contact
- Selective plating (gold-plated contact and solder-plated terminal)
- Many variations (10 to 60 pins, O/L/S/W type wire-wrap/straight/right-angle)
- UL recognized (E71597)
- Solvent-resistant resin (PBT)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 3A DC

Contact Resistance (when mated with RECEPTACLE): 20mΩ max. at 6V DC, 0.3A

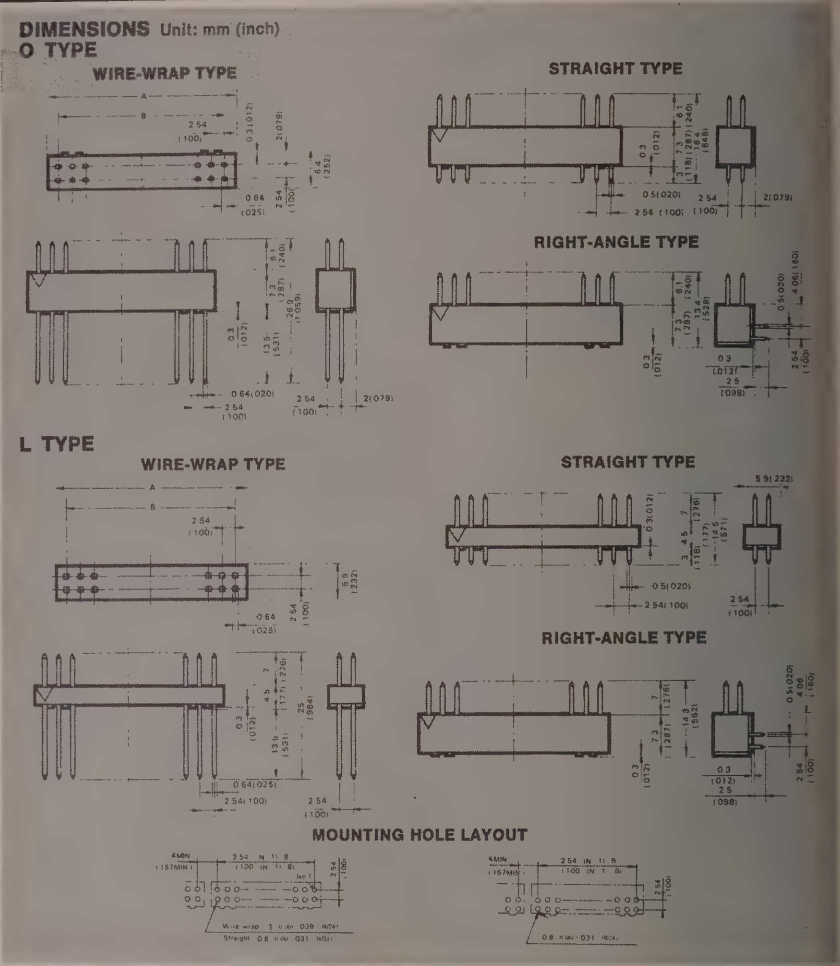
Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

Wire Size — Discrete Wire For Wire-Wrap: AWG #26 (φ0.41mm) to #30 (φ0.26mm)

Thickness of PC Board (Standard): 1.6mm (1/16 inch)

Materials — Contacts: Phosphor-bronze
Pagos plating (gold over palladium over nickel)
Insulators: PBT (UL 94V-0)



O, L TYPE

No. of Contacts	Wire-Wrap Type	Straight Type	Right-Angle Type	Dimensions Table		
				A	B	C
8	FCN-722P008-AU/☐	FCN-724P008-AU/☐	FCN-725P008-AU/☐	11.16 (.439)	7.62 (.300)	10.16 (.400)
10*	FCN-722P010-AU/☐	FCN-724P010-AU/☐	FCN-725P010-AU/☐	13.70 (.539)	10.16 (.400)	12.70 (.500)
12	FCN-722P012-AU/☐	FCN-724P012-AU/☐	FCN-725P012-AU/☐	16.24 (.639)	12.70 (.500)	15.24 (.600)
14*	FCN-722P014-AU/☐	FCN-724P014-AU/☐	FCN-725P014-AU/☐	18.78 (.739)	15.24 (.600)	17.78 (.700)
16*	FCN-722P016-AU/☐	FCN-724P016-AU/☐	FCN-725P016-AU/☐	21.32 (.839)	17.78 (.700)	20.32 (.800)
18	FCN-722P018-AU/☐	FCN-724P018-AU/☐	FCN-725P018-AU/☐	23.86 (.939)	20.32 (.800)	22.86 (.900)
20*	FCN-722P020-AU/☐	FCN-724P020-AU/☐	FCN-725P020-AU/☐	26.40 (1.039)	22.86 (.900)	25.40 (1.000)
22	FCN-722P022-AU/☐	FCN-724P022-AU/☐	FCN-725P022-AU/☐	28.94 (1.139)	25.40 (1.000)	27.94 (1.100)
24	FCN-722P024-AU/☐	FCN-724P024-AU/☐	FCN-725P024-AU/☐	31.48 (1.239)	27.94 (1.100)	30.48 (1.200)
26*	FCN-722P026-AU/☐	FCN-724P026-AU/☐	FCN-725P026-AU/☐	34.02 (1.339)	30.48 (1.200)	33.02 (1.300)
28	FCN-722P028-AU/☐	FCN-724P028-AU/☐	FCN-725P028-AU/☐	36.56 (1.439)	33.02 (1.300)	35.56 (1.400)
30*	FCN-722P030-AU/☐	FCN-724P030-AU/☐	FCN-725P030-AU/☐	39.10 (1.539)	35.56 (1.400)	38.10 (1.500)
32	FCN-722P032-AU/☐	FCN-724P032-AU/☐	FCN-725P032-AU/☐	41.64 (1.639)	38.10 (1.500)	40.64 (1.600)
34*	FCN-722P034-AU/☐	FCN-724P034-AU/☐	FCN-725P034-AU/☐	44.18 (1.739)	40.64 (1.600)	43.18 (1.700)
36	FCN-722P036-AU/☐	FCN-724P036-AU/☐	FCN-725P036-AU/☐	46.72 (1.839)	43.18 (1.700)	45.72 (1.800)
38	FCN-722P038-AU/☐	FCN-724P038-AU/☐	FCN-725P038-AU/☐	49.26 (1.939)	45.72 (1.800)	48.26 (1.900)
40*	FCN-722P040-AU/☐	FCN-724P040-AU/☐	FCN-725P040-AU/☐	51.80 (2.039)	48.26 (1.900)	50.80 (2.000)
42	FCN-722P042-AU/☐	FCN-724P042-AU/☐	FCN-725P042-AU/☐	54.34 (2.139)	50.80 (2.000)	53.34 (2.100)
44	FCN-722P044-AU/☐	FCN-724P044-AU/☐	FCN-725P044-AU/☐	56.88 (2.239)	53.34 (2.100)	55.88 (2.200)
46	FCN-722P046-AU/☐	FCN-724P046-AU/☐	FCN-725P046-AU/☐	59.42 (2.339)	55.88 (2.200)	58.42 (2.300)
48	FCN-722P048-AU/☐	FCN-724P048-AU/☐	FCN-725P048-AU/☐	61.96 (2.439)	58.42 (2.300)	60.96 (2.400)
50*	FCN-722P050-AU/☐	FCN-724P050-AU/☐	FCN-725P050-AU/☐	64.50 (2.539)	60.96 (2.400)	63.50 (2.500)
52	FCN-722P052-AU/☐	FCN-724P052-AU/☐	FCN-725P052-AU/☐	67.04 (2.639)	63.50 (2.500)	66.04 (2.600)
54	FCN-722P054-AU/☐	FCN-724P054-AU/☐	FCN-725P054-AU/☐	69.58 (2.739)	66.04 (2.600)	68.58 (2.700)
56	FCN-722P056-AU/☐	FCN-724P056-AU/☐	FCN-725P056-AU/☐	72.12 (2.839)	68.58 (2.700)	71.12 (2.800)
58	FCN-722P058-AU/☐	FCN-724P058-AU/☐	FCN-725P058-AU/☐	74.66 (2.939)	71.12 (2.800)	73.66 (2.900)
60*	FCN-722P060-AU/☐	FCN-724P060-AU/☐	FCN-725P060-AU/☐	77.20 (3.039)	73.66 (2.900)	76.20 (3.000)

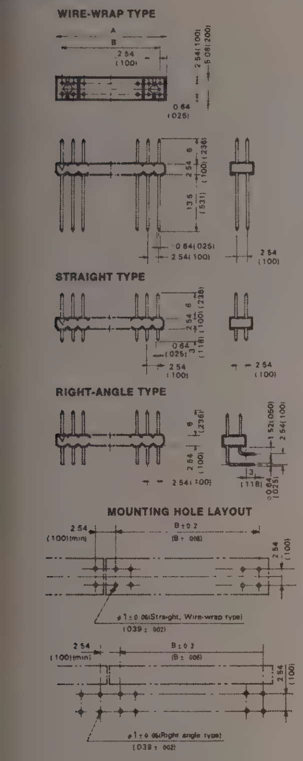
* Standard
Blank ☐ indicates O (O type) or L (L type)

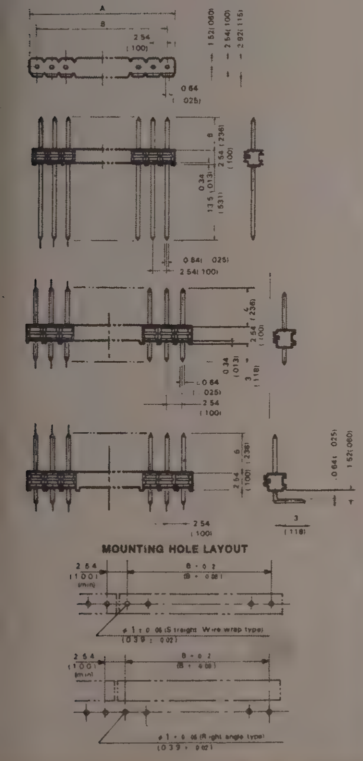
FUJITSU AMERICA, INC. / COMPONENT DIV. / 918 Sherwood Drive, Lake Bluff, IL 60044 / (312) 295-2610, Telex: 206196, TWX 910-651-2259

FUJITSU

BLOCK HEADERS

DIMENSIONS
W TYPE




MOUNTING HOLE LAYOUT
A
B
2.54 (.100)
0.64 (.025)
φ1±0.05 (Straight, Wire-wrap type) (.039±.002)
φ1±0.05 (Right angle type) (.039±.002)

FCN-722P, 724P, 725P

W TYPE

No. of Contacts	Wire-Wrap Type	Straight Type	Right-Angle Type	Dimensions Table A	Dimensions Table B
6	FCN-722P006-AU/W	FCN-724P006-AU/W	FCN-725P006-AU/W	7.62 (.300)	5.08 (.200)
8	FCN-722P008-AU/W	FCN-724P008-AU/W	FCN-725P008-AU/W	10.16 (.400)	7.62 (.300)
10*	FCN-722P010-AU/W	FCN-724P010-AU/W	FCN-725P010-AU/W	12.70 (.500)	10.16 (.400)
12	FCN-722P012-AU/W	FCN-724P012-AU/W	FCN-725P012-AU/W	15.24 (.600)	12.70 (.500)
14*	FCN-722P014-AU/W	FCN-724P014-AU/W	FCN-725P014-AU/W	17.78 (.700)	15.24 (.600)
16*	FCN-722P016-AU/W	FCN-724P016-AU/W	FCN-725P016-AU/W	20.32 (.800)	17.78 (.700)
18	FCN-722P018-AU/W	FCN-724P018-AU/W	FCN-725P018-AU/W	22.86 (.900)	20.32 (.800)
20*	FCN-722P020-AU/W	FCN-724P020-AU/W	FCN-725P020-AU/W	25.40 (1.000)	22.86 (.900)
22	FCN-722P022-AU/W	FCN-724P022-AU/W	FCN-725P022-AU/W	27.94 (1.100)	25.40 (1.000)
24	FCN-722P024-AU/W	FCN-724P024-AU/W	FCN-725P024-AU/W	30.48 (1.200)	27.94 (1.100)
26*	FCN-722P026-AU/W	FCN-724P026-AU/W	FCN-725P026-AU/W	33.02 (1.300)	30.48 (1.200)
28	FCN-722P028-AU/W	FCN-724P028-AU/W	FCN-725P028-AU/W	35.56 (1.400)	33.02 (1.300)
30*	FCN-722P030-AU/W	FCN-724P030-AU/W	FCN-725P030-AU/W	38.10 (1.500)	35.56 (1.400)
32	FCN-722P032-AU/W	FCN-724P032-AU/W	FCN-725P032-AU/W	40.64 (1.600)	38.10 (1.500)
34*	FCN-722P034-AU/W	FCN-724P034-AU/W	FCN-725P034-AU/W	43.18 (1.700)	40.64 (1.600)
36	FCN-722P036-AU/W	FCN-724P036-AU/W	FCN-725P036-AU/W	45.72 (1.800)	43.18 (1.700)
38	FCN-722P038-AU/W	FCN-724P038-AU/W	FCN-725P038-AU/W	48.26 (1.900)	45.72 (1.800)
40*	FCN-722P040-AU/W	FCN-724P040-AU/W	FCN-725P040-AU/W	50.80 (2.000)	48.26 (1.900)
42	FCN-722P042-AU/W	FCN-724P042-AU/W	FCN-725P042-AU/W	53.34 (2.100)	50.80 (2.000)
44	FCN-722P044-AU/W	FCN-724P044-AU/W	FCN-725P044-AU/W	55.88 (2.200)	53.34 (2.100)
46	FCN-722P046-AU/W	FCN-724P046-AU/W	FCN-725P046-AU/W	58.42 (2.300)	55.88 (2.200)
48	FCN-722P048-AU/W	FCN-724P048-AU/W	FCN-725P048-AU/W	60.96 (2.400)	58.42 (2.300)
50*	FCN-722P050-AU/W	FCN-724P050-AU/W	FCN-725P050-AU/W	63.50 (2.500)	60.96 (2.400)
52	FCN-722P052-AU/W	FCN-724P052-AU/W	FCN-725P052-AU/W	66.04 (2.600)	63.50 (2.500)
54	FCN-722P054-AU/W	FCN-724P054-AU/W	FCN-725P054-AU/W	68.58 (2.700)	66.04 (2.600)
56	FCN-722P056-AU/W	FCN-724P056-AU/W	FCN-725P056-AU/W	71.12 (2.800)	68.58 (2.700)
58	FCN-722P058-AU/W	FCN-724P058-AU/W	FCN-725P058-AU/W	73.66 (2.900)	71.12 (2.800)
60*	FCN-722P060-AU/W	FCN-724P060-AU/W	FCN-725P060-AU/W	76.20 (3.000)	73.66 (2.900)
62	FCN-722P062-AU/W	FCN-724P062-AU/W	FCN-725P062-AU/W	78.74 (3.100)	76.20 (3.000)
64	FCN-722P064-AU/W	FCN-724P064-AU/W	FCN-725P064-AU/W	81.28 (3.200)	78.74 (3.100)
66	FCN-722P066-AU/W	FCN-724P066-AU/W	FCN-725P066-AU/W	83.82 (3.300)	81.28 (3.200)
68	FCN-722P068-AU/W	FCN-724P068-AU/W	FCN-725P068-AU/W	86.36 (3.400)	83.82 (3.300)
70	FCN-722P070-AU/W	FCN-724P070-AU/W	FCN-725P070-AU/W	88.90 (3.500)	86.36 (3.400)
72	FCN-722P072-AU/W	FCN-724P072-AU/W	FCN-725P072-AU/W	91.44 (3.600)	88.90 (3.500)

S TYPE

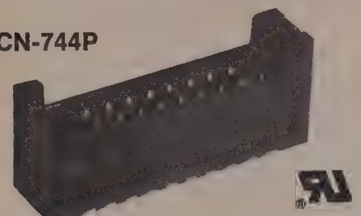
No. of Contacts	Wire-Wrap Type	Straight Type	Right Angle Type	Dimensions Table A	Dimensions Table B
3	FCN-722P003-AU/S	FCN-724P003-AU/S	FCN-725P003-AU/S	7.62 (.300)	5.08 (.200)
4	FCN-722P004-AU/S	FCN-724P004-AU/S	FCN-725P004-AU/S	10.16 (.400)	7.62 (.300)
5*	FCN-722P005-AU/S	FCN-724P005-AU/S	FCN-725P005-AU/S	12.70 (.500)	10.16 (.400)
6	FCN-722P006-AU/S	FCN-724P006-AU/S	FCN-725P006-AU/S	15.24 (.600)	12.70 (.500)
7	FCN-722P007-AU/S	FCN-724P007-AU/S	FCN-725P007-AU/S	17.78 (.700)	15.24 (.600)
8	FCN-722P008-AU/S	FCN-724P008-AU/S	FCN-725P008-AU/S	20.32 (.800)	17.78 (.700)
9	FCN-722P009-AU/S	FCN-724P009-AU/S	FCN-725P009-AU/S	22.86 (.900)	20.32 (.800)
10*	FCN-722P010-AU/S	FCN-724P010-AU/S	FCN-725P010-AU/S	25.40 (1.000)	22.86 (.900)
11	FCN-722P011-AU/S	FCN-724P011-AU/S	FCN-725P011-AU/S	27.94 (1.100)	25.40 (1.000)
12	FCN-722P012-AU/S	FCN-724P012-AU/S	FCN-725P012-AU/S	30.48 (1.200)	27.94 (1.100)
13	FCN-722P013-AU/S	FCN-724P013-AU/S	FCN-725P013-AU/S	33.02 (1.300)	30.48 (1.200)
14	FCN-722P014-AU/S	FCN-724P014-AU/S	FCN-725P014-AU/S	35.56 (1.400)	33.20 (1.300)
15*	FCN-722P015-AU/S	FCN-724P015-AU/S	FCN-725P015-AU/S	38.10 (1.500)	35.56 (1.400)
16	FCN-722P016-AU/S	FCN-724P016-AU/S	FCN-725P016-AU/S	40.64 (1.600)	38.10 (1.500)
17	FCN-722P017-AU/S	FCN-724P017-AU/S	FCN-725P017-AU/S	43.18 (1.700)	40.64 (1.600)
18	FCN-722P018-AU/S	FCN-724P018-AU/S	FCN-725P018-AU/S	45.72 (1.800)	43.18 (1.700)
19	FCN-722P019-AU/S	FCN-724P019-AU/S	FCN-725P019-AU/S	48.26 (1.900)	45.72 (1.800)
20*	FCN-722P020-AU/S	FCN-724P020-AU/S	FCN-725P020-AU/S	50.80 (2.000)	48.26 (1.900)
21	FCN-722P021-AU/S	FCN-724P021-AU/S	FCN-725P021-AU/S	53.34 (2.100)	50.80 (2.000)
22	FCN-722P022-AU/S	FCN-724P022-AU/S	FCN-725P022-AU/S	55.88 (2.200)	53.34 (2.100)
23	FCN-722P023-AU/S	FCN-724P023-AU/S	FCN-725P023-AU/S	58.42 (2.300)	55.88 (2.200)
24	FCN-722P024-AU/S	FCN-724P024-AU/S	FCN-725P024-AU/S	60.96 (2.400)	58.42 (2.300)
25*	FCN-722P025-AU/S	FCN-724P025-AU/S	FCN-725P025-AU/S	63.50 (2.500)	60.96 (2.400)
26	FCN-722P026-AU/S	FCN-724P026-AU/S	FCN-725P026-AU/S	66.04 (2.600)	63.50 (2.500)
27	FCN-722P027-AU/S	FCN-724P027-AU/S	FCN-725P027-AU/S	68.58 (2.700)	66.04 (2.600)
28	FCN-722P028-AU/S	FCN-724P028-AU/S	FCN-725P028-AU/S	71.12 (2.800)	68.58 (2.700)
29	FCN-722P029-AU/S	FCN-724P029-AU/S	FCN-725P029-AU/S	73.66 (2.900)	71.12 (2.800)
30*	FCN-722P030-AU/S	FCN-724P030-AU/S	FCN-725P030-AU/S	76.20 (3.000)	73.66 (2.900)
31	FCN-722P031-AU/S	FCN-724P031-AU/S	FCN-725P031-AU/S	78.74 (3.100)	76.20 (3.000)
32	FCN-722P032-AU/S	FCN-724P032-AU/S	FCN-725P032-AU/S	81.28 (3.200)	78.74 (3.100)
33	FCN-722P033-AU/S	FCN-724P033-AU/S	FCN-725P033-AU/S	83.82 (3.300)	81.28 (3.200)
34	FCN-722P034-AU/S	FCN-724P034-AU/S	FCN-725P034-AU/S	86.36 (3.400)	83.82 (3.300)
35	FCN-722P035-AU/S	FCN-724P035-AU/S	FCN-725P035-AU/S	88.90 (3.500)	86.36 (3.400)
36*	FCN-722P036-AU/S	FCN-724P036-AU/S	FCN-725P036-AU/S	91.44 (3.600)	88.90 (3.500)

* Standard

FUJITSU

MINI HEADERS

FCN-744P



- Low-profile installation on PC board
- 2.54mm grid contact/terminal spacing
- □ 0.64mm contact
- □ 0.5mm terminals
- UL recognized (E71597)
- Solvent-resistant resin (PBT)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 3A DC

Contact Resistance (when mated with MINI SOCKET): 20mΩ max. at 6V DC, 0.3A

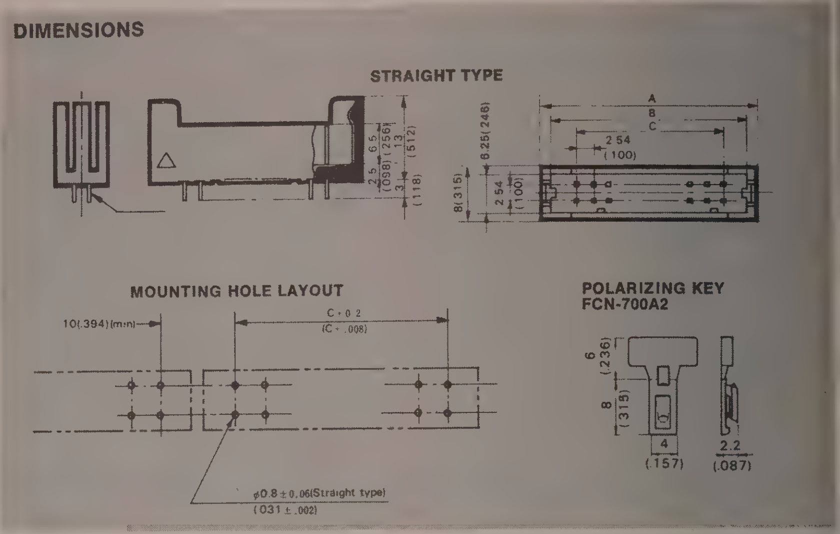
Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

Thickness of PC Board (Standard): 1.6mm (1/16 inch)

Materials — Contacts: Phosphor-bronze
Pagos plating (gold over palladium over nickel)
Insulators: PBT (UL 94V-0)

DIMENSIONS

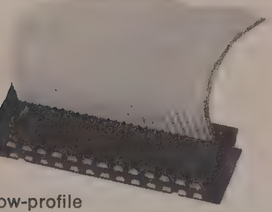

STRAIGHT TYPE
6.5 (.256)
2.5 (.098)
13 (.512)
3 (.118)
6.25 (.246)
8 (.315)
2.54 (.100)
A
B
C
2.54 (.100)
MOUNTING HOLE LAYOUT
10 (.394) (min)
C + 0.2
(C + .008)
φ0.8 ± 0.06 (Straight type)
(.031 ± .002)
POLARIZING KEY
FCN-700A2
6 (.236)
8 (.315)
4 (.157)
2.2 (.087)

Unit: mm (inch)

No. of Contacts	Designation	A	B	C
10	FCN-744P010-AU/R	20.12 (.792)	17.72 (.698)	10.16 (.400)
14	FCN-744P014-AU/R	25.20 (.992)	22.30 (.878)	15.24 (.600)
16	FCN-744P016-AU/R	27.74 (1.092)	25.34 (.998)	17.78 (.700)
20	FCN-744P020-AU/R	32.82 (1.292)	30.42 (1.198)	22.86 (.900)
26	FCN-744P026-AU/R	40.44 (1.592)	38.04 (1.498)	30.48 (1.200)
30	FCN-744P030-AU/R	45.52 (1.792)	43.12 (1.698)	35.56 (1.400)

MINI SOCKET CONNECTORS

FCN-747J



- Low-profile
- Mass-termination with flat cable
- 2.54mm contact spacing
- High-reliability original U-contact (double-action of IDC)
- Double-cantilever contact
- Bottom-entry contact
- Mating with N hook headers
- UL recognized (E-71597)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Contact Resistance (when mated with MINI HEADER): 20mΩ min. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

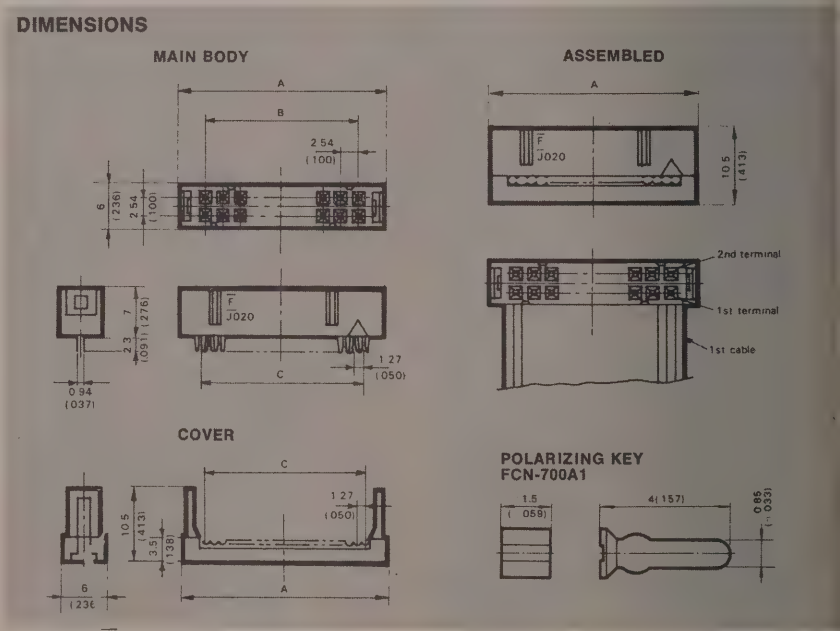
Insertion Force (with MINI HEADER): 3.5kg max. (10 pins) to 21kg max. (60 pins)

Withdrawal Force (with MINI HEADER): 0.25kg min. (10 pins) to 2.5kg min. (60 pins)

Wire Size — Flat Cable For IDC: 1.27mm (0.050 inch) spacing AWG #28 (stranded) or #30 (solid)

Materials — Contacts: Phosphor-bronze
Pagos plating (gold over palladium over nickel)
Insulators: PBT (UL 94V-0)

DIMENSIONS


MAIN BODY
A
B
2.54 (.100)
6 (.236)
2.54 (.100)
F
J020
7 (.276)
2.3 (.091)
0.94 (.037)
1.27 (.050)
C
ASSEMBLED
A
F
J020
10.5 (.413)
2nd terminal
1st terminal
1st cable
COVER
C
1.27 (.050)
10.5 (.413)
3.5 (.138)
6 (.236)
A
POLARIZING KEY
FCN-700A1
1.5 (.059)
4 (.157)
0.85 (.033)

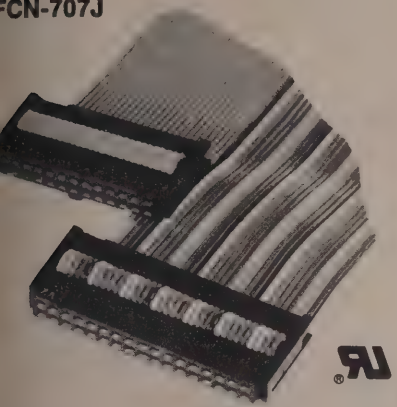
Unit: mm (inch)

No. of Contacts	Clip Polarized Socket		A	B	C
	Through End	Closed End			
10	FCN-747J010-AU/0	FCN-747J010-AU/B	17.27 (.680)	10.16 (.400)	11.43 (.450)
14	FCN-747J014-AU/0	FCN-747J014-AU/B	22.35 (.880)	15.24 (.600)	16.51 (.650)
16	FCN-747J016-AU/0	FCN-747J016-AU/B	24.89 (.980)	17.78 (.700)	19.05 (.750)
20	FCN-747J020-AU/0	FCN-747J020-AU/B	29.97 (1.180)	22.86 (.900)	24.13 (.950)
26	FCN-747J026-AU/0	FCN-747J026-AU/B	37.59 (1.480)	30.48 (1.200)	31.75 (1.250)
30	FCN-747J030-AU/0	FCN-747J030-AU/B	42.67 (1.680)	35.56 (1.400)	36.83 (1.450)
34	FCN-747J034-AU/0	FCN-747J034-AU/B	47.75 (1.880)	40.64 (1.600)	41.91 (1.650)
40	FCN-747J040-AU/0	FCN-747J040-AU/B	55.37 (2.180)	48.26 (1.900)	49.53 (1.950)
50	FCN-747J050-AU/0	FCN-747J050-AU/B	68.07 (2.680)	60.96 (2.400)	62.23 (2.450)
60	FCN-747J060-AU/0	FCN-747J060-AU/B	80.77 (3.180)	73.66 (2.900)	74.93 (2.950)

FUJITSU

SOCKET CONNECTORS

CN-707J



- Mass-termination with flat cable
- 2.54mm grid contact spacing
- High-reliability original U-contact (double-action of IDC)
- Double-cantilever contact
- Bottom entry contact
- Many variations (10 to 60 pins, clip polarized socket/bump polarized socket, closed-end/through-end)
- UL recognized (E-71597)

NGINEERING DATA

emperature Range: −55°C to +105°C

urrent Rating: 1A DC

ontact Resistance (when mated with HEADER): 20mΩ max. at 6V DC, 0.3A

sulation Resistance: 1000MΩ min. at 500V DC

ielectric Withstanding Voltage: 500V AC for 1 minute

sertion Force (with HEADER): 3.5kg max. (10 pins) to 21kg min. (60 pins)

ithdrawal Force (with HEADER): 0.25kg min. (10 pins) to 2.5kg min. (60 pins)

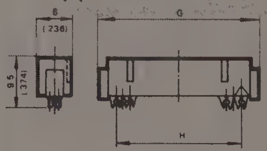
ire Size — Flat Cable For IDC: 1.27mm (0.050 inch) spacing AWG #28 (stranded) or #30 (solid)

aterials — Contacts: Phosphor-bronze
Pagos plating (gold over palladium over nickel)
Insulators: PBT and Polycarbonate (UL 94V-0)

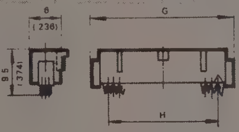
DIMENSIONS

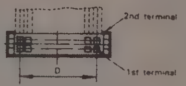
WITH CABLE

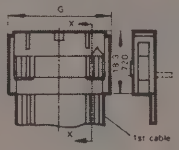
Clip polarized socket



Bump polarized socket



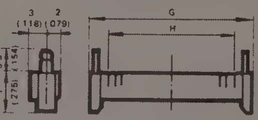




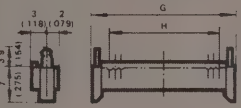
X-X cross section

COVER

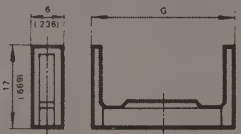
Through end



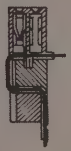
Closed end



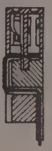
STRAIN RELIEF



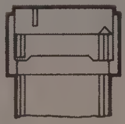
(through end)



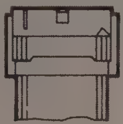
(closed end)



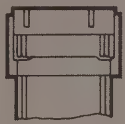
MAIN BODY CONFIGURATIONS



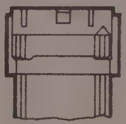
10~14 pin clip polarized sockets



10~14 pin bump polarized sockets

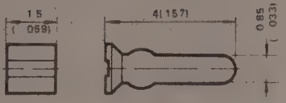


16~60 pin clip polarized sockets



16~60 pin bump polarized sockets

POLARIZING KEY
FCN-700A1



Unit: mm (inch)

No. of Contacts	Clip Polarized Socket		Bump Polarized Socket		Dimensions	
	Through End	Closed End	Through End	Closed End	H	G
10	FCN-707J010-AU/0	FCN-707J010-AU/B	FCN-707B010-AU/0	FCN-707B010-AU/B	10.16 (.400)	17.3 (.681)
14	FCN-707J014-AU/0	FCN-707J014-AU/B	FCN-707B014-AU/0	FCN-707B014-AU/B	15.24 (.600)	22.4 (.882)
16	FCN-707J016-AU/0	FCN-707J016-AU/B	FCN-707B016-AU/0	FCN-707B016-AU/B	17.78 (.700)	24.9 (.980)
20	FCN-707J020-AU/0	FCN-707J020-AU/B	FCN-707B020-AU/0	FCN-707B020-AU/B	22.86 (.900)	30.0 (1.181)
26	FCN-707J026-AU/0	FCN-707J026-AU/B	FCN-707B026-AU/0	FCN-707B026-AU/B	30.48 (1.200)	37.6 (1.480)
30	FCN-707J030-AU/0	FCN-707J030-AU/B	FCN-707B030-AU/0	FCN-707B030-AU/B	35.56 (1.400)	42.7 (1.681)
34	FCN-707J034-AU/0	FCN-707J034-AU/B	FCN-707B034-AU/0	FCN-707B034-AU/B	40.64 (1.600)	47.8 (1.882)
40	FCN-707J040-AU/0	FCN-707J040-AU/B	FCN-707B040-AU/0	FCN-707B040-AU/B	48.26 (1.900)	55.4 (2.181)
50	FCN-707J050-AU/0	FCN-707J050-AU/B	FCN-707B050-AU/0	FCN-707B050-AU/B	60.96 (2.400)	68.1 (2.681)
60	FCN-707J060-AU/0	FCN-707J060-AU/B	FCN-707B060-AU/0	FCN-707B060-AU/B	73.66 (2.900)	80.8 (3.181)

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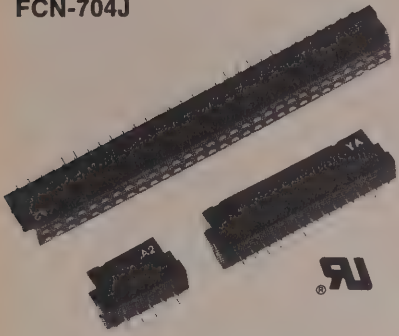
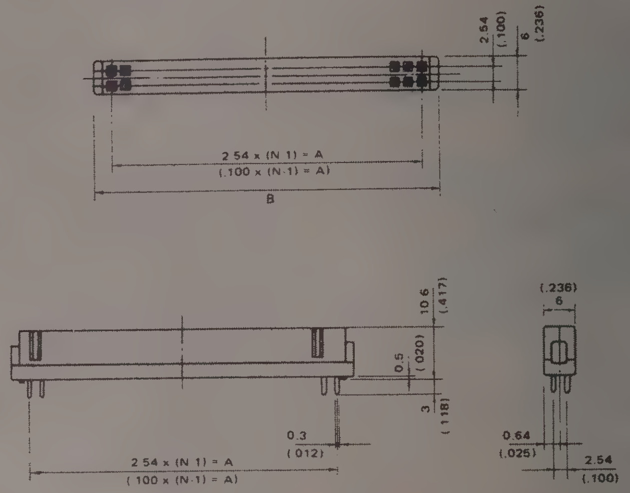
FUJITSU

SOCKET CONNECTORS

FCN-704J




DIMENSIONS
2.54 (.100)
6 (.236)
2.54 x (N-1) = A
(.100 x (N-1) = A)
B
10.6 (.417)
0.5 (.020)
3 (.118)
0.3 (.012)
2.54 x (N-1) = A
(.100 x (N-1) = A)
(.236) 6
0.64 (.025)
2.54 (.100)

Unit: mm(inch)

- 2.54mm grid contact/terminal spacing
- Mating with headers and block headers
- Used with W type block header, PC board spacing is only about 13mm
- Many variations (10 to 60 pins)
- Selective plating (gold-plated contact and solder-plated terminal)
- UL recognized (E71597)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Voltage Rating: 250V AC

Contact Resistance: 20mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

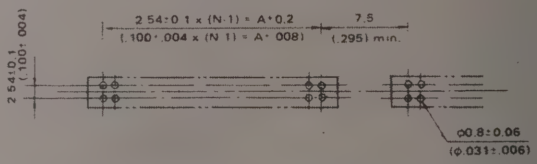
Insertion Force: 3.5kg max. (10 pins) to 21kg max. (60 pins)

Withdrawal Force: 0.25kg min. (10 pins) to 2.5kg min. (60 pins)

Thickness of PC Board (Standard): 1.6mm

Materials — Contacts: Phosphor-bronze
Pagos plating (gold over palladium over nickel)
Insulators: PBT (UL 94V-0)

MOUNTING HOLE LAYOUT


2.54±0.1 x (N-1) = A±0.2
(.100±.004 x (N-1) = A±.008)
7.5
(.295) min.
2.54±0.1
(.100±.004)
ϕ0.8±0.06
(ϕ.031±.006)

DESIGNATIONS

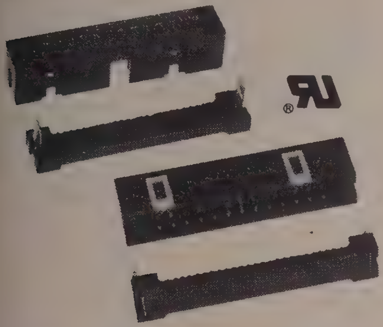
No. of Contacts	Designation	N	A	B
10	FCN-704J010-AU/0	5	10.16 (.400)	17.3 (.681)
14	FCN-704J014-AU/0	7	15.24 (.600)	22.4 (.882)
16	FCN-704J016-AU/0	8	17.78 (.700)	24.9 (.980)
20	FCN-704J020-AU/0	10	22.86 (.900)	30.0 (1.181)
26	FCN-704J026-AU/0	13	30.48 (1.200)	37.6 (1.480)
30	FCN-704J030-AU/0	15	35.56 (1.400)	42.7 (1.681)
34	FCN-704J034-AU/0	17	40.64 (1.600)	47.8 (1.882)
40	FCN-704J040-AU/0	20	48.26 (1.900)	55.4 (2.181)
50	FCN-704J050-AU/0	25	60.96 (2.400)	68.1 (2.681)
60	FCN-704J060-AU/0	30	73.66 (2.900)	80.8 (3.181)

FUJITSU

I.D.C. PLUG CONNECTORS

FCN-707P

Fujitsu I.D.C. plug connectors are added in Fujitsu flat-cable connectors and can be used as T-tap from a cable buss or splice connectors.



- Mass-termination with flat cable
- 2.54mm grid contact spacing
- ☐ 0.64mm contact
- Extensive applications. (T-tap, splice connector, I/O interface)
- Many variations (10 - 60 pins, with and without mounting ears)
- Strain relief tab to facilitate unmating
- UL recognized (E71597)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Contact Resistance (with SOCKET): 20mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

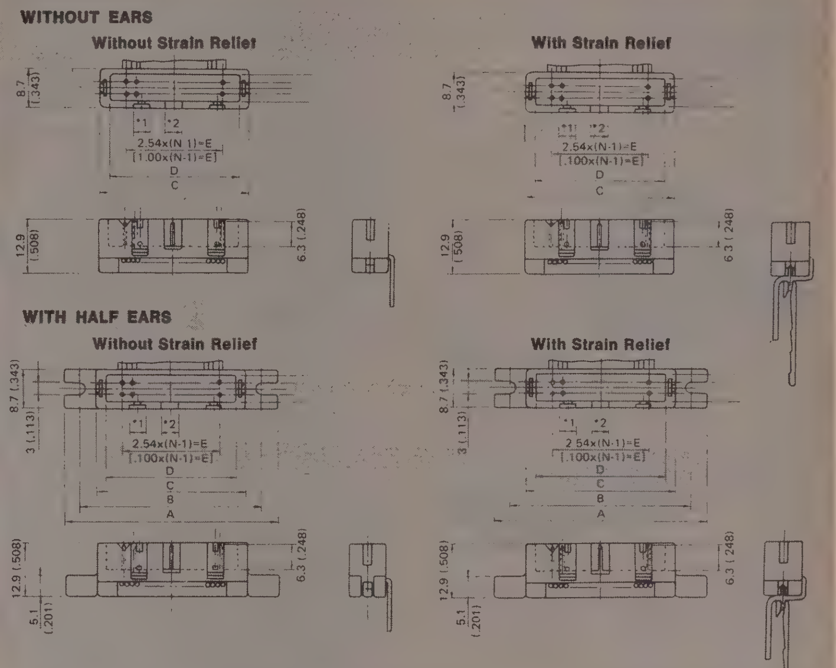
Insertion Force (with SOCKET): 3.5kg max. (10 pins) to 21kg max. (60 pins)

Withdrawal Force (with SOCKET): 0.25kg min. (10 pins) to 2.5kg min. (60 pins)

Wire Size (Flat cable for I.D.C.): 1.27mm (0.050 inch) spacing, AWG #28 (stranded) or #30 (solid)

Materials: Pagos plating (gold over palladium over nickel.)

DIMENSIONS



NOTES: 1. 10 and 14 contact plugs do not have slot *1.
2. 10 contact plug does not have slot *2.

Unit: mm(inch)

SELECTION TABLE

No. of Contacts	Mounting Parts	Designation	
		Without Strain Relief	With Strain Relief
10	Without ears	FCN-707P010-AU/1	FCN-707P010-AU/6
	With half ears	FNC-707P010-AU/2	FCN-707P010-AU/7
14	Without ears	FCN-707P014-AU/1	FCN-707P014-AU/6
	With half ears	FCN-707P014-AU/2	FCN-707P014-AU/7
16	Without ears	FCN-707P016-AU/1	FCN-707P016-AU/6
	With half ears	FCN-707P016-AU/2	FCN-707P016-AU/7
20	Without ears	FCN-707P020-AU/1	FCN-707P020-AU/6
	With half ears	FCN-707P020-AU/2	FCN-707P020-AU/7
26	Without ears	FCN-707P026-AU/1	FCN-707P026-AU/6
	With half ears	FCN-707P026-AU/2	FCN-707P026-AU/7
30	Without ears	FCN-707P030-AU/1	FCN-707P030-AU/6
	With half ears	FCN-707P030-AU/2	FCN-707P030-AU/7
34	Without ears	FCN-707P034-AU/1	FCN-707P034-AU/6
	With half ears	FCN-707P034-AU/2	FCN-707P034-AU/7
40	Without ears	FCN-707P040-AU/1	FCN-707P040-AU/6
	With half ears	FCN-707P040-AU/2	FCN-707P040-AU/7
50	Without ears	FCN-707P050-AU/1	FCN-707P050-AU/6
	With half ears	FCN-707P050-AU/2	FCN-707P050-AU/7
60	Without ears	FCN-707P060-AU/1	FCN-707P060-AU/6
	With half ears	FCN-707P060-AU/2	FCN-707P060-AU/7

Unit: mm(inch)

No. of Contacts	N	A	B	C	D	E
10	5	38.10 (1.500)	30.48 (1.200)	22.86 (.900)	18.03 (.710)	10.16 (.400)
14	7	43.18 (1.700)	35.56 (1.400)	27.92 (1.100)	23.11 (.910)	15.24 (.600)
16	8	45.72 (1.800)	38.10 (1.500)	30.48 (1.200)	25.65 (1.010)	17.78 (.700)
20	10	50.80 (2.000)	43.18 (1.700)	35.56 (1.400)	30.73 (1.210)	22.86 (.900)
26	13	58.42 (2.300)	50.80 (2.000)	43.18 (1.700)	38.35 (1.510)	30.48 (1.200)
30	15	63.50 (2.500)	55.88 (2.200)	48.26 (1.900)	43.43 (1.710)	35.56 (1.400)
34	17	68.58 (2.700)	60.96 (2.400)	53.34 (2.100)	48.51 (1.910)	40.64 (1.600)
40	20	76.20 (3.000)	68.58 (2.700)	60.96 (2.400)	56.13 (2.210)	48.26 (1.900)
50	25	88.90 (3.500)	81.28 (3.200)	73.66 (2.900)	68.83 (2.710)	60.96 (2.400)
60	30	101.60 (4.000)	93.98 (3.700)	86.36 (3.400)	81.53 (3.210)	73.66 (2.900)

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FUJITSU

RECEPTACLE CONNECTORS

FCN-723J

- Crimp and removable contact for discrete and twist-pair cable
- 2.54mm grid contact spacing
- High-reliability box-protect (anti-deformation) contact
- Housing-lock mechanism (contact requires no locking-lance)
- Double-cantilever contact
- Bottom-entry contact
- Cover lockable with L/M hook HEADERS
- UL recognized (E71597)
- Many variations (3 to 72 pins, W/S type)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 3A DC

Contact Resistance (when mated with BLOCK HEADER): 20mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

Insertion Force (with BLOCK HEADER): 2.5kg max. (10 pins) to 15kg max. (60 pins)

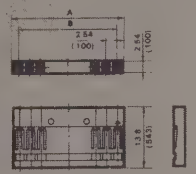
Withdrawal Force (with BLOCK HEADER): 0.3 kg min. (10 pins) to 1.8kg min. (60 pins)

Wire Size — Discrete wire for crimp: AWG #24 (0.24mm² [.000372 in²]) to #32 (0.032mm² [.0000495 in²])

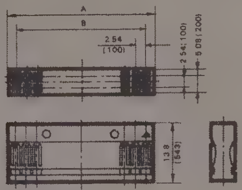
Materials — Contacts: Phosphor-bronze Pagos plating (gold over palladium over nickel)
Insulators: Nylon (UL 94V-2)

DIMENSIONS

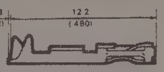
ONE ROW SOCKET



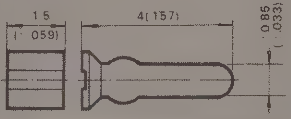
2 ROW SOCKET



CONTACT (HIGH-PRESSURE TYPE)

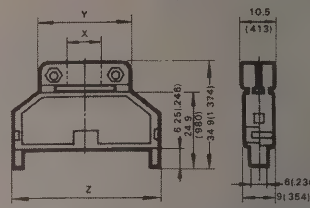


POLARIZING KEY
FCN-700A1



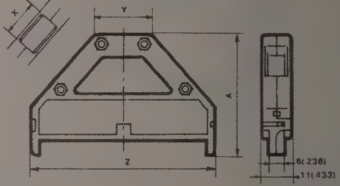
COVER

S type



No. of Contacts	Designation	X	Y	Z
20	FCN-720C020/2S	10 (.394)	24 (.945)	30.00 (1.181)
26	FCN-720C026/2S	11 (.433)	27 (1.063)	37.62 (1.481)
34	FCN-720C034/2S	12 (.472)	30 (1.181)	47.78 (1.881)
50	FCN-720C050/2S	14 (.551)	32 (1.260)	68.10 (2.681)

P type



No. of Contacts	Designation	X	Y	Z	A
50	FCN-720C050/2P	15.0 (.591)	20 (.787)	68.1 (2.681)	46.3 (1.823)
60	FCN-720C060/2P	17.5 (.689)	32.2 (1.268)	80.8 (3.181)	48.3 (1.902)

Unit: mm (inch)

Socket Housing				Dimension's Table	
No. of Contacts	1 Row Socket	No. of Contacts	2 Row Socket	A	B
3	FCN-723J003/1	6	FCN-723J006/2	7.62 (.300)	5.08 (.200)
4	FCN-723J004/1	8	FCN-723J008/2	10.16 (.400)	7.62 (.300)
5*	FCN-723J005/1	10*	FCN-723J010/2	12.70 (.500)	10.16 (.400)
6	FCN-723J006/1	12	FCN-723J012/2	15.24 (.600)	12.70 (.500)
7	FCN-723J007/1	14*	FCN-723J014/2	17.78 (.700)	15.24 (.600)
8	FCN-723J008/1	16*	FCN-723J016/2	20.32 (.800)	17.78 (.700)
9	FCN-723J009/1	18	FCN-723J018/2	22.86 (.900)	20.32 (.800)
10*	FCN-723J010/1	20*	FCN-723J020/2	25.40 (1.000)	22.86 (.900)
11	FCN-723J011/1	22	FCN-723J022/2	27.94 (1.100)	25.40 (1.000)
12	FCN-723J012/1	24	FCN-723J024/2	30.48 (1.200)	27.94 (1.100)
13	FCN-723J013/1	26*	FCN-723J026/2	33.02 (1.300)	30.48 (1.200)
14	FCN-723J014/1	28	FCN-723J028/2	35.56 (1.400)	33.02 (1.300)
15*	FCN-723J015/1	30*	FCN-723J030/2	38.10 (1.500)	35.56 (1.400)
16	FCN-723J016/1	32	FCN-723J032/2	40.64 (1.600)	38.10 (1.500)
17	FCN-723J017/1	34*	FCN-723J034/2	43.18 (1.700)	40.64 (1.600)
18	FCN-723J018/1	36	FCN-723J036/2	45.72 (1.800)	43.18 (1.700)
19	FCN-723J019/1	38	FCN-723J038/2	48.26 (1.900)	45.72 (1.800)
20*	FCN-723J020/1	40*	FCN-723J040/2	50.80 (2.000)	48.26 (1.900)
21	FCN-723J021/1	42	FCN-723J042/2	53.34 (2.100)	50.80 (2.000)
22	FCN-723J022/1	44	FCN-723J044/2	55.88 (2.200)	53.34 (2.100)
23	FCN-723J023/1	46	FCN-723J046/2	58.42 (2.300)	55.88 (2.200)
24	FCN-723J024/1	48	FCN-723J048/2	60.96 (2.400)	58.42 (2.300)
25*	FCN-723J025/1	50*	FCN-723J050/2	63.50 (2.500)	60.96 (2.400)
26	FCN-723J026/1	52	FCN-723J052/2	66.04 (2.600)	63.50 (2.500)
27	FCN-723J027/1	54	FCN-723J054/2	68.58 (2.700)	66.04 (2.600)
28	FCN-723J028/1	56	FCN-723J056/2	71.12 (2.800)	68.58 (2.700)
29	FCN-723J029/1	58	FCN-723J058/2	73.66 (2.900)	71.12 (2.800)
30*	FCN-723J030/1	60*	FCN-723J060/2	76.20 (3.000)	73.66 (2.900)
31	FCN-723J031/1	62	FCN-723J062/2	78.74 (3.100)	76.20 (3.000)
32	FCN-723J032/1	64	FCN-723J064/2	81.28 (3.200)	78.74 (3.100)
33	FCN-723J033/1	66	FCN-723J066/2	83.82 (3.300)	81.28 (3.200)
34	FCN-723J034/1	68	FCN-723J068/2	86.36 (3.400)	83.82 (3.300)
35	FCN-723J035/1	70	FCN-723J070/2	88.90 (3.500)	86.36 (3.400)
36*	FCN-723J036/1	72	FCN-723J072/2	91.44 (3.600)	88.90 (3.500)

* Standard

Contacts: Standard, Loose Piece FCN-723J-AU/Q — Strip Form FCN-723J-AU/R
High Pressure Type, Loose Piece FCN-723J-AU/S — Strip Form FCN-723J-AU/T

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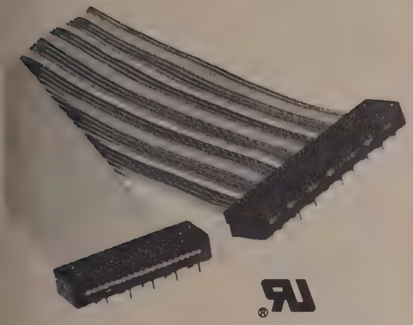
FUJITSU

PCB TRANSITION CONNECTORS

FCN-734P



- Mass-termination with flat cable
- High-reliability original U-contact (double-action of IDC)
- UL recognized (E-71597)
- Solvent-resistant resin (PBT)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Contact Resistance: 10mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

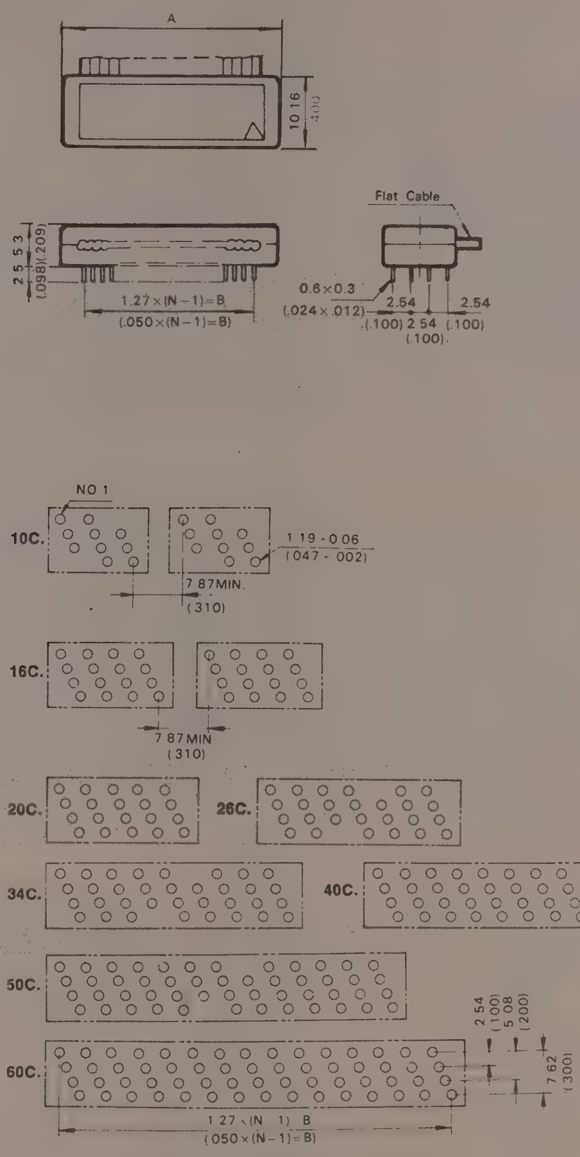
Dielectric Withstanding Voltage: 500V AC for 1 minute

Wire Size — Flat Cable For IDC: 1.27mm (0.050 inch) spacing AWG #28 (stranded) or #30 (solid)

Thickness of PC Board (Standard): 1.6mm (1/16 inch)

Materials — Contacts: Phosphor-bronze (gold-over-nickel plating)
Insulators: PBT (UL 94V-0)

DIMENSIONS


A
10.16 (.400)
Flat Cable
2.5 5.3
(.098)(.209)
1.27×(N−1)=B
(.050×(N−1)=B)
0.6×0.3
(.024×.012)
2.54
(.100)
2.54
(.100)
2.54
(.100)
NO 1
10C.
1.19−0.06
(.047−.002)
7.87MIN.
(.310)
16C.
7.87MIN
(.310)
20C.
26C.
34C.
40C.
50C.
60C.
2.54
(.100)
5.08
(.200)
7.62
(.300)
1.27×(N−1)=B
(.050×(N−1)=B)

Unit: mm (inch)

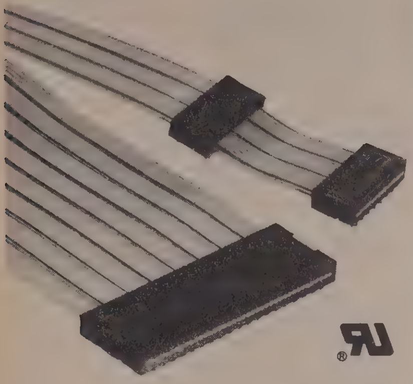
No. of Contacts	Designation	Dimensions A	Dimensions B
10	FCN-734P010-AU/0	17.78 (.700)	11.43 (.450)
16	FCN-734P016-AU/0	25.40 (1.000)	19.05 (.750)
20	FCN-734P020-AU/0	30.48 (1.200)	24.13 (.950)
26	FCN-734P026-AU/0	38.10 (1.500)	31.75 (1.250)
34	FCN-734P034-AU/0	48.26 (1.900)	41.91 (1.650)
40	FCN-734P040-AU/0	55.88 (2.200)	49.53 (1.950)
50	FCN-734P050-AU/0	68.58 (2.700)	62.23 (2.450)
60	FCN-734P060-AU/0	81.28 (3.200)	74.93 (2.950)

Note: Solder plating connectors are available at your request.

FUJITSU

D.I.P. CONNECTORS

FCN-714P



- Pluggable to IC sockets
- Low-profile installation on PC board
- Mass-termination with flat cable
- High-reliability original U-contact (double-action of IDC)
- Many variations (10 to 60 pins)
- UL recognized (E-71597)
- Solvent-resistant resin (PBT)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Contact Resistance: 10mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

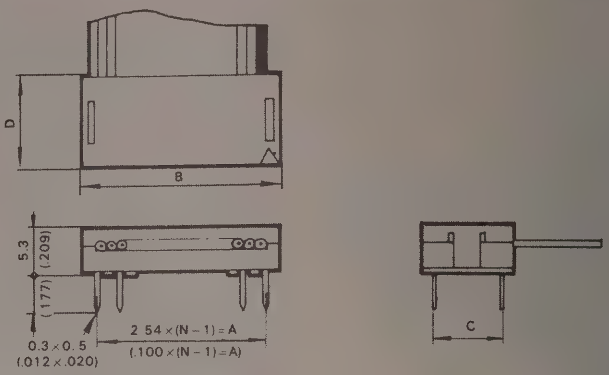
Dielectric Withstanding Voltage: 500V AC for 1 minute

Wire Size — Flat Cable For IDC: 1.27mm (0.050 inch) spacing AWG #28 (stranded) or #30 (solid)

Thickness of PC Board (Standard): 1.6mm (1/16 inch)

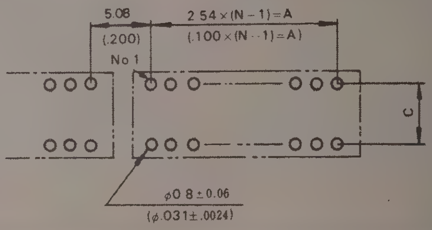
Materials — Contacts: Phosphor-bronze (gold-over-nickel plating)
Insulators: PBT (UL 94V-0)

DIMENSIONS



Unit: mm (inch)

MOUNTING HOLE LAYOUT



DESIGNATION

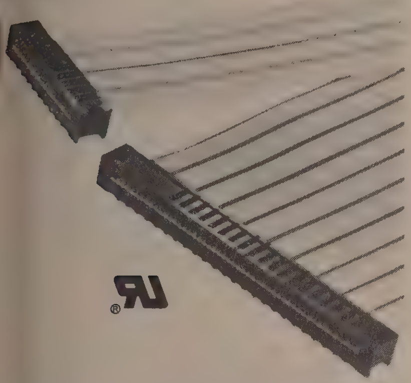
Unit: mm (inch)

No. of Contacts	Designation	Dimensions			
		A	B	C	D
10	FCN-714P010-AU/0	10.16 (.400)	14.74 (.580)	7.62 (.300)	10.67 (.420)
14	FCN-714P014-AU/0	15.24 (.600)	19.82 (.780)	7.62 (.300)	10.67 (.420)
16	FCN-714P016-AU/0	17.78 (.700)	22.36 (.880)	7.62 (.300)	10.67 (.420)
20	FCN-714P020-AU/0	22.86 (.900)	27.44 (1.080)	15.24 (.600)	18.29 (.720)
24	FCN-714P024-AU/0	27.94 (1.100)	32.52 (1.280)	15.24 (.600)	18.29 (.720)
26	FCN-714P026-AU/0	30.48 (1.200)	35.06 (1.380)	15.24 (.600)	18.29 (.720)
34	FCN-714P034-AU/0	40.64 (1.600)	45.22 (1.780)	15.24 (.600)	18.29 (.720)
40	FCN-714P040-AU/0	48.26 (1.900)	52.84 (2.080)	15.24 (.600)	18.29 (.720)
50	FCN-714P050-AU/0	60.96 (2.400)	65.54 (2.580)	15.24 (.600)	18.29 (.720)
60	FCN-714P060-AU/0	73.66 (2.900)	78.24 (3.080)	15.24 (.600)	18.29 (.720)

FUJITSU

MINI D.I.P. CONNECTORS

FCN-754P



- High-density installation on PC board (2.54mm grid terminal spacing)
- Mass-termination with flat cable
- High-reliability original U-contact (double-action of IDC)
- Many variations (10 to 60 pins)
- UL recognized (E-71597)
- Solvent-resistant resin (PBT)
- Fitting of header hole layout

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Contact Resistance: 10mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

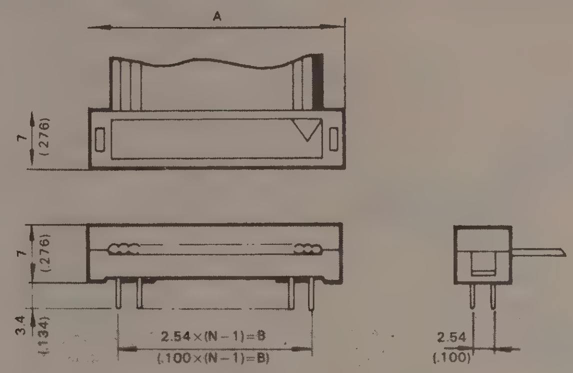
Dielectric Withstanding Voltage: 500V AC for 1 minute

Wire Size — Flat Cable For IDC: 1.27mm (0.050 inch) spacing AWG #28 (stranded) or #30 (solid)

Thickness of PC Board (Standard): 1.6mm (1/16 inch)

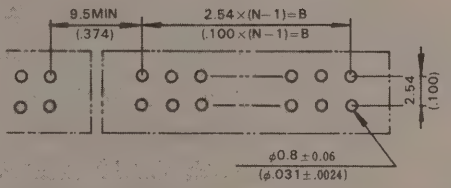
Materials — Contacts: Phosphor-bronze (gold-over-nickel plating)
Insulators: PBT (UL 94V-0)

DIMENSIONS



Unit: mm (inch)

MOUNTING HOLE LAYOUT



Note: This hole layout will fit the header mounting hole layout.

DESIGNATION

Unit: mm (inch)

No. of Contacts	Designation	Dimensions	
		A	B
10	FCN-754P010-AU/0	19.2 (.756)	10.16 (.400)
14	FCN-754P014-AU/0	24.3 (.957)	15.24 (.600)
16	FCN-754P016-AU/0	26.8 (1.055)	17.78 (.700)
20	FCN-754P020-AU/0	31.9 (1.256)	22.86 (.900)
24	FCN-754P024-AU/0	37.0 (1.457)	27.94 (1.100)
26	FCN-754P026-AU/0	39.5 (1.555)	30.48 (1.200)
34	FCN-754P034-AU/0	49.7 (1.957)	40.64 (1.600)
40	FCN-754P040-AU/0	57.3 (2.256)	48.26 (1.900)
50	FCN-754P050-AU/0	70.0 (2.756)	60.96 (2.400)
60	FCN-754P060-AU/0	82.7 (3.256)	73.66 (2.900)

Note: Solder plating connectors are available at your request.

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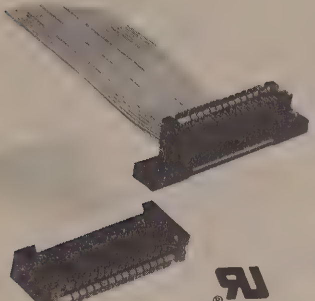
FUJITSU

CARD EDGE CONNECTORS

FCN-767J



- 2.54mm contact spacing
- Mass-termination with flat cable
- High-reliability original U-contact (double-action of IDC)
- Bifurcated contact
- Many variations (10 to 60 pins, without ears/with half-ears/with full ears, without strain relief/with strain relief)
- UL recognized (E-71597)

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Contact Resistance: 20mΩ max. at 6V DC, 0.3A

Insulation Resistance: 1000MΩ min. at 500V DC

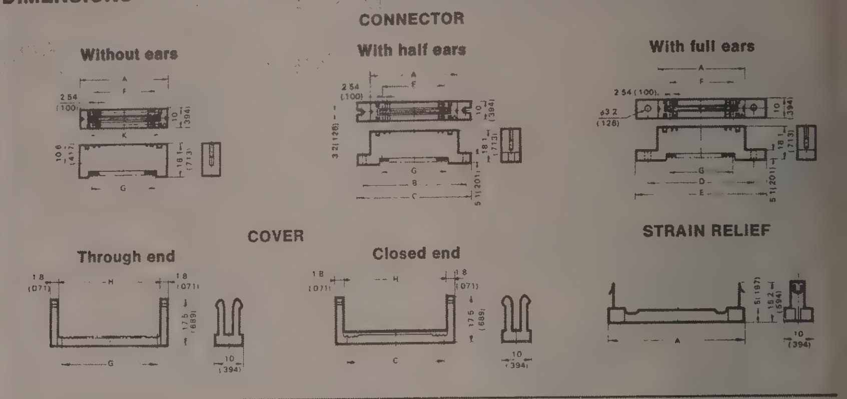
Dielectric Withstanding Voltage: 500V AC for 1 minute

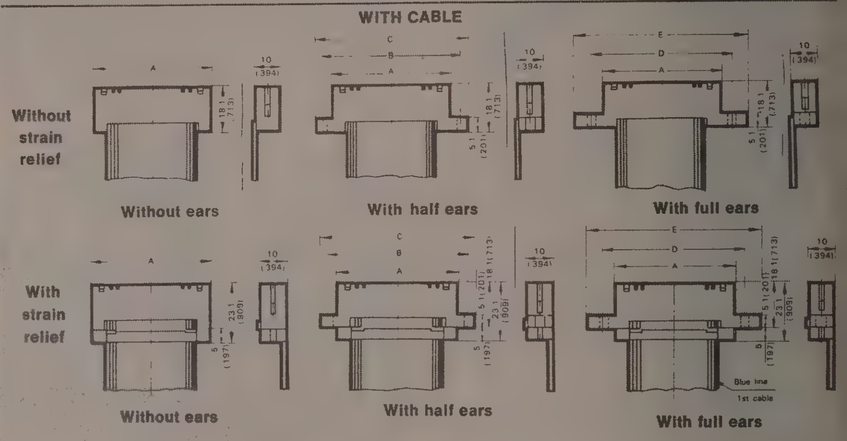
Wire Size — Flat Cable For IDC: 1.27mm (0.050 inch) spacing AWG #28 (stranded) or #30 (solid)

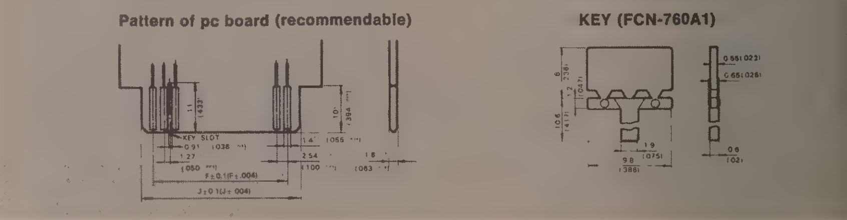
Thickness of PC Board (Standard): 1.6mm (1⁄16 inch)

Materials — Contacts: Phosphor-bronze
Pagos plating (gold over palladium over nickel)
Insulators: PBT (UL 94V-0)

DIMENSIONS


CONNECTOR
Without ears
With half ears
With full ears
COVER
Through end
Closed end
STRAIN RELIEF
A
F
K
G
B
C
D
E
H
2.54 (.100)
10 (.394)
18.1 (.713)
10.6 (.417)
3.2 (.126)
5.1 (.201)
φ3.2 (.128)
1.8 (.071)
17.5 (.689)
5 (.197)
15.2 (.594)


WITH CABLE
Without strain relief
Without ears
With half ears
With full ears
With strain relief
Without ears
With half ears
With full ears
A
B
C
D
E
10 (.394)
18.1 (.713)
5.1 (.201)
23.1 (.909)
5 (.197)
Blue line
1st cable


Pattern of pc board (recommendable)
KEY (FCN-760A1)
KEY SLOT
11 (.433)
10 (.394)
0.91 (.036)
1.27 (.050)
1.4 (.055)
2.54 (.100)
1.6 (.063)
F±0.1(F±.004)
J±0.1(J±.004)
6 (.236)
1.2 (.047)
10.6 (.417)
1.9 (.075)
9.8 (.386)
0.55 (.022)
0.65 (.026)
0.6 (.02)

Unit: mm (inch)

No. of Contacts	Designation	Dimensions									
		A	B	C	D	E	F	G	H	J	K
10	FCN-767J010-AU/☐	24.36 (.959)	33.02 (1.300)	38.10 (1.500)	35.56 (1.400)	43.69 (1.720)	10.16 (.400)	11.43 (.450)	13.95 (.549)	15.11 (.595)	15.34 (.604)
16	FCN-767J016-AU/☐	31.98 (1.259)	40.64 (1.600)	45.72 (1.800)	43.18 (1.700)	51.31 (2.020)	17.78 (.700)	19.05 (.750)	21.57 (.849)	22.73 (.894)	22.96 (.904)
20	FCN-767J020-AU/☐	37.06 (1.459)	45.72 (1.800)	50.80 (2.000)	48.26 (1.900)	56.39 (2.220)	22.86 (.900)	24.13 (.950)	26.65 (1.049)	27.81 (1.095)	28.04 (1.104)
26	FCN-767J026-AU/☐	44.68 (1.759)	53.34 (2.100)	58.42 (2.300)	55.88 (2.200)	64.01 (2.520)	30.48 (1.200)	31.75 (1.250)	34.27 (1.349)	35.43 (1.395)	35.65 (1.404)
30	FCN-767J030-AU/☐	49.76 (1.959)	58.42 (2.300)	63.50 (2.500)	60.96 (2.400)	69.09 (2.720)	35.56 (1.400)	36.83 (1.450)	39.35 (1.549)	40.51 (1.595)	40.74 (1.604)
34	FCN-767J034-AU/☐	54.84 (2.159)	63.50 (2.500)	68.58 (2.700)	66.04 (2.600)	74.17 (2.920)	40.64 (1.600)	41.91 (1.650)	44.43 (1.749)	45.59 (1.795)	45.82 (1.804)
40	FCN-767J040-AU/☐	62.46 (2.459)	71.12 (2.800)	76.20 (3.000)	73.66 (2.900)	81.79 (3.220)	48.26 (1.900)	49.53 (1.950)	52.05 (2.049)	53.21 (2.095)	53.44 (2.104)
50	FCN-767J050-AU/☐	75.16 (2.959)	83.82 (3.300)	88.90 (3.500)	86.36 (3.400)	94.49 (3.720)	60.76 (2.400)	62.23 (2.450)	64.75 (2.549)	65.91 (2.595)	65.14 (2.604)
60	FCN-767J060-AU/☐	87.88 (3.460)	96.52 (3.800)	101.60 (4.000)	99.06 (3.900)	107.19 (4.220)	73.66 (2.900)	74.93 (2.950)	77.45 (3.049)	78.61 (3.095)	78.84 (3.104)

Contents in blank ☐ are:

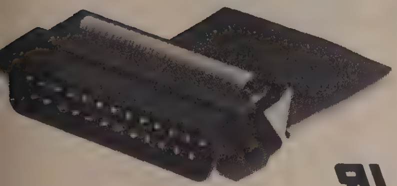
Through End Cover	Closed End Cover	Mounting Parts	Strain Relief
1	A	Without Ears	Without
2	B	With Half Ears	Without
3	C	With Full Ears	Without

Through End Cover	Closed End Cover	Mounting Parts	Strain Relief
6	D	Without Ears	With
7	E	With Half Ears	With
8	F	With Full Ears	With

FUJITSU

FLAT CABLE CONNECTORS

FCN-770, D TYPE



FCN-770 D-type connectors are added to the amily of Fujitsu Flat Cable Connectors. Matng with military standard D-type connectors, lug, socket connector and cover are availble.

- Mass termination is easy and efficient to 1.27mm pitch flat cables.
- Mates with military standard D-type connectors
- Features Fujitsu's newly designed U-contacts for high reliability
- Heavy-duty molded shell structure
- UL recognized (94 V-O) insulation materials

ENGINEERING DATA

Temperature Range: −55°C to +105°C

Current Rating: 1A DC

Voltage Rating: 250V AC

Contact Resistance: 20mΩ max.

nsulation Resistance: 1000MΩ min. at 500V DC

Dielectric Withstanding Voltage: 500V AC for 1 minute

nsertion Force: 10kg max.

Withdrawal Force: 0.75kg min.

lat Cable: 1.27mm (.050 inch) spacing AWG #28 (stranded) or #30 (solid)

Materials
Contacts: Phosphor-bronze Pagos plating (gold over palladium over nickel)

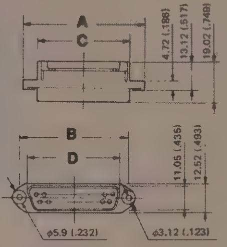
*** COMBINATION**

Plug or socket connector	Socket connector or plug
FCN-770A01	FCN-770A08
FCN-770A02	FCN-770A05, A06, A07
FCN-770A03	FCN-770A08
FCN-770A04	FCN-770A05, A06, A07

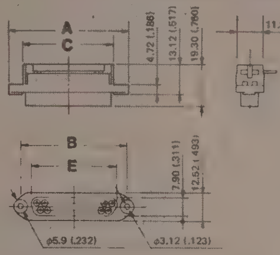
PLUG SOCKET CONNECTOR (FOR 25 CONTACTS)

Unit: mm (inch)

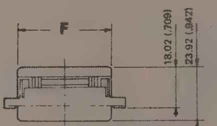
FCN-777P025-G/B
(Plug, without strain relief)


A
C
4.72 (.186)
13.12 (.517)
19.02 (.749)
B
D
11.05 (.435)
12.52 (.493)
φ5.9 (.232)
φ3.12 (.123)

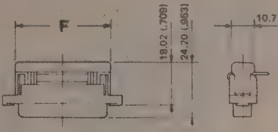
FCN-777J025-G/B
(Socket connector, without strain relief)


A
C
4.72 (.186)
13.12 (.517)
19.30 (.760)
11.8 (.465)
B
E
7.90 (.311)
12.52 (.493)
φ5.9 (.232)
φ3.12 (.123)

FCN-777P025-G/A
(Plug, with strain relief)


F
18.02 (.709)
23.92 (.942)

FCN-777J025-G/A
(Socket connector, with strain relief)

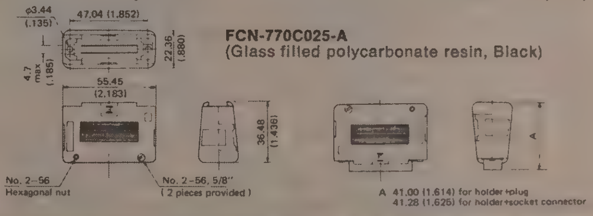

F
18.02 (.709)
24.20 (.953)
10.7 (.421)

Unit: mm (inch)

No. of Contact	Plug / Socket	Designation: With Strain Relief	Designation: Without Strain Relief	Dimensions: A	B	C	D	E	F
9	Plug	FCN-777P009-G/A	FCN-777P009-G/B	30.89 (1.22)	24.99 (0.98)	16.23 (0.64)	18.69 (0.74)	16.33 (0.64)	18.73 (0.74)
	Socket	FCN-777J009-G/A	FCN-777J009-G/B						
15	Plug	FCN-777P015-G/A	FCN-777P015-G/B	39.22 (1.54)	33.32 (1.31)	24.54 (0.97)	27.00 (1.06	24.66 (0.97)	27.04 (1.06)
	Socket	FCN-777J015-G/A	FCN-777J015-G/B						
25	Plug	FCN-777P025-G/A	FCN-777P025-G/B	52.93 (2.08)	47.04 (1.85)	38.38 (1.51)	40.84 (1.61)	38.38 (1.51)	40.88 (1.61)
	Socket	FCN-777J025-G/A	FCN-777J025-G/B						
37	Plug	FCN-777P037-G/A	FCN-777P037-G/B	69.39 (2.73)	63.50 (2.50)	54.99 (2.17)	57.33 (2.26)	54.84 (2.16)	57.49 (2.26)
	Socket	FCN-777J037-G/A	FCN-777J037-G/B						

HOLDER (FOR 25 CONTACTS)

Unit: mm (inch)


φ3.44 (.135)
47.04 (1.852)
22.36 (.880)
4.7 max (.185)
55.45 (2.183)
36.48 (1.436)
No. 2–56 Hexagonal nut
No. 2–56, 5/8" (2 pieces provided)
A

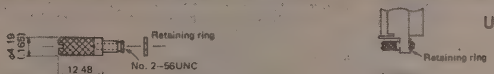
FCN-770C025-A
(Glass filled polycarbonate resin, Black)

A 41.00 (1.614) for holder+plug
41.28 (1.625) for holder+socket connector

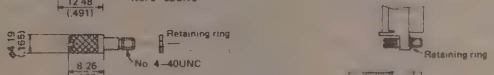
ACCESSORY

Unit: mm (inch)

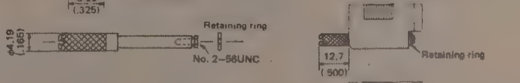
FCN-770A01


φ4.19 (.165)
Retaining ring
No. 2–56UNC
12.48 (.491)
Retaining ring

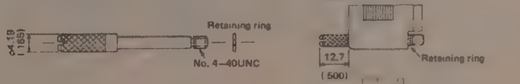
FCN-770A02


φ4.19 (.165)
Retaining ring
No 4–40UNC
8.26 (.325)
Retaining ring

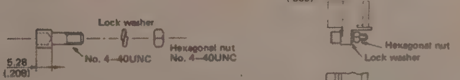
FCN-770A03


φ4.19 (.165)
Retaining ring
No. 2–56UNC
12.7 (.500)
Retaining ring

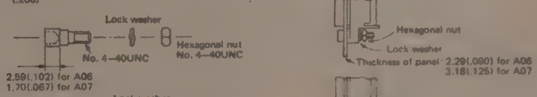
FCN-770A04


φ4.19 (.165)
Retaining ring
No. 4–40UNC
12.7 (.500)
Retaining ring

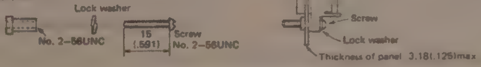
FCN-770A05


Lock washer
No. 4–40UNC
Hexagonal nut No. 4–40UNC
5.28 (.208)
Hexagonal nut
Lock washer

FCN-770A06, FCN-770A07


Lock washer
No. 4–40UNC
Hexagonal nut No. 4–40UNC
2.59(.102) for A06
1.70(.067) for A07
Hexagonal nut
Lock washer
Thickness of panel 2.29(.090) for A06
3.18(.125) for A07

FCN-770A08


Lock washer
No. 2–56UNC
15 (.591)
Screw No. 2–56UNC
Screw
Lock washer
Thickness of panel 3.18(.125)max

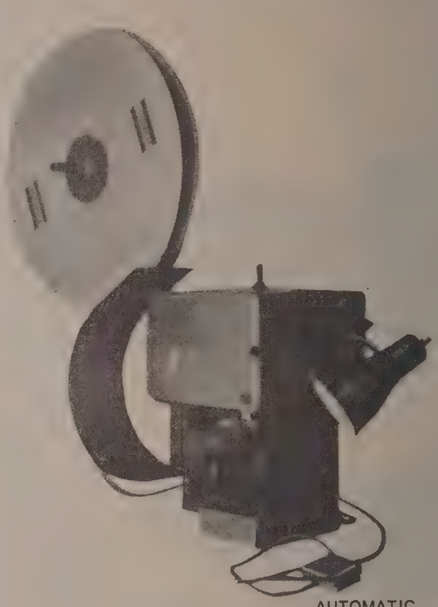
*** COMBINATION**

FUJITSU

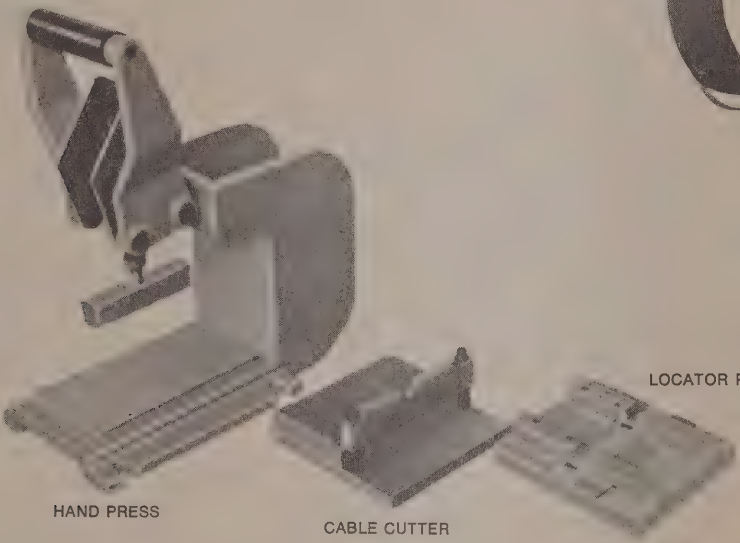
ASSEMBLING TOOLS

FCN-700 SERIES CONNECTORS should be cable-assembled with the special tools shown in the Table. In the description below, FCN-700 connectors are used as representative examples for flat cable assembling. For all other connectors (except FCN-720 crimp connectors) the same hand press and cable cutter are used and the sequential handling of cable assembling is similar. A special locator plate must be used, however.

As for crimping tools, 2 types are available: Hand crimping tool and automatic crimping tool.



AUTOMATIC CRIMPING TOOL



LOCATOR PLATE

HAND PRESS

CABLE CUTTER

HAND CRIMPING TOOL

TABLE FCN-700 SERIES CONNECTORS ASSEMBLING TOOLS

Unit: mm (inch)

Tools		Applicable Connectors/Contacts	Applicable Wire				Crimp Height (C.H.) mm (in.)
			Wire Size (AWG)	Cross-Section Area of Conductor mm² (sq. in.)	Outer Diameter of Insulation mm (in.)	Strip Length of Insulation mm (in.)	
Hand Press	FCN-707T-T101/H	Socket Connectors Mini Socket Connectors P.C.B. Transition Connectors D.I.P. Connectors Mini D.I.P. Connectors Card Edge Connectors					
Cable Cutter	FCN-707T-T001/H						
Locator Plate	FCN-707T-T022/H	Socket Connectors					
	FCN-747T-T018/H	Mini Socket Connectors					
	FCN-737T-T017/H	P.C.B. Transition Connectors					
	FCN-717T-T014/H*	D.I.P. Connectors					
	FCN-757T-T015/H	Mini D.I.P. Connectors					
	FCN-767T-T016/H	Card Edge Connectors					
	FCN-777T-T026/H	D-Type Connectors					
Hand Crimping Tool	FCN-723T-T007/H	Receptacle	#24	0.20~0.24 (.00031~.000372)	1.1~1.6 (.043~.063)	3.5~4.0 (.138~.197)	0.70~0.80 (.0276~.0315)
			#26	0.13~0.16 (.000202~.000248)			0.66~0.76 (.0260~.0299)
			#28	0.088~0.096 (.000136~.000149)			0.60~0.68 (.0236~.0295)
	FCN-723T-T008/H		#30	0.050~0.060 (.0000775~.000093)	0.7~1.0 (.028~.039)		0.68~0.75 (.0268~.0295)
			#32	0.032~0.038 (.0000495~.0000588)			0.68~0.74 (.0286~.0291)
Automatic Crimping Tool	Press unit: FCN-M100-120 Application: FCN-A107		#24	0.20~0.24 (.00031~.000372)	1.1~1.6 (.043~.063)		0.70~0.80 (.0276~.0315)
			#26	0.13~0.16 (.000202~.000248)			0.66~0.76 (.0260~.0299)
			#28	0.088~0.096 (.000136~.000149)			0.60~0.68 (.0236~.0295)

* Standard type. FCN-717T-T019/H for 14 contacts, FCN-717T-T020/H for 16 contacts, FCN-717T-021/H for 24 and 40 contacts.

NEED MORE INFORMATION?

USE ONE OF THE NEW

EEMEDIATE ACTION CARDS

INSIDE THE BACK COVER OF
VOLUMES 1A, 1B & 2

SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?

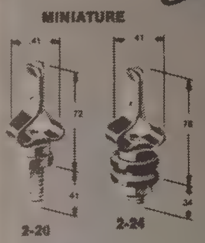
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?

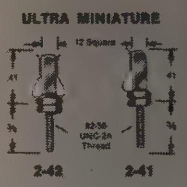
Termination Hardware

Grayhill INC

Test Clips

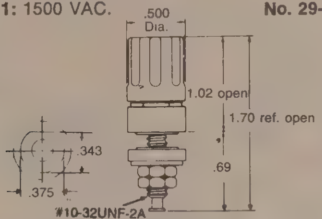
Designed for panel mounting on test equipment or for breadboarding to allow rapid connections without manual opening and closing of jaws. Hex nut under clip allows for tension adjustment of individual clip. Applicable to part numbers 2-0, 2-4, 2-20, 2-24, 2-41, and 2-42.

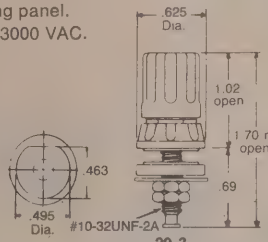

MINIATURE
.41
.72
.41
.78
.34
2-20 2-24


ULTRA MINIATURE
12 Square
.41
.41
82-38 UNC-2A Thread
2-42 2-41

Binding Posts

Rating at 120 VDC: 15 amps continuously with a max. temperature rise of 20°C.
Insulation Resistance: Between stud and mounting panel.
No. 29-1: 120,000 megohms. **No. 29-3:** 200,000 megohms.
Voltage Breakdown: Between studs and mounting panel.
No. 29-1: 1500 VAC. **No. 29-3:** 3000 VAC.

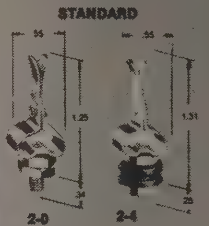

.500 Dia.
1.02 open
1.70 ref. open
.343
.69
.375
#10-32UNF-2A
29-1


.625 Dia.
1.02 open
1.70 ref open
.463
.69
.495 Dia.
#10-32UNF-2A
29-3

29-1 Standard Screw Type Binding Post with Straight Skirt. Fits ⅜" Diameter Mounting Hole Allowing Close Spacing.

29-3 Standard Screw Type Binding Post with Flared Skirt Fits ½" Diameter Mounting Hole Allowing Wider Spacing.

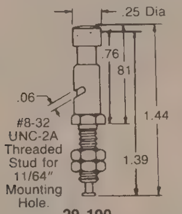
29-1 29-3

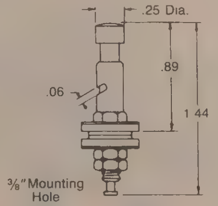

STANDARD
.55
.55
1.25
1.31
.34
.25
2-0 2-4

Push Post™

New plunger type binding post for positive connections. To operate, button is depressed, lead is placed in slot, and button is released. Spring pressure assures firm positive contact. Extends only ⅞" above mounting board.

Rating at 120 VDC: 20 amps continuously with a max. temperature rise of 20°C.


.25 Dia
.76
.81
.06
1.44
#8-32 UNC-2A Threaded Stud for 11/64" Mounting Hole
1.39
29-100

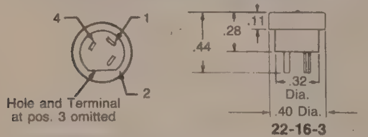

.25 Dia.
.89
.06
1.44
⅜" Mounting Hole
29-104

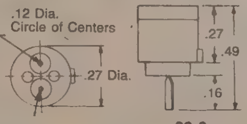
29-100

29-104

Sockets

Also available in 4 terminal, different pin to flat orientation and 4 pin, screw or rivet mount. See GRAYHILL Hardware catalog.


4
1
2
Hole and Terminal at pos. 3 omitted
.11
.28
.44
.32 Dia.
.40 Dia.
22-16-3


.12 Dia. Circle of Centers
.27 Dia.
.27
.49
.16
22-3

TRANSISTOR TYPE

Designed to accept the standard outline (TO-5, 9, 11, 16, 26, 29, 31 & 39). Leads fit on standard 100 mil grid for PC mount or fit a "D" hole to be held by a ring fastener. Wrap around terminals and molded-in indicator line for can tab orientation.

BI-PIN LAMP

Accepts standard T-1¼ and T-1¾ outline lamps when leads are trimmed to 0.215". PC mount terminals fit .032" diameter hole.

22-16-3

22-3

ORDERING INFORMATION

Test Clips

Part Number	Price	
	1-1999	2000-4999
2-0	$.85	$.72
2-4	1.10	.94
2-20	.85	.72
2-24	1.10	.94
2-41	.85	.72
2-42	.90	77

Sockets

Part Number	Price	
	1-499	500-999
22-3	$1.54	$1.23
22-16-3	1.29	1.03

Binding Posts

Part Number	Button Cap Color	Prices	
		1-99	100-499
29-1 RED	Red	$1.84	$1.56
29-1 BLK	Black	1.84	1.56
29-3 RED	Red	1.84	1.56
29-3 BLK	Black	1.84	1.56

Push Post

Part Number	Button Cap Color	Prices	
		1-99	100-499
29-100 RED	Red	$1.28	$1.09
29-100 BLK	Black	1.28	1.09
29-104 RED	Red	1.75	1.49
29-104 BLK	Black	1.75	1.49

Prices and Discounts subject to change without notice.
For additional quantity pricing contact your local distributor or Grayhill.

Grayhill, Inc. / 561 Hillgrove Ave. / P.O. Box 373 / La Grange, IL 60525-0373 / (312) 354-1040

PC CARD EDGE CONNECTORS

"UL Recognized and CSA Certified"

DESIGN FEATURES

Holmberg's card edge connector series are double readout, configured with optional wire-wrap and square or round dip-solder tails and are suitable for either hand or automatic termination in backplane or discrete applications. Individual connectors are functionally and dimensionally interchangeable with any industry standard PC connector regardless of manufacturer and conform to the applicable design requirements of MIL-C-21097. All popular sizes from 6 to 65 positions are available.

PROVEN CONTACT DESIGN

Highly reliable contacts are utilized to ensure optimum normal contact force over the full range of PC board thicknesses. A uniquely contoured mating surface on each contact further increases reliability by concentrating the normal force in the real contact area while maintaining circuit continuity under all stipulated test and operating conditions. Individual contacts are replaceable if accidentally damaged during handling or installation for most series.

PROVEN INSULATOR DESIGN

Designed to meet or exceed UL flammability requirements, connector bodies are molded in UL 94V-0 thermoplastic material and are offered in several mounting styles. Solder standoffs are provided to facilitate cleaning and preclude solder wicking; all styles incorporate polarizing keyways between the contacts and a generous lead-in chamber for ease of PC card entry.

PROVEN PERFORMANCE

Utilizing only proven and the most cost-effective designs and materials, Holmberg connectors guarantee performance which meets or exceeds industry standard requirements, at the same time, providing an exemplary level of operational reliability at attractive and competitive prices.

DESIGN OPTIONS

A variety of plating, mounting, termination and identification options are offered to meet specific user requirements.

PERFORMANCE CHARACTERISTICS

Operating voltage:	600VDC (sea level)
Current rating:	3 - 5 Amperes*
Operating temperature:	-55°C to +125°C
Contact resistance:	10 milliohms
Insulation resistance:	5000 megohms minimum
Contact retention:	4 lbs. minimum - Dip Solder, 8 lbs. minimum - wire wrap.
Durability:	up to 500 insertions and withdrawals without degradation of performance, dependent upon contact plating thickness selected
Insertion/withdrawal force:	2 to 8 oz. average contact pair using .0620 steel test blade.
Temperature cycling:	MIL-STD-202, method 107B
Moisture resistance:	Humidity per MIL-STD-202, method 103
Vibration:	MIL-STD-202, method 204A
Thermal shock:	MIL-STD-202, method 107

Note: Specifications are subject to change without notice-consult factory for available modifications and verification of design details.

Note: Wire-wrap is a registered trademark of Gardner-Denver, specifications are subject to change without notice - consult factory for available modifications and verification of design details.

All dimensions shown in inches.

MATERIALS

Insulator body:	Glass filled thermoplastic, UL rating 94V-O, color - black
Spring contact:	Hi-Strength Copper Alloy
Polarizing Key:	Nylon, color-white

*3 AMPS: A5, A8, A4, A7, A6, A2D, C8, C7
*5 AMPS: B3, A9, A2S

PART NUMBER DESCRIPTION AND ORDERING INFORMATION

A8 D43 WW 27 A 3

Series Designator
A2, B3, A4, A5, A6
A7, A8, A9, B9, C7, C8

Number of Contact Pairs and Readouts
D - Double Readout
6, 10, 15, 18, 22, 28, 30, 31, 36, 43, and 50
contact pairs typical

Termination Style
WW - Wire-wrap, DS - Dip Solder
SR - Solder Round, PE - Pierced Eyelet, RA - Right Angle

Contact Plating
Standard Plating
27 - Selective .000015" Au over .000050" Ni in contact area with .0001"—.0003" Sn/Pb on tails
28 - Selective .000010" Au over .000050" Ni in contact area with .0001"—.0003" Sn/Pb on tails
29 - Selective .000030" Au over .000050" Ni in contact area with .0001"—.0003" Sn/Pb on tails

Mounting Style
A — 125" diameter mounting holes
B — #4-40 threaded inserts
C — Without mounting ears
D — Flush mount
E — Flush mount with #4-40 threaded inserts
F — Offset Mounting

Contact Tail Length
See Series Charts
Consult factory for availability of other lengths

ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

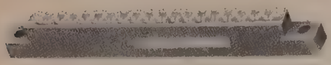
HOLMBERG ELECTRONICS CORPORATION

1720 East Garry Avenue
Suite 108
Santa Ana, California 92705
(714) 556-2930

PC Card Edge Connectors

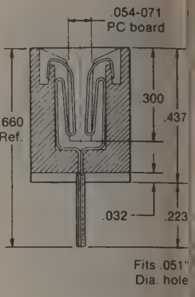
A2S-DS, PE SERIES

.156″ CENTER-TO-CENTER

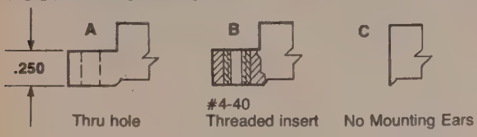


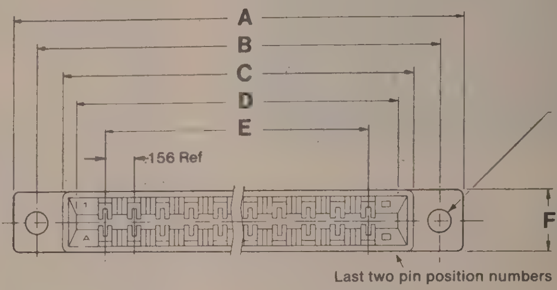
PART NUMBER	A (±.020)	B (±.010)	C (±.010)	D (±.010)	E (±.010)
A2S06XX**A1	1.871	1.531	1.218	1.078	.780
A2S10XX**A1	2.406	2.156	1.843	1.703	1.404
A2S12XX**A1	2.719	2.469	2.156	2.016	1.712
A2S15XX**A1	3.187	2.937	2.624	2.484	2.184
A2S18XX**A1	3.656	3.406	3.093	2.952	2.652
A2S22XX**A1	4.281	4.031	3.717	3.578	3.276
A2S25XX**A1	4.747	4.497	4.184	4.044	3.744

XX - DS, PE Termination Style
** - Contact Plating Code


.054-071
PC board
.300
.437
.660
Ref.
.032
.223
Fits .051″
Dia. hole

MOUNTING STYLES


A
B
C
.250
Thru hole
#4-40
Threaded insert
No Mounting Ears


A
B
C
D
E
.156 Ref
.125
Dia.
F
Last two pin position numbers

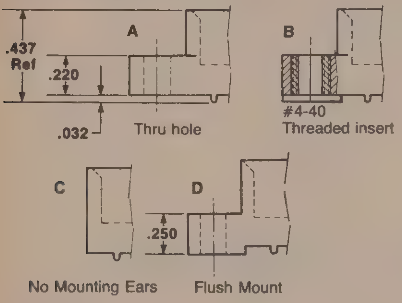
A2D-DS, PE SERIES

.156″ CENTER-TO-CENTER

.145″ ROW-TO-ROW

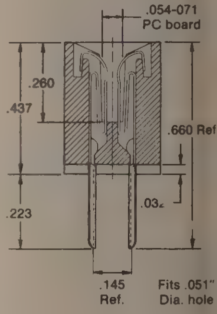
A2D18DS28A1

MOUNTING STYLES


A
B
.437
Ref
.220
.032
Thru hole
#4-40
Threaded insert
C
D
.250
No Mounting Ears
Flush Mount

PART NUMBER	A (±.020)	B (±.010)	C (±.010)	D (±.010)	E (±.010)	F (±.010)
A2D06XX**A1	1.781	1.531	1.218	1.078	.780	.325
A2D10XX**A1	2.406	2.156	1.843	1.703	1.404	.325
A2D12XX**A1	2.719	2.469	2.156	2.016	1.712	.325
A2D15XX**A1	3.187	2.937	2.624	2.484	2.184	.325
A2D18XX**A1	3.656	3.406	3.093	2.952	2.652	.325
A2D22XX**A1	4.281	4.031	3.717	3.578	3.276	.325
A2D25XX**A1	4.747	4.497	4.184	4.044	3.744	.325
A2D28XX**A1	5.214	4.964	4.652	4.532	4.212	.438
A2D36XX**A1	6.469	6.219	5.906	5.778	5.460	.438
A2D43XX**A1	7.552	7.302	7.000	6.802	6.552	.438

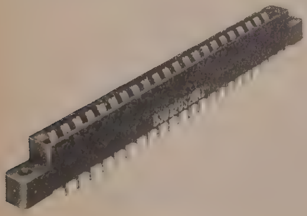
XX - DS, PE Termination Style
** - Contact Plating Code


.054-071
PC board
.260
.437
.660 Ref
.223
.03
.145
Ref.
Fits .051″
Dia. hole

B3D-DS, PE SERIES

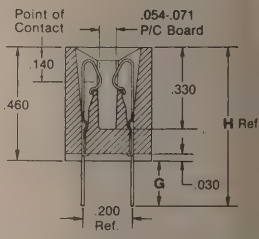
.156″ CENTER-TO-CENTER

.200″ ROW-TO-ROW

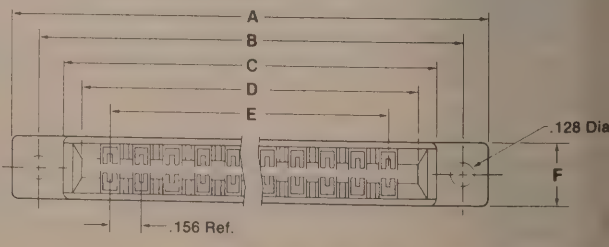


PART NUMBER	A	B	C	D	E	F
B3D06XX**A1	1.785	1.531	1 239	1 100	780	340
B3D10XX**A1	2.409	2.155	1 863	1 724	1 404	340
B3D12XX**A1	2.721	2.467	2 175	2 036	1 716	340
B3D15XX**A1	3.189	2.935	2 643	2 504	2 184	340
B3D18XX**A1	3.657	3.403	3 111	2 972	2 652	340
B3D22XX**A1	4.281	4.027	3 735	3 596	3 276	340
B3D24XX**A1	4.593	4.339	4 047	3 908	3 588	340
B3D25XX**A1	4.749	4.495	4 203	4 064	3 744	340
B3D28XX**A1	5.217	4.963	4 671	4 532	4 212	438
B3D36XX**A1	6.465	6.211	5 919	5 780	5 460	438
B3D43XX**A1	7.557	7.303	7 011	6 872	6 552	.438

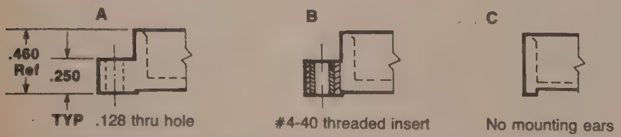
XX - DS, PE, SF Termination Style
** - Contact Plating Code


Point of
Contact
.054-.071
P/C Board
.140
.460
.330
H Ref
G
.030
.200
Ref.

	G	H
DS	.155	.615
PE	.220	.680
SF	.155	.615


A
B
C
D
E
.128 Dia
F
.156 Ref.

MOUNTING STYLES


A
B
C
.460
Ref
.250
TYP .128 thru hole
#4-40 threaded insert
No mounting ears

POLARIZING KEY: A2S, A2D, B3D — 98013

ASHEVILLE HIGHWAY
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HOLMBERG ELECTRONICS CORPORATION

1720 East Garry Avenue
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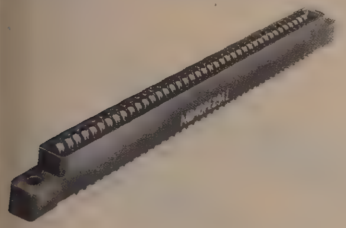
(714) 556-2930

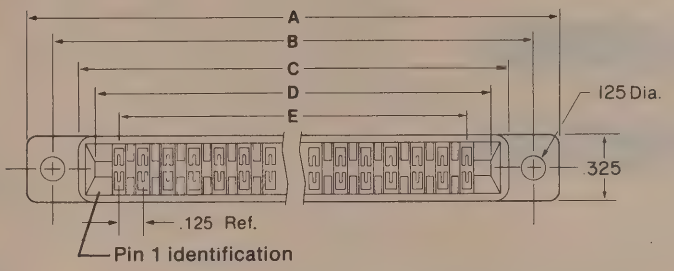
PC Card Edge Connectors

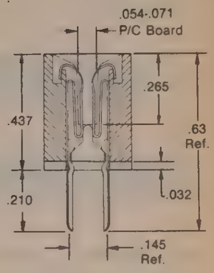
A4D-DS, PE SERIES

.125″ CENTER-TO-CENTER

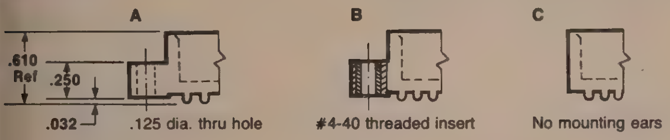
.145″ ROW-TO-ROW




A
B
C
D
E
125 Dia.
.325
.125 Ref.
Pin 1 identification


.054-.071
P/C Board
.265
.437
.63
Ref.
.210
.032
.145
Ref.

MOUNTING STYLES


A
.610
Ref
.250
.032
.125 dia. thru hole
B
#4-40 threaded insert
C
No mounting ears

PART NUMBER	A	B	C	D	E
A4D10XX**A1	2.055	1.795	1.535	1.375	1.125
A4D15XX**A1	2.680	2.420	2.160	2.000	1.750
A4D22XX**A1	3.555	3.295	3.035	2.875	2.625
A4D25XX**A1	3.930	3.670	3.410	3.250	3.000
A4D28XX**A1	4.305	4.045	3.785	3.625	3.375
A4D30XX**A1	4.555	4.295	4.035	3.875	3.625
A4D31XX**A1	4.680	4.420	4.160	4.000	3.750
A4D36XX**A1	5.305	5.045	4.785	4.625	4.375
A4D40XX**A1	5.805	5.545	5.285	5.125	4.875
A4D43XX**A1	6.180	5.920	5.660	5.500	5.250
A4D50XX**A1	7.055	6.795	6.535	6.375	6.125

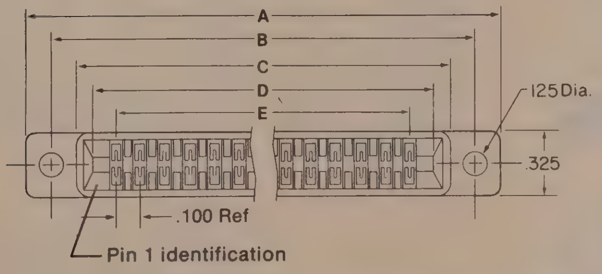
XX - DS or PE Termination Style
** - Contact Plating Code

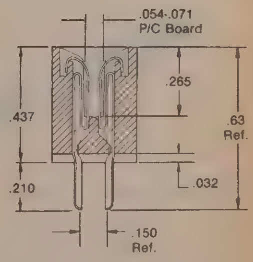
POLARIZING KEY: A4, A5 — **98022**

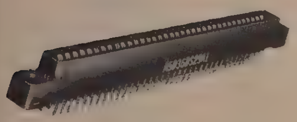
A5D-DS, PE SERIES

.100″ CENTER-TO-CENTER

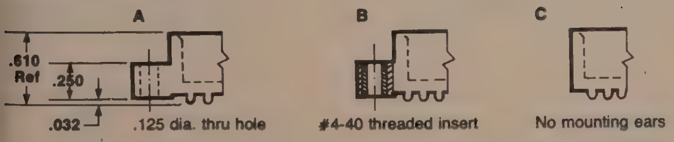
.150″ ROW-TO-ROW


A
B
C
D
E
125 Dia.
.325
.100 Ref
Pin 1 identification


.054-.071
P/C Board
.265
.437
.63
Ref.
.210
.032
.150
Ref.



MOUNTING STYLES


A
.610
Ref
.250
.032
.125 dia. thru hole
B
#4-40 threaded insert
C
No mounting ears

PART NUMBER	A	B	C	D	E
A5D10XX**A1	1.875	1.575	1.268	1.107	.900
A5D15XX**A1	2.375	2.075	1.768	1.607	1.400
A5D18XX**A1	2.675	2.375	2.068	1.907	1.700
A5D20XX**A1	2.875	2.575	2.268	2.107	1.900
A5D22XX**A1	3.075	2.775	2.468	2.307	2.100
A5D25XX**A1	3.375	3.075	2.768	2.607	2.400
A5D28XX**A1	3.675	3.375	3.068	2.907	2.700
A5D30XX**A1	3.875	3.575	3.268	3.107	2.900
A5D36XX**A1	4.475	4.175	3.868	3.707	3.500
A5D40XX**A1	4.875	4.575	4.268	4.107	3.900
A5D43XX**A1	5.175	4.875	4.568	4.407	4.200
A5D50XX**A1	5.875	5.575	5.268	5.107	4.900

XX - DS or PE Termination Style
** - Contact Plating Code

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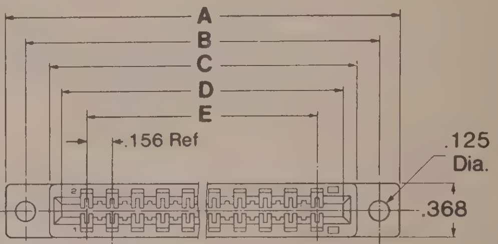
PC Card Edge Connectors

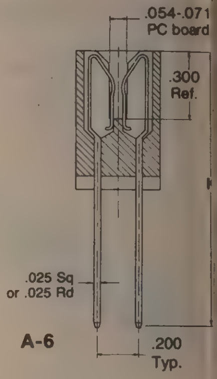
A6D-DS, WW, SR SERIES

.156" CENTER-TO-CENTER
.200" ROW-TO-ROW

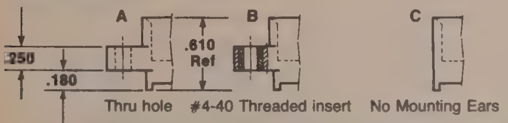
PART NUMBER	A (±.010)	B (±.006)	C (±.008)	D (±.005)	E (±.004)
A6D10XX**A†	2.408	2 158	1 845	1 724	1 404
A6D15XX**A†	3.188	2.938	2.625	2.504	2.184
A6D18XX**A†	3.656	3.406	3.093	2.972	2.652
A6D22XX**A†	4.280	4.030	3.717	3.596	3.276
A6D25XX**A†	4 748	4 498	4 185	4.064	3.744
A6D28XX**A†	5.216	4.966	4.653	4.532	4.212
A6D36XX**A†	6.464	6.214	5.901	5.780	5.460
A6D43XX**A†	7.556	7.306	6.993	6.872	6.552

XX - DS, WW, or SR Termination Style
** - Contact Plating Code
† - Tail Length


A
B
C
D
E
.156 Ref
.125
Dia.
.368
2


.054-.071
PC board
.300
Ref.
.025 Sq
or .025 Rd
A-6
.200
Typ.

MOUNTING STYLES


A
B
C
.250
.180
.610
Ref
Thru hole
#4-40 Threaded insert
No Mounting Ears

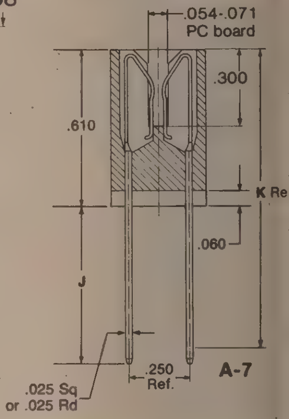
STANDARD CONTACT TAIL LENGTHS

Size	DS		SR	
	J	K	J	K
2	.160	.770	.180	.770

Size	WW	
	J	K
3	.560	1.170

DS = .025 sq. tail
WW = .025 sq. tail
SR = .025 rd. tail

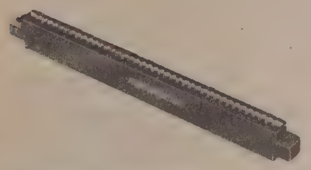
Consult factory for other lengths.


.054-.071
PC board
.300
.610
K Re
.060
J
.025 Sq
or .025 Rd
.250
Ref.
A-7

POLARIZING KEY: A6, A7 — **98023**

A7D-DS, WW, SR SERIES

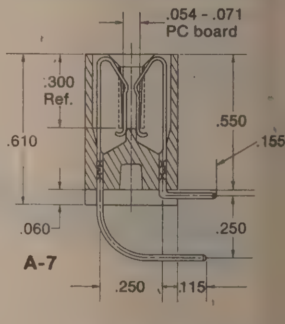
.125" CENTER-TO-CENTER
.250" ROW-TO-ROW



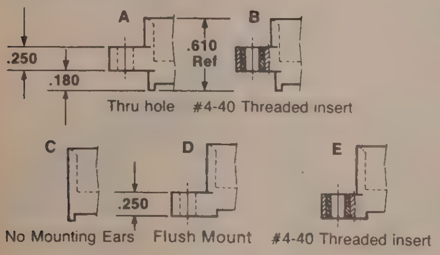
PART NUMBER	A (±.010)	B (±.006)	C (±.008)	D (±.005)	E (±.004)
A7D10XX**A†	2.055	1.795	1.535	1.375	1.125
A7D15XX**A†	2.680	2.420	2.160	2.000	1.750
A7D18XX**A†	3.055	2.795	2.535	2.375	2.125
A7D20XX**A†	3 305	3.045	2.785	2.625	2.375
A7D22XX**A†	3.555	3.295	3.035	2.875	2.625
A7D25XX**A†	3.930	3.670	3.410	3.250	3.000
A7D28XX**A†	4.305	4.045	3.785	3.625	3.375
A7D30XX**A†	4.555	4.295	4.035	3.875	3.625
A7D35XX**A†	5.180	4.920	4.660	4.500	4.250
A7D36XX**A†	5.305	5.045	4.785	4.625	4.375
A7D40XX**A†	5.805	5.545	5.285	5.125	4.875
A7D43XX**A†	6.180	5.920	5.660	5.500	5.250
A7D50XX**A†	7.055	6.795	6.535	6.375	6.125

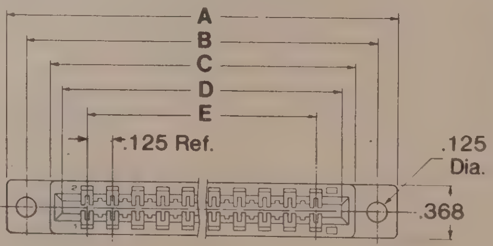
XX - DS, WW or SR Termination Style
** - Contact Plating Code
† - Tail Length

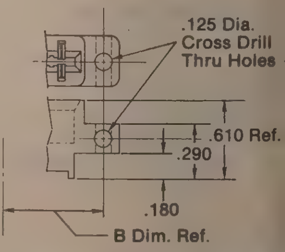
A7 RIGHT ANGLE TAILS


.054 - .071
PC board
.300
Ref.
.610
.550
.155
.060
.250
A-7
.250
.115

MOUNTING STYLES


A
B
.250
.180
.610
Ref
Thru hole
#4-40 Threaded insert
C
D
E
.250
No Mounting Ears
Flush Mount
#4-40 Threaded insert


A
B
C
D
E
.125 Ref.
.125
Dia.
.368
2


.125 Dia.
Cross Drill
Thru Holes
.610 Ref.
.290
.180
B Dim. Ref.

STANDARD CONTACT TAIL LENGTHS

Size	DS		SR	
	J	K	J	K
2	.160	.770	.180	.770

Size	WW	
	J	K
3	.560	1.170

DS = .025 sq. tail
WW = .025 sq. tail
SR = .025 rd. tail

Consult factory for other lengths.

A7DXXRAXXA = .250
A7DXXRAXXM23 = .180

ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
(803) 472-4141

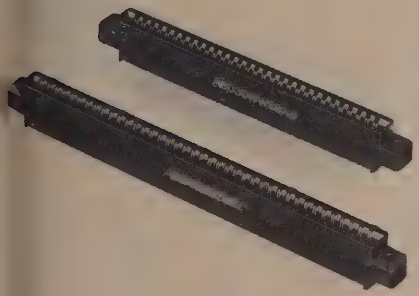
HOLMBERG ELECTRONICS CORPORATION

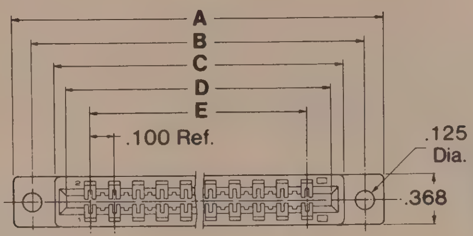
1720 East Garry Avenue
Suite 108
Santa Ana, California 9270
(714) 556-2930

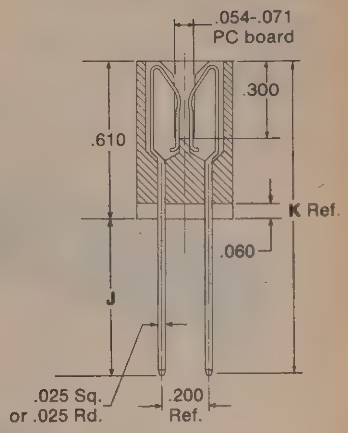
PC Card Edge Connectors

A8D-DS, WW, SR SERIES

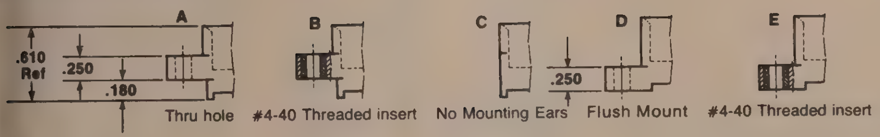
.100″ CENTER-TO-CENTER
.200″ ROW-TO-ROW




A
B
C
D
E
.100 Ref.
.125
Dia.
.368


.054-.071
PC board
.300
.610
K Ref.
.060
J
.025 Sq.
or .025 Rd.
.200
Ref.

MOUNTING STYLES


A
.610
Ref
.250
.180
Thru hole
B
#4-40 Threaded insert
C
No Mounting Ears
D
.250
Flush Mount
E
#4-40 Threaded insert

STANDARD CONTACT TAIL LENGTHS

Size	DS		SR	
	J	K	J	K
2	.160	.770	.180	.770

Size	WW	
	J	K
3	.560	1.170

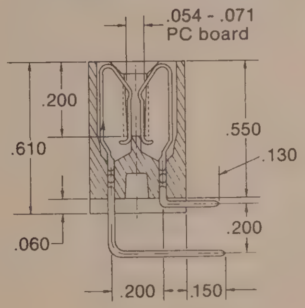
DS = .025 sq. tail
WW = .025 sq. tail
SR = .025 rd. rail

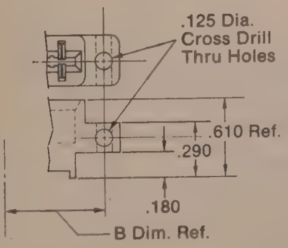
Consult factory for other lengths.

PART NUMBER	A (±.010)	B (±.006)	C (±.008)	D (±.005)	E (±.004)
A8D10XX**A†	1.835	1.575	1.260	1.100	.900
A8D12XX**A†	2.035	1.775	1.460	1.300	1.100
A8D15XX**A†	2.335	2.075	1.760	1.600	1.400
A8D20XX**A†	2.835	2.575	2.260	2.100	1.900
A8D22XX**A†	3.035	2.775	2.460	2.300	2.100
A8D25XX**A†	3.335	3.075	2.760	2.600	2.400
A8D28XX**A†	3.635	3.375	3.060	2.900	2.700
A8D30XX**A†	3.835	3.575	3.260	3.100	2.900
A8D31XX**A†	3.935	3.675	3.360	3.200	3.100
A8D35XX**A†	4.335	4.075	3.760	3.600	3.400
A8D36XX**A†	4.435	4.175	3.860	3.700	3.500
A8D40XX**A†	4.835	4.575	4.260	4.100	3.900
A8D43XX**A†	5.135	4.875	4.560	4.400	4.200
A8D50XX**A†	5.835	5.575	5.260	5.100	4.900
A8D60XX**A†	6.835	6.575	6.260	6.100	5.900
A8D65XX**A†	7.335	7.075	6.760	6.600	6.400

XX - DS, WW or SR Termination Style ** - Contact Plating Code † - Tail Length

A8 RIGHT ANGLE TAILS


.054 - .071
PC board
.200
.610
.550
.130
.200
.060
.200
.150


.125 Dia.
Cross Drill
Thru Holes
.610 Ref.
.290
.180
B Dim. Ref.

A8DXXRAXXA = .200
A8DXXRAXXM23 = .150

POLARIZING KEY: 98023

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HOLMBERG ELECTRONICS CORPORATION

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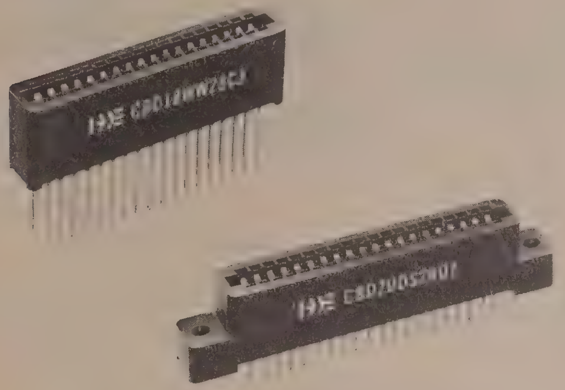
PC Card Edge Connectors

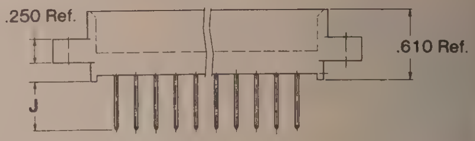
C8D-DS, WW SERIES

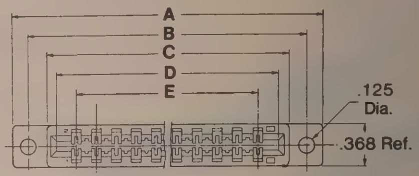
.100″ CENTER-TO-CENTER

.200″ ROW-TO-ROW

Cantilever (Economy) Version
of A8 Connectors







PART NUMBER	A (±.010)	B (±.006)	C (±.008)	D (±.005)	E (±.004)
C8D10XX**A†	1.835	1.575	1.260	1.100	.900
C8D12XX**A†	2.035	1.775	1.460	1.300	1.100
C8D15XX**A†	2.335	2.075	1.760	1.600	1.400
C8D20XX**A†	2.835	2.575	2.260	2.100	1.900
C8D22XX**A†	3.035	2.775	2.460	2.300	2.100
C8D25XX**A†	3.335	3.075	2.760	2.600	2.400
C8D28XX**A†	3.635	3.375	3.060	2.900	2.700
C8D30XX**A†	3.835	3.575	3.260	3.100	2.900
C8D31XX**A†	3.935	3.675	3.360	3.200	3.000
C8D35XX**A†	4.335	4.075	3.760	3.600	3.400
C8D36XX**A†	4.435	4.175	3.860	3.700	3.500
C8D40XX**A†	4.835	4.575	4.260	4.100	3.900
C8D43XX**A†	5.135	4.875	4.560	4.400	4.200
C8D50XX**A†	5.835	5.575	5.260	5.100	4.900
C8D60XX**A†	6.835	6.575	6.260	6.100	5.900

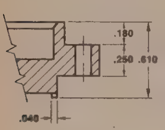
XX — DS or WW Termination Style
** — Contact Plating Code

† — Tail Length
Available in configurations 06-60

NOTE Wire-wrap is a registered trademark of Gardner-Denver, specifications are subject to change without notice - consult factory for available modifications and verification of design details

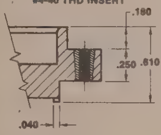
MOUNTING STYLES

.125 DIA. THRU HOLE



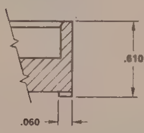
A

#4-40 THD INSERT



B

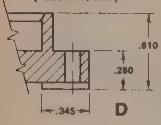
NO MOUNTING EARS



C

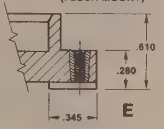
For Mounting Style C,
overall length is dimension C.

.125 DIA. THRU HOLE
(FLUSH MOUNT)



D

#4-40 THD INSERT
(FLUSH MOUNT)



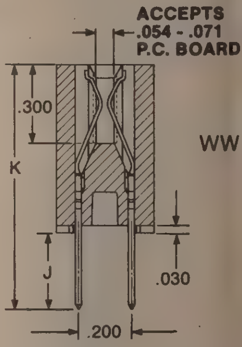
E

STANDARD CONTACT TAIL LENGTHS

Size	DS	
	J	K
2	.160	.770

Size	WW	
	J	K
3	.560	1.170

DS = .024 x .012
WW = .025 sq. tail



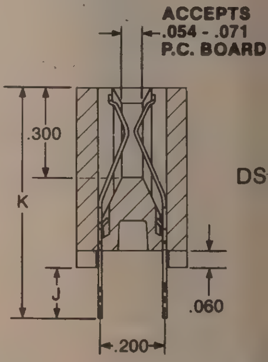
C7D-DS, WW SERIES

.125″ CENTER-TO-CENTER

.250″ ROW-TO-ROW

Cantilever (Economy) Version
of A7 Connectors

PART NUMBER	A (±.010)	B (±.006)	C (±.008)	D (±.005)	E (±.004)
C7D10XX**A†	2.055	1.795	1.535	1.375	1.125
C7D15XX**A†	2.680	2.420	2.160	2.000	1.750
C7D18XX**A†	3.055	2.795	2.535	2.375	2.125
C7D20XX**A†	3.305	3.045	2.785	2.625	2.375
C7D22XX**A†	3.555	3.295	3.035	2.875	2.625
C7D25XX**A†	3.930	3.670	3.410	3.250	3.000
C7D28XX**A†	4.305	4.045	3.785	3.625	3.375
C7D30XX**A†	4.555	4.295	4.035	3.875	3.625
C7D35XX**A†	5.180	4.920	4.660	4.500	4.250
C7D36XX**A†	5.305	5.045	4.785	4.625	4.375
C7D40XX**A†	5.805	5.545	5.285	5.125	4.875
C7D43XX**A†	6.180	5.920	5.660	5.500	5.250
C7D50XX**A†	7.055	6.795	6.535	6.375	6.125



ASHEVILLE HIGHWAY
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HOLMBERG ELECTRONICS CORPORATION

1720 East Garry Avenue
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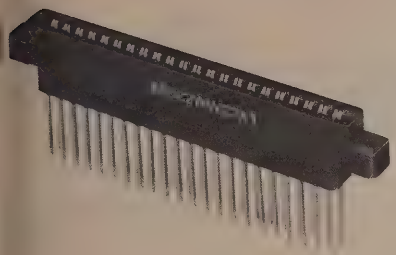
(714) 556-2930

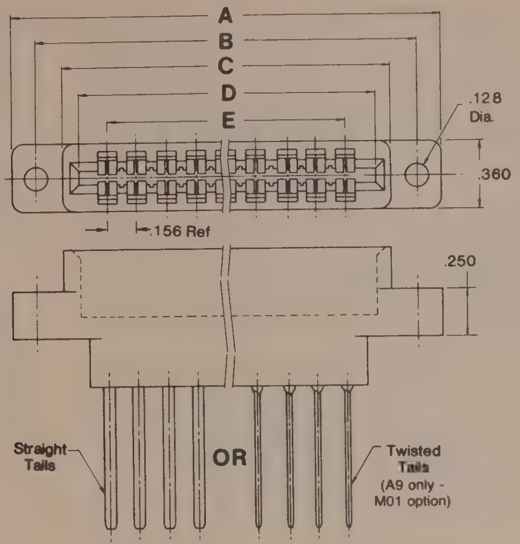
PC Card Edge Connectors

A9D AND B9D-WW SERIES

.156" CENTER-TO-CENTER

.188" ROW-TO-ROW



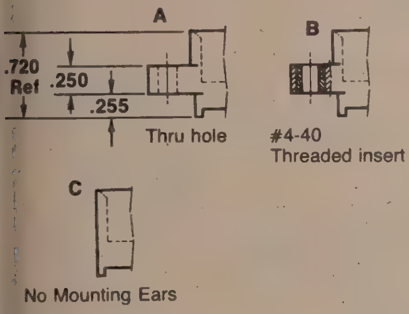

A
B
C
D
E
.128
Dia.
.360
.156 Ref
.250
Straight Tails
OR
Twisted Tails
(A9 only - M01 option)

A9D-WW SERIES

Operating voltage: 1800VDC (sea level)

Current rating: 5 Amperes

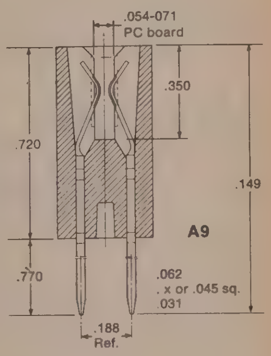
MOUNTING STYLES


A
.720
Ref
.250
.255
Thru hole
B
#4-40
Threaded insert
C
No Mounting Ears

PART NUMBER	A (±.010)	B (±.006)	C (±.008)	D (±.005)	E (±.004)
A9D10WW**A3	2.406	2.158	1.876	1.724	1.404
A9D15WW**A3	3.188	2.938	2.656	2.504	2.184
A9D18WW**A3	3.654	3.406	3.124	2.972	2.652
A9D22WW**A3	4.280	4.030	3.748	3.596	3 276
A9D28WW**A3	5.214	4.966	4.684	4.532	4.212
A9D30WW**A3	5.528	5.278	4.996	4.844	4.524
A9D31WW**A3	5.684	5.434	5.152	5.000	4.680
A9D36WW**A3	6.462	6.214	5.932	5.780	5.460
A9D40WW**A3	7.088	6.838	6.556	6.404	6.084
A9D43WW**A3	7 554	7.306	7 024	6.872	6.552

Note Wire-wrap is a registered trademark of Gardner-Denver; specifications are subject to change without notice - consult factory for available modifications and verification of design details.

** - Contact Plating Code


.054-071
PC board
.350
.720
.149
A9
.770
.062
x or .045 sq.
.031
.188
Ref.

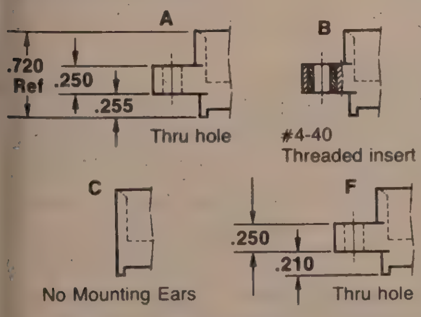
B9D-WW SERIES

POLARIZING KEYS: 98023

Operating Voltage: 1800VDC (sea level)

Current rating: 5 Amperes

MOUNTING STYLES

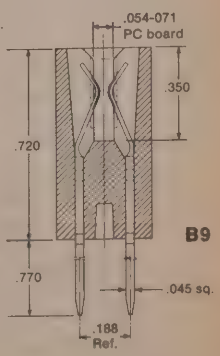

A
.720
Ref
.250
.255
Thru hole
B
#4-40
Threaded insert
C
No Mounting Ears
F
.250
.210
Thru hole

Consult factory for available design modifications and verification of design details.

PART NUMBER	A (±.010)	B (±.006)	C (±.008)	D (±.005)	E (±.004)
B9D10WW**A3	2.406	2.158	1.876	1.724	1.404
B9D15WW**A3	3.188	2.938	2.656	2.504	2.184
B9D18WW**A3	3.654	3.406	3.124	2.972	2.652
B9D22WW**A3	4.280	4.030	3.748	3.596	3.276
B9D28WW**A3	5.214	4.966	4.684	4.532	4.212
B9D30WW**A3	5.528	5.278	4.996	4.844	4.524
B9D31WW**A3	5.684	5.434	5.152	5.000	4.680
B9D36WW**A3	6 462	6.214	5 932	5 780	5 460
B9D40WW**A3	7.088	6.838	6.556	6.404	6.084
B9D43WW**A3	7 554	7 306	7 024	6 872	6 552

Note Wire-wrap is a registered trademark of Gardner-Denver; specifications are subject to change without notice - consult factory for available modifications and verification of design details.

** - Contact Plating Code


.054-071
PC board
.350
.720
B9
.770
.045 sq.
.188
Ref.

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(803) 472-4141

HOLMBERG ELECTRONICS CORPORATION

1720 East Garry Avenue
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(714) 556-2930

D SUBMINIATURE CONNECTORS

PRODUCT DESCRIPTION

Holmberg's H2, H3 and H4 Series D Subminiature connectors are all plastic or metal-shielded for printed circuit board applications in the telecommunications, data processing, instrumentation, industrial control and other industries where low cost and high performance are required. They are fully intermatable with all D Subminiature connectors - including crimp, solder and insulation displacement types.

The connector housing is molded in black glass-filled polyester, UL rated 94 V-O. Contacts are high strength copper alloy and are selectively plated- gold-over-nickel in the contact area with solder plating on the tails. This assures contact reliability, superior solderability and long shelf life at a lower cost.

The metal shielded connector is designed specifically for mating with EMI-RFI qualified cables, the H4 metal shell connectors incorporate a grounding bulkhead mount, or can be supplied with a grounding strap for grounding to the topside, underside or both, of PC boards. The bright tin-plated steel metal shell provides a cost-effective medium for grounding -- which can also be accomplished through the mounting hardware.

Available in 9, 15, 25 and 37 positions, the unique design of the Holmberg D Subminiature connectors ensures excellent contact retention and precisely located, rigid contact tails for easy assembly.

DESIGN FEATURES

LARGE LEAD-IN PROVIDES EASY MATING. Allows male plug to be off true position as much as + .040" and still mate. Corner radii around "D" outline also aids pin alignment. SMOOTH LEAD ON TIP OF PINS. Allows easy mating and low insertion force with mating receptacle.

RIGID TAILS NEED NO SUPPORT. Right angle tails have channel cross-section for exceptional strength and rigidity. They are precisely positioned for easy mounting. Since no plastic inserts or spacers are required for alignment or support, nothing obstructs cleaning during soldering.

60/40 TIN/LEAD SELECTIVE PLATING ON THE TAIL ENHANCES SOLDERABILITY. Nickel-plated tail surface above the board forms effective solder mask. Large cross-section of the above board tail portion provides good heat sink to further control solder application.

SELECTIVE GOLD PLATING. A unique double-stamping process permits precise placement of valuable gold only where needed.

METAL SHELL provides electrical ground path continuity and magnetic shielding, from the mating receptacle metal shell through the grounding bumps on the male shell. The steel shell with bright tin-plating also provides for grounding through the factory installed mounting hardware.

HARDWARE KIT

Part No. 98039 (RA)
Part No. 98044 (ST)

Consists of: 2 #4-40 screw-threaded inserts
2 Flat washers
2 Lock washers
2 Retaining nuts

Packaged in a polyethylene bag.

PERFORMANCE CHARACTERISTICS

Operating voltage:	600VDC (sea level)
Current rating:	5 Amperes
Operating temperature:	-55°C to +125°C
Contact resistance:	10 milliohms max. @ rated current
Insulation resistance:	5000 megohms minimum
Dielectric withstanding voltage	1000 VAC minimum
Durability:	up to 500 insertions and withdrawals without degradation of performance, dependent upon contact plating thickness selecte

MATERIALS

Insulator body:	Glass filled polyester, UL rating 94V-0, color-black
Contact:	High yield strength brass alloy per Spec QQ-B-750.
Metal Shell:	Steel, bright tin plate.

UL Recognized and CSA Certified

PART NUMBER DESCRIPTION AND ORDERING INFORMATION

H2 R 25 RA 29 A P M

SERIES DESIGNATOR
H2 — All Plastic
H4 — Metal Shell

CONTACT TYPE
R — Female Receptacle
M — Male Pins

NUMBER OF CONTACTS
09, 15, 25, 37

PC TERMINATION TYPE
RA — Right Angle
ST — Straight Tail
SW — Straight Retention Tails
RW — Right Angle Retention Tails

CONTACT PLATING
28 — Selective .000010" gold over .000050" nickel in the contact area with .0002" to .0003" 60/40 tin/lead on the contact tails.
29 — Selective .000030" gold over .000050" nickel in the contact area with .0002" to .0003" 60/40 tin/lead on the contact tails.

MOUNTING STYLE

Right Angle & Right Angle Retention Tails
A — Basic Connector
B — Round Standoff, 4-40 Thread
C — Flush Molded-in insert, 4-40 Thread
D — Plastic Standoff, with 4-40 Threaded Insert
E — Latch with Plastic Standoff (RS 449)
F — Locking Post
G — Hex Standoff, 4-40 Thread
J — Latch with Plastic Standoff and 4-40 Threaded Insert (RS 449 & 232)
T — Torque-Lok, Flush, 4-40 Thread

Straight Tail and Straight Retention Tails
A — Basic Connector with Thru Holes
B — Round Standoff, # 4-40 Thread
C — Flush Molded-in Insert, # 4-40 Thread
D — Flush board mounting with Thru Holes
J — Latch with Plastic Standoff and # 4-40 Threaded Insert (for RS 449 and RS 232 cable assemblies)
H — Plastic Standoff with 4-40 Threaded Insert

PCB OPTIONS
P — Snap Latch / .062 PCB
Consult factory for SW and RW PCB hole sizes

SPECIAL MODIFICATIONS
M30 — Metric Thread Size M3
M42 — Outside Ground Strap
M43 — Inside Ground Strap
M44 — Solder Ground
M50 — Back Board Mounting Hole
M52 — Back Board Mounting Hole with outside ground strap
M53 — Back Board Mounting Hole with inside ground strap
M62 — Metric Thread with outside ground strap
M63 — Metric Thread with inside ground strap
M64 — Metric Thread with solder ground tail
Consult factory for grounding options on straight tail connectors

ASHEVILLE HIGHWAY
INMAN, SOUTH CAROLINA 29349
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HOLMBERG ELECTRONICS CORPORATION

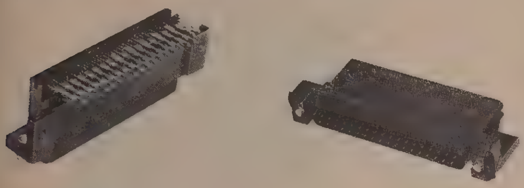
1720 East Garry Avenue
Suite 108
Santa Ana, California 92705
(714) 556-2930

D SUBMINIATURE CONNECTORS

H2 SERIES

9, 15, 25 AND 37 POSITIONS

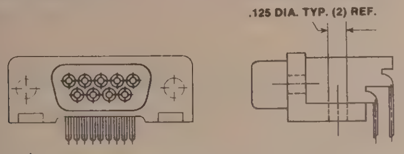
ALL PLASTIC RIGHT ANGLE FEMALE RECEPTACLES FOR PRINTED CIRCUIT BOARD MOUNTING



MOUNTING STYLES

STYLE A

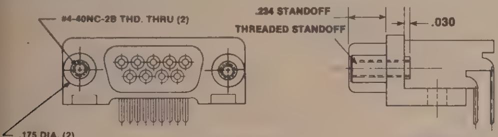
This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039) is available.


.125 DIA. TYP. (2) REF.

MOUNTING STYLE A SIDE VIEW

STYLE B

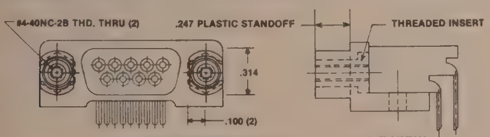
This configuration includes a #4-40 threaded standoff-which provides 8 in-lb torque retention, for mating to RS 232 cable assemblies. One-piece construction of the factory-installed insert eliminates need for separate hardware.


#4-40NC-2B THD. THRU (2)
.234 STANDOFF
THREADED STANDOFF
.030
.175 DIA. (2)

MOUNTING STYLE B SIDE VIEW

STYLE D

Unique Style D configuration has molded-in plastic standoff with factory-installed zinc-plated brass hex-headed, #4-40 threaded insert. Specifically designed for RS 232 cable assemblies. Insert is threaded all the way through. Hexagonal shape positively locks insert in place to provide 8 in-lb torque retention and eliminate rotation. Style D is functionally equivalent to Style B and Style G inserts. Available with Style 2 board mounting holes only.

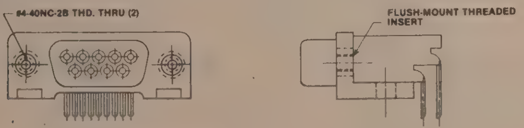

#4-40NC-2B THD. THRU (2)
.247 PLASTIC STANDOFF
THREADED INSERT
.314
.100 (2)

MOUNTING STYLE D SIDE VIEW

STYLES C & T

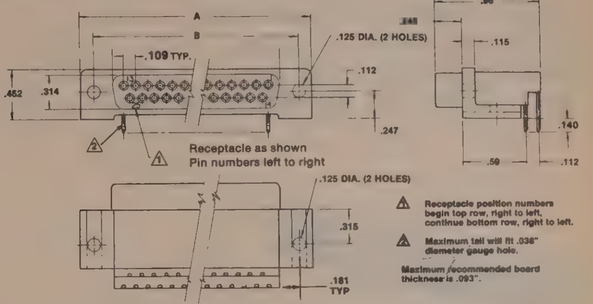
Style C mounting provides a flush, molded-in, #4-40 threaded insert of zinc-plated brass. The insert has rows of knurling that capture it in the plastic, preventing rotation or push-out. It has extremely high torque retention (minimum 10 in-lb).

Style T2 is the same as mounting style C2 except it uses self-locking stainless steel inserts with black dry-film lubricant. They are designed to prevent the jack-screw from loosening and eliminates lockwashers and nuts.


#4-40NC-2B THD. THRU (2)
FLUSH-MOUNT THREADED INSERT

MOUNTING STYLE C & T SIDE VIEW

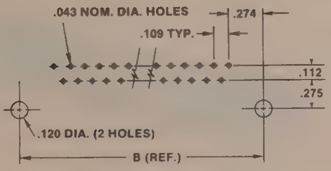
DIMENSIONS (Shown In Inches)


A
B
.109 TYP.
.125 DIA. (2 HOLES)
.112
.452
.314
.247
.96
.115
.140
.59
.112
Receptacle as shown
Pin numbers left to right
.125 DIA. (2 HOLES)
.315
.181 TYP

△1 Receptacle position numbers begin top row, right to left, continue bottom row, right to left.

△2 Maximum tail will fit .036" diameter gauge hole.

Maximum recommended board thickness is .093".


.043 NOM. DIA. HOLES
.274
.109 TYP.
.112
.275
.120 DIA. (2 HOLES)
B (REF.)

PC BOARD PATTERN

NUMBER OF CONTACTS	A	B
9	1.224	.984
15	1.552	1.312
25	2.092	1.852
37	2.740	2.500

STYLE F

Style F has brass locking posts designed to mate with AMP's slide-latch clip assembly. Positronic's slide-lock assembly and equivalent connectors.

STYLE G

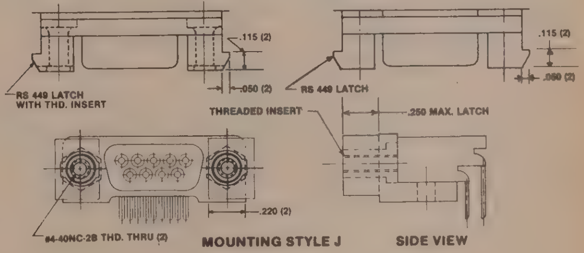
Style G is essentially the same as Style B, but with threaded inserts in a hexagonal cross-section.

STYLE J2

Style J2 provides a unique connector which mates to both RS 232 and RS 449 cable assemblies. It combines molded-in latch of Style E and hex-headed #4-40 threaded insert of Style D. Available with Style 2 board mounting holes only.

STYLE E2

Style E2 is the same as Style J2 without the #4-40 threaded inserts.

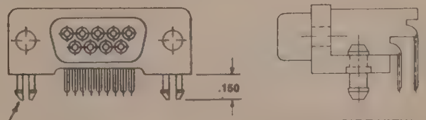

.115 (2)
RS 449 LATCH WITH THD. INSERT
.050 (2)
RS 449 LATCH
.115 (2)
.050 (2)
THREADED INSERT
.250 MAX. LATCH
.220 (2)
#4-40NC-2B THD. THRU (2)

MOUNTING STYLE J SIDE VIEW

PCB OPTIONS

PCB OPTION P - Snap Latch

Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the P.C.B. Installs in the standard .120 Dia. mounting holes on a .062 thick board. Maximum installation force 5 lbs. Material: Nylon


.150
SNAP LATCH (2)

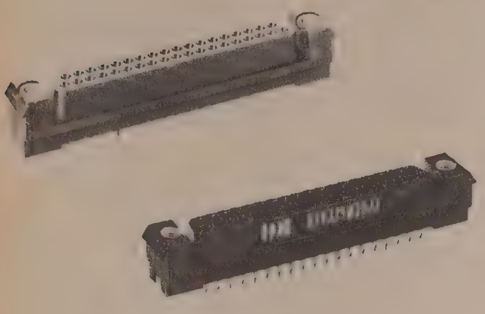
SIDE VIEW

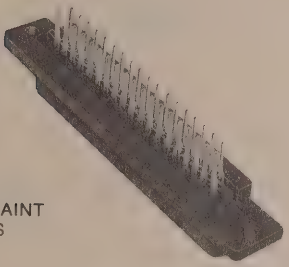
D SUBMINIATURE CONNECTORS

H2 SERIES

9, 15, 25 AND 37 POSITIONS

STRAIGHT TAIL ALL PLASTIC
FEMALE RECEPTACLES FOR PRINTED CIRCUIT BOARD MOUNTING

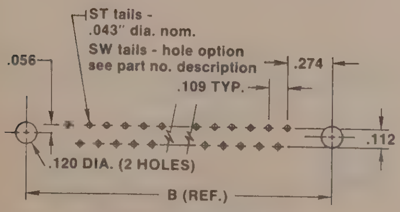




OPTIONAL COMPLAINT SOLDER TAILS

DIMENSIONS (Shown In Inches)

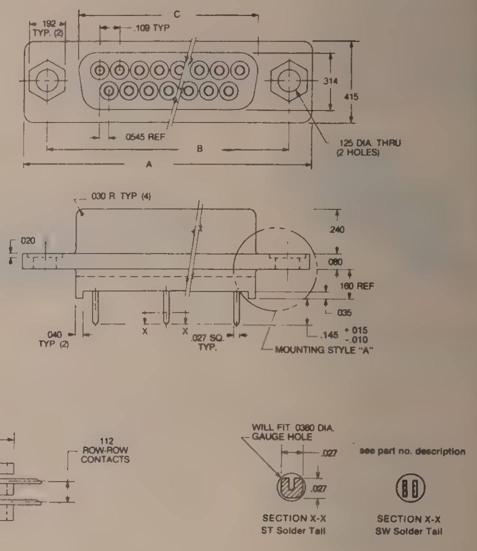
NUMBER OF CONTACTS	A	B	C
9	1.224	.984	.646
15	1.552	1.312	.974
25	2.092	1.852	1.514
37	2.740	2.500	2.162


ST tails - .043" dia. nom.
SW tails - hole option see part no. description
.056
.274
.109 TYP.
.112
.120 DIA. (2 HOLES)
B (REF.)

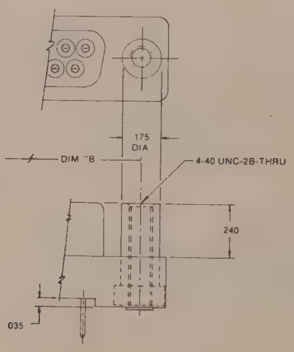
PC BOARD PATTERN

DIMENSIONS (Shown In Inches)

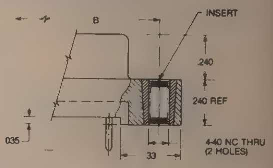
MOUNTING STYLE A


C
.192 TYP. (2)
.109 TYP
.314
.415
.125 DIA. THRU (2 HOLES)
.0545 REF
B
A
.030 R. TYP (4)
.020
.240
.080
.160 REF
.035
.040 TYP (2)
X
X
.027 SQ. TYP.
.145 +.015 -.010
MOUNTING STYLE "A"
.480
.112 ROW-ROW CONTACTS
WILL FIT .0380 DIA. GAUGE HOLE
.027
.027
see part no. description
SECTION X-X ST Solder Tail
SECTION X-X SW Solder Tail

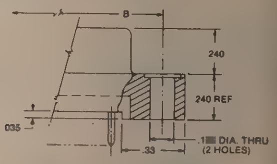
MOUNTING STYLE B


.175 DIA
DIM "B
4-40 UNC-2B-THRU
.240
.035

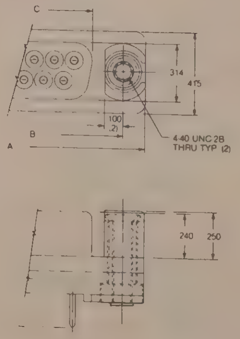
MOUNTING STYLE C


B
INSERT
.240
.240 REF
.035
.33
4-40 NC THRU (2 HOLES)

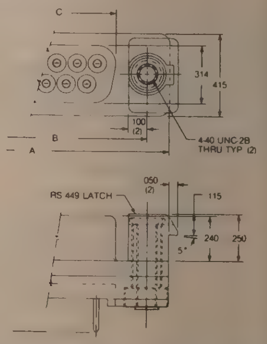
MOUNTING STYLE D


B
240
240 REF
.035
.33
.1 DIA. THRU (2 HOLES)

MOUNTING STYLE H


C
.314
.415
.100 (2)
B
A
4-40 UNC 2B THRU TYP (2)
.240
.250

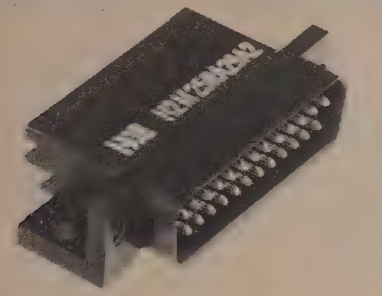
MOUNTING STYLE J


C
.314
.415
.100 (2)
B
A
4-40 UNC-2B THRU TYP (2)
.050 (2)
RS 449 LATCH
.115
.240
.250
5°

D SUBMINIATURE CONNECTORS

H2 SERIES

9, 15, 25 AND 37 POSITIONS
ALL PLASTIC RIGHT ANGLE
MALE PINS FOR
PRINTED CIRCUIT BOARD MOUNTING



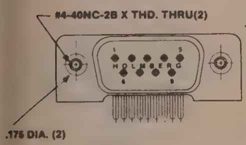
MOUNTING STYLES

STYLE A

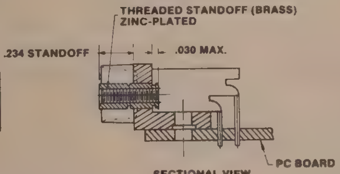
This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039) is available. Style A is a new design which is produced in a cammed mold, eliminating top and bottom grooves around board-mounting holes. This style is easier to rivet to the board because the rivet head is completely supported by solid plastic. It is also recommended for installations having board traces running under the connector — since there are no sharp edges to damage traces.

STYLE B

This configuration includes a #4-40 threaded standoff which provides 8 in-lb torque retention, for mating to RS 232 cable assemblies. One-piece construction of the factory-installed insert eliminates need for separate hardware.


#4-40NC-2B X THD. THRU(2)
.175 DIA. (2)
HOLMBERG

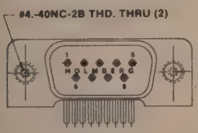
MOUNTING STYLE B


THREADED STANDOFF (BRASS) ZINC-PLATED
.234 STANDOFF
.030 MAX.
PC BOARD

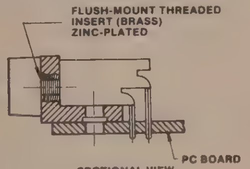
SECTIONAL VIEW

STYLE C

Style C mounting provides a flush, molded-in, #4-40 threaded insert of zinc-plated brass. The insert has rows of knurling that capture it in the plastic, preventing rotation or push-out. It has extremely high torque retention (minimum 10 in-lb).


#4-40NC-2B THD. THRU (2)
HOLMBERG

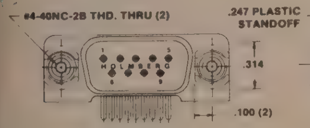
MOUNTING STYLE C


FLUSH-MOUNT THREADED INSERT (BRASS) ZINC-PLATED
PC BOARD

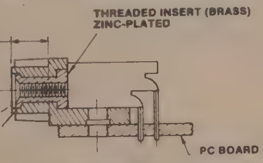
SECTIONAL VIEW

STYLE D

Unique Style D configuration has molded-in plastic standoff with factory-installed zinc-plated brass hex-headed, #4-40 threaded insert. Specifically designed for RS 232 cable assemblies. Insert is threaded all the way through. Hexagonal shape positively locks insert in place providing 8 in-lb torque retention. Style D is functionally equivalent to Style B and Style G inserts.


#4-40NC-2B THD. THRU (2)
.247 PLASTIC STANDOFF
.314
.100 (2)
HOLMBERG

MOUNTING STYLE D

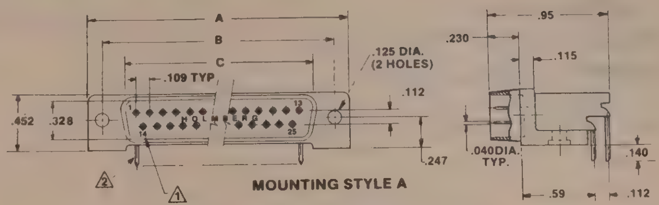

THREADED INSERT (BRASS) ZINC-PLATED
PC BOARD

SECTIONAL VIEW

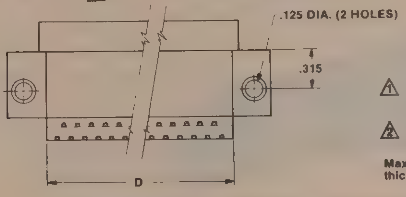
STYLE E

Style E2 provides a molded-in RS 449 latch for 9 and 37-position H2 D Subminiature connectors. No separate pieces of hardware are needed.

DIMENSIONS (Shown In Inches)


A
B
C
.109 TYP
.125 DIA. (2 HOLES)
.112
.452
.328
.247
.95
.230
.115
.040DIA. TYP.
.140
.59
.112
1
13
14
25
HOLMBERG

MOUNTING STYLE A


.125 DIA. (2 HOLES)
.315
D

⚠1 Pin position numbers begin top row, LEFT to RIGHT continue bottom row,

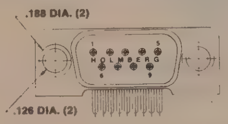
⚠2 Maximum tail will fit .038" diameter gauge hole.

Maximum recommended board thickness is .093".

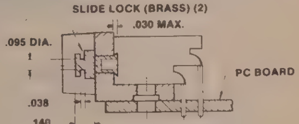
NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.666	.624
15	1.552	1.312	.994	.952
25	2.092	1.852	1.534	1.492
37	2.740	2.500	2.183	2.140

STYLE F

This configuration has brass locking posts designed to mate with AMP's slide-latch clip assembly. Positronics' slide-lock assembly and equivalent connectors.


.188 DIA. (2)
.126 DIA. (2)
HOLMBERG

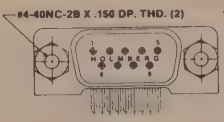
MOUNTING STYLE F


SLIDE LOCK (BRASS) (2)
.030 MAX.
.095 DIA.
.038
.140
PC BOARD

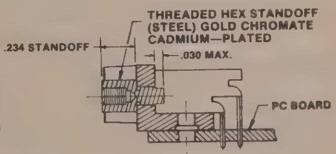
SECTIONAL VIEW

STYLE G

Style G is the same as Style B, but equipped with gold chromate cadmium-plated steel, threaded inserts in a hexagonal cross-section.


#4-40NC-2B X .150 DP. THD. (2)
HOLMBERG

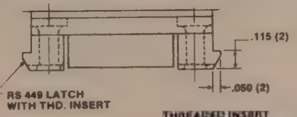
MOUNTING STYLE G

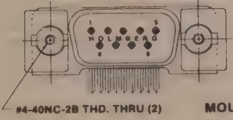

THREADED HEX STANDOFF (STEEL) GOLD CHROMATE CADMIUM—PLATED
.234 STANDOFF
.030 MAX.
PC BOARD

SECTIONAL VIEW

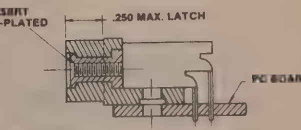
STYLE J

Style J provides a unique connector which mates to both RS 232 and RS 449 cable assemblies. It combines molded-in latch of Style E and hex-headed #4-40 threaded insert of Style D.


.115 (2)
.050 (2)
RS 449 LATCH WITH THD. INSERT


#4-40NC-2B THD. THRU (2)
HOLMBERG

MOUNTING STYLE J


THREADED INSERT (BRASS) ZINC-PLATED
.250 MAX. LATCH
PC BOARD

SECTIONAL VIEW

STYLE T

Style T same as mounting Style C except: self-locking insert with #4-40 threads. The insert is stainless steel with black dry-film lubricant. It has a knurl that captures it in the plastic, preventing rotation or push-out. It has extremely high torque retention (minimum 15 in-lb). Thread performance: torque on, 5.0 in-lb max., torque off .5 in-lb min., up to 15 times on-off. Self-locking threads meets mil spec. MIL-N-25027A

PCB OPTION - Snap Latch Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the Printed Circuit Board. Installs in the standard .120 Dia. mounting holes on a .062 thick board. Maximum installation force 5 lbs. Material: Nylon.

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HOLMBERG ELECTRONICS CORPORATION

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Santa Ana, California 92705
(714) 556-2930

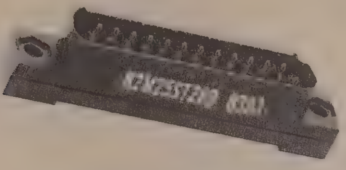
D SUBMINIATURE CONNECTORS

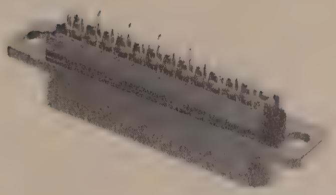
H2 SERIES

9, 15, 25 AND 37 POSITIONS

STRAIGHT TAIL ALL PLASTIC

MALE PINS FOR
PRINTED CIRCUIT BOARD MOUNTING

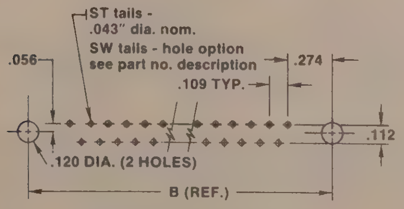




OPTIONAL COMPLAINT
SOLDER TAILS

DIMENSIONS (Shown In Inches)

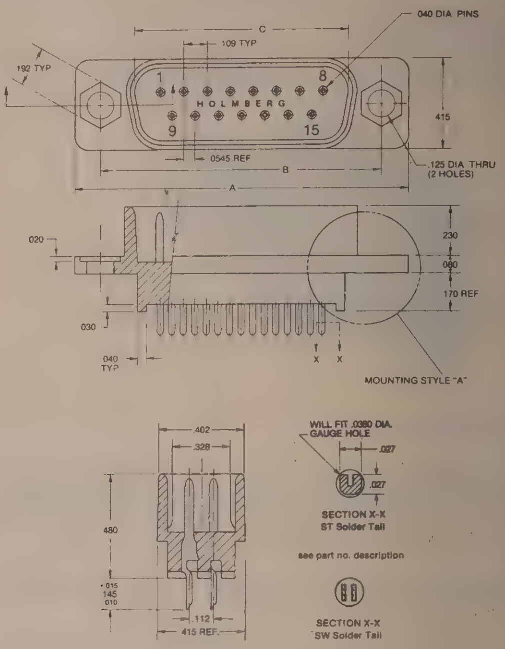
NUMBER OF CONTACTS	A	B	C
9	1.224	.984	.666
15	1.552	1.312	.994
25	2.092	1.852	1.534
37	2.740	2.500	2.183


ST tails -
.043" dia. nom.
SW tails - hole option
see part no. description
.056
.274
.109 TYP.
.112
.120 DIA. (2 HOLES)
B (REF.)

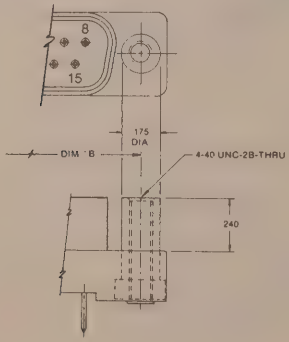
PC BOARD PATTERN

DIMENSIONS (Shown In Inches)

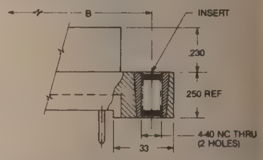
MOUNTING STYLE A


C
.109 TYP
.040 DIA PINS
.192 TYP
1
8
HOLMBERG
9
15
.415
.0545 REF
B
A
.125 DIA THRU
(2 HOLES)
.020
.230
.080
.170 REF
.030
.040
TYP
X X
MOUNTING STYLE "A"
.402
.328
.480
+.015
.145
-.010
.112
.415 REF.
WILL FIT .0380 DIA.
GAUGE HOLE
.027
.027
SECTION X-X
ST Solder Tail
see part no. description
SECTION X-X
SW Solder Tail

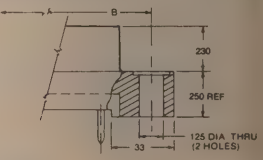
MOUNTING STYLE B


8
15
.175
DIA
DIM B
4-40 UNC-2B-THRU
.240

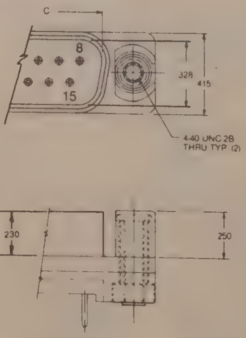
MOUNTING STYLE C


B
INSERT
.230
.250 REF
4-40 NC THRU
(2 HOLES)
.33

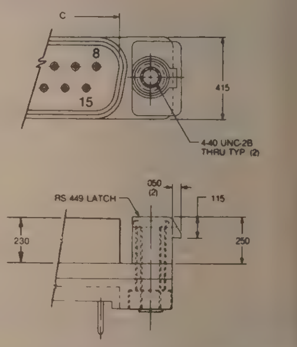
MOUNTING STYLE D


A
B
.230
.250 REF
.125 DIA THRU
(2 HOLES)
.33

MOUNTING STYLE H


C
8
15
.328
.415
4-40 UNC 2B
THRU TYP (2)
.230
.250

MOUNTING STYLE J


C
8
15
.415
4-40 UNC 2B
THRU TYP (2)
.050
(2)
RS 449 LATCH
.115
.230
.250

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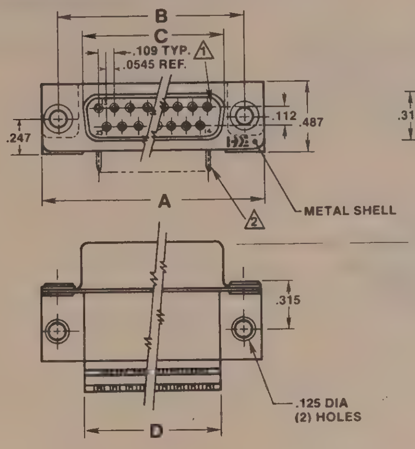
D SUBMINIATURE CONNECTORS

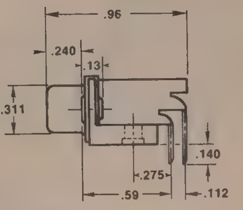
H4 SERIES

9, 15, 25 AND 37 POSITIONS

METAL SHELL RIGHT ANGLE FEMALE RECEPTACLES FOR PRINTED CIRCUIT BOARD MOUNTING

DIMENSIONS (Shown In Inches)


B
C
.109 TYP. 1
.0545 REF.
.112
.487
.247
A
2
METAL SHELL
.315
.125 DIA
(2) HOLES
D

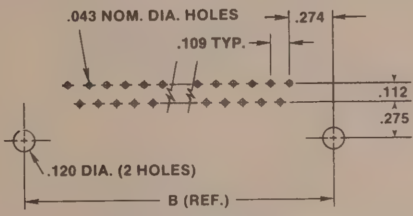

.96
.240
.13
.311
.140
.275
.59
.112

⚠1 Pin position numbers begin top row, right to left, continue bottom row, right to left.

⚠2 Maximum tail will fit .038" diameter gauge hole.

Maximum recommended board thickness is .093".

NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.646	.624
15	1.552	1.312	.974	.952
25	2.092	1.852	1.514	1.492
37	2.740	2.500	2.162	2.140

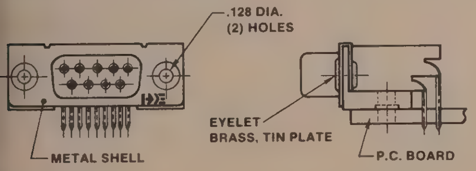

.043 NOM. DIA. HOLES
.274
.109 TYP.
.112
.275
.120 DIA. (2 HOLES)
B (REF.)

PC BOARD PATTERN

MOUNTING STYLES

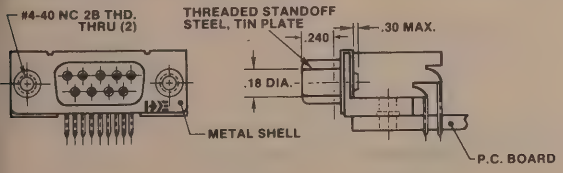
STYLE A

This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039) is available. For grounding to the P.C. board there are outside and inside grounding straps available, factory installed (see part number description for ordering). Grounding straps are .012 thick, phosphor bronze, bright tin plate.


.128 DIA.
(2) HOLES
EYELET
BRASS, TIN PLATE
METAL SHELL
P.C. BOARD

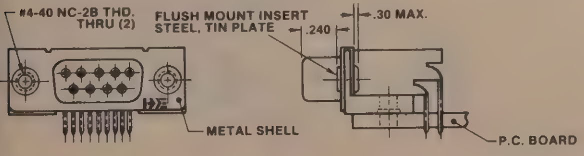
STYLE B

Style B designates a round standoff which has #4-40 threads. This provides 8 in-lb torque retention, for mating to R.S. 232 cable assemblies. One-piece construction of the factory installed insert eliminates need for separate hardware. Also, outside or inside grounding straps are available, factory installed, for grounding to the P.C. board (see part number description for ordering).


#4-40 NC 2B THD.
THRU (2)
THREADED STANDOFF
STEEL, TIN PLATE
.240
.30 MAX.
.18 DIA.
METAL SHELL
P.C. BOARD

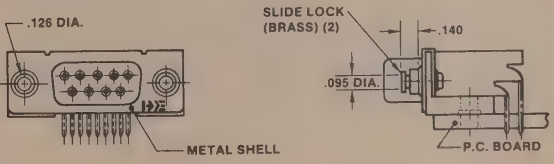
STYLE C

Style C mounting provides a flush #4-40 threaded insert with 8 in-lb torque retention for bulkhead mounting. The factory installed inserts eliminates the need to install jamb nuts in back of the panel. Also, available with inside or outside grounding straps.

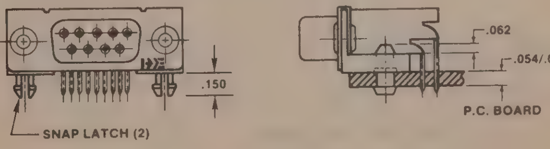

#4-40 NC-2B THD.
THRU (2)
FLUSH MOUNT INSERT
STEEL, TIN PLATE
.240
.30 MAX.
METAL SHELL
P.C. BOARD

STYLE F

Style F designates locking posts. This configuration has factory installed brass locking posts, designed to mate with AMP's slide-lock assembly and equivalent connectors. Also, available with outside or inside grounding straps.


.126 DIA.
SLIDE LOCK
(BRASS) (2)
.140
.095 DIA.
METAL SHELL
P.C. BOARD

PCB OPTION P - Snap Latch Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the Printed Wiring Board. Installs in the standard .120 Dia. mounting holes on a .062 thick printed circuit board. Maximum installation force 5 lbs. Material: Nylon.


.150
SNAP LATCH (2)
.062
.054/.071
P.C. BOARD

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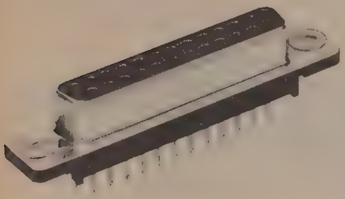
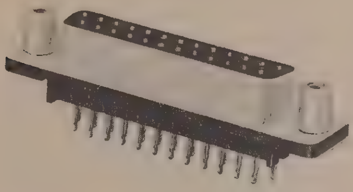
D SUBMINIATURE CONNECTORS

H4 SERIES

9, 15, 25 AND 37 POSITIONS

STRAIGHT TAIL METAL SHELL
FEMALE RECEPTACLES FOR PRINTED CIRCUIT BOARD MOUNTING

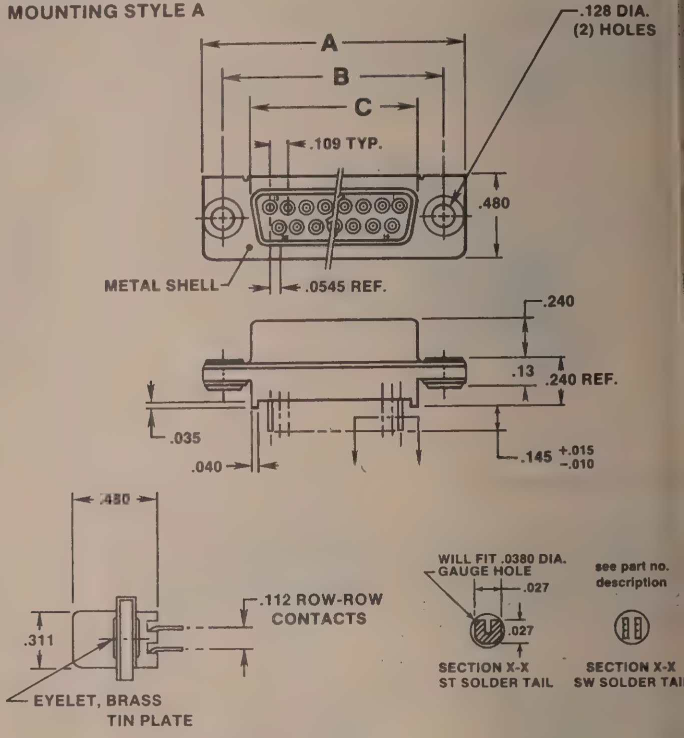




OPTIONAL COMPLAINT SOLDER TAILS

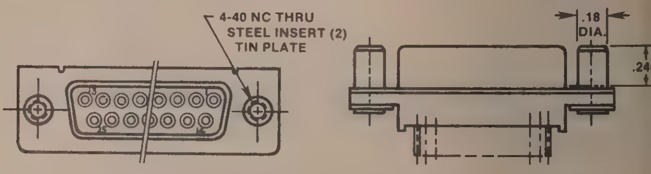
DIMENSIONS (Shown In Inches)

MOUNTING STYLE A



A
B
C
.109 TYP.
.128 DIA. (2) HOLES
.480
METAL SHELL
.0545 REF.
.240
.13
.240 REF.
.035
.040
.145 +.015 −.010
.480
.311
.112 ROW-ROW CONTACTS
EYELET, BRASS TIN PLATE
WILL FIT .0380 DIA. GAUGE HOLE
.027
.027
see part no. description
SECTION X-X ST SOLDER TAIL
SECTION X-X SW SOLDER TAI

MOUNTING STYLE B

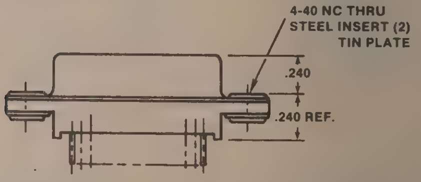


4-40 NC THRU STEEL INSERT (2) TIN PLATE
.18 DIA.
.24

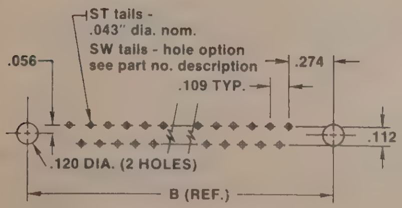
DIMENSIONS (Shown In Inches)

NUMBER OF CONTACTS	A	B	C
9	1.224	.984	.646
15	1.552	1.312	.974
25	2.092	1.852	1.514
37	2.740	2.500	2.162

MOUNTING STYLE C



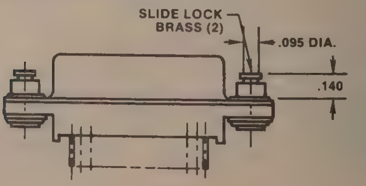
4-40 NC THRU STEEL INSERT (2) TIN PLATE
.240
.240 REF.



ST tails - .043" dia. nom.
SW tails - hole option see part no. description
.056
.274
.109 TYP.
.112
.120 DIA. (2 HOLES)
B (REF.)

PC BOARD PATTERN

MOUNTING STYLE F



SLIDE LOCK BRASS (2)
.095 DIA.
.140

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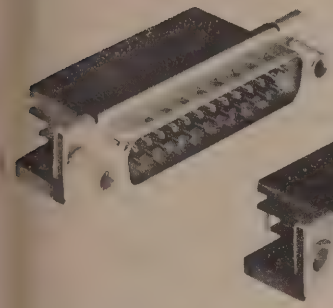
D SUBMINIATURE CONNECTORS

H4 SERIES

9, 15, 25 AND 37 POSITIONS

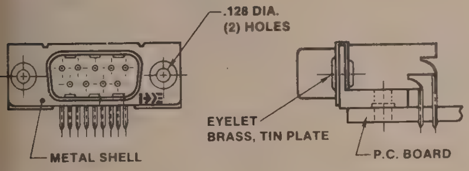
METAL SHELL RIGHT ANGLE
MALE PINS FOR PRINTED CIRCUIT BOARD MOUNTING



MOUNTING STYLES

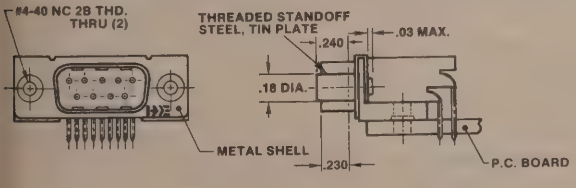
STYLE A

This configuration is the basic connector with mounting holes only. It comes with no permanent hardware, but a separate hardware kit (part number 98039) is available. For grounding to the P.C. board there are outside and inside grounding straps available, factory installed (see part number description for ordering). Grounding straps are .012 thick, phosphor bronze, bright tin plate.


.128 DIA.
(2) HOLES
EYELET
BRASS, TIN PLATE
METAL SHELL
P.C. BOARD

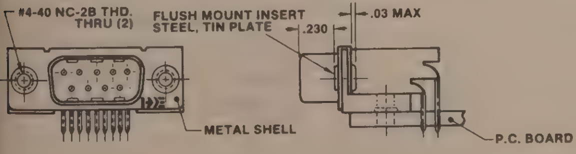
STYLE B

Style B designates a round standoff which has #4-40 threads. This provides 8 in-lb torque retention, for mating to R.S. 232 cable assemblies. One-piece construction of the factory installed insert eliminates need for separate hardware. Also, outside or inside grounding straps are available, factory installed, for grounding to the P.C. board (see part number description for ordering).

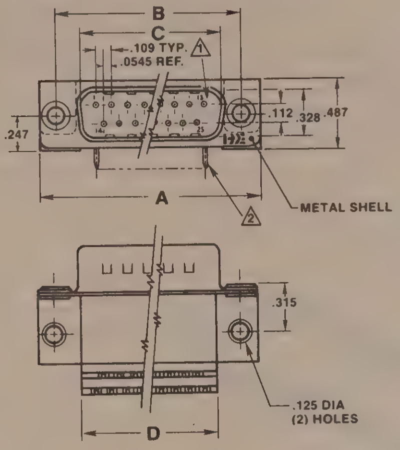

#4-40 NC 2B THD. THRU (2)
THREADED STANDOFF
STEEL, TIN PLATE
.240
.03 MAX.
.18 DIA.
METAL SHELL
.230
P.C. BOARD

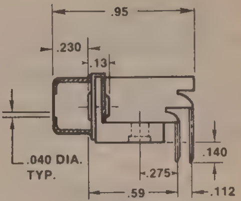
STYLE C

Style C mounting provides a flush #4-40 threaded insert with 8 in-lb torque retention for bulkhead mounting. The factory installed inserts eliminates the need to install jamb nuts in back of the panel. Also, available with inside or outside grounding straps.


#4-40 NC-2B THD. THRU (2)
FLUSH MOUNT INSERT
STEEL, TIN PLATE
.230
.03 MAX
METAL SHELL
P.C. BOARD

DIMENSIONS (Shown In Inches)

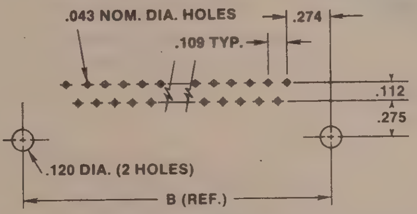

B
C
.109 TYP. 1
.0545 REF.
.112
.328
.487
.247
A
2
METAL SHELL
.315
.125 DIA
(2) HOLES
D


.95
.230
.13
.040 DIA.
TYP.
.140
.275
.59
.112

1. Pin position numbers begin top row, right to left, continue bottom row, right to left.
2. Maximum tail will fit .038" diameter gauge hole.

Maximum recommended board thickness is .093".

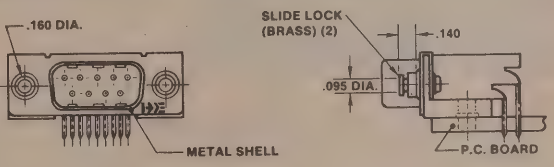
NUMBER OF CONTACTS	A	B	C	D
9	1.224	.984	.646	.624
15	1.552	1.312	.974	.952
25	2.092	1.852	1.514	1.492
37	2.740	2.500	2.162	2.140


.043 NOM. DIA. HOLES
.274
.109 TYP.
.112
.275
.120 DIA. (2 HOLES)
B (REF.)

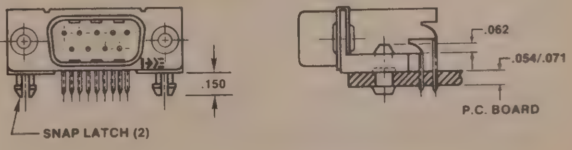
PC BOARD PATTERN

STYLE F

Style F designates locking posts. This configuration has factory installed brass locking posts, designed to mate with AMP's slide-lock assembly and equivalent connectors. Also, available with outside or inside grounding straps.


.160 DIA.
SLIDE LOCK
(BRASS) (2)
.140
.095 DIA.
METAL SHELL
P.C. BOARD

PCB OPTION P - Snap Latch Factory installed into the connector board mounting holes, eliminating the need to use loose piece hardware to install on the Printed Wiring Board. Installs in the standard .120 Dia. mounting holes on a .062 thick printed circuit board. Maximum installation force 5 lbs. Material: Nylon


.150
SNAP LATCH (2)
.062
.054/.071
P.C. BOARD

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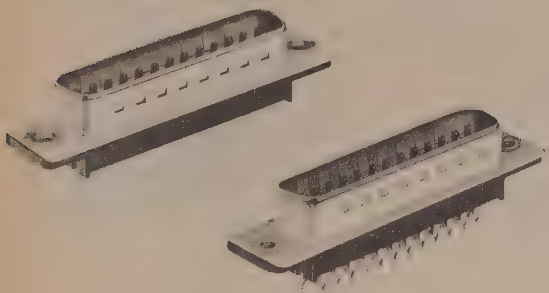
D SUBMINIATURE CONNECTORS

H4 SERIES

9, 15, 25 AND 37 POSITIONS

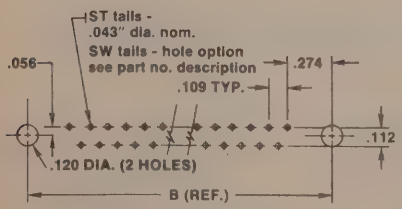
STRAIGHT TAIL METAL SHELL
MALE PINS FOR
PRINTED CIRCUIT BOARD MOUNTING



OPTIONAL COMPLAINT SOLDER TAILS

DIMENSIONS (Shown In Inches)

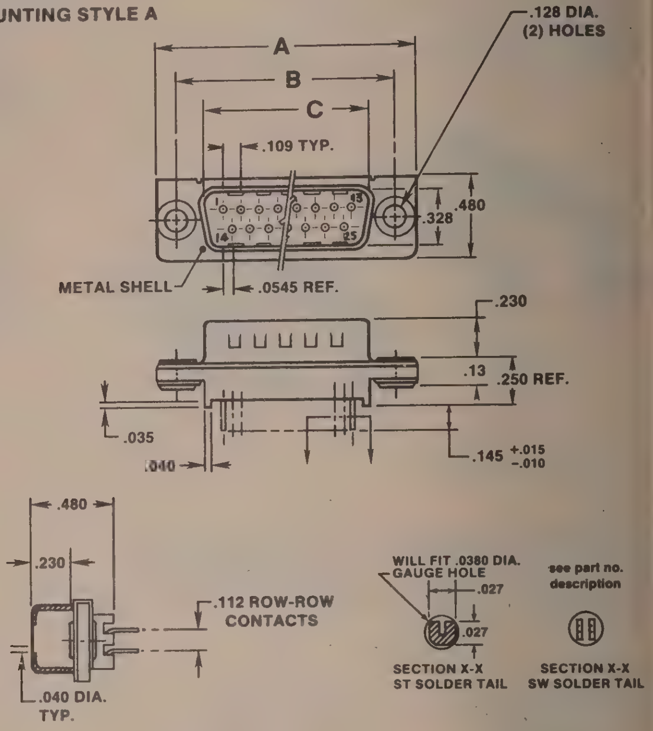
NUMBER OF CONTACTS	A	B	C
9	1.224	.984	.666
15	1.552	1.312	.994
25	2.092	1.852	1.534
37	2.740	2.500	2.182


ST tails -
.043" dia. nom.
SW tails - hole option
see part no. description
.056
.274
.109 TYP.
.112
.120 DIA. (2 HOLES)
B (REF.)

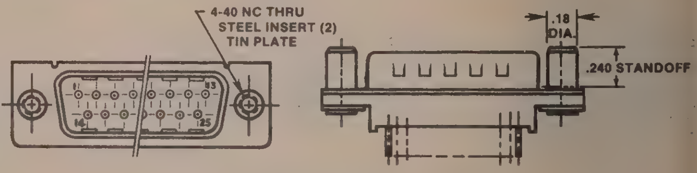
PC BOARD PATTERN

DIMENSIONS (Shown In Inches)

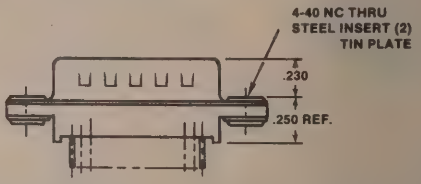
MOUNTING STYLE A


.128 DIA.
(2) HOLES
A
B
C
.109 TYP.
13
14
25
.480
.328
METAL SHELL
.0545 REF.
.230
.13
.250 REF.
.035
.040
.145 +.015 -.010
.480
.230
.112 ROW-ROW CONTACTS
.040 DIA. TYP.
WILL FIT .0380 DIA. GAUGE HOLE
.027
.027
SECTION X-X
ST SOLDER TAIL
see part no. description
SECTION X-X
SW SOLDER TAIL

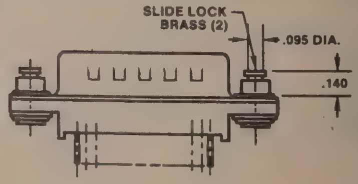
MOUNTING STYLE B


4-40 NC THRU
STEEL INSERT (2)
TIN PLATE
.18 DIA.
.240 STANDOFF

MOUNTING STYLE C


4-40 NC THRU
STEEL INSERT (2)
TIN PLATE
.230
.250 REF.

MOUNTING STYLE F


SLIDE LOCK
BRASS (2)
.095 DIA.
.140

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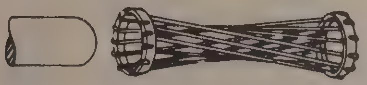
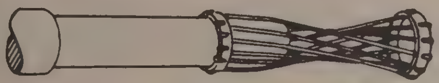
Hypertac®

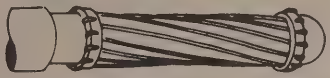
LOW INSERTION FORCE CONNECTORS



Wire sleeve before insertion of pin.



Pin partially inserted into sleeve.



Pin completely inserted into sleeve.

Hypertac® (HYPERboloid conTACt) is an advanced design that satisfies performance requirements previously considered impossible. Radically different in concept (principle is shown in the drawing), it is used in connectors having the highest performance requirements. The distinguishing feature of the Hypertac® socket is the hyperboloid-shaped sleeve formed by wires strung at an angle to the socket's axis. When the pin is inserted into this sleeve, the wires stretch to accommodate it. In so doing they wrap themselves around the pin providing a number of linear contact paths. This superior mating principle offers many advantages:

Lower Contact Resistance: Contact resistance is largely a function of contact area and surface condition. The multiple line contacts in the Hypertac® provide far greater contact area than other contacts of comparable size. The positive wiping action of the wires insures a clean and polished contact surface. Tests have shown Hypertacs® have about ½ the resistance of conventional contact designs.

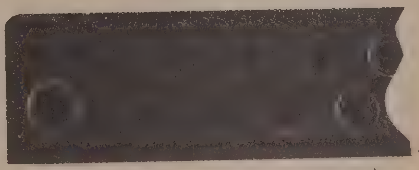
Higher Current Ratings: The design parameters of the Hypertac® (e.g., the number, diameter, and angle of the wires) may be modified for any requirement. For example, the number of wires (no less than 5) can be increased so the contact area is distributed over a larger surface of the mating pin. Thus, the high current carried by each wire because of its intimate line contact, can be multiplied many times. At the same time the lower resistance reduces heat buildup. Therefore, Hypertacs® are able to handle far greater currents in smaller contact assemblies without the detrimental effects of high temperature.

Lower Insertion-Extraction Forces: Complete encirclement of the pin, along with greater contact area, make high contact forces unnecessary. The spring rate and resultant stress are therefore very low. The smooth insertion-extraction force is so low that even our 400 pin connectors can be easily disconnected without jack screws.

Less Wear and Longer Life: Reduced contact pressure also means a lower rate of wear. The taut wires having a small deflection relative to their span insure constant pressure, voltage drop and current ratings. Hypertacs® have a life of over 100,000 insertion-extraction cycles with almost no degradation in performance. Test pins with 50 micro inches gold plating had no base metal exposed after 8000 cycles (MIL-STD requires only 500 cycles for the same plating thickness).

Greater Reliability: The contact redundancy of multiple wires wrapped around the pin insures the ultimate in contact integrity. Elasticity of the wires also enables the socket to accommodate bent or misaligned pins.

Exceptional Electrical Continuity Under Shock and Vibration: The low mass and resultant low inertia of the wires relative to their resilience enables them to follow the most abrupt or extreme excursions of the pin without loss of contact. Tests conducted over the entire frequency range showed no discontinuity even when measured as low as 8 nano seconds at 50g rms. Moreover, the contact area is not limited to a single plane. It extends 360° around the pin and is uniform over its entire length. The three dimensional symmetry of design guarantees electrical continuity regardless of the direction or intensity of external or inertial forces.



Higher Uniformity: Machined rather than stamped parts, simple contact surfaces and selective plating before assembly avoids the possibility of shadow effects, gradients or trapped residues which could affect performance. Excellent physical and performance uniformity is thereby assured within each unit as well as perfect repeatability from unit to unit.

Requirements for connectors are such, that no matter how many details are incorporated in a brochure or catalog, we cannot include all types and variations. We would be pleased to consider your particular requirements; simply furnish all pertinent data to our Customer Service Department.

HYPERTRONICS CORPORATION

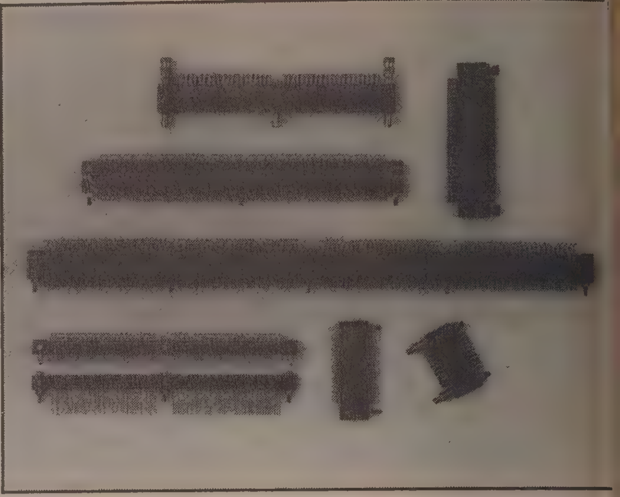
"New Horizons in Connectors"

16 Brent Dr., Hudson, MA 01749 • Telex: 95 1152 • 1-800-225-9228 • MA & Canada Tel: (617) 568-0451

SUBMINIATURE 2-PIECE P.C. BOARD CONNECTORS

Low Insertion Force with Removable Contacts

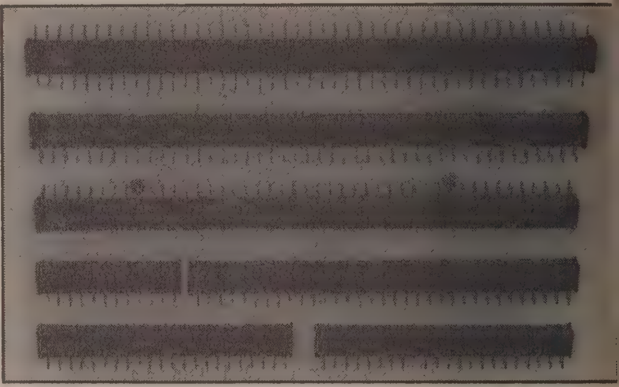
- 1.27mm .100 row spacing [KA section of catalog]. 17,29,41,53,62,65,72,80,84,96,98,120,128,160 or 320 contacts.
- Rated Current: 3 Amps/contact.
- Breakdown Voltage: 1,200 Volts.
- Temperature Range: −55° +125°C (−65° +260°F).
- Various mounting styles and locking hardware available.
- Various tail styles available: wire wrap®, crimp, solder cup, straight p.c. solder, right angle p.c solder and others.
- KA Series has more than 15,000 possible combinations.



SUBMINIATURE LOW PROFILE 2-PIECE P.C. BOARD CONNECTORS

Low Insertion Force

- 2.54mm x 2.54mm (.100″ x .100″) center spacing [KG section of catalog].
- Rated Current: 2.5 Amps/contact.
- Breakdown Voltage: 1,200 Volts.
- Temperature Range: −55° +105°C (−65° +220°F).
- Various tail styles available: crimp, solder cup, straight p.c. solder and right angle p.c. solder.
- Various mounting styles available: p.c. board parallel sandwich [as thin a profile as 6.1mm (.240″)], p.c. board to cable, chassis to chassis, low profile daughter board to mother board and others.



MODULAR CONNECTORS

Low Insertion Force

These do-it-yourself connectors, on the building block principle, offer a wide variety of combinations to meet any design requirement. Combinations to 255 contacts per connector are possible [L section of catalog].

Building Blocks:

- 2, 3, 5 or 17 contacts.
- Rated Current: 5 thru 50 Amps/contact.
- Breakdown Voltage: 2,000 thru 12,000 Volts.
- Temperature Range: −55° +125°C (−65° +260°F).
- Types: signal, power, coax, high voltage or shielded cable.

Frames:

- 4 thru 30 building block units.
- 8 thru 255 contacts.
- Also available with keys, hoods, cable clamps, float mountings or jack screws.

L Series has over 40,000 possible combinations.

HYPERTRONICS CORPORATION

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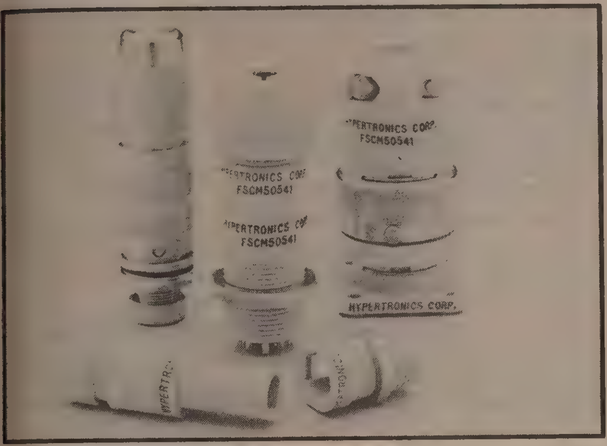
* ®Wire wrap is a registered trademark of Gardner Denver.

HYPERTRONICS CORPORATION

"New Horizons in Connectors"

16 Brent Dr., Hudson, MA 01749 • Telex: 95 1152 • 1-800-225-9228 • MA & Canada Tel: (617) 568-045

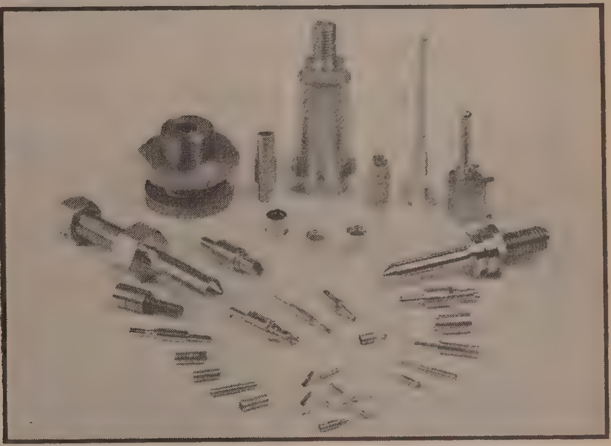
MINIATURE QUICK-DISCONNECT CIRCULAR CONNECTORS



Low Insertion Force

- This series features fast, secure and easy-to-use coupling action [D section of catalog].
- 3 thru 7 contacts.
- Rated Current: 3 thru 12 Amps/contact.
- Breakdown Voltage: 2,000 thru 3,750 Volts.
- Temperature Range: −40° +85°C (−40° +185°F).
- These connectors are also available in a high temperature plastic suitable for sterilization [−°40 +125°C (−40° +260°F)].

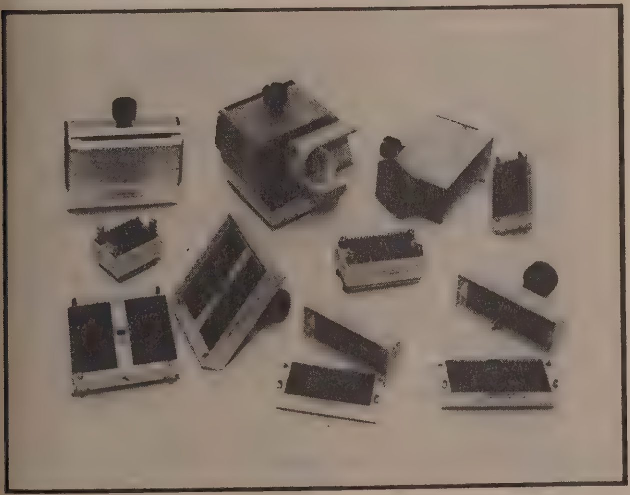
INDIVIDUAL SUBMINIATURE AND POWER CONTACTS



Low Insertion Force

- 2.5 to 200 Amp current ratings.
- Printed circuit board and custom insulator mountings.
- Insertion force as low as .5 oz.
- Contact materials include stainless steel, brass, etc. with gold, silver, etc. plating.
- Low inductances for direct board mounting of hybrids.
- Tails styles include crimp, solder and p.c.

MINI-MODULAR HIGH DENSITY CONNECTORS



Low Insertion Force

Like the modular series above, this mini-modular series also allows you to build your own connector quickly and inexpensively without special tooling. However, with the mini-modular series, much higher density and pin counts are possible. Virtually any design requirement can be met by assembling signal and power contacts in various combination [N section of catalog].

Building Blocks:

- 10 contacts @ 5 Amps/contact;
  5 contacts @ 9 Amps/contact.
- Breakdown Voltage: 1,500 Volts; 2,250 Volts.
- Temperature Range: −55° +105°C (−65° +220°F).
- Types: signal and power.

Frames:

- 7 thru 35 building block units.
- 25 thru 700 contacts.
- Also available with keys, hoods, cable clamps, float mountings or jack screws.

N Series has over 40,000 possible combinations.

HYPERTRONICS CORPORATION

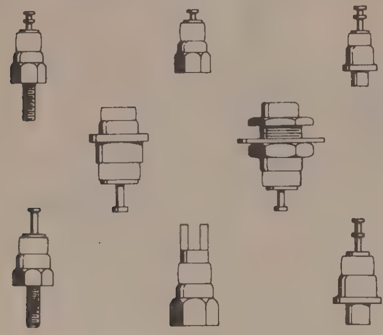
"New Horizons in Connectors"

16 Brent Dr., Hudson, MA 01749 • Telex: 95 1152 • 1-800-225-9228 • MA & Canada Tel: (617) 568-0451

manufacture and design of circuit components

HIRAM JONES
11607 VANOWEN STREET, NORTH HOLLYWOOD, CALIF. 91605
(213) 875-0213

Teflon† Insulated * One-Piece * Terminals and Test Jacks



*** DELIVERY** Immediate — from stock on catalog items.

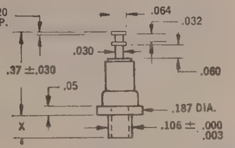
*** QUALITY** QPL facility, insuring highest product reliability. Complete traceability on all raw material and processes.

*** PRODUCTION** Precision Swiss automatic machines — long or short runs to customer design and specifications.

† Reg. Trademark, E. I. DuPont de Nemours and Co.

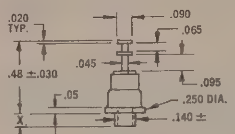
* ONE-PIECE *

Teflon† Insulated Terminals Male-Female Threads and Swage Types and Test Jacks


.020 TYP.
.064
.032
.030
.37 ±.030
.060
.05
.187 DIA.
X
.106 ± .000 .003

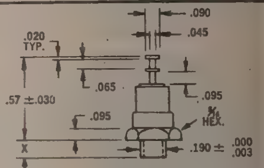
Single Turret also available
O/A Height above Board: .30 ±.030
P/N TS-111-A/-4

Part No.	X	Board Thickness
TS-112-A	.055	1/64
TS-112-0	.075	1/32
TS-112-1	.095	.050
TS-112-2	.105	1/16
TS-112-3	.135	3/32
TS-112-4	.165	1/8


.020 TYP.
.090
.065
.045
.48 ±.030
.095
.05
.250 DIA.
X
.140 ±

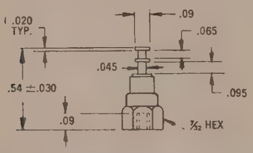
Single Turret also available
O/A Height above Board: .39 ±.030
P/N TS-231-0/-4

Part No.	X	Board Thickness
TS-232-0	.075	1.32
TS-232-1	.095	.050
TS-232-2	.105	1/16
TS-232-3	.135	3/32
TS-232-4	.175	1/8


.090
.045
.020 TYP.
.065
.57 ±.030
.095
.095
5/16 HEX.
X
.190 ± .000 .003

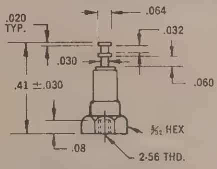
Single Turret also available
O/A Height above Board: .50 ±.030
P/N TS-351-0/-4

Part No.	X	Board Thickness
TS-352-0	.075	1/32
TS-352-1	.095	.050
TS-352-2	.105	1/16
TS-352-3	.135	3/32
TS-352-4	.165	1/8


.020 TYP.
.09
.065
.045
.54 ±.030
.095
.09
7/32 HEX

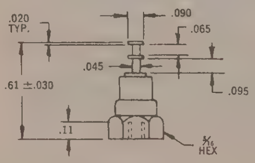
Part No.	Thread
TS-232-8F	4-40
TS-232-9F	6-32

Single Turret also available
O/A Length: .47 ±.030
P/N TS-231-8F/-9F


.020 TYP.
.064
.032
.030
.41 ±.030
.060
5/32 HEX
.08
2-56 THD.

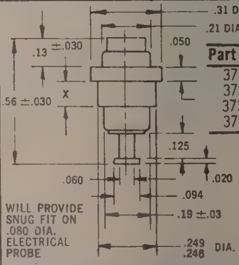
Part No.	Thread
TS-112-6F	2-56

Single Turret also available
O/A Length: .35 ±.030
P/N TS-111-6F


.020 TYP.
.090
.065
.045
.61 ±.030
.095
.11
5/16 HEX

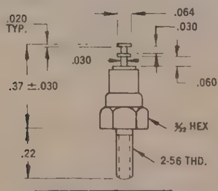
Part No.	Thread
TS-352-8F	4-40
TS-352-9F	6-32

Single Turret also available
O/A Length: .54 ±.030
P/N TS-351-8F/-9F


.31 DIA.
.21 DIA
.13 ±.030
.050
X
.56 ±.030
.125
.020
.060
.094
.19 ±.03
.249 .246 DIA.
WILL PROVIDE SNUG FIT ON .080 DIA. ELECTRICAL PROBE

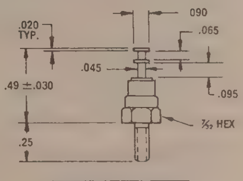
Part No.	X	T
371	.095	.050
372	.105	1/1
373	.135	3/3
374	.165	1/8

SWAGE TEST JACK
Available in 10 Standard E.I.A. colers


.020 TYP.
.064
.030
.030
.37 ±.030
.060
5/32 HEX
.22
2-56 THD.

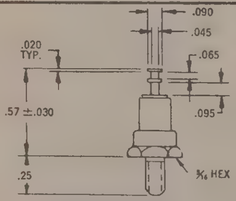
Part No.	Thread
TS-112-6M	2-56

Single Turret also available
O/A Height above Board: .34 ±.030
P/N TS-111-6M


090
.020 TYP.
.065
.045
.49 ±.030
.095
7/32 HEX
.25

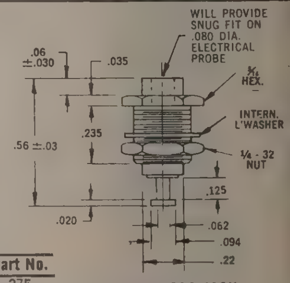
Part No.	Thread
TS-232-8M	4-40
TS-232-9M	6-32

Single Turret also available
O/A Height above Board: .42 ±.030
P/N TS-231-8M/-9M


.090
.045
.020 TYP.
.065
.57 ±.030
.095
.25
5/16 HEX

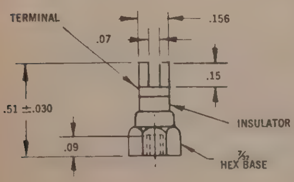
Part No.	Thread
TS-352-8M	4-40
TS-352-9M	6-32

Single Turret also available
O/A Height above Board: .50 ±.030
P/N TS-351-8M/9M

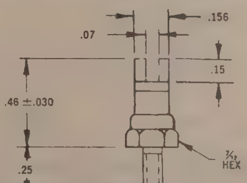

WILL PROVIDE SNUG FIT ON .080 DIA. ELECTRICAL PROBE
.06 ±.030
.035
5/16 HEX.
INTERN. L'WASHER
.235
.56 ±.03
1/4 - 32 NUT
.125
.020
.062
.094
.22

Part No.
375

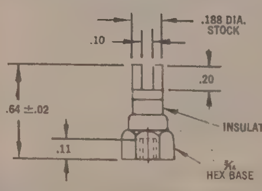
THREADED TEST JACK


TERMINAL
.156
.07
.15
.51 ±.030
INSULATOR
.09
7/32 HEX BASE

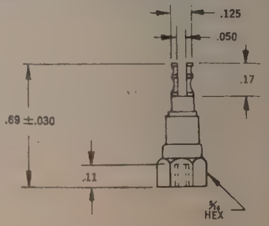
Part No.	Thread
TS-233-8F	4-40
TS-233-9F	6-32


.156
.07
.15
.46 ±.030
.25
7/32 HEX

Part No.	Thread
TS-233-8M	4-40
TS-233-9M	6-32


.188 DIA. STOCK
.10
.20
.64 ±.02
INSULATOR
.11
5/16 HEX BASE

Part No.	Thread
TS-353-8F	4-40 NC-2B
TS-353-9F	6-32 NC-2B


.125
.050
.17
.69 ±.030
.11
5/16 HEX

Part No.	Thread
338-2050	6-32

manufacture and design of circuit components

HIRAM JONES

11607 VANOWEN STREET, NORTH HOLLYWOOD, CALIF. 91605
(213) 875-0213

Teflon† Insulated * Press-Type * Terminals and Test Jacks

TEFLON†

(TFE-FLUOROCARBON) per MIL-P-19468 has outstanding mechanical and electrical properties over a wide range of frequencies and temperatures (−100°C to +250°C), extreme chemical inertness, high heat resistance, zero water absorption and complete anti-hesiveness which make it a superior insulation.

TERMINALS

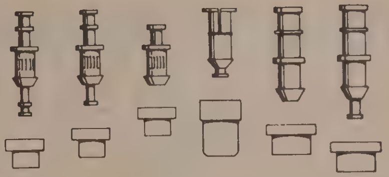
MATERIAL: Half-hard Brass per QQ-B-626, CDA360.
FINISH: Standard plating is Gold per MIL-G-45204. Other finishes supplied on request.

INSTALLATION TOOLS

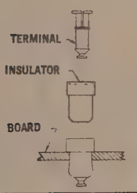
Tools are available for all HIRAM JONES components. Specify Part Number and prefix "S." Example: S-602 Assembly Tool.

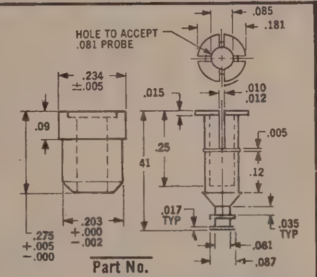
*** PRESS-TYPE ***

For simple, fast economical installation



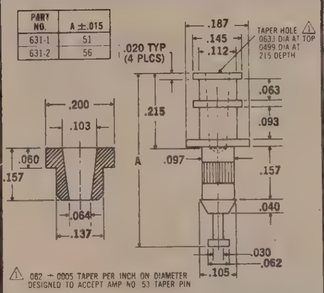
* PRESS-TYPE * Teflon† Insulated Components


TERMINAL
INSULATOR
BOARD


HOLE TO ACCEPT .081 PROBE
.085
.181
.234 ±.005
.015
.010 .012
.09
.005
.25
.41
.12
.017 TYP
.035 TYP
.275 +.005 −.000
.203 +.000 −.002
.061
.087

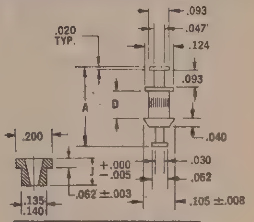
Part No. L-606

Also available without slots (non-gripping) P/N 606

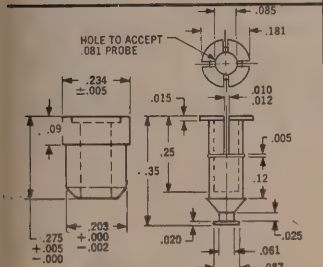

.187
.145
.112
TAPER HOLE ⚠ .0633 DIA AT TOP .0499 DIA AT .215 DEPTH
.020 TYP (4 PLCS)
.200
.103
.215
.063
.093
.060
.157
A
.097
.157
.064
.137
.040
.030
.062
.105

PART NO.	A ±.015
631-1	.51
631-2	.56

⚠ .062 ÷ .0005 TAPER PER INCH ON DIAMETER DESIGNED TO ACCEPT AMP NO. 53 TAPER PIN

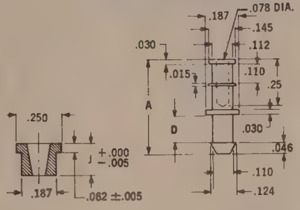

.093
.047
.020 TYP.
.124
.093
A
D
.200
.040
+.000 −.005
J
.030
.062
.135 .140
.062 ±.003
.105 ±.008

Part No.	A	D	J	Board Thickness
625-A	.41	147	.147	1/32-.050
625-G	.42	.157	.157	1/16

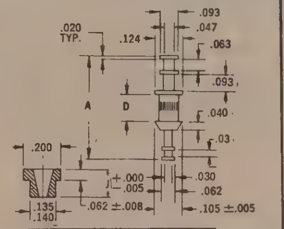

HOLE TO ACCEPT .081 PROBE
.085
.181
.234 ±.005
.015
.010 .012
.09
.005
.25
.35
.12
.275 +.005 −.000
.203 +.000 −.002
.020
.025
.061
.087

Part No. L-602

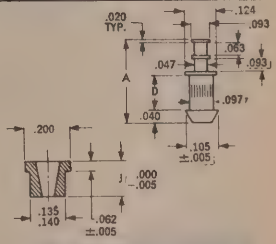
Also available without slots (non-gripping) P/N 602


.187
.078 DIA.
.145
.112
.030
.015
.110
.25
A
D
.030
.046
.250
+.000 −.005
J
.110
.187
.062 ±.005
.124

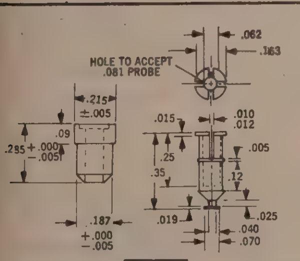
Part No.	A	D	J	Board Thickness
630-A	.51	.150	.150	⅟₃₂-.050
630-G	.52	.160	.160	⅟₁₆
630-H	.58	.220	.220	⅛


.093
.047
.020 TYP.
.124
.063
.093
A
D
.040
.03
.200
+.000 −.005
J
.030
.062
.135 .140
.062 ±.008
.105 ±.005

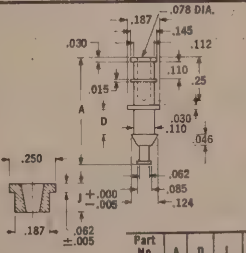
Part No.	A	D	J	Board Thickness
622-A	.55	.147	.147	1/32-.050
622-G	.56	.157	.157	1/16
622-H	.59	.189	.189	1/8


.020 TYP.
.124
.093
.063
.093
.047
A
D
.097
.040
.200
.105 ±.005
J
.000 −.005
.135 .140
.062 ±.005

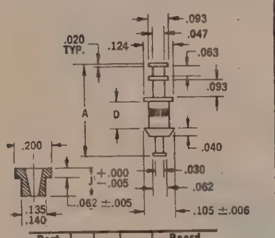
No.	A	D	J	Thickness
626-A	.40	.147	.147	1/32-.050
626-G	.41	.157	.157	1/16


.062
.163
HOLE TO ACCEPT .081 PROBE
.215 ±.005
.015
.010 .012
.09
.285 +.000 −.005
.005
.25
.35
.12
.019
.025
.187 +.000 −.005
.040
.070

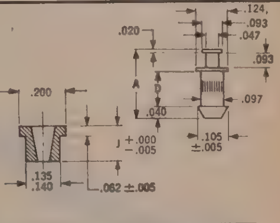
Part No. 605


.187
.078 DIA.
.145
.112
.030
.110
.25
.015
A
D
.030
.110
.046
.250
.062
.085
J +.000 −.005
.124
.187
.062 ±.005

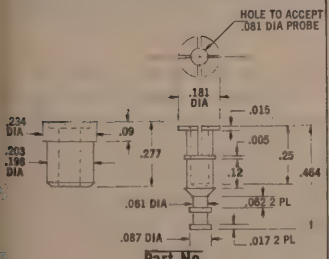
Part No.	A	D	J	Board Thickness
632-A	61	.150	.150	1/32-.050
632-G	.62	.160	.160	1/16
632-H	69	.220	.220	1/8


.093
.047
.020 TYP.
.124
.063
.093
A
D
.040
.200
+.000 −.005
J
.030
.062
.135 .140
.062 ±.005
.105 ±.006

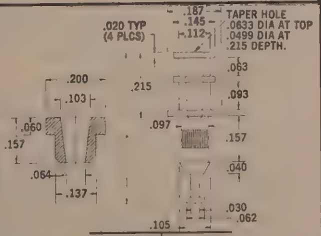
Part No.	A	D	J	Board Thickness
623-A	.50	.147	.147	1/32-.050
623-G	.51	.157	.157	1/16


.124
.093
.047
.020
.093
A
D
.097
.040
.200
J +.000 −.005
.105 ±.005
.135 .140
.062 ±.005

Part No.	A	D	J	Board Thickness
627-A	.32	.147	.147	1/32-.050
627-G	.33	.157	.157	1/16


HOLE TO ACCEPT .081 DIA PROBE
.181 DIA
.015
.234 DIA
.09
.005
.277
.25
.203 .198 DIA
.12
.464
.061 DIA
.062 2 PL
.087 DIA
.017 2 PL

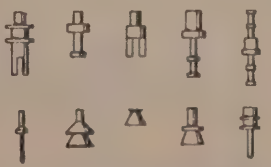
Part No. L-607


.020 TYP (4 PLCS)
.187
.145
.112
TAPER HOLE .0633 DIA AT TOP .0499 DIA AT .215 DEPTH.
.063
.200
.103
.215
.093
.060
.157
.097
.157
.064
.040
.137
.030
.062
.105

Part No.	A ±.015
631-1	.51
631-2	.56

Other Hiram Jones Products:

Non-Insulated Terminals, Test Jacks and Contacts
Printed Circuit, MS and MIL-T-55155 Terminals

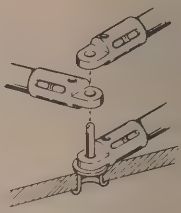


HIRAM JONES

manufacture and design of circuit components

11607 VANOWEN STREET, NORTH HOLLYWOOD, CALIF. 91605
(213) 875-0213

WIRE TERMINATION SYSTEM



Design Features

SOLDER-WICKING BARRIER

The design of HIRAM JONES 9W Wire Termination Systems provides a solder-wicking barrier, assuring flexibility of the wire and thus minimizing wire failures due to fatigue.

Wires are inserted in the 9W Crimp Terminals and crimped in place. Full engagement of the wire is determined by means of the inspection hole provided in each crimp terminal. The 9W Crimp Terminals are then attached to their mating Terminal Posts and soldered in place.

The entire termination is made without application of solder to the wire itself. It is, therefore, impossible for solder to "wick" up the wire.

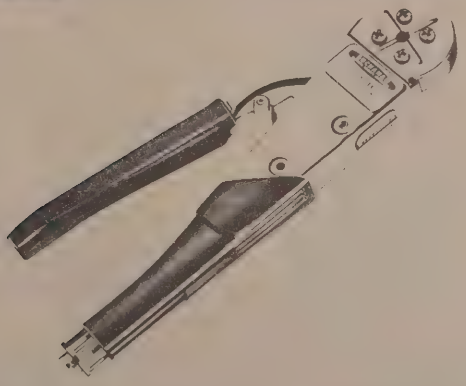
EQUIPMENT SERVICEABILITY

HIRAM JONES 9W Wire Termination System provides all the advantages of a hard wired system without the disadvantages of foreshortening of the service loop when disconnection and reconnection is required. The ease with which connections are made is a feature which is particularly advantageous in systems where connectors are undesirable, yet assemblies or sub-assemblies must be disconnected from time to time for service or replacement. To disconnect HIRAM JONES 9W Crimp Terminals, simply heat and lift off the mating terminal post. Reconnect by resoldering the 9W Crimp Terminals to the terminal post. Neither the mechanical nor electrical joint is affected by repeated removal and resoldering.

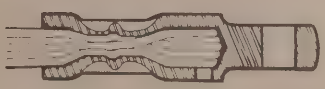
Increased Production Efficiency

By permitting pre-assembly of wires by unskilled operators, HIRAM JONES 9W Wire Termination Systems reduce production costs. Wires may be cut to length, stripped, and the 9W Crimp Terminals crimped in place. Final assembly consists of simply laying the pre-assembled Crimp Terminal on its mating terminal post and soldering in place.

MINIATURE MICROCRIMP TOOL



CROSS-SECTION OCTADENT CONFIGURATION



The 9W Miniature Microcrimp Tool (Buchanan No. 612118) is cycle-controlled to assure crimping to the selected depth. Once the crimping operation is started, the tool cannot be opened without completing its cycle.

9W LOCATORS — Specially designed locators are available for each of HIRAM JONES 9W Crimp Terminals. The use of one 9W Miniature Microcrimp Tool and the custom-designed 9W Locators is recommended to guarantee the precise crimp depth setting for each Crimp Terminal. When ordering, specify part number — i.e., 9W-206 Locator.

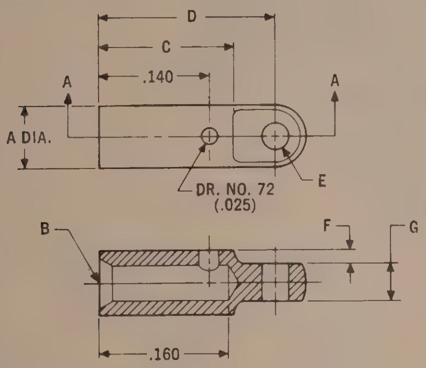
OCTADENT CRIMP — The 9W Miniature Microcrimp Tool produces an octadent configuration which provides uniform displacement of wire and crimp terminal material. The wire strands and the crimp terminal material are formed together in a solid mass with little or no reduction of the mil area of the wire strands.

anufacture and design of circuit components

HIRAM JONES
11607 VANOWEN STREET, NORTH HOLLYWOOD, CALIF. 91605
(213) 875-0213

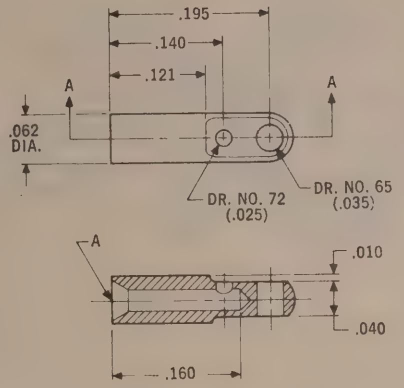
9W WIRE TERMINATION SYSTEM COMPONENTS

CRIMP TERMINAL


D
C
.140
A
A
A DIA.
DR. NO. 72
(.025)
E
B
F
G
.160

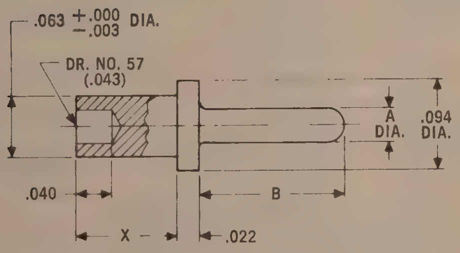
PART NO.	A DIA.	B DRILL	C	D	E DRILL	F	G	WIRE SIZE
9W-206	.078	3/64	.170	.220	.035	.017	.044	20 & 22
9W-230	.094	1/16	.175	.235	.046	.020	.054	16 & 18
9W-209	.078	.028	.170	.220	.046	.017	.044	24 & 26
9W-205	.078	3/64	.170	.220	.046	.017	.044	20 & 22

CRIMP TERMINAL


.195
.140
.121
A
A
.062
DIA.
DR. NO. 72
(.025)
DR. NO. 65
(.035)
A
.010
.040
.160

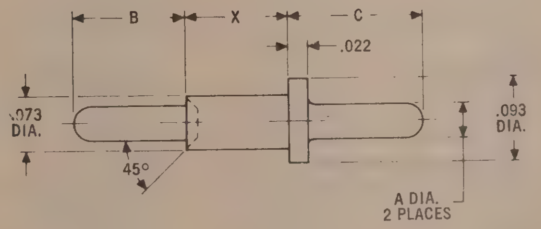
PART NO.	A DIA.	WIRE SIZE
9W-207	.028	24 & 26
9W-208	.020	28 & 30

STANDOFF TERMINAL


.063 +.000 −.003 DIA.
DR. NO. 57
(.043)
A
DIA.
.094
DIA.
.040
B
X
.022

PART NO.	A ±.001	B ±.010	X +.004 −.000	T
9W-507-1	.031	.187	.115	3/32″
9W-507-3	.041	.225	.115	3/32″
9W-507-5	.031	.187	.084	1/16″
9W-507-7	.041	.225	.084	1/16″
9W-507-9	.031	.187	.141	1/8″
9W-507-0	.031	.187	.048	1/32″

FEED-THRU TERMINAL


B
X
C
.022
.073
DIA.
45°
.093
DIA.
A DIA.
2 PLACES

PART NO.	A ±.001	B ±.010	C ±.010	X +.004 −.000	T
9W-510-1	.031	.187	.209	.115	3/32″
9W-510-2	.041	.225	.247	.115	3/32″
9W-510-3	.031	.187	.209	.084	1/16″
9W-510-4	.041	.225	.247	.084	1/16″

TOLERANCES: ±.005 Unless Otherwise Noted.
X = Shank Length T = Board Thickness
Wire size is AWG

MATERIAL: Brass per QQ-B-626, ½ Hard, Composition 22.

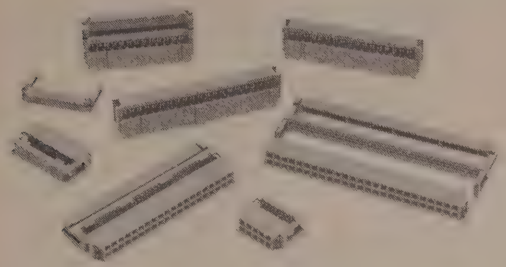
FINISH: Electrodeposited Solder Plate over Copper Plate.

Other Sizes Available.
Contact Factory.

H&T Hi-Tec 4000 Sockets

DESCRIPTION

Hi-Tec IDC sockets provide positive, reliable connection between 0.050″ (1.27) pitch ribbon cable and PCB mounted headers or 0.025″ (0.635) round or square pins on 0.1″× 0.1″ (2.54 × 2.54) grid, without pre-stripping the cable.



FEATURES

★ Dual cantilevered contacts
★ Open end and cable stop covers
★ Strain relief optional
★ Centre key polarising optional
★ Pre-assembled body & cover
★ Selectively plated
★ Ribbed cover for positive cable location
★ Contact recessess in cover
★ Pull tabs available
★ Tin/lead plated I.D. fork
★ U.L. Recognized

Compatible with:-

★ MIL-C-83503
★ BS 9525 F0026
★ BS 9525 F0023
★ DIN 41651

Call your local H&T distributor for a free sample and an immediate competitive price quote.

ARIZONA	
DALIS ELECTRONICS	
Phoenix	602-275-2626
INLAND ELECTRONIC SUPPLY	
Tucson	602-294-2628
CALIFORNIA	
BELL INDUSTRIES	
Mountain View	415-960-1440
C.R. ELECTRONICS	
Santa Ana	714-556-2040
PETERS-deLAET INC.	
Santa Clara	408-727-9440
S. San Francisco	415-873-9595
CONNECTICUT	
ACCURATE ELECTRONICS INC.	
Bridgeport	203-366-0214
MILLENNIUM ELECTRONIC SALES	
Bridgeport	203-372-2037
FLORIDA	
SIMCONA	
Fort Lauderdale	305-485-4455
GEORGIA	
WHITEHEAD ELECTRONICS	
Norcross	404-923-6667
ILLINOIS	
ADVENT ELECTRONICS	
Rosemont	312-297-6200
COMPONENTS, INC.	
Lisle	312-852-7707
INDIANA	
ADVENT ELECTRONICS	
Indianapolis	317-872-4910
IOWA	
ADVENT ELECTRONICS	
Cedar Rapids	319-363-0221
LOUISIANA	
RALPHS INDUSTRIAL ELEC. SUPPLY	
Baton Rouge	504-344-3761
Lafayette	318-234-4507
MARYLAND	
PYTTRONIC INDUSTRIES	
Savage	301-792-0780
MASSACHUSETTS	
COLONIAL WIRE & CABLE INC.	
Lowell	617-459-6400
INTERFACE ELECTRONICS	
Hopkinton	617-435-6858
MICHIGAN	
ADVENT ELECTRONICS	
Farmington Hills	313-477-1650
MINNESOTA	
NORTHERN AUTOMATIC	
Shoreview	612-481-0022
NEW JERSEY	
GORDON/HORNE, INC.	
Oakland	201-337-5200
NEW YORK	
BROADLINE ELECTRONICS	
Hauppauge	516-231-4100
SUMMIT DISTRIBUTORS	
In NY	800-462-1880
Outside NY	800-828-8282
OHIO	
ROBERTS ELECTRONICS	
Cleveland	216-238-1711
TELEVOX	
Dayton	513-294-4499
WHITEHEAD ELECTRONICS	
Columbus	614-224-1186
OREGON	
MURPHY ELECTRONICS	
Beaverton	503-642-2001
PETERS-deLAET	
Portland	503-284-1112
PENNSYLVANIA	
PYTTRONIC INDUSTRIES	
Montgomeryville	215-643-2850
TEXAS	
COMPUTER COMPONENTS	
Dallas	214-239-0271
RALPHS INDUSTRIAL ELEC. SUPPLY	
Beaumont	409-833-9443
Houston	713-748-4902
UTAH	
PEN-TEC ENTERPRISES	
Salt Lake City	801-972-4817
WASHINGTON	
MURPHY ELECTRONICS	
Redmond	206-881-1234

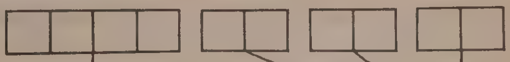
H&T COMPONENTS INC. 87 Sand Pit Road, Danbury, CT 06810 Telephone 203-794-1798 Telex 643011

H&T Hi-Tec 4000 Sockets

SPECIFICATIONS

Contact Rating	1 Amp
Contact Resistance	6 Milliohms Typical
Dielectric Strength	500V AC RMS
Insulation Resistance	5000 Megohms Min.
Operating Temperature	−55°C to +105°C
Insulation Material	Glass-Filled Polyester Rated UL 94V-0
Contact Material	Phosphor Bronze
Cable Size	26 AWG & 28 AWG stranded or solid and 30 AWG solid

ORDERING CODE



Series

Without Centre Key Per MIL-C-83503

4001 — Open Cover with Strain Relief
4002 — Open Cover without Strain Relief
4011 — Wire-Stop Cover with Strain Relief
4012 — Wire-Stop Cover without Strain Relief

With Centre Key

4003 — Open Cover with Strain Relief
4004 — Open Cover without Strain Relief
4013 — Wire-Stop Cover with Strain Relief
4014 — Wire-Stop Cover without Strain Relief

Number of Contacts

10, 14, 16, 20, 26, 34, 40, 50, 60

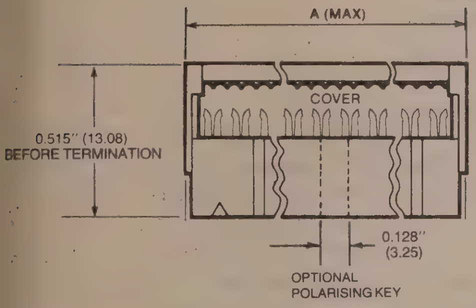
Contact Type

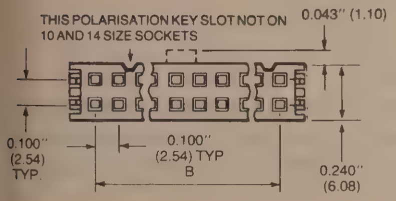
00 — Female IDC Contact

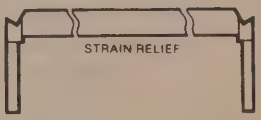
Plating Code

P1 — Gold flash over Nickel
P2 — 0.000030″ (0.76μ) Gold selectively plated in contact area with Gold flash on remainder, all over Nickel
P5 — 0.000030″ (0.76μ) Gold selectively plated in contact area with Tin Lead on remainder, all over Nickel

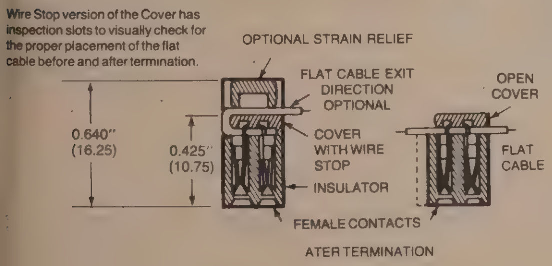
For other plating options please consult factory.


A (MAX)
COVER
0.515″ (13.08)
BEFORE TERMINATION
0.128″
(3.25)
OPTIONAL
POLARISING KEY


THIS POLARISATION KEY SLOT NOT ON 10 AND 14 SIZE SOCKETS
0.043″ (1.10)
0.100″ (2.54) TYP.
0.100″ (2.54) TYP
B
0.240″ (6.08)


STRAIN RELIEF

Part No. 4099 – XX (No. of ways)


Wire Stop version of the Cover has inspection slots to visually check for the proper placement of the flat cable before and after termination.
OPTIONAL STRAIN RELIEF
FLAT CABLE EXIT DIRECTION OPTIONAL
OPEN COVER
0.640″ (16.25)
0.425″ (10.75)
COVER WITH WIRE STOP
FLAT CABLE
INSULATOR
FEMALE CONTACTS
ATER TERMINATION

No. of Contacts	A (MAX)	B
10	0.680″ (17.27)	0.400″ (10.16)
14	0.880″ (22.35)	0.600″ (15.24)
16	0.980″ (24.89)	0.700″ (17.78)
20	1.180″ (29.97)	0.900″ (22.86)
26	1.480″ (37.59)	1.200″ (30.48)
34	1.880″ (47.75)	1.600″ (40.64)
40	2.180″ (55.37)	1.900″ (48.26)
50	2.680″ (68.07)	2.400″ (60.96)
60	3.180″ (80.77)	2.900″ (73.66)

H&T COMPONENTS INC. 87 Sand Pit Road, Danbury, CT 06810 Telephone 203-794-1798 Telex 643011

H&T Hi-Tec 4100 Fully Shrouded Headers

DESCRIPTION

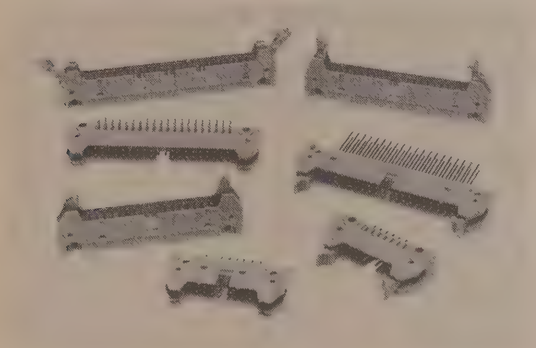
Hi-Tec fully shrouded headers provide the most positive and reliable method to connect IDC sockets to PCB's with maximum polarisation and pin protection.

FEATURES

★ 4 walled construction
★ Built in polarising keys
★ Centre slot accepts centre key polarising
★ Horizontal and vertical mounting
★ 2 optional lock/ejectors
★ 3 pin lengths for 0.062″, 0.093″ & 0.125″ PCB's
★ Wire wrap tails available
★ Selectively plated
★ Choice of gold thickness
★ Tin/lead plated solder tails
★ U.L. Recognized

Compatible with:-

★ MIL-C-83503
★ BS 9525 F0026
★ BS 9525 F0023
★ DIN 41651



SPECIFICATIONS

Contact Rating	1 Amp
Contact Resistance	6 Milliohms Typical
Dielectric Strength	500V AC RMS
Insulation Resistance	5000 Megohms Min.
Operating Temperature	−55°C to +105°C
Insulation Material	Glass-Filled Polyester Rated UL 94V-0
Contact Material	Phosphor Bronze

ORDERING CODE – FULLY SHROUDED

☐☐☐☐ ☐☐ ☐☐ ☐☐

Series
4101 — No latches
4102 — Short latches
4103 — Long latches

Number of Pins
10, 14, 16, 20, 26, 34, 40, 50, 60

Pin Configuration
01 — Straight for 0.062″ (1.60) thick PCB
02 — Right Angled for 0.062″ (1.60) thick PCB
03 — Straight for 0.093″ (2.40) thick PCB
04 — Right Angled for 0.093″ (2.40) thick PCB
05 — Straight for 0.125″ (3.20) thick PCB
06 — Right Angled for 0.125″ (3.20) thick PCB
07 — Straight for 3 level wire wrap
08 — Right Angled for 3 level wire wrap

Plating Code
P1 — Gold flash over Nickel
P2 — 0.000030″ (0.76μ) Gold selectively plated in contact area with Gold flash on remainder, all over Nickel
P5 — 0.000030″ (0.76μ) Gold selectively plated in contact area with Tin Lead on remainder, all over Nickel

For other plating options please consult factory.

No. of Pins	A	B	C	D	E
10	1.26″ (32.00)	0.858″ (21.79)	0.709″ (18.00)	0.400″ (10.16)	1.098″ (27.90)
14	1.46″ (37.08)	1.058″ (26.87)	0.909″ (23.08)	0.600″ (15.24)	1.298″ (32.97)
16	1.56″ (39.62)	1.158″ (29.41)	1.009″ (25.62)	0.700″ (17.78)	1.398″ (35.50)
20	1.76″ (44.70)	1.358″ (34.50)	1.209″ (30.70)	0.900″ (22.86)	1.598″ (40.60)
26	2.06″ (52.32)	1.658″ (42.10)	1.509″ (38.32)	1.200″ (30.48)	1.902″ (48.30)
34	2.46″ (62.48)	2.058″ (52.27)	1.909″ (48.48)	1.600″ (40.64)	2.298″ (58.40)
40	2.76″ (70.10)	2.358″ (59.90)	2.209″ (56.10)	1.900″ (48.26)	2.598″ (66.00)
50	3.26″ (82.80)	2.858″ (72.60)	2.709″ (68.80)	2.400″ (60.96)	3.098″ (78.70)
60	3.76″ (95.50)	3.358″ (85.30)	3.209″ (81.50)	2.900″ (73.66)	3.598″ (91.40)

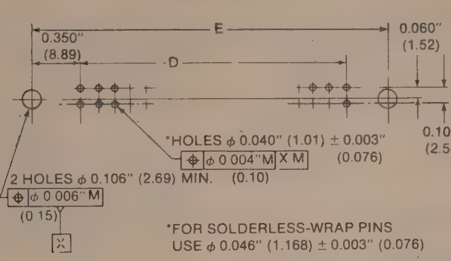
H&T COMPONENTS INC.
87 Sand Pit Road, Danbury, CT 06810
Telephone 203-794-1798 Telex 643011

H&T

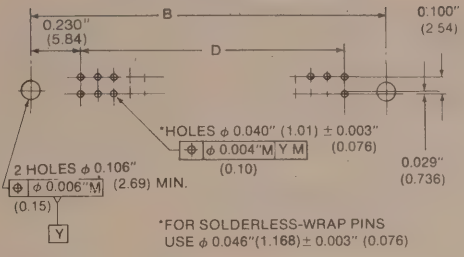
Hi-Tec 4100 Headers

Recommended P.C.B. Hole Pattern (viewed from component side)

Straight Headers

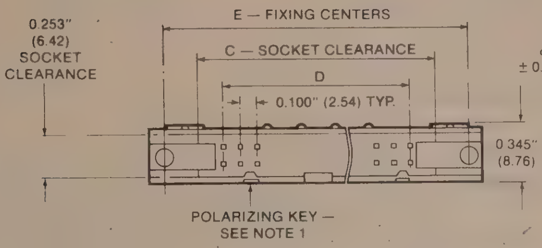

E
0.350"
(8.89)
D
0.060"
(1.52)
0.100"
(2.54)
*HOLES φ 0.040" (1.01) ± 0.003"
⊕ φ 0.004" M X M
(0.076)
2 HOLES φ 0.106" (2.69) MIN.
(0.10)
⊕ φ 0.006" M
(0.15)
X
*FOR SOLDERLESS-WRAP PINS
USE φ 0.046" (1.168) ± 0.003" (0.076)

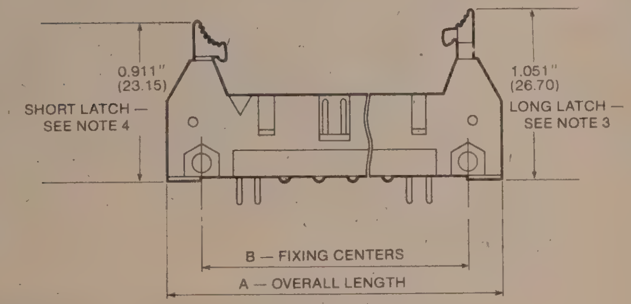
Right Angle Headers

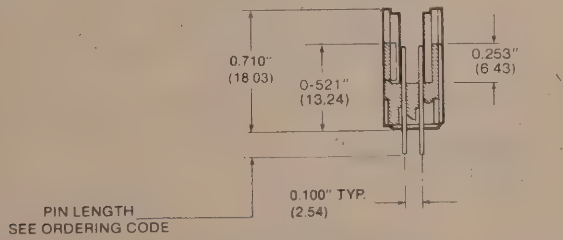

B
0.230"
(5.84)
D
0.100"
(2.54)
*HOLES φ 0.040" (1.01) ± 0.003"
⊕ φ 0.004" M Y M
(0.076)
(0.10)
2 HOLES φ 0.106"
⊕ φ 0.006" M
(2.69) MIN.
(0.15)
Y
0.029"
(0.736)
*FOR SOLDERLESS-WRAP PINS
USE φ 0.046"(1.168) ± 0.003" (0.076)

DIMENSIONS

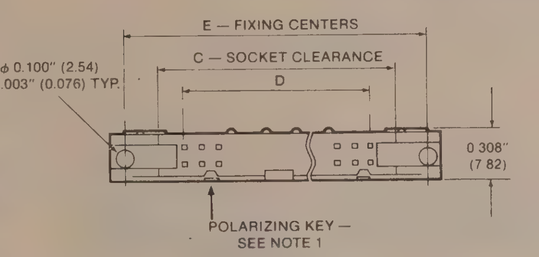
4-Sided Fully Protected Header

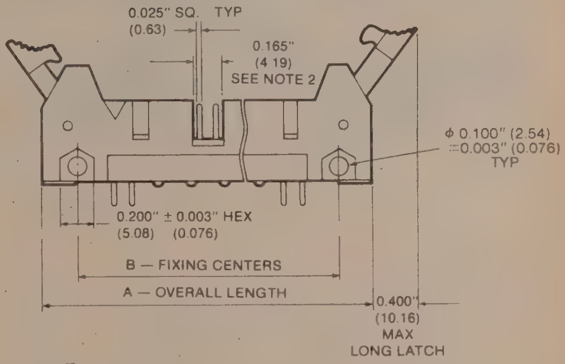

0.253"
(6.42)
SOCKET
CLEARANCE
E — FIXING CENTERS
C — SOCKET CLEARANCE
D
0.100" (2.54) TYP.
0.345"
(8.76)
POLARIZING KEY —
SEE NOTE 1

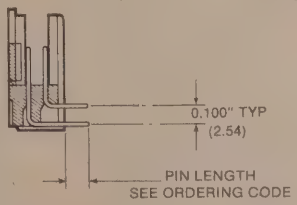

0.911"
(23.15)
SHORT LATCH —
SEE NOTE 4
1.051"
(26.70)
LONG LATCH —
SEE NOTE 3
B — FIXING CENTERS
A — OVERALL LENGTH


0.710"
(18.03)
0-521"
(13.24)
0.253"
(6.43)
PIN LENGTH
SEE ORDERING CODE
0.100" TYP.
(2.54)

3-Sided Partially Protected Header


E — FIXING CENTERS
C — SOCKET CLEARANCE
D
φ 0.100" (2.54)
± 0.003" (0.076) TYP.
0.308"
(7.82)
POLARIZING KEY —
SEE NOTE 1

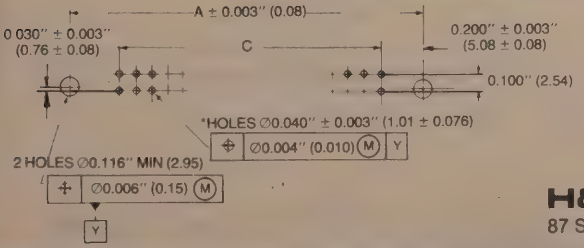

0.025" SQ. TYP
(0.63)
0.165"
(4.19)
SEE NOTE 2
φ 0.100" (2.54)
±0.003" (0.076)
TYP
0.200" ± 0.003" HEX
(5.08) (0.076)
B — FIXING CENTERS
A — OVERALL LENGTH
0.400"
(10.16)
MAX
LONG LATCH


0.100" TYP
(2.54)
PIN LENGTH
SEE ORDERING CODE

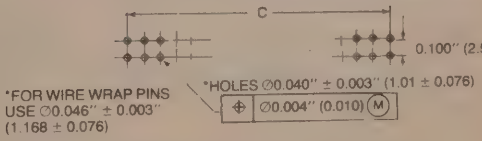
1. This polarizing key does not appear on 10 & 14 size Headers.
2. Single slot appears on sizes 10 through 40. Triple slots appear on sizes 50 and 60.
3. Long latches are used when mating socket has strain relief.
4. Short latches are used when mating socket has no strain relief.

Box Headers Recommended P.C.B. hole pattern (viewed from component side).

Right Angle Headers


A ± 0.003" (0.08)
0.030" ± 0.003"
(0.76 ± 0.08)
C
0.200" ± 0.003"
(5.08 ± 0.08)
0.100" (2.54)
*HOLES ∅0.040" ± 0.003" (1.01 ± 0.076)
⊕ ∅0.004" (0.010) M Y
2 HOLES ∅0.116" MIN (2.95)
⊕ ∅0.006" (0.15) M
Y

Straight Headers


C
0.100" (2.54)
*FOR WIRE WRAP PINS
USE ∅0.046" ± 0.003"
(1.168 ± 0.076)
*HOLES ∅0.040" ± 0.003" (1.01 ± 0.076)
⊕ ∅0.004" (0.010) M

H&T COMPONENTS INC.
87 Sand Pit Road, Danbury, CT 06810 Telephone 203-794-1798 Telex 643011

H&T

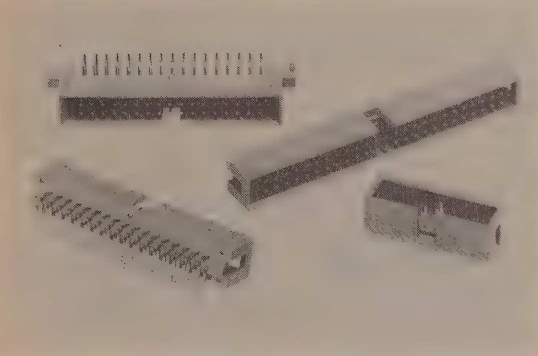
Hi-Tec 4140 & 4150 Box Headers

DESCRIPTION

Hi-Tec Low Profile Box Headers provide a positive, reliable connection between IDC sockets and PCB's with maximum savings in board space and height.

FEATURES

- ★ 4 walled box construction
- ★ Low height profile
- ★ Optional built in polarising keys
- ★ Maximum connection density
- ★ Fully polarised
- ★ Maximum pin protection
- ★ Selectively plated
- ★ Choice of gold thickness
- ★ Tin/lead plated solder tails
- ★ Straight and right angled styles (4140)
- ★ Mounting feet (4150)



No. of Pins	A	B	C
10	0.800″ (20.32)	0.705″ (17.91)	0.400″ (10.16)
14	1.000″ (25.40)	0.905″ (22.99)	0.600″ (15.24)
16	1.100″ (27.94)	1.005″ (25.53)	0.700″ (17.78)
20	1.300″ (32.02)	1.205″ (30.61)	0.900″ (22.86)
26	1.600″ (40.64)	1.505″ (38.23)	1.200″ (30.48)
34	2.000″ (50.80)	1.905″ (48.39)	1.600″ (40.64)
40	2.300″ (58.42)	2.205″ (56.01)	1.900″ (48.26)
44	2.500″ (63.50)	2.405″ (61.09)	2.100″ (53.34)
50	2.800″ (71.12)	2.705″ (68.71)	2.400″ (60.96)
56	3.100″ (78.74)	3.005″ (76.33)	2.700″ (68.58)
60	3.300″ (82.82)	3.205″ (81.41)	2.900″ (73.66)

H&T COMPONENTS INC.
87 Sand Pit Road, Danbury, CT 06810
Telephone 203-794-1798 Telex 643011

SPECIFICATIONS

Contact Rating	1 Amp
Contact Resistance	6 Milliohms Typical
Dielectric Strength	500V AC RMS
Insulation Resistance	5000 Megohms Min.
Operating Temperature	−55°C to +105°C
Insulation Material	Glass-Filled Polyester Rated UL 94V-0
Contact Material	Phosphor Bronze

ORDERING CODE

☐☐☐☐ ☐☐ ☐☐ ☐☐

Series

Without End Feet
- 4141 — Without keys
- 4142 — With inbuilt keys

With End Feet
- 4151 — Without keys
- 4152 — With inbuilt keys

Number of Pins

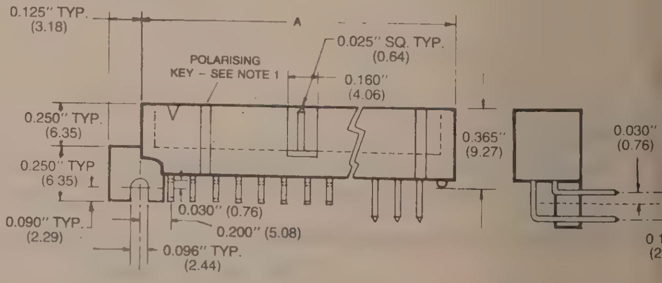
10, 14, 16, 20, 26, 34, 40, 44, 50, 56, 60

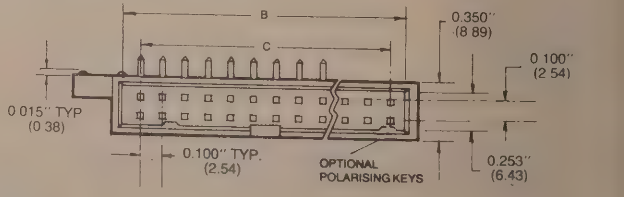
Pin Configuration
- 01 — Straight for 0.062″ (1.60) thick PCB
- 02 — Right Angled for 0.062″ (1.60) thick PCB
- 03 — Straight for 0.093″ (2.40) thick PCB
- 04 — Right Angled for 0.093″ (2.40) thick PCB
- 05 — Straight for 0.125″ (3.20) thick PCB
- 06 — Right Angled for 0.125″ (3.20) thick PCB
- 07 — Straight for 3 level wire wrap
- 08 — Right Angled for 3 level wire wrap

Plating Code
- P1 — Gold flash over Nickel
- P2 — 0.000030″ (0.76μ) Gold selectively plated in contact area with Gold flash on remainder, all over Nickel
- P5 — 0.000030″ (0.76μ) Gold selectively plated in contact area with Tin Lead on remainder, all over Nickel

For other plating options please consult factory.

DIMENSIONS





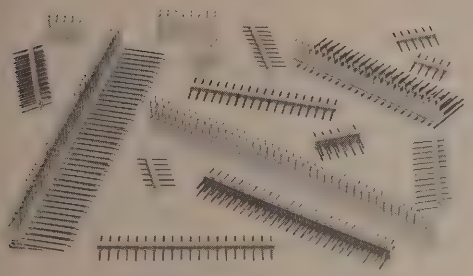
H&T Hi-Tec 4160 Strip Headers

DESCRIPTION

Hi-Tec single and dual row strip headers provide low cost, space-saving connections between IDC sockets and PCB's.

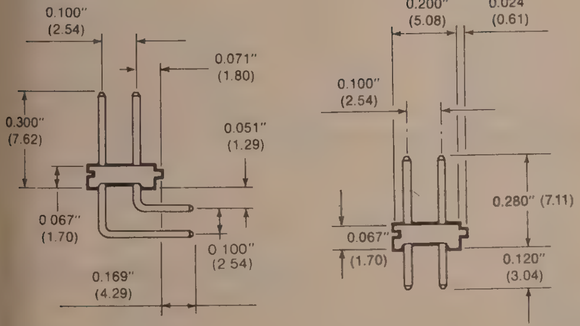
FEATURES

- ★ Ultra low profile
- ★ Low cost plating
- ★ Straight or right angled pins
- ★ Minimal board space
- ★ Stackable, maintaining pitch
- ★ Other pin lengths available – consult factory
- ★ 1 – 40 pins (single row)
- ★ 2 – 80 pins (double row)
- ★ Can be snapped in multiples on 0.1″ (2.54) centers

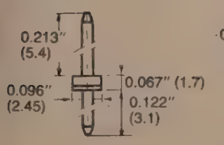


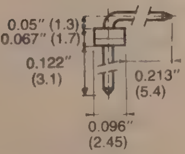
DIMENSIONS

Double Row


0.100″
(2.54)
0.071″
(1.80)
0.300″
(7.62)
0.051″
(1.29)
0 067″
(1.70)
0 100″
(2 54)
0.169″
(4.29)
0.200″
(5.08)
0.024″
(0.61)
0.100″
(2.54)
0.280″ (7.11)
0.067″
(1.70)
0.120″
(3.04)

Single Row


0.213″
(5.4)
0.096″
(2.45)
0.067″ (1.7)
0.122″
(3.1)


0.05″ (1.3)
0.067″ (1.7)
0.122″
(3.1)
0.213″
(5.4)
0.096″
(2.45)

SPECIFICATIONS

Contact Rating	1 Amp
Contact Resistance	6 Milliohms Typical
Dielectric Strength	500V AC RMS
Insulation Resistance	5000 Megohms Minimum
Operating Temperature	−40°C to +105°C
Colour	Brown
Insulating Material	Glass-Filled Nylon 66

ORDERING CODE

☐☐☐☐ ☐☐ ☐☐ ☐☐

Series
4161—Dual Row Strip Header
4162—Single Row Strip Header

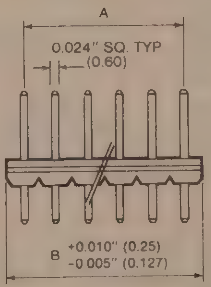
Number of Pins
10, 14, 16, 20, 26, 34, 40, 50*, 60*, 80*

Pin Configuration
03 — Straight Pins for 0.062″(1.60) and 0.093″(2.40) thick P.C.B.
06 — Right Angle Pins for up to 0.125″ (3.20) Thick P.C.B.

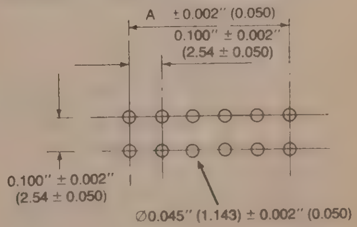
Plating
P1 — 0.000020″ (0.5μ) Gold all over Nickel
P4 — 0.00020″ (5.0μ) Tin/Lead
*These only available in dual row

For other pin lengths or numbers of pins, please consult factory.

No. of Pins	A	B
10	0.400″ (10.16)	0.500″ (12.70)
14	0.600″ (15.24)	0.700″ (17.78)
16	0.700″ (17.78)	0.800″ (20.32)
20	0.900″ (22.86)	1.000″ (25.40)
26	1.200″ (30.48)	1.300″ (33.02)
34	1.600″ (40.64)	1.700″ (43.18)
40	1.900″ (48.26)	2.000″ (50.80)
50	2.400″ (60.96)	2.500″ (63.50)
60	2.900″ (73.66)	3.000″ (76.20)
80	3.900″ (99.06)	4.000″ (101.60)


A
0.024″ SQ. TYP
(0.60)
B +0.010″ (0.25)
-0 005″ (0.127)

PCB Piercing Details


A ± 0.002″ (0.050)
0.100″ ± 0.002″
(2.54 ± 0.050)
0.100″ ± 0.002″
(2.54 ± 0.050)
∅0.045″ (1.143) ± 0.002″ (0.050)

H&T COMPONENTS INC. 87 Sand Pit Road, Danbury, CT 06810 Telephone 203-794-1798 Telex 643011

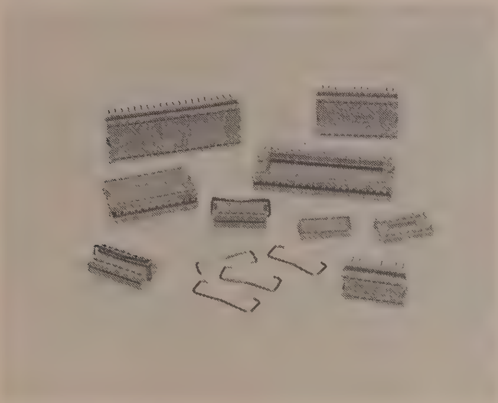
H&T Hi-Tec 4200 Dual-in-Line Plugs

DESCRIPTION

Hi-Tec Dual-in-Line Plugs provide rapid termination for ribbon cable to PCB's either directly or via IC sockets without pre-stripping cable.

FEATURES

- ★ Strong pluggable pins
- ★ 2 pin lengths for 0.062″ to 0.125″ PCB's
- ★ Optional strain relief
- ★ Cover latched for strength
- ★ Choice of plating options
- ★ Low profile
- ★ MIL-C-83503 compatible
- ★ Pull tabs available (see page 2)
- ★ Ribbed cover aids cable location
- ★ Contact recesses in cover
- ★ U.L. Recognized



SPECIFICATIONS

Contact Rating ....1 Amp
Contact Resistance ....2.5 Milliohms Typ.
Dielectric Strength ....500V AC RMS
Insulation Resistance ....5000 Megohms Min.
Operating Temperature ....−55°C to +105°C
Insulation Material ....Glass-Filled Polyester
Rated UL 94V-0
Contact Material ....Phosphor Bronze
Cable Size ....26 AWG & 28 AWG strande
or solid and 30 AWG solid

ORDERING CODE

☐☐☐☐ ☐☐ ☐☐ ☐☐

Series
4201 — Dual-In-Line Plug
4202 — DIP including Strain Relief

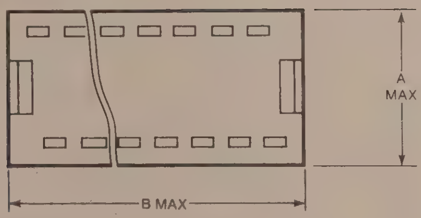
Number of Pins
14, 16, 24, 40

Pin Configuration
01 — 0.084″ (2.14) Pin Length
05 — 0.165″ (4.19) Pin Length

Plating Code
P1 — Gold flash over Nickel
P4 — 0.000200″ (5.08μ) bright Tin over Nickel

Pull Tabs
For ordering code see page 2
4299 – XX (No. of pins) – Strain Relief only

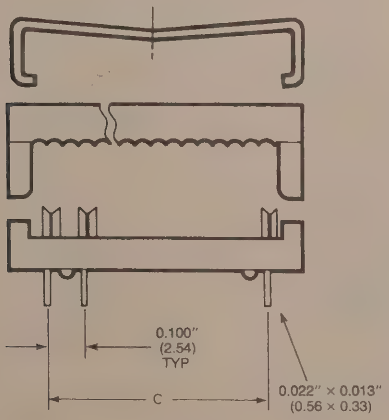
DIMENSIONS

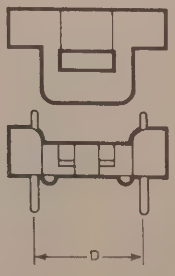


EXPANSION OF SNAP-IN FINGERS NOT INCLUDED

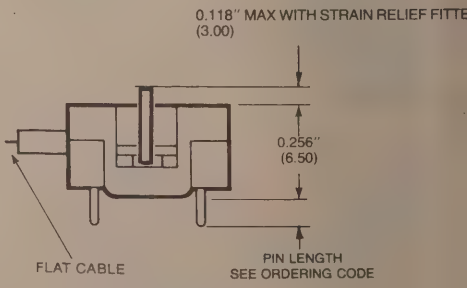
No. of Pins	"MAX" A	"MAX" B	C	D
14	0.425″ (10.79)	0.780″ (19.81)	0.600″ (15.24)	0.300″ (7.62)
16	0.425″ (10.79)	0.880″ (22.35)	0.700″ (17.78)	0.300″ (7.62)
24	0.725″ (18.41)	1.280″ (32.51)	1.100″ (27.94)	0.600″ (15.24)
40	0.725″ (18.41)	2.080″ (52.83)	1.900″ (48.26)	0.600″ (15.24)

***Note** for B "Max" with strain relief please add 0.092″ (2.39) to overall length.





BEFORE TERMINATION



AFTER TERMINATION

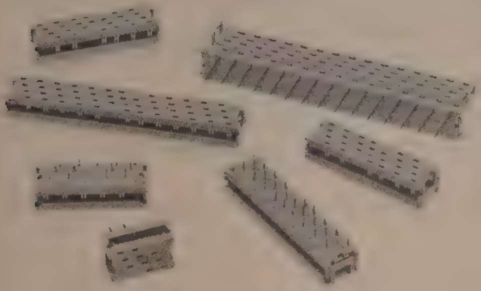
H&T Hi-Tec 4300 4 Row PCB Transition

DESCRIPTION

Hi-Tec 4 Row solder transition connectors provide direct, permanent connection between 0.050″ (1.27) pitch ribbon cables and printed circuit boards.

FEATURES

- ★ 2 stage latch on cover
- ★ Optional pre-assembly
- ★ Industry compatible configuration
- ★ Low profile
- ★ MIL-C-83503 compatible
- ★ Accommodate .062″ – .125″ PCB's
- ★ Choice of plating
- ★ Ribbed cover aids cable location
- ★ Contact recessess in cover
- ★ U.L. Recognized



SPECIFICATIONS

Contact Rating ....1 Amp
Termination Resistance ....2.5 Milliohms Typ.
Dielectric Strength ....500V AC RMS
Insulation Resistance ....5000 Megohms min
Operating Temperature ....−55°C to +105°C
Insulating Material ....Glass-Filled Polyester Rated UL 94V-0
Contact Material ....Phosphor Bronze
Cable Size ....26 & 28 AWG stranded or solid and 30 AWG solid

ORDERING CODE

☐☐☐☐ ☐☐ ☐☐ ☐☐

Series
4301 — P.C.B. Transition

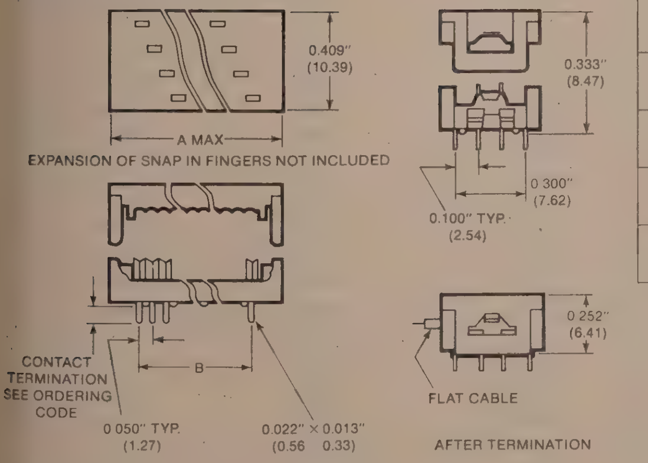
Number of Pins
10, 16, 20, 26, 34, 40, 50, 60

Pin Configuration
01 — 0.090″ (2.28) Pin Length
05 — 0.150″ (3.81) Pin Length

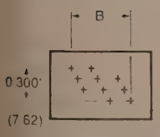
Plating
P1 — Gold flash over Nickel
P4 — 0.000200″ (5.08μ) Tin over Nickel

No. of Pins	A MAX	B
10	0.699″ (17.75)	0.450″ (11.43)
16	0.999″ (25.37)	0.750″ (19.05)
20	1.199″ (30.45)	0.950″ (24.13)
26	1.499″ (38.07)	1.250″ (31.75)
34	1.899″ (48.23)	1.650″ (41.91)
40	2.199″ (55.85)	1.950″ (49.53)
50	2.699″ (68.55)	2.450″ (62.23)
60	3.199″ (81.25)	2.950″ (74.93)

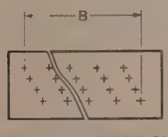
DIMENSIONS


0.409″
(10.39)
A MAX
EXPANSION OF SNAP IN FINGERS NOT INCLUDED
0.333″
(8.47)
0.300″
(7.62)
0.100″ TYP.
(2.54)
CONTACT TERMINATION SEE ORDERING CODE
B
0.050″ TYP.
(1.27)
0.022″ × 0.013″
(0.56 0.33)
0.252″
(6.41)
FLAT CABLE

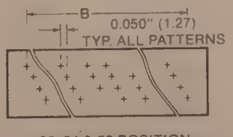
AFTER TERMINATION



10 POSITION



16, 20, 40 & 60 POSITION


B
0.050″ (1.27)
TYP. ALL PATTERNS

26, 34 & 50 POSITION

H&T COMPONENTS INC.
87 Sand Pit Road, Danbury, CT 06810
Telephone 203-794-1798 Telex 643011

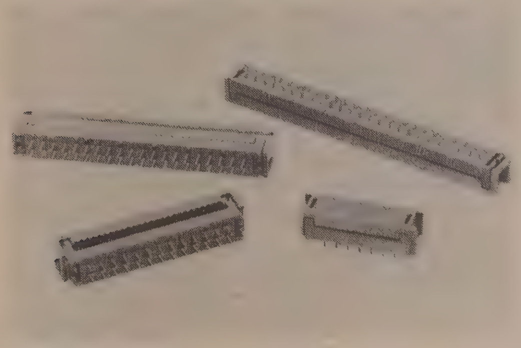
H&T Hi-Tec 4320 2 Row PCB Transition

DESCRIPTION

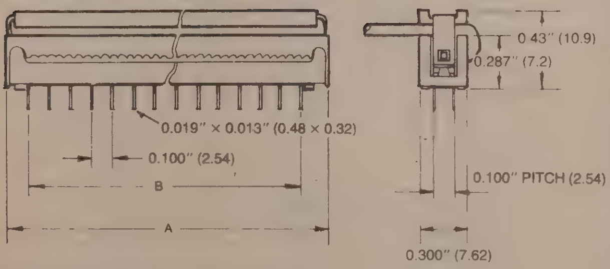
Hi-Tec 2 Row solder transition connectors provide direct, permanent connection between 0.050″ (1.27) pitch ribbon cables and printed circuit boards whilst occupying minimal board space.

FEATURES

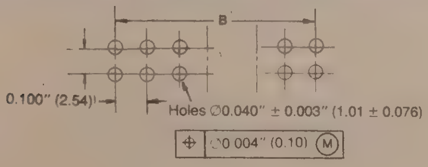
- ★ 2 stage latch
- ★ Optional pre-assembly
- ★ Pin compatible with header and socket
- ★ Minimal board space
- ★ Practical pin configuration
- ★ Optional strain relief
- ★ Accommodate .062″ – .125″ PCB's
- ★ Low profile
- ★ Ribbed cover aids cable location
- ★ Contact recessess in cover



DIMENSIONS



Recommended Mounting Hole Pattern



SPECIFICATIONS

Contact Rating ....1 Amp
Termination Resistance ....2.5 Milliohms Typ.
Dielectric Strength ....500V AC RMS
Insulation Resistance ....5000 Megohms min
Operating Temperature ....−55°C to +105°C
Insulating Material ....Glass-Filled Polyester Rated UL 94V-0
Contact Material ....Phosphor Bronze
Cable Size ....26 & 28 AWG stranded or solid and 30 AWG solid

ORDERING CODE

☐☐☐☐ ☐☐ ☐☐ ☐

Series
4321 — 2 Row Transition
4322 — 2 Row Transition with S/R
Number of Pins
10, 14, 16, 20, 26, 34, 40, 44, 50, 56, 60, 64
Pin Configuration
01 — 0.090″ (2.28) Pin Length
05 — 0.150″ (3.81) Pin Length
Plating
P4 — 0.000200″ (5.08μ) Tin over Nickel

4399 — XX — strain relief for 4320 Series only.

No. of Pins	A	B
10	0.748″ (19.00)	0.400″ (10.16)
14	0.948″ (24.08)	0.600″ (15.24)
16	1.048″ (27.53)	0.700″ (17.78)
20	1.248″ (31.70)	0.900″ (22.86)
26	1.548″ (39.32)	1.200″ (30.48)
34	1.948″ (49.48)	1.600″ (40.64)
40	2.248″ (57.10)	1.900″ (48.26)
44	2.448″ (62.18)	2.100″ (53.34)
50	2.748″ (69.80)	2.400″ (60.96)
56	3.048″ (77.42)	2.700″ (68.58)
60	3.248″ (82.50)	2.900″ (73.66)
64	3.448″ (87.58)	3.100″ (78.74)

H&T COMPONENTS INC. 87 Sand Pit Road, Danbury, CT 06810 Telephone 203-794-1798 Telex 643011

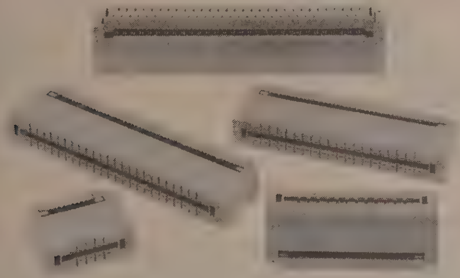
H&T Hi-Tec 4400 Card Edge Connectors

DESCRIPTION

Hi-Tec card edge connectors provide a reliable connection between 0.050″ (1.27) ribbon cable and the edge of .062″ (1.60) PCB's

FEATURES

- ★ Bifurcated contact
- ★ 2 stage latch on cover
- ★ No pin loss polarisation
- ★ 2 mounting options available
- ★ Selective plating
- ★ U.L. Recognized



SPECIFICATIONS

Contact Rating	1 Amp
Dielectric Strength	100V AC RMS
Insulation Resistance	5000 Megohoms Minimum
Operating Temperature	−55°C to +105°C
Insulating Material	Glass Filled Polyester Rated UL 94V-0
Contact Material	Beryllium Copper
Cable Size	28 AWG stranded or solid and 30 AWG solid

ORDERING CODE

☐☐☐☐ ☐☐ ☐☐ ☐☐

Series
4401 — No Mounting Ears
4421 — Half Mounting Ears*
4441 — Full Mounting Ears*

Number of Contacts
10, 16, 20, 26, 34, 40, 50, 60

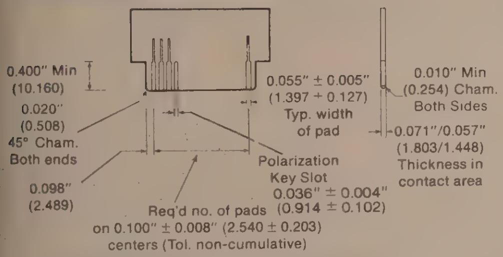
Pin Configuration
00 — Card Edge IDC Contact

Plating Code
P5 — 0.000030″ (0.76μ) Gold selectively plated in contact area with Tin Lead on remainder, all over Nickel

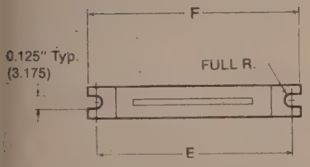
Order Polarizing Key Separately — Part No. 4499
*For availability and other plating options please consult factory.

No. of Contacts	A	B	C	D	E	F
10	0.96″ (24.4)	1.90″ (48.2)	1.40″ (35.56)	0.60″ (15.2)	1.30″ (33.0)	1.50″ (38.1)
16	1.26″ (32.0)	2.20″ (55.9)	1.70″ (43.18)	0.90″ (22.9)	1.60″ (40.6)	1.80″ (45.7)
20	1.46″ (37.1)	2.40″ (61.0)	1.90″ (48.26)	1.10″ (27.9)	1.80″ (45.7)	2.00″ (50.8)
26	1.76″ (44.7)	2.70″ (68.6)	2.20″ (55.88)	1.40″ (35.6)	2.10″ (53.3)	2.30″ (58.4)
34	2.16″ (54.9)	3.10″ (78.7)	2.60″ (66.04)	1.80″ (45.7)	2.50″ (63.5)	2.70″ (68.6)
40	2.46″ (62.5)	3.40″ (86.4)	2.90″ (73.66)	2.10″ (53.3)	2.80″ (71.1)	3.00″ (76.2)
50	2.96″ (75.2)	3.90″ (99.1)	3.40″ (86.36)	2.60″ (66.0)	3.30″ (83.8)	3.50″ (88.9)
60	3.46″ (87.9)	4.40″ (111.8)	3.90″ (99.06)	3.10″ (78.7)	3.80″ (96.5)	4.00″ (101.6)

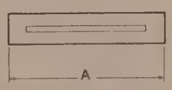
DIMENSIONS


0.400″ Min
(10.160)
0.020″
(0.508)
45° Cham.
Both ends
0.098″
(2.489)
0.055″ ± 0.005″
(1.397 + 0.127)
Typ. width
of pad
0.010″ Min
(0.254) Cham.
Both Sides
0.071″/0.057″
(1.803/1.448)
Thickness in
contact area
Polarization
Key Slot
0.036″ ± 0.004″
(0.914 ± 0.102)
Req'd no. of pads
on 0.100″ ± 0.008″ (2.540 ± 0.203)
centers (Tol. non-cumulative)

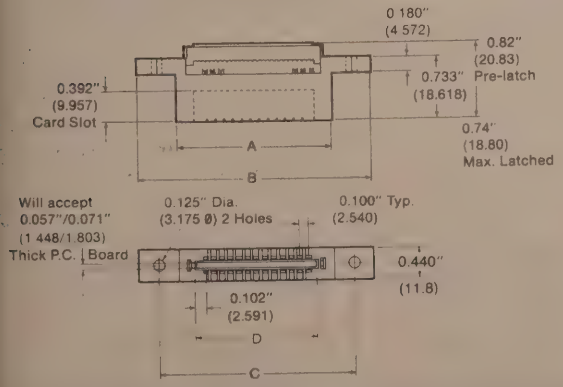
RECOMMENDED P.C. BOARD DIMENSIONS


F
0.125″ Typ.
(3.175)
FULL R.
E

HALF MOUNTING EARS



WITHOUT MOUNTING EARS


0 180″
(4 572)
0.82″
(20.83)
0.733″ Pre-latch
(18.618)
0.392″
(9.957)
Card Slot
0.74″
(18.80)
Max. Latched
A
B
Will accept
0.057″/0.071″
(1 448/1.803)
Thick P.C. Board
0.125″ Dia.
(3.175 Ø) 2 Holes
0.100″ Typ.
(2.540)
0.440″
(11.8)
0.102″
(2.591)
D
C

FULL MOUNTING EARS

H&T COMPONENTS INC.
87 Sand Pit Road, Danbury, CT 06810
Telephone 203-794-1798 Telex 643011

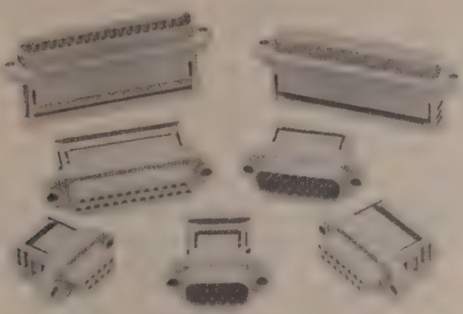
H&T Hi-Tec 4500 D-Subminiature Connectors

DESCRIPTION

The Hi-Tec D-subminiature plug and socket provide insulation displacement connection between 0.050″ (1.27) ribbon cables and industry standard D-connectors.

FEATURES

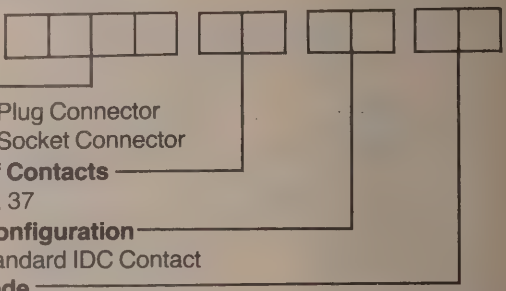
- ★ Rugged, all plastic construction
- ★ Accept standard ribbon cables
- ★ Intermateable with other D-connectors
- ★ 2 stage latch on cover
- ★ Pre-assembled
- ★ Strain relief standard
- ★ Mounting hardware available
- ★ Range of backshells available



SPECIFICATIONS

Contact Rating	1 Amp
Dielectric Strength	1000V AC RMS
Insulation Resistance	5000 Megohms Minimum
Operating Temperature	−55°C to +105°C
Insulation Material	Glass Filled Polyester Rated UL 94V-0
Contact Material	Phosphor Bronze
Cable Size	28 AWG stranded or solid and 30 AWG solid

ORDERING CODE



Series
4501 — Plug Connector
4521 — Socket Connector

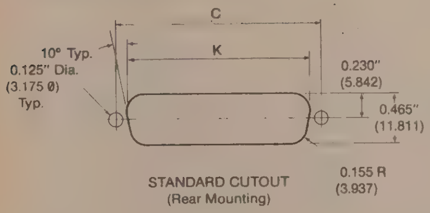
Number of Contacts
9, 15, 25, 37

Contact Configuration
00 — Standard IDC Contact

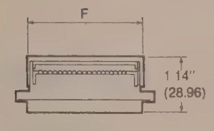
Plating Code
P2 — 0.000030″ (0.76μ) Gold selectively plated in contact area with Gold flash on remainder, all over Nickel

For other plating options please consult factory.

DIMENSIONS


C
10° Typ.
0.125″ Dia.
(3.175 Ø)
Typ.
K
0.230″
(5.842)
0.465″
(11.811)
0.155 R
(3.937)

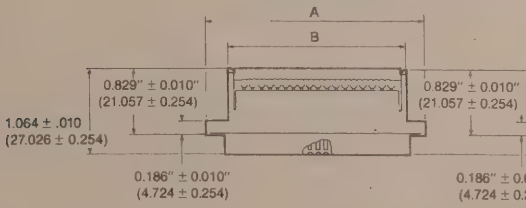
STANDARD CUTOUT
(Rear Mounting)



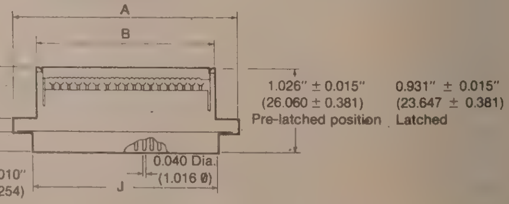
Connector assembly with strain relief

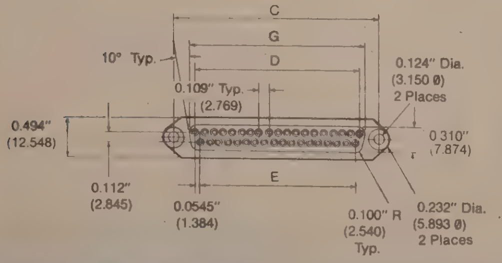
No. of Contacts	A	B	C	D	E	F	G	H	J	K
9	1.216″ (30.886)	0.630″ (16.002)	0.984″ (24.994)	0.436″ (11.074)	0.327″ (8.306)	0.746″ (18.948)	0.643″ (16.332)	0.666″ (16.916)	0.746″ (18.948)	0.78 (19.8
15	1.544″ (39.218)	0.957″ (24.308)	1.312″ (33.325)	0.763″ (19.380)	0.654″ (16.612)	1.073″ (27.254)	0.971″ (24.663)	0.994″ (25.248)	1.074″ (27.280)	1.10 (28.1
25	2.084″ (52.934)	1.502″ (38.151)	1.852″ (47.041)	1.308″ (33.223)	1.199″ (30.455)	1.618″ (41.097)	1.511″ (38.379)	1.534″ (38.964)	1.614″ (40.996)	1.64 (41.8
37	2.732″ (69.393)	2.156″ (54.762)	2.500″ (63.500)	1.962″ (49.835)	1.853″ (47.066)	2.272″ (57.709)	2.159″ (54.839)	2.182″ (55.423)	2.262″ (57.455)	2.29 (58.3

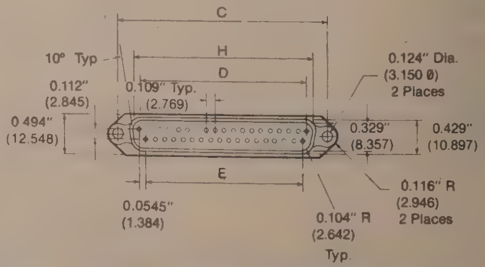
Socket Connector


A
B
0.829″ ± 0.010″
(21.057 ± 0.254)
1.064 ± .010
(27.026 ± 0.254)
0.186″ ± 0.010″
(4.724 ± 0.254)

Plug Connector


A
B
0.829″ ± 0.010″
(21.057 ± 0.254)
1.026″ ± 0.015″
(26.060 ± 0.381)
Pre-latched position
0.931″ ± 0.015″
(23.647 ± 0.381)
Latched
0.040 Dia.
(1.016 Ø)
J
0.186″ ± 0.010″
(4.724 ± 0.254)


C
G
10° Typ.
D
0.109″ Typ.
(2.769)
0.124″ Dia.
(3.150 Ø)
2 Places
0.494″
(12.548)
0.310″
(7.874)
E
0.112″
(2.845)
0.0545″
(1.384)
0.100″ R
(2.540)
Typ.
0.232″ Dia.
(5.893 Ø)
2 Places


C
H
10° Typ
D
0.112″
(2.845)
0.109″ Typ.
(2.769)
0.124″ Dia.
(3.150 Ø)
2 Places
0.494″
(12.548)
0.329″
(8.357)
0.429″
(10.897)
E
0.116″ R
(2.946)
2 Places
0.0545″
(1.384)
0.104″ R
(2.642)
Typ.

H&T COMPONENTS INC. 87 Sand Pit Road, Danbury, CT 06810 Telephone 203-794-1798 Telex 643011

IEH

YOUR LOW FORCE, QPL'D CONNECTOR SOURCE FOR 55302

FAMILY OF OVER 54 SIZES

Family of over 54 sizes including — 10 - 14 - 20 - 24 - 26 - 30 - 36 - 40 - 44 - 50 - 54 - 56 - 60 - 66 - 70 - 90 - 92 - 100 - 120 - 122 - 160 - 208.

Low force connectors utilizing Hypertac contacts are available from IEH in accordance with the following slash sheets of Military Specification 55302 /56 /57 /58 /59 /60 /61 /62 /64 /138 /139 /21 /22

Low force data:

Insertion: 0.11 lbs. x No. of contacts maximum

Extraction: 0.08 lbs. x No. of contacts minimum

Example — 160 Pin Hypertac
Max. insertion force = 17.6 lbs.
Min. extraction force = 12.8 lbs.

All our connectors are form, fit, and function, intermateable and interchangeable to the industry's most popular types.

Off shelf delivery nationally from Conco Electronics, Powell Electronics, & Time Electronics.

Please review our IEH Hypertac* low insertion force connector benefits:

1. An insertion and extraction force of less than one ounce per contact.
2. A high reliability closed entry socket which allows a minimum of 10,000 connector life cycles with no loss of mechanical or electrical integrity.
3. A multiplicity of pin to socket contact points (a **minimum** of 15 points, not a **maximum** of 2 or 3 points) due to a 360 "wraparound."
4. Unsurpassed shock and vibration characteristics.
5. Low contact resistance due to a greater than average contact area.
6. Lowest inductance for newly developing high speed circuits.
7. Elimination of heavy duty injectors extractors from your printed circuit cards — saves manufacturing time, money, and weight.
8. No more broken printed circuit board connectors — makes happier customers and assembly personnel.
9. Mil-C-55302 Approval.
10. A family of low force connectors (5 to 320 contacts with many variations).
11. Support from an electronics manufacturer with over 40 years of experience in the industry.
12. Cost savings methods of precious metals selective plating.
13. Excellent factory delivery and competitive pricing.
14. Off the shelf delivery from our national distributor network.

MIL-C-55302 QPL CONNECTORS
Low force connectors, utilizing Hypertac® contacts, are available from IEH in accordance with the following Slash Sheets of Military Specification MIL-C-55302.

M55302/56
M55302/57
M55302/58
M55302/59
M55302/60
M55302/61
M55302/62
M55302/64
M55302/138
M55302/139
M55302/21
M55302/22

If your needs require low force connectors with the added advantage of extended life cycles consider Hypertac® and IEH for future programs.

IEH, now producing the most modern state of the art High Density Low Force Hypertac® Connectors for the prime military electronics market place worldwide has created a careful blending of progressive management, creative and dedicated employees with modern equipment resulting in a highly successful product line of interconnecting devices.

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We hope you will consider us the next time you are planning purchases of electrical/electronic interconnections.

Our facilities, service, availability and lowest possible industry pricing combine with an honest interest to be a helpful and valuable supplier.

IEH

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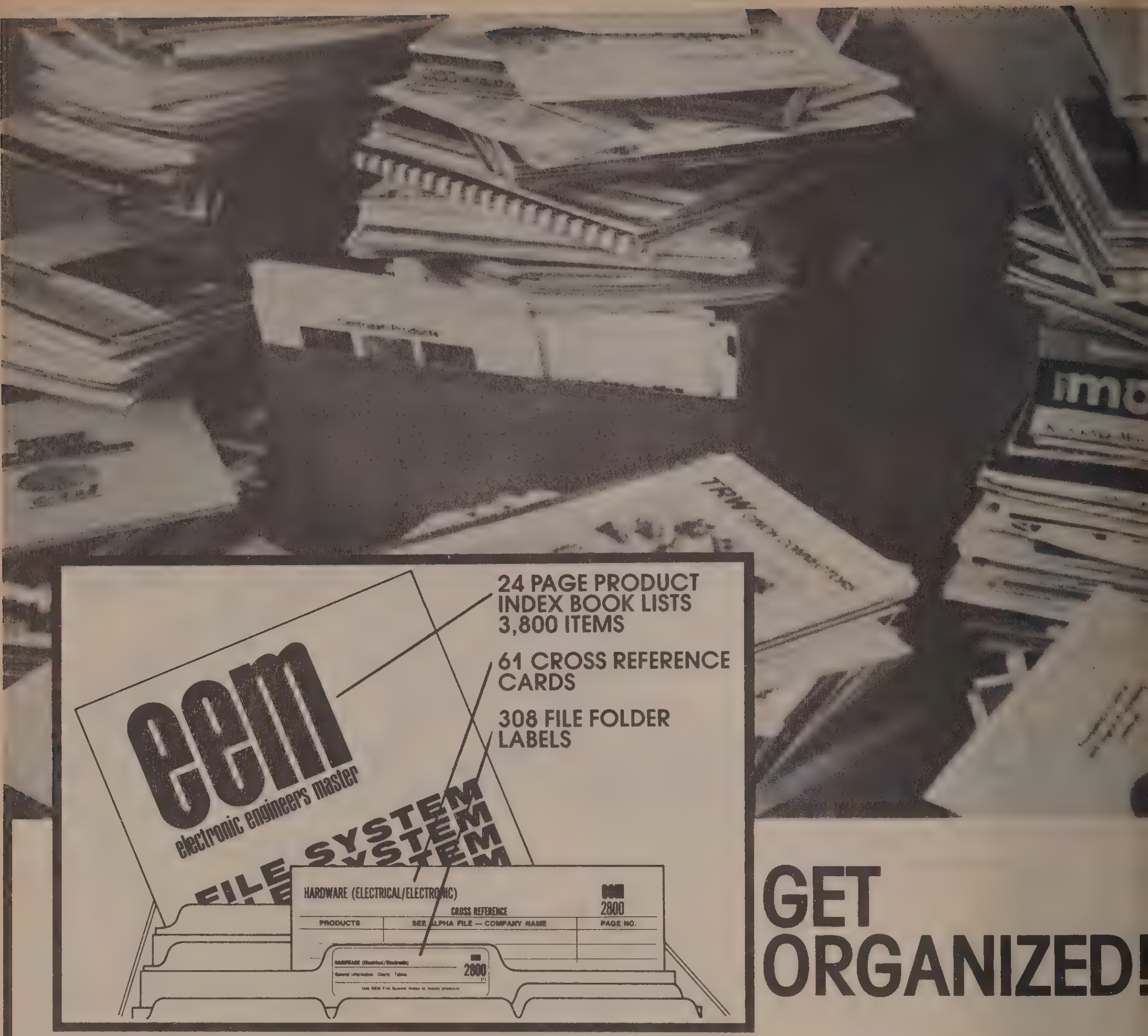
109 PRINCE STREET
NEW YORK, NEW YORK 10012
TELEPHONE — (212) 677-1881
TWX — 710-581-4338


24 PAGE PRODUCT INDEX BOOK LISTS 3,800 ITEMS
61 CROSS REFERENCE CARDS
308 FILE FOLDER LABELS
eem
electronic engineers master
FILE SYSTEM
HARDWARE (ELECTRICAL/ELECTRONIC)
CROSS REFERENCE
PRODUCTS
SEE ALPHA FILE — COMPANY NAME
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006.9
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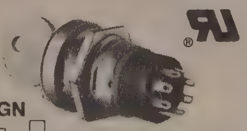
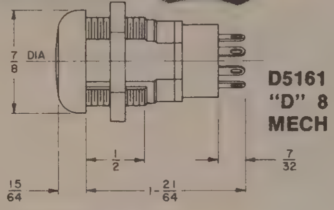
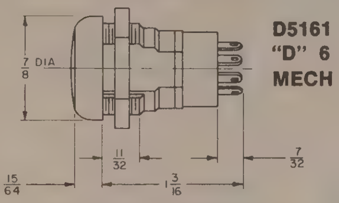
A LQ-9 - D5161

ROTARY SWITCH LOCK

SPACE SAVER DESIGN



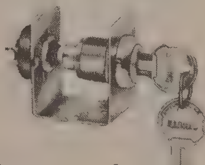

7/8 DIA
D5161
"D" 8
MECH
1/2
7/32
15/64
1-21/64

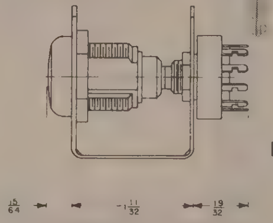

7/8 DIA
D5161
"D" 6
MECH
11/32
7/32
15/64
1-3/16

UL COMPONENT RECOGNITION

B LQ-3 - D4152

ROTARY SLIDE TYPE SWITCH LOCKS




15/64
1-11/32
19/32

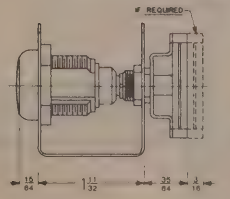
D6152

UL LISTED ROTARY SWITCH

C LQ-10 - D5162
LQ-6 - D5152

ROTARY WAFER TYPE SWITCH LOCKS

D5162
D5152


IF REQUIRED
15/64
1 11/32
35/64
3/16

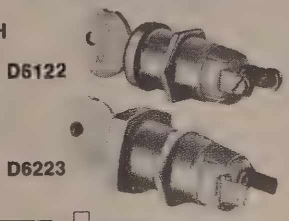
D6152

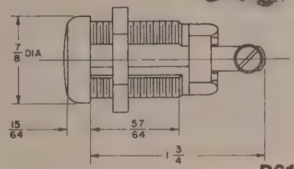
UL LISTED WAFER SWITCH

D LQ-1 - D6122*
(Screw)/D6123 (Spade)

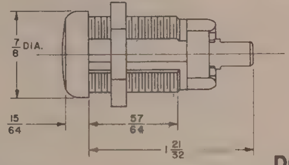
LQ-11 - D6223*
(Spade)/D6222 (Screw)

SWITCH LOCKS

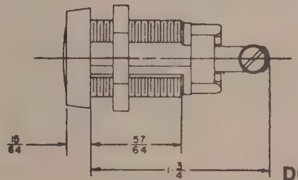

D6122
D6223


7/8 DIA
15/64
57/64
1-3/4

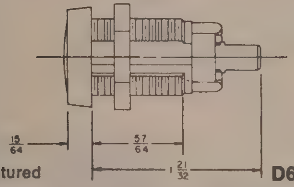
D6122


7/8 DIA.
15/64
57/64
1-21/32

D6123


15/64
57/64
1-3/4

D6222

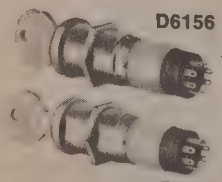

15/64
57/64
1-21/32

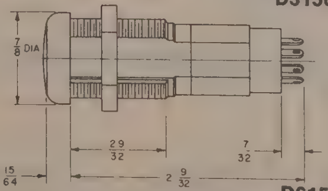
*Pictured D6223

UL COMPONENT RECOGNITION

E LQ-5 - D6156
LQ-7 - D3156

ANTI-STATIC ROTARY SWITCH LOCKS


D6156
D3156

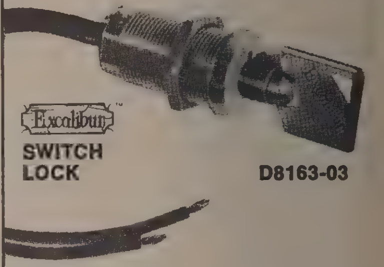

7/8 DIA
15/64
29/32
7/32
2-9/32

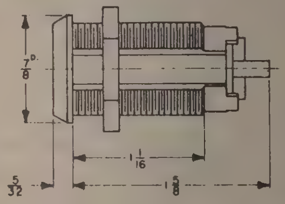
D6156

UL COMPONENT RECOGNITION

F LQ-8 - D8163-03

Excalibur™ SWITCH LOCK

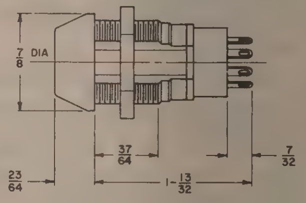



7/8 D.
5/32
1-1/16
1-5/8

D8164

G LQ-12 - D8161

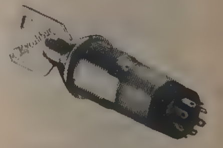
Excalibur™ SPACE SAVER DESIGN ROTARY SWITCH LOCK

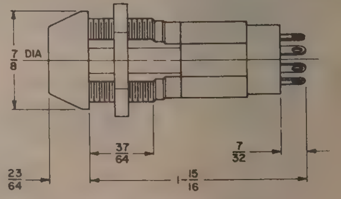

7/8 DIA
23/64
37/64
7/32
1-13/32

UL LISTED ROTARY SWITCH

H LQ-13 - D8156

Excalibur™ ANTI-STATIC SWITCH LOCK




7/8 DIA
23/64
37/64
7/32
1-15/16

UL LISTED ROTARY SWITCH

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Illinois Lock Company
A Division of the Eastern Co.
puts the lock on positive protection for you!

LECTRO-QUIP®
SWITCH LOCKS FOR ADVANCED ELECTRONICS & COMMUNICATIONS

A LQ-9 "CLICK-SWITCH" ROTARY SWITCH LOCK

Specially Designed For LIMITED SPACE APPLICATIONS

Specifications: Maintaining Contact Style—one or two pole, and up to 5 positions.
Lock and Mechanism Available: Model D5161 Illinois® type "D8-eight positive action tumblers operated by double-bitted key; 500 primary changes, master keying. Type "D6" offers 60 primary changes.

B LQ-3 ROTARY SLIDE-TYPE SWITCH LOCKS

Specifications: Bracket mounted lock and switch, available with 1 or 2 pole and positive mechanical indexing.
Lock and Mechanism Available: D6152 Duo® Type M—14 brass tumblers, triple-bitted key; offers 13,950 primary key changes, can be master and grandmaster keyed, obtain two key pulls at 0°, 180°.
D5151 Illinois®, Type D—8 tumblers, double-bitted key; 250 primary key changes, master keyed, obtain two key pulls at 0°, 180°.
Model D4152 Illinois®, Type E—8 tumblers, double-bitted key; design permits multiple key pulls up to 10 positions (36° increments).

C LQ-6/LQ-10 ROTARY WAFER TYPE SWITCH LOCKS

Specifications: Bracket mounted lock and switch. UL listed wafer switch, available with multiple poles and stacked decks. Positive detent at each index position. Spring return feature available.
Lock and Mechanism Available: LQ-10 - D5162-110 Illinois® "D8" eight tumblers, double-bitted key; 250 primary changes; D5162-100 Illinois® "D6"—6 tumblers, double-bitted key, 60 primary changes.
LQ-6 - D6152 Duo®, Type M—14 brass tumblers, triple-bitted key; 13,950 primary changes, master and grandmaster keyed, obtain 4 key pulls at 0°, 90°, 180°, 270°. D5152 Illinois® Type D—8 tumblers, double-bitted key; 250 primary changes, master keyed; obtain 4 key pulls at 0°, 90°, 180°, 270°. D4152 Illinois®, Type E—8 tumblers; double-bitted key; design permits key pulls up to 8 positions (45° increments).

D LQ-1/LQ-11 SWITCH LOCKS

Specifications: Maintaining switch; single pole single throw (SPST), 90° turn to operate. Screw or spade type terminals available.
Lock and Mechanism Available: DUO® "M"—14 brass tumblers, 13,950 key changes available, master and grandmaster keying capability.

ILLINOIS® "D10"—10 tumblers, 930 key changes, master keying.

ILLINOIS® "D8"—8 tumblers, 250 key changes, master keying. Plug and barrel are of "Zamak 3" zinc die cast material. Contacts and terminals are solid brass. Silver or gold plated contacts available for low voltage applications.

FOR SURE
if it's an Illinois Lock

E LQ-5/LQ-7 ANTI-STATIC SWITCH LOCKS

. . . with up to 20 KVDC protection!

Specifications: Anti-static available in two styles: Momentary Contact Style—1 or 2 pole, 2 position, 45° key turn to operate, spring return; Maintaining Contact Style—1 or 2 pole, up to 5 positions. Available shortly with maintaining and momentary contact incorporated within one key switch.
Lock and Mechanism Available: LQ5 HIGH SECURITY—D6157/D6156 DUO® "B"—14 brass tumblers, triple-bitted key; 13,950 primary changes, master and grandmaster keyed. D5157/D5156 in "D10" with 10 tumblers, double bitted key, 950 changes; "D8" has 8 tumblers, double-bitted key, 250 primary changes, master keyed.

LQ7 features D4156/D4157 Illinois® Type "E"—8 tumblers, double bitted key, 250 primary key changes. D3156/D3157 Illinois® Type "G"—5 tumblers, single-bitted key, 659 primary key changes, master keyed.

F LQ-8 Excalibur™

Specifications: Maintaining contact style, single pole two position. Available with standard wire leads: 6″ long, 16 gauge or with solder terminals.
Lock and Mechanism Available: D8163/D8164 "Excalibur" Type 7 pin tubular mechanism, in excess of 750,000 primary key changes available. "Zamak 3" zinc die cast barrel. Spindle and pin tumblers are solid brass, keys bright nickel-plated steel. Contacts and terminals are copper. Silver or gold plated contacts available.

G LQ-12 Excalibur™ "CLICK-SWITCH" SPACE SAVER SWITCH LOCK

Specifications: Maintaining Contact Style—1 or 2 pole, up to 5 positions and 5 key pulls.
Lock and Mechanism Available: Model D8161 "Excalibur" Type 7 pin tubular mechanism, offers in excess of 750,000 primary changes. "Zamak 3" zinc die cast barrel. Spindle and pin tumblers are solid brass, keys are bright nickel-plated steel. Switch housing is nylon "Zytel 101" UL rated 94V-2; terminals are solderable faston type, silver-plated copper alloy. Available with gold-plated contacts.

H LQ-13 Excalibur™ ANTI-STATIC SWITCH LOCK

Up to 20 KVDC protection!

Specifications: Anti-static Maintaining Contact Style—1 or 2 pole, up to 5 positions and 5 key pulls.
Lock and Mechanism Available: Model D8156 "Excalibur" Type 7 pin tubular mechanism, offers in excess of 750,000 primary changes.

"Zamak 3" zinc die cast barrel. Spindle and pin tumblers are solid brass, keys are bright nickel-plated steel. Switch housing is nylon "Zytel 101" UL rated 94V-2; terminals are solderable faston type, silver-plated copper alloy. Available with gold-plated contacts.

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Low Loss Interconnects

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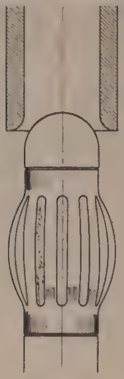
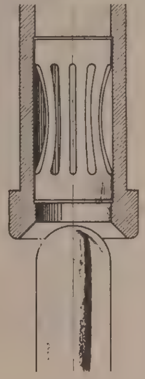


Convex fitted on plug



Concave inserted in socket

MC-® multilam bands are made of beryllium copper, hardened and gold plated. They are placed in a precision groove to provide a firm, but smooth connection.

General Information

INTERLOK's line of low loss plugs, sockets, and test leads utiliz multilam band technology to provide a superior electrical an mechanical connection. Some of the advantages of multilam band include low contact resistance (at least a factor of 10 lower tha conventional contacts), high mechanical strength, high current capa city (35A for 4 mm plugs), long life, positive, shock-, impact-, an vibration-proof connection (no wobbly contacts), and high corro sion resistance.

INTERLOK offers a choice of the following standard items:

1. Ten colors: red, blue, white, black, yellow, green, brown, gray violet, yellow/green.
2. Eleven lengths: 7.5/15/25/30/45/50/60/75/100/150/200 cm
3. Six cable cross sections: 0.17/0.25/0.5/1.0/1.5/2.5 mm
4. Three insulation types: PVC coating, double insulation, silico (for operating temperatures up to 300° C, 570° F).

In addition to the standard products in our Engineering Bulletin No. 8 a significant part of our business is in the design and construction o custom connectors to meet customer specifications.

LK425-Z 4 mm Stackable Safety Plug with Retractible Sleeve

Load 7.5A Multilam-Plug/Stackable

4 mm Plug with Solder Lug

3 mm Female Threaded Plug

Universal Laboratory Socket

Without Insulation Press-in

Insulated Press-in

Test Leads

INTERLOK leads are available with MC-® multilam bands or tub plugs, four different insulator styles, and four diameters (1, 2, 2. and 4 mm). Some types are "stackable" to minimize wiring spac requriements. INTERLOK safety plugs and sockets are completel touch proof and meet UL and OSHA standards for shock resistance Test lead component parts are also sold separately.

Plugs

MC-® multilam band plugs may be ordered in a number of differen standard configurations. All plugs are solid brass, gold plated. Tw diameters (2 or 4 mm), three pull-out forces (.45, .75 and 1.6 kg numerous thread lengths and diameters, and plugs with solder lug are available. For printed circuit boards and "sandwich" construc tions, INTERLOK offers miniature (0.8 to 2 mm dia.) pin plugs. selection of short circuit plugs is also available.

Custom plug design is an INTERLOK specialty.

Sockets

INTERLOK sockets are solid brass with either gold or silver plating They are available with or without MC-® multilam bands and can b used with conventional plugs. 2 mm and 4 mm sockets can be ordere in several styles including press-in types with or without insulatio or sockets with fixing nuts and specially pressed on threaded stee sleeves. A 4 mm double socket is also available. Miniature socket (0.7 to 2 mm dia.) are equipped with MC-® multilam bands and com in several lengths and styles.

FOR COMPLETE INFORMATION PLEASE CALL OR WRITE FOR ENGINEERING BULLETIN NO. 8

Relay Sockets

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Relay Sockets - Series F

F010

F022

F010
10 poles, without ground contact, solder contacts

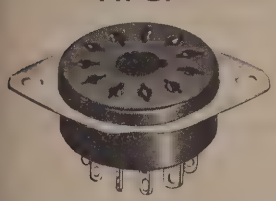
F022
22 poles, without earth contact, solder contacts

Technical Data for F010 and F022

Insulated body:	Melamin resin FS Type 150
Rating of contact springs:	250 V, 5 A
Contacts:	spring bronze CuSn 6.5 μ tin plated. 0.1 μ gold-plated available

Relay Sockets - Series 11P

11PGF



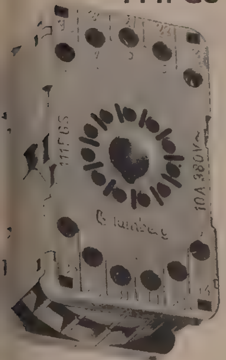
11PGR19

11PGF
11 pole socket with metal flange, fork springs tin-plated, body from molding compound 31.5, contacts for wiring.

11PGR19
11 pole socket without flange, fork springs tin-plated, body from Noryl SE 1, contacts for p.c., .748" (19 mm) diameter.

Relay Sockets - International Standard - Series 108PGS, 8 Poles
Series 111PGS, 11 Poles

111PGS

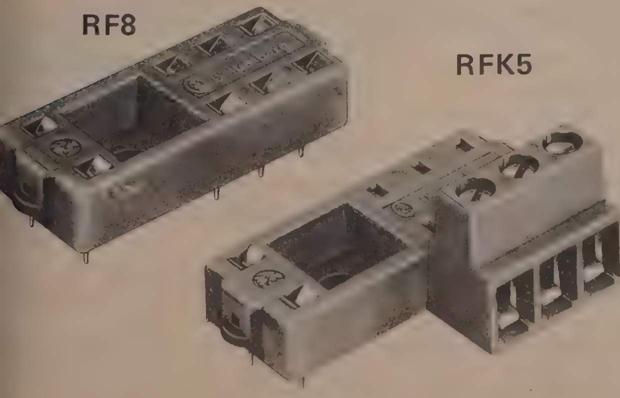


- Wire size: 12-22 AWG
- Self-opening elevator clamp with cover protecting against mis-connections
- Captive screws
- Functional test even with relay being plugged in
- Space for adhesive labels on the socket
- Central mounting by screws M4 or M5
- Additional mounting on the sides with 2 screws M3 and hexagon nut M3 DIN 934

Technical Data

Body:	NORYL
Contacts:	CuZn 37, pre-nickeled and 5 microns tin-plated
Nominal power:	10 A
Nominal voltage:	380 VAC
Test voltage:	⩾ 3.5 KV eff.
Creep resistance:	KC 300
Protection:	IP20
Creep & air distances:	to VDE 0110 group C/250 V

Relay Sockets - Series RF



RF8

RFK5

RF8
Relay socket for p.c. relays, contact pitch 5 mm, applicable for relays with up to 2 change-overs. All contacts lead to the p.c. board and insure air- and creep distances of 4 mm minimum. This new socket divides both signal circuit and power circuit of a p.c. board relay. The coil connections lead to the p.c. board, while the contacts for one change-over can directly be connected with the consumer by means of the integrated terminal blocks.

RFK5
Switching of 16 A with 220 Volts a.c. or 4000 VA is possible without problems even under the rule of VDE0110, group C, 250 V (air- and creep distance). Interferences of the remaining electronic circuit are avoided even with switching of high power. Separate screw terminals as well as wide p.c. leads are unnecessary and save space on the p.c. board in this respect. Change of relays for service reasons is extremely simple.

CALL OR WRITE FOR COMPLETE INFORMATION

Circular Locking Connectors, Waterproof Connectors & Pin Assemblies (Headers)

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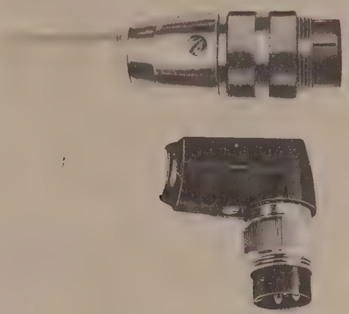
Circular Locking Connectors - Series S



Technical Data

Solder termination contacts tin plated.

Rated voltage:	5 A
Contact resistance:	< 5 mΩ
Insulation resistance:	$> 10^{12}$ Ω (after 4 days at -20° C an 80% relative humidity
Cable outlet:	.196" (5 mm) diameter, 3 to 8 pol
Finish:	Dull or black chrome

Male and Female Sockets Available

Waterproof Connectors - Series R

This connecting system with screw locking device prote against dust and water pressure. Applications are in hum oil and industrial dust environments.

Technical Data

A) Male/female plug and chassis plug

Body:	Thermoplastic polyurethane-Elasto mere
Chassis plug housing:	aluminum, black eloxal coating
Contacts:	CuZn, pre-nickeled, 5 microns tin-plated
Locking nut:	aluminum, black eloxal coating
Range of temp.:	-40° C to +90° C
Air & creep distances:	according to VDE 0110, group C/250 V
Test voltage:	2 and 3 poles - 2500 V 4 and 5 poles - 1500 V
Nominal power:	.13 A
Nominal voltage:	250 V
Insulation resistance:	$> 10^9$ Ω
Protection:	according to IP68

B) Cable

Indulation:	high quality PVC

Pin Assemblies (Headers) - Series M - .100 (2.54 mm) Centers

Technical Data

Pin assembly:	polyamid, glass fibre-reinforced
Contacts:	CuZn 37, pre-nickeled, 5 micron t plated or 0.8 micron gold plated
Spacing:	.100" (2.54 mm)
Rating:	5 A
Contact resistance:	approximately 10 mΩ
Nominal voltage:	220 V
Test voltage:	> 2000 V (without P.C.B.)

CALL OR WRITE FOR COMPLETE INFORMATION

erminal Strips
eries KR - 5 mm & 10 mm Pitch

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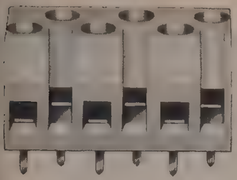
KR

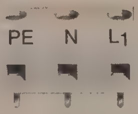


his type has been de-
igned to offer the user
reater power handling ca-
abilities than the stan-
lard KRE type. Air/creep-
ge distance: 5 mm min.
Vorking voltage: 380 V
VDE0110 insulation group
'O"). Breakdown voltage:
KV (without p.c.b.).

KRE

This standard version allows ADD-ON capability without loss of pitch spacing. Air/creepage distance: 4 mm min. Working voltage: 250 V (VDE0110 insulation group "O"). Breakdown voltage: 3 KV with-p.c.b.).

KREN3



Power block terminal (live: neutral ground). Available without symbols. Spacing .393" (10 mm). Air/creepage distance: 5 mm min. Working voltage: 380 V (VDE0110 insulation group "O"). Breakdown voltage: 3 KV (without p.c.b.).

KRD8

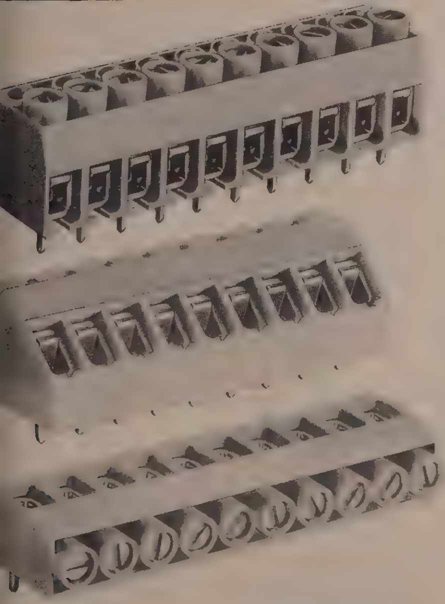
Air/creepage distance: 4 mm minimum. Working voltage: 250 V (VDE0110 insulation group "O"). Breakdown voltage: 3 KV (without p.c.b.).

echnical Data KR, KRE, KREN3, KRD8

he general construction of the terminal block is as follows:

ody molding:	Noryl SE100
ontacts:	Brass. Solder tag spill: Brass 5 μ culmo tinned. 2.6 mm metric capture screw. Solder tag integral part of terminal jaws.
pacing:	.196" (5 mm)

umerical coding of terminals available.



KRES

Upright version with holes for 2 mm diameter test points. Spacing is .196" (5 mm).

KRESW

45° angle version. Spacing is .196" (5 mm) or .393" (10 mm).

KRESL

90° angle version. Spacing:is .196" (5 mm) or .393" (10 mm).

echnical Data KRES, KRESW, KRESL

hese terminal blocks can be added one beside the other without loss of pitch spacing. Each contact has a wire protec-
ion which insures a clean and safe connection. The terminal blocks can be printed with numbers.

ody:	Polyamid 6/6 UL94V-O flammability classification, 105° C, green
lamp:	CuZn, pre-nickeled and 5 microns tin plated
Vire protection:	CuSn6, pre-nickeled and 5 microns tin plated

Wire diameter:	12 to 22 AWG
Screw:	steel, galvanized and yellow chromated.
Rating:	15 amperes, 250 volts
Air distance:	4 mm minimum, VDE 0110
Creep distance:	3 mm minimum, VDE 0110
Test voltage:	3 KV, 60 seconds

CALL OR WRITE FOR COMPLETE INFORMATION

Video Connectors, Modular Telephone Plugs, Jacks and Accessories by International©

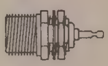
Video Connectors

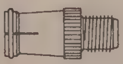
F59
Connectors
Separate Ferrule
Model A-F59 (Bulk)

F59A
Connectors
Built-in Ferrule
Model A-F59A (Bulk)

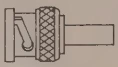
F56
Connectors
Model A-F56 (Bulk)

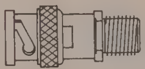
F56A
Connectors
Model A-F56A (Bulk)

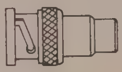

F61 Chassis
Connectors
with Nut and Washer
Model A-F61 (Bulk)

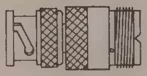

Quick-Connect
"F" Plug
Adaptor
Model A-VA14-B (Bulk)

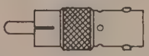
RCA Plug
to "F" Jack
Adaptor
Model A-VA9-B (Bulk)


BNC Male
Connector
Crimp Type
Model A-VA1-B (Bulk)


BNC Plug
to "F" Jack
Adaptor
Model A-VA4-B (Bulk)

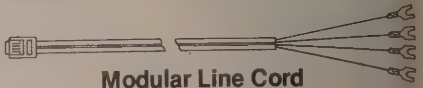

BNC Plug
to RCA Jack
Adaptor
Model A-VA5-B (Bulk)


BNC Plug
to UHF Jack
Adaptor
Model A-VA6-B (Bulk)

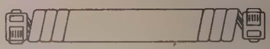

RCA Plug
to BNC Jack
Adaptor
Model A-VA7-B (Bulk)

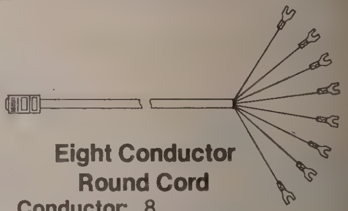
Many other types available.

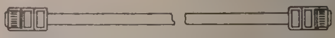
Telephone Accessories


Modular Line Cord
Conductor: 2, 4 and 6
Length: 7,′ 15′ and 25′
Plug: 6 position

Modular Extension Cord
Conductor: 2, 4 and 6
Length: 7,′ 15′ and 25′
Plug: 6 position

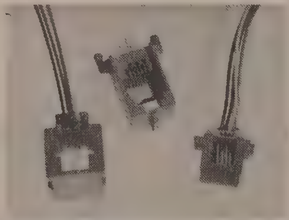

Modular Handset Cord
Conductor: 4
Length: 7,′ 15′ and 25′
Plug: 4 position


Eight Conductor Round Cord
Conductor: 8
Length: 7,′ 15′ and 25′
Plug: 8 position


Eight Conductor Flat Cord
Conductor: 8
Length: 7,′ 15′ and 25′
Plug: 8 position

Many other types available.

Modular Telephone Plugs



616M 2 and 4 contacts Gray	**623K** 2, 4 and 6 contacts Gray	**616PB** 2 and 4 contacts Gray	**641D** 8 contacts Gray
616T1 2 and 4 contacts Gray	**625F** 2, 4 and 6 contacts Ivory	**623PB** 2, 4 and 6 contacts Gray	**145** 2, 4 and 6 contacts Ivory

Many other types available.

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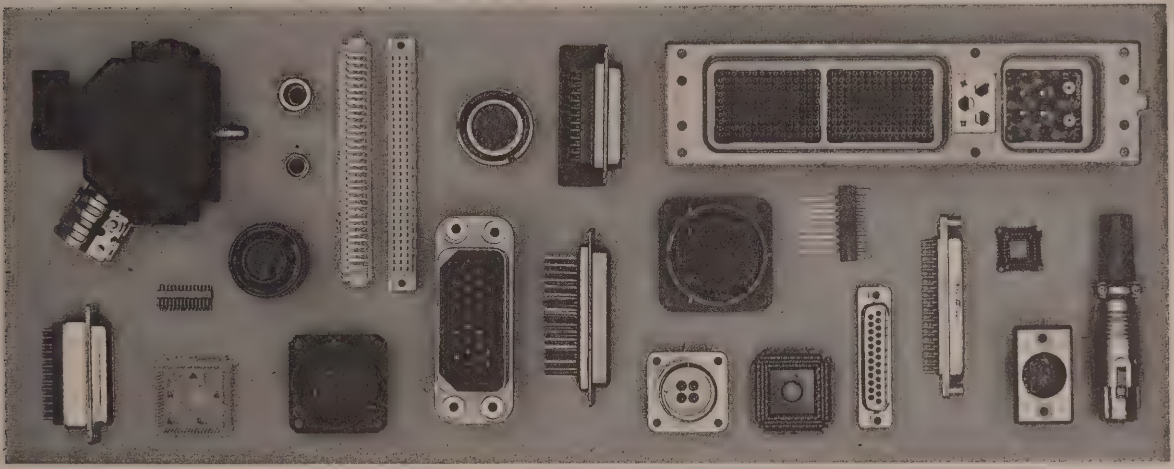
Cannon Worldwide
Connector Selection Guide



THE CANNON COMMITMENT

RESPONSE & DELIVERY

CANNON ITT
The Global Connection

INTRODUCTION

It's almost impossible to find electrical or electronic equipment anywhere in the world that doesn't involve the use of one or more ITT Cannon products. Our connectors are in place within electronic systems ranging from computers to cable television, telecommunications to transportation, vending machines to nuclear reactors, deep space to deep sea, in military aircraft to commercial aircraft.

This guide lists some of the more popular connector configurations, both standard and special and is designed to help you select the proper connector series and the appropriate catalog from which to specify for your requirements.

To use this guide simply determine the type of connector configuration you wish to use and identify your market application requirement. The Table of Contents lists the product by product configuration or special applications. A brief description and catalog reference, contact data, and broad application uses are shown so that you may better select the catalog (or catalogs) which you would like. We have also included a North American and European Military Specification/Cannon Product Cross Reference List and a Commercial Market Product Cross Reference List for your use. For catalog data please write to ITT Cannon, 10550 Talbert Avenue, P.O. Box 8040, Fountain Valley, California 92728-8040, telephone 714/964-8366. Or, contact your nearest ITT Cannon Sales Office or Distributor shown at the end of this selection guide.

COMMERCIAL MARKET/CANNON PRODUCT CROSS REFERENCE LIST

Shown below are six of the more common Commercial market places where ITT Cannon products can be found. We have listed those products within each market place and indicated where you may find product literature by showing the appropriate page number. Where a product is not included in the Connector Selection Guide, but shown in the market place, please consult the factory or contact your nearest ITT Cannon Sales Office or Distributor for technical information.

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KPT/KPSE	8
PC DIRECT, ONE-PIECE	14
PC INDIRECT, TWO-PIECE	14
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VE	15
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CIRCULAR DIN	CONSULT FACTORY

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ilter Connectors 10
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MILITARY SPECIFICATION/CANNON CROSS REFERENCE LIST

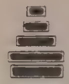
(contacts used in MIL spec. connectors are to the MIL-C-39029 specification)

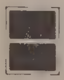
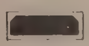
Military Specification	Cannon Designator	Description	Page No.
NORTH AMERICA			
Subminiature Rectangular Connectors			
MIL-C-24308	D*, D*C/D*U, D*P, D*PF, D*SP, D*M, D*MA, D*MM, D*BMA, D*PF 2000 D SPEEDY D	Plastic and metal shell connectors.	4
	PD*N/PD*S		4
	D*H	Hermetically sealed connectors.	11
	D*J	Filtered connectors.	10
	MISC	EMI/RFI products.	10
Rack/Panel Connectors			
MIL-C-83733	DPK	Rack/panel connectors.	5
MIL-C-81659	DPXNA/NE	Single 2-, 3-, 4-gang rack/panel connectors.	5
Miniature Circular Connectors			
MIL-C-25955	KO	Miniature circular, general purpose.	8
MIL-C-26482	KPT/KPTM/KPSE/KPTB	Miniature circular, general purpose.	8
	KPTH/PVA	Hermetic connectors.	11
	KTN/KTNM	Miniature circular, cupronickel.	8
	PV	Miniature circular connectors.	9
	PVJ	Filter connectors.	10
	PVW/PVX	Miniature circular connectors	9
MIL-C-38999	KJ/KJL/KJA	Subminiature circular connectors.	7
	KJLY/KJY/KJA	Hermetic connectors.	11
	KJJL/KJJ/TKJA	Filter connectors.	10
MIL-C-83723	CV	Standard circular connectors.	9
	CVA	Standard circular connectors.	6
	HTMF	Mini firewall connectors.	7
	PV	Miniature circular connectors.	9
	PVJ	Filter connectors.	10
	PVW/PVX	Miniature circular connectors.	9
NAS-1599	PVJ	Filter connectors.	10
	PVX	Hermetic versions.	9
NASA 40M39569	PVJ	Filter connectors.	10
Standard Circular Connectors			
MIL-C-5015	CA Bayonet	Standard circular connectors.	6
	CA-COM/COM-B	Standard circular connectors.	6
	CA-KE	Firewall connectors.	6
	FRF/FVF/FRA/FVA	Firewall connectors.	6
	GS	Hermetically sealed connectors.	11
	MR	Waterproof connectors.	7
	MSA/B/E/F/R	General purpose connectors.	8
	MS-K	Firewall connectors.	6
	WFS	Front release, high temperature.	9
MIL-C-28840	KFS	Front release, high contact density.	7

Military Specification	Cannon Designator	Description	Page No.
EUROPEAN			
DEF 59-56 PATT 602 (UK) DEF 59-35 PATT 105 (UK) NFL 54125 (France) LN 29504 (Germany) NFC 93422 HE 301 (France)	PVW/PVX	Miniature circular connectors with hermetic versions.	9
VG 95 234	CA	Standard circular connectors.	6
	CGE	High voltage circular styles.	6
EL 2112 PATT 602 PAN 6432	PVX PVW	Miniature circular connectors with hermetic versions.	9
DIN 41612, VG 95 234, IEC, MIL-C-55302	G06/G60	PC Edgecard connectors, indirect, two piece.	14
DIN 41651, MIL-C-83503, BPO-SPEC. D 2632, UTE-C-93428	G80	Header (shrouded)	14

For immediate budgetary information contact your nearest Cannon Sales Office or Distributor (see Manufacturers' Directory).

ITT CANNON RECTANGULAR/RACK AND PANEL CONNECTORS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
D SUBMINIATURE SERIES **General commercial/industrial applications**  D* — original D, solder contacts D*C — general purpose economy version; rear release of crimp snap-in machined, stamped and formed contacts D*U — flame retardant D*C connector	**9-50 CONTACTS** Contact/Wire Size 20 #18-#32 AWG CRIMP TERMINATION	● Aircraft ● Missiles ● Test Equipment ● Ground Support Equipment ● Computer Peripheral Equipment ● Telecommunications ● Industrial Processing Controls ● Avionics ● Weapons/Navigation Systems ● Communications Systems ● Instrumentation ● Shipboard Radar Systems ● Data Processing ● Medical Electronics ● Entertainment Systems ● Torpedos ● Mobile Test Equipment ● Deep Space Probes ● Transportation ● Vending Machines	 D CANNON ITT
insulation displacement D*SP — MAS/TER® D (Mass Terminated) flame retardant pin and socket connectors. SPEEDY-D — very low profile, low cost; termination to ribbon cable on .050" (1.27) centers.	**9-37 CONTACTS** Contact/Wire Size 20 #22-#28 AWG 20 #26-#28 AWG		
General military/aerospace applications D*M — one piece insulator, solder contacts D*MA — rear release of crimp snap-in contacts D*MM/ D*MAM — same as D*M/D*MA except qualified to MIL-C-24308 D*BMA — feed-thru bulkhead	**9-78 CONTACTS** Contact/Wire Size 20 Coax. contacts available SOLDER OR CRIMP TERMINATION		
Printed circuit board applications plastic housing D*P — right angle connectors, flame retardant D*PF — straight, wire wrappable and 90° PCB contact connectors with one-piece flame retardant insulators PD*N/ PD*S — one-piece flame retardant reinforced thermoplastic insulators, straight and 90° contacts **D SUBMINIATURE CATALOG**	Contact/Wire Size 20 COMPLIANT PRESS FIT, WRAP POST, OR P.C. TERMINATION		

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
DPD SERIES — general purpose single gang DPD — standard rack/panel connector with widest range of contact arrangements DPDMA — rear release of crimp snap-in contacts **— two gang DPD**  DPD2 — two gang DPD DPD2MA — two gang DPD with rear release of crimp snap-in contacts ■	**2-128 CONTACTS** **(single gang)** **4-256 CONTACTS** **(two gang)** Contact/Wire Size 20 6 16 4 14 2 10 0 8 Coax. contacts available SOLDER OR CRIMP TERMINATION	● Military Aircraft ● Missiles ● Space Shuttle ● Electronic Instrumentation ● Flight Simulators ● In Board Computers ● Ground Support Systems ● Avionics	 RACK AND PANEL CONNECTORS CANNON ITT
DPGM/DPJM — general purpose, environmental DPGM — short shell, economical ring-type contact retention  DPJM — same as DPGM except shell is longer DPJMB — rear insertion/release of crimp snap-in contacts ■ **R/P CATALOG**	**12-98 CONTACTS** Contact/Wire Size 20 16 12 Coax. contacts available CRIMP TERMINATION		

☐ Environmental version only ■ Environmental versions available, consult factor

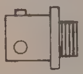
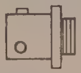
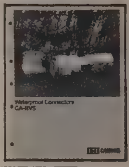
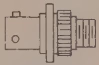
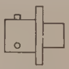
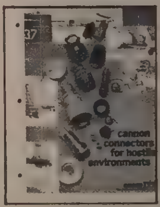
For immediate budgetary information contact your nearest Cannon Sales Office or Distributor (see Manufacturers' Directory).

ITT CANNON RECTANGULAR/RACK AND PANEL CONNECTORS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
DPK — high performance, environmental, MIL-C-83733 Environmental sealing, thermal resistant connector with rear release of crimp snap-in contacts per PV/KJ circular series. ■	**18-185 CONTACTS** Contact/Wire Size 12 16 20 22 22D Coax. contacts available CRIMP TERMINATION	• Space Program Equipment • Computer Periphery • Environmental/Thermal Protection • Black Box Instrumentation • Military Aircraft • Test Equipment • Radar Systems • Ground Support Equipment • Test Equipment • Power Circuits • Communications Equipment • Guidance Controls • Early Warning Systems • Missile Ground Support • In-Flight Electronic Instrumentation • Commercial Aircraft • Retrofitting/repackaging with advantage of UF contacts • Avionics	
DPX SERIES — small (rugged, general purpose, single gang **For commercial/industrial application** DPXA — single shell DPXAF — float mount DPXA DPXB — polarized ARINC shell DPXAL — large flange DPXLAF — float mount DPXL DPXAMA — LITTLE CAESAR® contact assembly DPXBMA — LITTLE CAESAR® contact assembly DPXBME — LITTLE CAESAR® contact assembly — environmental **For general military/aerospace application** DPXBNA — non-environmental, MIL-C-81659, type IV DPXBNE — environmental, MIL-C-81659, types II and III	**2-106 CONTACTS** Contact/Wire Size 22 20 16 2 6 4 Coax. contacts available SOLDER OR CRIMP TERMINATION		
DPX2 — two gang DPX DPX2 — two gang DPX DPX2A — ARINC A shell DPX2B — ARINC B shell DPX2MA — LITTLE CAESAR® contact assembly DPX2ME — LITTLE CAESAR® contact assembly — environmental DPX2NA — non-environmental, MIL-C-81659, type IV DPX2NE — environmental, MIL-C-81659, types II and III	**4-212 CONTACTS**		
DPX3 — three gang DPX DPX3 — three gang DPX DPX3MA — LITTLE CAESAR® contact assembly DPX3ME — LITTLE CAESAR® contact assembly — environmental DPX3NA — non-environmental, MIL-C-81659, type IV DPX3NE — environmental, MIL-C-81659, types II and III	**6-318 CONTACTS**		
DPX4 — four gang DPX DPX4 — four gang DPX DPX4MA — LITTLE CAESAR® contact assembly DPX4ME — LITTLE CAESAR® contact assembly — environmental DPX4NA — non-environmental, MIL-C-81659, type IV DPX4NE — environmental, MIL-C-81659, types II and III ■	**8-424 CONTACTS**		
BKA Series — ARINC 600 connectors High performance, environmental, non-environmental versions with low insertion force front and rear removable contacts. BKAD/E — rear release/rear removable crimp contacts BKAF — front release/front removable solder tail or wrap post size 22 contacts ■ **R/P CATALOG**	**3-150 CONTACTS** Contact/Wire Size 22 20 16 12 Coax contacts available SOLDER TAIL, CRIMP, or WRAP POST TERMINATION		

☐ Environmental version only ■ Environmental versions available, consult factory

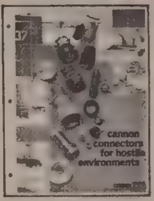
ITT CANNON CIRCULAR CONNECTORS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
CA BAYONET — rugged, bayonet connector series Bayonet Coupling Designed in accordance with European spec VG 95 234, interchangeable but not intermateable with MIL-C-5015; for use in heavy military equipment. **VG CATALOG**	**1-61 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP OR SOLDER TERMINATION	• Military Radios • Radar Systems • Heavy Military Equipment • Power Supplies • Communications and Ground Test Equipment • Earth Moving Equipment • Backstage Lighting Equipment • Mass Transit	Standard Circular Connectors with Bayonet Coupling ITT CANNON
CA-BVS — rugged, water-proof connectors Bayonet Coupling Designed for the stringent requirements for mining equipment; contact arrangements to MIL-C-5015, VG 95 234; 360° HF shielding available. **GS-1E CATALOG**	**1-61 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP TERMINATION	• Underground Mining Installations • Heavy Duty Equipment	Waterproof Connectors CA-BVS ITT CANNON
CA-COM/CA-COM-B standard circular connectors Threaded Coupling Bayonet Coupling CA-COM — threaded coupling CA-COM-B — bayonet coupling General purpose for commercial marketplace; interchangeable with corresponding MIL-C-5015 and VG 95234 types. ■ **CC CATALOG**	**2-48 CONTACTS** Contact/Wire Size 16 12 SOLDER OR CRIMP TERMINATION	• Industrial Machinery and Equipment	Circular Standard Connectors CA-COM and CA-COM-B ITT CANNON
CVA — standard circular MIL-C-83723 (Series II) Threaded Coupling High performance, mates with MIL-C-5015 thread coupled connectors. Environmental and fluid resistant, rear release crimp snap-in contacts. ☐ **CVA/MIL-C-83723 CATALOG**	**1-48 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP TERMINATION	• Commercial/Military Aerospace • Test Equipment • Ground Support Equipment • Communications Equipment • Guidance Controls • Surface/Naval Vehicles • Black Box Instrumentation	CVA M83723 (Series 2) Circular Connectors CANNON ITT
CGE — high power connectors Bayonet Coupling Used to transmit high current at low voltage; meets mechanical requirements of VG 95234; operating temperature range −55 °C to +125 °C. ■ **HS CATALOG**	**1 CONTACT** Contact/Wire Size H2 H15 H5 H24 H9 Coax. contacts available CRIMP OR THREADED BOLT TERMINATION	• Heavy Vehicles Military/Commercial • Tanks • Any High Amperage Requirement	High Power Connectors CGE ITT CANNON
FIREWALL CONNECTORS Threaded Coupling MS-K — 350°F (177°C), meets MIL-C-5015 fireproof test, crimp contacts CA-KE — 350°F (177°C), moisture-resistant, for sealable wires, meets MIL-C-5015 fireproof test or 350°F (177°C) continuous FRF/FVF/FRA/FVA — firewall connector with front release crimp snap-in contacts; moisture sealed, exceeds MIL-C-5015 fireproof requirements; 400°F (204°C) continuous ■ **HEC CATALOG**	**1-47 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP TERMINATION	• Provides protection against extreme high temperatures, emergency fire retardant conditions, moisture, atmospheric conditions, resistant to fuels, cleaning agents, coolants, hydraulic fluids • Nuclear-Radiation Resistant • Aircraft Firewall	cannon connectors for hostile environments

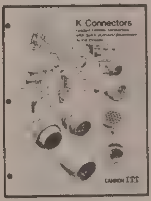
☐ Environmental version only ■ Environmental versions available, consult factory

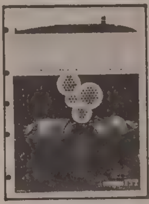
For immediate budgetary information contact your nearest Cannon Sales Office or Distributor (see Manufacturers' Directory).

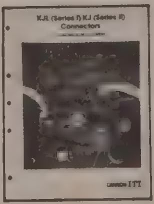
ITT CANNON — CIRCULAR CONNECTORS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
HIGH TEMPERATURE connectors CA-HR — +371°F (+700°C), nuclear-radiation resistant Threaded Coupling	**1-73 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP OR WELD TERMINATIONS	- Provides protection against extreme high temperatures, emergency fire retardant conditions, moisture, atmospheric conditions, resistant to fuels, cleaning agents, coolants, hydraulic fluids - Nuclear-Radiation Resistant - Aircraft Firewall	
GEOPHYSICAL SERIES — hermaphroditic connectors Threaded Coupling Connectors designed for seismic applications in hostile environments. **HEC CATALOG**	**122, 176, 216 CONTACTS** Contact/Wire Size 20 18 SOLDER TERMINATION	- Oil Exploration	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
HIGH TEMPERATURE connectors HTMF — qualified to MIL-C-83723 Series III Class K and Class G. Temperature range from −85°F to +392°F (−65°C to +200°C). Meets U.S., NATO and British Govmnt. specifications Threaded Coupling **HTMF CATALOG**	**3-55 CONTACTS** Contact/Wire Size 12 16 20 Thermocouple contacts available CRIMP TERMINATION	- High Temperature Engines	High Temperature Miniature Connectors

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
K — standard lightweight, rugged general purpose K — with special Acme thread coupling nut with internal threads RK — reverse coupling unit with external threads SK — "BEEP" telephone connectors Quick Coupling Acme Threads **K CATALOG**	**2-110 CONTACTS** Contact/Wire Size 20 16 14 10 8 6 4 Coax. contacts available SOLDER TERMINATION	- Aircraft Radios/Cameras - Instrument Panels - Black Boxes/"U" Boxes - TV Cameras - Transmitters - Communications and Radar Interconnects - CRT/Data Terminals - Automotive Instrument Sensors	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
KFS — standard circular, MIL-C-28840 KFS — front release contacts, high impact shock resistance for use with Navy Shipboard cable. Threaded Coupling ☐ **28840 CATALOG**	**7-155 CONTACTS** Contact/Wire Size 20 CRIMP TERMINATION	- Navy Shipboard Cable - RFI/EMI and Hermetic - Filter	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
KJL/KJ/KJA — Series I, II and III subminiature high density, qualified to MIL-C-38999 Bayonet Coupling/ Threaded Coupling KLJ Series I (Scoop Proof), KJ Series II (Low Profile). High performance, high density, lightweight, compact, environment-resistant connectors; rear release of crimp snap-in contacts; bayonet coupling. KJA Series III Scoop Proof self-locking threaded coupling for EMI/EMP shielding capability. ☐ **KJL/KJ CATALOG** **KJA CATALOG**	**3-128 CONTACTS** Contact/Wire Size 22M 22D 22 20 16 12 CRIMP TERMINATION	- Black Boxes - Electronic Instrumentation - Test Equipment - Ground Support Radar Systems - Space Shuttle - Guidance Controls - Military Spacecraft/Satellite Programs - Military/Commercial Aircraft - Military Missiles	

☐ Environmental version only ■ Environmental versions available, consult factory

For immediate budgetary information contact your nearest Cannon Sales Office or Distributor (see Manufacturers' Directory).

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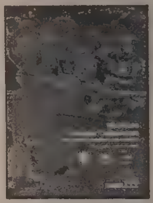
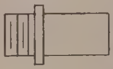
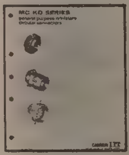
CIRCULAR CONNECTORS

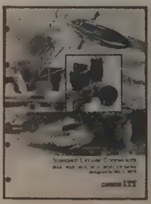
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
KPT/KPTM/KPSE/KTN/KTNM — miniature general purpose, MIL-C-26482 Series I KPT — Solder contacts KPTM — Crimp montacts in DUAL-SHORE® insulator KPSE — Crimp contacts in integrally molded insulator KPTB — Thru-bulkhead receptacles KTN — Solder contacts, cupro-nickel hardware; corrosion-resistant KTNM — Crimp contacts, curpro-nickel hardware; corrosion-resistant Bayonet Coupling **KPT/KPTM/KPSE/KTN/KTNM CATALOG**	**2-61 CONTACTS** Contact/Wire Size 20 16 12 SOLDER OR CRIMP TERMINATION	• Cable Assemblies • Black Box Avionics • Guidance Systems • Control Systems • Missile Instrumentation • Word Processors • Printers • Cable Assemblies • Chassis and Panel Mounting	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
KO — rugged lightweight Acme Threads Miniature environmental version of standard K connector with special Acme threads. Note: When potted they can meet MIL-C-25955. **MC CATALOG**	**3-50 CONTACTS** Contact/Wire Size 20 16 12 SOLDER TERMINATION	• Rapid Transit • Recreation Vehicles • Automotive Test Instrumentation • Aircraft/Ground Support Equipment	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
LRN — connectors  Power connector for use on nuclear fueling machines; environmentally sealed and impervious to serious degradation from radiation. **HEC CATALOG**	**4-72 CONTACTS** Contact/Wire Size 16 12 4 SOLDER OR CRIMP TERMINATION	• Nuclear	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
MC — subminiature, sealed connectors Acme Threads ☐ Heavy duty, general-purpose, designed to withstand severe handling and a variety of environmental conditions. **MC CATALOG**	**3-12 CONTACTS** Contact/Wire Size 20 SOLDER TERMINATION	• Military Instrument Panels • Medical Instrumentation • Air Traffic Control Ground Support • Aircraft Communications Equipment	

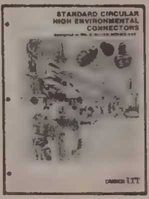
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
MR — standard weatherproof, submersible Submersible Rugged environmental MIL-C-5015 type; withstands severe conditions involving mud, ice, and water. **HEC CATALOG**	**1-56 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP OR SOLDER TERMINATION	• Rapid Transit • Recreational Vehicles • Missile Ground Support • Radar Installations • Heavy Construction Equipment • Radio/TV Stations	

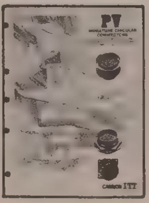
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
MS — general purpose, MIL-C-5015 MS-A — solid shell MS-B — split shell MS-E — environmental, cable clamp MS-R — environmental, interfacial seal MSF — environmental, interfacial and periphery seal F-80 — crimp contact termination modification Threaded Coupling **MS CATALOG** Note: Catalog includes connectors for potting, bulkhead, quick disconnect and weatherproof applications. ■	**1-100 CONTACTS** Contact/Wire Size 16 12 8 4 0 SOLDER OR CRIMP TERMINATION High voltage Cartridges and Coax. Cartridges available	• Avionics • Radar Systems • Portable Power Generators • Tanks, Trucks • Farm Equipment • Power Leads • Electronic Scoreboards • Traffic Signals • Medical Equipment • Computer Hardware	

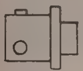
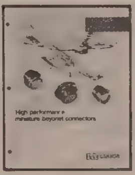
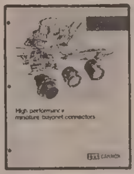
☐ Environmental version only ■ Environmental versions available, consult factory

For immediate budgetary information contact your nearest Cannon Sales Office or Distributor (see Manufacturers' Directory).

ITT CANNON CIRCULAR CONNECTORS

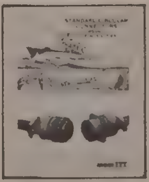
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
MS/CV 345*— MIL-C-5015G (NAVY) environmental, standard circular, crimp versions Threaded Coupling The latest military design, high performance 5015 connectors with crimp removable contacts. Fully intermateable with existing MIL-C-5015 and threaded MIL-C-83723 (USAF) Series II connectors. ■ **MS/CV CATALOG**	**1-48 CONTACTS** Contact/Wire Size 16 12 8 4 0 CRIMP TERMINATION	● Mass Transit Systems ● Military Space Programs ● Black Box Instrumentation ● Test Equipment ● Radar Systems ● Power Circuits ● Ground Support Equipment	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
PV — miniature circular MIL-C-83723 (Series 1) MIL-26482 (Series 2) Bayonet Coupling Intermateable with MIL-C-26482 Series 1 bayonet coupled connectors. High performance, environmentally sealed; fluid resistant; rear release crimp snap-in contacts; eight shell sizes and 25 contact arrangements. □ **PV CATALOG**	**3-61 CONTACTS** Contact/Wire Size 20 16 12 CRIMP TERMINATION	● Missile On-Board Electronics Systems ● Transportation Electronics ● Military Armored Vehicles Electronics ● CAB, Engine, Power Applications ● Space Shuttle	

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
PVW — miniature circular connectors  Bayonet Coupling Lightweight version of PV Series, mates with M26482 and M83723 Series 1; temperature range −55 °C to +175 °C. □ **PVW CATALOG**	**3-61 CONTACTS** Contact/Wire Size 20 16 12 CRIMP TERMINATION	● Missiles ● Aerospace Programs ● Armored Vehicles ● Black Box ● Airbus/SST Concorde ● Military Aircraft	
PVX — miniature circular connectors Bayonet Coupling Same as PV Series except with 4 additional polarization positions (total 9 possibilities); temperature range −65 °C to +200 °C. □ **PVX CATALOG**			

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
SRC/SRCB/SRCN — miniature circular, rugged, lightweight, general-purpose connectors SRC — machined contacts (threaded coupling) SRCB — SRC with bayonet coupling SRCN — with stamped contacts (threaded coupling) Threaded Coupling **SRC CATALOG**	**3-24 CONTACTS** Contact/Wire Size 20 16 SOLDER OR CRIMP TERMINATION	● Measurement and Test Equipment ● Communications Systems ● Medical Equipment ● "Mini-cam" TV ● Video Tape Recorders	SRC SRCN SRCB

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
W SERIES — waterproof connectors For extreme underwater geophysical applications, uses MIL-C-5015 contact arrangements, Acme thread coupling. **HEC CATALOG**	**1-48 CONTACTS** Contact/Wire Size 16 12 8 4 0 Coax. contacts available SOLDER TERMINATION	● Underwater Geophysical Exploration ● Underground Drilling Equipment ● Moisture-Resistant Outdoor Requirements	cannon connectors for hostile environments

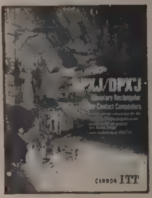
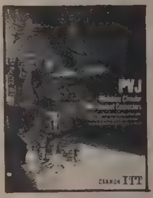
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
WFS — standard circular, designed to MIL-C-5015G-340* WFS — front release contacts, for use in commercial/industrial, military, mass transit, retrofit programs. **WFS CATALOG**	**7-104 CONTACTS** Contact/Wire Size 16-16 16-22 CRIMP TERMINATION	● Navy Shipboard Cable ● Mass Transportation ● Heavy Equipment ● Space Programs	

□ Environmental version only ■ Environmental versions available, consult factory

For immediate budgetary information contact your nearest Cannon Sales Office or Distributor (see Manufacturers' Directory).

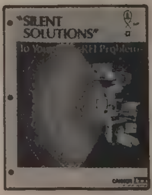
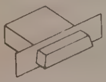
ITT CANNON

FILTER CONNECTORS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
DPXJ Rack/panel filter connectors in single, two, three or four gang shells interchangeable with standard DPX, DPXMA, DPXME and meets requirements of ARINC 404. Provide optimum attenuation of RFI/EMI. **FDPXJ CATALOG**	**CONTACTS** Contact/Wire Size 22 20 16 Coax. contacts available SOLDER TERMINATION Consult factory for availability of crimp filter contacts	● Electronic Countermeasures Equipment ● Communications Equipment ● Encoder/Decoder Equipment ● Radar Guidance Systems ● Instrumentation ● Navigational Equipment ● Deep Space Applications ● Military Aircraft ● Commercial Aircraft	
D*J Rectangular subminiature filter connectors intermateable with standard D subminiature and MIL-24308 types. Optimum RFI/EMI attenuation provided. **FDJ CATALOG**	**CONTACTS** Contact/Wire Size 20 Coax. contacts available SOLDER TERMINATION Consult factory for availability of crimp filter contacts		DJ CANNON ITT
PVJ Bayonet Coupling Miniature circular filter connectors provide optimum attenuation of RFI/EMI. PJV equivalents to MIL-C-26482 and MIL-C-83723 types. Also available in hermetic. **FPVJ CATALOG**	**CONTACTS** Contact/Wire Size 20 16 SOLDER TERMINATION Consult factory for availability of crimp filter contacts		
KJJ/KJJL Bayonet Coupling KJJ (low profile)/KJJL (scoop proof) miniature circular filter connectors combine functions of standard connector and a feed-thru filter into one complete package. Meet applicable portions of MIL-C-38999 Series I, II and III. Provides optimum RFI/EMI attenuation. Also available in hermetic. **FKJJ CATALOG**	**CONTACTS** Contact/Wire Size 22D 20 16 SOLDER TERMINATION Consult factory for availability of cirmp filter contacts		KJJL KJJ CANNON ITT

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
TKJ A transverse monolith filter design incorporated into the KJJ (M38999) connector family. Threaded Coupling	**CONTACTS** Contact/Wire Size 22D 22M 22 20 16 12	● Missiles ● Military Communications ● Military Weapons System ● Radar Ground Control Equipment	KJJ MIL-C-38999

EMI/RFI PRODUCTS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
SHIELDED D subminiature Available in kits or individual connectors to suit your EMI/RFI equipment requirements. Assures equipment compliance with FCC Docket 20780.	**CONTACTS** Contact/Wire Size 20 SOLDER OR CRIMP TERMINATION	● Computers ● Electronic Games ● Telecommunications ● Medical Electronics ● Computer Peripherals ● Black Box ● Business Machines ● Compact Packaging Requirements	
TRANSVERSE MONOLITH D subminiature  Significantly reduces EMI/RFI emissions, assuring equipment compliance with FCC Docket 20780.	20 SOLDER POT, STRAIGHT AND RIGHT ANGLE PC, WIRE WRAPPABLE		

□ Environmental version only ■ Environmental versions available, consult factory

For immediate budgetary information contact your nearest Cannon Sales Office or Distributor (see Manufacturers' Directory).

ITT CANNON HERMETIC CONNECTORS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
GS — standard circular MIL-C-5015 Threaded Coupling TBFH — through bulkhead fitting BFH — bulkhead fitting GS — glass seated	**1-54 CONTACTS** Contact/Wire Size 16 4 12 0 8 EYELET OR SOLDER POT TERMINATION	- Medical Equipment - Relays - Tachometers - Directional Finders - Aircraft Instrumentation - Spacecraft/Satellite Systems - Fuel Tanks - Sensors - Nuclear Instrumentation - Transmitters - TV Cameras - Aircraft Ground Support Equipment - Rapid Transit - Recreational Vehicles - Automotive Test Equipment - Shipboard Instrumentation - Communication Systems - Submersible Vehicles - Electronic Countermeasures - Glove Boxes - Construction and Oil Field Equipment - Automotive Transmissions - Mining Equipment	
***KH — standard circular, lightweight general purpose, quick disconnect** Quick Coupling KH — Acme threaded coupling RKH — Reverse type coupling nut	**2-57 CONTACTS** Contact/Wire Size 20 10 16 6 14 EYELET OR SOLDER POT TERMINATION		
KPT/PVA — miniature circular MIL-C-26482 (Series I and Series II) Bayonet Coupling Connector for broad-base commercial, military, and industrial applications ranging from general purpose to space environments.	**2-61 CONTACTS** Contact/Wire Size 20 16 12 EYELET OR SOLDER POT TERMINATION		
KJLY/KJY — miniature circular MIL-C-38999 (Series I and Series II) Bayonet Coupling Lightweight, scoop-proof/low-profile, environment-resistant, engineered for high density circuitry applications.	**3-128 CONTACTS** Contact/Wire Size 22 20 16 SOLDER OR CRIMP TERMINATION		
MC/KH — subminiature circular, general purpose Acme Threads Quick disconnect with Acme threads used for instrumental, machine tools, automotive, recreational vehicles and many military guidance and instrument applications.	**3-50 CONTACTS** Contact/Wire Size 20 16 12 SOLDER TERMINATION		
HYDROSPACE connectors — designed to withstand stringent environments encountered by submarines and other undersea vehicles MIL-C-24217 — hermetic seal capability of withstanding pressures up to 10,000 psi. MIL-C-22249 — features receptacles with feed through pin-pin contacts mated to low pressure (internal) plug and high pressure (hydrostatic) plug. MIL-C-22539 — similar to MIL-C-24217 connectors, accommodates different contact arrangements.	**3-208 CONTACTS** Contact/Wire Size 20 8 16 4 12 0 SOLDER, SET SCREW CRIMP TERMINATION		
D Subminiature for general military/aerospace application, qualified to MIL-C-24308 D*H — standard D subminiature D*TBH — through bulkhead **HCC CATALOG**	**9-50 CONTACTS** Contact/Wire Size 20 EYELET OR SOLDER POT TERMINATION (D*H) PIN-PIN (D*TBH)		

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
HIGH TEMPERATURE connectors HRM +315° (+600°F), nuclear radiation-resistant miniature circular connector Threaded Coupling **HEC CATALOG**	**1-73 CONTACTS** Contact/Wire Size 16 4 12 0 8 CRIMP OR WELD TERMINATIONS	- Temperature Sensing Detection Devices - Radiation- and Temperature-Resistant Environmental Applications	

☐ Environmental version only ■ Environmental versions available, consult factory

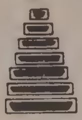
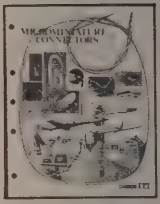
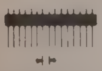
For immediate budgetary information contact your nearest Cannon Sales Office or Distributor (see Manufacturers' Directory).

ITT CANNON

MICROMINIATURE CONNECTORS

THE MICRO CONTACT SERIES

3 amp contact rating

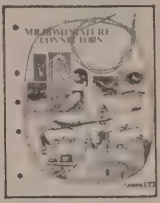
DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
RACK/PANEL, connectors **Micro-D connectors** **plastic shells**  .050" Centers MD — clip mounting, diallyl phthalate insulator MDA — clip mounting, polycarbonate insulator MDB — Screw mounting, diallyl phthalate insulator MDC — screw mounting, polycarbonate insulator MDN — clip mounting, nylon insulator MDNB — screw mounting, nylon insulator MDV — clip mounting, polyester insulator MDVB — screw mounting, polyester insulator **metal shells** MDM — screw mounting, aluminum die cast shell ■ **MMC CATALOG — Section I**	**9-100 CONTACTS** 3 Amps SOLID OR STRANDED LEADS SOLDER TERMINATION Coaxial contact layouts available	● Integrated Airborne Interconnection Systems ● Mobile Military Radio ● Military Aircraft ● Commercial Aircraft ● Analog/Digital Electronics ● Navigational Systems ● ECM Ground Support ● Weapons/Guidance Systems Instrumentation ● Flight Simulators ● Entertainment Systems ● Security Systems ● Computer Mainframes ● Computer Peripherals ● Geophysical/Seismic Survey Equipment ● Medical Instrumentation ● Satellite Telemetry	
RECTANGULAR CONNECTORS **Center jack screw** MJS — micro contact, interconnect pc boards, pc boards-to-harness, in-line wire interconnects **MMC CATALOG — Section I**	**10-66 CONTACTS** 3 Amps SOLID OR STRANDED LEADS		
CIRCULAR CONNECTORS Meet applicable performance requirements of MIL-C-38999, threaded or push/pull (quick connect/disconnect) coupling MIK — thermoplastic shell/insulator, threaded coupling, 7-55 contacts MIKM — metal shell, thermoplastic insulator, threaded coupling, 7-55-85 contacts MIKQ — metal shell, thermoplastic insulator, push/pull (quick disconnect) coupling, 7, 19, 37 contacts ■ **MMC CATALOG — Section I**	**7-85 CONTACTS** 3 Amps SOLID OR STRANDED LEADS		
STRIP CONNECTORS — 50-MIL strip For edge mounting on PC boards and encapsulation in modules.  .050" or .100" Centers MTB — diallyl phthalate (up to 81 contacts) MTV — polyester insulation, up to 120 contacts (special configurations are available; consult factory) **MMC CATALOG — Section I**	**UP TO 120 CONTACTS** 3 Amps SOLID OR STRANDED LEADS		

☐ Environmental version only ■ Environmental versions available, consult factory

ITT CANNON MICROMINIATURE CONNECTORS

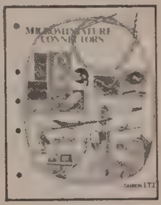
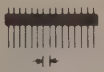
THE MICRO CONTACT SERIES (Continued)

3 amp contact rating

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
PRINTED CIRCUIT BOARD connectors MDMPC —metal shell, high reliability, board-to-board, board-to-cable, cable-to-cable applications MEB —metal shell, mother board, daughter board 2-piece edgeboard connector system. DUAL-ROW —plastic version of MEB available in 74 contacts on .075″ centers **MMC CATALOG — Section I**	**9-100 CONTACTS** 3 Amps 90° OR STRAIGHT LEADS **128, 184 CONTACTS** 3 Amps SOLID OR STRANDED LEADS	• Flex Circuitry • Flat Cable • Industrial and Commercial Control Systems	

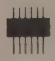
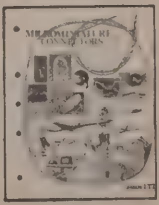
THE CENTI CONTACT SERIES

5 amps contact rating — 0.075″ (1.91) contact centers

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
2D — double density D D subminiature shell and hardware; 19, 31, 52, 79 or 100 crimp removable contacts on .075″ centers. **MMC CATALOG — Section II** ■	**19-100 CONTACTS** 5 Amps Wire Size 22 thru 30 CRIMP TERMINATION	• Model Airplane Radio Control Equipment • Calculators • Communications and Audio Equipment • Streamer Cables	
CENTI-LOC® connectors  .075″ or .100″ Centers Low cost, commercial strip connector available in "yardage" form for up to 53 crimp snap-in contacts on .075″ centers and up to 60 contacts on .100″ centers. **MMC CATALOG — Section II**	**1-60 CONTACTS** 5 Amps Contact/Wire Size 22 thru 30 (P.C. tails avail.)		

THE NANO CONTACT SERIES

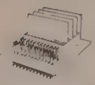
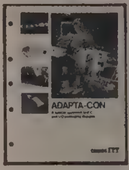
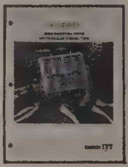
1 amp contact rating

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
NANO connectors — strip  0.025″ Centers A high density connector using twist pins on .025″ centers. Available to various configurations including center jackscrew version. **MMC CATALOG — Section III**	**1-40 CONTACTS** 1 Amp SOLID OR STRANDED LEADS	• Medical Research Implementations • Hearing Aid Harnessing • Inertial Guidance Platform Harnessing	
RECTANGULAR CONNECTORS **Center jack screw** NJS —Nano contact, interconnect pc boards, pc boards-to-harness, in-line wire interconnects. **MMC CATALOG — Section III**	**9-22 CONTACTS** 1 Amp SOLID OR STRANDED LEADS		

☐ Environmental version only ■ Environmental versions available, consult factory

For immediate budgetary information contact your nearest Cannon Sales Office or Distributor (see Manufacturers' Directory).

ITT CANNON PRINTED CIRCUIT/INPUT-OUTPUT

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
ADAPTA-CON CONNECTORS  Low-force receptacle interconnections for P.C. and I/O applications, custom made to any size or configuration. **ACBP CATALOG**	UBS UP TO 130 CONTACTS UBC UP TO 86 CONTACTS Contact/Wire Size 18 thru 28 SOLDER, CRIMP TERMINATION	● PC Board Interconnections ● Computer Peripheral Equipment ● Automatic Test Equipment	
DL CONNECTORS Low mating force, high performance, cam-actuated spring contacts on .100″ centers. I/O, cord-to-cord, cord-to-panel applications. **DL CATALOG**	UP TO 2496 CONTACTS Contact/Wire Size 18 thru 30 CRIMP OR WIRE-WRAPPING TERMINATION	● Computer Main Frames ● Computer Peripherals ● Communications Systems ● Ground Support Systems ● Guidance/Control Systems	

ITT Cannon offers a broad range of edgecard (printed circuit) connectors. Available are modular printed circuit connectors accommodating from 2 to 200 contacts in gold, silver or tin plating. Contact spacing ranges from .100 inches to .200 inches. Commercial, military specification and DIN types are also available in a variety of mounting styles. The following generally describes several of ITT Cannon's direct and indirect discrete and backpanel types. Condensed technical data is provided in a selector chart below.

DESCRIPTION

PC CONNECTORS DIRECT (ONE PIECE)

Series	Number of Contacts	Contact Arrangement	Current Rating	Termination Styles
G03	5 to 89 10 to 178	Single read-out Dual read-out	3 A max.	Eyelet, Solder Tails, Wrap Posts
G05	2 to 100 4 to 200	Single read-out Dual read-out	4.5 A max.	Eyelet, Solder Tails, Wrap Posts
PB21	44, 56, 60, 68, 72, 80, 86, 88, 100	Dual read-out	3 A max.	Solder Tails, Wrap Posts
G08 (unshrouded)	8-70 (even increments, double row) 2-35 (single row)	Dual read-out	3 A max.	Solder Tails, Wrap Posts

PC CONNECTORS INDIRECT (TWO PIECE)

Series	Number of Contacts	Contact Arrangement	Current Rating	Termination Styles	
				Male Connector	Female Connector
G06 (DIN)	32, 64, 96	Two rows Three rows	2 A max.	Solder Tails, Straight and 90°	Solder Tails, Wrap Posts
G60 (Reverse DIN)	64, 96	Two rows Three rows	2 A max.	Solder Tails, Wrap Posts	Solder Tails, Straight and 90°
G06 (IDC)	64	Two rows Three rows	3 A max.	—	IDC Termination
G612* Compliant Pin	96	Three rows	2 A max.	Press-fit Wrap Posts	Solder Tails 90°
G60* Compliant Pin Press-fit	96	Three rows	2 A max.	Press-fit Wrap Posts	—
PB18	Modular Blocks, 2 rows of 10	Dual read-out	3 A ma.	Consult Factory	Solder Tails
PB23	Modular Blocks, 2 rows of 10	Dual read-out	3 A ma.	Consult Factory	Solder Tails
LIPS	Up to 150	Consult Factory	1 A max.	Consult Factory	Solder Tails
PICL	30, 40, 50, 60	Four rows	0.5 A	Solder Tails, Straight and 90°	Solder Tails, Straight and 90°

*G612 compliant pins are ordered separately.
G60 connectors are ordered with compliant pins installed.

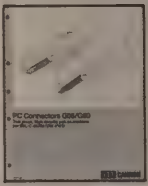
IC SOCKETS

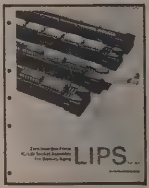
Series	Number of Contacts	Contact Arrangement	Current Rating	Termination Styles	
				Male Connector	Female Connector
DICF	14, 16, 18, 22, 24, 28, 40, 42	Dual-read-out	3 A max.	—	Solder Tails, Wrap Posts (14/16 contacts only)
DICA	14, 16, 18, 22, 24, 28, 40, 42	Two rows	1 A max.	—	Solder Tails

APPLICATIONS

- Missile Instrumentation Equipment
- Radar Early Warning Systems
- Dual Readout PC Applications
- Videotape Recorders
- Television Equipment
- Stereo Equipment
- Air Conditioners
- Computer/Micro Computer Equipment
- Automobile Dashboards
- Office Equipment
- Medical Equipment
- Tape Recorders
- Commercial/Industrial Electronic Equipment
- Computer Periphery
- Measuring Instruments
- Communications Equipment
- High Density PC Board Applications

CATALOG



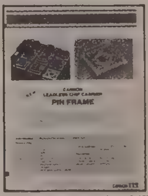
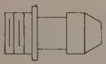
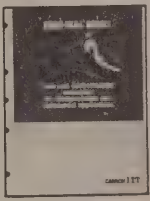
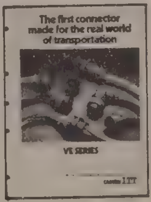


Low Profile IC Socket
DICF Series

□ Environmental version only ■ Environmental versions available, consult factory

For immediate budgetary information contact your nearest Cannon Sales Office or Distributor (see Manufacturers' Directory).

ITT CANNON SPECIAL APPLICATIONS

DESCRIPTION	CONTACT DATA	APPLICATIONS	CATALOG
AUDIO/ELECTRONIC CONNECTORS Used on microphones, audio/video, amplifiers, test instrumentation, computers and other low level circuit applications. **AUD CATALOG**	**2-8 CONTACTS** Contact/Wire Size 10 14 16 Coax. contacts available SOLDER OR CRIMP TERMINATION	• Microphones • Video Tape Recorders • Amplifiers • Medical Electronics • Computers • Audio/Video Systems	
LEADLESS CHIP CARRIER PACKAGING Chip carrier sockets and pin frames designed to accept (JEDEC A, B and C) leadless chip carriers with PC boards. Pin patterns of .050″ × .100″ and .100″ × .100″. **LLCC CATALOG**	**68-196 CONTACTS** SOLDER (FLOW, DIP) WAVE	• Microprocessors • Digital Telephone Switching Equipment	
FIBER OPTIC CONNECTORS FODC — Low cost fiber optic device connectors for PCB fiber optic applications. **FODC CATALOG**	**Single Channel** (simplex) CRIMP TERMINATION	• Office Equipment • Computers • Local area network	
FIBER OPTIC CONNECTORS  Multi-channel tactical communications connectors for fiber optics. **FOMC CATALOG**	2, 4, 8 Channels Epoxy, grind and polish of fiber Cable and cable strength member is crimp	• Tactical Radio C3 Systems • Ground Support Equipment • Avionics and Instrumentation • Flight Simulators • Communications	
SURE SEAL® CONNECTORS High performance, low cost environmentally sealed connectors with rugged multiple moisture seals. Meets automotive/industrial standards including vibration, shock, temp. cycling, salt water spray and immersion, petroleum derivitives, and industrial gases. ☐ **SS CATALOG**	**1-10 CONTACTS** Contact/Wire Size #14 AWG #16 AWG #18 AWG CRIMP TERMINATION WITH OR WITHOUT INSULATION SUPPORT	• Missile Disconnect • Trucks • Off-Road Vehicles • Farm Machinery • Process Control Systems • Automotive/Mobile Units • Household Appliances • Solar Energy • Telephone Communication Lines	
VE CONNECTORS — heavy duty automotive /transportation General purpose connectors for industrial marketplace; quick harness termination; environmentally sealed. Super Ceasar™ contact assembly retention. ☐ **VE CATALOG**	**12-37 CONTACTS** Contact/Wire Size 16 12 8 4 Power and Signal Contacts CRIMP TERMINATION	• Digital Electronic Systems • Off-Road Vehicles • Engines • Generators • Transportation Electronics • Farm Machines • CAB, Signal and Chassis Power Systems	

There are many other special products manufactured by ITT Cannon. For additional information please contact any of the offices listed on the following pages.

☐ Environmental version only ■ Environmental versions available, consult factory

For immediate budgetary information contact your nearest Cannon Sales Office or Distributor (see Manufacturers' Directory).

ITT CANNON SALES OFFICE/DISTRIBUTOR LOCATIONS

SALES OFFICES/REPRESENTATIVES

ITT Cannon Area Sales Offices or Representatives for CANNON® Connectors . . . Besides the local Area Sales Office telephone number we have added a new feature . . . an "umbrella" number . . . **(800) 845-7000.** This toll-free number can be called from anywhere in the U.S. and you will automatically reach your nearest Cannon Area Sales Office who will quickly direct you to your nearest Cannon branch office. These offices are staffed to provide you with fast Response and Delivery responses to your inquiries regarding our products and their application to your needs.

ALABAMA 35802 — Huntsville
BRANDEL-STEPHENS & COMPANY, INC.
Phone: 205/883-0445 • TELEX 59-4440

ARIZONA 85016 — Phoenix
ITT CANNON
Phone: 602/224-0944
TWX: 910-951-1325 • TELEX 66-7327

CALIFORNIA 92728-8040 — Fountain Valley
ITT CANNON — Western Area Director — South
Phone: 714/964-7400
TWX: 910-596-2620 • TELEX 65-5358

CALIFORNIA 95008 — Campbell (San Jose)
ITT CANNON — Western Area Director — North
Phone: 408/559-1777

FLORIDA (Northern) 32801 — Orlando
BRANDEL-STEPHENS & COMPANY, INC.
Phone: 305/425-3202 • TELEX 56-4419

FLORIDA (Southern) 33441 — Deerfield Beach
BRANDEL-STEPHENS & COMPANY, INC.
Phone: 305/427-8558 • TELEX 51-9397

GEORGIA 30305 — Atlanta
BRANDEL-STEPHENS & COMPANY, INC.
Phone: 404/261-7579 • TELEX 54-9644

MASSACHUSETTS 01880 — Wakefield
ITT CANNON — Eastern Area Director — North
Phone: 617/246-2510 • TELEX 94-9401

MINNESOTA 55420 — Minneapolis
ITT CANNON — Central Area Director — North
Phone: 612/854-1973 • TELEX 67-8374

NEW YORK 14622 — Rochester
L-MAR ASSOCIATES
Phone: 716/323-1000 • TWX: 510-253-0943

NEW YORK 14850 — Ithaca
L-MAR ASSOCIATES
Phone: 607/257-5712

NEW YORK 13057 — East Syracuse
L-MAR ASSOCIATES
Phone: 315/437-7779

NORTH CAROLINA 27408 — Greensboro
BRANDEL-STEPHENS & COMPANY, INC.
Phone: 919/274-6952

OHIO 45429 — Kettering
ITT CANNON
Phone: 513/434-8181

PENNSYLVANIA 19422 — Blue Bell
ITT CANNON — Eastern Area Director — South
Phone: 215/646-2801 • TELEX 67-8374

PENNSYLVANIA 19047 — Trevose
P.S.A. INC.
Phone: 215/245-0513 • TELEX 83-4506

TEXAS 75234 — Dallas
ITT CANNON — Central Area Director — South
Phone: 214/661-0302 • TELEX 73-0208

WASHINGTON 98004 — Bellevue
ITT CANNON
Phone: 206/454-3903

NORTH AMERICA MANUFACTURING FACILITIES

CALIFORNIA 92702-0929 — Santa Ana
666 East Dyer Road
Phone: 714/557-4700

ARIZONA 85034 — Phoenix
2801 E. Air Lane
Phone: 602/275-4792

CANADA: Whitby, Ontario — L1N 5V8
ITT CANNON CANADA
4 Cannon Court
Phone: 416/668-8881

INTERNATIONAL MANUFACTURING FACILITIES

AUSTRALIA: Moorabbin, Victoria — 3189
ITT CANNON (Australia)
Division of STC Cannon Components
P.O. Box 62, 248-254 Wickham Road
Phone: 61(3)555-1566 • TELEX 790-30877

ENGLAND: Basingstoke, Hants RG22 4BW
ITT CANNON (Great Britain) LTD.)
Jays Close, Viables Industrial Estate
Phone: Basingstoke 44(256) 3171
TELEX 851-858-105

FRANCE: F31773 Colomiers Cedex
ITT CANNON FRANCE S.A.
B.P. 320, Ave. Edouard Serres
Phone: Toulouse 33(61)78.53.33
TELEX 842-51973

JAPAN: Kanagawa Pref.
CANNON JAPAN
3-27 Minami-Hashimoto 4-chrome
Sagamihara City
Phone: 81(3)344-6071 • TELEX 287-2223 CE JAE J

JAPAN: Tokyo — 150
JAPAN AVIATION ELECTRONICS INDUSTRY, LTD./Lic.
21-6 Dogenzaka 1-chrome, Shibuya-Ku
Phone: 81(3)463-3111 • TELEX 781-29197

WEST GERMANY: D-7056 Weinstadt
ITT CANNON GmbH
Poststrasse 75, P.O. Box 1120
Phone: 49(7151)604-0 • TELEX 724-343-0Ca-d

CAPS® DISTRIBUTORS

The Cannon Authorized Plug Specialist (CAPS) locations shown below are the major assembly locations for this network. Most of the major CAPS assembly locations are military-approved facilities with Quality Control standards and comparable to the ITT Cannon factory.

ARIZONA

TIME ELECTRONICS / ARIZONA, INC.
Tempe 85282
Phone: 602/967-2000 • TWX 910-950-0086

CALIFORNIA

HALL-MARK ELECTRONICS CORP.
San Jose 95131
Phone: 408/946-0900 • TWX 910-339-9505

RICHEY WESTERN ELECTRONICS, INC.
Sun Valley 91352
Phone: 213/875-2862, 768-3800
TWX 910-498-2205

RICHEY WESTERN ELECTRONICS, INC.
San Diego 92121
Phone: 619/271-4511

TIME ELECTRONICS WEST, INC.
Torrance 90501
Phone: 213/320-0880 • TWX 910-349-7536

TIME ELECTRONICS • NOR/CAL
Sunnyvale 94086
Phone: 408/734-9888 • Telex 17-2233

CANADA

ITT CANNON CANADA
Whitby, Ontario L1N 5V8
Phone: 406/668-8881

COLORADO

ARROW ELECTRONICS, INC.
Denver 80222
Phone: 303/758-4585 • TWX 910-931-0440

FLORIDA

TIME ELECTRONICS-FLORIDA, INC.
Ft. Lauderdale 33309
Phone: 305/974-4800 • TWX 510-956-9408

GEORGIA

ELECTRO AIR CORP.
Atlanta 30325
Phone: 404/351-3545 • Telex 542127

ILLINOIS

HALL-MARK ELECTRONICS CORP.
Bensenville 60106
Phone: 312/860-3814 • TWX 910-651-0185

INDIANA

GENESIS ELECTRONICS
South Bend 46628
Phone: 219/287-2911 • TWX 810-299-2583

MASSACHUSETTS

TIME ELECTRONICS / NEW ENGLAND
Woburn 01801
Phone: 617/935-8080 • TWX 710-393-0171

MISSOURI

TIME ELECTRONICS / MID-WEST
St. Louis 63011
Phone: 314/391-6444 • TWX 910-760-1893

NEW YORK

PROGRESS ELECTRONICS CO., INC.
Planview, L.I. 11803
Phone: 516/433-1700 • TWX 510-221-1896

SUMMIT DISTRIBUTORS, INC.
Buffalo 14202
Phone: 716/887-2800 • TWX 710-522-1692

NEW YORK (Cont.)

TIME ELECTRONIC SALES
Hauppauge, L.I. 11787
Phone: 516/273-0100
Telex 967827 or 143117

PENNSYLVANIA

HENWARR, INC.
Warminster 18974
Phone: 215/675-4104

PHILADELPHIA ELECTRONICS, INC.
Philadelphia 19107
Phone: 215/568-7400 • TWX 710-670-0852

TIME ELECTRONICS / MID-ATLANTIC
Broomall 19008 (Philadelphia)
Phone: 215/359-1200 • Telex 845317

TEXAS

HALL-MARK ELECTRONICS CORP.
Dallas 75222
Phone: 214/343-5000; 214/341-1147
TWX 910-867-4721

HARRISON EQUIPMENT CO., INC.
Stafford 77477
Phone: 713/879-2600 • TWX 910-880-5153

WASHINGTON

ALMAC ELECTRONICS
Bellevue 98007
Phone: 206/643-9992 • TWX 910-444-2067

1984
POMONA ELECTRONICS TEST ACCESSORIES

ITT POMONA ELECTRONICS

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STANDARD BANANA PLUGS/JACKS

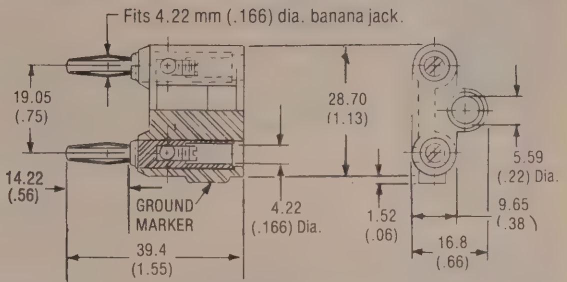
General specifications listed below apply to items using banana plugs in this catalog unless otherwise specified.

FEATURES

- One piece beryllium copper heat-treated spring for maximum long life.
- Rounded spring design results in maximum contact area.
- Stackup feature allows multiple connections at the same electrical point.

SPECIFICATIONS

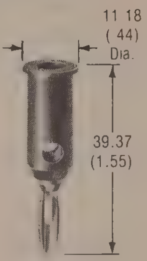
- Fits standard 4.22 mm (.166) dia. banana jacks.
- Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
- Plug body, brass per QQ-B-626, alloy 360.
- Nickel plated per QQ-N-290, Class 2, .00508/.00762 mm (.0002/.0003) thick, unless specified.
- Contact resistance less than 0.001 ohm per banana plug.
- 5000 WVDC, 15 Amps. cont., 0.8 pF to 10 MHz



SPECIALS:
Most of the banana acccessories are available in high temperature plastic suitable for environmental chambers or medical applications. We will be glad to quote.

SOLDERLESS STACKUP BANANA PLUG

Wire firmly held in place with internal setscrew, eliminating soldering. Assembly of test leads simplified.
UPPER: Banana jack, 4.22 mm (.166) dia.; brass, nickel plated.
LOWER: Banana plug. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Fits standard 4.22 mm (.166) dia. banana jack.
INSULATION: ABS, +50°C. (+122°F.) Max.



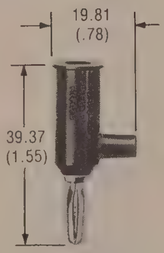
Model No.	Color	Model No.	Color
1325-0	Black	1325-5	Green
1325-1	Brown	1325-6	Blue
1325-2	Red	1325-7	Violet
1325-3	Orange	1325-8	Gray
1325-4	Yellow	1325-9	White

(Pkg. Ten Per Color)

***NET .90 EA.**

SOLDERLESS STACKUP BANANA PLUG WITH SAFETY COLLAR

Features integral safety collar that insulates exposed wire leads. Wire firmly held in place with internal setscrew, eliminates soldering, simplifies assembly of test leads.
UPPER: Banana jack, 4.22 mm (.166) dia.; brass, nickel plated.
LOWER: Banana plug. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Fits standard 4.22 mm (.166) dia. banana jack.
INSULATION: ABS, +50°C. (+122°F.) Max.



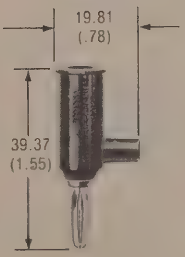
Model No.	Color	Model No.	Color
1825-0	Black	1825-5	Green
1825-1	Brown	1825-6	Blue
1825-2	Red	1825-7	Violet
1825-3	Orange	1825-8	Gray
1825-4	Yellow	1825-9	White

(Pkg. Ten Per Color)

***NET .90 EA.**

GOLD PLATED SOLDERLESS STACKUP BANANA PLUG WITH SAFETY COLLAR

Similar to Model 1825, except banana plug is gold plated.
UPPER: Banana jack, 4.22 mm (.166) dia.; brass, gold plated.
LOWER: Banana plug. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Fits standard 4.22 mm (.166) dia. banana jack.
INSULATION: ABS, +50°C. (+122°F.) Max.

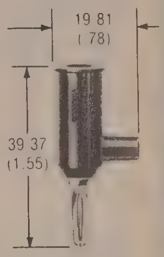


Model No.	Color
4897-0 4897-2	Black Red

***NET 1.50**

HIGH TEMPERATURE STACKUP SOLDERLESS BANANA PLUG WITH SAFETY COLLAR

Similar to Model 1825, except insulation is high temperature, suitable for environmental chambers and medical applications.
UPPER: Banana jack, 4.22 mm (.166) dia.; brass, nickel plated.
LOWER: Banana plug. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Fits standard 4.22 mm (.166) dia. banana jack.
INSULATION: Polyphenylene Sulfide, +220°C. (+428°F.) Max.
COLOR: Black



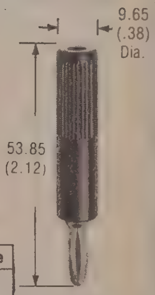
Model No.
4899

(Ten Per Pkg.)

***NET 1.15 EA.**

DO-IT-YOURSELF IN-LINE BANANA PLUG

This In-Line Banana Plug is ideal for on-the-job repairs of patch cords: Plug can either be soldered or crimped.
MATERIAL: Plug body; brass. Spring: one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Jacket Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.



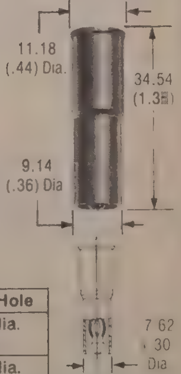
(unassembled)

Model No.	Color	accept wires AWG	Wire Access Hole
4433-0 4433-2	Black Red	22, 20, 18	4.04 (.159) dia.
4498-0 4498-2	Black Red	16, 14	5.08 (.200) dia.

***NET 2.50**

DO-IT-YOURSELF IN-LINE SHEATHED BANANA PLUG

This sheathed in-line banana plug provides protection from accidental shorting when dropped. A plastic tip on the banana plug offers further protection. A threaded, two piece design allows wire to be crimped or soldered to banana plug. This plug fits models 4912, 4921, 4934 & 4987.
BANANA PLUG: Spring, beryllium copper; body brass. Nickel plated.
INSULATION: Nylon, +80°C. (+176°F.) Max.



(unassembled)

Model No.	Color	accept wires AWG	Wire Access Hole
4933-0 4933-2	Black Red	22, 20, 18	4.04 (.159) dia.
4986-0 4986-2	Black Red	16, 14	5.08 (.200) dia.

***NET 2.60**

*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

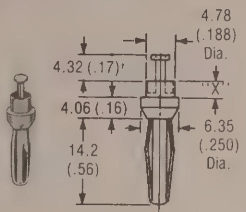
ITT POMONA ELECTRONICS

STANDARD 19.05 mm (.750) SPACED BANANA PLUGS/JACKS

RIVET TYPE BANANA PLUG WITH TURRET

Excellent for riveting to panels or boards. Solder turret for rapid attachment of wires. Fits standard 4.22 mm (.166) dia. banana jacks.

- Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
- Plug body, brass per QQ-B-626, alloy 360.
- Plating, nickel per QQ-N-290.
- Rated 15 amps cont.



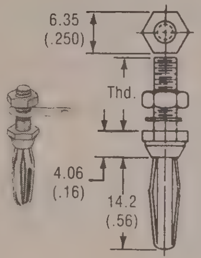
Model No.	"X" Dim.	Panel
3260	2.67 (.105)	1.57 mm (.062)
3261	3.43 (.135)	2.37 mm (.093)

(Ten Per Pkg.) ***NET .95 EA.**

BANANA PLUG WITH THREADED STUD

Threaded stud for rapid mounting. Fits standard 4.22 mm (.166) dia. banana jacks. Furnished with hex nut and tin plated solder lug.

- Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
- Plug body, brass per QQ-B-626, alloy 360.
- Plating, nickel per QQ-N-290.
- Rated, 15 amps cont.



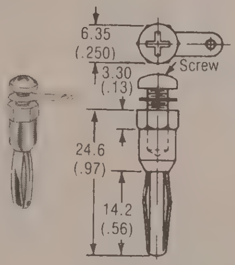
Model No.	Thread	*Net
3263	6-32 x 1/2"	.95 EA.
3264	8-32 x 1/2"	.95 EA.
4511	6-32 x 5/8"	.95 EA.
4512	8-32 x 5/8"	1.10 EA.

(Ten Per Pkg. unassembled)

BANANA PLUG WITH SCREW

Mounts to various size panels. Fits standard 4.22 mm (.166) dia. banana jacks. Furnished with screw and tin plated solder lug.

- Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
- Plug body, brass per QQ-B-626, alloy 360.
- Plating, nickel per QQ-N-290.
- Rated, 15 amps cont.



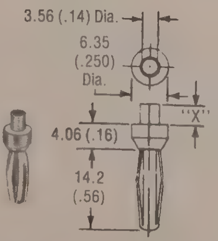
Model No.	Screw
3265	6-32 x ¼"
3266	8-32 x ¼"

(Ten Per Pkg., unassembled) ***NET 1.15 EA.**

RIVET TYPE BANANA PLUG

Excellent for riveting to panels or boards. Fits standard 4.22 mm (.166) dia. banana jacks.

- Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
- Plug body, brass per QQ-B-626, alloy 360.
- Plating, nickel per QQ-N-290.
- Rated 15 amps cont.



Model No.	"X" Dim.	Panel	*Net
3257	2.39 (.094)	1.57 mm (.062)	.90 EA.
3258	3.18 (.125)	2.37 mm (.093)	.80 EA.
3259	3.96 (.156)	3.18 mm (.125)	1.20 EA.

(Ten Per Pkg.)

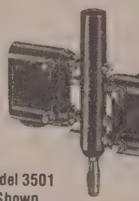
SERIES-PARALLEL ISOLATION PLUGS

These plugs enable you to build unlimited combinations of series-parallel networks e.g., voltage dividers, attenuator, etc.

Upper cross holes spaced 19.05 mm (.750) on centers from lower cross holes to allow connection of double banana plugs. Double banana plugs may be plugged in from both sides.

FEATURES:

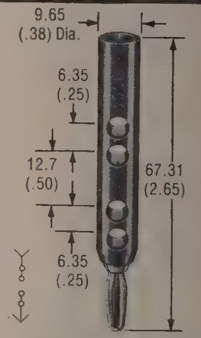
- Fits 4.22 mm (.166) dia. banana jacks.
- Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
- Plug bodies and jacks, brass, nickel plated per QQ-N-290 class 2.
- Tough thermoplastic molded to banana jacks and plug bodies.
- Insulation: ABS, +50°C (+122°F.) Max.


Model 3501 Shown

Model 3502 Shown

SERIES-PARALLEL ISOLATION PLUG

Top banana jack and upper pair of cross holes isolated from lower pair of cross holes and banana plug.
UPPER: Banana jack 4.22 mm (.166) dia.
CENTER: 4 cross holes 4.22 mm (.166) dia.
LOWER: Banana plug. Fits 4.22 mm (.166) dia. banana jack.
COLOR: Red.

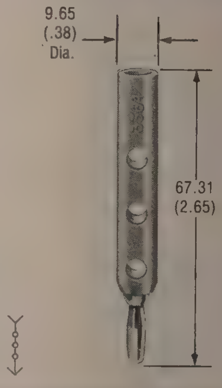


Model No.
3501

***NET 5.95**

QUAD STACKING PLUG

Features four parallel connectors to the same point. Excellent for use when many test points must be tied together.
UPPER: Banana jack, 4.22 mm (.166) dia. brass, nickel plated.
CENTER: 3 cross holes, 4.22 mm (.166) dia. provide side stackup connection.
LOWER: Banana plug. Fits 4.22 mm (.166) dia. banana jack.

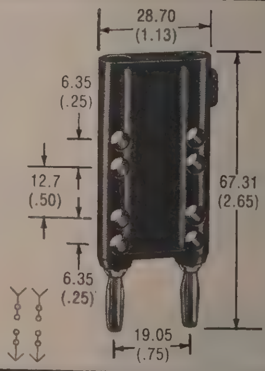


Model No.	Color
3364-0	Black
3364-2	Red

***NET 5.95**

DUAL SERIES-PARALLEL ISOLATION PLUG

Excellent for building attenuators, voltage dividers, isolation networks, etc. Top banana jacks and upper pair of cross holes isolated from lower pair of cross holes and banana plugs.
UPPER: Double banana jack 4.22 mm (.166) dia., on 19.05 mm (.750) centers.
CENTER: 8 cross holes 4.22 mm (.166) dia.
LOWER: Double banana plug on 19.05 mm (.750) centers. Fits 4.22 mm (.166) dia. banana jacks.
COLOR: Red.



Model No.
3502

***NET 9.85**

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

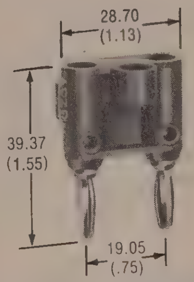
★ See page 126 of the Pomona Catalog for quantity purchases.

ITT POMONA ELECTRONICS

STANDARD 19.05 mm (.750) SPACED BANANA PLUGS/JACKS

## DOUBLE BANANA PLUG

Double banana plug on 19.05 mm (.750) centers. Setscrews secure leads; simplifies cable construction or component mounting; banana jacks permit top stackup for multiple connections.
INSULATION: ABS, +50°C. (+122°F.) Max.

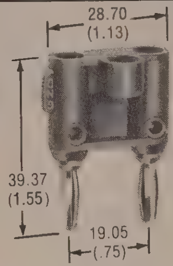


Model No.	Color	Model No.	Color
MDP-0	Black	MDP-5	Green
MDP-1	Brown	MDP-6	Blue
MDP-2	Red	MDP-7	Violet
MDP-3	Orange	MDP-8	Gray
MDP-4	Yellow	MDP-9	White

***NET 1.60**

HIGH TEMPERATURE DOUBLE BANANA PLUG

Similar to Model MDP, except insulation is high temperature, suitable for environmental chambers and medical applications.
INSULATION: Polyphenylene sulfide, +220°C. (+428°F.) Max.
COLOR: Black.

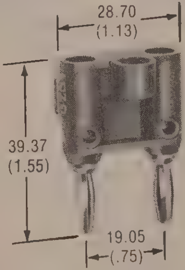


Model No.
4898

***NET 1.85**

GOLD PLATED DOUBLE BANANA PLUG

Similar to Model MDP, except banana plugs are gold plated. Banana jacks permit top stackup for multiple connections.
INSULATION: ABS, +50°C. (+122°F.) Max.

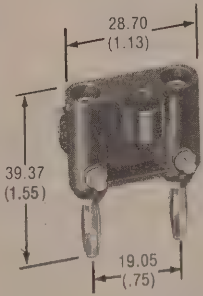


Model No.	Color
4892-0	Black
4892-2	Red

***NET 2.95**

## DOUBLE BANANA PLUG WITH SOLDER TURRET TERMINALS

Similar to Model MDP, except has bright tin plated solder turret terminals for permanent noise-free connections of cables and components. Double banana plug on 19.05 mm (.750) centers. Banana jacks permit top stackup for multiple connections.
INSULATION: Polypropylene, +55°C. (+131°F.) Max.
COLOR: Black.

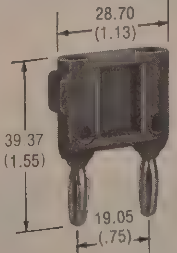


Model No.
MDP-ST

***NET 2.35**

COMPONENT MOUNTING

Double banana plug on 19.05 mm (.750) centers. Setscrews secure leads; features recess for mounting small components; banana jacks permit top stackup for multiple connections.
INSULATION: ABS, +50°C. (+122°F.) Max.

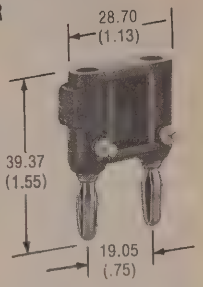


Model No.	Color
1330-0	Black
1330-2	Red

***NET 1.65**

COMPONENT PLUG WITH SOLDER TURRET TERMINALS

Similar to Model 1330, except has bright tin plated solder turret terminals for permanent noise-free connections of components, etc. Double banana plug on 19.05 mm (.750) centers. Springs, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Banana jacks permit top stackup for multiple connections.
INSULATION: Polypropylene, +55°C. (+131°F.) Max.

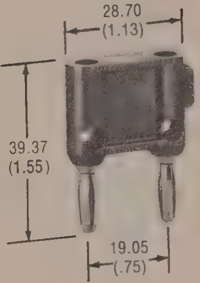


Model No.	Color
1330-ST-0	Black
1330-ST-2	Red

***NET 2.35**

INSULATED SHORTING BAR

Ideal as a connecting link for use with 19.05 mm (.750) spaced banana jacks. Banana plugs internally solder-bonded with #14 AWG wire. Banana jacks provide top stackup. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Springs, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Resistance less than 1.5 milliohms installed. "Shorting Bar" marked on top of plug.
INSULATION: ABS, +50°C. (+122°F.) Max.

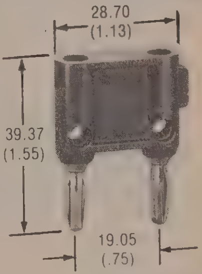


Model No.	Color
MDP-S-0	Black
MDP-S-2	Red
MDP-S-9	White

***NET 2.60**

MOLDED PRECISION RESISTOR

Ideal where rapid interchange of resistance values is required. Use in bread-boarding, R & D labs, standards, terminations, etc. Deposited carbon 1% resistor, ½ watt, molded internally. Resistor soldered to double banana plug, on 19.05 mm (.750) centers. Springs, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Top stackup provided for multiple connections. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Resistance value stamped on top of plug.
INSULATION: ABS, red, +50°C. (+122°F.) Max.



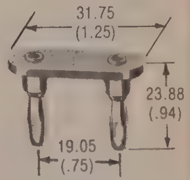
Model No.
MDP-R-*

* Specify Resistance in Ohms				
50	150	900	10K	100K
75	200	1K	20K	1 Meg.
130	600	5K	50K	10 Meg.

***NET 5.95**

METAL SHORTING BAR

Low profile, nickel plated brass shorting bar. Double banana plugs on 19.05 mm (.750) centers swaged to 2.36 mm (.093) thick brass bar. Springs, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Resistance, less than 1.5 milliohms installed. Current rating: 15 amps. cont.

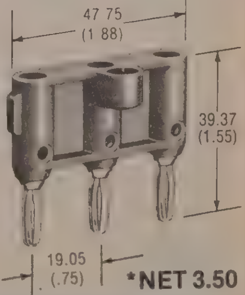


Model No.
1855

***NET 2.50**

TRIPLE BANANA PLUG

Triple banana plug on 19.05 mm (.750) centers. Setscrews secure leads. Ideal for balanced line 2 conductor shielded cable assemblies. 4.22 mm (.166) dia. banana jacks to standard banana plugs. Plug body, brass. Springs, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Nickel plated.
RATINGS: 2500 WVDC 15 Amps. cont., +50°C. (+122°F.) Max.



Model No.	Color
2970-0	Black
2970-2	Red

***NET 3.50**

*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

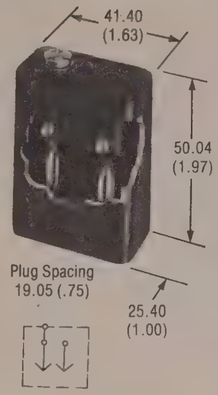
ITT POMONA ELECTRONICS

STANDARD 19.05 mm (.750) SPACED BANANA PLUGS/JACKS

SHIELDED DOUBLE BANANA PLUG WITH IN-LINE CABLE ENTRY

RATED: 15A Continuous
1200 W VDC 2.5 pf @ 1 MHz

- Shielded double plug.
- Die cast aluminum shell, black anodized.
- Noise rejection: greater than 70 dB.
- Bright tin plated solder turret terminals for positive reliable cable connections.
- Springs, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Fits standard 4.22 mm (.166) dia. banana jacks.
- Rounded banana spring design results in maximum contact area and minimum contact resistance.
- GND clearly molded in shell.
- Cable opening, 5.56 mm (.219) diameter
- Banana plug insulation: Polypropylene +55°C. (+131°F.) Max.



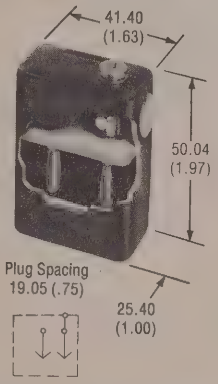
Model No.
1433

***NET 8.95**

SHIELDED DOUBLE BANANA PLUG WITH RIGHT ANGLE CABLE ENTRY

RATED: 15A Continuous
2800 W V Peak 2.0 pf @ 1 MHz

- Shielded double plug 19.05 mm (.750) spaced.
- Polycarbonate insulating base.
- Die cast aluminum shell, black anodized.
- GND clearly molded in shell.
- Noise rejection: greater than 70 dB.
- Springs, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Fits standard 4.22 mm (.166) dia. banana jacks.
- Bright tin plated solder turret terminals for reliable noise-free connections.
- Vinyl grommet (one side) and nickel plated snap button (other side) supplied.
- 6.35 mm (.25) dia. side entry.



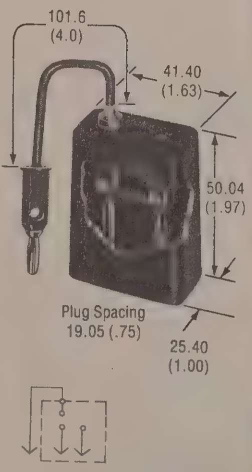
Model No.
1791

***NET 12.95**

BALANCED LINE SHIELDED DOUBLE BANANA PLUG

RATED 15A Continuous
1000 W V Peak; Line to Shield
2000 W V Peak; Line to Line
2.0 pf @ 1 MHz Capacity; Line to Line
3.0 pf @ 1 MHz Capacity; Both Lines to Shield

- Unique 3 terminal design allows connection to shielded two conductor cable while maintaining balanced conditions.
- Minimizes ground loop errors in low signal level applications.
- Die cast aluminum shell, black anodized.
- Noise rejection: greater than 70 dB.
- Bright tin plated solder turret terminals for reliable noise-free connections.
- Springs, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Fits standard 4.22 mm (.166) dia. banana jacks.
- Banana plug insulation: Polypropylene. +55°C. (+131°F.) Max.

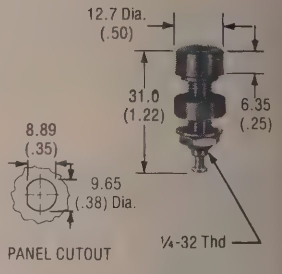


Model No.
1921

***NET 15.95**

BANANA JACK

- Tin plated brass body, per MIL-T-10727.
- Closed entry receptacle, 4.22 mm (.166) dia. x 23.37 mm (.920) deep.
- Nickel plated lockwasher and hex nut.
- Mounts in panels from 1.60 mm (.063) to 9.53 mm (.375) thick.
- Molded in Lexan* polycarbonate.
- Rated 2500 WVDC 15 amps cont. +115°C. (+239°F.) Max.



Model No.	Color	Model No.	Color
1581-0	Black	1581-5	Green
1581-1	Brown	1581-6	Blue
1581-2	Red	1581-7	Violet
1581-3	Orange	1581-8	Gray
1581-4	Yellow	1581-9	White

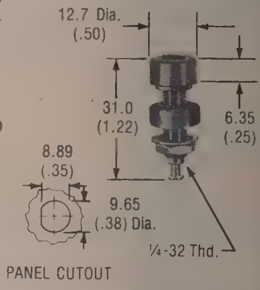
(Pkg. Ten Per Color, unassembled)

***NET .60 EA.**

HIGH TEMPERATURE BANANA JACK

Insulation is high temperature, suitable for environmental chambers and medical applications.

- Tin plated brass body, per MIL-T-10727.
- Closed entry receptacle, 4.22 mm (.166) dia. x 23.37 mm (.920) deep.
- Mounts in panels from 1.60 mm (.063) to 9.53 mm (.375) thick.
- Insulation: Polyphenylene Sulfide. Color: Black.
- Nickel plated lockwasher and hex nut.
- Rated 2500 WVDC 15 amps cont. +220°C. (+428°F.) Max.



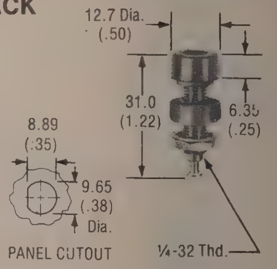
Model No.
4900

(Ten Per Pkg. unassembled)

***NET 1.05 EA.**

GOLD PLATED BANANA JACK

- Gold plated brass body.
- Closed entry receptacle, 4.22 mm (.166) dia. x 23.37 mm (.920) deep.
- Nickel plated lockwasher and hex nut.
- Mounts in panels from 1.60 mm (.063) to 9.53 mm (.375) thick.
- Molded in Lexan* polycarbonate.
- Rated 2500 WVDC 15 amps cont. +115°C. (+239°F.) Max.



Model No.	Color	Model No.	Color
2854-0	Black	2854-5	Green
2854-1	Brown	2854-6	Blue
2854-2	Red	2854-7	Violet
2854-3	Orange	2854-8	Gray
2854-4	Yellow	2854-9	White

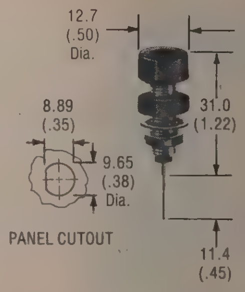
(Pkg. Ten Per Color, unassembled)

***NET 1.10 EA**

BANANA JACK WITH WRAPPED WIRE TERMINAL

Excellent for rapid connection of wires using wrapped wire tools or machines.

- Gold plated beryllium copper 0.64 mm (.025) sq. wrapped wire terminal.
- Nickel plated brass body.
- Closed entry receptacle, 4.22 mm (.166) dia. x 23.37 mm (.920) deep.
- Molded in Lexan* polycarbonate.
- Mounts in panels from 1.60 mm (.063) to 9.52 mm (.375) thick.
- Nickel plated lockwasher and hex nut.
- Rated 2500 WVDC 3 amps cont. +115°C. (+239°F.) Max.



Model No.	Color	Model No.	Color
4005-0	Black	4005-5	Green
4005-1	Brown	4005-6	Blue
4005-2	Red	4005-7	Violet
4005-3	Orange	4005-8	Gray
4005-4	Yellow	4005-9	White

(unassembled)

***NET 1.30**

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*See page 126 of the Pomona Catalog for quantity purchases.

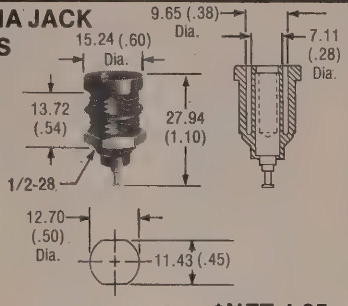
* Lexan is a trademark of General Electric.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

STANDARD 19.05 mm (.750) SPACED BANANA PLUGS/JACKS

PANEL MOUNT BANANA JACK FOR SHEATHED PLUGS

This banana jack will accept all sheathed plugs described herein. It will also accept any standard banana plug. Nickel plated lockwasher and nut included.
BANANA JACK: Brass, nickel plated.
INSULATION: Polycarbonate
RATINGS: 1200 V. AC/DC Max. +115°C. (+239°F.) Max.



(unassembled) PANEL CUTOUT ***NET 1.95**

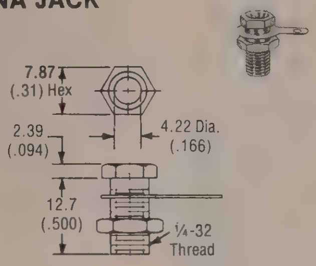
Model No.
4921-*

*COLOR CODES				
0-Black	2-Red	4-Yellow	6-Blue	8-Gray
1-Brown	3-Orange	5-Green	7-Violet	9-White

UNINSULATED BANANA JACK

Threaded for rapid mounting. Used with standard banana plugs. Furnished with hex nut and solder lug.

- Jack body, brass nickel plated
- Rated, 15 Amps cont.
- ¼-32 hex nut, copper, tin plated solder lug included.

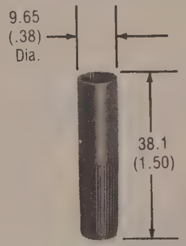


Model No.
3267

(Ten Per Pkg. unassembled) ***NET .55 EA.**

DO-IT-YOURSELF IN-LINE BANANA JACK

This In-Line Banana Jack will accept all standard banana plugs including the 20.3 mm (.800) long banana plugs. A threaded, two piece design allows wire to be crimped or soldered to banana jack.
MATERIAL: Jack, brass nickel plated.
INSULATION: Glass-filled nylon. +102°C. (+216°F.) Max.

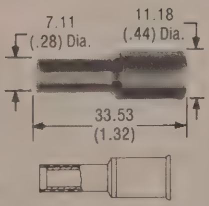


(unassembled)

Model No.	Color	Accepts wires AWG	Wire Access Hole	*Net
4237-0 4237-2	Black Red	22, 20, 18	4.04 (.159) dia.	1.95
4499-0 4499-2	Black Red	16, 14	5.09 (.200) dia.	2.20

DO-IT-YOURSELF IN-LINE SHEATHED BANANA JACK

This sheathed in-line banana jack provides protection from accidental shorting when dropped. This banana jack will accept all sheathed plugs described herein. It will also accept any standard banana plug. A threaded, two piece design allows wire to be crimped or soldered to banana jack.
BANANA JACK: Brass, nickel plated.
INSULATION: Nylon, +80°C. (+176°F.) Max.



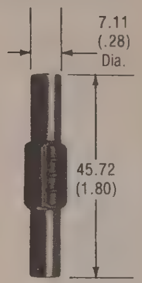
(unassembled)

Model No.	Color	Accepts wires AWG	Wire Access Hole
4934-0 4934-2	Black Red	22, 20, 18	4.04 (.159) dia.
4987-0 4987-2	Black Red	16, 14	5.09 (.200) dia.

***NET 2.50**

BANANA PLUG SPLICE FOR SHEATHED PLUGS

This banana jack will accept all sheathed plugs described herein. It will also accept any standard banana plug.
BANANA JACK: Brass, nickel plated.
INSULATION: Polypropylene
RATINGS: 1200 V. AC/DC Max. +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

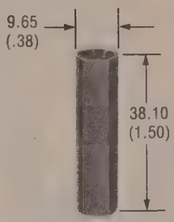


Model No.
4922-*

***NET 1.35**

SINGLE BANANA PLUG SPLICE

Provides rapid method for splicing single banana plug patch cords. Reduces the necessity of storing extra long patch cords. Molded thermoplastic body provides protective insulation. Brass, nickel plated banana jack. 4.22 mm (.166) dia.
INSULATION: Polypropylene, +55°C. (+131°F.) Max.

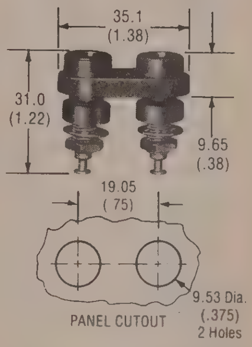


Model No.	Color
1829-0 1829-2	Black Red

(Pkg. Ten Per Color) ***NET .95 EA.**

DOUBLE BANANA JACK

- Tin plated brass body per MIL-T-10727.
- Closed entry receptacle, 4.22 mm (.166) dia. x 23.37 mm (.920) deep.
- Nickel plated lockwasher and hex nut.
- Molded in Lexan* polycarbonate.
- Mounts in panels from 1.60 mm (.063) to 9.53 mm (.375) thick.
- One black and one red jack.
- Choice of black or red mounting base.
- ¼-32 thread on 19.05 mm (.750) centers.
- Rated 2500 WVDC 15 amps cont. +115°C. (+239°F.) Max.



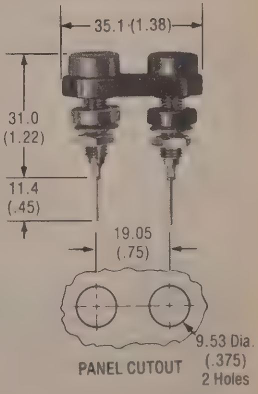
Model No.	Mtg. Base Color
2269-0 2269-2	Black Red

(unassembled) ***NET 1.85**

DOUBLE BANANA JACK WITH WRAPPED WIRE TERMINAL

Excellent for rapid connection of wires using wrapped wire tools or machines.

- Gold plated beryllium copper 0.64 mm (.025) sq. wrapped wire terminal.
- Nickel plated brass bodies.
- Closed entry receptacle, 4.22 mm (.166) dia. x 23.37 mm (.920) deep.
- Molded in Lexan* polycarbonate.
- Mounts in panels from 1.60 mm (.063) to 6.35 mm (.250) thick.
- One black and one red jack.
- Choice of black or red mounting base.
- Nickel plated lockwasher and hex nut.
- Rated 2500 WVDC 3 amps cont. +115°C. (+239°F.) Max.



Model No.	Mtg. Base Color
4069-0 4069-2	Black Red

(unassembled) ***NET 2.75**

★See page 126 of the Pomona Catalog for quantity purchases.

* Lexan is a trademark of General Electric.

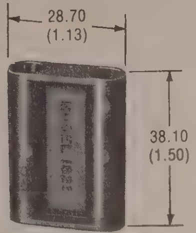
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

STANDARD BANANA JACKS/BINDING POSTS

DOUBLE BANANA PLUG SPLICE

Provides rapid method for splicing cables. Reduces necessity of storing extra long cables. Molded thermoplastic body provides protective insulation. Brass nickel plated banana jacks. 4.22 mm (.166) dia., on 19.05 mm (.750) centers.
INSULATION: Polypropylene, +55°C. (+131°F.) Max.

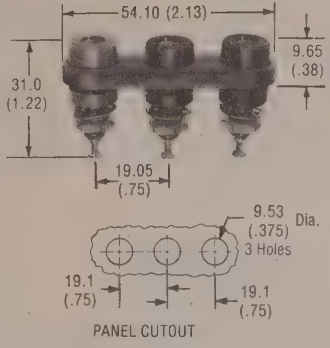


Model No.	Color
1823-0	Black
1823-2	Red

***NET 1.95**

TRIPLE BANANA JACK

- Tin plated brass bodies, per MIL-T-10727.
- Closed entry receptacle, 4.22 mm (.166) dia.
- Mounts in panels from 1.60 mm (.063) to 9.53 mm (.375) thick.
- One red, one black and one green jack.
- Choice of black or red mounting base.
- Nickel plated lockwashers and hex nuts.
- Rated 2500 WVDC 15 amps cont. +115°C (+239°F.) Max.

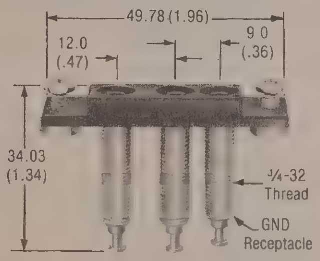


Model No.	Mtg. Base Color
4601-0	Black
4601-2	Red

(unassembled) ***NET 2.75**

EXTRA DEEP TRIPLE BANANA JACK

- Initial connection made with ground receptacle.
- Accepts 20.32 mm (.800) long banana plugs.
- Supplied with (2) 6-32 hex nuts and screws, unassembled.
- Tin plated brass bodies, per MIL-T-10727.
- Molded in Lexan* polycarbonate.
- Rated 2500 WVDC 15 amps cont. +115°C. (+239°F.) Max.

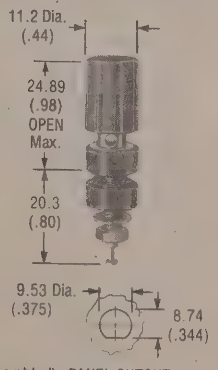


Model No.	Color
4163-0	Black

***NET 3.95**

STANDARD BINDING POST

Accepts standard banana plug. Thin line design for high-density packaging. Binding post body and captive thumb nut, brass. Available gold plated or tin plated. Lexan* Polycarbonate insulation. 8-32 hex nut and lockwasher included. 2.54 mm (.100) dia. cross hole is perpendicular with flat on insulator. Mounts in panels 1.59 mm (.062) to 6.35 mm (.250) thick.
RATINGS: 2500 W VDC 15 amps cont. +115°C. (+239°F.) Max.



Gold Plated Model No.	Tin Plated Model No.
3750*	3760*
*NET 2.75	*NET 1.85

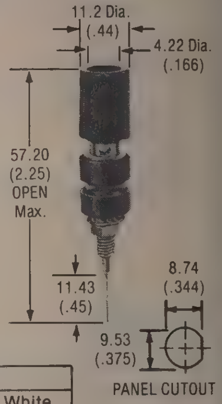
(unassembled) PANEL CUTOUT

* Color Code

0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

STANDARD BINDING POST WITH WRAPPED WIRE TERMINAL

Excellent for rapid connection of wires using wire-wrapping tools or machines. Accepts standard banana plug. Thin line design for high-density packaging. Binding post body and captive thumb nut, brass, nickel plated. Gold plated beryllium copper 0.63 mm (.025) sq. wrapped wire terminal. Lexan* Polycarbonate insulation. 8-32 hex nut and lockwasher included. 2.54 mm (.100) dia. cross hole is perpendicular with flat on insulator. Mounts in panels 1.59 mm (.062) to 6.35 mm (.250) thick.
RATINGS: 2500 W VDC 3 amps cont. +115°C. (+239°F.) Max.



(unassembled)

Model No.
4098*

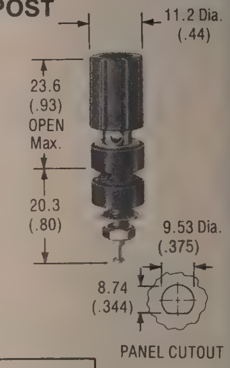
* Color Code

0 - Black	4 - Yellow	9 - White
2 - Red	5 - Green	

***NET 2.95**

LOW THERMAL EMF BINDING POST

Accepts standard banana plug. Thin line design for high-density packaging. Binding post body and captive thumb nut, tellurium, copper, gold plated for high conductivity. Excellent for use when thermoelectric effects are a significant source of error. Lexan* Polycarbonate insulation. 8-32 hex nut and lockwasher included. 2.54 mm (.100) dia. cross hole is perpendicular with flat on insulator. Mounts in panels 1.59 mm (.062) to 6.35 mm (.250) thick.
RATINGS: 2500 W VDC 15 amps cont. +115°C. (+239°F.) Max.



Model No.
3770*

(unassembled)

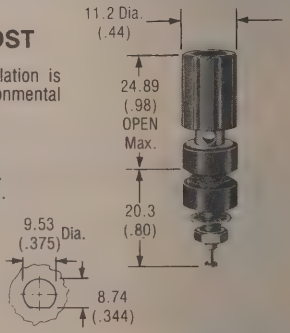
* Color Code

0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

***NET 3.95**

HIGH TEMPERATURE STANDARD BINDING POST

Similar to Model 3760, except insulation is high temperature, suitable for environmental chambers and medical applications.
INSULATION: Polyphenylene Sulfide
COLOR: Black
RATINGS: 2500 W VDC 15 amps cont. +220°C. (+428°F.) Max.

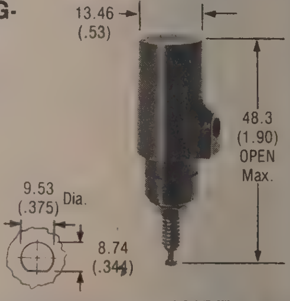


Model No.
4901

(unassembled) PANEL CUTOUT ***NET 2.05**

FULLY INSULATED SPRING-LOADED BINDING POST

Spring loaded, fully insulated binding post allows fast and simple attachment of wires or plugs up to 2.16 mm (.085) dia. with insulation up to 4.06 mm (.160) dia. Brass body, tin plated per MIL-T-10727.
INSULATION: Lexan* polycarbonate



Model No.	Color
4770-0	Black
4770-2	Red
4770-4	Yellow
4770-5	Green
4770-6	Blue
4770-9	White

(unassembled) PANEL CUTOUT ***NET 4.95**

*See page 126 of the Pomona Catalog for quantity purchases.
* LEXAN is a trademark of General Electric.

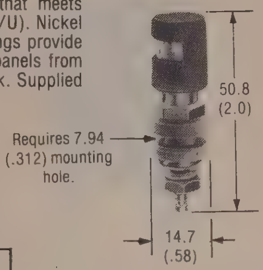
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

STANDARD PLUGS/BINDING POSTS

BINDING POST PER MIL-P-55149

Spring-loaded insulated binding post that meets the requirements of MIL-P-55149 (U106/U). Nickel plated brass body. Silicone rubber O-rings provide water resistant seal when mounted in panels from 1.57 mm (.062) to 3.18 mm (.125) thick. Supplied with red or black boot.



(unassembled)

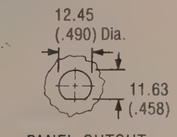
Model No.	Color	Military No.
4995-0	Black	PB08NA01
4995-2	Red	PB08NA02

***NET 9.95**

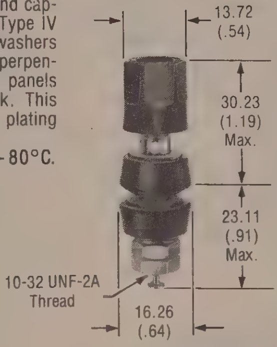
HEX HEAD BINDING POST

Designed to meet all the requirements of MIL-P-55149/1A. Gold plated binding post body and captive thumb nut. Nylon per MIL-P-20693A, Type IV insulation. Gold plated 10-32 hex nuts and washers included. 2.54 mm (.100) dia. cross hole is perpendicular with flat on insulator. Mounts in panels 1.57 mm (.062) to 6.35 mm (.250) thick. This binding post is also available in nickel or tin plating on special orders.

RATINGS: 1500 Vrms, 30 Amps. +80°C. (+176°F.) Max.



PANEL CUTOUT



Model No.
5018-*

*

Color Code		
0 - Black	4 - Yellow	6 - Blue
2 - Red	5 - Green	9 - White

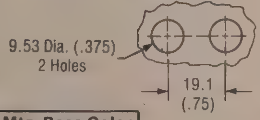
***NET 2.95**

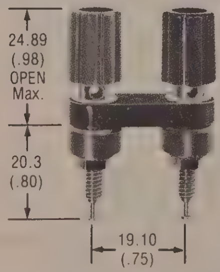
DOUBLE BINDING POSTS ASSEMBLY

One red and one black tin plated binding post (type 3760) with double mounting base.

RATING: 2500 W VDC 15 amps cont. +115°C. (+239°F.) Max.

PANEL CUTOUT





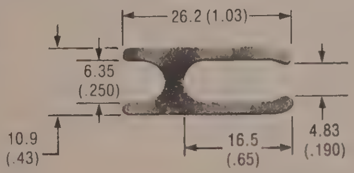
Model No.	Mtg. Base Color
4243-0	Black
4243-2	Red

(unassembled)

***NET 3.95**

SHORTING LINK FOR STANDARD BINDING POSTS

Shorting link for standard binding posts on 19.05 mm (.750) centers. A snap-on feature holds link on post when short not needed. Brass 0.79 mm (.031) thick. Nickel plated.



Model No.
4115

(Ten Per Pkg.)

***NET .50 EA.**

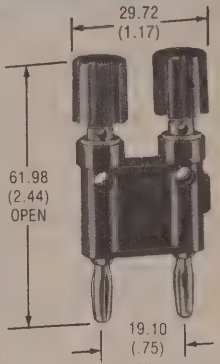
BINDING POSTS TO DOUBLE BANANA PLUG

Features insulated binding posts on 19.05 mm (.750) centers for rapid mounting and interchangeability of components.

UPPER: Insulated binding posts to allow top stackup for multiple connections with 4.22 mm (.166) dia. banana jacks, red, black. Insulation: Polycarbonate.

CENTER: Cross holes 4.22 mm (.166) dia. in plug body provides side stackup connections. Insulation: ABS, black, +50°C. (+122°F.) Max.

LOWER: Double banana plug on 19.05 mm (.750) centers.



Model No.
1286

***NET 5.50**

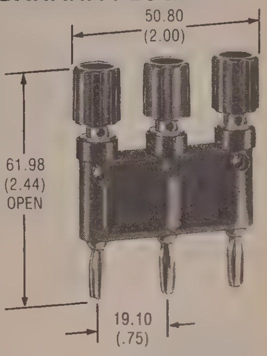
BINDING POSTS TO TRIPLE BANANA PLUG

Features insulated binding posts on 19.05 mm (.750) centers for rapid mounting and interchangeability of components.

UPPER: Insulated binding posts to allow top stackup for multiple connections with 4.22 mm (.166) dia. banana jacks, red, black, green. Insulation: Polycarbonate.

CENTER: Cross holes 4.22 mm (.166) dia. in plug body provides side stackup connections. Insulation: ABS, black +50°C. (+122°F.) Max.

LOWER: Triple banana plug on 19.05 mm (.750) centers.



Model No.
3405

***NET 8.95**

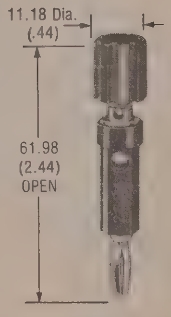
BINDING POST TO SINGLE BANANA PLUG

Features insulated binding post for rapid mounting and interchangeability of components.

UPPER: Insulated binding post to allow top stackup for multiple connections with 4.22 mm (.166) dia. banana jack. Red or black. Insulation: Polycarbonate.

CENTER: Cross hole 4.22 mm (.166) dia. in plug body provides side stackup connections. Insulation: ABS, black, +50°C. (+122°F.) Max.

LOWER: Single banana plug.

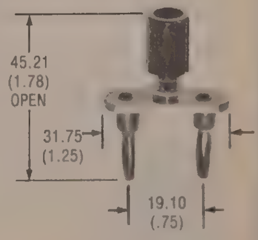


Model No.	Color
2894-0	Black
2894-2	Red

***NET 2.95**

METAL SHORTING BAR WITH BINDING POST

Features insulated binding post for ease of insertion and removal. Nickel-plated brass shorting bar with double banana plugs on 19.05 mm (.750) centers. Resistance: less than 1.5 milliohms; 15 amps. cont. Binding post insulation: Polycarbonate, + 115°C. (+239°F.) Max.



Model No.	Color
4665-0	Black
4665-2	Red

***NET 4.50**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

COMPONENT MOUNTING ISOLATION PLUGS

SPLIT-TERMINAL ISOLATION PLUGS

Create passive and active networks, voltage dividers, isolation networks or attenuators with the split-terminal isolation plugs described below.

Bright tin plated solder turret terminals provide permanent, reliable noise-free connections for component mounting.

Tough thermoplastic material molded to plug body and connectors insures maximum strength, moisture resistance and excellent insulative properties.

TYPICAL APPLICATION

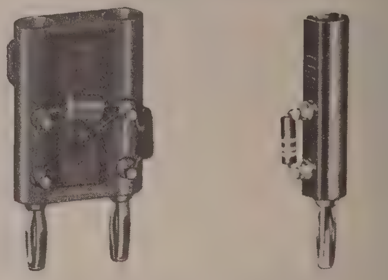


PHOTO REDUCED TO TWO-THIRDS SIZE

MODEL MDP-X SHOWN

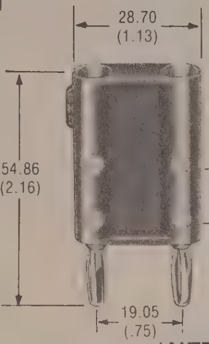
MODEL 1390 SHOWN

SPECIFICATIONS FOR MDP-X, 1390, 1837, 1468, 1469, 1910:

- Fits standard 4.22 mm (.166) dia. banana jack.
- Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
- Plug body, brass per QQ-B-626, alloy 360.
- Nickel plated per QQ-N-290, class 2.
- Contact resistance less than 0.001 Ohms per banana plug.
- Insulation: Polypropylene unless noted, +55°C. (+131°F.) Max.

DOUBLE BANANA PLUG FOUR TERMINAL ISOLATION

Provides four terminal isolation. Top stackup receptacles isolated from lower plugs. Ideal for insertion of matching networks in laboratory VTVM's, signal generators, etc. Bright tin plated solder turret terminals for permanent noise-free connections.
UPPER: Double banana jacks 4.22 mm (.166) dia., on 19.05 mm (.750) centers.
LOWER: Double banana plug on 19.05 mm (.750) centers.
COLOR: Red.

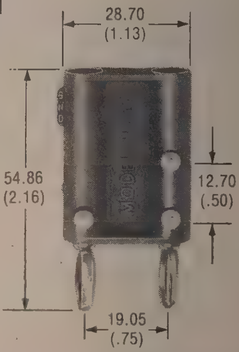


Model No.
MDP-X

***NET 5.75**

DOUBLE BANANA PLUG THREE TERMINAL ISOLATION

Provides three terminal isolation. Excellent for "L" and "PI" networks. Plug and receptacle nickel plated. Bright tin plated solder turret terminals for permanent noise-free connections. "Ground" is straight feed-thru. Hot side isolated.
UPPER: Banana jacks, 4.22 mm (.166) dia. on 19.05 mm (.750) centers.
LOWER: Double banana plug on 19.05 mm (.750) centers.
COLOR: Blue.

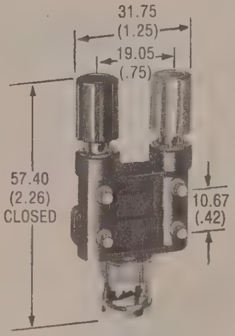


Model No.
1837

***NET 5.95**

ADAPTER — BINDING POSTS TO BNC MALE FOUR TERMINAL ISOLATION

Permits single or double banana plugs to be used with equipment having BNC female. Provides isolation for a four terminal network. Binding posts facilitate connections of test leads or additional components. Bright tin plated solder turret terminals provide permanent noise-free connections.
UPPER: Insulated binding posts on 19.05 mm (.750) center with 4.22 mm (.166) dia. jacks. Insulation: Polycarbonate, 1 black and 1 red.
LOWER: BNC male.
COLOR: Black.

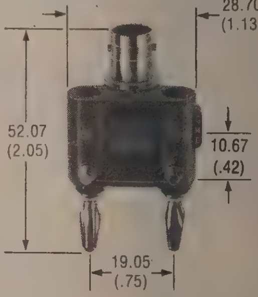


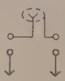
Model No.
1469

***NET 15.95**

ADAPTER — BNC FEMALE TO DOUBLE BANANA PLUG — FOUR TERMINAL ISOLATION

Permits BNC male to be used with equipment having banana jacks. Provides isolation for a four terminal network. Excellent for matching pad networks. Bright tin plated solder turret terminals for permanent noise-free connections.
UPPER: BNC female.
LOWER: Double banana plug on 19.05 mm (.750) centers.
COLOR: Black.



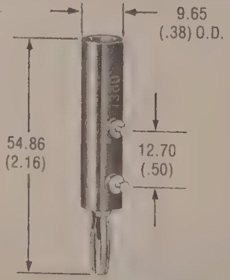


Model No.
1468

***NET 13.80**

PLUG — SINGLE BANANA TWO TERMINAL ISOLATION

Provides two terminal isolation. Top stackup receptacle is isolated from lower plug to permit addition of series resistors, diodes, etc. Ideal for computers, lab, circuit design and testing. Bright tin plated solder turret terminals for permanent noise-free connections.
UPPER: Banana jack, 4.22 mm (.166) dia.
LOWER: Banana plug.

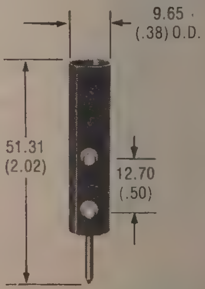


Model No.	Color
1390-0	Black
1390-2	Red

***NET 3.50**

PLUG — PIN TIP TWO TERMINAL ISOLATION

Pin tip jack is isolated from 2.03 mm (.080) pin tip plug. Provides for addition of series components. Ideal for use with computer boards, lab circuit designs, etc. Bright tin plated solder turret terminals for permanent noise-free connections.
UPPER: Tip jack, beryllium copper, gold plated; accepts 2.03 mm (.080) dia. pin.
LOWER: Pin tip, 2.03 mm (.080) dia. Brass, nickel plated.



Model No.	Color
1910-0	Black
1910-2	Red

***NET 4.95**

* See page 126 of the Pomona Catalog for quantity purchases.

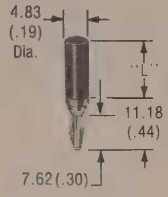
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MINIATURE BANANA PLUGS

MINIATURE SOLDER TYPE BANANA PLUG

Miniature in-line plug for use with miniature binding posts or banana jacks. Wire is soldered directly to threaded plug. Plug body brass. Spring, one piece heat-treated beryllium copper, berlyco 25 per QQ-C-533. Gold plated. Nylon insulated handle.

RATINGS: 2500 WVDC, 5 Amps cont., +50°C. (+122°F.) Max.



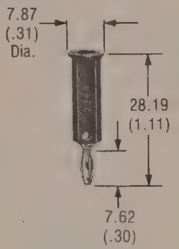
Model No.	Color	"L"	*Net
3690-0	Black	11.43 (.45)	.95 ea.
3690-2	Red	11.43 (.45)	.95 ea.
4617-0	Black	25.4 (1.00)	1.50 ea.
4617-2	Red	25.4 (1.00)	1.50 ea.

(Pkg. Ten Per Color)

MINIATURE SOLDERLESS STACKUP BANANA PLUG

Miniature banana plug for rapid assembly of test leads. Wire firmly held in place with internal setscrew, eliminating soldering. 2.64 mm (.104) dia. miniature banana jack to miniature banana plug. Plug body brass. Spring, one piece heat-treated beryllium copper, berlyco 25 per QQ-C-533. Gold plated. Insulation: ABS.

RATINGS: 2500 WVDC, 5 Amps cont., +50°C. (+122°F.) Max.



Model No.	Color
2944-0	Black
2944-2	Red

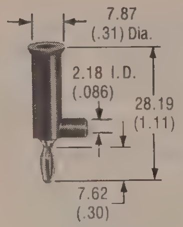
(Recommend using Screwdriver No. 3736)

***NET 2.15**

MINIATURE SOLDERLESS STACKUP BANANA PLUG WITH SAFETY COLLAR

Wire firmly held in place with setscrew, eliminating soldering. This integral collar insulates leads and acts as a strain relief by preventing the flexing of lead at set screw. 2.64 mm (.104) dia. miniature banana jack to miniature banana plug. Plug body brass. Spring, one piece heat-treated beryllium copper, berlyco 25 per QQ-C-533. Gold plated. Insulation: ABS.

RATINGS: 2500 WVDC 5 Amps cont., +50°C. (+122°F.) Max.



Model No.	Color
2945-0	Black
2945-2	Red

(Recommend using Screwdriver No. 3736)

***NET 2.15**

SINGLE BANANA PLUG ISOLATION

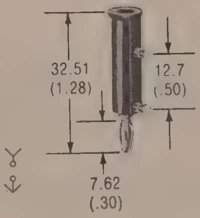
Provides two terminal isolation. Excellent for circuit design and testing. Gold plated solder turret terminals for permanent noise-free connections.

UPPER: Miniature banana jack, 2.64 mm (.104) dia. brass, gold plated.

LOWER: Miniature banana plug. Spring, one piece heat-treated beryllium copper, berlyco 25 per QQ-C-533. Gold plated.

INSULATION: Polypropylene.

RATINGS: 2500 WVDC, 5 Amps. cont., +55°C. (+131°F.) Max.

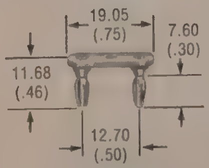


Model No.	Color	Model No.	Color
2831-0	Black	2831-2	Red

***NET 4.85**

METAL SHORTING BAR

Low profile, gold plated, brass shorting bar. Miniature banana plugs swaged to 1.57 mm (.062) thick brass bar. Spring, one piece heat-treated beryllium copper, berlyco 25 per QQ-C-533. Gold plated center hole accepts #4-40 screw for easy removal. Current rating: 5 Amps. cont.



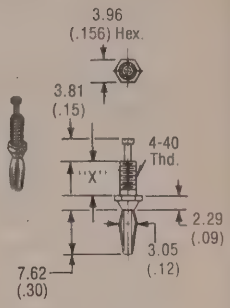
Model No.
3030

***NET 2.25**

MINIATURE BANANA PLUG WITH THREADED STUD

Threaded stud for rapid mounting. Solder turret for attachment of wires. Used with 2.64 mm (.104) dia. miniature banana jacks.

- Spring, one piece heat-treated beryllium copper, berlyco 25 per QQ-C-533.
- Plug body, brass per QQ-B-626, alloy 360.
- Plating, gold plated per MIL-G-45204 Type II.
- Rated, 5 amps cont.
- Furnished with 4-40 nickel plated hex nut, unassembled.



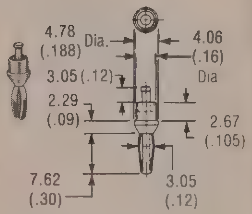
Model No.	"X" Dim.	*Net
3276	5.84 (.230)	.95 ea.
4513	12.19 (.480)	1.00 ea.

(Ten Per Pkg., unassembled)

MINIATURE RIVET TYPE BANANA PLUG WITH TURRET

Excellent for riveting to panels or boards. Solder turret for rapid attachment of wires. Used with miniature 2.64 mm (.104) dia. banana jacks.

- Spring, one piece heat-treated beryllium copper, berlyco 25 per QQ-C-533.
- Plug body, brass per QQ-B-626, alloy 360.
- Plating, gold plated per MIL-G-45204 Type II.
- Rated, 5 amps cont.
- Mounts in 1.57 mm (.062) panel



Model No.
3273

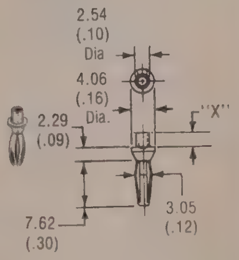
(Ten Per Pkg.)

***NET .75 EA.**

MINIATURE RIVET TYPE BANANA PLUG

Excellent for riveting to panels or boards. Used with miniature 2.64 mm (.104) dia. banana jacks.

- Spring, one piece heat-treated beryllium copper, berlyco 25 per QQ-C-533.
- Plug body, brass per QQ-B-626, alloy 360.
- Plating, gold plated per MIL-G-45204 Type II.
- Rated, 5 amps cont.



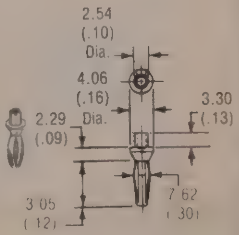
Model No.	"X" Dim.	Panel
3268	2.39 (.094)	1.59 mm (.062)
3271	3.18 (.125)	2.37 mm (.093)
3272	3.96 (.156)	3.17 mm (.125)

(Ten Per Pkg.) ***NET .75 EA.**

MINIATURE CRIMP TYPE BANANA PLUG

Miniature in-line plug crimps directly to wire. Accepts 22, 20 & 18 AWG wire sizes.

- Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
- Plug body, brass per QQ-B-626, alloy 360.
- Plating, nickel per QQ-N-290, class 1.
- Rated, 5 amps cont.



Model No.
4938

(Ten Per Pkg.)

***NET .70 EA.**

★See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MINIATURE BANANA JACKS

MINIATURE BANANA JACKS

Insulator head and shouldered washer molded of high impact polycarbonate thermoplastic. Banana jack body, machined brass, gold plated on 2142 and 2143. Nickel plated 8-32 hex nut and lock washer included, unassembled.

SPECIFICATIONS:

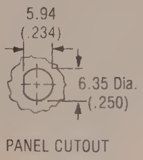
- Closed entry jack 2.64 mm (.104) dia.
- Polycarbonate insulator head molded to body.
- Mounts in 6.35 mm (.250) dia. hole. Model 2142 mounts in panels up to 6.35 mm (.250) thick.
- Models 2143 and 4618 mount in panels up to 4.77 mm (.188) thick. Solder turret or wrap post terminal.
- Polycarbonate lower insulators same color as banana jack insulation.

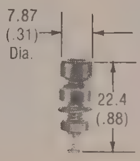
RATINGS:

- Operating temperature: +115°C. (+239°F.) Max.
- Voltage: 1500 W VDC
- Current: 5 amps cont.

MINIATURE INSULATED BANANA JACK

Model No.	Color
2142-0	Black
2142-1	Brown
2142-2	Red
2142-3	Orange
2142-4	Yellow
2142-5	Green
2142-6	Blue
2142-7	Violet
2142-8	Gray
2142-9	White





(Pkg. Ten Per Color, unassembled) ***NET .65 EA.**

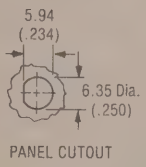
MINIATURE INSULATED BANANA JACK WITH WRAPPED WIRE TERMINAL

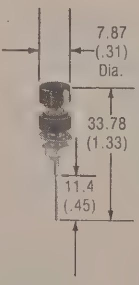
Excellent for rapid connection of wires using wrapped wire tools or machines.

UPPER: Lexan* polycarbonate insulator head molded to brass body, nickel plated per MIL-C-26074 Class 2. Closed entry jack 2.64 mm (.104) Dia.

LOWER: Gold plated beryllium copper 0.64 mm (.025) sq. wrapped wire terminal. Provided with insulator, washer and nut.

RATINGS: 1500 WVDC, 3 Amp. cont., +115°C. (+239°F.) Max.





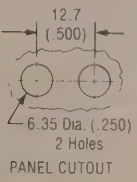
* Color Code		
0 - Black	4 - Yellow	6 - Blue
2 - Red	5 - Green	9 - White

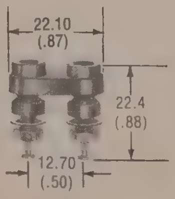
Model No.
4022-*

(Pkg. Ten Per Color,unassembled) ***NET 1.10 EA.**

MINIATURE INSULATED DOUBLE BANANA JACK

Double banana jack on 12.70 mm (.500) centers with one black and one red jack. Choice of black or red plate.



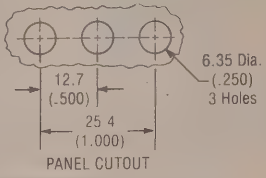


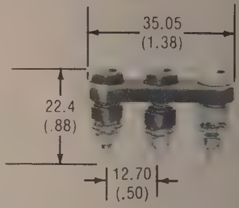
Model No.	Color
2143-0	Black
2143-2	Red

(unassembled) ***NET 1.80**

MINIATURE INSULATED TRIPLE BANANA JACK

Features (3) insulated miniature banana jacks on 12.70 mm (.500) centers, 1 red, 1 black, and 1 green. Panels up to 4.77 mm (.188) thick. Banana jack body, machined brass, gold plated 8-32 hex nut and lock washer included. Choice of black or red plate.





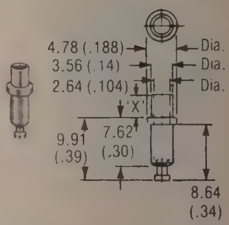
Model No.	Mtg. Base Color
4618-0	Black
4618-2	Red

(unassembled) ***NET 2.75**

MINIATURE RIVET TYPE BANANA JACK WITH TURRET

Excellent for riveting to panels or boards. Solder turret for rapid attachment of wires 2.64 mm (.104) dia. jack accepts miniature banana plug.

- Jack body, Tellurium copper.
- Plating, gold plated per MIL-G-45204 Type II.
- Rated, 5 amps cont.



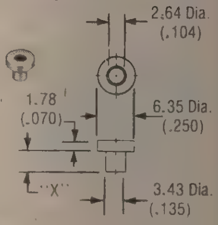
Model No.	"X" Dim.	Panel	*Net
3277	2.67 (.105)	1.57 mm (.062)	.55 EA.
3278	3.43 (.135)	2.37 mm (.093)	.60 EA.
3279	4.19 (.165)	3.18 mm (.125)	.55 EA.

(Ten Per Pkg.)

MINIATURE — RIVET TYPE BANANA JACK

Excellent for riveting to panels or boards. 2.64 mm (.104) dia. jack accepts miniature banana plug.

- Jack body, leaded copper.
- Gold plated.
- Rated, 5 Amps cont.



Model No.	"X" Dim.	Panel	*Net
3280	2.67 (.105)	1.57mm (.062)	.40 EA.
3281	3.43 (.135)	2.37mm (.093)	.60 EA.
3282	4.19 (.165)	3.18mm (.125)	.50 EA.

(Ten Per Pkg.)

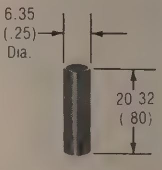
MINIATURE BANANA PLUG SPLICE

Permits splicing of single miniature banana plugs. Tough thermoplastic molded onto the body provides protective insulation.

UPPER: Miniature banana jacks 2.64 mm (.104) dia., brass, nickel plated.

LOWER: Same as upper.

INSULATION: Polypropylene, +55°C. (+131°F.) Max.



Model No.	Color
3833-0	Black
3833-2	Red

(Pkg. Ten Per Color) ***NET 1.30 EA.**

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* See page 126 of the Pomona Catalog for quantity purchases.

* LEXAN is a trademark of General Electric.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MINIATURE BINDING POSTS/BANANA PLUGS

MINIATURE BINDING POSTS

Captive thumb nut and binding post body, machined brass; gold or tin plated. Thumb nut, mounting base and shouldered insulator molded of high impact polycarbonate thermoplastic, nickel plated 8-32 hex nut and lock washer included, unassembled.

SPECIFICATIONS:

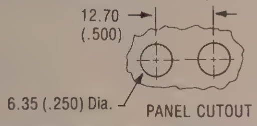
- Mounts 6.35 mm (.250) dia. "D" hole.
- Panels up to 4.77 mm (.188) thick.
- Polycarbonate lower and upper insulators same color as thumbnut.
- Captive thumb nut.
- 2.18 mm (.086) dia. cross hole.
- Thumb nut and binding post body — gold plated per MIL-G-45204 or tin plated per MIL-T-10727.

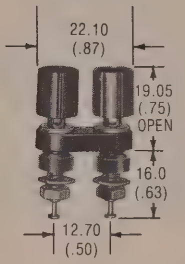
RATINGS:

- Operating temperature: +115°C. (+239°F.) Max.
- Voltage: 1500 W VDC
- Current: 5 amps cont.

MINIATURE INSULATED DOUBLE BINDING POST

Double binding post body on 12.70 mm (.500) centers with one red and one black binding post. Choice of black or red plate.





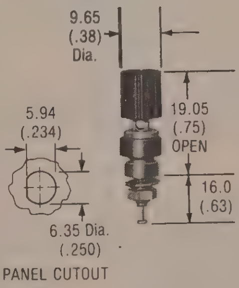
Gold Plated		Tin Plated	
Model No.	**Color**	**Model No.**	**Color**
2383-0	Black	2440-0	Black
2383-2	Red	2440-2	Red
*NET 4.95		*NET 3.60	

(unassembled)

MINIATURE INSULATED BINDING POST

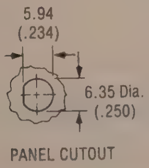
(unassembled)

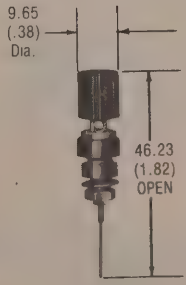
Gold Plated		Tin Plated	
Model No.	**Color**	**Model No.**	**Color**
2382-0	Black	2439-0	Black
2382-1	Brown	2439-1	Brown
2382-2	Red	2439-2	Red
2382-3	Orange	2439-3	Orange
2382-4	Yellow	2439-4	Yellow
2382-5	Green	2439-5	Green
2382-6	Blue	2439-6	Blue
2382-7	Violet	2439-7	Violet
2382-8	Gray	2439-8	Gray
2382-9	White	2439-9	White
*NET 2.50		*NET 1.90	



MINIATURE BINDING POST WITH WRAPPED WIRE TERMINAL

Excellent for rapid connection of wires using wire-wrapping tools or machines. Accepts miniature banana plug.
RATINGS: 1500 W VDC, 3 Amps. cont.



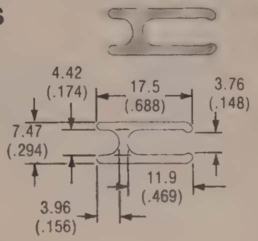


Model No.	Color
5039-0	Black
5039-2	Red

*NET 2.95

SHORTING LINK FOR MINIATURE BINDING POSTS

Shorting link for miniature binding posts on 12.70 mm (.500) centers. A snap-on feature holds link on posts when short not needed.
MATERIAL: Brass 0.79 mm (.031) thick.
FINISH: Nickel or gold plated.

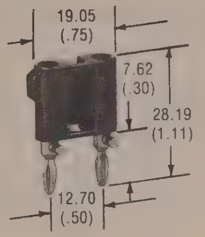


Gold Plated Model No.	Nickel Plated Model No.
3478	3479
*NET 1.35 EA.	*NET 1.20 EA.

(Ten Per Pkg.)

MINIATURE DOUBLE BANANA PLUG WITH SOLDER TURRET TERMINALS

Solder turret terminals for permanent noise-free connections of cables or components. 2.64 mm (.104) dia. miniature banana jacks to miniature double banana plug. Plug body brass. Gold plated. Insulation: Polypropylene.
RATINGS: 2500 WVDC, 5 Amps cont., +55°C. (+131°F.) Max.

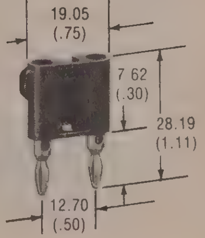


Model No.	Color
2245-0	Black
2245-2	Red

*NET 3.95

MINIATURE DOUBLE BANANA PLUG WITH SETSCREWS

Internal setscrews to secure cable or component leads. 2.64 mm (.104) dia. miniature banana jacks to miniature double banana plug. Plug body brass. Spring, one piece heat-treated beryllium copper, berlyco 25 per QQ-C-533. Gold plated. Insulation: ABS.
RATINGS: 2500 WVDC, 5 Amps cont., +50°C. (+122°F.) Max.



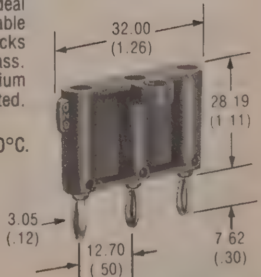
Model No.	Color
2244-0	Black
2244-2	Red

(Recommend using Screwdriver No. 3736)

*NET 3.50

MINIATURE TRIPLE PLUG BANANA PLUG

Miniature triple banana plug on 12.70 mm (.500) centers; setscrews secure leads. Ideal for balanced line 2 conductor shielded cable assemblies. 2.64 mm (.104) dia. banana jacks to miniature banana plugs. Plug body, brass. Spring, one piece heat-treated beryllium copper, berlyco 25 per QQ-C-533. Gold plated. ABS insulation.
RATINGS: 2500 WVDC 5 Amps. cont., +50°C. (+122°F.) Max.



Model No.	Color
4653-0	Black

*NET 5.95

★ See page 126 of the Pomona Catalog for quantity purchases.

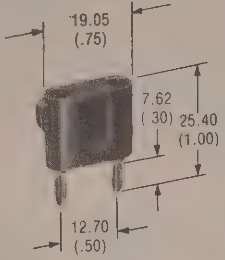
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

MINIATURE BANANA PLUGS

MINIATURE DOUBLE BANANA PLUG WITH SHORTING BAR

Ideal as a connecting link for use with 12.70 mm (.500) spaced banana jacks. 2.64 mm (.104) dia. miniature banana jacks to miniature double banana plug. Plug body brass. Springs, one piece heat-treated beryllium copper, berlyco 25 per QQ-C-533. Gold plated. Insulation: ABS.
RATINGS: 2500 WVDC, 5 Amps cont., +50°C. (+122°F.) Max.

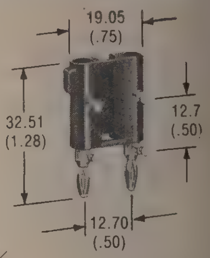


Model No.	Color
2035-0 2035-2	Black Red

*NET 3.25

DOUBLE BANANA PLUG — 4 TERMINAL ISOLATION

Provides four terminal isolation. Top stackup receptacles isolated from lower plugs. Ideal for insertion of matching networks in computer boards, circuit design and testing. Gold plated solder turret terminals for permanent noise-free connections.
UPPER: Miniature double banana jack, 2.64 mm (.104) dia. brass, gold plated.
LOWER: Miniature double banana plug. Gold plated. Springs, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
INSULATION: Polypropylene.
RATINGS: 2500 WVDC, 5 Amps. cont., +55°C. (+131°F.) Max.



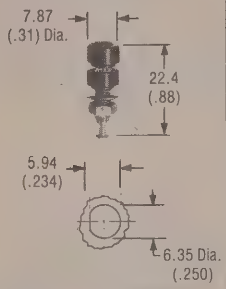
Model No.	Color	Model No.	Color
2830-0	Black	2830-2	Red

*NET 7.95

MINIATURE PIN TIP PLUGS/JACKS

MINIATURE PIN TIP JACK 2.03 mm (.080) DIA.

- Gold plated brass body.
- Contact spring, heat-treated beryllium copper, gold plated.
- Mounts in panels from 1.60 mm (.063) to 6.35 mm (.250) thick.
- 8-32 threaded.
- Rated 1500 WVDC, 5 Amps cont.
- Insulation: Lexan* Polycarbonate, +115°C. (+239°F.) Max.



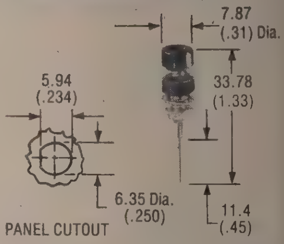
(Pkg. Ten Per Color, unassembled)

Model No.	Color	Model No.	Color
3542-0	Black	3542-5	Green
3542-1	Brown	3542-6	Blue
3542-2	Red	3542-7	Violet
3542-3	Orange	3542-8	Gray
3542-4	Yellow	3542-9	White

*NET 1.00 EA.

INSULATED PIN JACK WITH WRAPPED WIRE TERMINAL

UPPER: Lexan* polycarbonate insulator head molded to brass body, nickel plated per MIL-C-26074 Class 2. Gold plated pin tip jack accepts 2.03 mm (.080) Dia. pin.
LOWER: Gold plated beryllium copper 0.64 mm (.025) sq. wrapped wire terminal. Provided with insulator, washer and nut.
RATINGS: 1500 WVDC, 3 Amp. cont., +115°C. (+239°F.) Max.



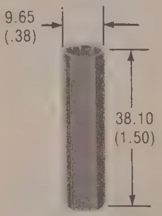
(unassembled)

Model No.	Color Code		
4773-*	0 - Black 2 - Red	4 - Yellow 5 - Green	6 - Blue 9 - White

*NET 1.50

SINGLE 2.03 mm (.080) DIA. PIN TIP PLUG SPLICE

Permits splicing of single 2.03 mm (.080) dia. pin tip patch cords. Tough thermoplastic molded onto the body provides protective insulation.
UPPER: Tip jack, beryllium copper, gold plated, accepts 2.03 mm (.080) dia. pin.
LOWER: Same as upper.
INSULATION: Polypropylene, +55°C. (+131°F.) Max.

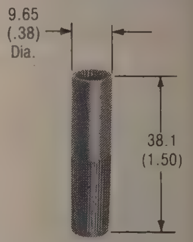


Model No.	Color
3832-0 3832-2	Black Red

*NET 2.25

DO-IT-YOURSELF PIN TIP JACK

This in-line pin tip jack accepts all standard 2.03 mm (.080) dia. pin tips. A threaded two piece design allows wire to be crimped or soldered to banana jack.
MATERIAL: Brass, nickel plated with gold plated beryllium copper spring. Glass-filled nylon +102°C. (+216°F.) Max.
RATING: 2500 WVDC, 5 Amps. cont.



(unassembled)

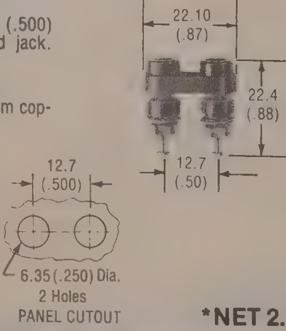
Model No.	Color	Wire Size	Wire access hole
4942-0 4942-2	Black Red	18, 20, 22 AWG	4.04 (.159) dia.
4943-0 4943-2	Black Red	16, 14 AWG	5.08 (.200) dia.

*NET 2.50

MINIATURE INSULATED DOUBLE PIN TIP JACKS 2.03 mm (.080) DIA.

Double pin tip jacks on 12.70 mm (.500) centers with one black and one red jack. Choice of black or red plate.

- Gold plated brass body.
- Contact spring, heat-treated beryllium copper, gold plated.
- 8-32 threaded.
- Rated 1500 WVDC, 5 Amps cont.
- Insulation: Lexan* Polycarbonate, +115° C. (+239°F.) Max.



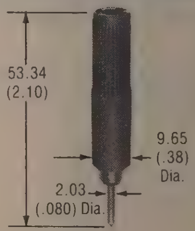
Model No.	Color
4543-0 4543-2	Black Red

(unassembled)

*NET 2.75

DO-IT-YOURSELF 2.03 mm (.080) DIA. PIN TIP PLUG

This In-Line 2.03 mm (.080) dia. pin tip plug is ideal for field service repairs of patch cords. Plug can either be soldered or crimped.
MATERIAL: Brass nickel plated. Jacket Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.



(unassembled)

Model No.	Color	Accepts wires AWG	Wire access hole
4495-0 4495-2	Black Red	22, 20, 18	4.04 (.159) dia.
4497-0 4497-2	Black Red	16, 14	5.08 (.200) dia.

*NET 1.75

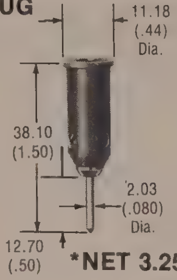
★See page 126 of the Pomona Catalog for quantity purchases.
* LEXAN is a trademark of General Electric.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MINIATURE PIN TIP PLUGS

SOLDERLESS STACKUP PIN TIP PLUG

Wire firmly held in place with internal set screw, eliminates soldering. Assembly of test leads simplified.
UPPER: Tip jack, beryllium copper, gold plated; accepts 2.03 mm (.080) dia. pin.
LOWER: Pin tips, brass, nickel plated. Nylon set screw.
INSULATION: ABS, +50°C. (+122°F.) Max.



Model No.	Color
1922-0	Black
1922-2	Red

***NET 3.25**

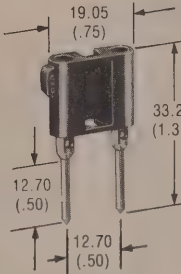
MINIATURE DOUBLE PIN TIP PLUG WITH SETSCREWS

Miniature 2.03 mm (.080) dia. double pin tip plug on 12.70 mm (.500) centers. Setscrews secure cable or component leads.

(Recommend using Screwdriver No. 3736)

- Gold plated brass body
- Gold plated beryllium copper spring
- ABS plastic molded directly to body

RATINGS: 2500 WVDC, 5 Amp. cont., + 50°C. (+122°F.) Max.



Model No.	Color
3544-0	Black
3544-2	Red

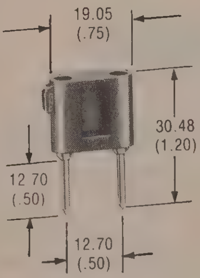
***NET 2.75**

MINIATURE DOUBLE PIN TIP PLUG WITH SHORTING BAR

Ideal as a connecting link for use with 12.70 mm (.500) spaced pin tip jacks. 2.03 mm (.080) dia. tip jacks on 12.70 mm (.500) centers permit top stacking. Miniature 2.03 mm (.080) double pin tip plugs internally solder-bonded with #20 AWG wire. "Shorting bar" stamped on plug.

- Gold plated brass body
- Gold plated beryllium copper spring
- ABS plastic molded directly to body

RATINGS: 2500 WVDC, 5 Amp. cont., +50°C. (+122°F.) Max.



Model No.	Color
3452-0	Black
3452-2	Red

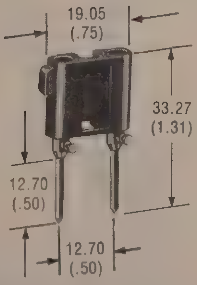
***NET 2.75**

MINIATURE DOUBLE PIN TIP PLUG WITH SOLDER TURRET TERMINALS

Miniature 2.03 mm (.080) dia. double pin tip plug on 12.70 mm (.500) centers. Gold plated solder turret terminals for permanent noise-free connection of cables. 2.03 mm (.080) tip jacks on 12.70 mm (.500) centers permit top stacking.

- Gold plated brass body
- Gold plated beryllium copper spring
- Polypropylene plastic molded directly to body

RATINGS: 2500 WVDC, 5 Amp. cont., +55°C. (+131°F.) Max.

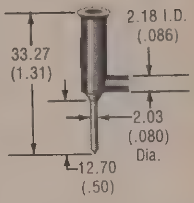


Model No.	Color
3545-0	Black
3545-2	Red

***NET 3.95**

SOLDERLESS PIN TIP PLUG WITH SAFETY COLLAR

This integral collar insulates exposed wire leads and acts as a strain relief by preventing the flexing of the lead at the setscrew. Wire firmly held in place with internal setscrew, eliminating soldering. Body, brass gold plated per MIL-G-45204.
INSULATION: ABS, +50°C. (+122°F.) Max.



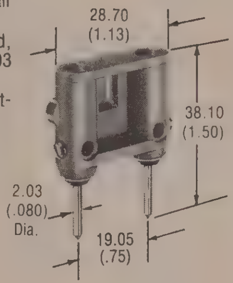
Model No.	Color
3548-0	Black
3548-2	Red

(Recommended using Screwdriver No. 3736)

***NET 1.75**

COMPONENT MOUNTING — TIP JACKS TO DOUBLE PIN TIP PLUG WITH SETSCREWS

Features setscrews on side of body to secure leads or components. Recess permits mounting of small component parts.
UPPER: Tip jacks, beryllium copper, gold plated, spaced on 19.05 mm (.750) centers, to accept 2.03 mm (.080) dia. pin tip plugs.
LOWER: Pin tips, brass, nickel plated. Nylon setscrews.
INSULATION: ABS, +50°C. (+122°F.) Max.

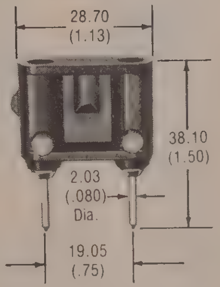


Model No.	Color
2192-0	Black
2192-2	Red

***NET 5.65**

COMPONENT MOUNTING DOUBLE PIN TIP PLUG WITH SOLDER TURRETS

Features recess for mounting components. Bright tin plated solder turret terminals for permanent noise-free connections.
UPPER: Tip jacks, beryllium copper, gold plated, spaced on 19.05 mm (.750) centers to accept 2.03 mm (.080) dia. pin tip plugs.
LOWER: Pin tips, brass, nickel plated.
INSULATION: Polypropylene +55°C. (+131°F.) Max.

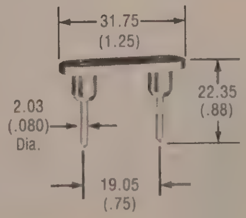


Model No.	Color
1904-0	Black
1904-2	Red

***NET 3.40**

METAL SHORTING BAR

Used as a connecting link with equipment having tip jacks. Low profile, nickel plated brass shorting bar. Double pin tip plugs on 19.05 mm (.750) centers swaged to 2.37 mm (.093) thick brass bar.
RESISTANCE: Less than 1.5 milliohms installed.
CURRENT RATING: 5 Amps. cont.



Model No.
2072

***NET 1.75**

*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
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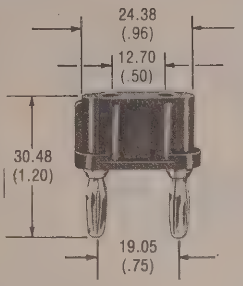
MINIATURE PLUG/JACK ADAPTERS

MINIATURE DOUBLE BANANA JACK TO STANDARD DOUBLE BANANA PLUG ADAPTER

Permits miniature double banana plug on 12.70 mm (.500) centers to be used with equipment having standard double banana jacks on 19.05 mm (.750) centers.
UPPER: Miniature double banana jacks. Brass, nickel plated.
LOWER: Standard double banana plug. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. For use with 4.22 mm (.166) dia. standard banana jacks. Nickel plated. Insulation: ABS, black.
RATINGS: 2500 WVDC, 5 Amps cont., +50°C. (+122°F.) Max.

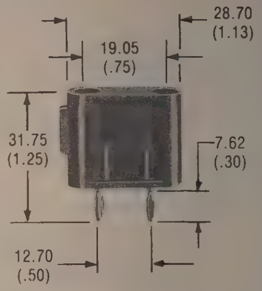


Model No.
2943

***NET 5.95**

STANDARD DOUBLE BANANA JACK TO MINIATURE DOUBLE BANANA PLUG

Permits standard double banana plug on 19.05 mm (.750) centers to be used with equipment having miniature double banana jacks on 12.70 mm (.500) centers. Standard double banana jacks 4.22 mm (.166) dia. brass. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Nickel plated. Insulation: ABS.
RATINGS: 2500 WVDC, 5 Amps cont., +50°C. (+122°F.) Max.

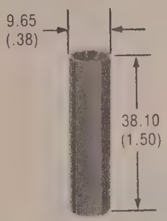


Model No.
2952

***NET 3.95**

STANDARD BANANA PLUG TO MINIATURE BANANA PLUG SPLICE

This splice accepts a standard banana plug on one end and a miniature banana plug on the other end. Tough thermoplastic molded onto the body provides protective insulation.
UPPER: Standard banana jack, 4.22 mm (.166) dia. brass, nickel plated.
LOWER: Miniature banana jack, 2.64 mm (.104) dia., brass, nickel plated.
INSULATION: Polypropylene, +55°C. (+131°F.) Max.



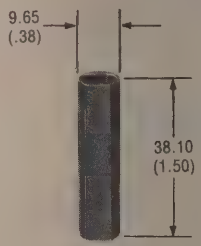
Model No.	Color
3835-0	Black
3835-2	Red

(Pkg. Ten Per Color)

***NET .90 EA.**

STANDARD BANANA PLUG TO 2.03 mm (.080) DIA. PIN TIP PLUG SPLICE

This splice accepts a standard banana plug on one end a 2.03 mm (.080) pin tip plug on the other end. Tough thermoplastic molded onto the body provides protective insulation.
UPPER: Standard banana jack, 4.22 mm (.166) dia. Brass, nickel plated.
LOWER: Tip jack, beryllium copper, gold plated, accepts 2.03 mm (.080) dia. pin.
INSULATION: Polypropylene, +55°C. (+131°F.) Max.



Model No.	Color
3834-0	Black
3834-2	Red

***NET 1.75**

CONNECTOR TEST ADAPTERS

CONNECTOR TEST ADAPTERS

An ideal test adapter for the rapid testing of the hard-to-get-at contacts of multi-pin MS type connectors such as miniature circular, standard circular and rack and panel. Excellent for testing of continuity, voltage and signal on individual contacts. Test adapter available in pin and socket contact sizes 22, 20, 16 and 12.

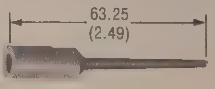
- Gold plated contacts.
- Flexible tip prevents damage to connector contacts if test adapter is accidentally bent.
- Flexible tip allows testing of adjacent contacts.
- Fully insulated to prevent accidental shorting.
- Accepts standard banana plug.
- Model 4690 also fits .635 mm (.025) square pins

UPPER: Banana jack, 4.22 mm (.166) dia., brass, nickel plated.
LOWER: "MS" style contact, gold plated, see tab block.
INSULATION: Polyvinyl chloride (PVC), +50°C. (+122°F.) Max.

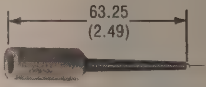
***COLOR CODE:** -0 Black, -2 Red

Model No.	Contact Size		Type	*Net
4690-*	22	.762 (.030) dia.	Socket	3.30
4691-*	22		Pin	2.50
3560-*	20	1.02 (.040) dia.	Socket	2.50
3561-*	20		Pin	2.75
3562-*	16	1.60 (.063) dia.	Socket	2.75
3563-*	16		Pin	2.25
3564-*	12	2.36 (.093) dia.	Socket	4.25
3565-*	12		Pin	2.25

Photo approximately one-half actual size.

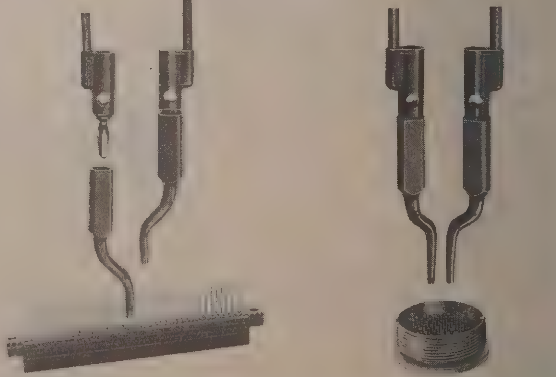


3562
SOCKET TYPE



3561
PIN TYPE

TYPICAL APPLICATION



* See page 126 of the Pomona Catalog for quantity purchases.

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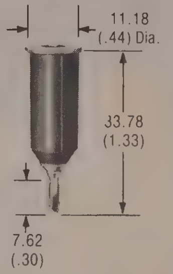
ITT POMONA ELECTRONICS

BANANA PLUG & JACK ADAPTERS

STANDARD BANANA JACK TO MINIATURE BANANA PLUG

Permits standard banana plug to be used with equipment having miniature banana jacks.
UPPER: Banana jack, 4.22 mm (.166) dia.; brass, nickel plated. Insulation: ABS.
LOWER: Miniature banana plug. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Fits 2.64 mm (.104) dia. miniature banana jacks.
RATINGS: 2500 WVDC, 5 Amps. cont., +50°C. (+122°F.) Max.

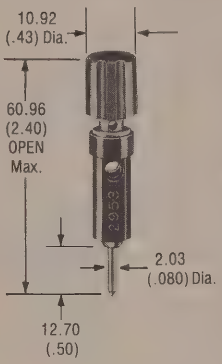


Model No.	Color
2138-0	Black
2138-2	Red

(Pkg. Five Per Color) ***NET 1.45 EA.**

BINDING POST TO SINGLE PIN TIP PLUG

Features insulated binding post for rapid mounting and interchangeability of components.
UPPER: Insulated binding post to allow top stackup for multiple connections with 4.22 mm (.166) dia. banana jack. Insulation: Polycarbonate, +115°C. (+239°F.) Max.
CENTER: Cross holes 4.22 mm (.166) dia. in plug body provides side stackup connections. Insulation: ABS, black, +50°C. (+122°F.) Max.

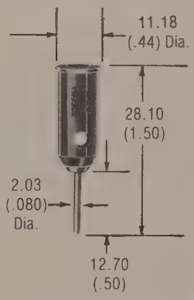


Model No.	Color
2953-0	Black
2953-2	Red

***NET 3.60**

BANANA JACK TO PIN TIP

Permits standard banana plug patch cords to be used with equipment having tip jacks.
UPPER: Banana jack, 4.22 mm (.166) dia. Brass, nickel plated.
LOWER: Pin tip, brass, nickel plated. Cross hole 4.22 mm (.166) dia. provides side stackup connection.
INSULATION: ABS, +50°C. (+122°F.) Max.

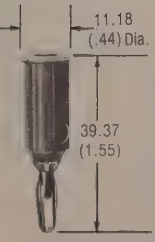


Model No.	Color
1432-0	Black
1432-2	Red

(Pkg. Ten Per Color) ***NET .70 EA.**

2.03 mm (.080) DIA. TIP JACK TO BANANA PLUG

Permits pin tip cords to be used with equipment having banana jacks.
UPPER: Tip jack, beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin.
LOWER: Banana plug, one piece nickel plated beryllium copper. Cross hole 4.22 mm (.166) dia. in body provides side stackup connection.
INSULATION: ABS, +50°C. (+122°F.) Max.

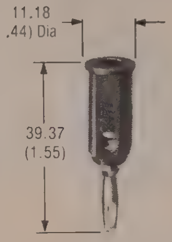


Model No.	Color
1809-0	Black
1809-2	Red

***NET 1.50**

MINIATURE BANANA JACK TO STANDARD BANANA PLUG

Permits miniature banana plugs to be used with equipment having standard banana jacks.
UPPER: Miniature banana jack, 2.64 mm (.104) dia.; brass, nickel plated.
LOWER: Standard banana plug. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Fits 4.22 mm (.166) dia. banana jacks.
RATINGS: 2500 WVDC, 5 Amps. cont., +50°C. (+122°F.) Max.

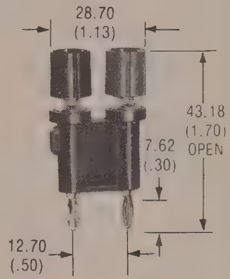


Model No.	Color
2477-0	Black
2477-2	Red

(Pkg. Five Per Color) ***NET 1.25 EA.**

MINIATURE BINDING POSTS TO MINIATURE DOUBLE BANANA PLUG

This adapter converts miniature banana jacks to miniature binding posts. Excellent for attaching wires or components. Insulated gold plated binding posts. Binding posts, 1 red & 1 black, polycarbonate. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Gold plated. Insulation: ABS.
RATINGS: 2500 WVDC, 5 Amps. cont., +50°C. (+122°F.) Max.

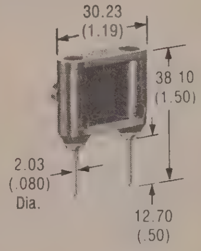


Model No.
3822

***NET 8.15**

BANANA JACKS TO DOUBLE PIN TIP WITH SETSCREWS

Permits single or double banana plugs to be used in equipment having tip jacks. Features recess for component mounting. Internal setscrews firmly secure wire leads.
UPPER: Banana jacks, 4.22 mm (.166) dia., on 19.05 mm (.750) centers. Brass, nickel plated.
LOWER: Pin tips, brass, nickel plated.
INSULATION: ABS, black, +50°C. (+122°F.) Max.

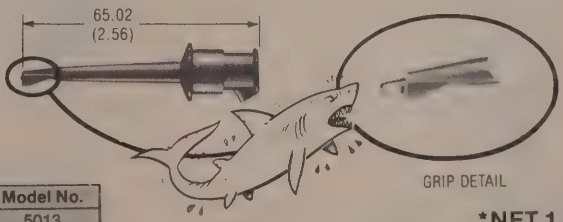


Model No.
1858

***NET 2.80**

MINIVISE (FISHHOOK HOLDER)

Truly a device with hundreds of uses. It was designed to help the fisherman hold a fishhook while tying flies or attaching leaders; however, its uses are endless when used as a miniature vise. The metal grip is made of gold plated beryllium copper to withstand the toughest environment. The body is orange colored glass-filled nylon to make it both rugged and easy to find.



Model No.
5013

***NET 1.35**

*See page 126 of the Pomona Catalog for quantity purchases.

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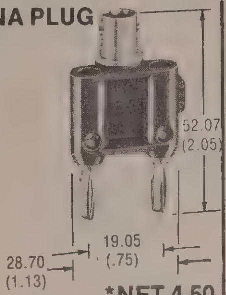
ITT POMONA ELECTRONICS

BNC ADAPTERS

BNC FEMALE TO DOUBLE BANANA PLUG

Permits BNC male to be used with equipment having banana jacks. Excellent for adapting laboratory VTVM, oscilloscopes and signal generator inputs to readily available coaxial cables.
UPPER: BNC female.
LOWER: Double banana plug, on 19.05 mm (.750) centers. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Nickel plated per QQ-N-290.
INSULATION: ABS, black, +50°C. (+122°F.) Max.

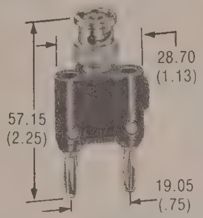


Model No.
1269

***NET 4.50**

BNC MALE TO DOUBLE BANANA PLUG

Permits BNC female to be used with equipment having banana jacks. Minimizes number of coaxial connections for maximum efficiency.
UPPER: BNC male.
LOWER: Double banana plug, on 19.05 mm (.750) centers. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Nickel plated per QQ-N-290.
INSULATION: ABS, black, +50°C. (+122°F.) Max.

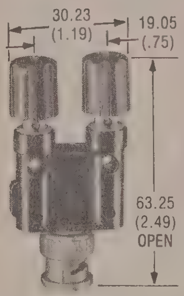


Model No.
1270

***NET 6.95**

BINDING POSTS TO BNC MALE

Permits single or double banana plugs to be used with equipment having a BNC female.
UPPER: Insulated binding post to allow top stackup for multiple connections with 4.22 mm (.166) dia. banana jacks, 1 red, 1 black on 19.05 mm (.750) centers. Insulation: Polycarbonate, +115°C. (+239°F.) Max. Nickel plated per QQ-N-290.
CENTER: Cross holes 4.22 mm (.166) dia. in plug body provides side stackup connections. Insulation: ABS, black, +50°C. (+122°F.) Max.
LOWER: BNC male.

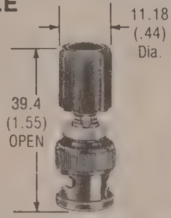


Model No.
1296

***NET 8.50**

SINGLE BINDING POST TO BNC MALE

Permits single banana plug to be used with equipment having a BNC female.
UPPER: Insulated binding post to allow top stackup for multiple connections with 4.22 mm (.166) dia. banana jacks. Insulation: Polycarbonate, +115°C. (+239°F.) Max. Nickel plated per QQ-N-290.
LOWER: BNC male.

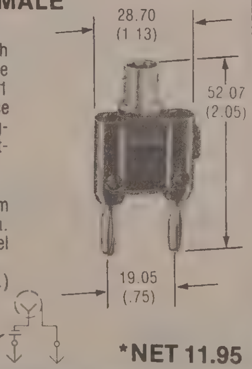


Model No.	Color
3430-0 3430-2	Black Red

***NET 4.25**

SIGNAL ISOLATOR — BNC FEMALE TO DOUBLE BANANA PLUG

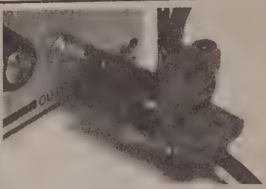
Permits BNC male connector to be used with equipment having banana jacks. General purpose ceramic capacitor molded internally. Rated @ .01 µf ± 20%, 200 W VDC. Insulation resistance 10,000 megohms min. Ideal for isolating DC signals from VTVM inputs and signal generator outputs.
UPPER: BNC female.
LOWER: Double banana plug, on 19.05 mm (.750) centers. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Nickel plated per QQ-N-290.
INSULATION: ABS, blue, +50°C. (+122°F.) Max.

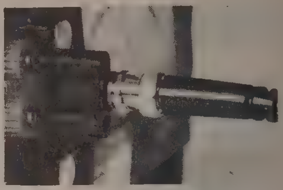


Model No.
1868

Note: Can not pass continuity test due to capacitor.

***NET 11.95**

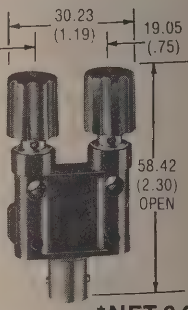




Now! Increase the flexibility of your laboratory with the use of POMONA ELECTRONICS test accessories. Minimize the necessity of stocking a large quantity and variety of coaxial cables by using POMONA ELECTRONICS molded adapters. Tough thermoplastic material molded to plug body or connectors insures maximum strength, moisture resistance and excellent insulative properties.

BINDING POSTS TO BNC FEMALE

Permits single or double banana plugs to be used with equipment having a BNC male.
UPPER: Insulated binding posts allow top stackup for multiple connections with 4.22 mm (.166) dia. banana jacks. 1 red, 1 black, on 19.05 mm (.750) centers. Insulation Polycarbonate + 115°C. (+239°F.) Max. Nickel plated per QQ-N-290.
CENTER: Cross holes 4.22 mm (.166) dia. in body provides side stackup connections. Insulation: ABS, black, +50°C. (+122°F.) Max.
LOWER: BNC female.

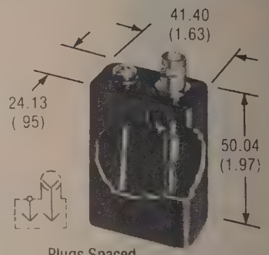


Model No.
1452

***NET 6.95**

BNC FEMALE TO SHIELDED DOUBLE BANANA PLUG

Permits BNC male to be used with equipment having banana jack binding posts. Black anodized aluminum shield, noise rejection greater than 70 dB. Ideal for low level inputs to oscilloscopes, wave analyzers, etc.
UPPER: BNC female.
LOWER: Shielded double banana plug, on 19.05 mm (.750) centers. Nickel plated per QQ-N-290.



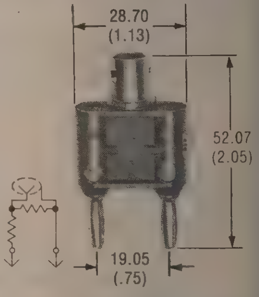
Plugs Spaced
19.05 (.75)

Model No.
1645

***NET 9.95**

BNC MATCHING PAD

Adapts 600 Ohm sources to 50 or 75 Ohm cables. Excellent for matching signal generators and VTVM's to standard coaxial cables. Ideal for receiver allignment. Molded in deposited carbon resistors 1%, ¼W.
UPPER: BNC female.
LOWER: Double banana plug, on 19.05 mm (.750) centers. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Nickel plated per QQ-N-290.
INSULATION: ABS, +50°C. (+122°F.) Max.

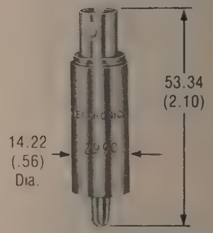


Model No.	Color	Match in Ohms
1656-1 1656-2	Brown Red	600 to 50 600 to 75

***NET 15.95**

BNC FEMALE TO SHIELDED BANANA PLUG

Permits BNC male to be used with equipment having banana jacks or binding posts. Ideal for use when shielding of single banana jacks is needed. All metal construction for proper shielding.
UPPER: BNC female.
LOWER: Shielded single banana plug. Nickel plated per QQ-N-290.



Model No.
2990

***NET 6.50**

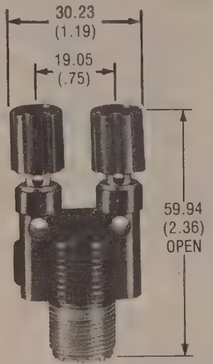
★See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

UHF & TYPE N ADAPTERS

BINDING POSTS TO UHF FEMALE

Permits single or double banana plugs to be used with equipment having UHF male.
UPPER: Insulated polycarbonate binding posts. 1 red, 1 black, on 19.05 mm (.750) centers with 4.22 mm (.166) dia. jacks. Nickel plated per QQ-N-290.
CENTER: Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Insulation: ABS, black, +50°C. (+122°F.) Max.
LOWER: UHF female.

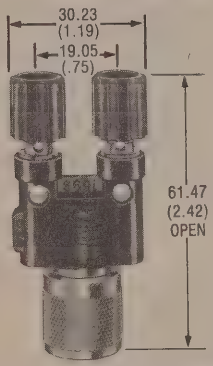


Model No. 1792

***NET 18.95**

BINDING POSTS TO UHF MALE

Permits single or double banana plugs to be used with equipment having a UHF female. Convenient for use with modern oscilloscopes.
UPPER: Insulated polycarbonate binding posts. 1 red, 1 black, on 19.05 mm (.750) centers with 4.22 mm (.166) dia. in body provide side stackup connections. Insulation: ABS, black, +50°C. (+122°F.) Max. Nickel plated per QQ-N-290.
LOWER: UHF male.

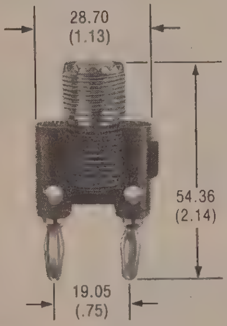


Model No. 1699

***NET 12.95**

UHF FEMALE TO DOUBLE BANANA PLUG

Permits UHF male to be used with equipment having banana jacks.
UPPER: UHF female.
LOWER: Double banana plug, on 19.05 mm (.750) centers. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Nickel plated per QQ-N-290.
INSULATION: ABS, black, +50°C. (+122°F.) Max.

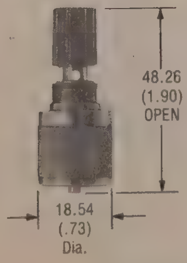


Model No. 1707

***NET 14.80**

BINDING POST TO UHF MALE

Permits single banana plug to be used with equipment having a UHF female. Adds flexibility to your oscilloscope.
UPPER: Insulation: Polycarbonate, +115°C. (+239°F.) Max. Binding post with 4.22 mm (.166) dia. banana jack. Nickel plated per QQ-N-290.
COLOR: Red.
LOWER: UHF male.

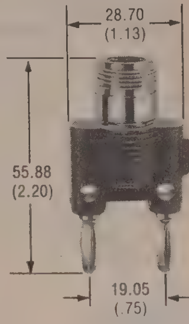


Model No. 1698

***NET 16.95**

TYPE "N" FEMALE TO DOUBLE BANANA PLUG

Permits Type "N" male to be used with equipment having banana jacks. Ideal for connecting R.F. equipment to conventional test equipment.
UPPER: Type "N" female.
LOWER: Double banana plug, on 19.05 mm (.750) centers. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Nickel plated per QQ-N-290.
INSULATION: ABS, black, +50°C. (122°F.) Max.

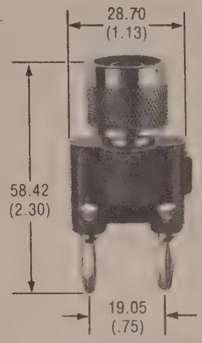


Model No. 1740

***NET 14.95**

TYPE "N" MALE TO DOUBLE BANANA PLUG

Permits Type "N" female to be used with equipment having banana jacks.
UPPER: Type "N" male
LOWER: Double banana plug on 19.05 mm (.750) centers. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Nickel plated per QQ-N-290.
INSULATION: ABS, black, +50°C. (+122°F.) Max.

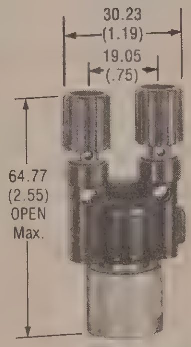


Model No. 1770

***NET 13.95**

BINDING POSTS TO TYPE "N" MALE

Permits single or double banana plugs to be used with equipment having type "N" female. Useful for rapid interconnection of components.
UPPER: Insulated polycarbonate binding posts. 1 red, 1 black, on 19.05 mm (.750) centers with 4.22 mm (.166) dia. banana jacks. Nickel plated per QQ-N-290.
CENTER: Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Insulation: ABS, black, +50°C. (+122°F.) Max.
LOWER: Type "N" male.

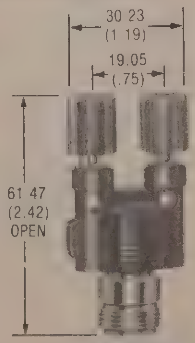


Model No. 1796

***NET 16.75**

BINDING POSTS TO TYPE "N" FEMALE

Permits single or double banana plugs to be used with equipment having type "N" males. Useful for rapid interconnection of components.
UPPER: Insulated polycarbonate binding posts, 1 red, 1 black, on 19.05 mm (.750) centers with 4.22 mm (.166) dia. banana jacks. Nickel plated per QQ-N-290.
CENTER: Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Insulation: ABS, black, +50°C. (+122°F.) Max.
LOWER: Type "N" female.



Model No. 1992

***NET 18.75**

★See page 126 of the Pomona Catalog for quantity purchases.

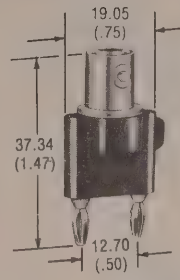
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

COAXIAL ADAPTERS

BNC FEMALE TO MINIATURE DOUBLE BANANA PLUG

Allows a BNC male to be used with equipment having 12.70 mm (.500) spaced miniature 2.64 mm (.104) dia. banana jacks. Excellent for adapting test equipment to standard coaxial cables.
UPPER: BNC female.
LOWER: Miniature double banana plug, brass. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Gold plated. Insulation: ABS.
RATINGS: 500 Vrms, +50°C. (+122°F.) Max.

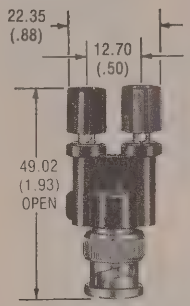


Model No.
3269

***NET 6.95**

MINIATURE BINDING POSTS TO BNC MALE

Converts a BNC female to miniature 12.70 mm (.500) spaced binding posts.
UPPER: Insulated miniature binding posts with 2.64 mm (.104) dia. miniature banana jacks, brass, gold plated. Insulation: Polycarbonate.
LOWER: BNC male. Insulation: ABS, black.
RATINGS: 500 Vrms, +50°C. (+122°F.) Max.

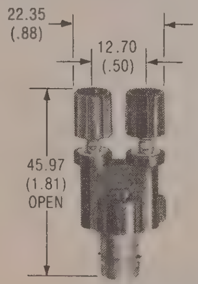


Model No.
3296

***NET 11.95**

MINIATURE BINDING POSTS TO BNC FEMALE

This adapter converts a BNC male to miniature 12.70 mm (.500) spaced binding posts. Excellent for adapting to BNC coaxial cables.
UPPER: Insulated, miniature binding posts with 2.64 mm (.104) dia. miniature banana jacks. Brass, gold plated. Insulation: Polycarbonate.
LOWER: BNC female. Insulation: ABS, black.
RATINGS: 500 Vrms, +50°C. (+122°F.) Max.

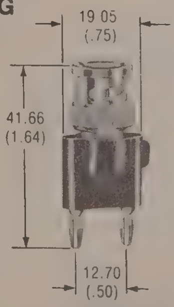


Model No.
4730

***NET 8.95**

BNC MALE TO MINIATURE DOUBLE BANANA PLUG

Allows a BNC female to be used on equipment having 12.70 mm (.500) spaced 2.64 mm (.104) dia. banana jacks.
UPPER: BNC male.
LOWER: Miniature double banana plug, brass. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Gold plated. Insulation: ABS.
RATINGS: 500 Vrms, +50°C. (+122°F.) Max.

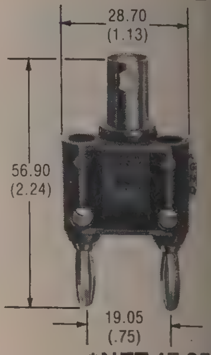


Model No.
3270

***NET 8.50**

MHV FEMALE TO DOUBLE BANANA PLUG

This adapter allows an MHV male to be used with equipment having 19.05 mm (.750) spaced banana jacks.
UPPER: MHV female.
LOWER: Double banana plug, on 19.05 mm centers. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Cross holes 4.22 mm (.166) dia. provide side stackup connections.
VOLTAGE RATING: 5,000 volts peak.
INSULATION: ABS, black +50°C. (+122°F.) Max.

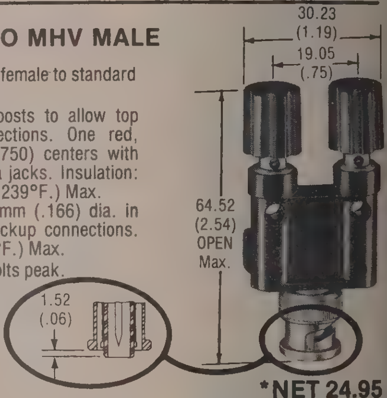


Model No.
3290

***NET 17.95**

BINDING POSTS TO MHV MALE

This adapter converts a MHV female to standard binding posts.
UPPER: Insulated binding posts to allow top stackup for multiple connections. One red, one black on 19.05 mm (.750) centers with 4.22 mm (.166) dia. banana jacks. Insulation: Polycarbonate, +115°C. (+239°F.) Max.
CENTER: Cross holes 4.22 mm (.166) dia. in plug body provides side stackup connections. ABS, black +50°C. (+122°F.) Max.
LOWER: MHV male, 5,000 volts peak.

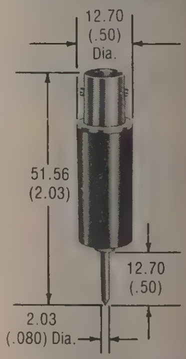


Model No.
3291

***NET 24.95**

BNC FEMALE TO SINGLE PIN TIP PLUG

Permits BNC male to be used with equipment having 2.03 mm (.080) dia. pin tip jacks. Inner conductor connected only. Excellent for adapting laboratory VTVM, oscilloscopes and signal generator inputs to readily available coaxial cables.
UPPER: BNC female.
LOWER: Single pin tip plug.
INSULATION: ABS, black +50°C. (+122°F.) Max.

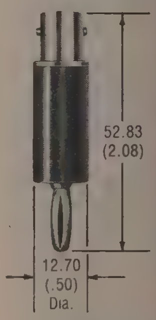


Model No.
3415

***NET 3.95**

BNC FEMALE TO SINGLE BANANA PLUG

Permits BNC male to be used with equipment having banana jacks. Inner conductor connected only. Excellent for adapting laboratory VTVM, oscilloscopes and signal generator inputs to readily available coaxial cables.
UPPER: BNC female.
LOWER: Single banana plug. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
INSULATION: ABS, black. +50°C. (+122°F.) Max.



Model No.
1894

***NET 4.25**

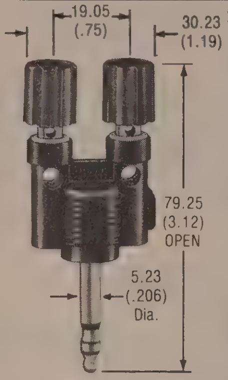
★See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PHONE ADAPTERS

BINDING POSTS TO PJ-068/WE-309 PHONE PLUG

Permits single or double banana plug to be used with equipment having three circuit phone jacks. Ideal for rapid mounting of components and test leads.
UPPER: Insulated polycarbonate binding post, one red, and one black 19.05 mm (.750) centers with 4.22 mm (.166) dia. banana jacks. Max. Nickel plated per QQ-N-290.
CENTER: Cross holes 4.22 mm (.166) dia. in plug body provide side stackup. Insulation: ABS, black, +50°C. (+122°F.) Max.
LOWER: Phone plug, PJ-068 (equivalent to WE-309).

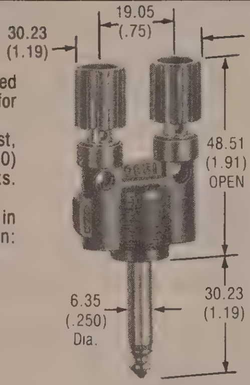


Model No. 3365

***NET 22.75**

BINDING POSTS TO PHONE PLUG

Permits single or double banana plug to be used with equipment having phone jacks. Ideal for rapid mounting of components and test leads.
UPPER: Insulated polycarbonate binding post, one red, and one black on 19.05 mm (.750) centers with 4.22 mm (.166) dia. banana jacks. Nickel plated per QQ-N-290.
CENTER: Cross holes 4.22 mm (.166) dia. in plug body provide side stackup. Insulation: ABS, black, +50°C. (+122°F.) Max.
LOWER: Standard phone plug.

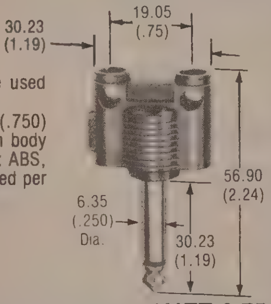


Model No. 1285

***NET 8.95**

BANANA JACKS TO PHONE PLUG

Permits single or double banana plug to be used with equipment having phone jacks.
UPPER: Double banana jack, on 19.05 mm (.750) centers. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Insulation: ABS, black, +50°C. (+122°F.) Max. Nickel plated per QQ-N-290.
LOWER: Standard phone plug.

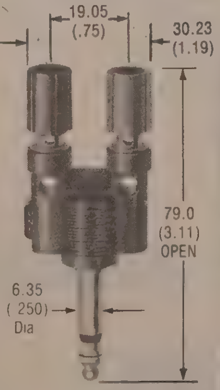


Model No. 1980

***NET 8.75**

BINDING POSTS TO PJ-051/WE-310 PHONE PLUG

Permits single or double banana plug to be used with equipment having three circuit phone jacks. Tip connected to hot side of adapter and ring connected to ground side. Sleeve, no connection.
UPPER: Insulated Polycarbonate binding posts, one red, and one black on 19.05 mm (.750) centers with 4.22 mm (.166) dia. banana jacks. Nickel plated per QQ-N-290.
CENTER: Cross holes 4.22 mm (.166) dia. in plug body provide side stackup. Insulation: ABS, black, +50°C. (+122°F.) Max.
LOWER: Phone plug, PJ-051, (equivalent to WE-310).

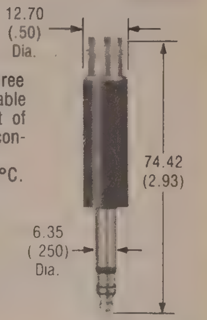


Model No. 2112

***NET 15.95**

BNC FEMALE TO PJ-051/WE-310 PHONE PLUG

Permits BNC male to be used with equipment having three circuit phone jacks. Readily adapts equipment to available BNC coaxial cables. Tip connected to inner contact of connector and ring connected to shell. Sleeve, no connection.
UPPER: BNC female. Insulation: ABS, black, +50°C. (+122°F.) Max.
LOWER: Phone plug, PJ-051 (equivalent to WE-310).

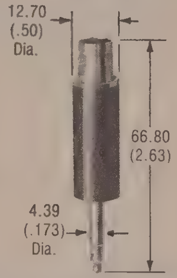


Model No. 2798

***NET 15.50**

BNC FEMALE TO MINIATURE (BANTAM) PLUG

Permits BNC male to be used with equipment having miniature (bantam) jacks. Readily adapts equipment with BNC jacks through the use of BNC coaxial cables. Tip is connected to inner contact of connector and the ring is connected to the shell. The sleeve is not connected.
UPPER: BNC female. Insulation: ABS, black, +50°C. (+122°F.) Max.
LOWER: Miniature (Bantam) phone plug.

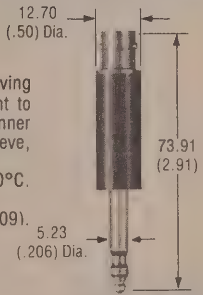


Model No. 4719

***NET 14.50**

BNC FEMALE TO PJ-068/WE-309 PHONE PLUG

Permits BNC male to be used with equipment having three circuit phone jacks. Readily adapts equipment to available BNC coaxial cable. Tip connected to inner contact of connector and ring connected to shell. Sleeve, no connection.
UPPER: BNC female. Insulation, ABS, black, +50°C. (+122°F.) Max.
LOWER: Phone plug, PJ-068 (equivalent to WE-309).

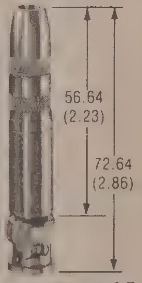


Model No. 1794

***NET 22.95**

PHONE JACK TO BNC MALE

Permits a standard 2 conductor 6.35 mm (.250) dia. phone plug to be used with equipment having BNC female. All metal construction to insure proper shielding.
UPPER: Phone plug jack, accepts standard 6.35 mm (.250) dia. phone plug, 30.23 mm (1.190) long.
LOWER: BNC male.

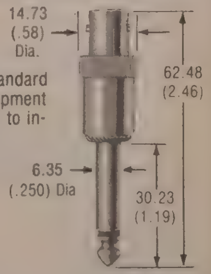


Model No. 4043

***NET 15.95**

BNC FEMALE TO PHONE PLUG

Permits BNC male to be used with equipment having standard 6.35 mm (.250) dia. phone jacks. Readily adapts equipment to available BNC coaxial cables. All metal construction to insure proper shielding.
UPPER: BNC female.
LOWER: Standard phone plug.



Model No. 1297

***NET 7.95**

★See page 126 of the Pomona Catalog for quantity purchases.

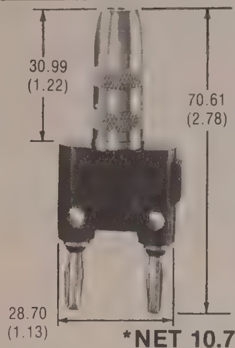
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PHONE/PHONO ADAPTERS

PHONE JACK TO DOUBLE BANANA PLUG

Permits a standard 2 conductor 6.35 mm (.250) dia. phone plug to be used with equipment having banana jacks or binding posts.
UPPER: Phone jack, accepts standard 6.35 mm (.250) dia. phone plug.
LOWER: Double banana plug on 19.05 mm (.750) centers. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Nickel plated per QQ-N-290.
COLOR: Black, ABS, +50°C. (+122°F.) Max.

Model No.
4044

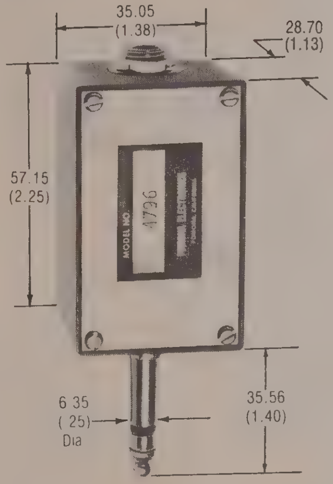


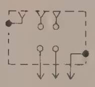
***NET 10.75**

COMPONENT MOUNTING BOX — PHONE JACK TO PHONE PLUG

This component mounting box allows the addition of active and passive networks, voltage dividers, isolation networks or attenuators.
UPPER: Phone jack. Accepts 6.35 mm (.250) dia. PJ-051 plug.
LOWER: Phone plug, PJ-051 (W/E 310)
COLOR: Blue

(Includes cover and four screws)





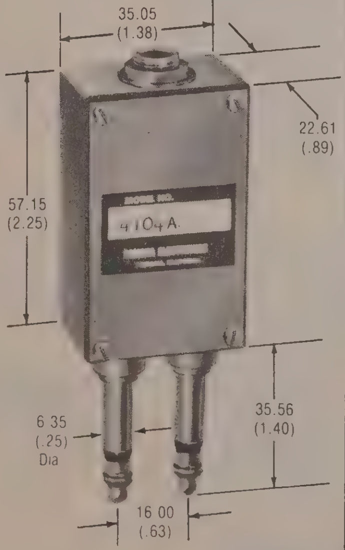
Model No.
4796

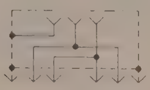
***NET 26.95**

LOOPING PLUG WITH MONITOR JACK

With this combination adapter it is possible to monitor the looping plug circuit. Die cast aluminum housing with baked enamel finish.
UPPER: Phone jack [Accepts 6.35 mm (.250) dia. PJ-051 plug].
LOWER: (2) Phone plugs, PJ-051 on 16.00 mm (.630) centers (Equivalent to WE-310).
COLOR: Blue

(Includes cover and four screws.)



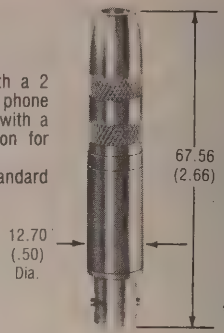


Model No.
4104A

***NET 49.95**

PHONE JACK TO BNC FEMALE

This adapter allows a cable with a 2 conductor 6.35 mm (.250) dia. phone plug to be attached to a cable with a BNC male. All metal construction for proper shielding.
UPPER: Phone jack, accepts standard 6.35 mm (.250) dia. phone plug.
LOWER: BNC female.

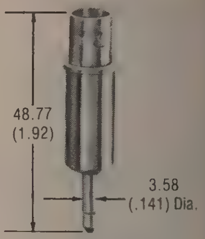


Model No.
4026

***NET 10.95**

BNC FEMALE TO TINI PLUG

Permits BNC males to be used with equipment having Tini Jacks. Readily adapts equipment to available BNC coaxial cables. All metal construction to insure proper shielding.
UPPER: BNC female.
LOWER: 2 conductor Tini Plug.

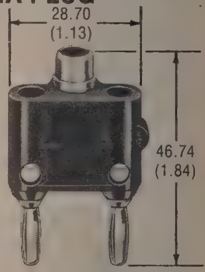


Model No.
3837

***NET 7.85**

PHONO JACK TO DOUBLE BANANA PLUG

Permits phono plug to be used with equipment having banana jacks or binding posts. Quickly converts a cable with a phono plug to a double banana plug.
UPPER: Phono jack.
LOWER: Double banana plug on 19.05 mm (.750) centers. Cross holes 4.22 mm (.166) dia. in body provides side stackup connections. Nickel plated per QQ-N-290.
COLOR: Black, polystyrene, +50°C. (+122°F.) Max.

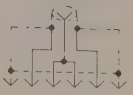


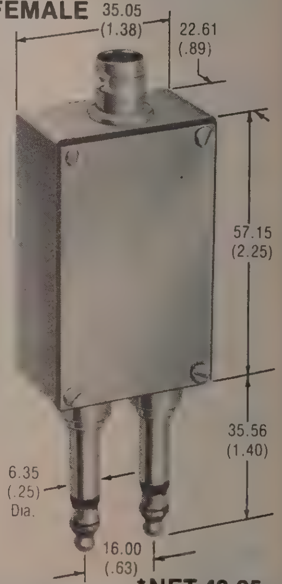
Model No.
1442

***NET 6.95**

LOOPING PLUG WITH BNC FEMALE

Permits BNC male to be used with equipment having (2) 3-conductor phone jacks on 16.00 mm (.630) centers. Die cast aluminum housing with baked enamel finish. Tip connected to inner contact of connector, ring and sleeve connected to ground.
UPPER: BNC female.
LOWER: (2) Phone plugs (PJ-051) on 16.00 mm (.630) centers (equivalent to WE-310).
COLOR: Blue





Model No.
4664

***NET 49.25**

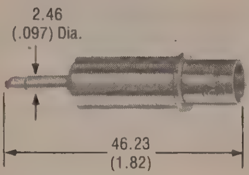
*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PHONE/PHONO ADAPTERS

BNC FEMALE TO MICRO PLUG

Permits BNC males to be used with equipment having micro jacks. Readily adapts equipment to available BNC coaxial cables. All metal construction to insure proper shielding.
UPPER: BNC female.
LOWER: 2 conductor micro plug.

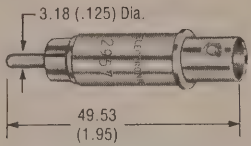


Model No.
4267

***NET 7.95**

BNC FEMALE TO PHONO PLUG

Permits BNC male to be used with equipment having phono jacks. Readily adapts equipment to available BNC coaxial cables. All metal construction to insure proper shielding.
UPPER: BNC female.
LOWER: Phono plug.

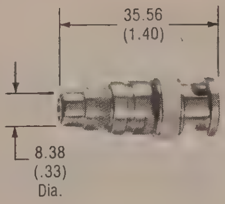


Model No.
2957

***NET 6.95**

PHONO JACK TO BNC MALE

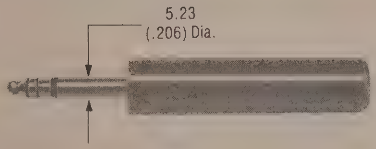
Permits phono plug to be used with equipment having BNC females. Quickly converts a cable with a phono plug to a BNC male. All metal construction to insure proper shielding.
UPPER: Phono jack.
LOWER: BNC male.



Model No.
4054

***NET 11.95**

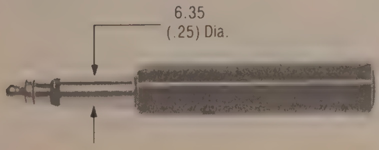
PHONE PLUG PJ068 (WE309)



Model No.	Handle Color
4798-0 4798-2	Black Red

***NET 10.50**

PHONE PLUG PJ051 (WE310)

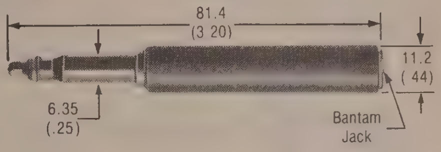


Model No.	Handle Color
4797-0 4797-2	Black Red

***NET 9.75**

MINIATURE (BANTAM) JACK TO PJ-051 (WE-310) PLUG

This adapter allows the use of miniature (Bantam) plug patch cords to be used in equipment fitted with PJ-051 jacks.
UPPER: Miniature (Bantam) 4.39 mm (.173) dia. phone jack.
LOWER: PJ-051 plug.

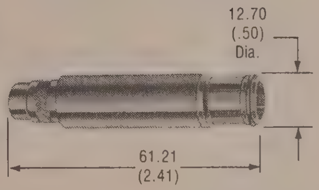


Model No.
4993

***NET 15.95**

PHONO JACK TO TYPE "F" MALE PUSH-ON

This adapter is a must for the home computer user. It allows a phono cable to be plugged into the type "F" female connector in the rear of TV sets.
UPPER: Phono jack.
LOWER: Type "F" male push-on.

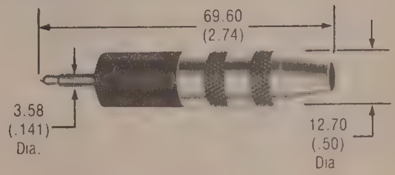


Model No.
4984

***NET 7.95**

STANDARD PHONE JACK TO TINI PLUG

This adapter allows a standard two conductor phone plug to be used with equipment having a tini jack.
UPPER: Standard 6.35 mm (.250) two conductor phone jack.
LOWER: Tini plug.

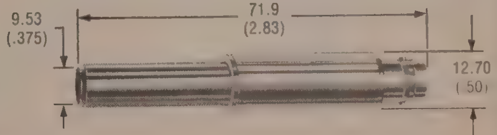


Model No.
4989

***NET 12.75**

BNC FEMALE TO .090 VIDEO PLUG

Permits BNC male to be used with equipment having Western Electric 2.29 mm (.090) video plugs.
UPPER: BNC female.
LOWER: Video plug (equivalent to WE-090).



Model No.
5008

*** NET 27.50**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
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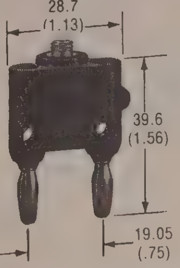
MISCELLANEOUS ADAPTERS

MICRODOT RECEPTACLE TO DOUBLE BANANA PLUG

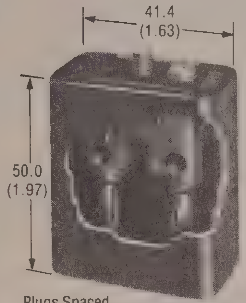
Permits Microdot miniature coaxial plug to be used with equipment having banana jacks. Cross holes in body provide side stackup connections.
LOWER Double banana plug, on 19.05 mm (.750) centers. Cross holes 4.22 mm (.166) dia. in body provide side stackup connections. Nickel plated.
INSULATION: ABS, +50°C. (+122°F.) Max.
TYPE: 50 Ohms.



Model No.	Color	Receptacle Type	*Net
1275	Green	10-32 thread	19.95
1276	Black	Slide-on	20.95

MICRODOT RECEPTACLE TO SHIELDED BANANA PLUGS

Permits Microdot miniature coaxial plug, 50 Ohm, to be used with equipment having banana jack binding posts. Black anodized aluminum shield reduces noise pickup more than 70 dB. Ideal for noise reduction in low level acceleration systems.
UPPER: Receptacle, screw-on type, receptacle thread 10-32.
LOWER: Shielded double banana plug, on 19.05 mm (.750) centers. Nickel plated.
INSULATION: ABS.
COLOR: Green.



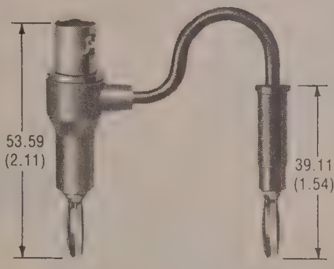
Plugs Spaced 19.05 (.75)

Model No.
1575

***NET 26.50**

BNC FEMALE TO SINGLE BANANA PLUG WITH GROUND LEAD

Permits BNC male to be used with equipment using standard banana jacks. This novel design allows the ground jack to be located up to 63.50 mm (2.50) away from the output/input jack.
UPPER: BNC female. Insulation: Polypropylene, red, +55°C. (+131°F.) Max.
LOWER: Single banana plug.
GROUND: 18 AWG. lead with single banana plug. Insulation: Polypropylene, black, +55°C. (+131°F.) Max.

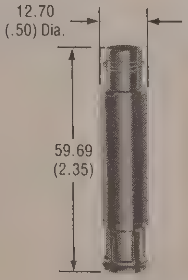


Model No.
4684

***NET 6.95**

BNC FEMALE TO TYPE "F" MALE PUSH-ON

This adapter allows equipment, such as TVs, computers, etc., using type "F" females to be used with equipment with BNC connectors.
UPPER: BNC female.
LOWER: Type "F" male push-on.

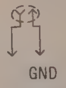


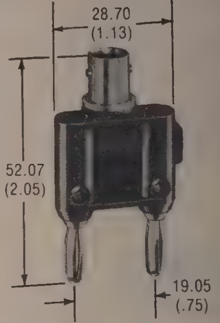
Model No.
4941

***NET 8.50**

TWINAX FEMALE TO DOUBLE BANANA PLUG

This adapter allows a twinax male to be used with equipment having 19.05 mm (.750) spaced banana jacks.
UPPER: Twinax female.
LOWER: Double banana plug on 19.05 mm (.750) centers. Cross holes 4.22 mm (.166) dia. provides side stackup connections.
INSULATION: ABS, black, +50°C. (+122°F.) Max.



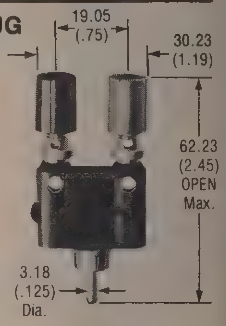


Model No.
4930

***NET 17.95**

BINDING POSTS TO PHONO PLUG

Permits single or double banana plugs to be used with equipment having a phono jack. Ideal for banana plug stackups or patch cords.
UPPER: Insulated polycarbonate binding post, 1 red, and 1 black, on 19.05 mm (.750) centers with 4.22 mm (.166) dia. banana jacks. Nickel plated per QQ-N-290.
CENTER: Cross holes 4.22 mm (.166) dia. in plug body provides side stackup connections. Insulation: ABS, black, +50°C. (+122°F.) Max.
LOWER: RCA Phono Plug

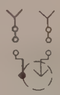


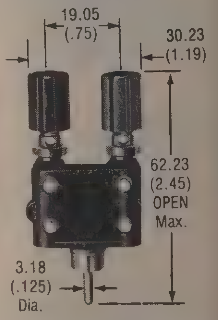
Model No.
4729

***NET 9.75**

BINDING POSTS TO PHONO PLUG, ISOLATED, WITH SOLDER TURRETS

Permits single or double banana plugs to be used with equipment having a phono jack. Isolated solder turrets allow the addition of components for series/parallel compensation networks.
UPPER: Insulated polycarbonate binding posts, one red and one black, on 19.05 mm (.750) centers with 4.22 mm (.166) dia. banana jacks. Nickel plated per QQ-N-290.
CENTER: Bright tin plated solder turrets provide permanent noise-free connection. Insulation: Polypropylene, black, +55°C. (+131°F.) Max.
LOWER: RCA Phono Plug.



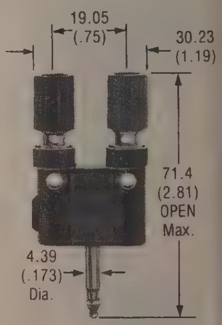


Model No.
4728

***NET 15.95**

BINDING POSTS TO MINIATURE (BANTAM) PLUG

Permits single or double banana plug to be used with equipment having three-circuit phone jacks. Tip connected to hot side of adapter and ring connected to ground side. Sleeve, no connection.
UPPER: Insulated Polycarbonate binding posts, 1 red, and 1 black on 19.05 mm (.750) centers with 4.22 mm (.166) dia. banana jacks. Nickel plated per QQ-N-290.
CENTER: Cross holes 4.22 mm (.166) dia. in plug body provide side stackup. Insulation: ABS, black, +50°C. (+122°F.) Max.
LOWER: Miniature (Bantam) phone plug.



Model No.
5001

***NET 12.95**

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* See page 126 of the Pomona Catalog for quantity purchases.

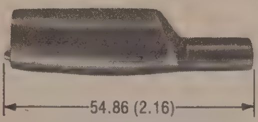
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MISCELLANEOUS ADAPTERS

INSULATED ALLIGATOR CLIP TO BANANA JACK

Alligator clip, steel, cadmium plated, vinyl insulators, red or black. Unassembled.

10 clips and 10 insulators per pkg.



Model No.	Color
2240-0	Black
2240-2	Red

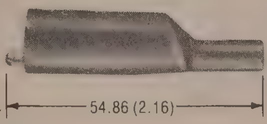
(Pkg. Ten Per Color)

***NET .50 EA.**

GOLD PLATED INSULATED ALLIGATOR CLIP TO BANANA JACK

Alligator clip, solid copper, gold plated, vinyl insulators, red or black. Unassembled.

1 clip and 1 insulator per pkg.



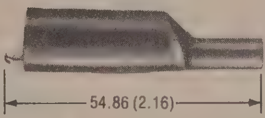
Model No.	Color
3289-0	Black
3289-2	Red

***NET 1.65**

INSULATED ALLIGATOR CLIP TO PIN TIP JACK

Alligator clip, steel, cadmium plated. Tip jack, beryllium copper, gold plated, accepts 2.03 mm (.080) dia. pin tip plug. Vinyl insulators, red or black. Unassembled.

10 clips and 10 insulators per pkg.



Model No.	Color
1437-0	Black
1437-2	Red

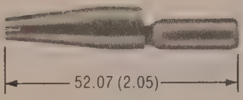
(Pkg. Ten Per Color)

***NET 1.35 EA.**

INSULATED MINIGATOR CLIP TO BANANA JACK

This miniature clip accepts a standard banana plug. Clip is steel, cadmium plated. Banana jack, brass, nickel plated. Pinned hinge construction with full-meshing jaws for small wires. Vinyl insulators, red or black. Unassembled.

1 clip and 1 insulator per pkg.



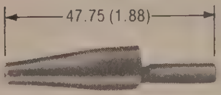
Model No.	Color
3448-0	Black
3448-2	Red

***NET 1.75**

INSULATED MINIGATOR CLIP TO PIN TIP JACK

This minigator clip accepts a 2.03 mm (.080) dia. pin tip plug. Clip is steel, cadmium plated. Tip jack, beryllium copper, gold plated. Pinned hinge construction with full-meshing jaws for small wires. Vinyl insulators, red or black. Unassembled.

1 clip and 1 insulator per pkg.



Model No.	Color
3491-0	Black
3491-2	Red

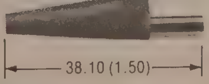
***NET 1.85**

MINIGATOR CLIP WITH 6-32 THREAD

This minigator can be used with oscilloscopes and leads equipped with 6-32 screw on tip.

Vinyl insulators, red or black. Unassembled.

1 clip and 1 insulator per pkg.



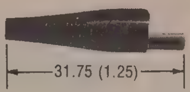
Model No.	Color
4517-0	Black
4517-2	Red

***NET 2.15**

MINIGATOR TO MINIATURE BANANA JACK

This minigator clip accepts a miniature banana plug. Access hole is 2.64 mm (.104) Dia. Clip is steel, cadmium plated. Vinyl insulators; red or black.

10 clips and 10 insulators per pkg.

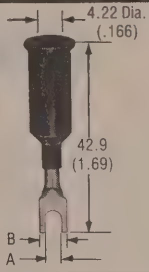


Model No.	Color
3217-0	Black
3217-2	Red

(Pkg. Ten Per Color)

***NET .60 EA.**

INSULATED BARRIER STRIP SPADE LUG TO BANANA JACK



Permits single banana plug to be used with equipment having barrier strips. Lugs fit a No. 4, 5, 6, 8, or 10 screw (see listing).

UPPER: Banana jack, 4.22 mm (.166) dia., brass, nickel plated.

LOWER: 0.76 mm (.03) thick. Spade lug, (see listing). Copper, electro-tin plated.

INSULATION: ABS, +50°C. (+122°F.) Max.

Model No.	Color	Lug Size	Dim.		*Net
			A	B	
3744-0	Black	4, 5 & 6	3.81 (.15)	6.10 (.24)	1.95
3744-2	Red	4, 5, & 6	3.81 (.15)	6.10 (.24)	1.95
3777-0	Black	8 & 10	4.83 (.19)	7.62 (.30)	1.80
3777-2	Red	8 & 10	4.83 (.19)	7.62 (.30)	1.80

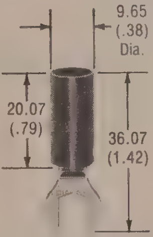
INSULATED SPADE LUG TO PIN TIP JACK

Permits single pin tip plug to be used with equipment having binding posts. Tough thermoplastic molded to body for maximum reliability and low shock hazard. Spade lug body, brass, nickel plated.

UPPER: Tip jack, beryllium copper, gold plated, accepts 2.03 mm (.080) dia. pin.

LOWER: Spade lug, 6.60 mm (.260) opening, 1.52 mm (.060) thick.

INSULATION: ABS, +50°C. (+122°F.) Max.



Model No.	Color
4769-0	Black
4769-2	Red

***NET 2.25**

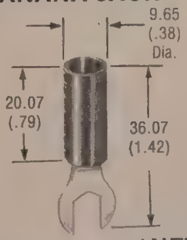
INSULATED SPADE LUG TO BANANA JACK

Permits single banana plug to be used with equipment having binding posts. Tough thermoplastic molded to body for maximum reliability and low shock hazard. Spade lug body, brass, nickel plated.

UPPER: Banana jack, 4.22 mm (.166) dia.

LOWER: Spade lug, 6.60 mm (.26) opening, 1.52 mm (.06) thick.

INSULATION: ABS, +50°C. (+122°F.) Max.



Model No.	Color
1614-0	Black
1614-2	Red

***NET 1.40**

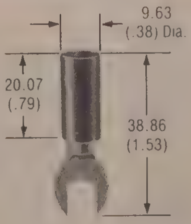
LOW THERMAL EMF TELLURIUM COPPER INSULATED SPADE LUG TO BANANA JACK

Provides precision measurement when attaching banana plug to equipment with binding posts. Tough thermoplastic molded to body for maximum reliability and low shock hazard. Spade lug body, one piece machined tellurium copper, gold plated per MIL-G-45204, Type II.

UPPER: Banana jack, 4.22 mm (.166) dia.

LOWER: Spade lug, 6.60 mm (.26) opening, 2.03 mm (.08) thick.

INSULATION: ABS, +50°C. (+122°F.) Max.



Model No.
2305

(Kit contains 1 Red & 1 Black)

***NET 7.95 KIT**

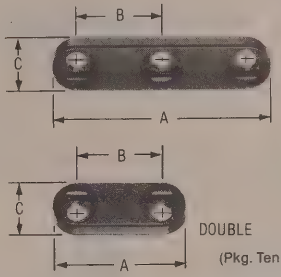
*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MISCELLANEOUS ACCESSORIES

DOUBLE AND TRIPLE MOUNTING BASES

Insulation: Polycarbonate, +115°C. (+239°F.) Max.



(Pkg. Ten Per Color)

Model No.	Color	Type	A	B	C	Used On	*Net
3862-0 3862-2	Black Red	Double	30.2 (1.19)	19.1 (.750)	11.2 (.44)	3750, 3760, 3770, 4098	.40 EA
3863-0 3863-2	Black Red	Triple	49.3 (1.94)	19.1 (.750)	11.2 (.44)	3750, 3760, 3770, 4098	.95 EA
4619-0	Black	Double	22.1 (.87)	12.7 (.500)	9.6 (.38)	2142, 2382, 2439, 4022, 4773, 3542	.35 EA.
4614-0	Black	Triple	35.1 (1.38)	12.7 (.500)	9.6 (.38)	2142, 2382, 2439, 4022, 4773, 3542	.60 EA
4654-0 4654-2	Black Red	Double	35.1 (1.38)	19.1 (.750)	16.0 (.63)	1581, 2854, 4005	.35 EA
4590-0 4590-2	Black Red	Triple	54.1 (2.13)	19.1 (.750)	16.0 (.63)	1581, 2854, 4005	.80 EA

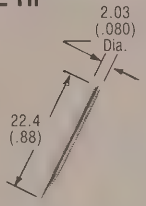
REPLACEMENT TIPS FOR TEST PROBES

- Fits all models with replaceable tips

2.03 mm (.080) NEEDLE TIP

- Stainless steel.
- Sharp point to pierce varnish, conformal coatings for good contact.

Photo approximately actual size.



(Ten Per Pkg.)

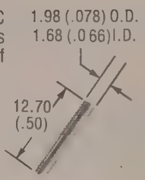
Model No.
4174

***NET 2.95 PKG.**

TUBE TIP

- Brass, nickel plated.
- Excellent for measuring PC board solder joints. Reduces possibility of slipping off contact.

Photo approximately actual size.



(Ten Per Pkg.)

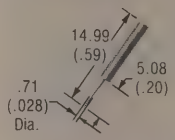
Model No.
4574

***NET 2.50 PKG.**

0.71 mm (.028) NEEDLE TIP

- Stainless steel.
- Sharp point to pierce varnish, conformal coatings for good contact.

Photo approximately actual size.



(Ten Per Pkg.)

Model No.
4988

***NET 10.50 PKG.**

REPLACEMENT SCREWS

4914
Setscrew, 8-32 x .210,
headless, slotted, steel,
cadmium plated.

4863
Binding head, Phillips
4-40 NC-2A x .250
carbon steel, cadmium plated.

4862
Flathead, Phillips
4-40 NC-2A x .250
carbon steel, cadmium plated.

4861
Panhead, Phillips
2-56 NC-2A x .187
carbon steel, cadmium plated.

4864
Self-tapping, panhead, 2-32 x .250,
carbon steel, cadmium plated.

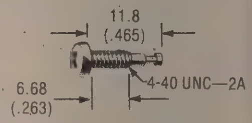
(100 Per Pkg.)

***NET 10.00 PKG.**

Model No.	Used On
4914	MDP, 1325, 1825, 1858, 2970, 4892, 4897, 4898, 4899
4861	1177, 1943, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2224, 2259, 2262, 3720, 3721, 3722, 3723, 3724, 3725, 4746.
4862	3301, 3302, 3303, 3306, 3307, 3311, 3312, 3316, 3742, 3743, 3958, 4720, 4734.
4863	2901, 2902, 2903, 2904, 2906, 3601, 3602, 3603, 3606, 4226, 4641.
4864	2390, 2391, 2392, 2393, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2410, 2411, 2412, 2413, 2417, 2418, 2419, 2420, 2428, 3230, 3231, 3232, 3233, 3234, 3239, 3751, 3752, 3753, 3754, 3850, 4050, 4057, 4109, 4384, 4607, 4616, 4655, 4656, 4664, 4745, 4902 & 4903.

SOLDER TURRET TERMINAL SCREW

Excellent for mounting of panel receptacles. Turret on end of screw for soldering. #4-40, Phillips head, steel, cadmium plated.



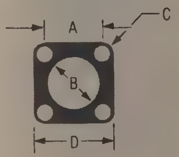
Model No.
2352

(100 Per Pkg.)

***NET 40.00 PKG.**

RFI/EMC CONNECTOR FLANGE GASKET

This RFI/EMC connector flange gasket has an adhesive back for simple installation. Monel metal fibers imbedded in this silicone rubber gasket suppresses RFI/EMC radiation. Model 4780 fits standard BN/BNC flanges and Model 4795 fits standard type "N" and UHF flanges.



Model No.	A (Sq.)	B Dia.	C Dia.	D (Sq.)	*Net
4780	12.70 (.50)	11.10 (.437)	2.77 (.109)	17.53 (.69)	4.50
4795	18.30 (.72)	15.88 (.625)	4.37 (.172)	25.40 (1.00)	3.20

MINIATURE SCREWDRIVER FOR SETSCREWS

A specially designed screwdriver with slender tip for tightening of setscrews on miniature plugs.

Model No.
3736

***NET 1.95**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

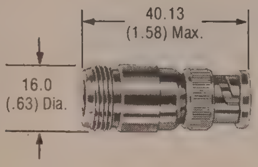
ITT POMONA ELECTRONICS

COAXIAL ACCESSORIES

TYPE "N" FEMALE TO BNC MALE

Allows the use of a Type "N" male on equipment having a BNC female.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Beryllium copper female "N" contact and BNC outer finger contact.
- Gold plated female "N" and male BNC center contacts.



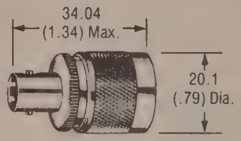
Model No.
3535

***NET 9.75**

BNC FEMALE TO TYPE "N" MALE

Allows the use of a BNC male on equipment having a Type "N" female.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated center contacts.



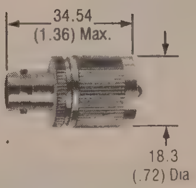
Model No.
3288

***NET 6.95**

BNC FEMALE TO UHF MALE

Allows the use of a BNC male on equipment having a UHF female.

FEATURES:
- Tarnish resistant.
- Rexolite insulation.
- Gold plated beryllium copper female center contact.
- Gold plated male center contact.



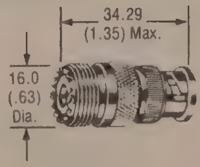
Model No.
3286

***NET 5.95**

UHF FEMALE TO BNC MALE

Allows the use of a UHF male on equipment having a BNC female.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedence.
- Rexolite insulation.
- Gold plated Phosphor Bronze female UHF and male BNC center contacts.



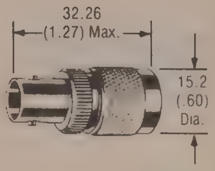
Model No.
3287

***NET 8.95**

BNC FEMALE TO TNC MALE

Allows the use of a BNC male on equipment having a TNC female.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedence.
- Teflon insulation.
- Beryllium copper BNC female center and outer finger TNC contacts.
- Gold plated female BNC and TNC male center contacts.



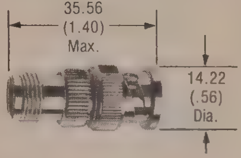
Model No.
3844

***NET 9.95**

TNC FEMALE TO BNC MALE

Allows the use of a TNC male on equipment having a BNC female.

FEATURES:
- Tarnish resistant
- 50 Ohm impedance.
- Teflon insulation.
- Beryllium copper TNC female contact and outer finger BNC male contacts.
- Gold plated TNC female and BNC male contacts.



NEW

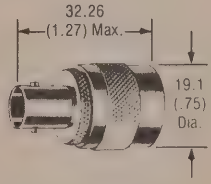
Model No.
5086

***NET 7.85**

BNC FEMALE TO TYPE "C" MALE

Allows the use of a BNC male on equipment having a Type "C" female.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedence.
- Teflon insulation.
- Beryllium copper BNC female center and outer finger Type "C" contacts.
- Gold plated female BNC and Type "C" male center contacts.



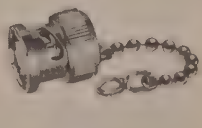
Model No.
3845

***NET 12.95**

BNC SHORTING PLUG

Use this BNC shorting plug to protect sensitive instrument inputs or to provide a necessary reference short.

FEATURES:
- Tarnish resistant.
- Gold plated beryllium copper center contact.
- 63.5 mm (2.50) bead chain.
- 3.56 mm (.14) dia. hole in lug.



NEW

Model No.
5085

***NET 5.50**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

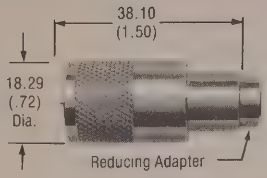
ITT POMONA ELECTRONICS

COAXIAL ACCESSORIES

UHF MALE CABLE PLUG

For use on RG 8, 9, 11, 13, 58C, 141, 149, 213, 214 and 216 cable.

FEATURES:
- Tarnish resistant.
- Phenolic insulation.
- Gold plated male center contact.


38.10
(1.50)
18.29
(.72)
Dia.
Reducing Adapter

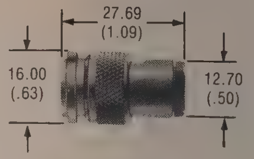
Model No.
4893

***NET 3.95**

TNC MALE CABLE PLUG

For use on cable types RG 55, 58, 141, 142 and 223.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated brass center contact.


27.69
(1.09)
16.00
(.63)
12.70
(.50)

Model No.
4960

***NET 7.75**

BNC CAP FOR FEMALES WITH BEAD CHAIN

Male dust cap for protection of BNC females from dirt and accidental shorting.

FEATURES:
- Tarnish resistant.
- 57.15 mm (2.25) bead chain.
- 3.56 mm (.14) dia. hole in lug.

Model No.
3839

***NET 2.15**

BNC CAP FOR MALES WITH BEAD CHAIN

Female dust cap for protection of BNC males from dirt and accidental shorting.

FEATURES:
- Tarnish resistant.
- 79.50 mm (3.13) bead chain.
- 7.11 mm (.28) dia. hole in lug.

Model No.
4157

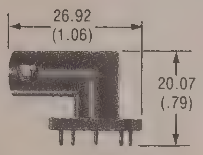
***NET 2.95**

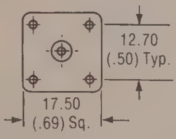
COAXIAL PC MOUNTS

RIGHT ANGLE BNC FEMALE PC MOUNT

Permits the installation of a right angle BNC female directly to a printed circuit board.

FEATURES:
- Tarnish resistant body.
- Gold plated center contact.
- Teflon insulation.
- 50 Ohm impedance.
- Silver plated brass PC pins. .97 mm (.038) dia. 3.30 mm (.13) long.


26.92
(1.06)
20.07
(.79)


12.70
(.50) Typ.
17.50
(.69) Sq.

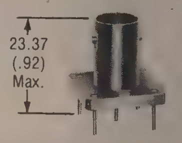
Model No.
4788

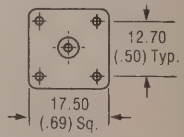
***NET 19.95**

BNC FEMALE PC MOUNT

Permits BNC male to be used with printed circuit boards.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated center contact.
- Silver plated brass PC pins. .97 mm (.038) dia. 6.35 mm (.25) long.




12.70
(.50) Typ.
17.50
(.69) Sq.

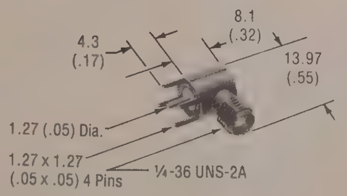
Model No.
4578

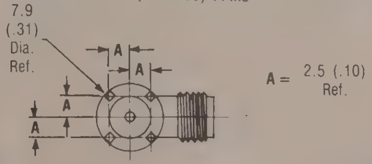
***NET 8.25**

SMA RIGHT ANGLE FEMALE PC MOUNT

Permits the installation of a right angle SMA female directly to a printed circuit board.

FEATURES:
- Gold plated beryllium copper body and center contact.
- 50 Ohm impedance.
- Teflon insulation.


8.1
(.32)
4.3
(.17)
13.97
(.55)
1.27 (.05) Dia.
1.27 x 1.27
(.05 x .05) 4 Pins
¼-36 UNS-2A


7.9
(.31)
Dia.
Ref.
A
A
A
A
A = 2.5 (.10)
Ref.

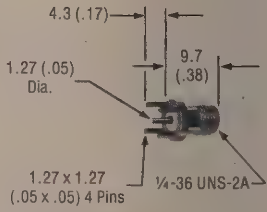
Model No.
4991

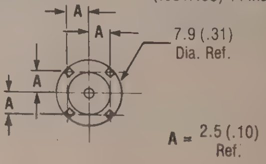
***NET 29.95**

SMA FEMALE PC MOUNT

Permits SMA male to be used with printed circuit boards.

FEATURES:
- Gold plated beryllium copper body and center contact.
- 50 Ohm impedance.
- Teflon insulation.


4.3 (.17)
9.7
(.38)
1.27 (.05)
Dia.
1.27 x 1.27
(.05 x .05) 4 Pins
¼-36 UNS-2A


A
A
7.9 (.31)
Dia. Ref.
A
A
A = 2.5 (.10)
Ref.

Model No.
4959

***NET 27.95**

*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

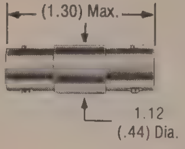
ITT POMONA ELECTRONICS

COAXIAL ACCESSORIES

BNC FEMALE TO FEMALE

Allows the interconnection of two coaxial cables with BNC males.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon* insulation.
- Gold plated beryllium copper center contacts.



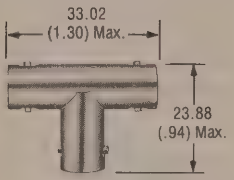
Model No.
3283

***NET 3.95**

BNC "T" — 3 FEMALES

Allows the interconnection of three coaxial cables with BNC males.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contacts.



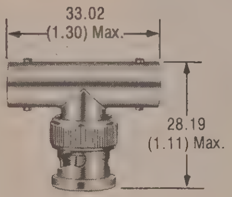
Model No.
3284

***NET 10.95**

BNC "T" — FEMALE, MALE, FEMALE

With this adapter, equipment or coaxial cables having a single BNC female are changed to two BNC Females.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Beryllium copper female center and male outer finger contacts.
- Gold plated female and male center contacts.



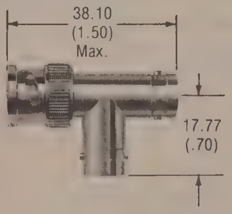
Model No.
3285

***NET 9.50**

BNC "T" — MALE, FEMALE, FEMALE

Equipment with several side-by-side BNC connectors can easily be adapted for two cables with this novel adapter.

FEATURES:
- Tarnish resistant.
- 50 ohm impedance.
- Teflon insulation.
- Beryllium copper female center and male outer finger contacts.
- Gold plated female and male center contacts.



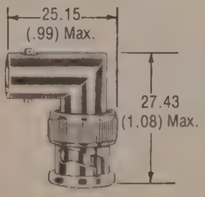
Model No.
4896

***NET 15.95**

RIGHT ANGLE BNC FEMALE TO BNC MALE

Adapts straight BNC male to right angle BNC male.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Beryllium copper female and male outer finger contact.
- Gold plated female and male center contacts.



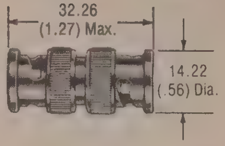
Model No.
3534

***NET 8.95**

BNC MALE TO MALE

Allows the interconnection of two coaxial cables with BNC females.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Beryllium copper outer finger contacts.
- Gold plated male center contacts.



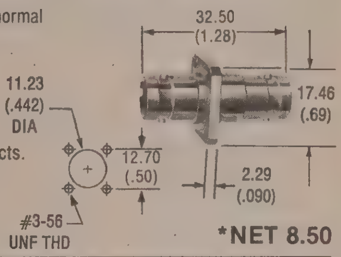
Model No.
3533

***NET 7.25**

BNC FEMALE TO FEMALE FLANGE MOUNT

Standard BNC feed through for normal applications. See panel layout.

FEATURES:
- Tarnish resistant.
- 50 ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper contacts.



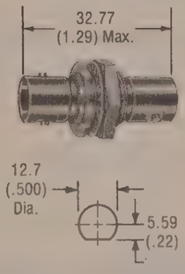
Model No.
4895

***NET 8.50**

ISOLATED GROUND BNC FEMALE TO FEMALE

Outer conductor is isolated from the panel. Excellent for feeding through panels which require a floating shield.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contacts.
- Mounts in panels up to 4.57 mm (.18) thick.



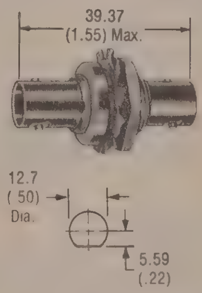
Model No.
3846

***NET 12.75**

HERMETICALLY SEALED BNC FEMALE TO FEMALE

Excellent for use with equipment which requires a hermetic seal for pressure differences.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contacts.
- Silicone rubber O ring.
- Mounts in panels up to 7.11 mm (.28) thick.



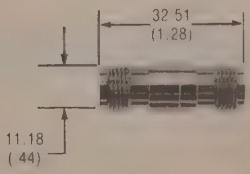
Model No.
3847

***NET 9.95**

TNC FEMALE TO FEMALE ADAPTER

Allows the interconnection of two cables with TNC males.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.



Model No.
4940

***NET 5.95**

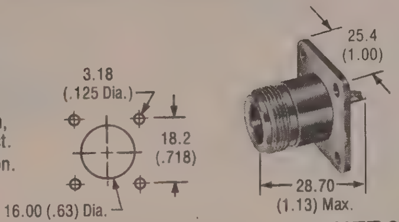
*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PANEL / BULKHEAD RECEPTACLES

TYPE "N" FEMALE PANEL RECEPTACLE

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium, copper center contact.
- Solder cup connection.

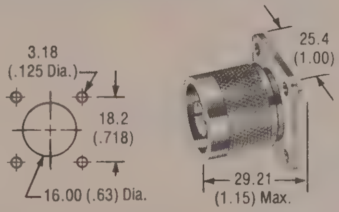

25.4
(1.00)
3.18
(.125 Dia.)
18.2
(.718)
28.70
(1.13) Max.
16.00 (.63) Dia.

Model No. 2455

***NET 6.30**

TYPE "N" MALE PANEL RECEPTACLE

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Phosphor bronze outer finger contact.
- Gold plated male center contact.
- Solder cup connection.

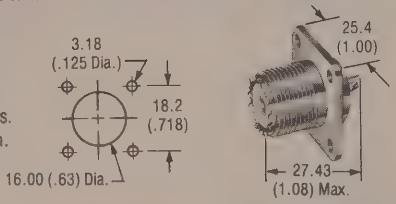

25.4
(1.00)
3.18
(.125 Dia.)
18.2
(.718)
29.21
(1.15) Max.
16.00 (.63) Dia.

Model No. 2454

***NET 16.95**

UHF FEMALE PANEL RECEPTACLE

FEATURES:
- Tarnish resistant.
- Teflon insulation.
- Gold plated phosphor bronze center contacts.
- Solder cup connection.

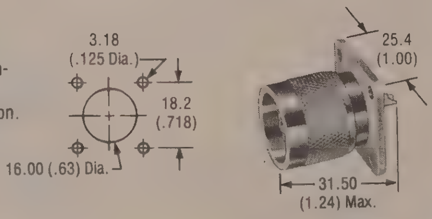

25.4
(1.00)
3.18
(.125 Dia.)
18.2
(.718)
27.43
(1.08) Max.
16.00 (.63) Dia.

Model No. 2449

***NET 7.50**

UHF MALE PANEL RECEPTACLE

FEATURES:
- Tarnish resistant.
- Teflon insulation.
- Gold plated male center contact.
- Solder cup connection.

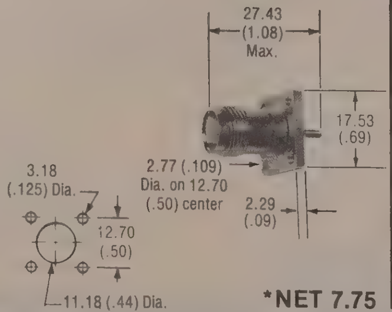

25.4
(1.00)
3.18
(.125 Dia.)
18.2
(.718)
31.50
(1.24) Max.
16.00 (.63) Dia.

Model No. 2450

***NET 12.95**

TNC FEMALE PANEL RECEPTACLE

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center conductor.
- Solder cup connection.

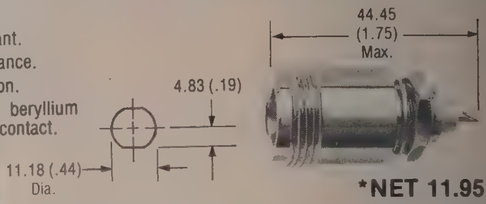

27.43
(1.08)
Max.
17.53
(.69)
2.77 (.109)
Dia. on 12.70
(.50) center
3.18
(.125) Dia.
2.29
(.09)
12.70
(.50)
11.18 (.44) Dia.

Model No. 4962

***NET 7.75**

TYPE "N" FEMALE BULKHEAD RECEPTACLE

FEATURES:
- Tarnish resistant.
- 50 ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.


44.45
(1.75)
Max.
4.83 (.19)
11.18 (.44)
Dia.

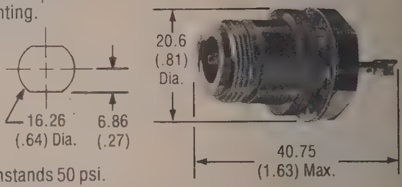
Model No. 4889

***NET 11.95**

TYPE "N" HERMETICALLY SEALED FEMALE BULKHEAD RECEPTACLE

Excellent for use with equipment which requires a hermetic seal for pressure differences. Front hole mounting.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.
- Silicon rubber O ring, withstands 50 psi.
- Mounts in panels up to 5.08 mm (.20) thick.

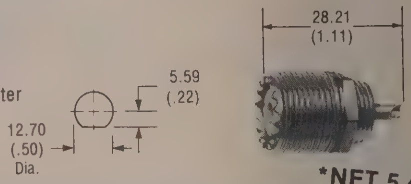

20.6
(.81)
Dia.
16.26
(.64) Dia.
6.86
(.27)
40.75
(1.63) Max.

Model No. 4955

***NET 12.95**

UHF FEMALE BULKHEAD RECEPTACLE

FEATURES:
- Tarnish resistant.
- Teflon insulation.
- 50 ohm impedance.
- Gold plated center contact.

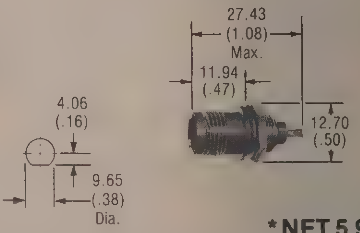

28.21
(1.11)
5.59
(.22)
12.70
(.50)
Dia.

Model No. 4891

***NET 5.45**

TNC FEMALE BULKHEAD RECEPTACLE

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.
- Solder cup connection.
- Mounts in panels up to 3.35mm (.132) thick.


27.43
(1.08)
Max.
11.94
(.47)
4.06
(.16)
12.70
(.50)
9.65
(.38)
Dia.

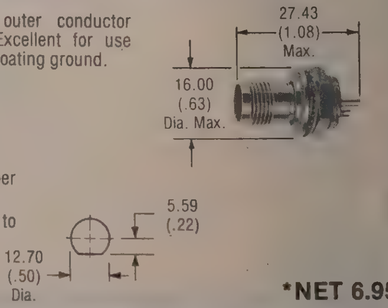
Model No. 4961

***NET 5.95**

TNC ISOLATED GROUND FEMALE BULKHEAD RECEPTACLE

This connector has the outer conductor isolated from the panel. Excellent for use with equipment requiring a floating ground.

FEATURES:
- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.
- Mounts in panels up to 4.32 mm (.17) thick.


27.43
(1.08)
Max.
16.00
(.63)
Dia. Max.
5.59
(.22)
12.70
(.50)
Dia.

Model No. 5084

***NET 6.95**

*See page 126 of the Pomona Catalog for quantity purchases.

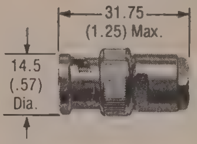
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

COAXIAL CABLE PLUGS/JACKS

BNC MALE CABLE PLUG

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated brass center contact.

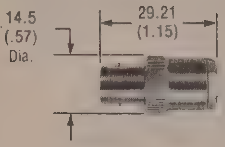


Model No.	Fits Cable Types	*Net
4488	RG 55, 58, 141, 142, 223	3.20
4786	RG 59, 62, 71, 210	3.60

BNC FEMALE CABLE JACK

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.



Model No.	Fits Cable Types	*Net
4978	RG 55, 58, 141, 142, 223	3.25
5061	RG 59, 62, 71, 210	4.95

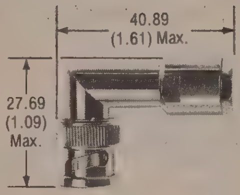
NEW

BNC RIGHT ANGLE MALE CABLE PLUG

For use on cable types RG 55, 58, 141, 142 and 223.

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated brass center contact.



Model No.
4977

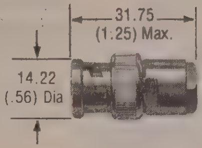
***NET 13.95**

BNC MALE CABLE PLUG, 75 OHMS

Maintains impedance continuity for CATV and other 75 Ohm applications. For use on RG 59 type cables.

FEATURES:

- Tarnish resistant.
- 75 Ohm impedance.
- Teflon insulation.
- Gold plated brass center contact.
- Standard BNC interface.



Model No.
5079

***NET 11.95**

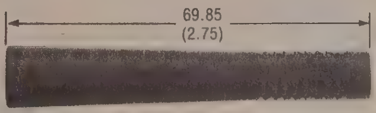
NEW

STRESS RELIEF BOOTS

Pomona Electronics offers stress relief boots, molded in PVC to protect cables from wear, fatigue and weathering. Ten colors provide a convenient key for cable identification. These unique boots are available in three styles.

STRESS RELIEF BOOT

For use with crimp-on type connectors.
MATERIAL: PVC, +50°C. (+122°F.)



NEW

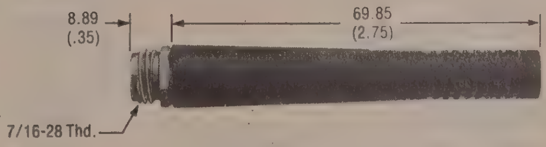
Model No.	Fits Cable Types	Cable O.D.	*Net
5155-*	RG 58, 141	.185 - .200	.45 EA.
5156-*	RG 59, 62, 210	.237 - .247	.45 EA.
5157-*	RG 174, 187, 188	.090 - .110	.45 EA.

(Pkg. Ten Per Color)

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

STRESS RELIEF BOOT WITH CLAMP NUT

For use with connectors using a 7/16-28 clamp nut. Simply replace the supplied clamp nut with the one on the stress relief boot.
CLAMP NUT: Brass, nickel plated.
BOOT: PVC, +50°C. (+122°F.) Max.



NEW

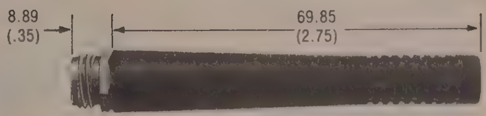
Model No.	Fits Cable Types	Cable O.D.	*Net
5076-*	RG 58, 141	.185 - .200	1.95
5077-*	RG 59, 62, 210	.237 - .247	1.95
5078-*	RG 174, 187, 188	.090 - .110	1.95

*

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

BNC CONNECTOR WITH STRESS RELIEF BOOT

Make your own stress relieved cable. This model attaches to the end of a cable in the same way as an ordinary BNC connector.
BOOT: PVC, +50°C. (+122°F.) Max.
BNC MALE: Body, brass, tarnish resistant finish. Gold plated brass contact.



NEW

Model No.	Fits Cable Types	Cable O.D.	*Net
5066-*	RG 58, 141	.185 - .200	4.95
5067-*	RG 59, 62, 210	.237 - .247	4.95
5068-*	RG 174, 187, 188	.090 - .110	4.95

*

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

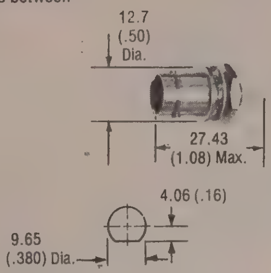
PANEL/BULKHEAD RECEPTACLES

BNC FEMALE BULKHEAD RECEPTACLE

Ideal for use where space requirements between adjacent connectors are at a premium.

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.
- Mounts in panels up to 3.40 mm (.13) thick.


12.7
(.50)
Dia.
27.43
(1.08) Max.
4.06 (.16)
9.65
(.380) Dia.

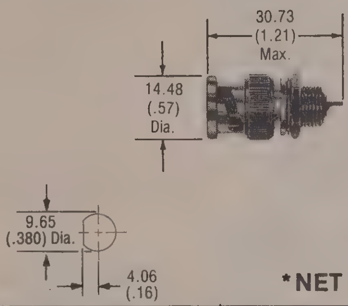
Model No.
4160

***NET 2.95**

BNC MALE BULKHEAD RECEPTACLE

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated brass male center contact.
- Beryllium copper outer finger contact.
- Solder cup connection.


30.73
(1.21)
Max.
14.48
(.57)
Dia.
9.65
(.380) Dia.
4.06
(.16)

Model No.
4979

***NET 7.95**

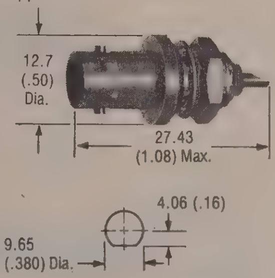
BNC FEMALE BULKHEAD RECEPTACLE 75 OHMS

Use this connector for CATV and other applications requiring 75 Ohm impedance.

FEATURES:

- Tarnish resistant.
- 75 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.
- Mounts in panels up to 3.40 mm (.13) thick.
- Standard BNC interface.

NEW


12.7
(.50)
Dia.
27.43
(1.08) Max.
4.06 (.16)
9.65
(.380) Dia.

Model No.
5081

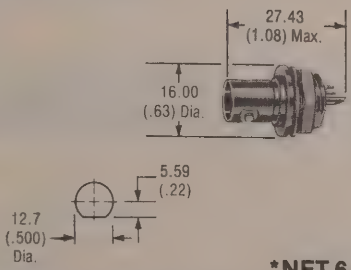
***NET 11.95**

BNC ISOLATED GROUND FEMALE BULKHEAD RECEPTACLE

This connector has the outer conductor isolated from the panel. Excellent for use with equipment requiring a floating ground.

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.
- Mounts in panels up to 4.44 mm (.18) thick.


27.43
(1.08) Max.
16.00
(.63) Dia.
5.59
(.22)
12.7
(.500)
Dia.

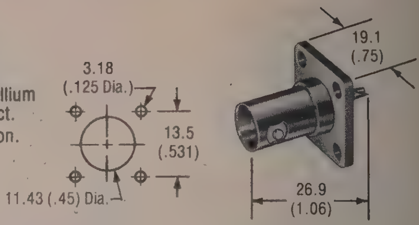
Model No.
3778

***NET 6.95**

BNC FEMALE PANEL RECEPTACLE

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.
- Solder cup connection.


3.18
(.125 Dia.)
13.5
(.531)
11.43 (.45) Dia.
19.1
(.75)
26.9
(1.06)

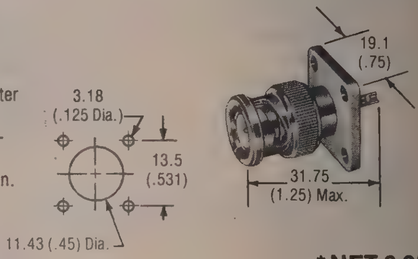
Model No.
2451

***NET 3.85**

BNC MALE PANEL RECEPTACLE

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Beryllium copper outer finger contact.
- Gold plated male center contact.
- Solder cup connection.


3.18
(.125 Dia.)
13.5
(.531)
11.43 (.45) Dia.
19.1
(.75)
31.75
(1.25) Max.

Model No.
2447

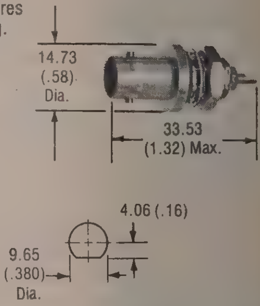
***NET 6.95**

BNC FEMALE PRESSURIZED BULKHEAD RECEPTACLE

Excellent for use with equipment which requires pressure differences. Front hole mounting.

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.
- Silicon rubber O ring, withstands 50 psi.
- Mounts in panels up to 6.15 mm (.24) thick.


14.73
(.58)
Dia.
33.53
(1.32) Max.
4.06 (.16)
9.65
(.380)
Dia.

Model No.
4158

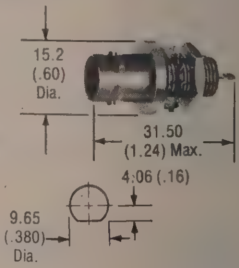
***NET 7.40**

BNC HERMETICALLY SEALED FEMALE BULKHEAD RECEPTACLE

Excellent for use with equipment which requires a hermetic seal for pressure differences. Front hole mounting.

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.
- Silicon rubber O ring, withstands 50 psi.
- Mounts in panels up to 9.37 mm (.37) thick.


15.2
(.60)
Dia.
31.50
(1.24) Max.
4.06 (.16)
9.65
(.380)
Dia.

Model No.
4159

***NET 6.85**

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* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
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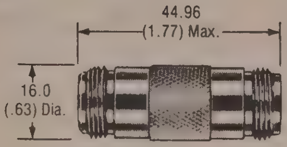
TYPE "N" ADAPTERS / ACCESSORIES

TYPE "N" FEMALE TO FEMALE

Allows the interconnection of two coaxial cables with Type "N" males.

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contacts.



Model No. 3841

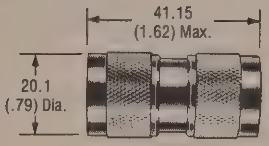
***NET 7.95**

TYPE "N" MALE TO MALE

Allows the interconnection of two coaxial cables with Type "N" females.

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Phosphor bronze outer finger contacts.
- Gold plated male center contacts.



Model No. 3842

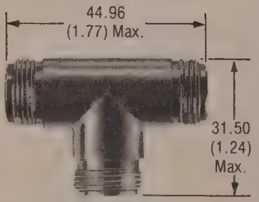
***NET 8.95**

TYPE "N" TEE — 3 FEMALES

Allows the interconnection of three coaxial cables with Type "N" males.

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contacts.



Model No. 5089

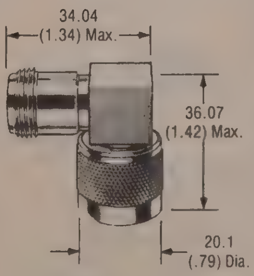
***NET 15.95**

RIGHT ANGLE TYPE "N" FEMALE TO TYPE "N" MALE

Adapts straight Type "N" male to right angle Type "N" male.

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Phosphor bronze outer finger contact.
- Gold plated beryllium copper female and male center contact.



Model No. 3843

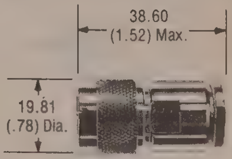
***NET 13.95**

TYPE "N" MALE CABLE PLUG

For use on cable types RG 8, 9, 11, 13, 213, 214, 216 and 225.

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated brass center contact.



Model No. 4980

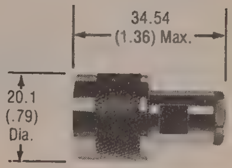
***NET 5.95**

TYPE "N" MALE CABLE PLUG

For use on cable types RG 55, 58, 141, 142, 223 and 400.

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated brass center contact.



Model No. 4787

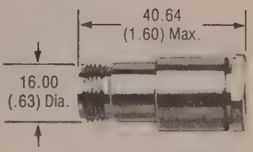
***NET 5.40**

TYPE "N" FEMALE CABLE JACK

For use on cable types RG 8, 9, 11, 13, 213, 214, 216 and 225.

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.



Model No. 4981

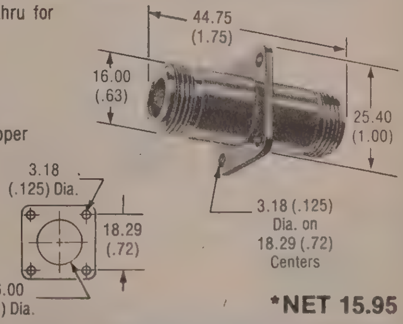
***NET 5.95**

TYPE "N" FEMALE TO FEMALE FLANGE MOUNT

Standard type "N" feed-thru for normal applications.

FEATURES:

- Tarnish resistant.
- 50 Ohm impedance.
- Teflon insulation.
- Gold plated beryllium copper center contact.



Model No. 4956

***NET 15.95**

TYPE "N" OR UHF CAP FOR FEMALES WITH BEAD CHAIN

Male dust cap for protection of Type "N" or UHF females from dirt and accidental shorting.

FEATURES:

- Tarnish resistant.
- 63.50mm (2.50) bead chain.
- 3.56mm (.14) dia. hole in lug.

Model No. 4890

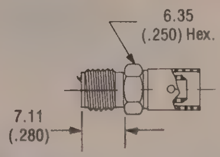
***NET 4.50**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

SMA COAXIAL ACCESSORIES

CRIMP CABLE PLUG, FEMALE


6.35
(.250) Hex.
7.11
(.280)

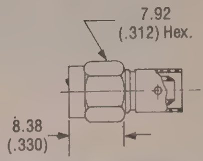
Model No.	Fits Cables RG-
4860	55, 58, 142, 223
4805	174, 179, 187, 188, 316

FEATURES:
- Passivated steel shell.
- Gold plated center conductor.
- Meets MIL-C-39012.
- Fast crimp-on assembly.
- 50 Ohm impedance.
- Teflon dielectric.

Note: Cabling instructions furnished on request.

***NET 15.25**

CRIMP CABLE PLUG, MALE


7.92
(.312) Hex.
8.38
(.330)

Model No.	Fits Cables RG-
4859	55, 58, 142, 223
4804	174, 179, 187, 188, 316

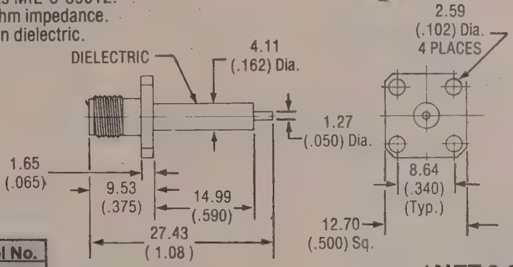
FEATURES:
- Passivated steel shell.
- Gold plated center conductor.
- Meets MIL-C-39012.
- Fast crimp-on assembly.
- 50 Ohm impedance.
- Teflon dielectric.

Note: Cabling instructions furnished on request.

***NET 10.55**

PANEL RECEPTACLE, FEMALE

FEATURES:
- Passivated steel shell.
- Gold plated center conductor.
- Meets MIL-C-39012.
- 50 Ohm impedance.
- Teflon dielectric.

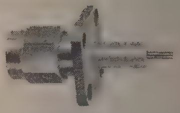

DIELECTRIC
4.11
(.162) Dia.
2.59
(.102) Dia.
4 PLACES
1.27
(.050) Dia.
1.65
(.065)
9.53
(.375)
14.99
(.590)
27.43
(1.08)
8.64
(.340)
(Typ.)
12.70
(.500) Sq.

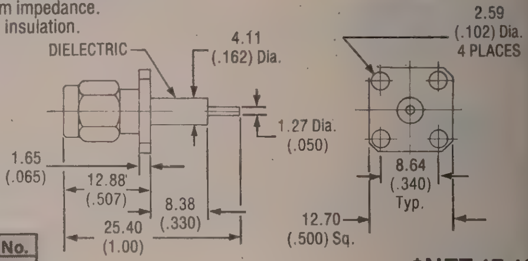
Model No.
4809

***NET 9.25**

PANEL RECEPTACLE, MALE

FEATURES:
- Passivated steel shell.
- Gold plated center conductor.
- Meets MIL-C-39012.
- 50 Ohm impedance.
- Teflon insulation.



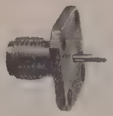

DIELECTRIC
4.11
(.162) Dia.
2.59
(.102) Dia.
4 PLACES
1.27 Dia.
(.050)
1.65
(.065)
12.88
(.507)
8.38
(.330)
25.40
(1.00)
8.64
(.340)
Typ.
12.70
(.500) Sq.

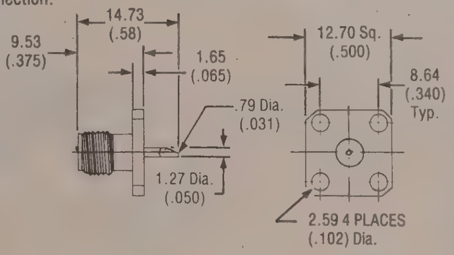
Model No.
4808

***NET 17.10**

PANEL RECEPTACLE, FEMALE

FEATURES:
- Gold plated shell.
- Gold plated center conductor.
- Meets MIL-C-39012.
- 50 Ohm impedance.
- Teflon dielectric.
- Solder cup connection.



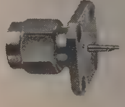

14.73
(.58)
9.53
(.375)
1.65
(.065)
.79 Dia.
(.031)
1.27 Dia.
(.050)
12.70 Sq.
(.500)
8.64
(.340)
Typ.
2.59 4 PLACES
(.102) Dia.

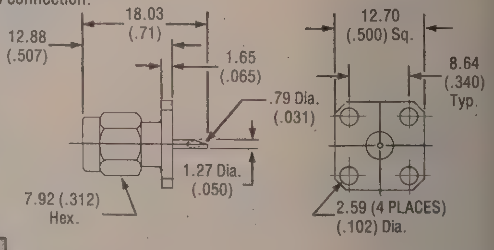
Model No.
4850

***NET 14.75**

PANEL RECEPTACLE, MALE

FEATURES;
- Gold plated shell.
- Gold plated center conductor.
- Meets MIL-C-39012.
- 50 Ohm impedance.
- Teflon dielectric.
- Solder cup connection.




18.03
(.71)
12.88
(.507)
1.65
(.065)
.79 Dia.
(.031)
1.27 Dia.
(.050)
7.92 (.312)
Hex.
12.70
(.500) Sq.
8.64
(.340)
Typ.
2.59 (4 PLACES)
(.102) Dia.

Model No.
4849

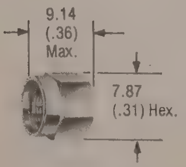
***NET 32.95**

NEW

SMA SHORTING PLUG

Use this SMA shorting plug to protect sensitive instrument inputs or to provide a necessary reference short.

FEATURES:
- Passivated steel shell, gold plated.
- Teflon dielectric.
- Gold plated steel center contact.

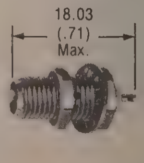

9.14
(.36)
Max.
7.87
(.31) Hex.

Model No.
5088

***NET 14.95**

SMA FEMALE BULKHEAD RECEPTACLE

FEATURES:
- Gold plated body.
- 50 ohm impedance.
- Teflon insulation.
- Frequency range: 0- 12.4 GHz
- Gold plated beryllium copper center contact.



Model No.
4888

***NET 14.95**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

SMA ADAPTERS / TERMINATIONS

These SMA adapters are manufactured in accordance with MIL-A-55339. The 50 Ohm miniature series R.F. connectors are especially adaptable to microwave component applications such as couplers, dividers and mixers.

MATERIAL:

- Bodies and coupling nut: Beryllium copper per QQ-C-530, cond. HT. gold plated.
- Female contact: Beryllium copper per QQ-C-530, gold plated, cond. HT.
- Male contact: Brass per QQ-B-626, alloy 360, 1/2 hard, gold plated.
- Teflon insulation.
- Gaskets: Silicone rubber per ZZ-R-765a, Class 11A, Grade 50.

SPECIFICATIONS:

- Thread SMA Male: ¼-36 UNS-2B, SMA Female: ¼-36 UNS-2A.
- Frequency range: 0-12.4 GHz.
- Dielectric withstanding voltage: 1000 Vrms, 60 Hz at sea level.
- R.F. leakage: 90 dB min. between 2-3 GHz.
- Temperature range: −65°C. (−85°F.) to +165°C. (+329°F.) unless otherwise indicated.

WITHIN SERIES

FEMALE TO MALE RIGHT ANGLE

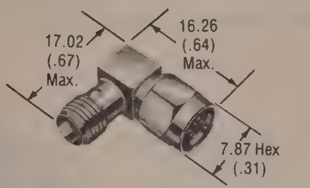

17.02
(.67)
Max.
16.26
(.64)
Max.
7.87 Hex
(.31)

Photo approximately actual size.

Model No.
4282

***NET 37.85**

FEED-THRU MALE TO MALE

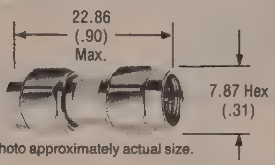

22.86
(.90)
Max.
7.87 Hex
(.31)

Photo approximately actual size.

Model No.
4283

***NET 23.95**

FEED-THRU FEMALE TO FEMALE

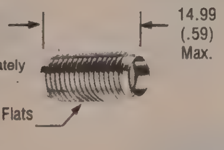

14.99
(.59)
Max.
5.59 Across Flats
(.22)

Photo approximately actual size.

Model No.
4284

***NET 25.95**

BULKHEAD FEED-THRU FEMALE TO FEMALE

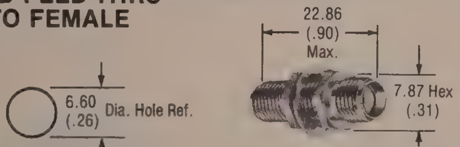

6.60
(.26)
Dia. Hole Ref.
22.86
(.90)
Max.
7.87 Hex
(.31)

Photo approximately actual size.

Model No.
4285

***NET 32.95**

MALE TERMINATION

VSWR: 1.25 Max to 18 GHz
50 Ohms ½ Watt
Temperature: −54°C. (−65.2°F.) to +125°C. (+257°F.)

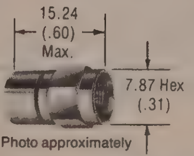

15.24
(.60)
Max.
7.87 Hex
(.31)

Photo approximately actual size.

Model No.
4286

***NET 66.50**

FEMALE TERMINATION

VSWR: 1.25 Max to 18 GHz
50 Ohms ½ Watt
Temperature: −54°C. (−65.2°F.) to +125°C. (+257°F.)

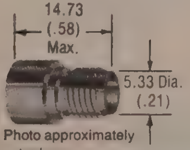

14.73
(.58)
Max.
5.33 Dia.
(.21)

Photo approximately actual size.

Model No.
4287

***NET 73.95**

SMA TO BNC

SMA MALE TO BNC MALE

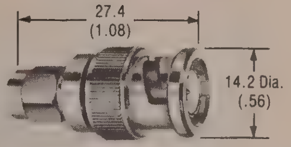

27.4
(1.08)
14.2 Dia.
(.56)

Photo approximately actual size.

Model No.
4288

***NET 22.75**

SMA FEMALE TO BNC MALE

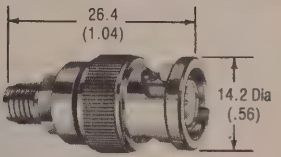

26.4
(1.04)
14.2 Dia
(.56)

Photo approximately actual size.

Model No.
4289

***NET 24.95**

SMA MALE TO BNC FEMALE

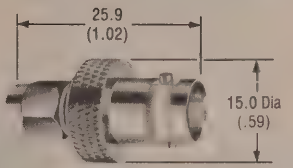

25.9
(1.02)
15.0 Dia
(.59)

Photo approximately actual size.

Model No.
4290

***NET 15.95**

SMA FEMALE TO BNC FEMALE

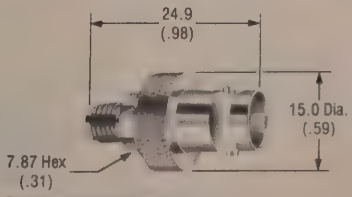

24.9
(.98)
15.0 Dia.
(.59)
7.87 Hex
(.31)

Photo approximately actual size.

Model No.
4291

***NET 18.75**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

SMA ADAPTERS

These SMA adapters are manufactured in accordance with MIL-A-55339. The 50 Ohm subminiature series R.F. connectors are especially adaptable to microwave component applications such as couplers, dividers and mixers.

MATERIAL:

- Bodies and coupling nut: Beryllium copper per QQ-C-530, cond. HT., gold plated.
- Female contact: Beryllium copper per QQ-C-530, gold plated, cond. HT.
- Male contact: Brass per QQ-B-626, alloy 360, ½ hard, gold plated.
- Teflon insulation.
- Gaskets: Silicone rubber per ZZ-R-765a, Class 11A, Grade 50.

SPECIFICATIONS:

- Thread: SMA Male: ¼-36 UNS-2B, SMA Female: ¼-36 UNS-2A.
- Frequency range: 0-12.4 GHz.
- Dielectric withstanding voltage: 1000 Vrms, 60 Hz at sea level.
- R.F. leakage: 90 dB min. between 2-3 GHz.
- Temperature range: −65°C. (−85°F.) to +165°C. (+329°F.)

SMA TO TNC

SMA MALE TO TNC MALE

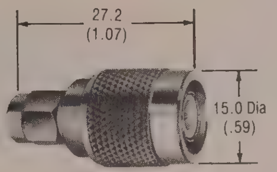


Photo approximately actual size.

Model No. 4292

***NET 30.75**

SMA FEMALE TO TNC MALE

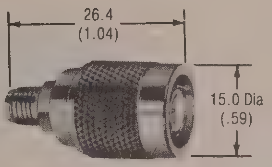


Photo approximately actual size.

Model No. 4293

***NET 26.50**

SMA MALE TO TNC FEMALE

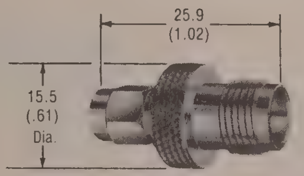


Photo approximately actual size.

Model No. 4294

***NET 23.75**

SMA FEMALE TO TNC FEMALE

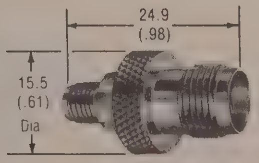


Photo approximately actual size.

Model No. 4295

***NET 23.95**

SMA TO N

SMA MALE TO N MALE

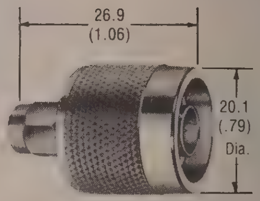


Photo approximately actual size.

Model No. 4296

***NET 29.95**

SMA FEMALE TO N MALE

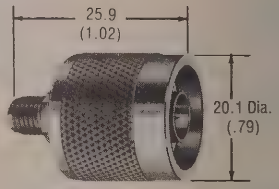


Photo approximately actual size.

Model No. 4297

***NET 27.95**

SMA MALE TO N FEMALE

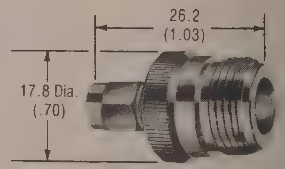


Photo approximately actual size.

Model No. 4298

***NET 23.95**

SMA FEMALE TO N FEMALE

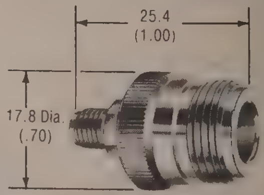


Photo approximately actual size.

Model No. 4299

***NET 21.50**

★ See page 126 of the Pomona Catalog for quantity purchases.

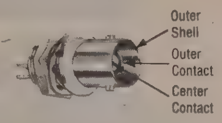
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

TRIAXIAL CONNECTORS

TRIAXIAL CONNECTORS

Triaxial connectors accommodate the need for low level signal patching and balanced line applications. Designed for use with single conductor, double shielded cable. These connectors feature a concentric design with center contact, outer contact and outer shell (see photo). This concentric design does not require matching of halves such as the polarized stepped insulator connectors.



MATERIAL:
- Bodies and fittings: Brass per QQ-B-626, alloy 360, ½ hard.
- Insulators: Teflon per MIL-P-19468.
- Center contacts: Female — beryllium copper per QQ-C-530 Cond. HT. Male — brass per QQ-B-626, alloy 360, ½ hard.
- Outer contacts: Beryllium copper per QQ-C-530 Cond. HT.

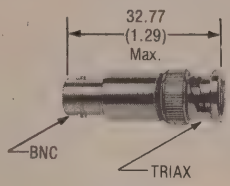
FINISH:
- Bodies and fittings: Tarnish resistant.
- Center contacts: Gold plated.
- Outer contacts: Gold plated.

RATING:
- 500 Vrms.

BNC FEMALE TO TRIAXIAL MALE

Allows the use of a BNC male on equipment having a triaxial female.

FEATURES:
- Tarnish resistant.
- Teflon insulation.
- Beryllium copper female center and male outer finger contacts.
- Gold plated female and male center contacts.

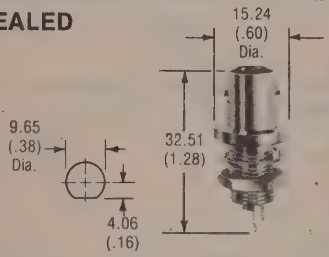


Model No.
5090

***NET 39.95**

TRIAXIAL HERMETIC SEALED BULKHEAD FEMALE

Ideal for triaxial interconnect requirements at pressurized bulkheads. Gasket seal will withstand 50 P.S.I. Includes mounting hardware.

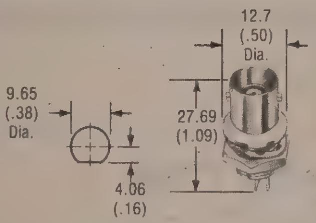


Model No.
4388

***NET 54.95**

TRIAXIAL BULKHEAD FEMALE

Ideal for triaxial interconnect requirements. Mounts in panels up to 6.35 mm (.25) thick. See hole pattern layout. Includes mounting hardware.



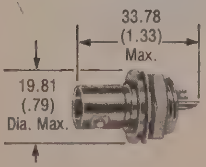
Model No.
3580

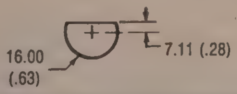
***NET 11.95**

TRIAXIAL ISOLATED GROUND FEMALE BULKHEAD RECEPTACLE

This connector has the outer conductor isolated from the panel. Excellent for use with equipment requiring a floating ground.

FEATURES:
- Tarnish resistant.
- Teflon insulation.
- Gold plated beryllium copper center and outer contacts.





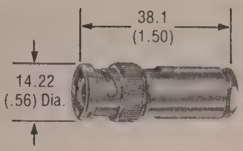
Model No.
5091

***NET 42.95**

TRIAXIAL MALE CABLE PLUG (FOR TRIAX CABLE)

For use with Belden 9222 triax cable. Jacket O.D. 6.15 mm (.242). 50 Ohm impedance. Cabling instruction will be furnished on request.

FEATURES:
- Tarnish resistant.
- Teflon insulation.
- Gold plated brass center contact, and beryllium copper outer contact.



NEW

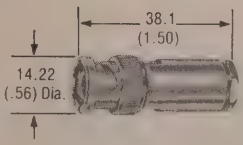
Model No.
5056

***NET 29.95**

TRIAXIAL MALE CABLE PLUG (FOR TWINAX CABLE)

MODEL 3600

For use with Belden 9272 twinax cable. Jacket O.D. 6.15 mm (.242). 78 Ohms impedance. Cabling instruction will be furnished on request.

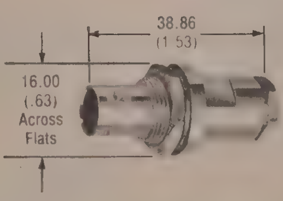


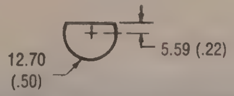
Model No.
3600

***NET 13.50**

TRIAXIAL BULKHEAD FEMALE

Permits in-line connection of triaxial cables with a bulkhead female. For use with Microdot cable 293-3930. Jacket O.D., 4.45 mm (.175). Includes mounting hardware. Cabling instruction will be furnished on request.





Model No.
4661

***NET 30.95**

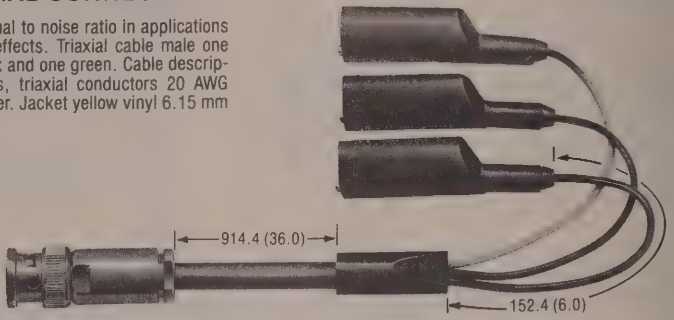
* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

TRIAXIAL CABLES

TRIAXIAL CABLE ASSEMBLY, TRIAXIAL CONNECTOR

Cable assembly reduces noise pickup and improves signal to noise ratio in applications subject to ground loop magnetic fields and capacitive effects. Triaxial cable male one end. Three alligator clips other end — one red, one black and one green. Cable description: Belden 9222, Triaxial cable. Impedance 50 Ohms, triaxial conductors 20 AWG (7 x 28) with polyethylene insulation. Shield tinned copper. Jacket yellow vinyl 6.15 mm (.242) O.D. capacitance between conductors 30.8 pf/ft.

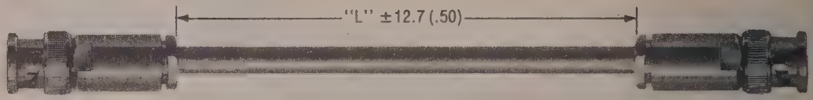


Model No.
4725

***NET 68.25**

TRIAXIAL CABLE ASSEMBLY, TRIAXIAL CONNECTORS

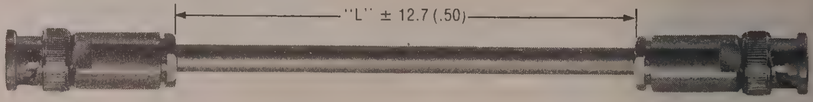
Cable assembly reduces noise pickup and improves signal to noise ratio in applications subject to ground loop magnetic fields and capacitive effects. Triaxial cable male each end (Model 5056). Cable description: Belden 9222, Triaxial cable. Impedance; 50 Ohms. Conductors: 20 AWG (7 x 28) with polyethylene insulation. Shield tinned copper. Jacket yellow vinyl 6.15 mm (.242) O.D. capacitance between conductors 30.8 pf/ft.



Model No.	Length	*Net
5054-36	914.4 (36.0)	55.95
5054-60	1524.0 (60.0)	60.95

TWINAXIAL CABLE ASSEMBLY, TRIAXIAL CONNECTORS

Cable assembly reduces noise pickup and improves signal to noise ratio in applications subject to ground loop, magnetic fields and capacitive effects. Triaxial cable male each end (Model 3600). Cable description: Belden 9272, Twinaxial cable. Impedance; 78 Ohms, 2 conductors shielded. Conductors; 20 AWG (7 x 28) with polyethylene insulation. Shield; tinned copper. Jacket; blue vinyl 6.15 mm (.242) O.D. capacitance between conductors; 19.7 pF/ft.



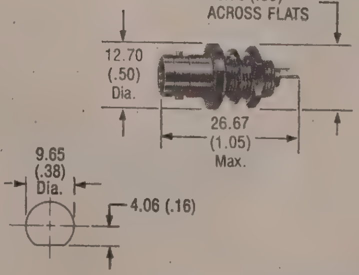
Model No.	Length "L"	*Net
3581-CC-18	457.2 (18.0)	44.50
3581-CC-24	609.6 (24.0)	44.50
3581-CC-36	914.4 (36.0)	44.50
3581-CC-48	1219.2 (48.0)	45.10
3581-CC-60	1524.0 (60.0)	45.70

TWINAXIAL CONNECTORS

TWINAX BULKHEAD RECEPTACLE

FEATURES:

- Tarnish resistant.
- Teflon insulation.
- Mounts in panels up to 3.23mm (.127) thick.
- Beryllium copper female contact; brass male contact. Gold plated.



Model No.
4958

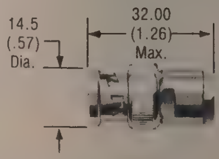
***NET 16.95**

TWINAX MALE CABLE PLUG

For use on RG 108 type cables.

FEATURES:

- Tarnish resistant.
- Rexolite insulation.
- Beryllium copper female contact, brass male contact. Gold plated.



Model No.
4957

***NET 28.25**

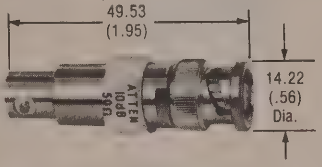
* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

COAXIAL ACCESSORIES / TERMINATIONS

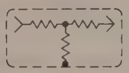
BNC 50 OHM ATTENUATORS

For use with pulse, microwave, or UHF instruments.
1st end: Female BNC.
2nd end: Male BNC.
50 Ohm, metal film resistor, deposited nichrome over ceramic core, 2 watt T-Pad network.



FEATURES:

- Tarnish resistant.
- Teflon insulation.
- Gold plated center contacts.
- White nylon anti-roll sleeve.
- Nylon temperature: +102°C. (+216°F.) Max.



***NET 53.75**

Model No.	Attenuation
4108-3dB	3 dB
4108-6dB	6 dB
4108-10dB	10 dB
4108-14dB	14 dB
4108-20dB	20 dB

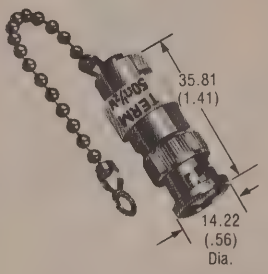
VSWR	Attenuation Tolerance
1.1 to 1 GHz	±0.4 dB to 1 GHz
1.2 to 2 GHz	±0.45 dB to 2 GHz
1.35 to 4 GHz	±0.65 dB to 4 GHz
1.45 to 6 GHz	±0.75 dB to 6 GHz
1.65 to 8 GHz	±0.9 dB to 8 GHz

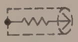
BNC RESISTOR TERMINATED MALE PLUG

Ideal for terminating coaxial lines.

FEATURES:

- 1%, ½ watt, deposited carbon resistor.
- Tarnish resistant.
- Teflon insulation.
- Gold plated male center contact.
- 88.9 mm (3.5) bead chain with 3.56 mm (.14) dia. hole in lug.
- Resistance value marked on white nylon anti-roll sleeve.
- Nylon temperature: +102°C. (+216°F.) Max.





Model No.	Resist. in Ohms
3840-50	50
3840-75	75
3840-93	93
3840-100	100
3840-600	600

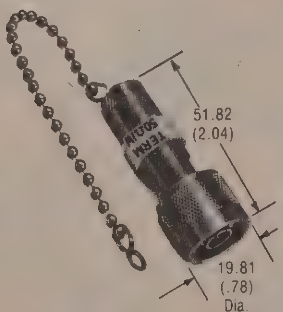
***NET 8.50**

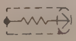
TYPE "N" RESISTOR TERMINATED MALE PLUG

Ideal for terminating coaxial lines.

FEATURES:

- 1% 1 watt, deposited carbon resistor.
- Tarnish resistant
- Teflon insulation.
- Gold plated male center contact.
- 127 mm (5.0) bead chain with 3.56 mm (.14) dia. hole in lug.
- Resistance value marked on white nylon anti-roll sleeve.
- Nylon temperature: +102°C. (+216°F.) Max.





Model No.	Resist. in Ohms
4240-50	50
4240-75	75
4240-600	600

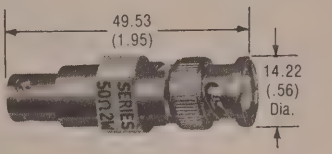
***NET 16.95**

BNC FEED-THRU SERIES RESISTOR

Ideal for adding in series resistance to coaxial lines with BNC connectors.
1st end: Female BNC.
2nd end: Male BNC.

FEATURES:

- 1%, 2 watt, non-inductive film resistor.
- Resistance value marked on white nylon anti-roll sleeve.
- Tarnish resistant.
- Teflon insulation.
- Gold plated center contacts.
- Nylon temperature: +102°C. (+216°F.) Max.

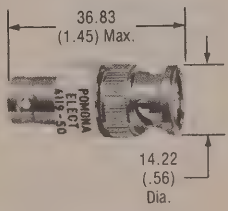


Model No.	Resist. in Ohms
4391-25	25
4391-50	50
4391-75	75
4391-93	93
4391-600	600

***NET 24.95**

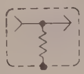
BNC FEED-THRU TERMINATION

Ideal for terminating pulse, microwave or UHF instruments in their characteristic impedance.
1st end: Female BNC.
2nd end: Male BNC.
Termination metal film resistor, deposited nichrome over ceramic core, 2W.



FEATURES:

- Resistance value marked on white nylon anti-roll sleeve.
- Tarnish resistant.
- Teflon insulation.
- Gold plated center contacts.
- Nylon temperature: +102°C. (+216°F.) Max.

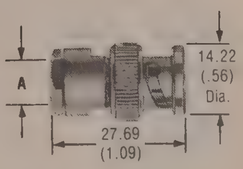


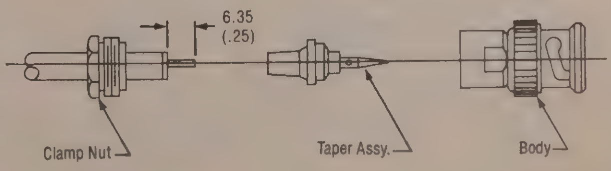
Model No.	Resist. in Ohms
4119-50	50
4119-75	75
4119-93	93
4119-600	600

***NET 39.95**

BNC MALE CABLE PLUGS FIELD SERVICEABLE

These connectors make it a snap to change or install connectors in the field. Just strip the cable end as shown in the illustration. Push the taper assembly under the braid and solder. Then thread the clamp nut into the body and you've created a fine connection.





Model No.	Fits Cable	Dim. 'A'	*Net
4997	RG58	5.59 (.22)	5.50
4998	RG59	6.60 (.26)	5.75
4999	RG174	2.79 (.11)	10.75

*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
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ITT POMONA ELECTRONICS

AUDIO CONNECTORS GENERAL INFORMATION

ITT Pomona audio connectors are rugged, quick disconnect devices designed for use in audio systems and other applications where reliability and quiet operation are the password. Three different series are provided, each with a solid, metal latching mechanism to assure positive, yet quick connect/disconnect.

For further information on these versatile connectors and other Pomona products please contact your Sales Representative as shown on the front cover of this catalog. Or, you may contact the factory direct, ITT Pomona Electronics, 1500 East Ninth Street, Pomona, California 91766; Telephone (714) 623-6751 or 623-3463.

Some of the salient features of the three series are as follows:

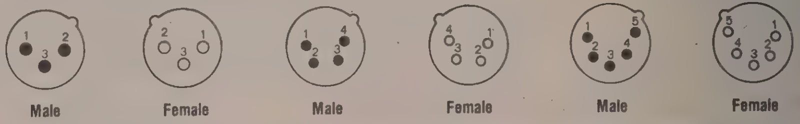
XLA SERIES (MODELS 5098, 5099)
- Body, same as XLR.
- Insulator, glass filled thermoplastic.
- Contact sockets stamped nickel silver.
- Contact pins silver plated copper alloy
- UL recognized materials.

XLR PROFESSIONAL SERIES (MODELS 5109-5113, 5117-5131)
- Body, satin finish, nickel plated zinc or aluminum shell.
- Resilient socket insulator for excellent low noise/vibration performance.
- Contacts, silver plated, solid machined copper alloy.
- Nickel plated steel barrel.
- Nickel silver latch and stainless steel latch spring.
- UL recognized.

XLB SERIES (MODELS 5100-5103)
- Insulator, thermoplastic (glass filled nylon).
- Internal cable clamping mechanism.
- Three contacts with separate ground lug.
- UL recognized materials.

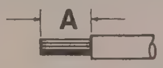
CONTACT ARRANGEMENT AND GENERAL PERFORMANCE

CONTACT ARRANGEMENT


1
2
3
Male
2
1
3
Female
1
4
2
3
Male
4
1
3
2
Female
1
5
2
4
3
Male
5
1
4
2
3
Female

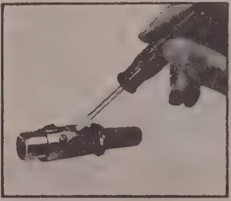
Number of Contacts	3	4	5
Current Rating	15 A	10 A	7.5 A
Test Voltage	1400 V	1400 V	1400 V
Operating Voltage	133 V	133 V	133 V
Contact Resistance	21 mV max. @ 25 ADC	25 mV max. @ 20 ADC	25 mV max. @ 10 ADC
Insulation Resistance	1 GΩ min. @ 500 VDC	1 GΩ min. @ 500 VDC	1 GΩ min. @ 500 VDC
Temperature Range	−55°C to +125°C (−67°F to +257°F)	−55°C to +125°C (−67°F to +257°F)	−55°C to +125°C (−67°F to +257°F)

ASSEMBLY

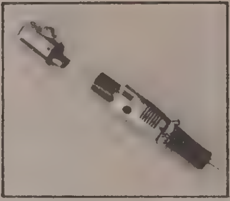


No. of Contacts	A Dimension (strip length)
3	6.40 (.250)
4	5.60 (.220)
5	5.10 (.200)

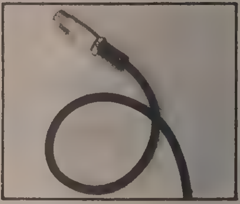
Strip Wire



Disassemble

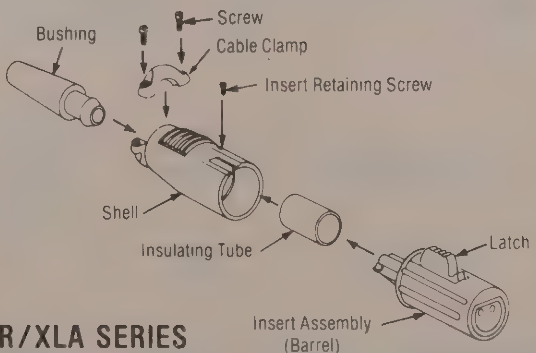


Insert Cable and Solder

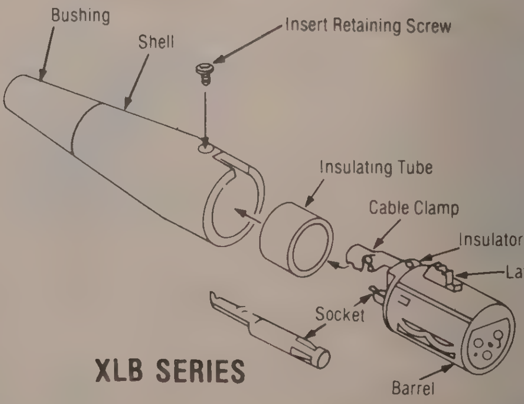


Reassemble

General Construction


Bushing
Screw
Cable Clamp
Insert Retaining Screw
Shell
Insulating Tube
Latch
Insert Assembly (Barrel)

XLR/XLA SERIES


Bushing
Shell
Insert Retaining Screw
Insulating Tube
Cable Clamp
Insulator
Latch
Socket
Barrel

XLB SERIES

* See page 126 of the Pomona Catalog for quantity purchases.

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ITT POMONA ELECTRONICS

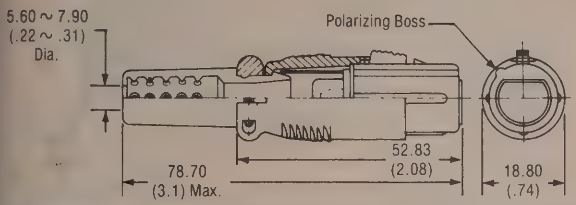
AUDIO CONNECTORS — XLR PROFESSIONAL SERIES

STRAIGHT CORD PLUG — FEMALE

This cord plug accepts all male receptacles with the same pin count as well as the male cord plug. Standard mating configuration will accommodate competitive units.

(See page 49 for details.)

5109 Shown


5.60 ~ 7.90
(.22 ~ .31)
Dia.
Polarizing Boss
52.83
(2.08)
78.70
(3.1) Max.
18.80
(.74)

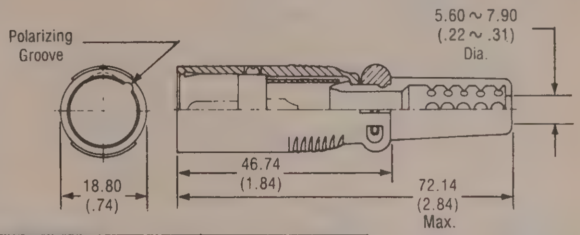
Model No.	Sockets	XL Style	*Net
5109	3	XLR-3-11C	3.25
5118	4	XLR-4-11C	4.55
5125	5	XLR-5-11C	5.95

STRAIGHT CORD PLUG — MALE

This cord plug accepts all female receptacles with the same pin count as well as the female cord plug. Standard mating configuration will accommodate competitive units.

(See page 49 for details.)

5110 Shown


Polarizing
Groove
5.60 ~ 7.90
(.22 ~ .31)
Dia.
46.74
(1.84)
18.80
(.74)
72.14
(2.84)
Max.

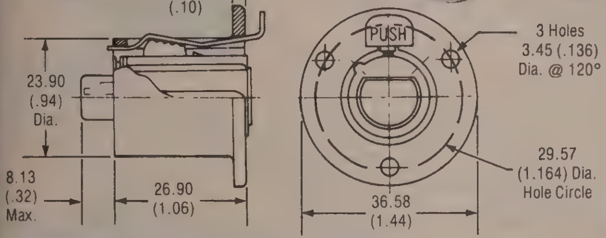
Model No.	Pins	XL Style	*Net
5110	3	XLR-3-12C	2.35
5119	4	XLR-4-12C	3.00
5126	5	XLR-5-12C	3.15

WALL/FLOOR MOUNT RECEPTACLE — FEMALE

This receptacle accepts male cord plugs with the same pin count. Standard mating configuration will accommodate competitive units.

(See page 49 for details.)

5111 Shown


2.50
(.10)
PUSH
3 Holes
3.45 (.136)
Dia. @ 120°
23.90
(.94)
Dia.
29.57
(1.164) Dia.
Hole Circle
8.13
(.32)
Max.
26.90
(1.06)
36.58
(1.44)

Model No.	Sockets	XL Style	*Net
5111	3	XLR-3-13	4.65
5121	4	XLR-4-13	5.30
5127	5	XLR-5-13	6.30

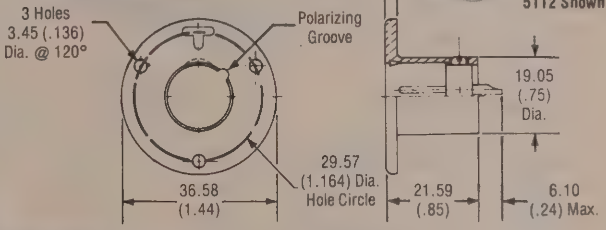
Note: Requires 24.2 mm (.954) dia. panel cutout.

WALL/FLOOR MOUNT RECEPTACLE — MALE

This receptacle accepts female cord plugs with the same pin count. Standard mating configuration will accommodate competitive units.

(See page 49 for details.)

5112 Shown


2.50 (.10)
3 Holes
3.45 (.136)
Dia. @ 120°
Polarizing
Groove
19.05
(.75)
Dia.
29.57
(1.164) Dia.
Hole Circle
36.58
(1.44)
21.59
(.85)
6.10
(.24) Max.

Model No.	Pins	XL Style	*Net
5112	3	XLR-3-14	2.20
5122	4	XLR-4-14	2.65
5128	5	XLR-5-14	2.80

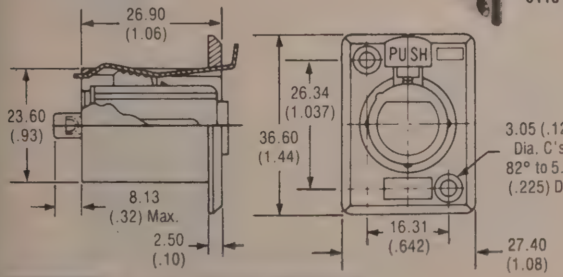
Note: Requires 19.8 mm (.780) dia. panel cutout.

WALL/FLOOR MOUNT RECEPTACLE — FEMALE

This receptacle accepts male cord plugs with the same pin count. Standard mating configuration will accommodate competitive units.

(See page 49 for details.)

5113 Shown


26.90
(1.06)
PUSH
26.34
(1.037)
23.60
(.93)
36.60
(1.44)
3.05 (.120)
Dia. C'sk
82° to 5.72
(.225) Dia.
8.13
(.32) Max.
2.50
(.10)
16.31
(.642)
27.40
(1.08)

Model No.	Sockets	XL Style	*Net
5113	3	XLR-3-31	3.90
5123	4	XLR-4-31	5.30
5129	5	XLR-5-31	6.30

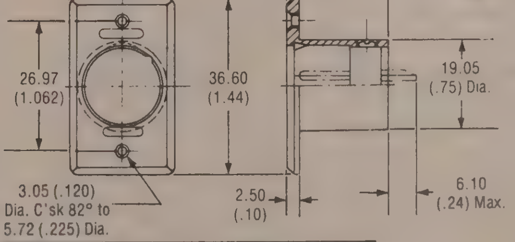
Note: Requires 24.6 mm (.969) dia. panel cutout.

WALL/FLOOR MOUNT RECEPTACLE — MALE

This receptacle accepts female cord plugs with the same pin count. Standard mating configuration will accommodate competitive units.

(See page 49 for details.)

5117 Shown


22.35
(.88)
21.59
(.85)
26.97
(1.062)
36.60
(1.44)
19.05
(.75) Dia.
3.05 (.120)
Dia. C'sk 82° to
5.72 (.225) Dia.
2.50
(.10)
6.10
(.24) Max.

Model No.	Pins	XL Style	*Net
5117	3	XLR-3-32	2.15
5131	4	XLR-4-32	2.20
5130	5	XLR-5-32	2.35

Note: Requires 19.8 mm (.780) dia. panel cutout.

★ See page 126 of the Pomona Catalog for quantity purchases.

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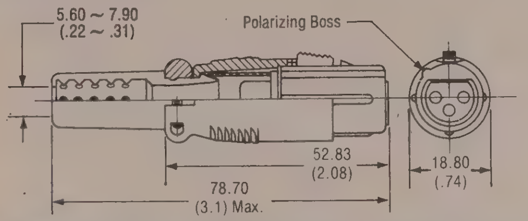
AUDIO CONNECTORS — XLA SERIES

STRAIGHT CORD PLUG — FEMALE

This cord plug accepts all male receptacles with three pins as well as the male cord plug. Standard mating configuration will accommodate competitive units. Unit has separate ground lug.

(See page 49 for details.)


5.60 ~ 7.90
(.22 ~ .31)
Polarizing Boss
52.83
(2.08)
18.80
(.74)
78.70
(3.1) Max.

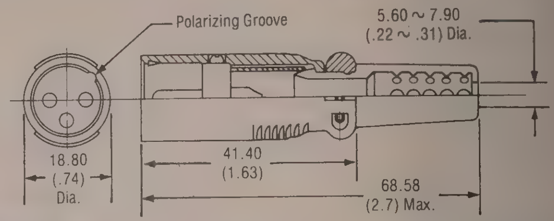
Model No.	Sockets	XL Style
5098	3	XLA-3-11C

***NET 2.80**

STRAIGHT CORD PLUG — MALE

This cord plug accepts all female receptacles with as well as female cord plug. Standard mating configuration will accommodate competitive units. Unit has separate ground lug.

(See page 49 for details.)


Polarizing Groove
5.60 ~ 7.90
(.22 ~ .31) Dia.
18.80
(.74)
Dia.
41.40
(1.63)
68.58
(2.7) Max.

Model No.	Pins	XL Style
5099	3	XLA-3-12C

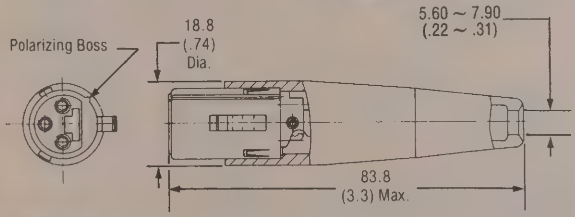
***NET 2.10**

AUDIO CONNECTORS — XLB SERIES

STRAIGHT CORD PLUG — FEMALE

This cord plug accepts all male receptacles with three pins as well as the male cord plug. Standard mating configuration will accommodate competitive units. Unit has separate ground lug.

(See page 49 for details.)


Polarizing Boss
18.8
(.74)
Dia.
5.60 ~ 7.90
(.22 ~ .31)
83.8
(3.3) Max.

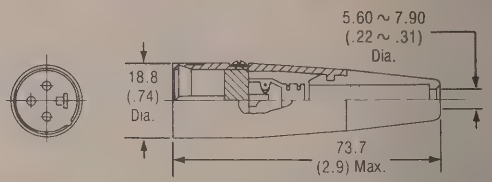
Model No.	Sockets	XL Style
5100	3	XLB-3-11C

***NET 2.65**

STRAIGHT CORD PLUG — MALE

This cord plug accepts all female receptacles with three sockets as well as the female cord plug. Standard mating configuration will accommodate competitive units. Unit has separate ground lug.

(See page 49 for details.)


5.60 ~ 7.90
(.22 ~ .31)
Dia.
18.8
(.74)
Dia.
73.7
(2.9) Max.

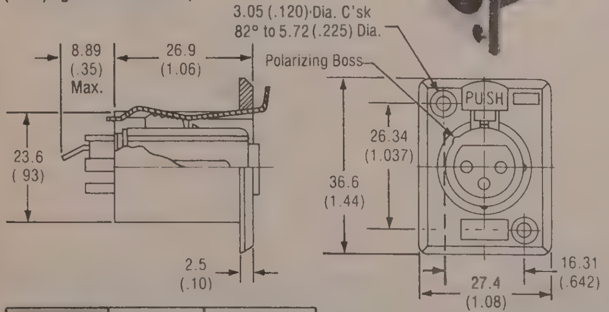
Model No.	Pins	XL Style
5101	3	XLB-3-12C

***NET 2.00**

WALL/FLOOR MOUNT RECEPTACLE — FEMALE

This receptacle accepts male cord plugs with three pins. Standard mating configuration will accommodate competitive units. Unit has separate ground lug.

(See page 49 for details.)


3.05 (.120) Dia. C'sk
82° to 5.72 (.225) Dia.
8.89
(.35)
Max.
26.9
(1.06)
Polarizing Boss
PUSH
23.6
(.93)
26.34
(1.037)
36.6
(1.44)
2.5
(.10)
27.4
(1.08)
16.31
(.642)

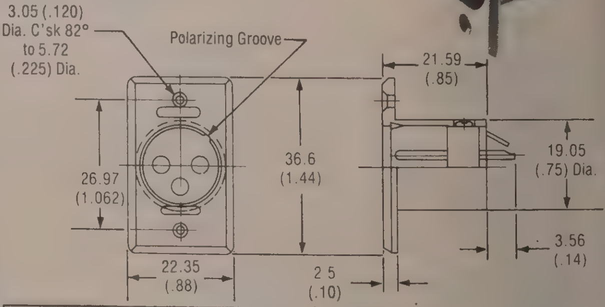
Model No.	Sockets	XL Style
5102	3	XLB-3-31

Note: Requires 24.6 mm (.969) dia. panel cutout. ***NET 3.05**

WALL/FLOOR MOUNT RECEPTACLE — MALE

This receptacle accepts female cord plugs with three sockets. Standard mating configuration will accommodate competitive units. Unit has separate ground lug.

(See page 49 for details.)


3.05 (.120)
Dia. C'sk 82°
to 5.72
(.225) Dia.
Polarizing Groove
21.59
(.85)
26.97
(1.062)
36.6
(1.44)
19.05
(.75) Dia.
3.56
(.14)
22.35
(.88)
2.5
(.10)

Model No.	Pins	XL Style
5103	3	XLB-3-32

Note: Requires 19.8 mm (.780) dia. panel cutout. ***NET 1.70**

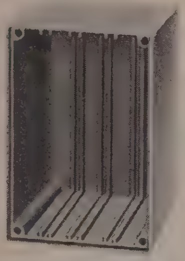
★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

THERMOPLASTIC/PHENOLIC "BLACK BOXES"

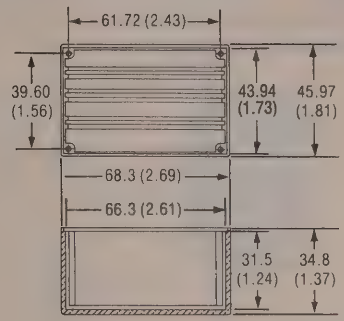
MOLDED THERMOPLASTIC BOX WITH CARD GUIDES



The box and cover are molded of antistatic Noryl which are almost unbreakable under normal use. Box and cover are easily machined. Three slots are provided for 1.57 mm (.062) circuit board. Cover and 4 each self-tapping (#2-32 x ¼″) cover screws included.

Operating temperature: +102°C. (+216°F.) Max.

Photo approximately one-half actual size.


61.72 (2.43)
39.60 (1.56)
43.94 (1.73)
45.97 (1.81)
68.3 (2.69)
66.3 (2.61)
31.5 (1.24)
34.8 (1.37)

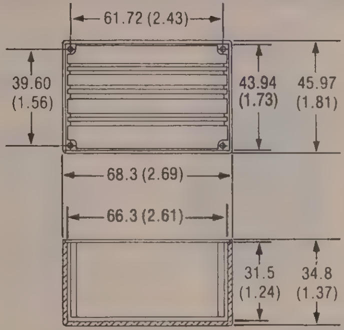
Model No.	Color
3850-0	Black
3850-6	Blue
3850-9	White

***NET 3.30**

MOLDED ANTISTATIC THERMOPLASTIC BOX WITH CARD GUIDES

The box and cover are molded of Noryl thermoplastic and prevents electrostatic buildup. Three slots are provided for 1.57 mm (.062) circuit board. Cover and 4 each self-tapping (#2-32 x ¼″) cover screws included. Temperature: Heat distortion temperature @ 265 psi greater than +204°C. (+400°F.). Color: Black.

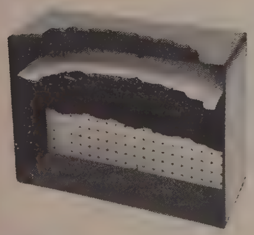
Photo approximately one-half actual size.


61.72 (2.43)
39.60 (1.56)
43.94 (1.73)
45.97 (1.81)
68.3 (2.69)
66.3 (2.61)
31.5 (1.24)
34.8 (1.37)

Model No.
4902

***NET 3.45**

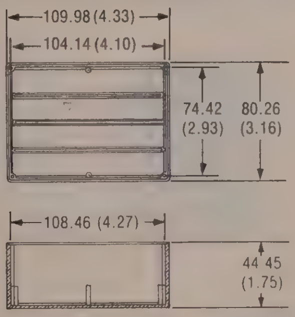
MOLDED THERMOPLASTIC BOX WITH CARD GUIDES



Box and cover molded of Noryl thermoplastic are almost unbreakable. Three slots are provided to permit lengthwise mounting of 1.57 mm (.062) thick circuit boards. Circuit boards may also be mounted horizontally. Box comes with 1.52 mm (.060) thick cover and four screws (#2-32 x ¼″).

Operating temperature:
+102°C. (+216°F.) Max.

Photo approximately one-third actual size.


109.98 (4.33)
104.14 (4.10)
74.42 (2.93)
80.26 (3.16)
108.46 (4.27)
44.45 (1.75)

Model No.	Color
4384-0	Black
4384-6	Blue

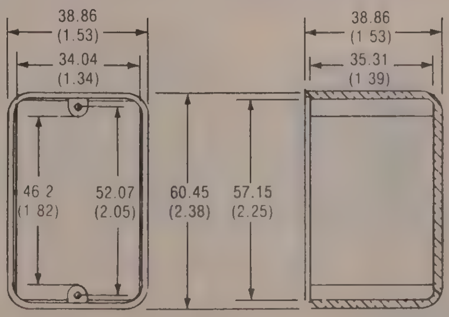
***NET 3.50**

BLACK BOX — KING SIZE

APPLICABLE SPECIFICATIONS:
Insulation: Phenolic, +150°C. (+302°F.)

(Includes cover and screws)

Photo approximately one-half actual size.


38.86 (1.53)
34.04 (1.34)
46.2 (1.82)
52.07 (2.05)
60.45 (2.38)
57.15 (2.25)
38.86 (1.53)
35.31 (1.39)

Model No.	Color
2104	Black
3724	Red
3725	Green

***NET 1.90**

★ See page 126 of the Pomona Catalog for quantity purchases.

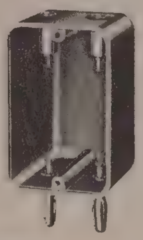
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

PHENOLIC "BLACK BOXES" — KING SIZE

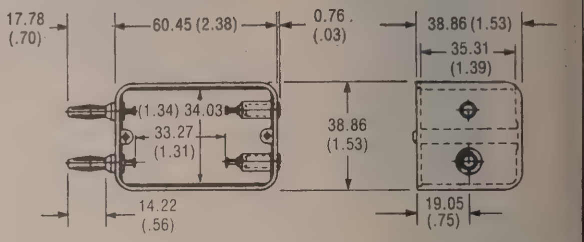
Create passive and active networks, voltage dividers, isolation networks or attenuators with these units. Solder turret terminals for permanent noise-free connection of components, etc. Entire unit may be potted or encapsulated.

COMPONENT MOUNTING — BANANA JACKS TO DOUBLE BANANA PLUG



UPPER: Banana jacks, 4.22 mm (.166) dia. and solder turret terminals on 19.05 mm (.750) centers. Brass, tin plated. Polarity indicator on top; color, red.
LOWER: Banana plugs on 19.05 mm (.750) centers. One piece beryllium copper spring, heat-treated. Plug body and solder turret terminals, brass, nickel plated per QQ-N-290. For use with standard 4.22 mm (.166) dia. banana jacks.
APPLICABLE SPECIFICATIONS:
Insulation: Phenolic, black.
RATINGS: 5000 WVDC 15 Amps cont., +150° C. (+302°F.) Max.

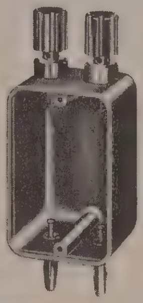
(Includes cover and screws)



Model No.
2224

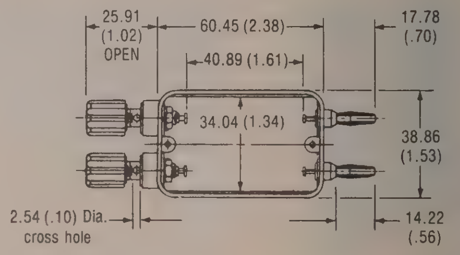
***NET 6.95**

COMPONENT MOUNTING — BINDING POSTS TO DOUBLE BANANA PLUG



UPPER: Banana jack binding posts with solder turret terminals, on 19.05 mm (.750) centers. Bright tin plated per MIL-T-10727. Insulation: Polycarbonate, one red and one black.
LOWER: Banana plugs on 19.05 mm (.750) centers. One piece beryllium copper spring, heat-treated. Plug body and solder turret terminals, brass, nickel plated per QQ-N-290. For use with standard 4.22 mm (.166) dia. banana jacks.
APPLICABLE SPECIFICATIONS:
Insulation: Phenolic, black.
RATINGS: 2500 WVDC 15 Amps. cont. +115°C. (+239°F.) Max.

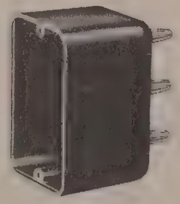
(Includes cover and screws)



Model No.
2262

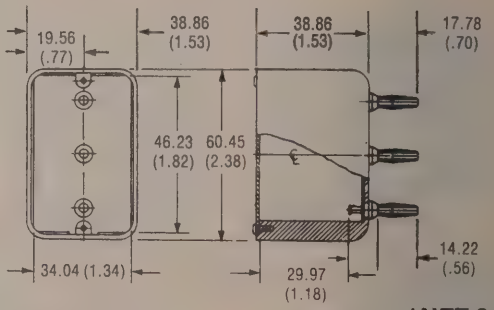
***NET 9.95**

COMPONENT MOUNTING — (3) 19.05 mm (.750) SPACED BANANA PLUGS



Three in-line 19.05 mm (.750) spaced banana plugs. One piece beryllium copper spring, heat-treated. Plug body and solder turret terminals, brass, nickel plated per QQ-N-290. For use with standard 4.22 mm (.166) dia. banana jacks.
APPLICABLE SPECIFICATIONS:
Insulation: Phenolic, black, +150°C. (+302°F.)
Voltage: (Banana plug) 5000 W VDC.
Current: 15 amps cont.

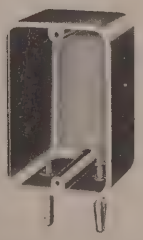
(Includes cover and screws)



Model No.
1943

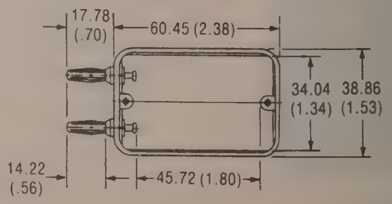
***NET 6.50**

COMPONENT MOUNTING — DOUBLE BANANA PLUG



UPPER: No connection.
LOWER: Banana plugs on 19.05 mm (.750) centers. One piece beryllium copper spring, heat-treated. Plug body and solder turret terminals, brass. Nickel plated per QQ-N-290. For use with standard 4.22 mm (.166) dia. banana jacks.
APPLICABLE SPECIFICATIONS:
Insulation: Phenolic, black, +150°C. (+302°F.) Max.
RATINGS: 5000 WVDC, 15 Amps cont.

(Includes cover and screws)



Model No.
1177

***NET 4.95**

***** See page 126 of the Pomona Catalog for quantity purchases.

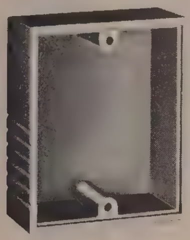
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

PHENOLIC "BLACK BOXES"

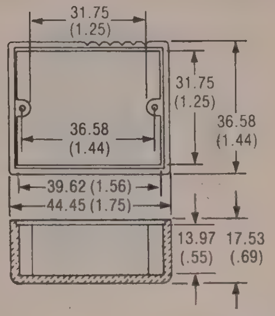
Create passive and active networks, voltage dividers, isolation networks or attenuators with these units. Solder turret terminals for permanent noise-free connection of components, etc. Entire unit may be potted or encapsulated.

BLACK BOX — JUNIOR SIZE



Housing molded of thermosetting electrical grade phenolic. Cover, punched XXP laminated paper base phenolic. Color, black.
RATINGS: +150°C. (+302°F.) Max.

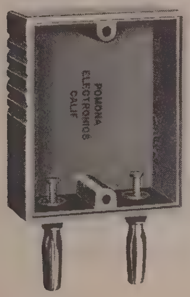
(Includes cover and screws)


31.75
(1.25)
31.75
(1.25)
36.58
(1.44)
36.58
(1.44)
39.62 (1.56)
44.45 (1.75)
13.97
(.55)
17.53
(.69)

Model No. 2105

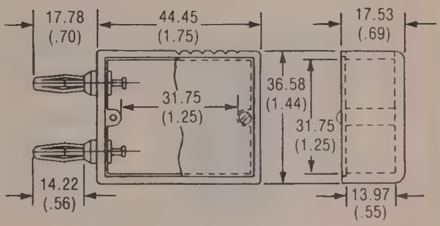
***NET 1.70**

COMPONENT MOUNTING — ACROSS BANANA PLUGS


POMONA
ELECTRONICS
CALIF

Housing molded of thermosetting electrical grade phenolic. Cover, punched XXP laminated paper base phenolic. Color, black.
UPPER: No connection.
LOWER: Banana plugs on 19.05 mm (.750) centers. One piece beryllium copper spring, heat-treated. Plug body and solder turret terminals, brass. Nickel plated per QQ-N-290. For use with standard 4.22 mm (.166) dia. banana jacks.
RATINGS: 5000 WVDC 15 amps cont., +150°C. (+302°F.) Max.

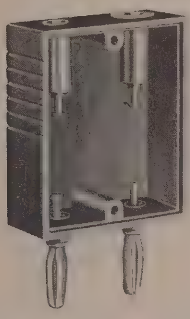
(Includes cover and screws)


17.78
(.70)
44.45
(1.75)
17.53
(.69)
31.75
(1.25)
36.58
(1.44)
31.75
(1.25)
14.22
(.56)
13.97
(.55)

Model No. 2096

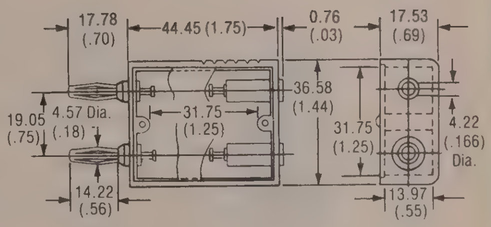
***NET 4.50**

COMPONENT MOUNTING — BANANA JACKS TO DOUBLE BANANA PLUG



Housing molded of thermosetting electrical grade phenolic. Cover, punched, XXP laminated paper base phenolic. Color, black.
UPPER: Banana jacks, 4.22 mm (.166) dia. and solder turret terminals on 19.05 mm (.750) centers. Brass, tin plated. Polarity indicators on top; color, red.
LOWER: Banana plugs on 19.05 mm (.750) centers. One piece beryllium copper spring, heat-treated. Plug body and solder turret terminals, brass. Nickel plated per QQ-N-290. For use with standard 4.22 mm (.166) dia. banana jacks.
RATINGS: 5000 WVDC 15 amps cont. +150°C. (+302°F.) Max.

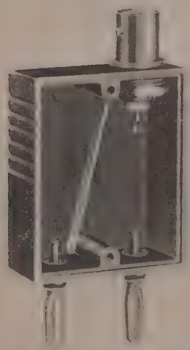
(Includes cover and screws)


17.78
(.70)
44.45 (1.75)
0.76
(.03)
17.53
(.69)
36.58
(1.44)
19.05
(.75)
4.57 Dia.
(.18)
31.75
(1.25)
31.75
(1.25)
4.22
(.166)
Dia.
14.22
(.56)
13.97
(.55)

Model No. 2098

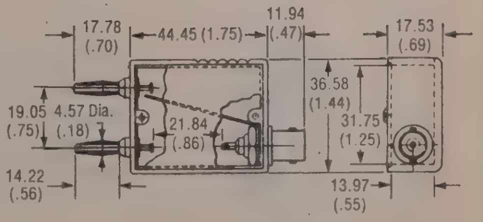
***NET 5.95**

COMPONENT MOUNTING — BNC FEMALE TO DOUBLE BANANA PLUG



Housing molded of thermosetting electrical grade phenolic. Cover, punched XXP laminated paper base phenolic. Color, black. +150°C. (+302°F.) Max.
UPPER: BNC female with extra long solder tab for ground connection.
LOWER: Banana plugs on 19.05 mm (.750) centers. One piece beryllium copper spring, heat-treated. Plug body and solder turret terminals, brass. Nickel plated per QQ-N-290. For use with standard 4.22 mm (.166) dia. banana jacks.
APPLICABLE SPECIFICATIONS:
Working voltage: (BNC connection) 500 Vrms.

(Includes cover and screws)


17.78
(.70)
44.45 (1.75)
11.94
(.47)
17.53
(.69)
36.58
(1.44)
19.05
(.75)
4.57 Dia.
(.18)
21.84
(.86)
31.75
(1.25)
14.22
(.56)
13.97
(.55)

Model No. 2097

***NET 10.95**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

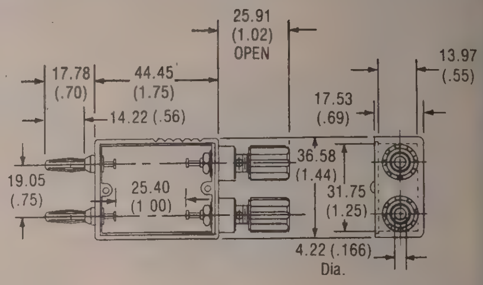
PHENOLIC "BLACK BOXES"

COMPONENT MOUNTING — BINDING POSTS TO DOUBLE BANANA PLUG

UPPER: Banana jack binding posts with solder turret terminals, on 19.05 mm (.750) centers. Bright tin plated per MIL-T-10727. Insulation: Polycarbonate, one red and one black.
LOWER: Banana plugs on 19.05 mm (.750) centers. One piece beryllium copper spring, heat-treated. Plug body and solder turret terminals, brass. Nickel plated per QQ-N-290. For use with standard 4.22 mm (.166) dia. banana jacks.
INSULATION: Phenolic, black.
RATINGS: 2500 WVDC, 15 Amps. Cont. +115°C. (+239°F.) Max.

(Includes cover and screws)

Photo approximately one-half actual size.


25.91
(1.02)
OPEN
13.97
(.55)
17.78
(.70)
44.45
(1.75)
14.22 (.56)
17.53
(.69)
36.58
(1.44)
19.05
(.75)
25.40
(1.00)
31.75
(1.25)
4.22 (.166)
Dia.

Model No.
2259

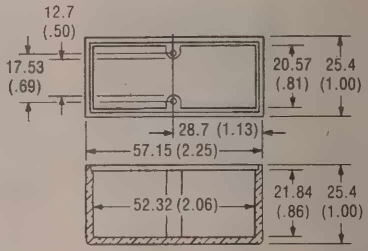
***NET 9.95**

BLACK BOX — QUEEN SIZE

APPLICABLE SPECIFICATIONS:
Insulation: Phenolic, black, +150°C. (+302°F.) Max.

(Includes covers and screws)

Photo approximately one-half actual size.


12.7
(.50)
17.53
(.69)
20.57
(.81)
25.4
(1.00)
28.7 (1.13)
57.15 (2.25)
52.32 (2.06)
21.84
(.86)
25.4
(1.00)

Model No.
2103

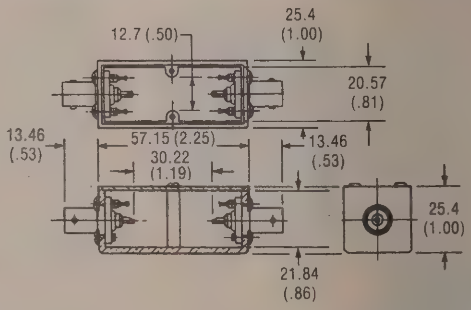
***NET 1.70**

COMPONENT MOUNTING — BNC FEMALE BOTH ENDS

UPPER: BNC female.
LOWER: BNC female.
APPLICABLE SPECIFICATIONS:
Insulation: Phenolic, black, +150°C. (+302°F.) Max.
Working voltage: 500 Vrms.

(Includes cover and screws)

Photo approximately one-half actual size.


12.7 (.50)
25.4
(1.00)
20.57
(.81)
13.46
(.53)
57.15 (2.25)
30.22
(1.19)
13.46
(.53)
25.4
(1.00)
21.84
(.86)

Model No.
2101

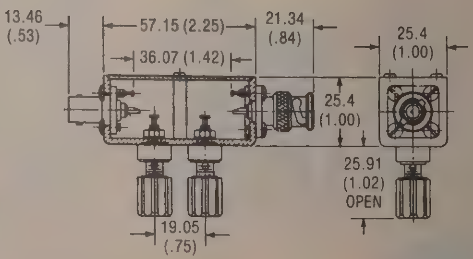
***NET 16.95**

COMPONENT MOUNTING — BNC RECEPTACLE TO BNC PLUG WITH BINDING POSTS

UPPER: BNC female.
CENTER: Banana jack binding posts with solder turret terminals. Insulation: Polycarbonate +115°C. (+239°F.) Max. One red and one black.
LOWER: BNC male.
APPLICABLE SPECIFICATIONS:
Insulation: Phenolic, black.
Working voltage: (BNC connectors) 500 Vrms.

(Includes cover and screws)

Photo approximately one-half actual size.


13.46
(.53)
57.15 (2.25)
21.34
(.84)
25.4
(1.00)
36.07 (1.42)
25.4
(1.00)
25.91
(1.02)
OPEN
19.05
(.75)

Model No.
2100

***NET 25.95**

* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

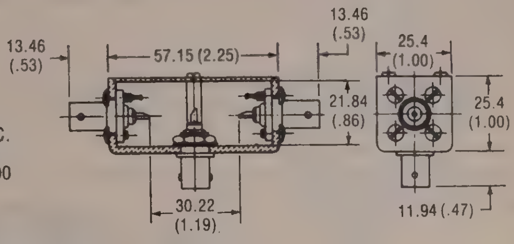
PHENOLIC "BLACK BOXES"

COMPONENT MOUNTING — BNC FEMALE "T"

UPPER: BNC female.
CENTER: BNC female.
LOWER: BNC female.
APPLICABLE SPECIFICATIONS:
Insulation: Phenolic, black, +150°C. (+302°F.) Max.
Working voltage: (BNC Connector) 500 Vrms.

(Includes cover and screws)

Photo approximately one-half actual size.


13.46
(.53)
57.15 (2.25)
13.46
(.53)
25.4
(1.00)
21.84
(.86)
25.4
(1.00)
30.22
(1.19)
11.94 (.47)

Model No.
2102

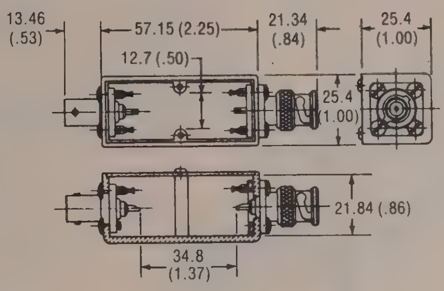
***NET 22.50**

COMPONENT MOUNTING — BNC MALE TO BNC FEMALE

UPPER: BNC male.
LOWER: BNC female.
APPLICABLE SPECIFICATIONS:
Insulation: Phenolic, black, +150°C. (+302°F.) Max.
Working voltage: (BNC connector) 500 Vrms.

(Includes cover and screws)

Photo approximately one-half actual size.


13.46
(.53)
57.15 (2.25)
21.34
(.84)
25.4
(1.00)
12.7 (.50)
25.4
(1.00)
21.84 (.86)
34.8
(1.37)

Model No.
2099

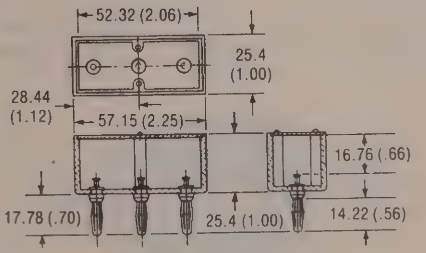
***NET 21.95**

COMPONENT MOUNTING — (3) 19.05 mm (.750) SPACED BANANA PLUGS

Three in-line 19.05 mm (.750) spaced banana plugs. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Plug body and solder turret terminals, brass. Nickel plated per QQ-N-290. For use with standard 4.22 mm (.166) dia. banana jacks.
APPLICABLE SPECIFICATIONS:
Insulation: Phenolic, black, +150°C. (+302°F.) Max.
Voltage((Banana plugs) 5000 W VDC.
Current: 15 amps cont.

(Includes cover and screws)

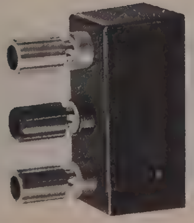
Photo approximately one-half actual size.


52.32 (2.06)
25.4
(1.00)
28.44
(1.12)
57.15 (2.25)
16.76 (.66)
17.78 (.70)
25.4 (1.00)
14.22 (.56)

Model No.
2095

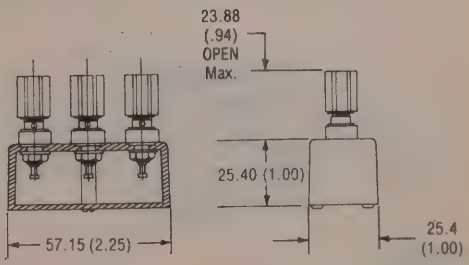
***NET 5.75**

COMPONENT MOUNTING BOX WITH BANANA JACK BINDING POSTS



Ideal for packaging networks and other varied uses.
BINDING POSTS: Three in-line 19.05 mm (.750) spaced banana jack binding posts with solder turrets one red, one black and one green. Insulation: polycarbonate, +115°C (+239°F.) Max. Bright tin plated.
BOX: Phenolic, black. Includes cover and two screws.

Photo approximately one-half actual size.


23.88
(.94)
OPEN
Max.
25.40 (1.00)
57.15 (2.25)
25.4
(1.00)

Model No.
4746

***NET 11.95**

* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

DIE CAST SHIELDED "BLACK BOXES"

Pomona Electronics, shielded "Black Boxes" that fulfill the requirement for RF applications are manufactured in a variety of sizes.
Ideal for compact packaging (voltage dividers, isolation networks, impedance matching networks), and other varied uses.
Cover and screws included.

SPECIFICATIONS: (All Models)

- Operating temperature: −55°C. (−67°F.) to +150°C. (+302°F.)
- Working voltage: 500 V peak.
- Noise rejection: Greater than 70 dB.

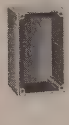
(See pages 69 and 70 for accessories and replacement parts)
These photos are not to scale, for visual purposes only, see pages 57, 58, 62, 64, 65 and 66 for actual dimensions.

FEATURES:

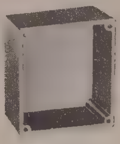
- Shielded housing; Die cast aluminum, Alloy A380 or A384.
- Finish: Blue baked enamel per Federal Standard 595 #25109 over phosphoric etch per MIL-C-15328.
- Cover: Aluminum 1100-H14 with clear anodized finish per MIL-A-8625.
- Completely enclosed box provides proper shielding.

MINIATURE
(1.50) x (1.13)
x (.88) Deep
Ref. Model 3753
See pg. 57

SIZE A
(2.25) x (1.13)
x (.88) Deep
Ref. Model 2397
See pg. 58



SIZE B
(2.25) x (1.38)
x (1.12) Deep
Ref. Model 2417
See pg. 62

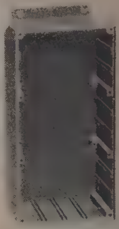


SIZE D
(3.00) x (2.63)
x (1.65) Deep
Ref. Model 3601
See pg. 65

SIZE J
(4.25) x (1.50)
x (1.06) Deep
Ref. Model 4655
See pg. 66

SIZE L
(6.00) x (3.00)
x (1.67) Deep
Ref. Model 4903
See pg. 66

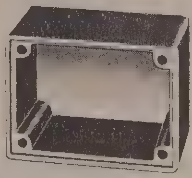
SIZE C
(2.63) x (4.29)
Excluding flanges
x (1.74) Deep
Ref. Model 2901
See pg. 64



SIZE E
(4.22) x (8.30)
Excluding flanges
x (1.73) Deep
Ref. Model 4226
See pg. 65

SHIELDED "BLACK BOXES" MINIATURE SIZE

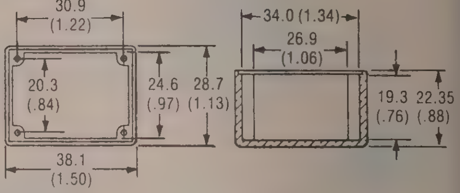
SHIELDED "BLACK BOX"



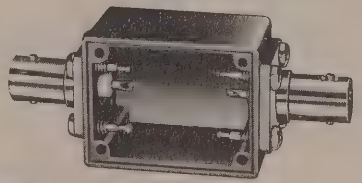
Model No.	*Net
3753	4.80
3754	4.55

MODEL 3753
FINISH: Blue baked enamel.
Includes 1.02 mm (.040) thick cover with part number and four 2-32 x .250 self-tapping pan head cover screws. (See top of page for specifications.)

MODEL 3754
FINISH: None.
Includes unmarked 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws. (See top of page for specifications.)



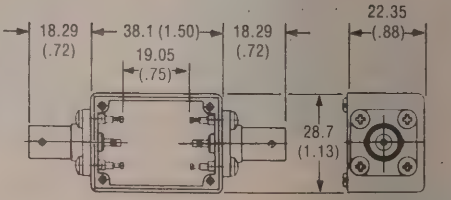
COMPONENT MOUNTING — BNC FEMALE BOTH ENDS



Model No.
3751

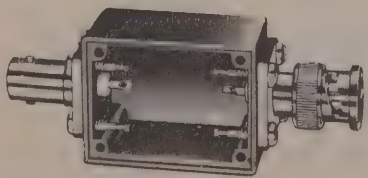
CONN: 1st END
BNC female.
CONN: 2nd END
BNC female.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws. (See top of page for specifications.)



***NET 18.50**

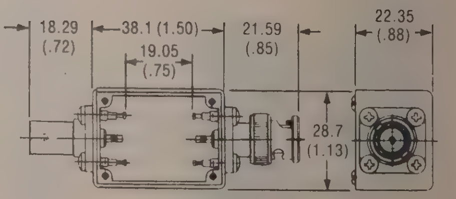
COMPONENT MOUNTING — BNC FEMALE TO BNC MALE



Model No.
3752

CONN: 1st END
BNC female
CONN: 2nd END
BNC male

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws. (See top of page for specifications.)



***NET 18.75**

★ See page 126 of the Pomona Catalog for quantity purchases.

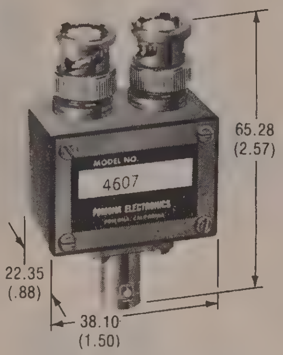
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

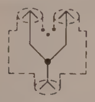
SHIELDED "BLACK BOXES" — MINIATURE SIZE

TWO BNC MALES TO BNC FEMALE

This BNC adapter will accept (2) BNC females on 17.0 mm (.68) centers and one BNC male on opposite end. Die cast aluminum housing with baked enamel finish. All metal construction insures proper shielding.
UPPER: (2) BNC males.
LOWER: BNC female.
COLOR: Blue.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws. (See top of page 57 for specifications.)


MODEL NO.
4607
POMONA ELECTRONICS
65.28
(2.57)
22.35
(.88)
38.10
(1.50)



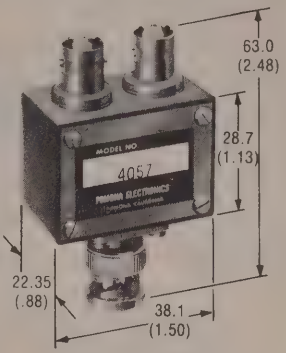
Model No.
4607

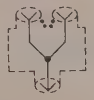
***NET 36.75**

TWO BNC FEMALES TO BNC MALE — "IN-LINE T"

Excellent for use where space requires cables to come straight out instead of at a right angle. Die cast aluminum housing with baked enamel finish. All metal construction to insure proper shielding.
UPPER: (2) BNC females on 17.0 mm (.68) centers.
LOWER: BNC male.
COLOR: Blue.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws. (See top of page 57 for specifications.)


MODEL NO.
4057
POMONA ELECTRONICS
63.0
(2.48)
28.7
(1.13)
22.35
(.88)
38.1
(1.50)



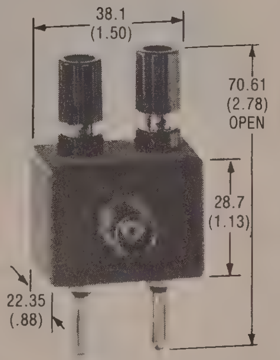
Model No.
4057

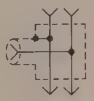
***NET 26.95**

BINDING POSTS TO DOUBLE BANANA PLUG WITH BNC FEMALE

UPPER: Insulated binding posts: Polycarbonate, +115°C. (+239°F.) Max. One red, and one black on 19.05 mm (.750) centers with 4.22 mm (.166) dia. in body for side stackup connections.
CENTER: BNC female.
LOWER: Banana plugs on 19.05 mm (.750) centers, nickel plated.
COLOR: Blue.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws. (See top of page 57 for specifications.)


38.1
(1.50)
70.61
(2.78)
OPEN
28.7
(1.13)
22.35
(.88)



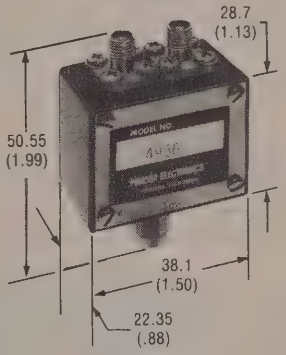
Model No.
4050

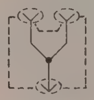
***NET 28.75**

TWO SMA FEMALES TO SMA MALE — "IN-LINE T"

This adapter will accept (2) SMA males on 14.23 mm (.56) centers. A single SMA male is on the opposite end.
UPPER: (2) SMA females, gold plated.
LOWER: SMA male, gold plated.
COLOR: Blue.

Includes 1.02 mm (.040) thick cover and our 2-32 x .250 self-tapping pan head cover screws. (See top of page 57 for specifications.)


28.7
(1.13)
MODEL NO.
4936
50.55
(1.99)
38.1
(1.50)
22.35
(.88)



Model No.
4936

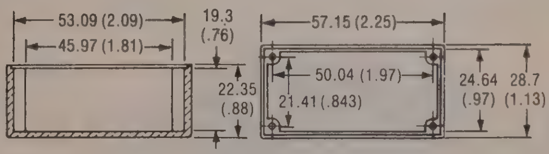
***NET 84.95**

SHIELDED "BLACK BOXES" — SIZE "A"

SHIELDED "BLACK BOX"

MODEL 2397
FINISH: Blue baked enamel.
Includes 1.02 mm (.040) thick cover with part number and four 2-32 x .250 self-tapping pan head cover screws. (See top of page 57 for specifications.)

MODEL 2400
FINISH: None
Includes unmarked 1.02 mm (.040) thick cover and four 2-32 x .250 self tapping pan head screws. (See top of page 57 for specifications.)


53.09 (2.09)
45.97 (1.81)
19.3
(.76)
22.35
(.88)
57.15 (2.25)
50.04 (1.97)
21.41 (.843)
24.64
(.97)
28.7
(1.13)

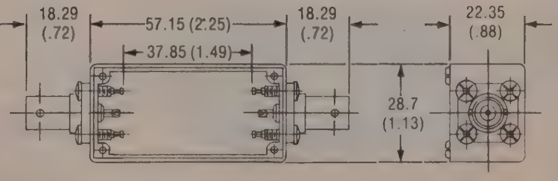
Model No.	*Net
2397	4.95
2400	4.40

COMPONENT MOUNTING — BNC FEMALES BOTH ENDS

CONN 1st END
BNC female.

CONN: 2nd END
BNC female.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws. (See top of page 57 for specifications.)


18.29
(.72)
57.15 (2.25)
37.85 (1.49)
18.29
(.72)
22.35
(.88)
28.7
(1.13)

Model No.
2390

***NET 15.95**

* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

SHIELDED "BLACK BOXES"

SHIELDED COMPONENT MOUNTING BOX WITH BANANA JACK BINDING POSTS ("A" SIZE)

Ideal for packaging (voltage dividers, isolation networks, impedance matching networks), and other varied uses. **BINDING POSTS:** Three, in-line 19.05 mm (.750) spaced banana jack binding posts with solder turrets, one red, one black and one green. Insulation: polycarbonate, +115°C. (+239°F.) Max. Bright tin plated.

Includes large 1.02 mm (.040) thick cover plate with mounting flanges (see Model 3728) and four 2-32 x .250 self-tapping pan head cover screws. (See top of page 57 for specifications.)

Model No.
4745

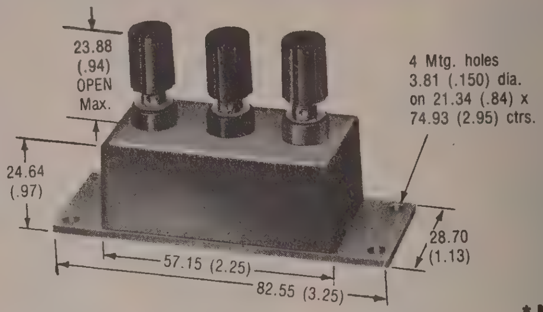

23.88
(.94)
OPEN
Max.
24.64
(.97)
4 Mtg. holes
3.81 (.150) dia.
on 21.34 (.84) x
74.93 (2.95) ctrs.
28.70
(1.13)
57.15 (2.25)
82.55 (3.25)

Photo approximately one-half actual size.

*** NET 15.95**

COMPONENT MOUNTING BOX WITH SPRING-LOADED BINDING POSTS ("B" SIZE)

CENTER: Two in-line 19.0 mm (.750) spaced fully insulated spring-loaded binding posts (see Model 4770), one red and one black.
Insulation: Polycarbonate, +115°C. (+239°F.) Max.

Includes large 1.02 mm (.040) thick cover plate with mounting flanges (see Model 3719) and four 2-32 x .250 self-tapping pan head cover screws. (See top of page 57 for specifications.)

Model No.
4932

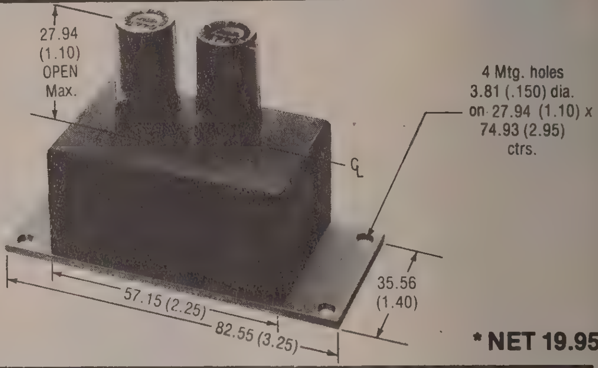
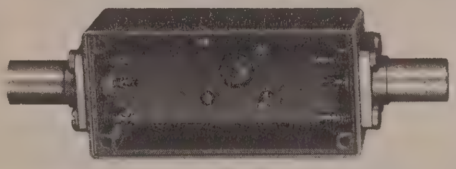

27.94
(1.10)
OPEN
Max.
4 Mtg. holes
3.81 (.150) dia.
on 27.94 (1.10) x
74.93 (2.95)
ctrs.
℄
35.56
(1.40)
57.15 (2.25)
82.55 (3.25)

Photo approximately one-half actual size.

*** NET 19.95**

COMPONENT MOUNTING — BNC FEMALE "T" ("A" SIZE)

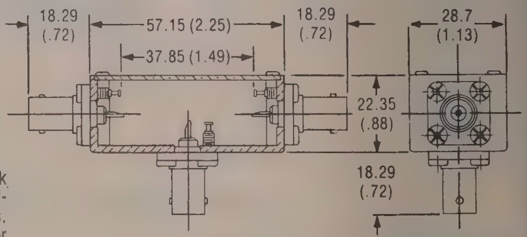


CONN: 1st END
BNC female.

CENTER:
BNC female.

CONN: 2nd END
BNC female.

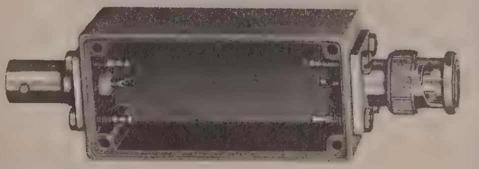
Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws. (See top of page 57 for specifications.)


18.29
(.72)
57.15 (2.25)
18.29
(.72)
28.7
(1.13)
37.85 (1.49)
22.35
(.88)
18.29
(.72)

Model No.
2392

***NET 22.95**

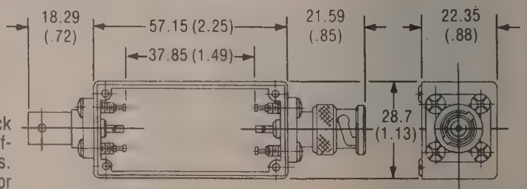
COMPONENT MOUNTING — BNC FEMALE TO BNC MALE ("A" SIZE)



CONN: 1st END
BNC female.

CONN: 2nd END
BNC male.

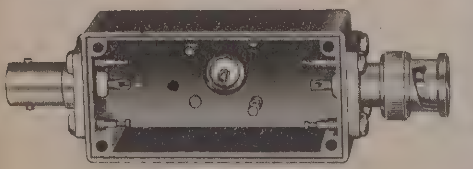
Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws. (See top of page 57 for specifications.)


18.29
(.72)
57.15 (2.25)
21.59
(.85)
22.35
(.88)
37.85 (1.49)
28.7
(1.13)

Model No.
2391

*** NET 18.75**

COMPONENT MOUNTING — "T" TWO BNC FEMALES TO BNC MALE ("A" SIZE)

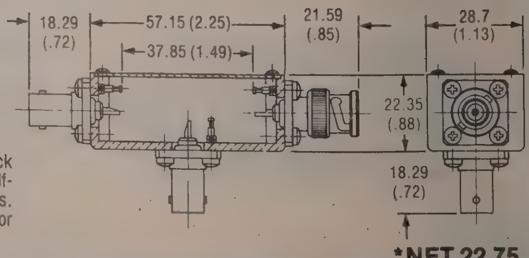


CONN: 1st END
BNC female.

CENTER:
BNC female.

CONN:2nd END
BNC male.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws. (See top of page 57 for specifications.)


18.29
(.72)
57.15 (2.25)
21.59
(.85)
28.7
(1.13)
37.85 (1.49)
22.35
(.88)
18.29
(.72)

Model No.
2401

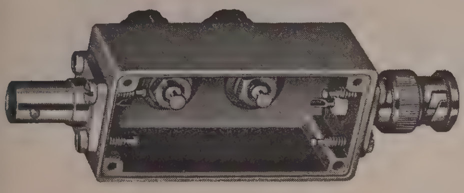
***NET 22.75**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

SHIELDED "BLACK BOXES" — "A" SIZE

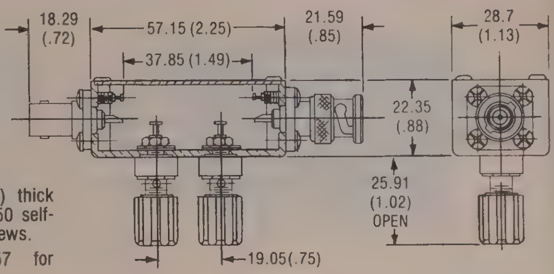
COMPONENT MOUNTING — BNC FEMALE TO BNC MALE WITH BINDING POSTS



CONN: 1st END
BNC female.
CENTER:
Banana jack binding posts with solder turret terminals; red and black.
CONN: 2nd END
BNC male.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws.

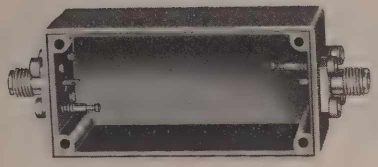
(See top of page 57 for specifications.)


18.29
(.72)
57.15 (2.25)
21.59
(.85)
28.7
(1.13)
37.85 (1.49)
22.35
(.88)
25.91
(1.02)
OPEN
19.05(.75)

Model No.
2393

*** NET 25.75**

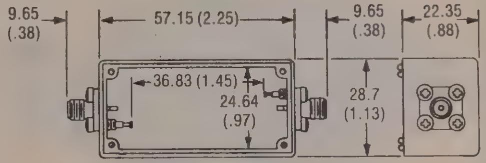
COMPONENT MOUNTING — SMA FEMALES BOTH ENDS



CONN: 1st END
SMA female.
CONN: 2nd END
SMA female.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws.

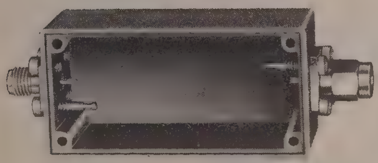
(See top of page 57 for specifications.)


9.65
(.38)
57.15 (2.25)
9.65
(.38)
22.35
(.88)
36.83 (1.45)
24.64
(.97)
28.7
(1.13)

Model No.
2399

***NET 36.95**

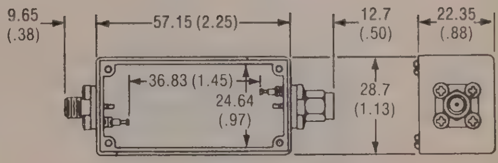
COMPONENT MOUNTING — SMA FEMALE TO SMA MALE



CONN: 1st END
SMA female.
CONN: 2nd END
SMA male.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws.

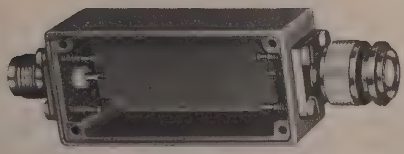
(See top of page 57 for specifications.)


9.65
(.38)
57.15 (2.25)
12.7
(.50)
22.35
(.88)
36.83 (1.45)
24.64
(.97)
28.7
(1.13)

Model No.
2398

*** NET 59.95**

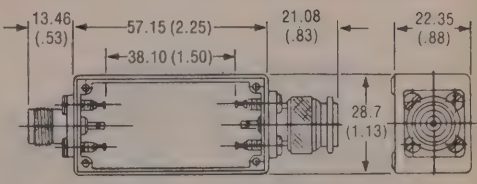
COMPONENT MOUNTING — TNC FEMALE TO TNC MALE



CONN: 1st END
TNC female.
CONN: 2nd end
TNC male.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws.

(See top of page 57 for specifications.)


13.46
(.53)
57.15 (2.25)
21.08
(.83)
22.35
(.88)
38.10 (1.50)
28.7
(1.13)

Model No.
2395

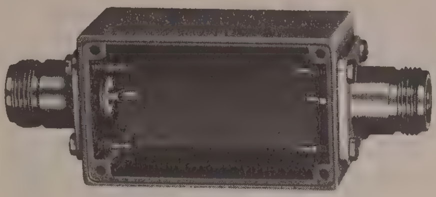
***NET 36.50**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

SHIELDED "BLACK BOXES" — SIZE "B"

COMPONENT MOUNTING — TYPE "N" FEMALE BOTH ENDS

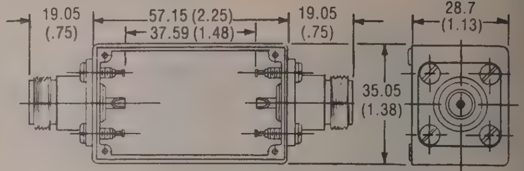


CONN: 1st END
Type "N" female.

CONN: 2nd END
Type "N" female.

(Includes cover and screws)

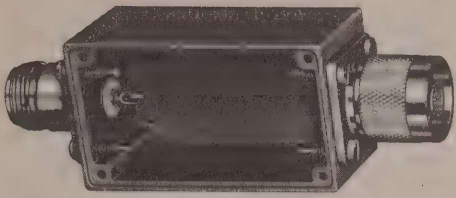
(See top of page 57 for specifications)


19.05
(.75)
57.15 (2.25)
37.59 (1.48)
19.05
(.75)
28.7
(1.13)
35.05
(1.38)

Model No.
2410

***NET 22.95**

COMPONENT MOUNTING — TYPE "N" FEMALE TO TYPE "N" MALE

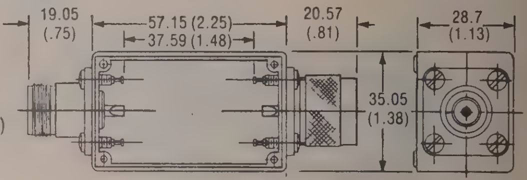


CONN: 1st END
Type "N" female.

CONN: 2ND END
Type "N" male.

(Includes cover and screws)

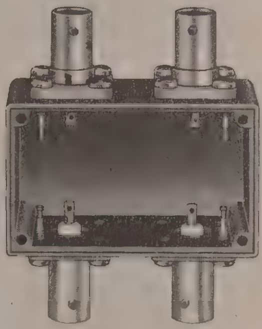
(See top of page 57 for specifications)


19.05
(.75)
57.15 (2.25)
37.59 (1.48)
20.57
(.81)
28.7
(1.13)
35.05
(1.38)

Model No.
2411

***NET 29.95**

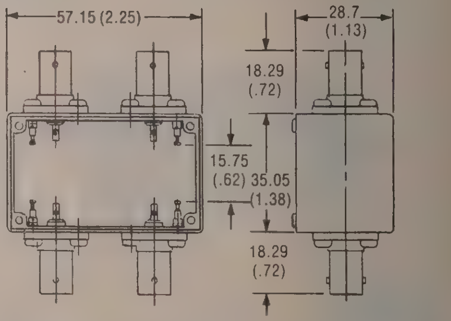
COMPONENT MOUNTING — CROSS CONNECTIONS



CONN:
4 each BNC females.

(Includes cover and screws)

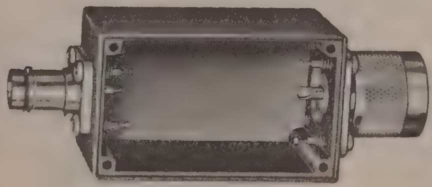
(See top of page 57 for specifications)


57.15 (2.25)
28.7
(1.13)
18.29
(.72)
15.75
(.62)
35.05
(1.38)
18.29
(.72)

Model No.
3234

***NET 25.95**

COMPONENT MOUNTING — BNC FEMALE TO TYPE "N" MALE

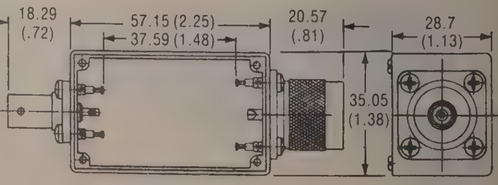


CONN: 1st END
BNC female.

CONN: 2ND END
Type "N" male.

(Includes cover and screws)

(See top of page 57 for specifications)


18.29
(.72)
57.15 (2.25)
37.59 (1.48)
20.57
(.81)
28.7
(1.13)
35.05
(1.38)

Model No.
2420

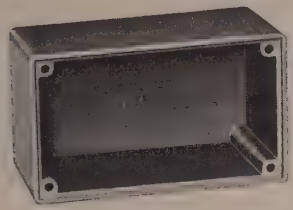
***NET 29.95**

* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

SHIELDED "BLACK BOXES" — SIZE "B"

SHIELDED "BLACK BOX"

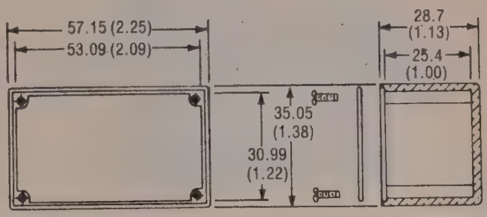


MODEL 2417
FINISH: Blue baked enamel.
Includes 1.02 mm (.040) thick cover with part number and four 2-32 x .250 self-tapping pan head cover screws.

(See top of page 57 for specifications.)

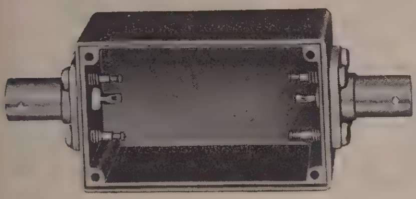
MODEL 2428
FINISH: None.
Includes unmarked 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws.

(See top of page 57 for specifications.)


57.15 (2.25)
53.09 (2.09)
35.05 (1.38)
30.99 (1.22)
28.7 (1.13)
25.4 (1.00)

Model No.	*Net
2417	5.25
2428	4.95

COMPONENT MOUNTING — BNC FEMALE BOTH ENDS

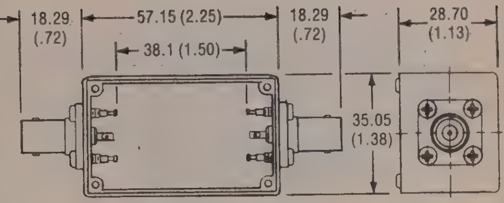


CONN: 1st END
BNC female.

CONN: 2nd END
BNC female.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws.

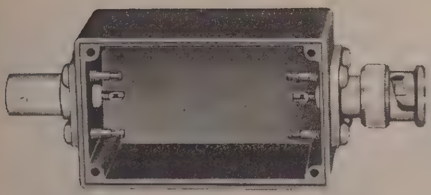
(See top of page 57 for specifications.)


18.29 (.72)
57.15 (2.25)
18.29 (.72)
38.1 (1.50)
28.70 (1.13)
35.05 (1.38)

Model No.
3230

*** NET 15.95**

COMPONENT MOUNTING — BNC FEMALE TO BNC MALE

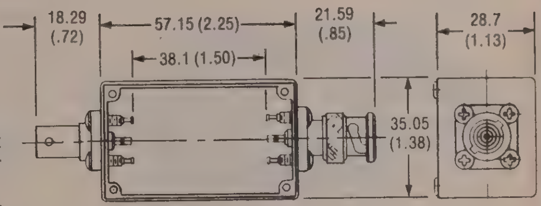


CONN: 1st END
BNC female.

CONN: 2nd END
BNC male.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws.

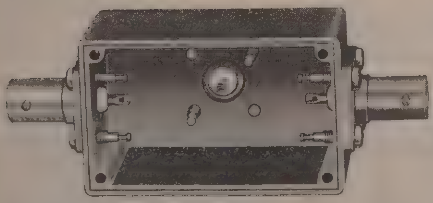
(See top of page 57 for specifications.)


18.29 (.72)
57.15 (2.25)
21.59 (.85)
38.1 (1.50)
28.7 (1.13)
35.05 (1.38)

Model No.
3231

*** NET 19.25**

COMPONENT MOUNTING — BNC FEMALE "T"



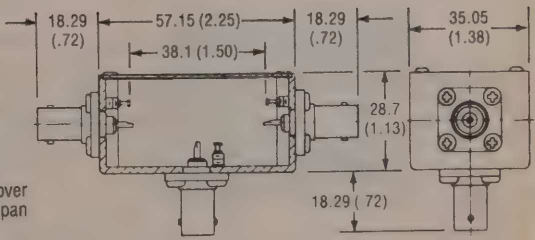
CONN: 1st END
BNC female.

CENTER:
BNC female.

CONN: 2nd END
BNC female.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws.

(See top of page 57 for specifications.)


18.29 (.72)
57.15 (2.25)
18.29 (.72)
38.1 (1.50)
35.05 (1.38)
28.7 (1.13)
18.29 (72)

Model No.
3232

*** NET 23.95**

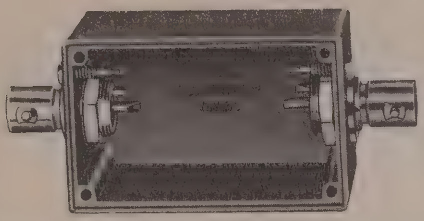
* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

SHIELDED "BLACK BOXES" — SIZE "B"

COMPONENT MOUNTING — ISOLATED BNC FEMALE BOTH ENDS



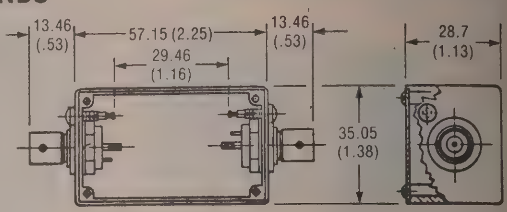
Ideal for application when it is desirable to isolate signal ground from chassis ground.

CONN: 1st END
Isolated BNC female.

CONN. 2nd END
Isolated BNC female.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws.

(See top of page 57 for specifications.)


13.46
(.53)
57.15 (2.25)
13.46
(.53)
29.46
(1.16)
28.7
(1.13)
35.05
(1.38)

Model No.
3239

***NET 24.95**

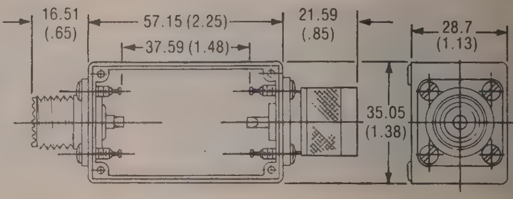
COMPONENT MOUNTING — UHF FEMALE TO UHF MALE

CONN: 1st END
UHF female.

CONN: 2nd END
UHF male.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws.

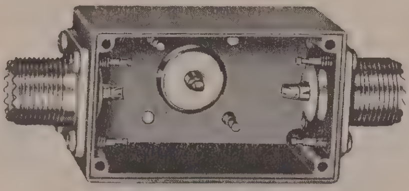
(See top of page 57 for specifications.)


16.51
(.65)
57.15 (2.25)
21.59
(.85)
37.59 (1.48)
28.7
(1.13)
35.05
(1.38)

Model [illegible]
2413

*** NET 29.95**

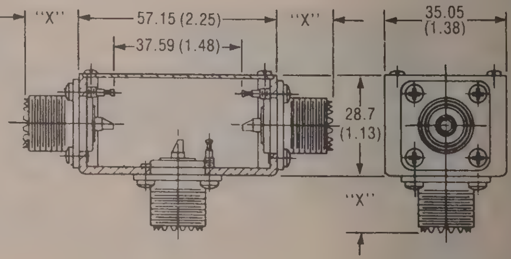
COMPONENT MOUNTING — UHF OR TYPE "N" FEMALE "T"



MODEL 2418 SHOWN

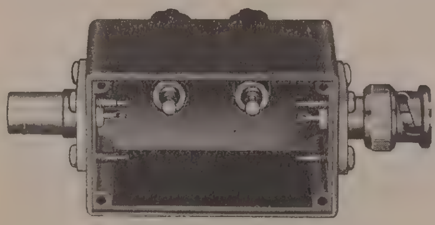
Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws.

(See top of page 57 for specifications.)


"X"
57.15 (2.25)
"X"
37.59 (1.48)
35.05
(1.38)
28.7
(1.13)
"X"

Model No.	Connectors	"X" Dim.	*Net
2418	(3) UHF females	16.51 (.65)	32.95
2419	(3) Type "N" females	19.05 (.75)	29.50

COMPONENT MOUNTING — BNC FEMALE TO BNC MALE WITH BINDING POSTS



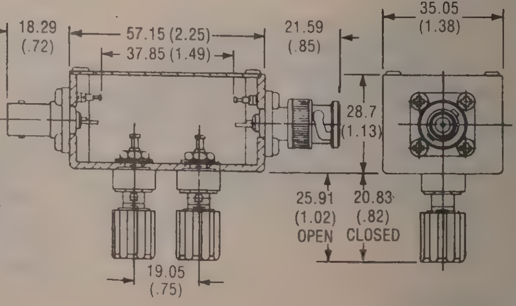
CONN: 1st END
BNC female.

CENTER: Banana jack binding posts with solder turret terminals; red and black.

CONN: 2nd END
BNC male.

Includes 1.02 mm (.040) thick cover and four 2-32 x .250 self-tapping pan head cover screws.

(See top of page 57 for specifications.)


18.29
(.72)
57.15 (2.25)
37.85 (1.49)
21.59
(.85)
35.05
(1.38)
28.7
(1.13)
25.91
(1.02)
OPEN
20.83
(.82)
CLOSED
19.05
(.75)

Model No.
3233

*** NET 27.50**

* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

SHIELDED "BLACK BOXES" — SIZE "C"

A series of larger shielded "Black Boxes."

These larger boxes are excellent for compact packaging of voltage dividers, isolation networks and many other applications.

Cover and screws included.

SPECIFICATIONS: (All Models)

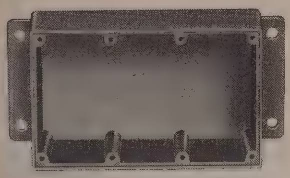
- Operating temperature: −55°C. (−67°F.) to +150°C. (+302°F.)
- Working voltage: 500 V. peak.
- Noise rejection: Greater than 70 dB.

(See pages 69 and 70 for accessories and replacement parts.)

FEATURES:

- Shielded housing: die cast aluminum, alloy A380 or A384.
- Finish: Blue baked enamel per Federal Standard 595 #25109 over phosphoric etch per MIL-C-15328.
- Cover: Aluminum 1100-H14 with clear anodized finish per MIL-A-8625.
- Solder turret terminals for permanent noise free connection of components.
- 2 flanges for easy mounting of box.

SHIELDED "BLACK BOX"



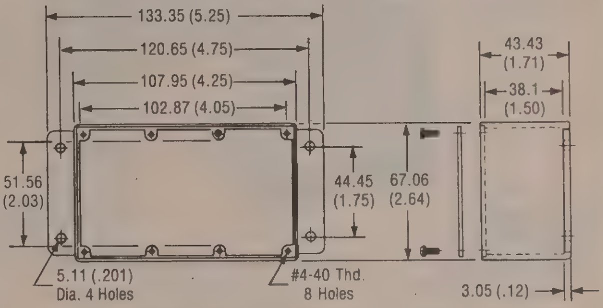
MODEL 2901
FINISH: Blue baked enamel.
Includes 2.03 mm (.080) thick cover with part number and eight 4-40 NC-2A x .250 binding head cover screws.

MODEL 2906
FINISH: None.
Includes unmarked 2.03 mm (.080) thick cover and eight 4-40 NC-2A x .250 binding head cover screws.

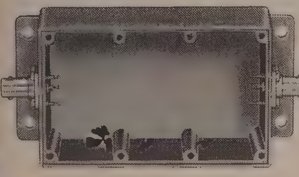
(See top of page for specifications.)

Photos approximately one third actual size.

Model No.	*Net
2901	11.95
2906	10.95


133.35 (5.25)
120.65 (4.75)
107.95 (4.25)
102.87 (4.05)
43.43 (1.71)
38.1 (1.50)
51.56 (2.03)
44.45 (1.75)
67.06 (2.64)
5.11 (.201) Dia. 4 Holes
#4-40 Thd. 8 Holes
3.05 (.12)

COMPONENT MOUNTING — BNC FEMALES



CONN: 1st END
BNC female.

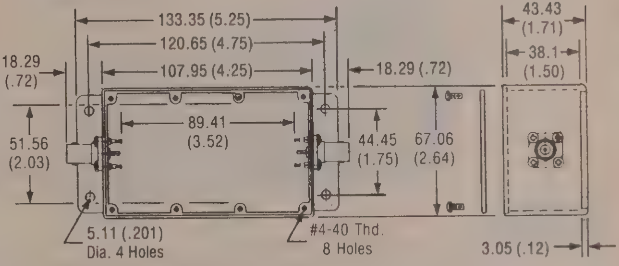
CONN: 2ND END
BNC female.

Includes 2.03 mm (.080) thick cover and 4-40 NC-2A x .250 binding head cover screws.

(See top of page for specifications.)

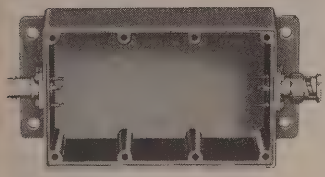
Photos approximately one third actual size.

Model No.
2902


133.35 (5.25)
120.65 (4.75)
107.95 (4.25)
18.29 (.72)
18.29 (.72)
89.41 (3.52)
43.43 (1.71)
38.1 (1.50)
51.56 (2.03)
44.45 (1.75)
67.06 (2.64)
5.11 (.201) Dia. 4 Holes
#4-40 Thd. 8 Holes
3.05 (.12)

***NET 22.75**

COMPONENT MOUNTING — BNC FEMALE TO BNC MALE



CONN: 1st END
BNC female.

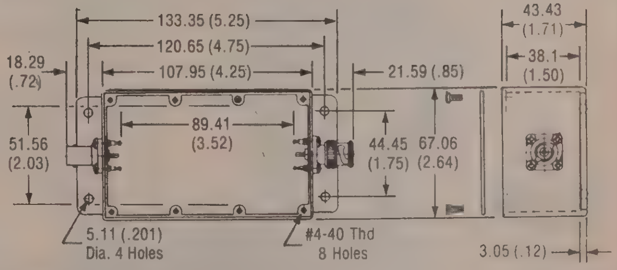
CONN: 2nd END
BNC male.

Includes 2.03 mm (.080) thick cover and 4-40 NC-2A x .250 binding head cover screws.

(See top of page for specifications.)

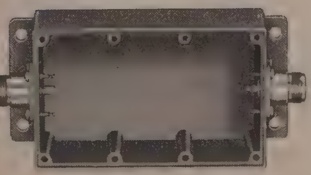
Photos approximately one third actual size.

Model No.
2903


133.35 (5.25)
120.65 (4.75)
107.95 (4.25)
18.29 (.72)
21.59 (.85)
89.41 (3.52)
43.43 (1.71)
38.1 (1.50)
51.56 (2.03)
44.45 (1.75)
67.06 (2.64)
5.11 (.201) Dia. 4 Holes
#4-40 Thd 8 Holes
3.05 (.12)

***NET 26.25**

COMPONENT MOUNTING — TYPE "N" FEMALES



CONN: 1st END
Type "N" female.

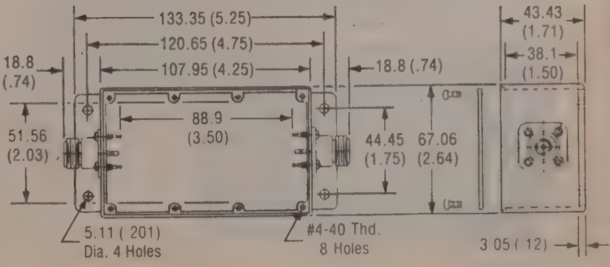
CONN: 2nd END
Type "N" female.

Includes 2.03 mm (.080) thick cover and 4-40 NC-2A x .250 binding head cover screws.

(See top of page for specifications.)

Photos approximately one third actual size.

Model No.
2904


133.35 (5.25)
120.65 (4.75)
107.95 (4.25)
18.8 (.74)
18.8 (.74)
88.9 (3.50)
43.43 (1.71)
38.1 (1.50)
51.56 (2.03)
44.45 (1.75)
67.06 (2.64)
5.11 (.201) Dia. 4 Holes
#4-40 Thd. 8 Holes
3.05 (.12)

***NET 29.75**

* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

SHIELDED "BLACK BOXES" — SIZE "D"

Another series of shielded "Black Boxes." These boxes fill the need between the size "B" and "C" boxes and are excellent for compact packaging of voltage dividers, isolation networks and many other applications. Cover and screws included.

SPECIFICATIONS: (All Models)

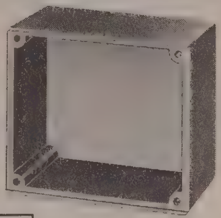
- Operating temperature −55°C. (−67°F.) to +150°C. (+302°F.)
- Working voltage: 500 peak.
- Noise rejection: Greater than 70 dB.

FEATURES:

- Shielded housing: Die cast aluminum, alloy 380A or equivalent.
- Finish: Blue baked enamel per Federal Standard 595 #25109 over phosphoric etch per MIL-C-15328.
- Cover: Aluminum 1100-H14 with clear anodized finish per MIL-A-8625.
- Solder turret terminals for permanent noise free connection of components.

(See pages 69 and 70 for accessories and replacement parts.)

SHIELDED "BLACK BOX"



Model No.	*Net
3601	9.25
3606	8.95

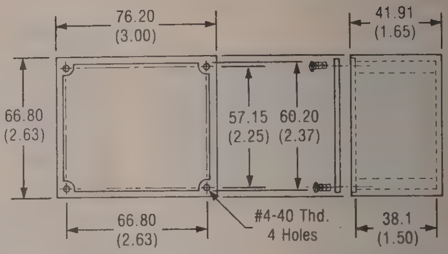
Photos approximately one third actual size.

MODEL 3601
FINISH: Blue baked enamel.
Includes 1.60 mm (.063) thick cover and four 4-40 NC-2A x .250 binding head cover screws.

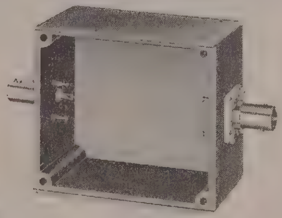
See top of page for specifications.)

MODEL 3606
FINISH: None.
Includes unmarked 1.60 mm (.063) thick cover and four 4-40 NC-2A x .250 binding head cover screws.

(See top of page for specifications.)


76.20
(3.00)
41.91
(1.65)
66.80
(2.63)
57.15
(2.25)
60.20
(2.37)
66.80
(2.63)
#4-40 Thd.
4 Holes
38.1
(1.50)

COMPONENT MOUNTING — BNC FEMALES



Model No.
3602

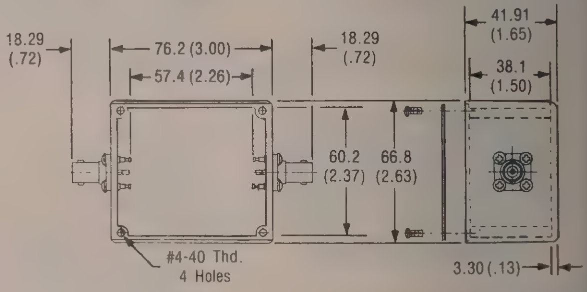
Photos approximately one third actual size.

CONN: 1st END
BNC female.

CONN: 2nd END
BNC female.

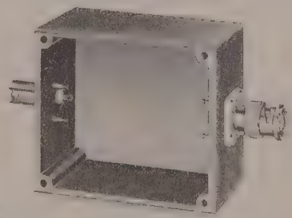
Includes 1.60 mm (.063) thick cover and four 4-40 NC-2A x .250 binding head cover screws.

(See top of page for specifications.)


18.29
(.72)
76.2 (3.00)
57.4 (2.26)
18.29
(.72)
41.91
(1.65)
38.1
(1.50)
60.2
(2.37)
66.8
(2.63)
#4-40 Thd.
4 Holes
3.30 (.13)

***NET 18.95**

COMPONENT MOUNTING — BNC FEMALE TO BNC MALE



Model No.
3603

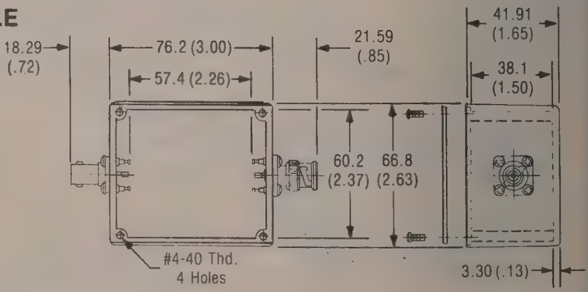
Photos approximately one third actual size.

CONN: 1st END
BNC female.

CONN: 2nd END
BNC male.

Includes 1.60 mm (.063) thick cover and four 4-40 NC-2A x .250 binding head cover screws.

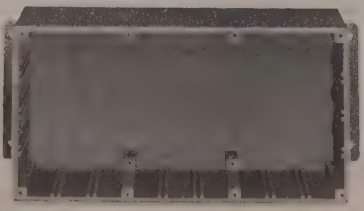
(See top of page for specifications.)


18.29
(.72)
76.2 (3.00)
57.4 (2.26)
21.59
(.85)
41.91
(1.65)
38.1
(1.50)
60.2
(2.37)
66.8
(2.63)
#4-40 Thd.
4 Holes
3.30 (.13)

***NET 21.95**

SHIELDED "BLACK BOX" — SIZE "E"

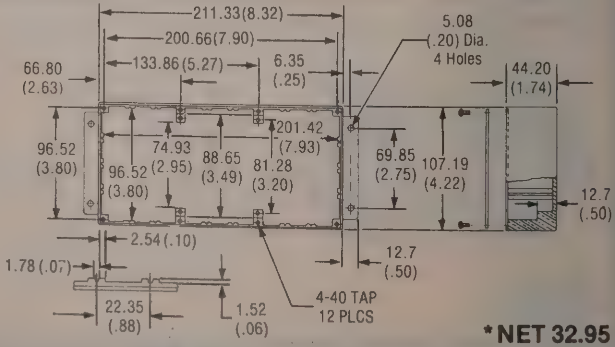
101.6 mm (4) x 203.2 mm (8) DIE CAST BOX WITH CARD GUIDES



Includes 1.60 mm (.080) thick cover and eight (8) 4-40 NC-2A x .250 binding head cover screws. (See top of page 57 for specifications.)

Model No.
4226

Photo approximately one-fourth actual size.


211.33 (8.32)
200.66 (7.90)
133.86 (5.27)
6.35
(.25)
5.08
(.20) Dia.
4 Holes
44.20
(1.74)
66.80
(2.63)
201.42
(7.93)
96.52
(3.80)
74.93
(2.95)
88.65
(3.49)
81.28
(3.20)
96.52
(3.80)
69.85
(2.75)
107.19
(4.22)
12.7
(.50)
2.54 (.10)
1.78 (.07)
12.7
(.50)
22.35
(.88)
1.52
(.06)
4-40 TAP
12 PLCS

***NET 32.95**

★See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

SHIELDED "BLACK BOXES" — SIZE "J"

DIE CAST ALUMINUM BOX WITH CARD GUIDES, SIZE "J"

A compact size rectangular aluminum box especially suited for miniaturized electronic component packaging. With cover, completely enclosed box provides EMI/RFI shielding.
OPERATING TEMPERATURE: −55°C. (−67°F.) to +150°C. (+302°F.) Max.
NOISE REJECTION: Greater than 70 dB.
FINISH: Blue baked enamel per Federal Standard 595, #25109 over phosphoric etch per MIL-C-15328.
Includes 1.60 mm (.063) thick cover and four 2-32 x .250 self-tapping pan head screws. (See top of page 57 for specifications.)

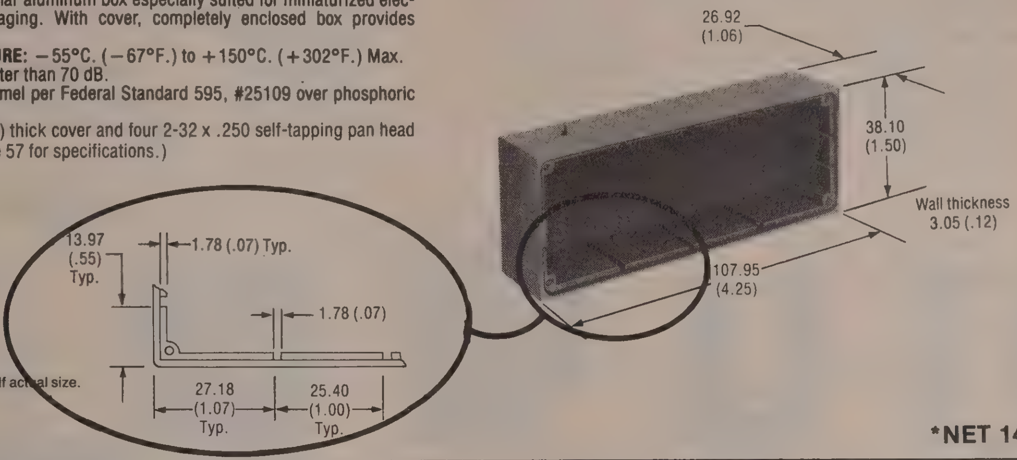

26.92
(1.06)
38.10
(1.50)
Wall thickness
3.05 (.12)
107.95
(4.25)
13.97
(.55)
Typ.
1.78 (.07) Typ.
1.78 (.07)
27.18
(1.07)
Typ.
25.40
(1.00)
Typ.

Photo approximately one-half actual size.

Model No.
4655

***NET 14.95**

COMPONENT HOUSING — FIVE BNC FEMALES

Compact die-cast aluminum housing with baked enamel finish. 4 female BNCs on 25.4 mm (1.0) centers can be paralleled into one female BNC. All metal construction insures EMI/RFI shielding. (2) solder-turret terminal screws provided for grounding. Includes 1.60 mm (.063) thick cover and four 2-32 x .250 self-tapping pan head screws. (See top of page 57 for specifications.)
UPPER: (1) BNC female.
LOWER: (4) BNC females.
COLOR: Blue.

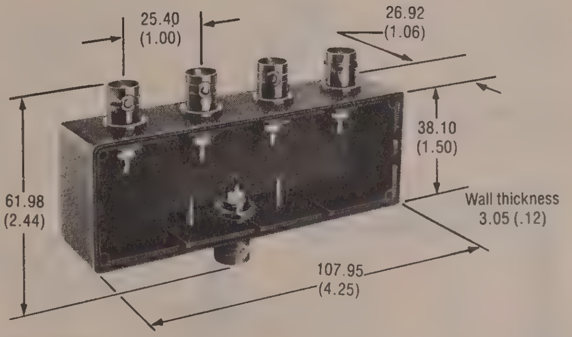

25.40
(1.00)
26.92
(1.06)
38.10
(1.50)
Wall thickness
3.05 (.12)
61.98
(2.44)
107.95
(4.25)

Photo approximately one-half actual size.

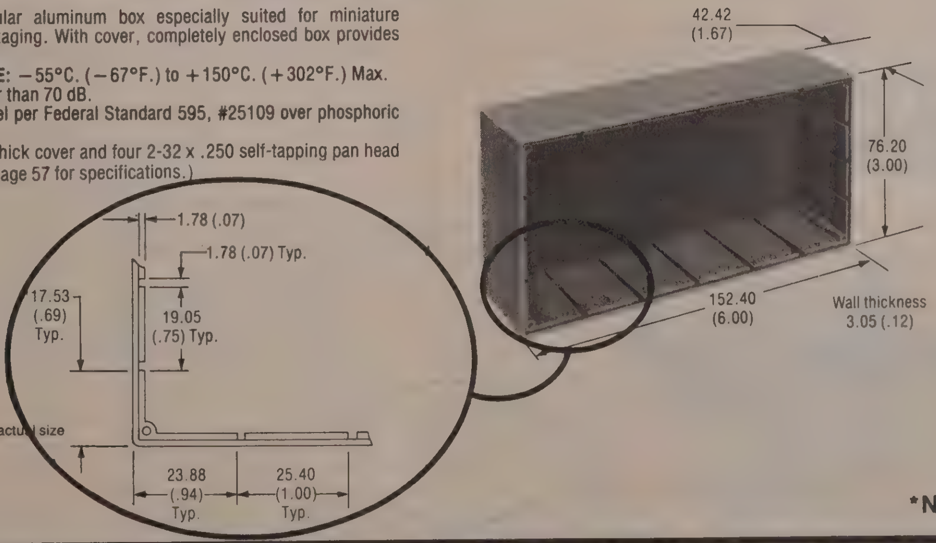
Model No.
4656

***NET 34.95**

SHIELDED "BLACK BOXES" — SIZE "L"

DIE CAST ALUMINUM BOX WITH CARD GUIDES, SIZE "L"

A compact size rectangular aluminum box especially suited for miniature electronic component packaging. With cover, completely enclosed box provides EMI/RFI shielding.
OPERATING TEMPERATURE: −55°C. (−67°F.) to +150°C. (+302°F.) Max.
NOISE REJECTION: Greater than 70 dB.
FINISH: Blue baked enamel per Federal Standard 595, #25109 over phosphoric etch per MIL-C-15328.
Includes 1.60 mm (.063) thick cover and four 2-32 x .250 self-tapping pan head cover screws. (See top of page 57 for specifications.)


42.42
(1.67)
76.20
(3.00)
152.40
(6.00)
Wall thickness
3.05 (.12)
1.78 (.07)
1.78 (.07) Typ.
17.53
(.69)
Typ.
19.05
(.75) Typ.
23.88
(.94)
Typ.
25.40
(1.00)
Typ.

Photos approximately one third actual size

Model No.
4903

***NET 18.95**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

EXTRUDED SHIELDED "BLACK BOXES"

Aluminum boxes, slotted to accept 1.57 mm (.062) circuit boards and shielding dividers. Excellent for packaging electronic circuitry. Boxes have removable top and bottom covers.

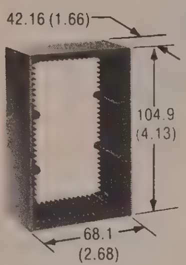
SPECIFICATIONS: (All Models)

- Operating temperature: −55°C. (−67°F.) to +150°C. (+302°F.)
- Working voltage: 500 peak.
- Noise rejection: Greater than 70 dB.

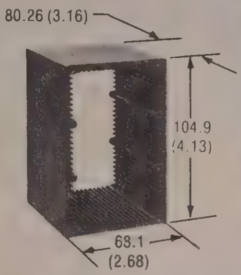
(See pages 69 and 70 for accessories and replacement parts.)

FEATURES:

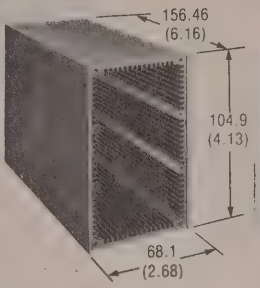
- Shielded housing: Extruded aluminum alloy 6063-T5 or equivalent.
- Finish: Blue baked enamel per Federal Standard 595 #25109 over phosphoric etch per MIL-C-15328.
- Covers: Top and bottom, aluminum 1100-H14 with clear anodized finish per MIL-A-8625.
- Completely enclosed box provides EMI/RFI shielding.
- Solder turret terminals for permanent noise free connection of components.


42.16 (1.66)
104.9 (4.13)
68.1 (2.68)

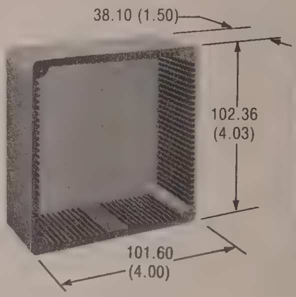
SIZE F
Ref. Model 3301
See page 68


80.26 (3.16)
104.9 (4.13)
68.1 (2.68)

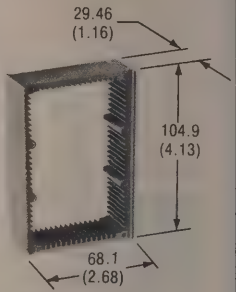
SIZE G
Ref. Model 3311
See page 68


156.46 (6.16)
104.9 (4.13)
68.1 (2.68)

SIZE H
Ref. Model 3742
See page 68

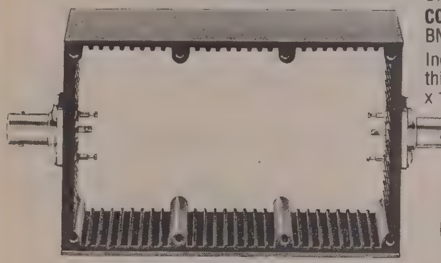

38.10 (1.50)
102.36 (4.03)
101.60 (4.00)

SIZE I
Ref. Model 4641
See page 68


29.46 (1.16)
104.9 (4.13)
68.1 (2.68)

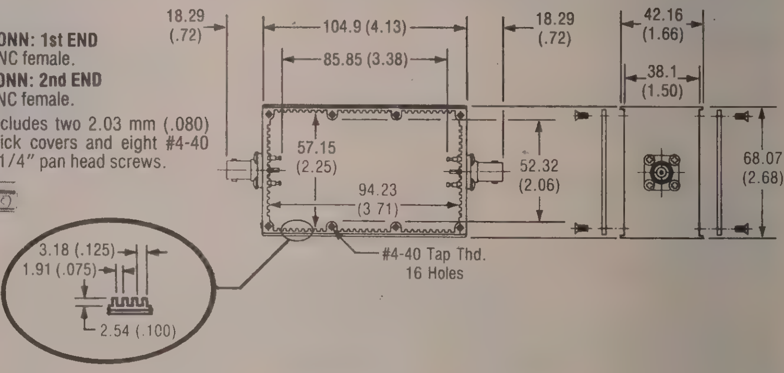
SIZE K
Ref. Model 4720
See page 68

COMPONENT MOUNTING — SIZE "F" BNC FEMALES



(See top of page for specifications.)

CONN: 1st END
BNC female.
CONN: 2nd END
BNC female.
Includes two 2.03 mm (.080) thick covers and eight #4-40 x 1/4" pan head screws.

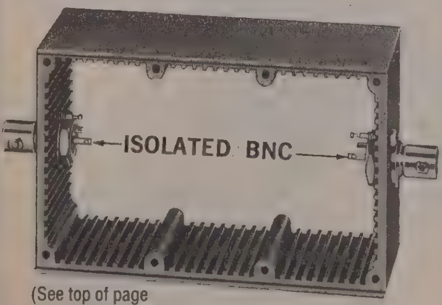

18.29 (.72)
104.9 (4.13)
85.85 (3.38)
18.29 (.72)
42.16 (1.66)
38.1 (1.50)
57.15 (2.25)
94.23 (3.71)
52.32 (2.06)
68.07 (2.68)
#4-40 Tap Thd. 16 Holes
3.18 (.125)
1.91 (.075)
2.54 (.100)

Model No.
3302

Photo approximately one-half actual size.

***NET 29.50**

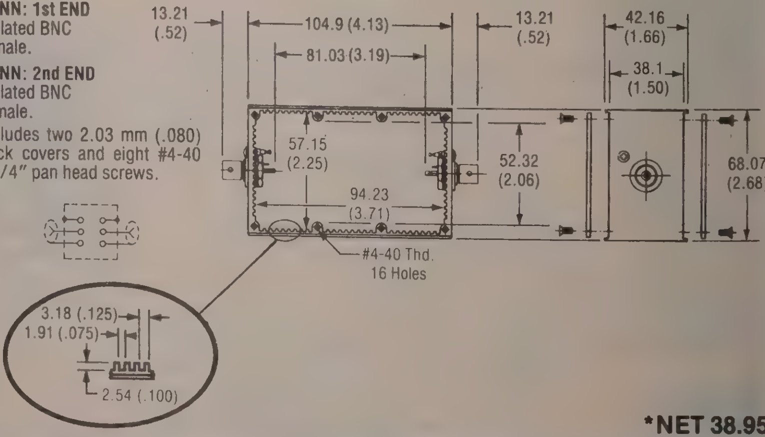
COMPONENT MOUNTING — SIZE "F" ISOLATED BNC FEMALES


ISOLATED BNC

(See top of page for specifications.)

Photo approximately one-half actual size.

CONN: 1st END
Isolated BNC female.
CONN: 2nd END
Isolated BNC female.
Includes two 2.03 mm (.080) thick covers and eight #4-40 x 1/4" pan head screws.


13.21 (.52)
104.9 (4.13)
81.03 (3.19)
13.21 (.52)
42.16 (1.66)
38.1 (1.50)
57.15 (2.25)
94.23 (3.71)
52.32 (2.06)
68.07 (2.68)
#4-40 Thd. 16 Holes
3.18 (.125)
1.91 (.075)
2.54 (.100)

Model No.
3307

Ideal for applications when it is desirable to isolate signal ground from chassis ground.

***NET 38.95**

* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

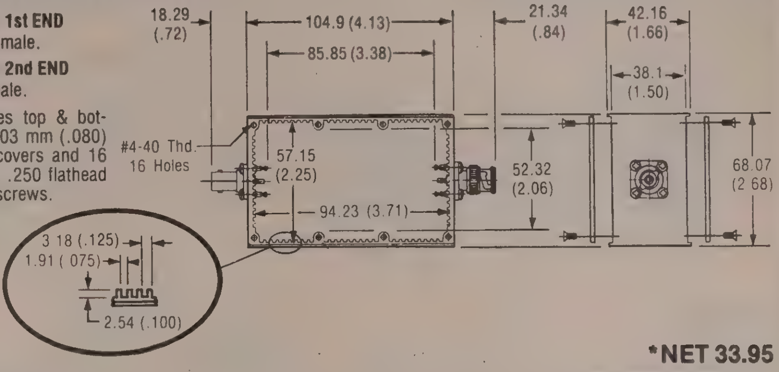
EXTRUDED SHIELDED "BLACK BOXES"

COMPONENT MOUNTING — BNC FEMALE TO BNC MALE

CONN: 1st END
BNC female.

CONN: 2nd END
BNC male.

Includes top & bottom 2.03 mm (.080) thick covers and 16 4-40 x .250 flathead cover screws.


18.29
(.72)
104.9 (4.13)
85.85 (3.38)
21.34
(.84)
42.16
(1.66)
38.1
(1.50)
#4-40 Thd.
16 Holes
57.15
(2.25)
52.32
(2.06)
68.07
(2.68)
94.23 (3.71)
3.18 (.125)
1.91 (.075)
2.54 (.100)

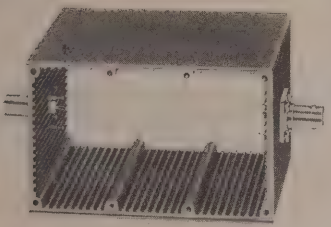
Photos approximately one third actual size

Model No.
3303

(See top of page 67 for specifications.)

***NET 33.95**

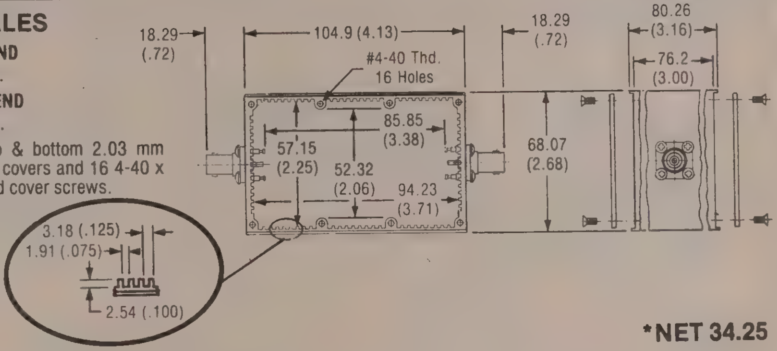
COMPONENT MOUNTING — BNC FEMALES



CONN: 1st END
BNC females.

CONN: 2nd END
BNC females.

Includes top & bottom 2.03 mm (.080) thick covers and 16 4-40 x .250 flathead cover screws.


18.29
(.72)
104.9 (4.13)
#4-40 Thd.
16 Holes
18.29
(.72)
80.26
(3.16)
76.2
(3.00)
85.85
(3.38)
57.15
(2.25)
52.32
(2.06)
94.23
(3.71)
68.07
(2.68)
3.18 (.125)
1.91 (.075)
2.54 (.100)

Photos approximately one third actual size

Model No.
3312

(See top of page 67 for specifications.)

***NET 34.25**

EXTRUDED "BLACK BOXES"

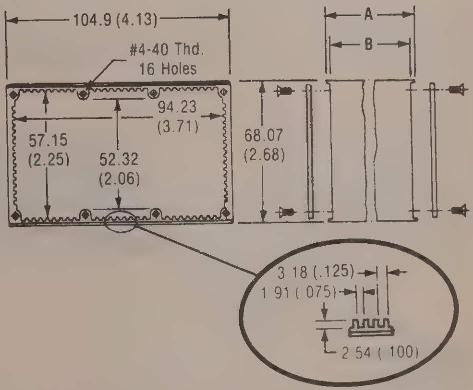
Photos approximately one third actual size

MODEL 4720, 3301, 3311 and 3742
FINISH: Blue baked enamel.
Includes top and bottom 2.03 mm (.080) thick covers with part number on one end and 16 4-40 x .250 flathead cover screws.

(See top of page 67 for specifications.)

MODEL 4739, 3306, 3316 and 3743
FINISH: None.
Includes unmarked top & bottom 2.03 mm (.080) thick covers and 16 4-40 x .250 flathead cover screws.

(See top of page 67 for specifications.)


104.9 (4.13)
#4-40 Thd.
16 Holes
A
B
94.23
(3.71)
57.15
(2.25)
52.32
(2.06)
68.07
(2.68)
3.18 (.125)
1.91 (.075)
2.54 (.100)

Model No.	Box Size	Dim. A	Dim. B	*Net
4720	K	29.46 (1.16)	25.4 (1.00)	19.95
4739	K	29.46 (1.16)	25.4 (1.00)	17.95
3301	F	42.16 (1.66)	38.1 (1.50)	19.95
3306	F	42.16 (1.66)	38.1 (1.50)	17.95
3311	G	80.26 (3.16)	76.2 (3.00)	23.95
3316	G	80.26 (3.16)	76.2 (3.00)	21.25
3742	H	156.46 (6.16)	152.4 (6.00)	27.95
3743	H	156.46 (6.16)	152.4 (6.00)	24.75

EXTRUDED ALUMINUM BOX WITH CARD GUIDES, SIZE "I"

A convenient size square aluminum box for electronic component packaging. With cover, completely enclosed box provides EMI/RFI shielding.

OPERATING TEMPERATURE: −55°C. (−67°F.) to +150°C. (+302°F.) Max.
NOISE REJECTION: Greater than 70 dB.
FINISH: Blue baked enamel over phosphoric etch.
Includes top & bottom 2.03 mm (.080) thick covers and 8 4-40 NC-2A x .250 binding head cover screws.

(See top of page 67 for specifications.)

Model No.
4641

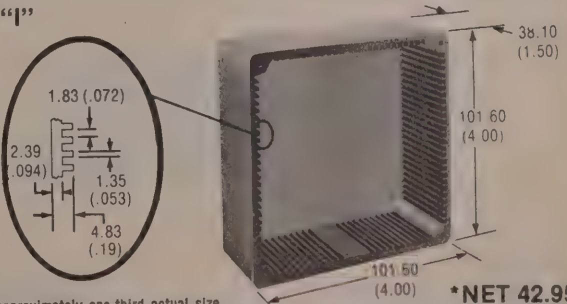

1.83 (.072)
2.39
(.094)
1.35
(.053)
4.83
(.19)
38.10
(1.50)
101.60
(4.00)
101.60
(4.00)

Photo approximately one-third actual size.

***NET 42.95**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

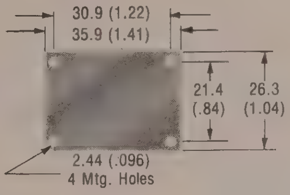
SHIELDED "BLACK BOX" ACCESSORIES

Photos are not to scale

REPLACEMENT COVER FOR MINIATURE SIZE BOXES

MATERIAL: 1.02 mm (.040) aluminum 1100-H14 clear anodized per MIL-A-8625.

Unmarked cover fits Models 3751, 3752, 3753, 3754, 4050, 4057, 4607 & 4936.


30.9 (1.22)
35.9 (1.41)
21.4 (.84)
26.3 (1.04)
2.44 (.096) 4 Mtg. Holes

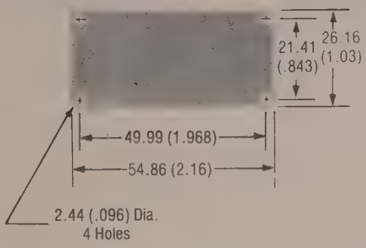
Model No.
4742

*NET .95

REPLACEMENT COVER FOR SIZE "A" BOX

MATERIAL: 1.02 mm (.040) aluminum 1100-H14, clear anodized per MIL-A-8625.

Unmarked cover fits Models 2390, 2391, 2392, 2393, 2395, 2396, 2397, 2398, 2399, 2400, 2401 & 4745.


21.41 (.843)
26.16 (1.03)
49.99 (1.968)
54.86 (2.16)
2.44 (.096) Dia. 4 Holes

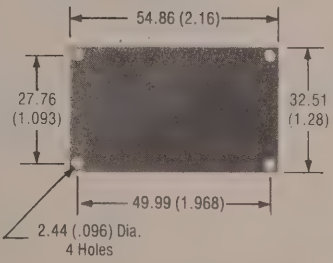
Model No.
4245

*NET 1.50

REPLACEMENT COVER FOR SIZE "B" BOX

MATERIAL: 1.02 mm (.040) aluminum 1100-H14, clear anodized per MIL-A-8625.

Unmarked cover fits Models 2410, 2411, 2413, 2417, 2418, 2419, 2420, 2428, 3230, 3231, 3232, 3233, 3234, 3239 & 4932.


54.86 (2.16)
27.76 (1.093)
32.51 (1.28)
49.99 (1.968)
2.44 (.096) Dia. 4 Holes

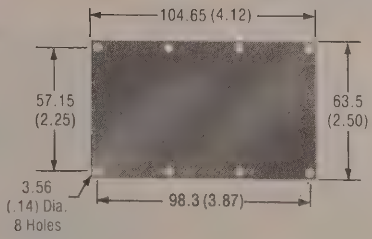
Model No.
4246

*NET 1.50

REPLACEMENT COVER FOR SIZE "C" BOX

MATERIAL: 2.03 mm (.080) aluminum 1100-H14 clear anodized per MIL-A-8625.

Unmarked cover fits Models 2901, 2902, 2903, 2904 & 2906.


104.65 (4.12)
57.15 (2.25)
63.5 (2.50)
3.56 (.14) Dia. 8 Holes
98.3 (3.87)

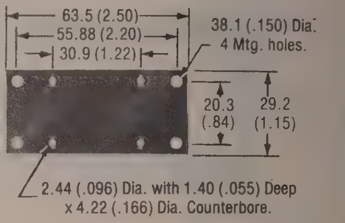
Model No.
4248

*NET 3.10

LARGER COVER PLATE FOR MOUNTING MINIATURE SIZE BOXES

This larger plate, when attached to a miniature size box, provides flanges for mounting.
MATERIAL: 2.03 mm (.080) aluminum 6061-T6 clear anodized per MIL-A-8625.

Unmarked cover fits Models 3751, 3752, 3753, 3754, 4050, 4057, 4607 & 4396.


63.5 (2.50)
55.88 (2.20)
30.9 (1.22)
38.1 (.150) Dia. 4 Mtg. holes.
20.3 (.84)
29.2 (1.15)
2.44 (.096) Dia. with 1.40 (.055) Deep x 4.22 (.166) Dia. Counterbore.

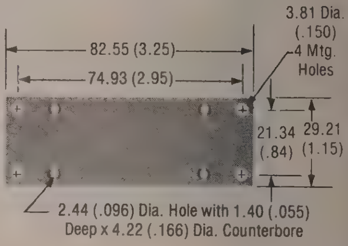
Model No.
3729

*NET 2.50

LARGER COVER PLATE FOR MOUNTING SIZE "A" BOXES

This larger plate, when attached to the box, provides flanges for mounting.
MATERIAL: 2.03 mm (.080) aluminum 6061-T6, clear anodized per MIL-A-8625.

Unmarked cover fits Models 2390, 2391, 2392, 2393, 2395, 2396, 2397, 2398, 2399, 2400, 2401 & 4745.


3.81 Dia. (.150) 4 Mtg. Holes
82.55 (3.25)
74.93 (2.95)
21.34 (.84)
29.21 (1.15)
2.44 (.096) Dia. Hole with 1.40 (.055) Deep x 4.22 (.166) Dia. Counterbore

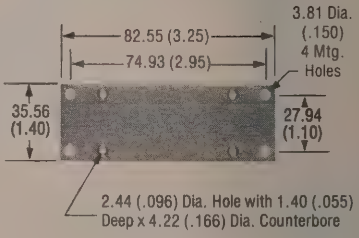
Model No.
3728

*NET 2.50

LARGER COVER PLATE FOR MOUNTING SIZE "B" BOXES

This larger plate, when attached to the box, provides flanges for mounting.
MATERIAL: 2.03 mm (.080) aluminum 6061-T6, clear anodized per MIL-A-8625.

Unmarked cover fits Models 2410, 2411, 2413, 2417, 2418, 2420, 2428, 3230, 3231, 3232, 3233, 3234, 3239 & 4932.


3.81 Dia. (.150) 4 Mtg. Holes
82.55 (3.25)
74.93 (2.95)
35.56 (1.40)
27.94 (1.10)
2.44 (.096) Dia. Hole with 1.40 (.055) Deep x 4.22 (.166) Dia. Counterbore

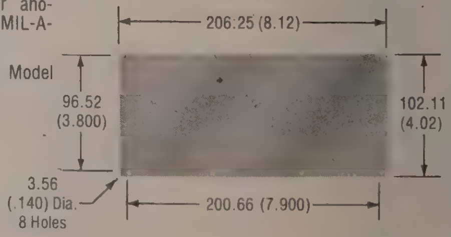
Model No.
3719

*NET 2.75

REPLACEMENT COVER FOR SIZE "E" BOX

MATERIAL: 2.03 mm (.080) thick aluminum alloy, 1100-H14 with clear anodized finish per MIL-A-8625.

Unmarked cover fits Model 4226.


206.25 (8.12)
96.52 (3.800)
102.11 (4.02)
3.56 (.140) Dia. 8 Holes
200.66 (7.900)

Model No.
4416

*NET 6.50

*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

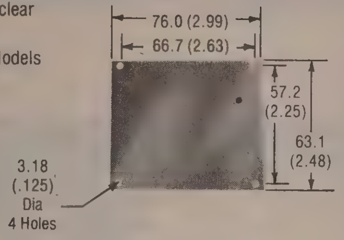
SHIELDED "BLACK BOX" ACCESSORIES

Photos are not to scale.

REPLACEMENT COVER FOR SIZE "D" BOX

MATERIAL: 1.60 mm (.063) aluminum 1100-H14 clear anodized per MIL-A-8625.

Unmarked cover fits Models 3601, 3602, 3603 & 3606.


76.0 (2.99)
66.7 (2.63)
57.2 (2.25)
63.1 (2.48)
3.18 (.125) Dia 4 Holes

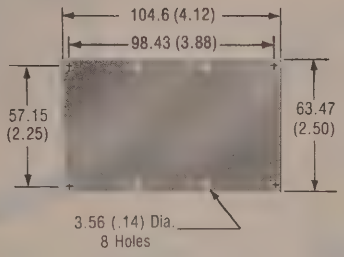
Model No.
4726

***NET 2.50**

REPLACEMENT COVER FOR SIZE "F," "G," "H," & "K" BOXES

MATERIAL: 2.03 mm (.080) aluminum 1100-H14, clear anodized per MIL-A-8625.

Unmarked cover fits Models 3301, 3302, 3303, 3306, 3307, 3311, 3312, 3316, 3742, 3743, 4720 & 4739.


104.6 (4.12)
98.43 (3.88)
57.15 (2.25)
63.47 (2.50)
3.56 (.14) Dia. 8 Holes

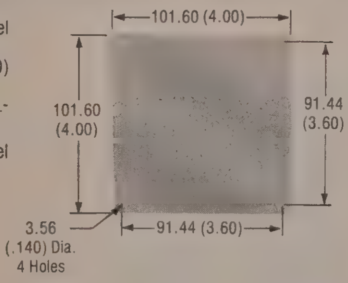
Model No.
4247

***NET 3.95**

REPLACEMENT COVER FOR SIZE "I" BOX

Replacement cover for model 4641 (unmarked).
MATERIAL: 2.03 mm (.080) thick 1100-H14 aluminum.
FINISH: Clear anodized per MIL-A-8625.

Unmarked cover fits Model 4641.


101.60 (4.00)
101.60 (4.00)
91.44 (3.60)
3.56 (.140) Dia. 4 Holes
91.44 (3.60)

Model No.
4631

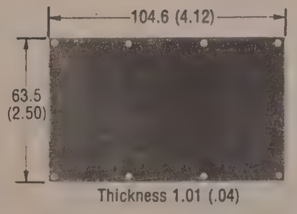
***NET 4.95**

RFI/EMC COVER GASKET FOR SIZE "F," "G," "H," & "K" BOXES

This cover gasket greatly improves electromagnetic shielding effectiveness of POMONA boxes. Fine monel wires embedded in silicone provide an effective shield against radio frequency interference greatly improving electromagnetic compatibility. Adhesive back allows simple installation.

Gasket fits Models 3301, 3302, 3303, 3306, 3307, 3311, 3316, 3742, 3743, 4720 and 4739.

(Gasket attaches directly to cover.)


104.6 (4.12)
63.5 (2.50)
Thickness 1.01 (.04)

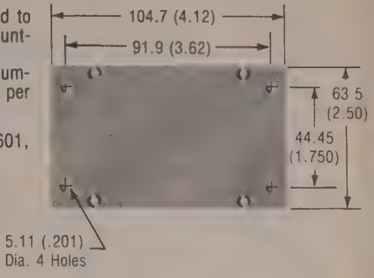
Model No.
4775

***NET 13.50**

LARGER COVER PLATE FOR MOUNTING SIZE "D" BOXES

This larger plate, when attached to the box provides flanges for mounting.
MATERIAL: 2.03 mm (.080) aluminum 1100-H14 clear anodized per MIL-A-8625.

Unmarked cover fits Models 3601, 3602, 3603 & 3606.


104.7 (4.12)
91.9 (3.62)
63 5 (2.50)
44.45 (1.750)
5.11 (.201) Dia. 4 Holes

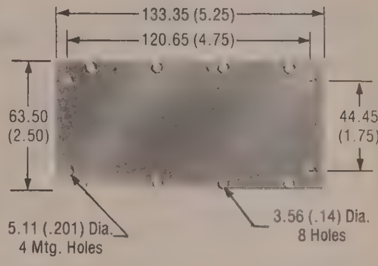
Model No.
3958

***NET 5.95**

LARGER COVER PLATE FOR MOUNTING SIZE "F," "G," "H" & "K" BOXES

This larger plate, when attached to the box, provides mounting flanges.
MATERIAL: 2.03 mm (.080) aluminum 1100-H14 clear anodize per MIL-A-8625.

Unmarked cover fits Models 3301, 3302, 3303, 3306, 3307, 3311, 3312, 3316, 3742, 3743, 4720 & 4739.

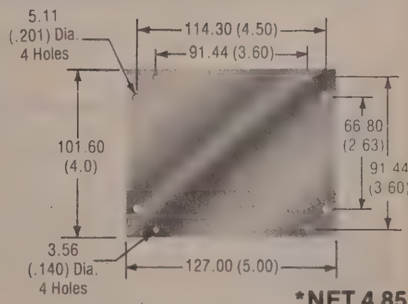

133.35 (5.25)
120.65 (4.75)
63.50 (2.50)
44.45 (1.75)
5.11 (.201) Dia. 4 Mtg. Holes
3.56 (.14) Dia. 8 Holes

Model No.
3328

***NET 5.95**

LARGER COVER PLATE FOR MOUNTING SIZE "I" BOX

Unmarked cover fits Model 4641.


5.11 (.201) Dia. 4 Holes
114.30 (4.50)
91.44 (3.60)
101.60 (4.0)
66 80 (2 63)
91 44 (3 60)
3.56 (.140) Dia. 4 Holes
127.00 (5.00)

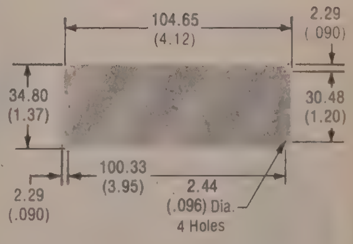
Model No.
4642

***NET 4.85**

REPLACEMENT COVER FOR SIZE "J" BOX

Replacement cover for model 4616, 4655 and 4656 (unmarked).
MATERIAL: 1.60 mm (.063) thick 1100-H14 aluminum.
FINISH: Clear anodized per MIL-A-8625.

Unmarked cover fits Models 4616, 4655 and 4656.


104.65 (4.12)
2.29 (.090)
34.80 (1.37)
30.48 (1.20)
100.33 (3.95)
2.29 (.090)
2.44 (.096) Dia. 4 Holes

Model No.
4658

***NET 3.75**

* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

GRABBER™ TEST CLIPS

These plunger type action test clips are called Grabber™ test clips. The gold plated contact hook attaches rapidly to component leads and terminals. The specially designed tip (see illustration) slides easily on the 0.64 mm (.025) square wrapped wire terminals. The do-it-yourself Grabber™ test clips can be assembled quickly and easily by the user (see simplified instructions below) or the Grabber™ test clips can be purchased as completed patch cords that are firmly molded together to provide a strong, reliable and integral unit.

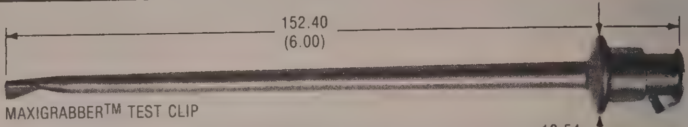
FEATURES:

- Plunger type action between thumb and two fingers.
- Comfortable finger grip operation.
- Positive connection that won't pop off.
- No sharp teeth to damage or nick wires.
- Beryllium copper conductor berylco 165 per QQ-C-533; gold plated per MIL-G-45204 Type I.
- Stainless steel spring.
- Glass-filled nylon, molded directly onto clip and wire. +102°C. (+216°F.) Max.

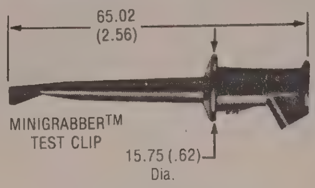
SIMPLIED ASSEMBLY PROCEDURE FOR DO-IT-YOURSELF GRABBER™ TEST CLIPS

1. Pull off thumb cap to expose contact connection.
2. Thread wire through thumb cap and strip 3.18 mm (.125).
3. Insert stripped end through tapered hole on contact, and solder.
   NOTE: Stripped end should be placed into the large opening of the tapered hole.
4. Slide thumb cap back onto contact.

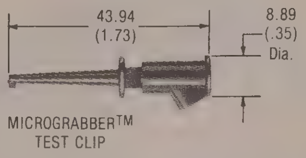
WIRE: Except as noted, the wire used on all Grabber™ patch cords is 20 AWG, stranded 41 x 36 T.C. extra flexible polyvinyl insulation 2.21 mm (.087) O.D.



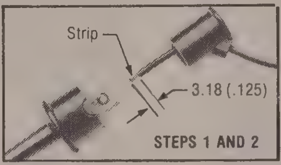
MAXIGRABBER™ TEST CLIP

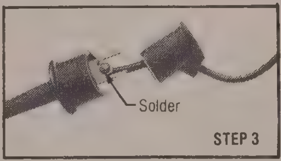


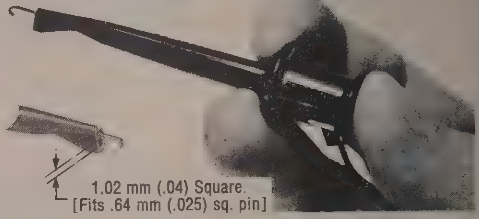
MINIGRABBER™ TEST CLIP



MICROGRABBER™ TEST CLIP

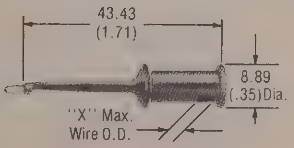






DO-IT-YOURSELF MICROGRABBER™ TEST CLIP

"X" Dia. 2.29 (.090)	
Model No.	Color
4233-0	Black
4233-1	Brown
4233-2	Red
4233-3	Orange
4233-4	Yellow
4233-5	Green
4233-6	Blue
4233-7	Violet
4233-8	Gray
4233-9	White



This do-it-yourself Grabber™ test clip is designed for testing of high density packaging. Lightweight and small size permits multiple usage of units in confined areas. (See assembly details above.)

(Pkg. Ten Per Color)

***NET 1.20 EA.**

DO-IT-YOURSELF MINIGRABBER™ TEST CLIP

(Pkg. Ten Per Color)

"X" Dia. 2.29 (.090)	"X" Dia. 3.66 (.144)	
Model No.	Model No.	Color
3925-0	4555-0	Black
3925-1	4555-1	Brown
3925-2	4555-2	Red
3925-3	4555-3	Orange
3925-4	4555-4	Yellow
3925-5	4555-5	Green
3925-6	4555-6	Blue
3925-7	4555-7	Violet
3925-8	4555-8	Gray
3925-9	4555-9	White

"X" Max.
Wire O.D.

(See assembly details above.)

***NET 1.15 EA.**

DO-IT-YOURSELF MICROGRABBER™ TEST CLIP KIT

Kit contains 2 pcs. of Model 4233.

Model No.	Color	
4743-02	Black	Red
4743-00	Black	Black
4743-11	Brown	Brown
4743-22	Red	Red
4743-33	Orange	Orange
4743-44	Yellow	Yellow
4743-55	Green	Green
4743-66	Blue	Blue
4743-77	Violet	Violet
4743-88	Gray	Gray
4743-99	White	White

(See assembly details above.)

***NET 2.65 KIT**

DO-IT-YOURSELF MINIGRABBER™ TEST CLIP KIT

Kit contains 2 pcs. of Model 3925.

Model No.	Color	
4176-02	Black	Red
4176-00	Black	Black
4176-11	Brown	Brown
4176-22	Red	Red
4176-33	Orange	Orange
4176-44	Yellow	Yellow
4176-55	Green	Green
4176-66	Blue	Blue
4176-77	Violet	Violet
4176-88	Gray	Gray
4176-99	White	White

(See assembly details above.)

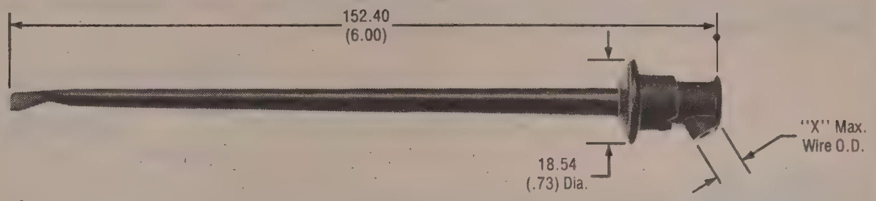
***NET 2.50 KIT**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

GRABBER™ TEST CLIPS

DO-IT-YOURSELF MAXIGRABBER™ TEST CLIP

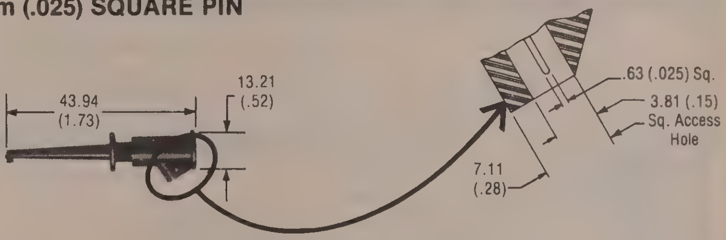


"X" Dia. 2.29 (.090)	"X" Dia. 3.66 (.144)	
Model No.	Model No.	Color
4225-0	4565-0	Black
4225-1	4565-1	Brown
4225-2	4565-2	Red
4225-3	4565-3	Orange
4225-4	4565-4	Yellow
4225-5	4565-5	Green
4225-6	4565-6	Blue
4225-7	4565-7	Violet
4225-8	4565-8	Gray
4225-9	4565-9	White

The Maxigrabber™ test clip is an extended length do-it-yourself Grabber™ test clip designed specifically for high-rise packaging of electronic components where depth of testing point is a key factor. The Maxigrabber™ test clip will fit entry holes as small as 6.35 mm (.250) dia. and the unit is completely field serviceable. The gold plated contact hook can be connected rapidly to component leads or the tip will accept 0.64 mm (.025) square wrap post terminals. The entire unit is molded of glass-filled nylon thermoplastic. Temperature: +102°C. (+216°F.).
(See top of page 71 for assembly details.)

***NET 2.95**

MICROGRABBER™ TEST CLIP WITH 0.63 mm (.025) SQUARE PIN

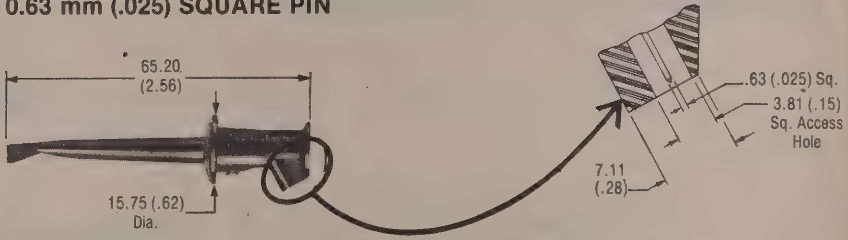


Model No.	Color
4521-0	Black
4521-1	Brown
4521-2	Red
4521-3	Orange
4521-4	Yellow
4521-5	Green
4521-6	Blue
4521-7	Violet
4521-8	Gray
4521-9	White

This Micrograbber™ test clip has a gold plated contact hook on one end and a 0.64 mm (.025) beryllium copper square pin on the other end. See model 4741 for mating receptacle.

***NET 2.15**

MINIGRABBER™ TEST CLIP WITH 0.63 mm (.025) SQUARE PIN



Model No.	Color
4587-0	Black
4587-1	Brown
4587-2	Red
4587-3	Orange
4587-4	Yellow
4587-5	Green
4587-6	Blue
4587-7	Violet
4587-8	Gray
4587-9	White

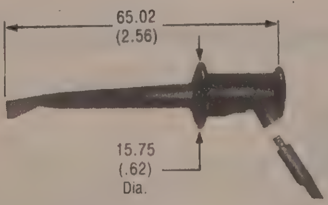
This Minigrabber™ test clip has a gold plated contact hook on one end and a 0.64 mm (.025) beryllium copper square pin on the other end. See model 4741 for mating receptacle.

***NET 2.95**

MINIGRABBER™ TEST CLIP WITH 6-32 THREAD

This Grabber™ test clip can be used with oscilloscope leads equipped with a 6-32 screw.

- Gold plated contact hook.
- Stainless steel spring.
- Nickel plated 6-32 brass insert.



Model No.	Color
4011-0	Black
4011-2	Red

***NET 2.60**

6-32 SCREW-ON TIP

- Can be crimped or soldered to wire.
- Nickel plated brass.
- Supplied with shrink sleeving.
- Mates with 4011.

Model No.
4311

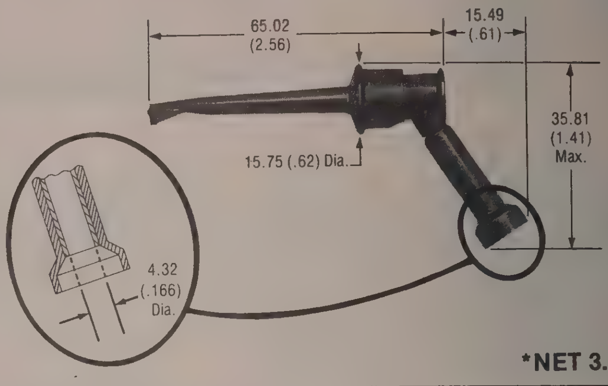
***NET 1.95**

*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

GRABBER™ TEST CLIPS

MINIGRABBER™ TEST CLIP WITH BANANA JACK



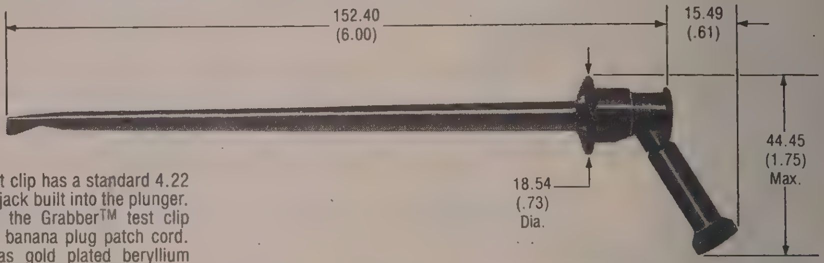
Model No.	Color
4723-0	Black
4723-1	Brown
4723-2	Red
4723-3	Orange
4723-4	Yellow
4723-5	Green
4723-6	Blue
4723-7	Violet
4723-8	Gray
4723-9	White

This Minigrabber™ test clip has a standard 4.22 mm (.166) dia. banana jack built right into the plunger. Excellent for attaching the Grabber™ test clip directly to the end of a banana plug patch cord. Grabber™ test clip has gold plated beryllium copper hook for attachment to test point.

BANANA JACK: Brass, nickel plated.
Insulation: Glass-filled nylon +102°C. (+216°F.) Max.

***NET 3.25**

MAXIGRABBER™ TEST CLIP WITH BANANA JACK



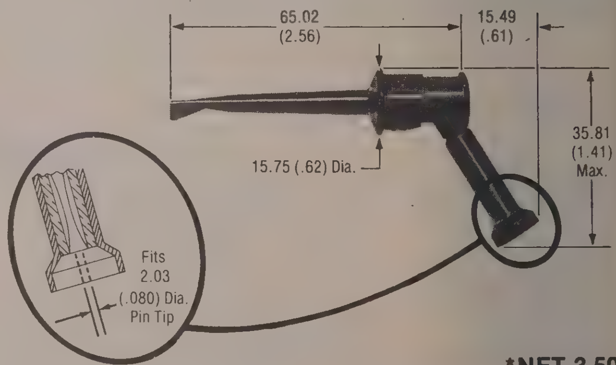
Model No.	Color
4724-0	Black
4724-1	Brown
4724-2	Red
4724-3	Orange
4724-4	Yellow
4724-5	Green
4724-6	Blue
4724-7	Violet
4724-8	Gray
4724-9	White

This Maxigrabber™ test clip has a standard 4.22 mm (.166) dia. banana jack built into the plunger. Excellent for attaching the Grabber™ test clip directly to the end of a banana plug patch cord. Grabber™ test clip has gold plated beryllium copper hook for attachment to test point.

BANANA JACK: Brass, nickel plated.
Insulation: Glass-filled nylon +102°C. (+216°F.) Max.

***NET 4.35**

MINIGRABBER™ TEST CLIP WITH PIN TIP JACK



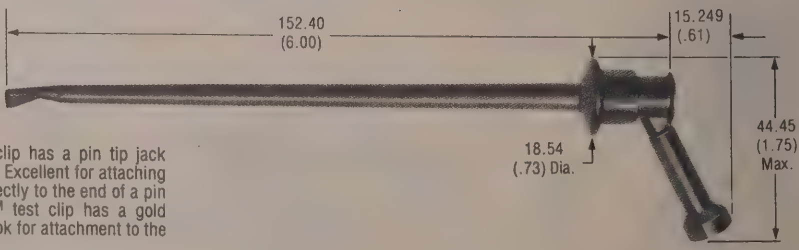
This Minigrabber™ test clip has a pin tip jack built right into the plunger. Excellent for attaching the Grabber™ test clip directly to the end of a pin tip patch cord. Grabber™ test clip has a gold plated beryllium copper hook for attachment to the test point.

PIN TIP JACK: Beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin.
Insulation: Glass-filled nylon +102°C. (+216°F.) Max.

Model No.	Color
4826-0	Black
4826-2	Red

***NET 3.50**

MAXIGRABBER™ TEST CLIP WITH PIN TIP JACK



This Maxigrabber™ test clip has a pin tip jack built right into the plunger. Excellent for attaching the Grabber™ test clip directly to the end of a pin tip patch cord. Grabber™ test clip has a gold plated beryllium copper hook for attachment to the test point.

PIN TIP JACK: Beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin.
Insulation: Glass-filled nylon +102°C. (+216°F.) Max.

Model No.	Color
4827-0	Black
4827-2	Red

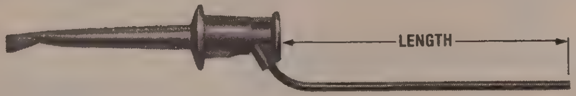
***NET 4.95**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PATCH CORDS

MINIGRABBER™ TEST CLIP ONE END ONLY



Model No.	Length	*Net
3780-8-*	203.2 (8.0)	1.80
3780-12-*	304.8 (12.0)	1.80
3780-24-*	609.6 (24.0)	1.80
3780-36-*	914.4 (36.0)	1.80
3780-48-*	1219.2 (48.0)	2.00
3780-60-*	1524.0 (60.0)	2.20

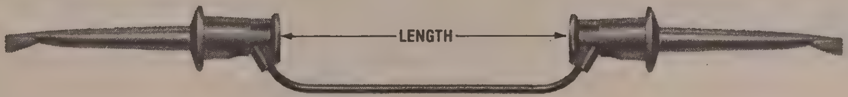
Minigrabber™ test clip with wire connected one end only. Gold plated beryllium copper hook for maximum sensitivity. Opposite end allows connection of various components.

WIRE: 20 AWG, 41/36 TC, PVC jacket, 2.21 mm (.087) O.D.

*

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

MINIGRABBER™ TEST CLIP BOTH ENDS



Model No.	Length	*Net
3781-8-*	203.2 (8.0)	2.95
3781-12-*	304.8 (12.0)	2.95
3781-18-*	457.2 (18.0)	2.95
3781-24-*	609.6 (24.0)	2.95
3781-36-*	914.4 (36.0)	2.95
3761-48-*	1219.2 (48.0)	3.15
3781-60-*	1524.0 (60.0)	3.35

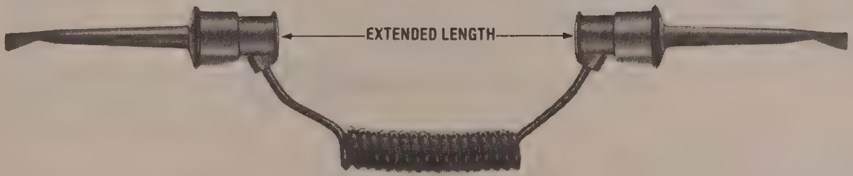
Minigrabber™ test clip on both ends for rapid interconnection of test points. Connects quickly and firmly to test points without damage from sharp teeth. Gold plated beryllium copper hook for maximum sensitivity.

WIRE: 20 AWG, 41/36 TC, PVC jacket, 2.21 mm (.087) O.D.

*

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

MINIGRABBER™ TEST CLIPS ON RETRACTILE (COILED) PATCH CORD



Model No.	Extended Length	*Net
5161-36-*	914.4 (36.0)	6.25
5161-48-*	1219.2 (48.0)	7.15
5161-60-*	1524.0 (60.0)	8.05

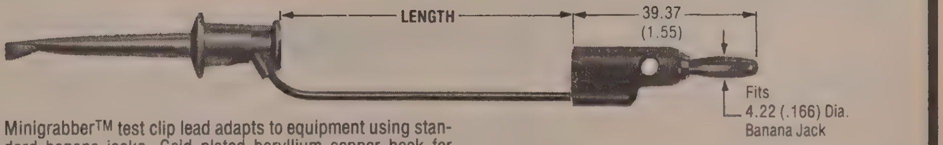
Permits the use of one size patch cord in place of many various lengths.

MINIGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.

WIRE: 23 AWG, rubber insulation, stranded, T.C. 2.24 mm (.088) O.D.

***COLORS AVAILABLE:** -0 Black, -2 Red.

MINIGRABBER™ TEST CLIP TO STACKING BANANA PLUG



Model No.	Length	*Net
3782-12-*	304.8 (12.0)	2.95
3782-24-*	609.6 (24.0)	2.95
3782-36-*	914.4 (36.0)	2.95
3782-48-*	1219.2 (48.0)	3.15
3782-60-*	1524.0 (60.0)	3.35

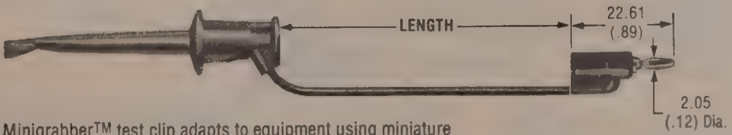
Minigrabber™ test clip lead adapts to equipment using standard banana jacks. Gold plated beryllium copper hook for maximum sensitivity.

BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated. Polypropylene insulation molded to plug body and wire, +55°C. (+131°F.) Max.

*

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

MINIGRABBER™ TEST CLIP TO STACKING MINIATURE BANANA PLUG



Model No.	Length	*Net
3784-12-*	304.8 (12.0)	3.45
3784-24-*	609.6 (24.0)	3.45
3784-36-*	914.4 (36.0)	3.45
3784-48-*	1219.2 (48.0)	3.65
3784-60-*	1524.0 (60.0)	3.85

Minigrabber™ test clip adapts to equipment using miniature banana jacks. Gold plated beryllium copper hook for maximum sensitivity.

MINIATURE BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated. Polypropylene insulation molded to plug body and wire, +55°C. (+131°F.) Max.

WIRE: 20 AWG, 41/36 TC, PVC jacket, 2.21 mm (.087) O.D.

*

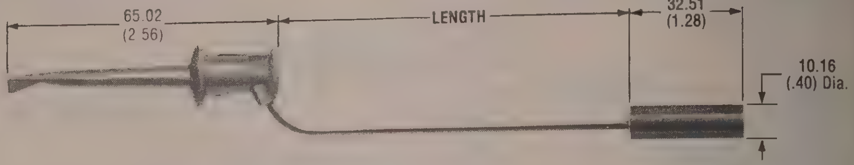
Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PATCH CORDS

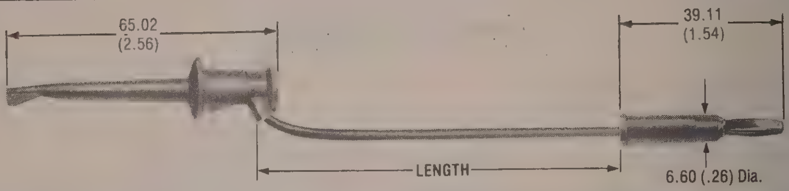
MINIGRABBER™ TEST CLIP TO IN-LINE BANANA JACK



Model No.	Length	*Net
4649-12-*	304.8 (12.0)	3.95
4649-24-*	609.6 (24.0)	3.95
4649-36-*	914.4 (36.0)	3.95
4649-48-*	1219.2 (48.0)	4.15
4649-60-*	1524.0 (60.0)	4.35

MINIGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon.
WIRE: 20 AWG, 41/36 TC, PVC jacket, 2.21 mm (.087) O.D.
IN-LINE BANANA JACK: This in-line banana jack will accept all standard banana plugs. Brass, nickel plated per QQ-N-290. Insulation: Polypropylene, +55°C. (+131°F.) Max. (+216°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MINIGRABBER™ TEST CLIP TO IN-LINE BANANA PLUG

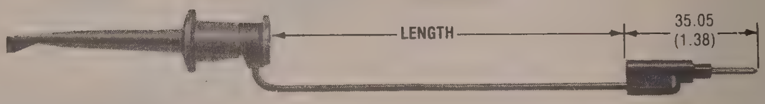


Model No.	Length	*Net
4650-12-*	304.8 (12.0)	3.30
4650-24-*	609.6 (24.0)	3.30
4650-36-*	914.4 (36.0)	3.30
4650-48-*	1219.2 (48.0)	3.50
4650-60-*	1524.0 (60.0)	3.70

MINIGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon.
WIRE: 20 AWG, 41/36 TC, PVC jacket, 2.21 mm (.087) O.D.

BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Brass body, nickel plated. Insulation: Polypropylene, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

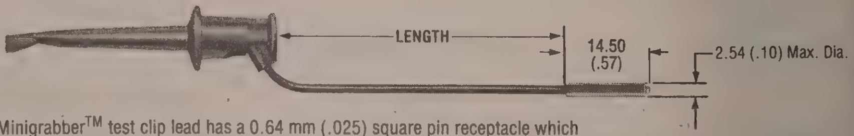
MINIGRABBER™ TEST CLIP TO STACKING PIN TIP PLUG



Model No.	Length	*Net
3785-12-*	304.8 (12.0)	3.75
3785-24-*	609.6 (24.0)	3.75
3785-36-*	914.4 (36.0)	3.75
3785-48-*	1219.2 (48.0)	3.95
3785-60-*	1524.0 (60.0)	4.15

This Minigrabber™ test clip adapts to equipment using standard pin tip jacks.
***COLORS AVAILABLE:** -0 Black, -2 Red.
PIN TIP PLUG: 2.03 mm (.080) dia. 12.70 mm (.500) long, brass gold plated. Insulation: Polypropylene, +55°C. (+131°F.) Max.
STACKUP: Beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin.
WIRE: 20 AWG, 41/36 TC, PVC jacket, 2.21 mm (.087) O.D.

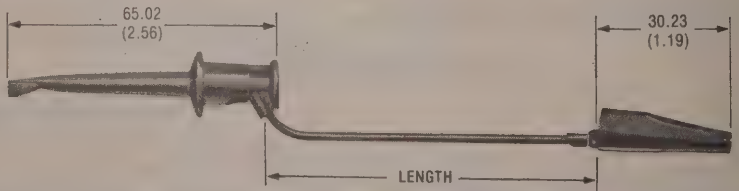
MINIGRABBER™ TEST CLIP TO 0.64 mm (.025) SQUARE PIN RECEPTACLE



This Minigrabber™ test clip lead has a 0.64 mm (.025) square pin receptacle which slides over 0.64 mm (.025) square pins. Gold plated beryllium copper hook for maximum sensitivity.
0.64 mm (.025) PIN RECEPTACLE: Gold plated beryllium copper contact. Insulation, polypropylene.
WIRE: 22 AWG, 19 x 34 T.C., PVC insulation, 1.63 mm (.064) O.D.
***COLORS AVAILABLE:** -0 Black, -2 Red.

Model No.	Length	*Net
3783-12-*	304.8 (12.0)	4.25
3783-24-*	609.6 (24.0)	4.25
3783-36-*	914.4 (36.0)	4.25

MINIGRABBER™ TEST CLIP TO MINIGATOR*



Model No.	Length	*Net
4652-12-*	304.8 (12.0)	3.95
4652-24-*	609.6 (24.0)	3.95
4652-36-*	914.4 (36.0)	3.95
4652-48-*	1219.2 (48.0)	4.15
4652-60-*	1524.0 (60.0)	4.35

MINIGRABBER™: Gold plated beryllium copper contact. Glass-filled nylon, Insulation: +102°C. (+216°F.) Max.
WIRE: 20 AWG, 41/36 TC, PVC jacket, 2.21 mm (.087) O.D.

MINIGATOR*: Steel, cadmium plated with PVC insulator.
***COLORS AVAILABLE:** -0 Black, -2 Red.

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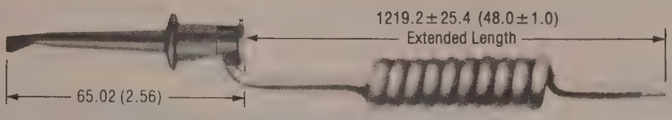
* See page 126 of the Pomona Catalog for quantity purchases.
* Minigator is a trademark of Mueller Electric Co.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

PATCH CORDS

MINIGRABBER™ TEST CLIP ONE END ONLY WITH RETRACTILE CORD



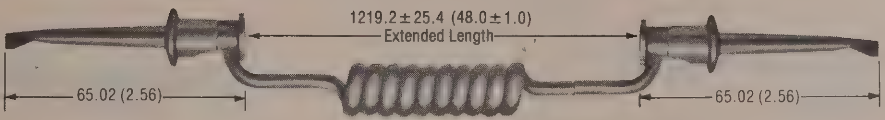
Model No.	Color	Extended Length
4536-48-0	Black	1219.2 (48.0)
4536-48-2	Red	1219.2 (48.0)

Permits the use of one size patch cord in place of many various lengths.
MINIGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.

WIRE: 20 AWG, stranding 41 x 36 TC, rubber insulated, 3.68 mm (.145) O.D.
COLORS AVAILABLE: -0 Black, -2 Red.

***NET 6.95**

MINIGRABBER™ TEST CLIP EACH END WITH RETRACTILE CORD



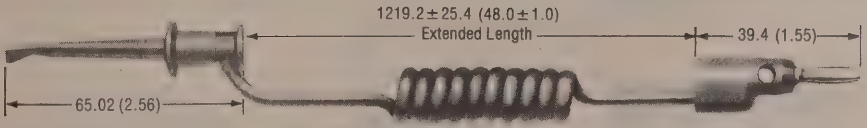
Model No.	Color	Extended Length
4537-48-0	Black	1219.2 (48.0)
4537-48-2	Red	1219.2 (48.0)

Permits the use of one size patch cord in place of many various lengths.
MINIGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.

WIRE: 20 AWG, stranding 41 x 36 TC, rubber insulated, 3.68 mm (.145) O.D.
COLORS AVAILABLE: -0 Black, -2 Red.

***NET 8.25**

MINIGRABBER™ TEST CLIP TO STACKUP BANANA PLUG WITH RETRACTILE CORD



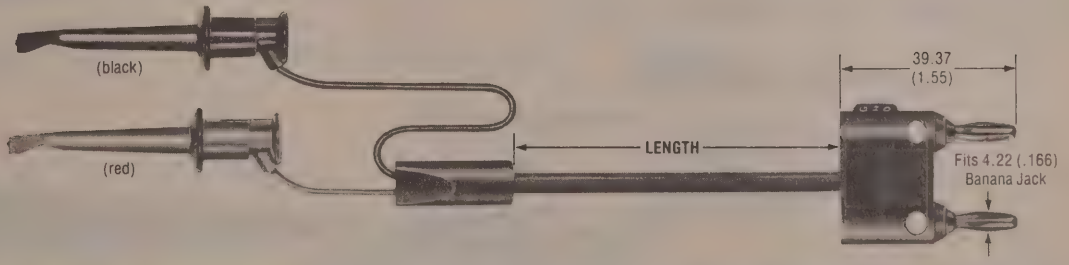
Model No.	Color	Extended Length
4538-48-0	Black	1219.2 (48.0)
4538-48-2	Red	1219.2 (48.0)

Permits the use of one size patch cord in place of many various lengths.
MINIGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.
WIRE: 20 AWG, stranding 41 x 36 T, rubber insulated, 3.68 mm (.145) O.D.

BANANA PLUG: Spring, beryllium copper, heat treated, brass body, nickel plated. Insulation: Polypropylene, +55°C. (+131°F.) Max.
COLORS AVAILABLE: -0 Black, -2 Red.

***NET 8.25**

MINIGRABBER™ TEST CLIPS TO DOUBLE BANANA PLUG



Model No.	Length	*Net
3786-C-18	457.2 (18.0)	10.95
3786-C-24	609.6 (24.0)	10.95
3786-C-36	914.4 (36.0)	10.95
3786-C-48	1219.2 (48.0)	11.55
3786-C-60	1524.0 (60.0)	12.15

For use with equipment having standard binding posts or banana jacks. Gold plated beryllium copper hooks on Minigrabber™ test clips for maximum sensitivity.
CABLE: Shielded coax., RG58C/U, 4.95 mm (.195) O.D., nom. cap. 30.8 pf/ft. Color, black.

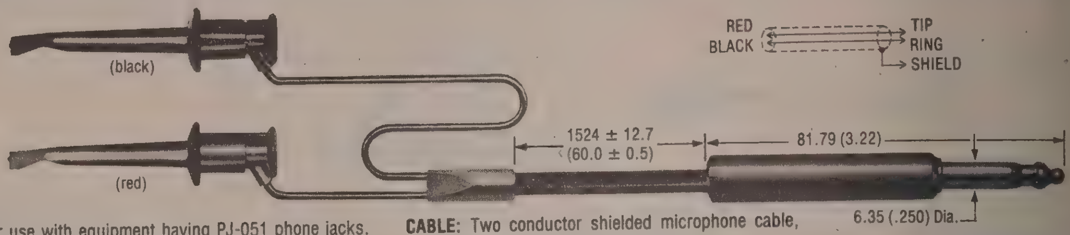
DOUBLE BANANA PLUG: On 19.05 mm (.750) centers. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated. Polyethylene, +55°C. (+131°F.) Max. molded onto double plug body and cable. Color, black.

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PATCH CORDS

MINIGRABBER™ TEST CLIPS TO PJ-051 (WE310) PHONE PLUG



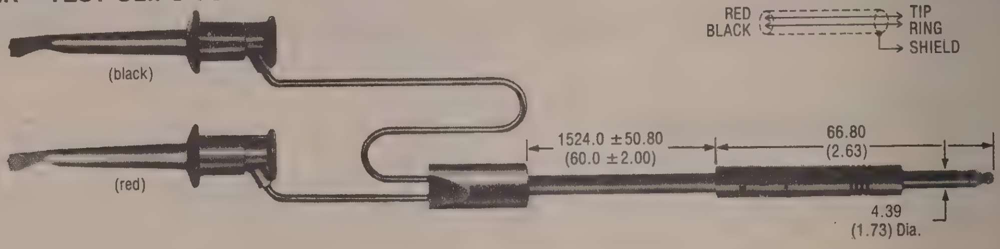
Model No.
4812-J-60

For use with equipment having PJ-051 phone jacks. Gold plated beryllium copper hooks on Minigrabber™ test clips for maximum sensitivity.

CABLE: Two conductor shielded microphone cable, 22AWG, gray vinyl jacket.
PHONE PLUG: Standard PJ-051-R

***NET 27.95**

MINIGRABBER™ TEST CLIPS TO BANTAM PLUG



Model No.
5019-60

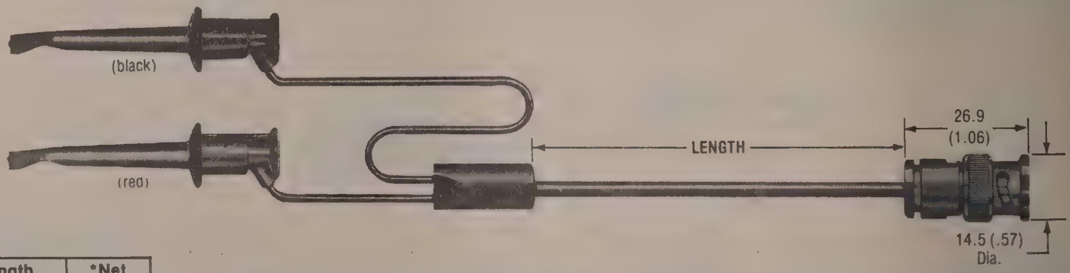
For use with equipment having Bantam jacks. Gold plated beryllium copper hooks on Minigrabber™ test clips for maximum sensitivity.

CABLE: Two conductor shielded microphone. Gray vinyl jacket.

BANTAM PLUG: Miniature three conductor phone plug.

***NET 19.95**

MINIGRABBER™ TEST CLIPS TO BNC MALE



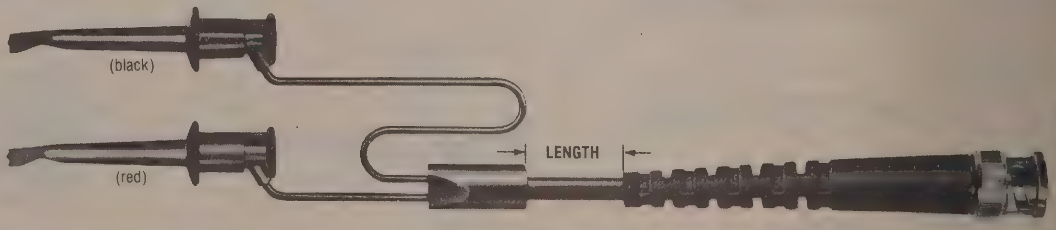
Model No.	Length	*Net
3787-C-18	457.2 (18.0)	10.95
3787-C-24	609.6 (24.0)	10.95
3787-C-36	914.4 (36.0)	10.95
3787-C-48	1219.2 (48.0)	11.55
3787-C-60	1524.0 (60.0)	12.15

For use with equipment having BNC receptacles. Gold plated beryllium copper hooks on Minigrabber™ test clips for maximum sensitivity.

CABLE: Shielded coax., RG58C/U, 4.95 mm (.195) O.D., nom cap 30.8 pf/ft. Color: black.

CONNECTOR: BNC male, gold plated brass center contact. Brass body, tarnish resistant finish.

MINIGRABBER™ TEST CLIPS TO BNC MALE



RG58C/U	*Net	RG174/U	Length	*Net
5187-C-24	11.95	5187-K-24	609.6 (24.0)	16.95
5187-C-36	11.95	5187-K-36	914.4 (36.0)	16.95
5187-C-48	12.55	5187-K-48	1219.2 (48.0)	17.55
5187-C-60	13.15	5187-K-60	1524.0 (60.0)	18.15

For use with equipment having BNC receptacles. Gold plated beryllium copper hooks on Minigrabber™ test clips for maximum sensitivity.

CABLE:
RG 58 C/U 4.95 mm (.195) O.D.
RG 174/U 2.54 mm (.100) O.D.

CONNECTOR: BNC male tarnish resistant. Insulation: PVC, +50°C. (+122°F.) Max.

★See page 126 of the Pomona Catalog for quantity purchases.

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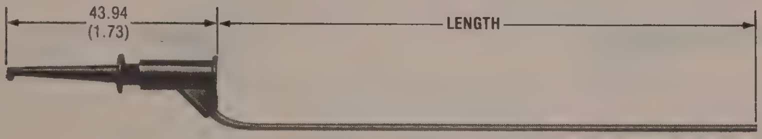
All items subject to price change or withdrawal without notice.

PATCH CORDS

MICROGRABBER™ TEST CLIP ONE END ONLY



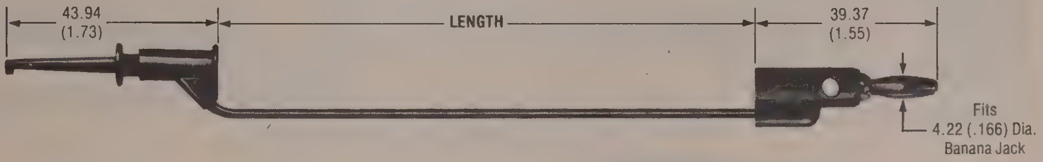
Model No.	Length	*Net
5043-8-*	203.2 (8.0)	3.15
5043-12-*	304.8 (12.0)	3.15
5043-24-*	609.6 (24.0)	3.15
5043-36-*	914.4 (36.0)	3.15
5043-48-*	1219.2 (48.0)	3.35
5043-60-*	1524.0 (60.0)	3.55

MICROGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.

WIRE: 20 AWG, 41/36 TC, PVC jacket, 2.21 mm (.087) O.D.

***COLORS AVAILABLE:** -0 Black, -2 Red.

MICROGRABBER™ TEST CLIP TO STACKING BANANA PLUG



Model No.	Length	*Net
5053-12-*	304.8 (12.0)	4.50
5053-24-*	609.6 (24.0)	4.50
5053-36-*	914.4 (36.0)	4.50
5053-48-*	1219.2 (48.0)	4.70
5053-60-*	1524.0 (60.0)	4.90

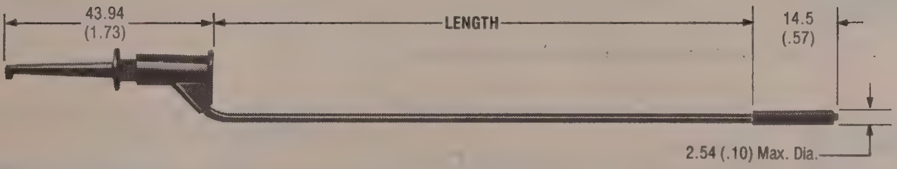
MICROGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon.

WIRE: 20 AWG, 41 x 36 T.C. Extra flexible polyvinyl insulation 2.21 mm (.087) O.D.

BANANA PLUG: Spring, beryllium copper, heat treated, brass body nickel plated. Insulation: Polypropylene, +55°C. (+131°F.) Max.

***COLORS AVAILABLE:** -0 Black, -2 Red.

MICROGRABBER™ TEST CLIP TO 0.64 mm (.025) SQUARE PIN RECEPTACLE



Model No.	Length	*Net
4919-12-*	304.8 (12.0)	4.95
4919-24-*	609.6 (24.0)	4.95
4919-36-*	914.4 (36.0)	4.95
4919-48-*	1219.2 (48.0)	5.15
4919-60-*	1524.0 (60.0)	5.35

MICROGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon.

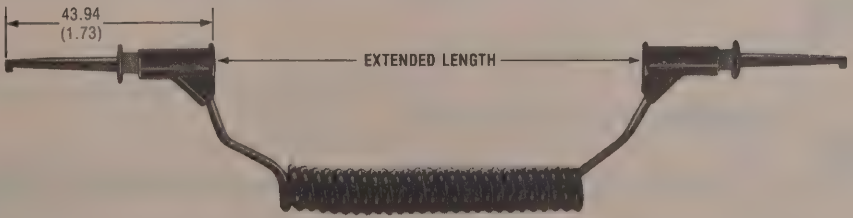
WIRE: 22 AWG, stranding 19 x 34 T.C. PVC insulation, 1.63 mm (.064) O.D.

0.64 mm (.025) SQUARE PIN RECEPTACLE: Gold plated beryllium copper contact. Insulation, polypropylene.

RATINGS: 3 amps cont., 1000 W VDC, +102°C. (+216°F.) Max.

***COLORS AVAILABLE:** -0 Black, -2 Red.

MICROGRABBER™ TEST CLIPS ON RETRACTILE (COILED) PATCH CORD



Model No.	Length	*Net
5160-36-*	914.4 (36.0)	7.50
5160-48-*	1219.2 (48.0)	8.40
5160-60-*	1524.0 (60.0)	9.30

Permits the use of one size patch cord in place of many various lengths.

MICROGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.

WIRE: 23 AWG, rubber insulated stranded, T.C. 2.24 mm (.088) O.D.

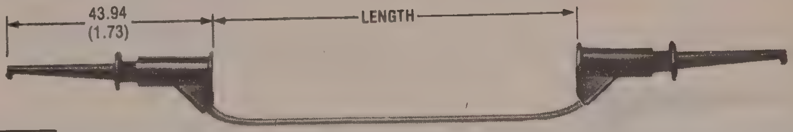
***COLORS AVAILABLE:** -0 Black, -2 Red.

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PATCH CORDS

MICROGRABBER™ TEST CLIP BOTH ENDS

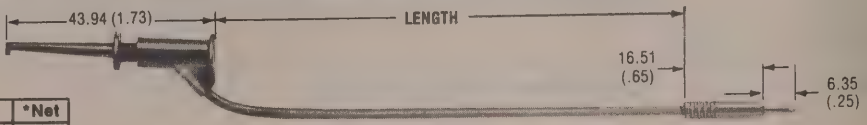


Model No.	Length	*Net
4613-12-*	304.8 (12.0)	4.75
4613-24-*	609.6 (24.0)	4.75
4613-36-*	914.4 (36.0)	4.75
4613-48-*	1219.2 (48.0)	4.95
4613-60-*	1524.0 (60.0)	5.15

MICROGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.

WIRE: 20 AWG, 41/36 TC, PVC jacket, 2.21 mm (.087) O.D.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MICROGRABBER™ TEST CLIP TO 2.03 mm (.080) DIA. PIN TIP PATCH CORD

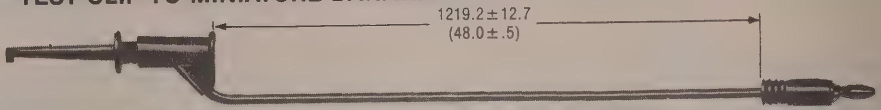


Model No.	Length	*Net
4716-12-*	304.8 (12.0)	3.95
4716-24-*	609.6 (24.0)	3.95
4716-36-*	914.4 (36.0)	3.95
4716-48-*	1219.2 (48.0)	4.15
4716-60-*	1524.0 (60.0)	4.35

MICROGRABBER™: Gold plated beryllium contact. Insulation: Glass-filled nylon.
WIRE: 20 AWG, 41/36 TC, PVC jacket, 2.21 mm (.087) O.D.

PIN TIP: Tellurium copper, gold plated.
Insulation: Polypropylene, +55°C. (+ 131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MICROGRABBER™ TEST CLIP TO MINIATURE BANANA PLUG

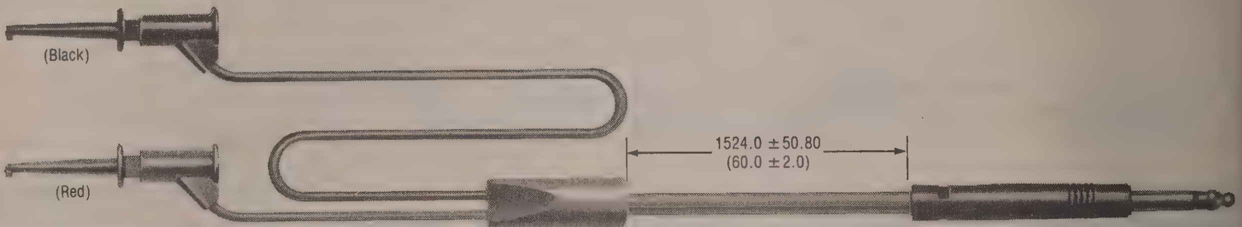


Model No.	Color	*Net
4762-48-0	Black	4.50
4762-48-2	Red	4.50

MICROGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (216°F.) Max.
WIRE: 20 AWG, 41/36 TC, PVC jacket, 2.21 mm (.087) O.D.

MINIATURE BANANA PLUG: Fits 2.64 mm (.104) dia. jacks. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Gold plated.

MICROGRABBER™ TEST CLIPS TO BANTAM PLUG

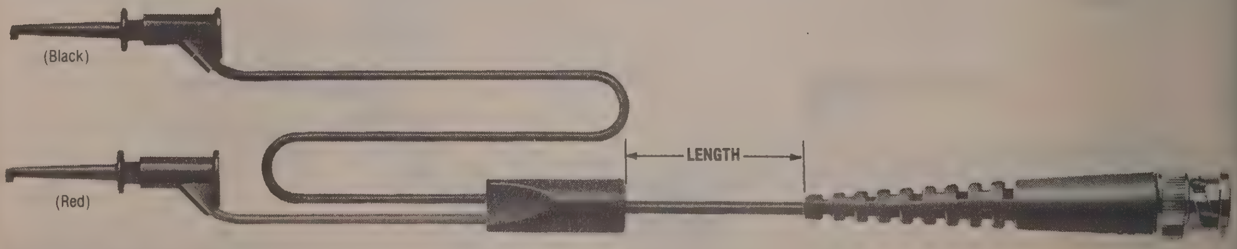


Model No.	*Net
4778-60	29.75

MICROGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.
CABLE: Two conductor shielded microphone cable, vinyl jacket, 5.87 mm (.231) dia.

BANTAM PLUG: Miniaturized 3 cond. phone plug, 4.39 mm (.173) dia.

MICROGRABBER™ TEST CLIPS TO BNC MALE



Model No.	Length	*Net
4777-K-24	609.6 (24.0)	18.75
4777-K-36	914.4 (36.0)	18.75
4777-K-48	1219.2 (48.0)	19.35
4777-K-60	1524.0 (60.0)	19.95

MICROGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon.
CABLE: RG174/U coaxial cable.

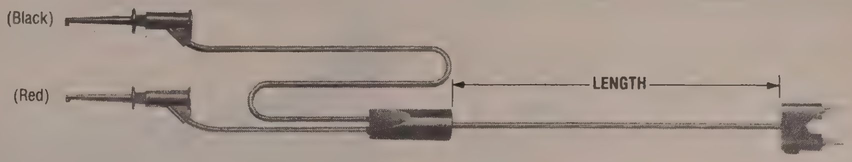
CONNECTOR: BNC male tarnish resistant. Insulation: PVC, +50°C. (+122°F.) max.

★ See page 126 for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

PATCH CORDS

MICROGRABBER™ TEST CLIPS TO MINIATURE DOUBLE BANANA PLUG

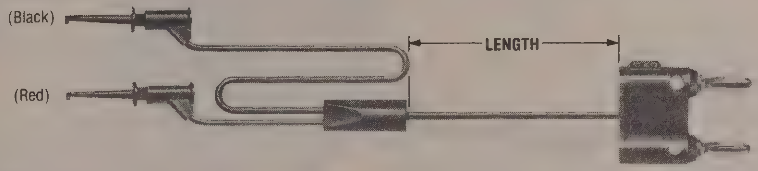


Model No.	Length	*Net
4776-K-24	609.6 (24.0)	14.50
4776-K-36	914.4 (36.0)	14.50
4776-K-48	1219.2 (48.0)	15.10
4776-K-60	1524.0 (60.0)	15.70

MICROGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.
CABLE: RG174/U coaxial cable.

MINIATURE DOUBLE BANANA PLUG: Fits standard 2.64 mm (.104) dia. jacks on 12.70 mm (0.50) centers. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, gold plated.

MICROGRABBER™ TEST CLIPS TO DOUBLE BANANA PLUG

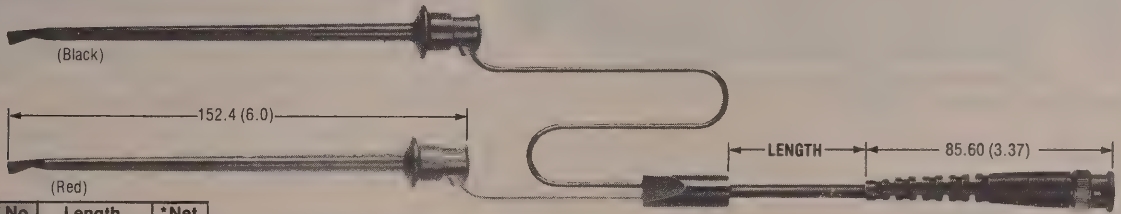


Model No.	Length	*Net
4768-K-24	609.6 (24.0)	13.95
4768-K-36	914.4 (36.0)	13.95
4768-K-48	1219.2 (48.0)	14.55
4768-K-60	1524.0 (60.0)	15.15

MICROGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.
CABLE: RG174/U coaxial cable.

DOUBLE BANANA PLUG: Fits standard 4.23 mm (.166) dia. jacks on 19.05 mm (0.75) centers. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated.

MAXIGRABBER™ TEST CLIPS TO BNC MALE

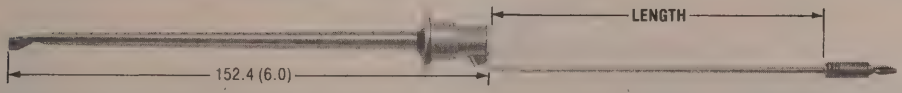


Model No.	Length	*Net
4648-C-18	457.2 (18.0)	15.95
4648-C-24	609.6 (24.0)	15.95
4648-C-36	914.4 (36.0)	15.95
4648-C-48	1219.2 (48.0)	16.55
4648-C-60	1524.0 (60.0)	17.15

MAXIGRABBER™: 1 black & 1 red, gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.
CABLE: RG58 C/U.

CONNECTOR: BNC male tarnish resistant. Insulation: PVC, +50°C. (+122°F.) max.

MAXIGRABBER™ TEST CLIP TO MINIATURE BANANA PLUG



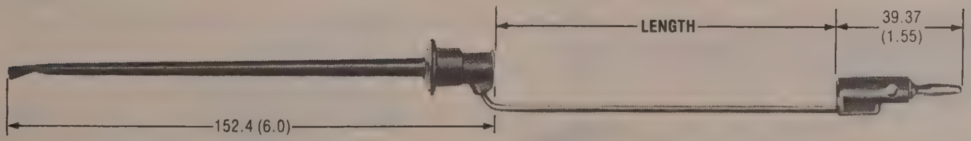
Model No.	Color	Length
4557-48-0	Black	1219.2 (48.0)
4557-48-2	Red	1219.2 (48.0)

MAXIGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.
WIRE: 20 AWG, stranding 41 x 36 TC, PVC insulated. 2.21 mm (.087) O.D.

MINIATURE BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, gold plated. Insulation: Polypropylene, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

***NET 6.50**

MAXIGRABBER™ TEST CLIP TO STACKING BANANA PLUG



Model No.	Length	*Net
4996-12-*	304.8 (12.0)	6.25
4996-24-*	609.6 (24.0)	6.25
4996-36-*	914.4 (36.0)	6.25
4996-48-*	1219.2 (48.0)	6.45
4996-60-*	1524.0 (60.0)	6.65

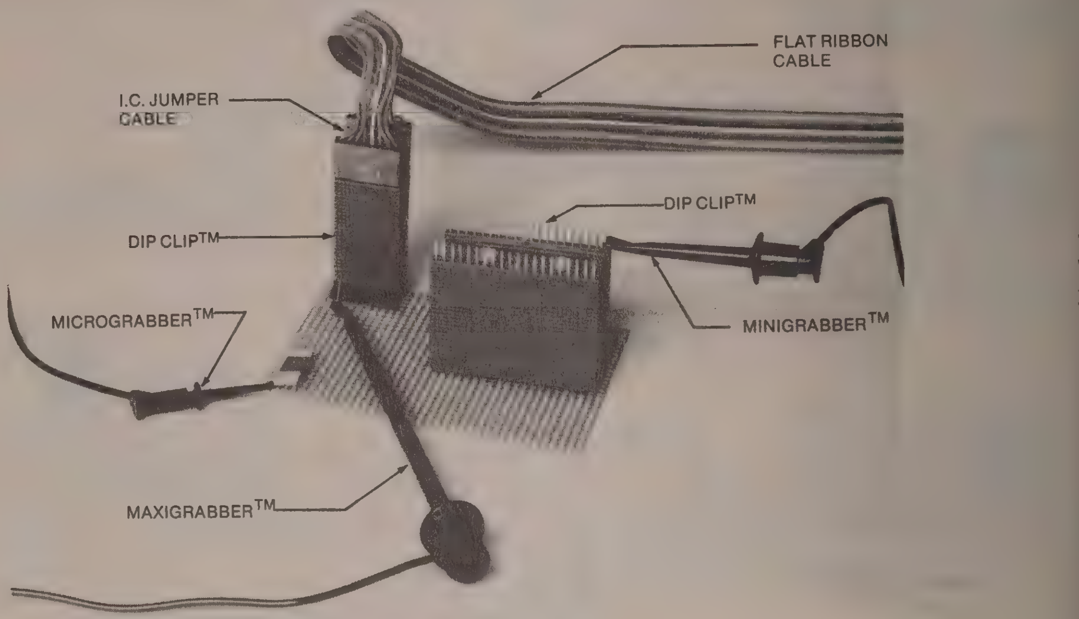
MAXIGRABBER™: Gold plated beryllium copper contact. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.
WIRE: 20 AWG, stranding 41 x 36 TC, PVC insulated. 2.21 mm (.087) O.D.

BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated. Polypropylene molded to plug body and wire, +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

★ See page 126 of the Pomona Catalog for quantity purchases.

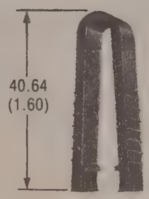
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

I.C. ACCESSORIES


FLAT RIBBON CABLE
I.C. JUMPER CABLE
DIP CLIPTM
DIP CLIPTM
MICROGRABBERTM
MINIGRABBERTM
MAXIGRABBERTM

ANTISTATIC DIP REMOVER

The dip remover is an excellent tool for the removal of dual in-line I.C. chips. With this tool accidental bending of the contacts is at a minimum. Insulation: Antistatic thermoplastic.
TEMPERATURE: Heat distortion temperature @ 265 psi greater than +93°C. (+200°F.)
COLOR: Black.
For I.C. dips: 8, 10, 14, 16, 18 & 20 pins.

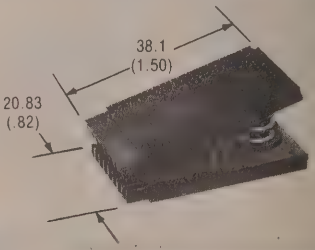


Model No.
4904

***NET 1.50**

14/16 PIN DUAL IN-LINE DIP REMOVER

The dip remover is an excellent tool for the removal of 14/16 pin dual in-line I.C. chips. With this tool accidental bending of the contacts is at a minimum. Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.
COLOR: Red.


38.1
(1.50)
20.83
(.82)

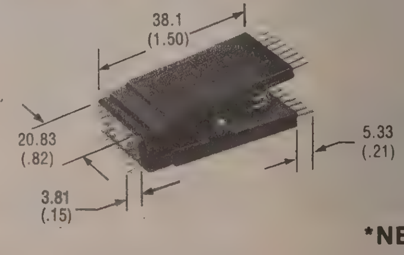
Model No.
4386

***NET 3.95**

14/16 PIN DUAL IN-LINE TEST CLIP WITH ATTACHED HEADER

The Dip Clip™ with attached header is an excellent tool for plugging into 14/16 pin IC sockets to test circuits. You can either solder wires directly to the top pins of the Dip Clip™, or more convenient, you can attach the Pomona Electronics I.C. Jumper Cable 4185. Dip Clip™ insulation: Glass-filled nylon, +102°C. (+216°F.) Max.
COLOR: Red.

Model No.
4566

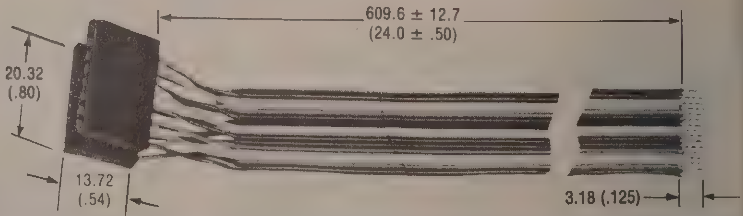

38.1
(1.50)
20.83
(.82)
5.33
(.21)
3.81
(.15)

***NET 13.50**

I.C. JUMPER CABLE (CONNECTORS, ONE END ONLY)

CONN: 1st END, Two multisocket connectors.
MATERIAL: Contacts, beryllium copper.
FINISH: Gold plated.
INSULATION: Black thermoplastic.
WIRE: 26AWG; 7/34 stranding, multiconductor flat ribbon cable, color coded.
CONN: 2nd END, None, wires individually stripped and tinned 3.18 mm (.125)

Model No.	Used On	No. of Sockets	*Net
4185	4566, 3916A, 4236A, 5116, 5216	16 (2 x 8)	34.50


609.6 ± 12.7
(24.0 ± .50)
20.32
(.80)
13.72
(.54)
3.18 (.125)

*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

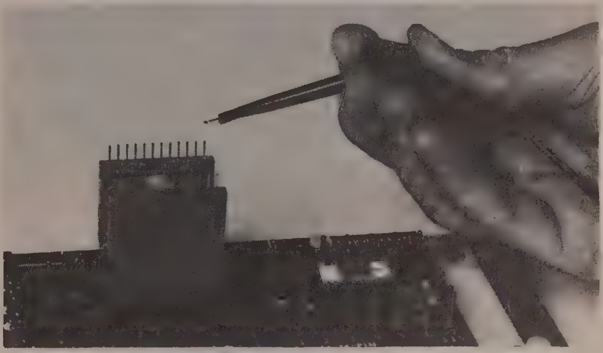
DIP CLIP™ IC TEST CLIPS

Pomona Electronics' DIP CLIP™ test clips are designed especially for testing Dual-In-Line I.C. Packages on high-density P.C. boards. The DIP CLIP™ has many built-in features that assure a positive electrical connection and at the same time provides hands-free testing. The DIP CLIP™ test clips with reduced thickness (across the contacts) are used for ultra-dense packaged clips located adjacent to each other at only 2.54 mm (.100) spacing.

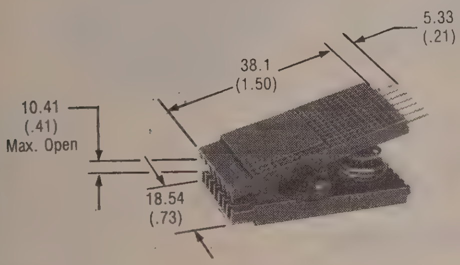
DIP CLIP™ test clips are obtainable either with tarnish resistant nickel silver contacts or gold plated beryllium copper contacts. The gold plated beryllium copper contacts feature longer life and lower contact resistance.

FEATURES

- Solid tarnish resistant nickel silver contacts or beryllium copper contacts, gold plated per MIL-G-45204, Type II.
- Contacts 1.02 mm (.040) wide on lower end are serrated for good electrical connection.
- 0.64 mm (.025) square serrated test points on upper end will accept wire wraps on mini test clips.
- Molded barrier between each contact allows connections to be made on live boards without accidental shorting of adjacent contacts.
- Can be used as an insertion and removal tool for DIPS.
- Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.

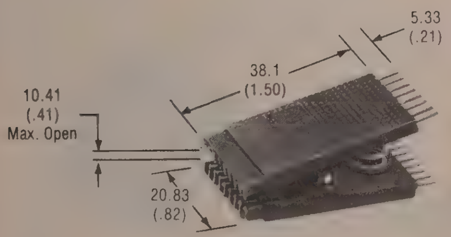


14 PIN DUAL IN-LINE TEST CLIP



Model No.	Contact Material	Net Price*
5014	Tarnish Resistant Nickel Silver	4.75
5214	Gold Plated Beryllium Copper	7.25

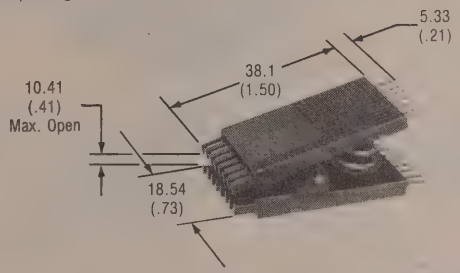
16 PIN DUAL IN-LINE TEST CLIP



Model No.	Contact Material	Net Price*
3916A	Tarnish Resistant Nickel Silver	4.95
5116	Gold Plated Beryllium Copper	7.50

HIGH DENSITY 14 PIN DUAL IN-LINE TEST CLIP

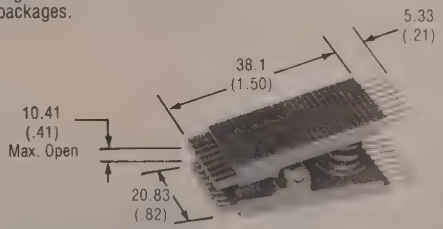
Reduced thickness for testing ultra-dense packages.



Model No.	Contact Material	Net Price*
5114	Tarnish Resistant Nickel Silver	4.75
5314	Gold Plated Beryllium Copper	7.25

HIGH DENSITY 16 PIN DUAL IN-LINE TEST CLIP

Reduced thickness for testing ultra-dense packages.



Model No.	Contact Material	Net Price*
4236A	Tarnish Resistant Nickel Silver	4.95
5216	Gold Plated Beryllium Copper	7.50

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* See page 126 of the Pomona Catalog for quantity purchases.

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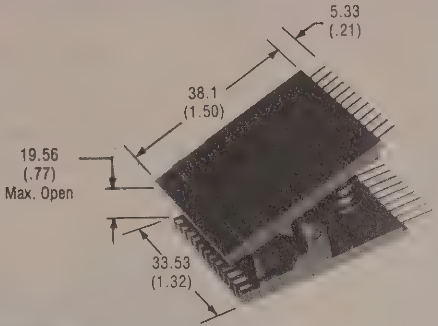
DIP CLIP™ IC TEST CLIPS

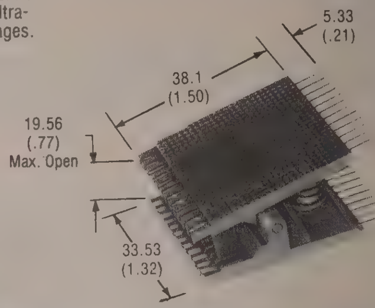
24 PIN DUAL IN-LINE TEST CLIP



Model No.	Contact Material	Net Price*
4124A	Tarnish Resistant Nickel Silver	12.85
5124	Gold Plated Beryllium Copper	15.85

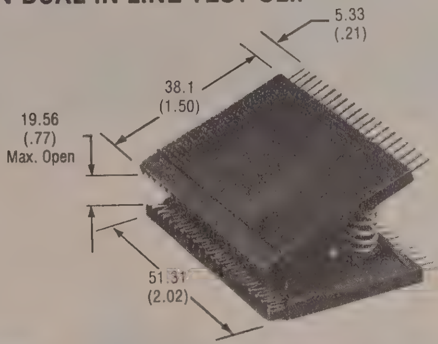
HIGH DENSITY 24 PIN DUAL IN-LINE TEST CLIP

Reduced thickness for testing ultra-dense packages.



Model No.	Contact Material	Net Price*
4324A	Tarnish Resistant Nickel Silver	12.85
5224	Gold Plated Beryllium Copper	15.85

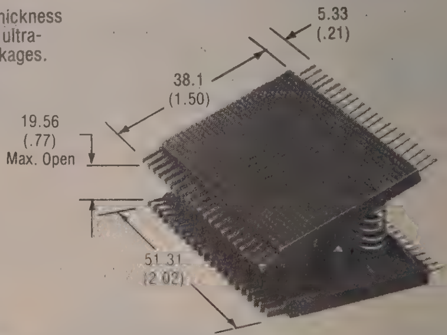
40 PIN DUAL IN-LINE TEST CLIP



Model No.	Contact Material	Net Price*
4140A	Tarnish Resistant Nickel Silver	18.85
5140	Gold Plated Beryllium Copper	21.85

HIGH DENSITY 40 PIN DUAL IN-LINE TEST CLIP

Reduced thickness for testing ultra-dense packages.



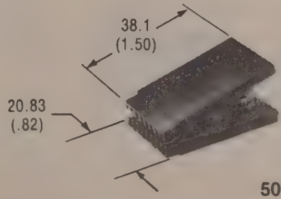
Model No.	Contact Material	Net Price*
4340A	Tarnish Resistant Nickel Silver	18.85
5240	Gold Plated Beryllium Copper	21.85

ANTISTATIC DIP REMOVERS

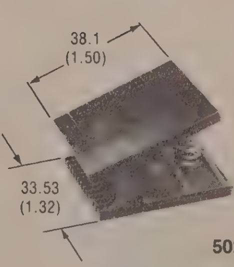
These DIP removers are built of a special plastic that not only has the strength to pull the most stubborn DIP, but actually prevents electrostatic buildup. The surface resistivity controls surface charges and protects even the most sensitive of electronic circuits. This excellent design also minimizes accidental bending of contacts.

FEATURES

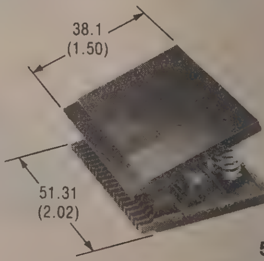
- **MATERIAL:** Antistatic Noryl.*
- **TEMPERATURE:** Heat distortion temperature @ 265 psi greater than +93°C. (+200°F.).



5016



5024



5040

Model No.	Size		Removes Dips	Accepts Dips	Net Price*
5016	16	8 Notches Per Side	8-20 Pins	To 8.89 (.35)	3.95
5024	24	12 Notches Per Side	22-36 Pins	To 16.51 (.65)	4.50
5040	40	20 Notches Per Side	40-60 Pins	To 16.51 (.65)	6.50

★ See page 126 of the Pomona Catalog for quantity purchases.

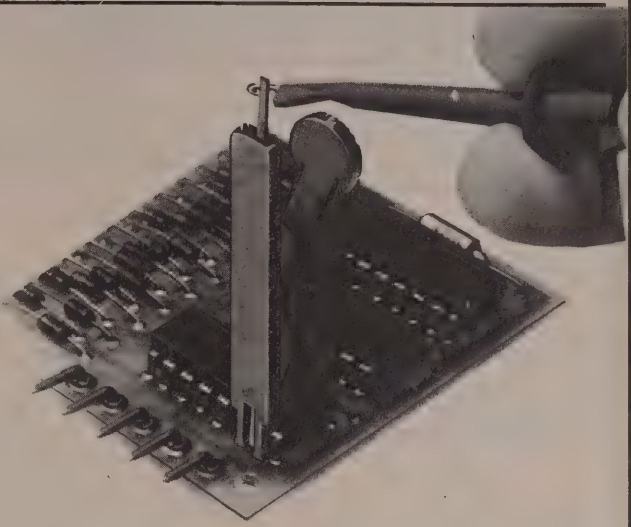
*Noryl is a trademark of General Electric.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

DIP GRIP™ IC TEST CLIP

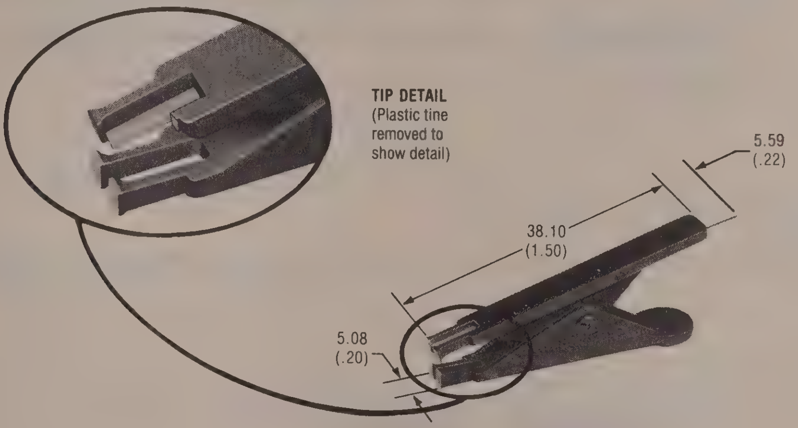
DIP GRIP™ IC TEST CLIP

Pomona Electronics DIP GRIP™ test clip is designed especially for testing single contacts on Dual-In-Line Package (DIP) Integrated Circuits on 2.54 mm (.100) spacing. The DIP GRIP™ assures positive electrical contact on one leg of the DIP across its 7.62 mm (.300) width and provides hands free testing.



FEATURES

- Beryllium copper contact gold plated per MIL-G-45204.
- Contact 1.02 mm (.040) wide on lower end is serrated for good electrical connection.
- **0.64 mm (.025) square serrated test point on upper end will accept square pin receptacle patch cords such as Pomona Models: 4741, 4771, 4772, 4910, 4945, 4974, 4992, 5069 and 5070.**
- Torsion spring: Music wire per QQ-W-470A.
- Molded barrier on either side of contact allows connections to be made on live boards without accidental shorting of adjacent contacts.
- Insulation: Glass-filled nylon, +102°C. (+216°F.) Max.



Model No.	Color
5083-0	Black
5083-1	Brown
5083-2	Red
5083-3	Orange
5083-4	Yellow
5083-5	Green
5083-6	Blue
5083-7	Violet
5083-8	Gray
5083-9	White

***NET 2.95**

ANTISTATIC WRIST STRAP/ACCESSORIES

REPLACEMENT WRIST STRAP

Leave the antistatic cord permanently attached to the bench and give each of your assemblers their own wrist strap. You can also use this model to replace those straps that were lost without purchasing an entire assembly. Fits Models 5027 and 5028.

Model No.
5074

***NET 2.45**

LARGE TEST CLIP TO BANANA JACK

This large test clip accepts a standard banana plug. Clip is steel, cadmium plated. Banana jack, brass, nickel plated. Vinyl insulator, black. Unassembled.

NEW

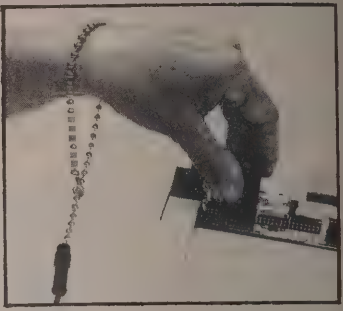
Model No.
5059

***NET 1.95**

★See page 126 of the Pomona Catalog for quantity purchases.

ANTISTATIC WRIST STRAP

These personnel grounding wrist straps protect even the most sensitive I.C. from accidental damage due to static electricity. The self-adjusting wrist strap (see insert) allows freedom of movement, yet is attractive and comfortable to wear. All units feature a built-in 1 megohm resistor.

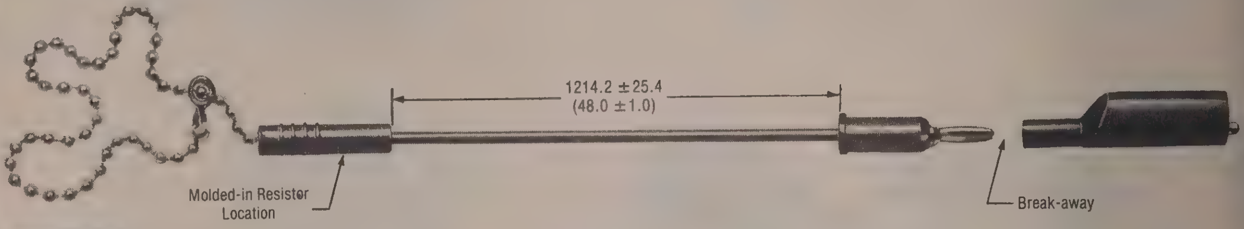


FEATURES (all units):

BEAD CHAIN: Brass, nickel plated with chrome finish.
RESISTOR: Fixed carbon film, 1 megohm, 1/2 watt, 5%.
WIRE: 18 AWG, st. 65 x 36 T.C., PVC insulation, 3.66 mm (.144) O.D. or 23 AWG coil cord.
BANANA PLUG: Nickel plated brass body. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated.

ANTISTATIC WRIST STRAP WITH ALLIGATOR CLIP

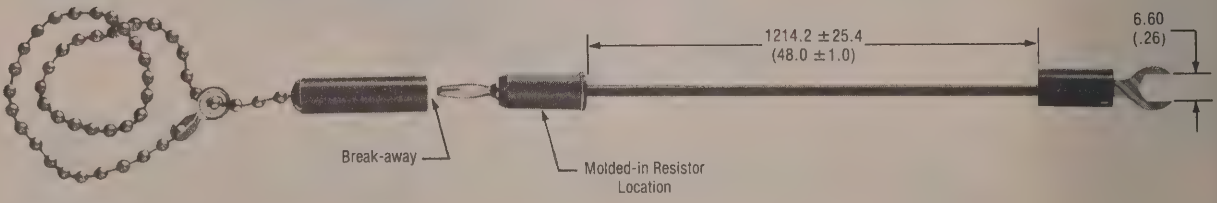
This strap allows the use of several adapters (such as the spade lug adapter, model 1614) in place of the alligator clip adapter provided.


1214.2 ±25.4
(48.0 ±1.0)
Molded-in Resistor Location
Break-away

Model No.
4918-48

***NET 7.50**

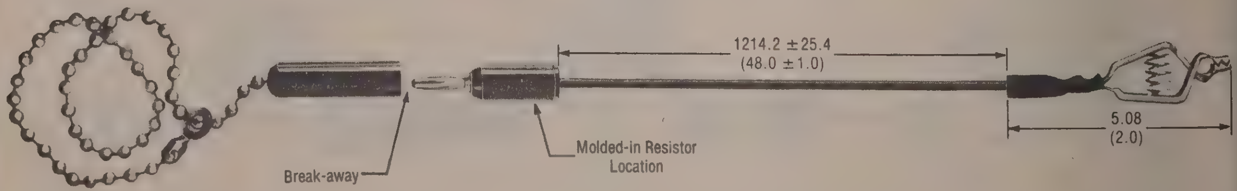
ANTISTATIC WRIST STRAP WITH SPADE LUG


6.60
(.26)
1214.2 ±25.4
(48.0 ±1.0)
Break-away
Molded-in Resistor Location

Model No.
5027-48

***NET 7.95**

ANTISTATIC WRIST STRAP WITH LARGE TEST CLIP


1214.2 ±25.4
(48.0 ±1.0)
5.08
(2.0)
Break-away
Molded-in Resistor Location

Model No.
5028-48

***NET 7.50**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

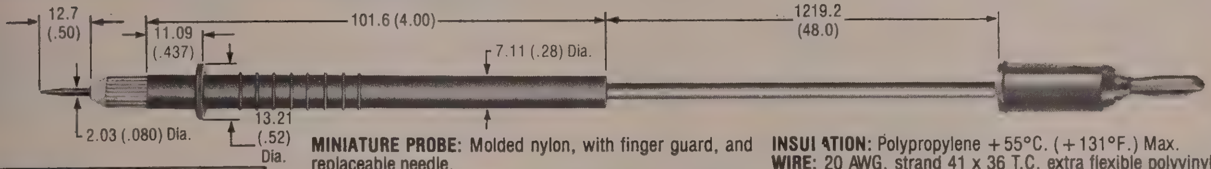
MINIATURE TEST PROBE PATCH CORDS

These slim miniature test probes feature a sharp replaceable needle tip. The tip easily pierces varnish or plating to give a good electrical reading. The probe also has an optional replaceable tube or 0.71 mm (.028) needle tip for non-slip use over the ends of leads (See model 4574 and 4988 on page 35). This aids in the checking of components from the back side of circuit boards.

Tough thermoplastic is molded directly onto probe tip and wire lead providing a strong, reliable integral unit.

2.03 mm (.080) NEEDLE TIP: Replaceable, stainless steel. (See model 4174 page 35.)
TUBE TIP: Replaceable brass, nickel plated. (See model 4574 page 35.)
0.71 mm (.028) NEEDLE TIP: Replaceable, stainless steel. (See model 4988 page 35.)
TIP NUT: Nylon, white.
PROBE BODY: Nylon.

MINIATURE PROBE TO BANANA PLUG



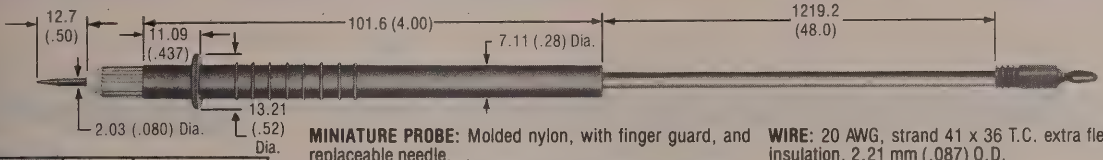
Model No.	Color	Length
4410-48-0	Black	1219.2 (48.0)
4410-48-2	Red	1219.2 (48.0)

MINIATURE PROBE: Molded nylon, with finger guard, and replaceable needle.
BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Nickel plated.

INSULATION: Polypropylene +55°C. (+131°F.) Max.
WIRE: 20 AWG, strand 41 x 36 T.C. extra flexible polyvinyl insulation, 2.21 mm (.087) O.D.
RATED: 5 amps cont. 3000 WVDC.
(See page 35 for accessories.)

***NET 5.95**

MINIATURE PROBE TO MINIATURE BANANA PLUG



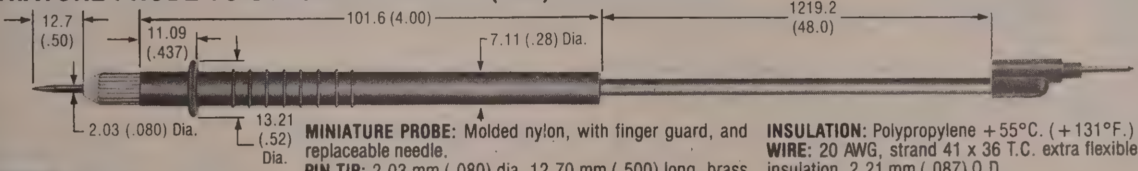
Model No.	Color	Length
4847-48-0	Black	1219.2 (48.0)
4847-48-2	Red	1219.2 (48.0)

MINIATURE PROBE: Molded nylon, with finger guard, and replaceable needle.
MINIATURE BANANA PLUG: Fits 2.64 mm (.104) dia. jacks. Brass body. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Gold plated.

WIRE: 20 AWG, strand 41 x 36 T.C. extra flexible polyvinyl insulation. 2.21 mm (.087) O.D.
RATED: 5 amps cont. 3000 WVDC
NOTE: This model supersedes model 4071.
(See page 35 for accessories.)

***NET 6.75**

MINIATURE PROBE TO STACKING 2.03 mm (.080) PIN TIP PLUG



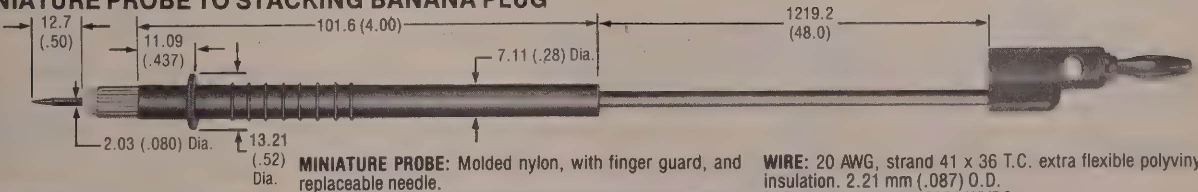
Model No.	Color	Length
4848-48-0	Black	1219.2 (48.0)
4848-48-2	Red	1219.2 (48.0)

MINIATURE PROBE: Molded nylon, with finger guard, and replaceable needle.
PIN TIP: 2.03 mm (.080) dia. 12.70 mm (.500) long, brass gold plated.
TIP JACK, STACKUP: Beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin.

INSULATION: Polypropylene +55°C. (+131°F.) Max.
WIRE: 20 AWG, strand 41 x 36 T.C. extra flexible polyvinyl insulation. 2.21 mm (.087) O.D.
RATED: 5 amps cont. 3000 WVDC.
NOTE: This model supersedes model 3860.
(See page 35 for accessories.)

***NET 6.75**

MINIATURE PROBE TO STACKING BANANA PLUG



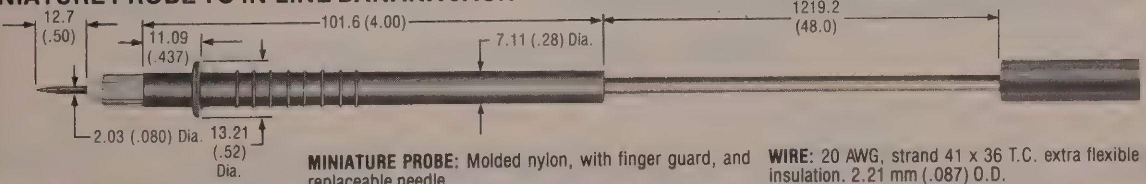
Model No.	Color	Length
4851-48-0	Black	1219.2 (48.0)
4851-48-2	Red	1219.2 (48.0)

MINIATURE PROBE: Molded nylon, with finger guard, and replaceable needle.
BANANA PLUG STACKUP: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Nickel plated.
INSULATION: Polypropylene +55°C. (+131°F.) Max.

WIRE: 20 AWG, strand 41 x 36 T.C. extra flexible polyvinyl insulation. 2.21 mm (.087) O.D.
RATED: 5 amps cont. 3000 WVDC.
NOTE: This model supersedes model 3861.
(See page 35 for accessories.)

***NET 5.95**

MINIATURE PROBE TO IN-LINE BANANA JACK



Model No.	Color	Length
4852-48-0	Black	1219.2 (48.0)
4852-48-2	Red	1219.2 (48.0)

MINIATURE PROBE: Molded nylon, with finger guard, and replaceable needle.
IN-LINE BANANA JACK: This in-line banana jack will accept all standard banana plugs. Brass, nickel plated per QQ-N-290.
INSULATION: Polypropylene +55°C. (+131°F.) Max.

WIRE: 20 AWG, strand 41 x 36 T.C. extra flexible polyvinyl insulation. 2.21 mm (.087) O.D.
RATED: 5 amps cont. 3000 WVDC.
NOTE: This model supersedes model 4540.
(See page 35 for accessories.)

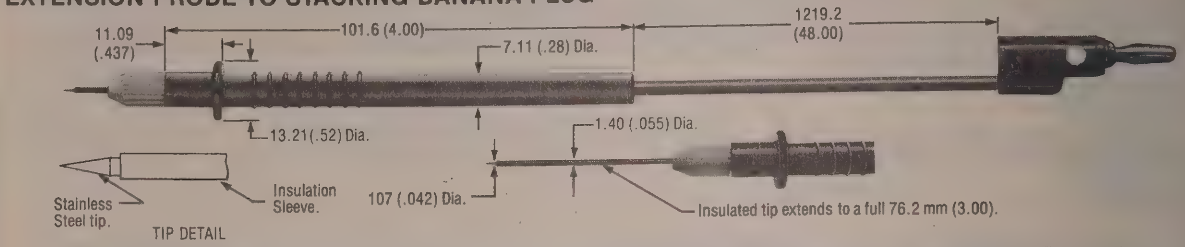
***NET 6.75**

★See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MINIATURE SIZE TEST PROBES

EXTENSION PROBE TO STACKING BANANA PLUG


11.09 (.437)
101.6 (4.00)
1219.2 (48.00)
7.11 (.28) Dia.
13.21 (.52) Dia.
1.40 (.055) Dia.
Stainless Steel tip.
Insulation Sleeve.
TIP DETAIL
107 (.042) Dia.
Insulated tip extends to a full 76.2 mm (3.00).

Now you can 'reach out' to get at those hard-to-reach test points with this miniature extendable test probe. The steel tip is very sharp, allowing penetration of contaminants or conformal coatings. The tip is insulated up to the point, providing protection from accidental shorting to adjacent components.

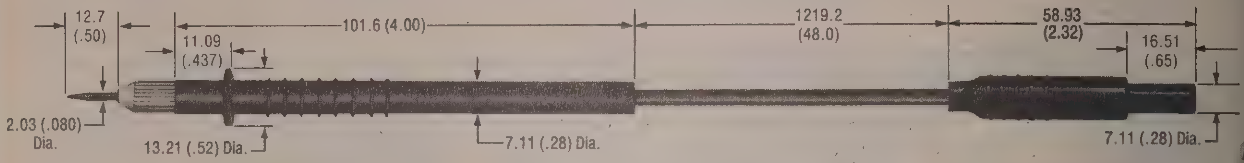
Model No.	Color
5044-48-0	Black
5044-48-2	Red

MINIATURE PROBE: Molded nylon, with finger guard.
TIP: Steel, teflon insulated.
BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Nickel plated.

INSULATION: Polypropylene +55°C. (+131°F.) Max.
WIRE: 18 AWG, strand. 65 x 35 T.C., polyvinyl insulation 3.66 mm (.144) O.D.
RATED: 5 amps cont. 3000 WVDC.

***NET 8.50**

MINIATURE PROBE TO RETRACTABLE SHEATH BANANA PLUG


12.7 (.50)
101.6 (4.00)
1219.2 (48.0)
58.93 (2.32)
11.09 (.437)
16.51 (.65)
2.03 (.080) Dia.
13.21 (.52) Dia.
7.11 (.28) Dia.
7.11 (.28) Dia.

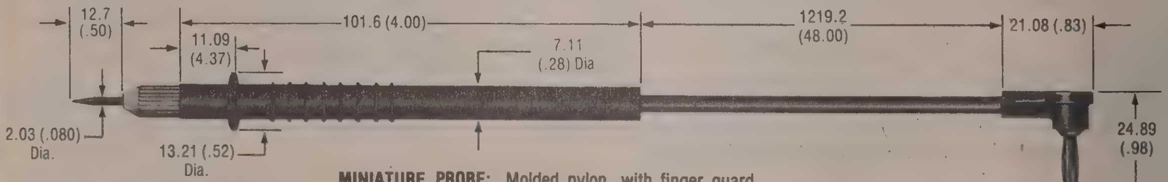
Model No.	Color
5048-48-0	Black
5048-48-2	Red

Spring loaded plastic sheath retracts into the plug body to expose the banana plug.
MINIATURE PROBE: Molded nylon, with finger guard, and replaceable needle.
WIRE: 18 AWG, strand. 65 x 35 T.C., polyvinyl insulation 3.66 mm (.144) O.D.

BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Body, brass, nickel plated. Tip: Plastic.
INSULATION: Nylon.
RATINGS: 7 amps cont., 1200 V. AC/DC Max. +80°C. (+176°F.) Max.

***NET 7.50**

MINIATURE PROBE TO RIGHT ANGLE BANANA PLUG


12.7 (.50)
101.6 (4.00)
1219.2 (48.00)
21.08 (.83)
11.09 (4.37)
7.11 (.28) Dia
2.03 (.080) Dia.
13.21 (.52) Dia.
24.89 (.98)

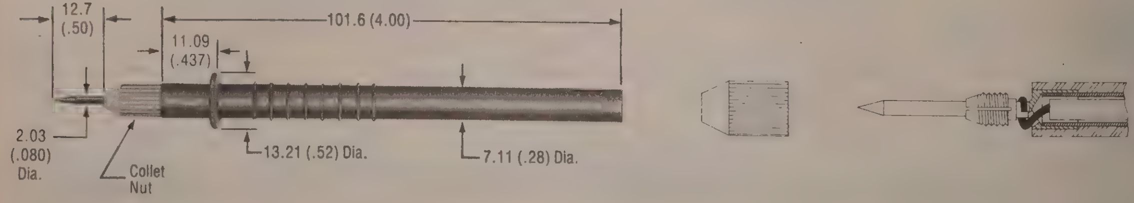
Model No.	Color	Length
4800-48-0	Black	1219.2 (48.0)
4800-48-2	Red	1219.2 (48.0)

MINIATURE PROBE: Molded nylon, with finger guard, and replaceable needle.
BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated.
INSULATION: Polypropylene +55°C. (+131°F.) Max.

WIRE: 20 AWG, strand. 41 x 36 T.C. extra flexible polyvinyl insulation. 2.21 mm (.087) O.D.
RATED: 5 amps cont. 3000 WVDC.

***NET 6.75**

MINIATURE DO-IT-YOURSELF TEST PROBE


12.7 (.50)
101.6 (4.00)
11.09 (.437)
2.03 (.080) Dia.
Collet Nut
13.21 (.52) Dia.
7.11 (.28) Dia.

Model No.	Color
5065-0	Black
5065-2	Red

Install this miniature probe on the end of any test lead having a maximum O.D. of 3.81 mm (.150) dia. and a wire gauge of 22 to 18 AWG. Simply remove the collet nut, strip wire 5/8" and insert wire through probe body into the angled hole. Wrap conductor around recessed diameter of collet, then tighten collet nut. Repairs are easily made by just reversing the procedure and replacing the wire.

MINIATURE PROBE: Molded nylon, with finger guard, and replaceable needle.
OPERATING TEMP.: +80°C. (+176°F.) Max.

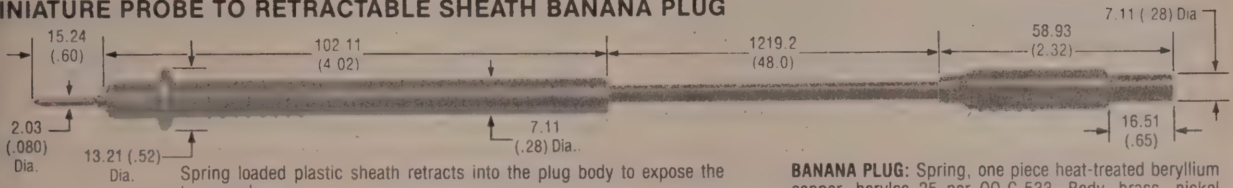
***NET 5.95**

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MINIATURE SIZE TEST PROBES

MINIATURE PROBE TO RETRACTABLE SHEATH BANANA PLUG


15.24
(.60)
102.11
(4.02)
1219.2
(48.0)
58.93
(2.32)
7.11 (.28) Dia
2.03
(.080)
Dia.
13.21 (.52)
Dia.
7.11
(.28) Dia.
16.51
(.65)

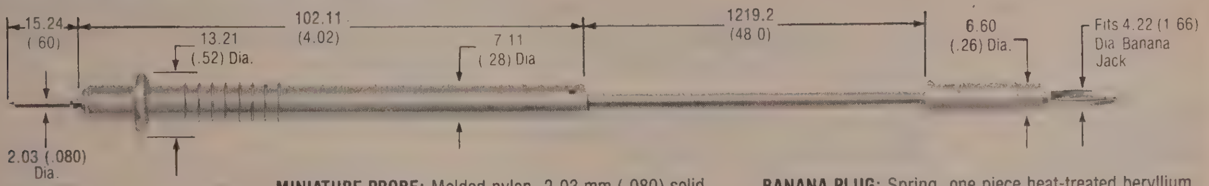
Spring loaded plastic sheath retracts into the plug body to expose the banana plug.
MINIATURE PROBE: Molded nylon, 2.03 mm (.080) solid pin tip with finger guard.
WIRE: 18 AWG, strand. 65 x 35 T.C., polyvinyl insulation 3.66 mm (.144) O.D.

BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Body, brass, nickel plated. Tip: Plastic.
INSULATION: Nylon.
RATINGS: 7 amps cont., 1200 V. AC/DC Max. +80° C. (+176°F.) Max.

Model No.	Color
5049-48-0	Black
5049-48-2	Red

***NET 6.95**

MINIATURE PROBE TO IN-LINE BANANA PLUG


15.24
(.60)
102.11
(4.02)
1219.2
(48.0)
13.21
(.52) Dia.
7.11
(.28) Dia
6.60
(.26) Dia.
Fits 4.22 (1.66)
Dia Banana
Jack
2.03 (.080)
Dia.

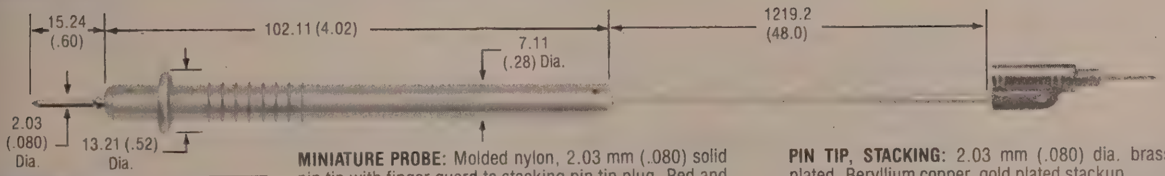
MINIATURE PROBE: Molded nylon, 2.03 mm (.080) solid pin tip with finger guard to in-line banana plug. Red and black, length 1219.2 mm (48.0).
WIRE: 18 AWG, strand. 65 x 35 tinned copper, polyvinyl insulation 3.66 mm (.144) O.D.

BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated. Insulation polypropylene.
RATED: 7 amps cont. 5000 WVDC. +55°C. (+131°F.) Max.

Model No.	Color	Length
4602-48-0	Black	1219.2 (48.0)
4602-48-2	Red	1219.2 (48.0)

***NET 5.95**

MINIATURE PROBE TO STACKING 2.03mm (.080) PIN TIP PLUG


15.24
(.60)
102.11 (4.02)
1219.2
(48.0)
7.11
(.28) Dia.
2.03
(.080)
Dia.
13.21 (.52)
Dia.

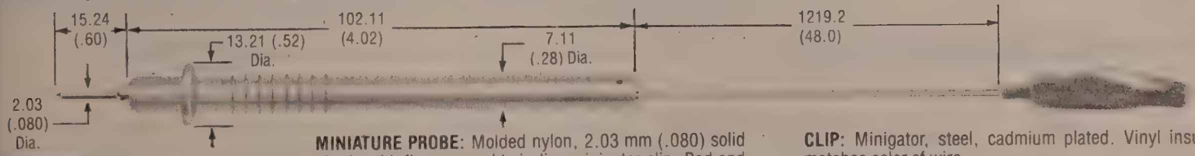
MINIATURE PROBE: Molded nylon, 2.03 mm (.080) solid pin tip with finger guard to stacking pin tip plug. Red and black, length 1219.2 mm (48.0).
WIRE: 20 AWG, strand. 41 x 36 tinned copper, polyvinyl insulation 2.21 mm (.087) O.D.

PIN TIP, STACKING: 2.03 mm (.080) dia. brass, gold plated. Beryllium copper, gold plated stackup.
RATED: 5 amps cont. 3000 WVDC. +55°C. (+131°F.) Max.

Model No.	Color	Length
4731-48-0	Black	1219.2 (48.0)
4731-48-2	Red	1219.2 (48.0)

***NET 5.95**

MINIATURE PROBE TO IN-LINE MINIGATOR CLIP


15.24
(.60)
102.11
(4.02)
1219.2
(48.0)
13.21 (.52)
Dia.
7.11
(.28) Dia.
2.03
(.080)
Dia.

MINIATURE PROBE: Molded nylon, 2.03 mm (.080) solid pin tip with finger guard to in-line minigator clip. Red and black, length 1219.2 mm (48.0).
WIRE: 20 AWG, strand. 41 x 36 tinned copper, polyvinyl insulation 2.21 mm (.087) O.D.

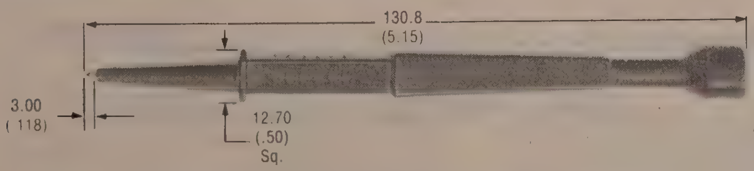
CLIP: Minigator, steel, cadmium plated. Vinyl insulator matches color of wire.
RATED: 5 amps cont. 3000 WVDC. +50°C. (+122°F.) Max.

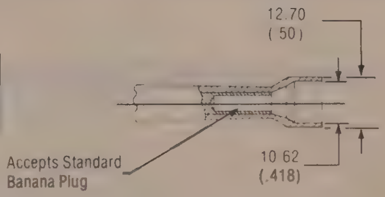
Model No.	Color	Length
4717-48-0	Black	1219.2 (48.0)
4717-48-2	Red	1219.2 (48.0)

***NET 5.75**

MEDIUM SIZE TEST PROBES

MEDIUM SIZE TEST PROBE TO BANANA JACK


130.8
(5.15)
3.00
(.118)
12.70
(.50)
Sq.


12.70
(.50)
Accepts Standard
Banana Plug
10.62
(.418)

Banana jack in handle is sheathed to help prevent accidental shorting due to partial insertion. Allows the use of standard banana plug test leads. Finger guard molded to probe helps prevent fingers from slipping onto tip. Nylon molded to body and finger guard. +80°C. (+176°F.) max.

PROBE PIN TIP: 2.03 mm (.080) dia. x 3.0 mm (.118), nickel plated.
BANANA JACK: 4.22 mm (.166) dia brass nickel plated. Accepts standard banana plug.

Model No.	Color
5002-0	Black
5002-2	Red

***NET 3.95**

★See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

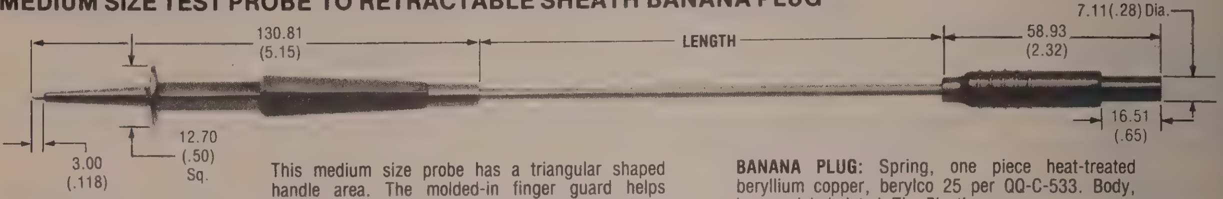
ITT POMONA ELECTRONICS

MEDIUM TEST PROBE PATCH CORDS

These "human engineered" test probes have been designed to feel comfortable and also provide the necessary finger guard to help prevent the technician's fingers from slipping down to the probe. Probes with a replaceable needle tip easily pierce plating or varnish for a good electrical reading. These needle tips can be replaced with the optional tube or .028 needle tip for non-slip use on the ends of leads. (See Models 4574 and 4988 on page 35).

2.03 mm (.080) NEEDLE TIP: Replaceable, stainless steel. (See Model 4174, page 35.)
TUBE TIP: Replaceable, brass, nickel plated. (See Model 4574, page 35.)
0.71 mm (.028) NEEDLE TIP: Replaceable, stainless steel. (See Model 4988, page 35.)
PROBE BODY: Nylon.

MEDIUM SIZE TEST PROBE TO RETRACTABLE SHEATH BANANA PLUG



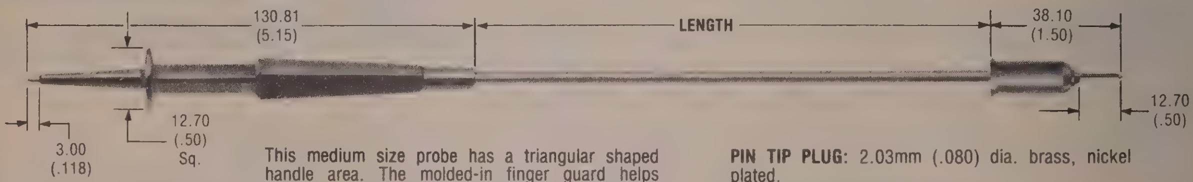
This medium size probe has a triangular shaped handle area. The molded-in finger guard helps prevent accidental finger contact. The minimal extension of the probe tip further enhances the safety of this product.
PROBE TIP: 2.03mm (.080) dia. brass, nickel plated. Molded nylon insulated.
WIRE: 18 AWG strand. 65 x 36 T.C. Extra flexible polyvinyl insulation, 3.66mm (.144) O.D.

BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Body, brass, nickel plated. Tip: Plastic.
INSULATION: Nylon.
RATINGS: 7 amps cont., 1200 V. AC/DC Max. +80°C. (+176°F.) Max.

Model No.	Color
4909-48-0	Black
4909-48-2	Red

***NET 5.95**

MEDIUM SIZE TEST PROBE TO PIN TIP PLUG



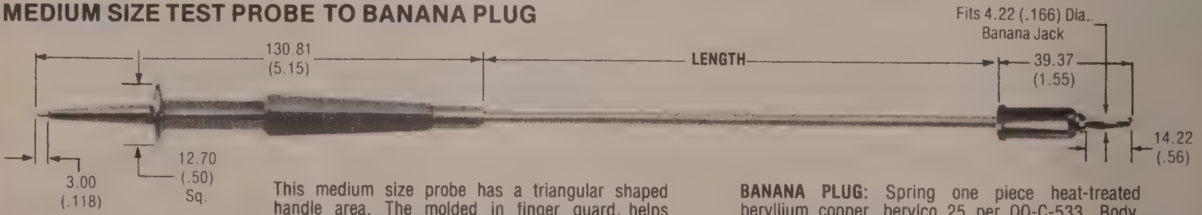
This medium size probe has a triangular shaped handle area. The molded-in finger guard helps prevent accidental finger contact. The minimal extension of the probe tip further enhances the safety of this product.
PROBE TIP: 2.03mm (.080) dia. brass, nickel plated. Molded nylon insulated.
WIRE: 20 AWG strand. 41 x 36 T.C., Extra flexible polyvinyl insulation, 2.21mm (.087) O.D.

PIN TIP PLUG: 2.03mm (.080) dia. brass, nickel plated.
INSULATION: Polypropylene.
RATINGS: 5 amps cont., 1200 V. AC/DC Max. +55°C. (+131°F.) Max.

Model No.	Color
4923-48-0	Black
4923-48-2	Red

***NET 4.75**

MEDIUM SIZE TEST PROBE TO BANANA PLUG



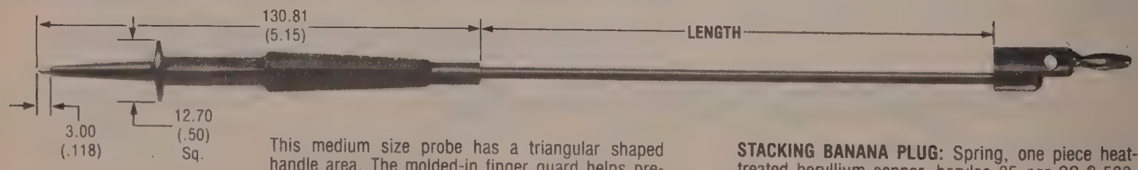
This medium size probe has a triangular shaped handle area. The molded in finger guard helps prevent accidental finger contact. The minimal extension of the probe tip further enhances the safety of this product.
PROBE TIP: 2.03mm (.080) dia. brass, nickel plated. Molded nylon insulated.
WIRE: 18 AWG strand. 65 x 36 T.C. Extra flexible polyvinyl insulation, 3.66mm (.144) O.D.

BANANA PLUG: Spring one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Body, brass, nickel plated.
INSULATION: Polypropylene.
RATINGS: 7 amps cont., 1200 V. AC/DC Max. +55°C. (+131°F.) Max.

Model No.	Color
4924-48-0	Black
4924-48-2	Red

***NET 4.95**

MEDIUM SIZE TEST PROBE TO STACKING BANANA PLUG



This medium size probe has a triangular shaped handle area. The molded-in finger guard helps prevent accidental finger contact. The minimal extension of the probe tip further enhances the safety of this product.
PROBE TIP: 2.03mm (.080) dia. brass, nickel plated. Molded nylon insulated.
WIRE: 18 AWG strand. 65 x 36 T.C. Extra flexible polyvinyl insulation, 3.66mm (.144) O.D.

STACKING BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533. Body, brass, nickel plated.
INSULATION: Polypropylene.
RATINGS: 7 amps cont., 1200 V. AC/DC Max. +55°C. (+131°F.) Max.

Model No.	Color
4982-48-0	Black
4982-48-2	Red

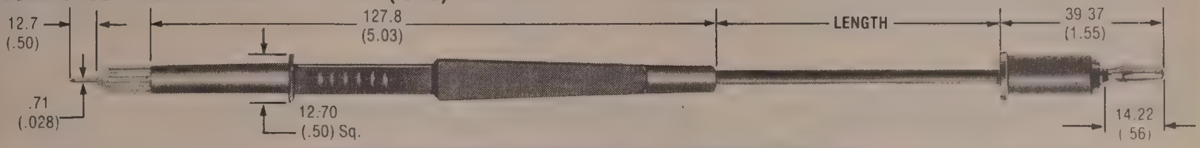
***NET 5.50**

★See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MEDIUM SIZE TEST PROBES

MEDIUM SIZE TEST PROBE 0.71 mm (.028) NEEDLE TIP TO BANANA PLUG



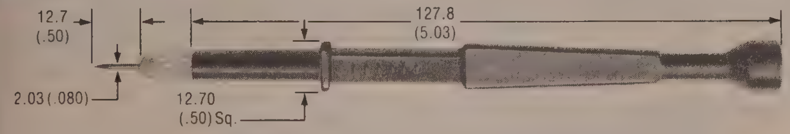
This probe features a triangular shaped handle area. Sharp 0.71 mm (.028) dia. replaceable needle tip allows testing of encapsulated circuits. The molded in finger guard helps prevent accidental finger contact.
PROBE TIP: 0.71 mm (.028) dia. steel, replaceable. Molded nylon insulated thumbnut.
WIRE: 18 AWG strand. 65 x 36 T.C. Extra flexible polyvinyl insulation, 3.66 mm (.144) O.D.

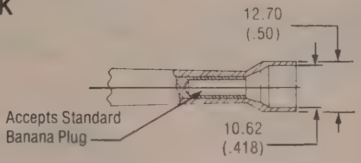
BANANA PLUG: Spring, one piece, heat-treated beryllium copper, berylco 25 per QQ-C-533. Body, brass, nickel plated.
INSULATION: Polypropylene.
RATINGS: 7 amps. cont., 1200 V. AC/DC Max. +55°C. (+131°F.) Max.

Model No.	Color
4951-48-0	Black
4951-48-2	Red

***NET 5.95**

MEDIUM SIZE TEST PROBE 2.03 mm (.080) NEEDLE TIP TO BANANA JACK



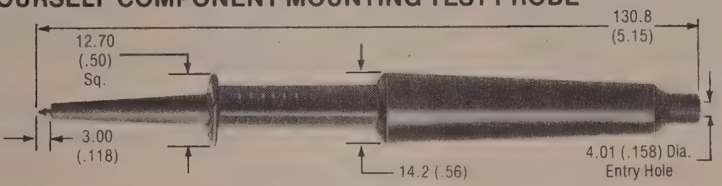


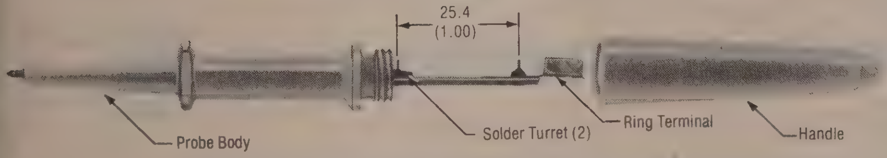
Sharp 2.03 mm (.080) dia. replaceable needle tip allows testing of encapsulated circuits. Banana jack in handle is sheathed to help prevent accidental shorting due to partial insertion. Allows the use of standard banana plug test leads. Finger guard molded to probe helps prevent fingers from slipping onto tip. Nylon molded to body and finger guard. +80°C. (+176°F.) max.
PROBE PIN TIP: Replaceable needle tip, stainles steel. Needle tip nut, glass-filled nylon insulated.
BANANA JACK: 4.22 mm (.166) dia. brass nickel plated. Accepts standard banana plug.

Model No.	Color
5005-0	Black
5005-2	Red

***NET 4.95**

DO-IT-YOURSELF COMPONENT MOUNTING TEST PROBE





SIMPLIFIED COMPONENT INSTALLATION
- Unscrew handle from probe body.
- Thread wire through hole in handle and crimp or solder to ring terminal.
- Attach and solder component to turret terminals.
- Slip handle over component and thread handle to probe assembly.

This do-it-yourself component mounting test probe enables the user to create his own compensated probe. Discrete components, such as resistors, capacitors, filters, etc., can be soldered between the two gold plated brass solder turrets. The probe features a triangular shaped finger grip with molded finger guard and threaded handle. Nylon, +80°C. (+176°F.) Max.
PROBE PIN TIP: 2.03 mm (.080) dia., nickel plated.
RECOMMENDED WIRE SIZE: 20 to 16 AWG.

Model No.	Color
4971-0	Black
4971-2	Red

***NET 4.95**

LARGE SIZE TEST PROBES

TEST PROBE (NEEDLE TIP) TO BANANA JACK

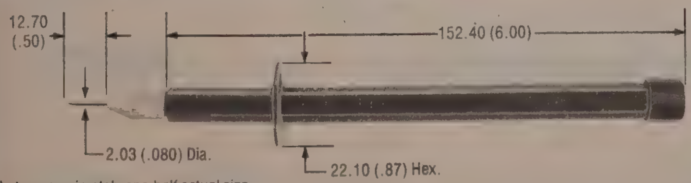
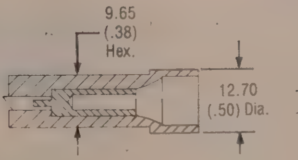
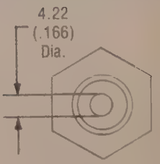


Photo approximately one-half actual size.





Sharp replaceable needle tip allows testing of encapsulated circuits. Banana jack in handle is sheathed to help prevent accidental shorting due to partial insertion. Allows the use of standard banana plug test leads. Finger guard molded to probe helps prevent fingers from slipping onto tip. Nylon molded to body and finger guard. +80°C. (+176°F.) max.
PIN TIP: Replaceable needle tip, stainless steel. Needle tip nut, white nylon.
BANANA JACK: 4.22 mm (.166) dia. brass, nickel plated. Accepts standard banana plug.

Model No.	Color
5075-0	Black
5075-2	Red

***NET 4.95**

★See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

LARGE SIZE TEST PROBES

These larger sized probes have that sturdy 'grip' and 'feel' for those field applications. Nylon molded probe bodies make them suitable to even the toughest environment. A molded-in finger guard helps protect the technician's fingers from accidentally slipping down onto the probe tip.

PROBE BODY: Nylon.

2.03 mm (.080) NEEDLE TIP: Replaceable, stainless steel. (See Model 4174, page 35.)
TUBE TIP: Replaceable, brass, nickel plated. (See Model 4574, page 35.)
0.71 mm (.028) NEEDLE TIP: Replaceable, stainless steel. (See Model 4988, page 35.)

TEST PROBE TO BANANA PLUG

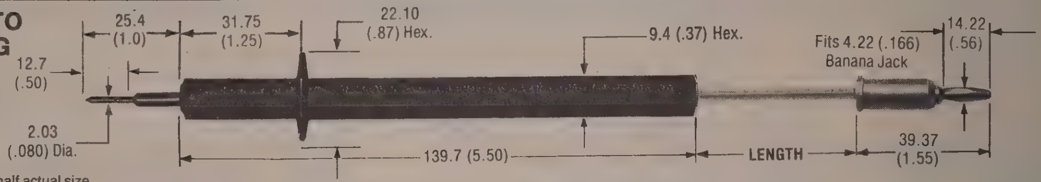


Photo approximately one-half actual size.

Insulated handle with finger guard molded to probe tip and wire lead.
PROBE PIN TIP: 2.03 mm (.080) dia. x 12.70 mm (.500) long. Brass nickel plated. Molded nylon insulated.
WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible polyvinyl insulation. 3.66 mm (.144) O.D.

BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated. Polypropylene molded to body.
RATED: 7 amps cont. 5000 WVDC. +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.
NOTE: This model supersedes Models 1986 and 4546.

Model No.	Length
4853-36*	914.4 (36.0)
4853-48*	1219.2 (48.0)

***NET 5.95**

SHIELDED TEST PROBE TO BNC MALE

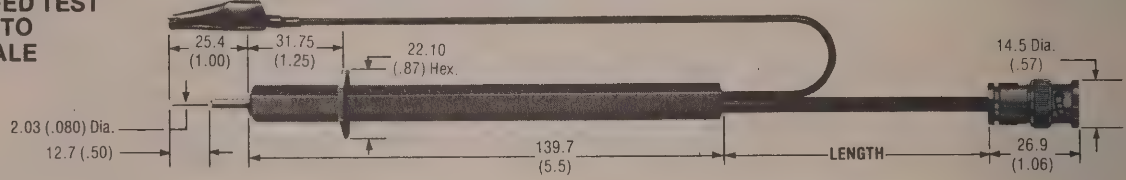


Photo approximately one-half actual size.

A shielded test probe with the shield extending to within 38.10 mm (1.500) of the probe tip end. Molded nylon. Color, red. Insulated handle, with finger guard molded to probe tip and cable. PVC, +50°C. (+122°F.) max., insulated minigator clip connected to shield lead.
PROBE PIN TIP: 2.03 mm (.080) dia. x 12.70 mm (.500) long. Brass nickel plated.

CONNECTOR: BNC male, brass gold plated center contact. Brass body with tarnish resistant finish.
CLIP: Minigator, steel, cadmium plated, to 20 AWG wire.
CABLE: Shielded coax; RG58C/U, polyethylene insulation. PVC jacket, 4.95 mm (.195) O.D., nom. Cap. 30.8 pf/ft.
NOTE: This model supersedes Model 2739.

Model No.	Length
4857-C-48	1219.2 (48.0)

***NET 14.95**

SHIELDED TEST PROBE TO DOUBLE BANANA PLUG

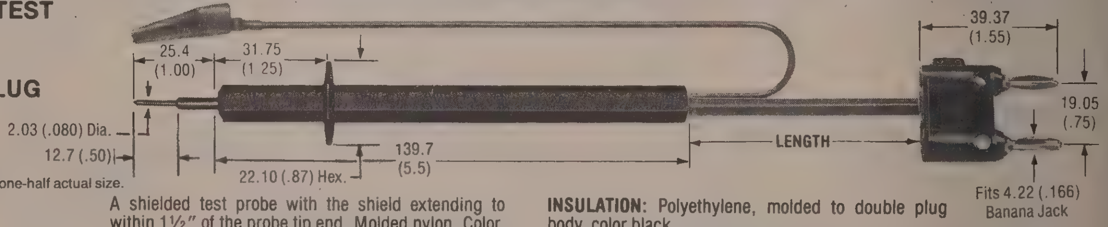


Photo approximately one-half actual size.

A shielded test probe with the shield extending to within 1½" of the probe tip end. Molded nylon. Color, red. Insulated handle with finger guard molded to probe tip and cable. PVC, +50°C. (+122°F.) max., insulated minigator clip connected to shield lead.
PROBE PIN TIP: 2.03 mm (.080) dia. x 12.70 mm (.500) long. Brass nickel plated.
DOUBLE BANANA PLUG: On 19.05 mm (.750) centers. Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated.

INSULATION: Polyethylene, molded to double plug body, color black.
CLIP: Minigator, steel, cadmium plated, to 20 AWG wire.
CABLE: Shielded coax., RG58C/U, polyethylene insulation. PVC jacket, 4.95 mm (.195) O.D., nom. Cap. 30.8 pf/ft.
NOTE: This model supersedes Model 1569.

Model No.	Length
4858-C-48	1219.2 (48.0)

***NET 14.95**

TEST PROBE TO STACKING BANANA PLUG

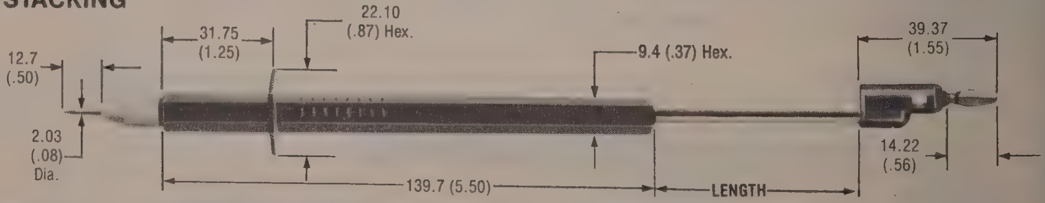


Photo approximately one-half actual size.

Model No.	Length	*Net
4948-36-*	914.4 (36.0)	6.95
4948-48-*	1219.2 (48.0)	7.15

Insulated handle with finger guard molded to probe tip and wire lead.
PROBE PIN TIP: 2.03 mm (.080) dia. steel replaceable. Molded nylon insulation.
WIRE: 18 AWG strand. 65 x 36 T.C. Extra flexible polyvinyl insulation. 3.66mm (.144) O.D.

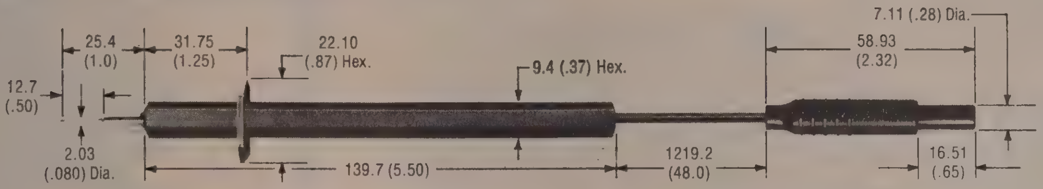
STACKING BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated. Polypropylene molded to body.
RATED: 7 amps cont. 5000 WVDC. +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

★ See page 126 for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

LARGE SIZE TEST PROBES

TEST PROBE TO RETRACTABLE SHEATH BANANA PLUG



Insulated handle with finger guard molded to probe tip and wire lead.

PROBE PIN TIP: 2.03 mm (.080) dia. x 12.70 mm (.50) long. Brass, nickel plated. Molded nylon insulated.

WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible polyvinyl insulation. 3.66 mm (.144) O.D.

BANANA PLUG: Spring loaded plastic sheath retracts into the plug body to expose the banana plug. Contact spring, one piece heat-treated beryllium copper, Berylco 25 per QQ-C-533. Body, brass, nickel plated. Tip: Plastic.

INSULATION: Nylon.

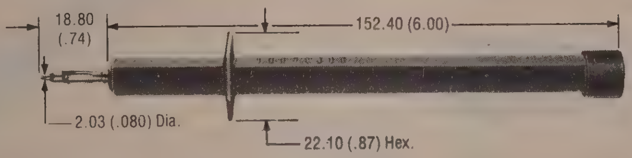
RATINGS: 7 amps cont., 1200 V. AC/DC Max. +80°C. (+176°F.) Max.

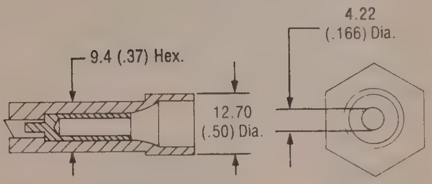
Photo approximately one-half actual size.

Model No.	Color
5017-48-0	Black
5017-48-2	Red

***NET 7.50**

TEST PROBE (PILLOW SPRING) TO BANANA JACK





This novel design allows the probe tip to be plugged directly into a 4.22 mm (.166) dia. banana jack. Extra useful when measuring voltages/currents from various banana jacks. Banana jack in handle is sheathed to help prevent accidental shorting due to partial insertion. Allows the use of standard banana plug test leads. Finger guard molded to probe helps prevent fingers from slipping onto tip. Nylon molded to body and finger guard. +80°C. (+176°F.) max.

TIP: 2.03 mm (.080) dia. tip with pillow spring. Fits 4.22 mm dia. banana jacks.

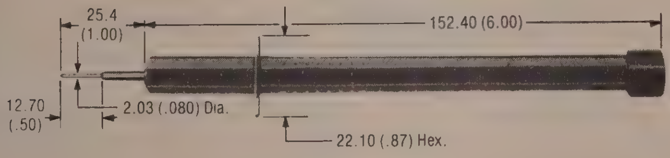
BANANA JACK: 4.22 mm (.166) dia. brass, nickel plated. Accepts standard banana plug.

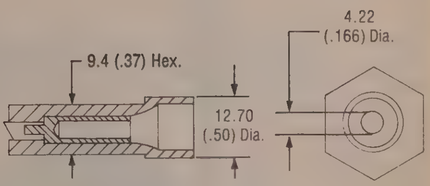
Photo approximately one-half actual size.

Model No.	Color
5063-0	Black
5063-2	Red

***NET 4.25**

TEST PROBE TO BANANA JACK





Banana jack in handle is sheathed to help prevent accidental shorting due to partial insertion. Allows the use of standard banana plug test leads. Finger guard molded to probe helps prevent fingers from slipping onto tip. Nylon molded to body and finger guard. +80°C. (+176°F.) max.

PIN TIP: 2.03 mm (.080) dia. x 12.7 mm (.50) long brass, nickel plated.

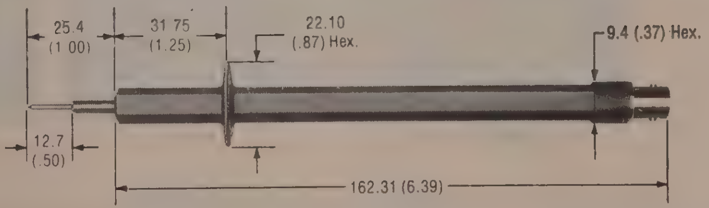
BANANA JACK: 4.22 mm (.166) dia. brass, nickel plated. Accepts standard banana plug.

Photo approximately one-half actual size.

Model No.	Color
5072-0	Black
5072-2	Red

***NET 4.75**

TEST PROBE TO BNC FEMALE



BNC female in handle connected to tip. Permits the use of coaxial cables with BNC plug for circuit testing as a test prod. Molded nylon, +80°C. (+176°F.) max., insulated handle with finger guard molded to BNC receptacle and tip.

Shield extends to within 38.10 mm (1.500) of the probe tip end.

PIN TIP: 2.03 mm (.080) dia. x 12.70 mm (.500) long, brass, nickel plated.

RECEPTACLE: BNC, female.

NOTE: This model supersedes Models 1748 and 4548.

Photo approximately one-half actual size.

Model No.	Color
4856-0	Black
4856-2	Red

***NET 7.50**

* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
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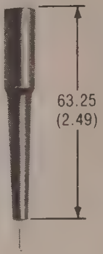
TEST PROBE ACCESSORIES

FLEXIBLE PIN TIP PROBE

This flexible tip easily attaches to the end of the Pomona line of test probes allowing access to those hard to get at places that are "around the corner" or just too far to reach with regular probes.

Model No.	Fits Test Probe Model Nos.	*Net
4906-0	4854, 4948, 5005, 5075	2.25
4906-2		2.25
4907-0	4410, 4800, 4847, 4848, 4851, 4852	2.55
4907-2		2.55
4908-0	4602, 4715, 4717, 4731	2.50
4908-2		2.50

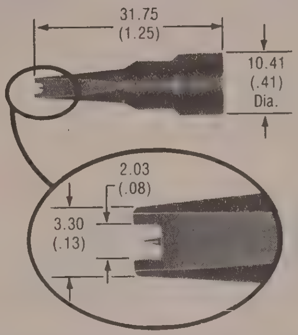
MATERIAL: Brass, gold plated tip.
INSULATION: PVC.
COLORS AVAILABLE:
-0 Black, -2 Red.

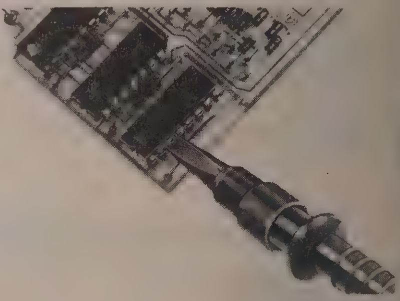


IC TEST TIP ADAPTER

Miniature I.C. Test Tip fits on all Pomona replaceable needle tip probes. Unthread and remove nut and needle tip, then thread the adapter on. The small size and recessed contact allows the I.C. Adapter to probe one leg of a dip chip without shorting an adjacent leg. Plastic projections on either side of the contact tip slide between the dip legs to hold adapter in place and prevent slipping.
MATERIAL: Stainless steel.
INSULATION: Nylon. Color, white.
OPERATING TEMP.: +80°C. (+176°F.) max.

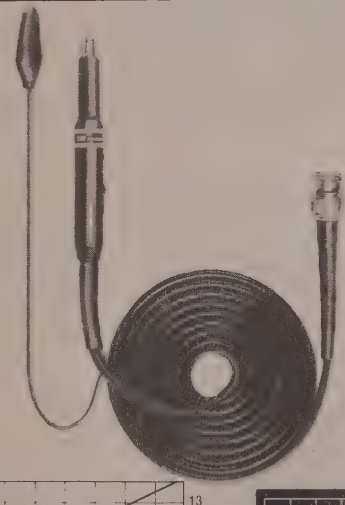
Model No.
5046





***NET 1.95**

OSCILLOSCOPE PROBE KIT



SPECIFICATIONS (3 POSITION):

Position x 1

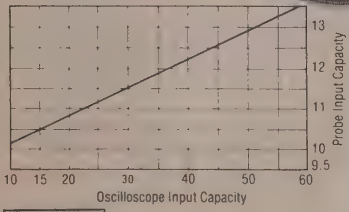
Bandwidth:	DC to 10MHz
Input Resistance:	1MΩ (oscilloscope input)
Input Capacity:	40pF. Plus oscilloscope capacity
Working Voltage:	600 Volts DC (including Peak AC)
Cable Length:	1.5 meters (4.92 ft.)

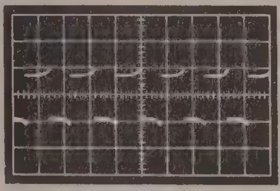
Position Ref.
Probe tip grounded via 9MΩ resistor, oscilloscope input grounded

Position x 10

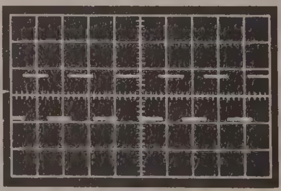
Bandwidth:	DC to 100 MHz
Risetime:	3.5 nanoseconds
Input Resistance:	10MΩ when used with oscilloscopes which have 1MΩ input. (Probe resistance 9MΩ ± 1%)
Input Capacity:	11.5pF when used with oscilloscopes which have a 30pF input capacity. For other values see graph.
Compensation Range:	10-60pF
Working Voltage:	600 Volts DC (including Peak AC)

SEE BELOW FOR ACCESSORIES SUPPLIED WITH KIT.

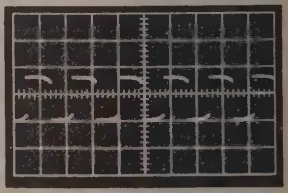




Undercompensated



Correct



Overcompensated

Model No.
4550

***NET 49.50**

REPLACEMENT ACCESSORIES FOR OSCILLOSCOPE PROBES (SUPPLIED WITH 4550 KIT)

Model No.	Description	*Net
4560	Insulating Tip	1.15
4561	Sprung Hook	8.85
4562	Trimmer Tool	1.40
4563	BNC Adaptor	2.55
4564	I.C. Tip	1.65

4560

4561

4562

4563

4564

★See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
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STANDARD BANANA PLUG PATCH CORDS

POMONA ELECTRONICS BANANA PLUG PATCH CORDS

Polypropylene insulation molds the plug and leads into a strong moisture resistant integral unit. Excellent for computer board and test equipment applications.

Used by leading industries in applications where extreme reliability is of prime importance.

FEATURES:

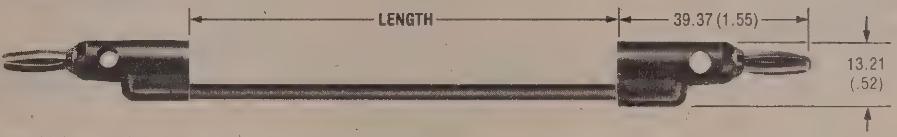
- One piece beryllium copper heat-treated spring for maximum long life.
- Rounded spring design results in maximum contact area.
- Extra flexible polyvinyl insulation used on all leads.

SPECIFICATIONS:

- Fits standard 4.22 mm (.166) dia. banana jacks.
- Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
- Plug body, brass per QQ-B-626, alloy 360.
- Banana Plug Insulation: Polypropylene, +55°C. (+131°F.) max.
- Nickel plated per QQ-N-290, Class 2.
- Contact resistance less than 0.001 Ohm per banana plug.
- Operating temperature: +55°C. (+131°F.) Max.
- Wire, 18 AWG, strand. 65 x 36 T.C., PVC insulated, 3.66 mm (.144) O.D.
- Ratings: 7 amps cont. 5000 W VDC.

STACKUP BANANA PLUG PATCH CORD

Model No.	Length	*Net
B-4 *	101.6 (4.0)	2.40
B-8 *	203.2 (8.0)	2.40
B-12*	304.8 (12.0)	2.40
B-18*	457.2 (18.0)	2.40
B-24*	609.6 (24.0)	2.40
B-36*	914.4 (36.0)	2.40
B-48*	1219.2 (48.0)	2.60
B-60*	1524.0 (60.0)	2.80
B-72*	1829.0 (72.0)	3.00

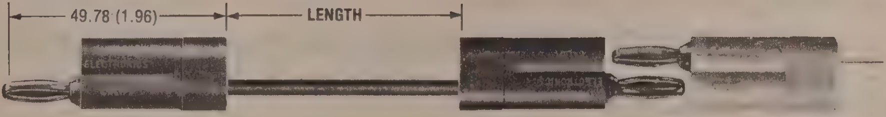


Multiple stacking feature accommodates the most complex stacking; keeps circuitry neater. Greatly simplifies circuit connections and changes. Reliable solder-bonded connections withstand pull test in excess of 50 lbs. Banana plugs both ends.

*COLOR CODES				
0-Black 1-Brown	2-Red 3-Orange	4-Yellow 5-Green	6-Blue 7-Violet	8-Gray 9-White

EXTENSION STACKING BANANA PLUG PATCH CORD

Model No.	Length	*Net
HB-4 *	101.6 (4.0)	4.40
HB-8 *	203.2 (8.0)	4.40
HB-12*	304.8 (12.0)	4.40
HB-18*	457.2 (18.0)	4.40
HB-24*	609.6 (24.0)	4.40
HB-36*	914.4 (36.0)	4.40
HB-48*	1219.2 (48.0)	4.60
HB-60*	1524.0 (60.0)	4.80

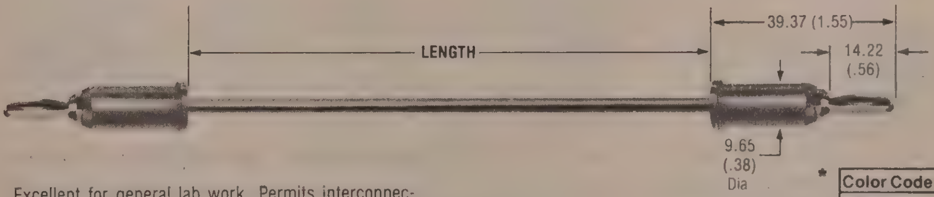


Dual purpose. Insulates all hot leads when used as an extension cord. Endless extension couplings possible with any banana plug patch cord. Provides vertical stacking from any jack. Reliable solder-bonded connections withstand pull test in excess of 50 lbs. Banana plugs both ends.

*COLOR CODES				
0-Black 1-Brown	2-Red 3-Orange	4-Yellow 5-Green	6-Blue 7-Violet	8-Gray 9-White

BANANA PLUG PATCH CORD

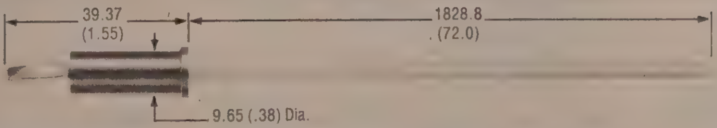
Model No.	Length	*Net
1985-4 *	101.6 (4.0)	3.25
1985-8 *	203.2 (8.0)	3.25
1985-12*	304.8 (12.0)	3.25
1985-18*	457.2 (18.0)	3.25
1985-24*	609.6 (24.0)	3.25
1985-36*	914.4 (36.0)	3.25
1985-48*	1219.2 (48.0)	3.45
1985-60*	1524.0 (60.0)	3.65



Excellent for general lab work. Permits interconnection between test instruments, etc. Banana plugs both ends.

* Color Code
0 - Black 2 - Red

MEDICAL APPLICATION BANANA PLUG, ONE END ONLY



For use in medical laboratories or other uses where high temperature and/or sterilization is required.
BANANA PLUG: Spring, one piece beryllium copper, heat-treated. Body, brass. Nickel plated. Insulation: Polysulfone. Color: Red.
WIRE: 18 AWG; strand. 16 x 30; silicone rubber insulation. Color: White. 3.61 mm (.142) O.D.

RATINGS:
Operating Temp.: Withstanding +121°C. (+250°F.) for 1 hr. @ 20-30 PSI, 100% humidity.
Breakdown Voltage: 1500 Vrms min.
Current: 0.5 amp. cont.

Model No.
4791-72

***NET 4.95**

*See page 126 of the Pomona Catalog for quantity purchases.

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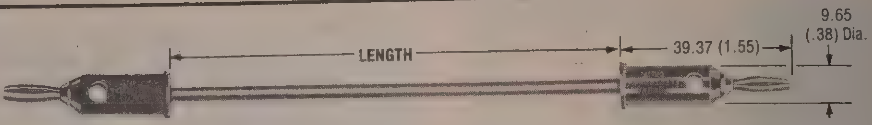
BANANA PLUGS/JACKS

HORIZONTAL STACKING BANANA PLUG PATCH CORD

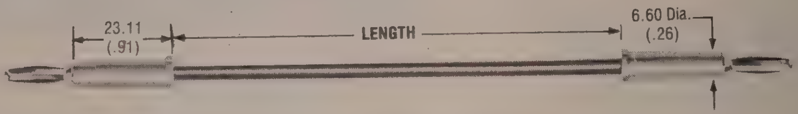


Model No.	Length	*Net
1440-8 *	203.2 (8.0)	3.40
1440-12*	304.8 (12.0)	3.40
1440-18*	457.2 (18.0)	3.40
1440-24*	609.6 (24.0)	3.40
1440-36*	914.4 (36.0)	3.40
1440-48*	1219.2 (48.0)	3.60
1440-60*	1524.0 (60.0)	3.80

Ideal as an interconnecting lead between power supplies, test equipment, etc. Horizontal stacking feature. Banana plugs on both ends.
BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated. Insulation: Polypropylene, +55°C. (+131°F.) Max.

WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible, polyvinyl insulated, 3.66 mm (.144) O.D.
RATING: 7 amps cont. 5000 W VDC.
***COLORS AVAILABLE:** -0 Black, -2 Red.

IN-LINE BANANA PLUG EXTENSION PATCH CORD

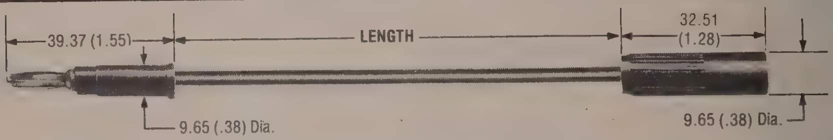


Model No.	Length	*Net
4585-4 *	101.6 (4.0)	3.95
4585-8 *	203.2 (8.0)	3.95
4585-12*	304.8 (12.0)	3.95
4585-18*	457.2 (18.0)	3.95
4585-24*	609.6 (24.0)	3.95
4585-36*	914.4 (36.0)	3.95
4585-48*	1219.2 (48.0)	4.15
4585-60*	1524.0 (60.0)	4.35

Designed for recessed banana jacks with access hole 6.91 mm (.272) dia.
BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated. Insulation: Polypropylene, +55°C. (+131°F.) Max.

WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible, polyvinyl insulated, 3.66 mm (.144) O.D.
RATING: 7 amps cont. 5000 W VDC.
***COLORS AVAILABLE:** -0 Black, -2 Red.

IN-LINE BANANA PLUG EXTENSION PATCH CORD



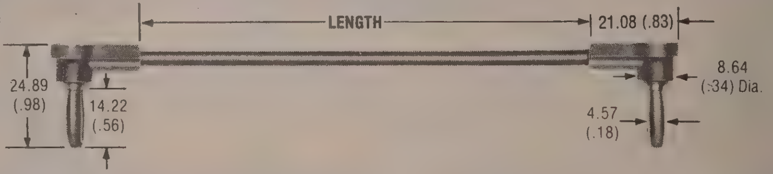
Model No.	Length	*Net
4702-12*	304.8 (12.0)	4.25
4702-18*	457.2 (18.0)	4.25
4702-24*	609.6 (24.0)	4.25
4702-36*	914.4 (36.0)	4.25
4702-48*	1219.2 (48.0)	4.45
4702-60*	1524.0 (60.0)	4.65

Dual purpose. Insulates all hot leads when used as an extension cord. Endless extension couplings possible with any banana plug patch cord.
BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated. Insulation: Polypropylene, +55°C. (+131°F.) Max.

WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible, polyvinyl insulated, 3.66 mm (.144) O.D.
IN-LINE BANANA JACK: This in-line banana jack will accept all standard banana plugs. Brass, nickel plated per QQ-N-290. Insulation: polypropylene.
RATING: 7 amps cont. 5000 W VDC.
***COLORS AVAILABLE:** -0 Black, -2 Red.

RIGHT ANGLE BANANA PLUG PATCH CORDS

RIGHT ANGLE BANANA PLUG PATCH CORD

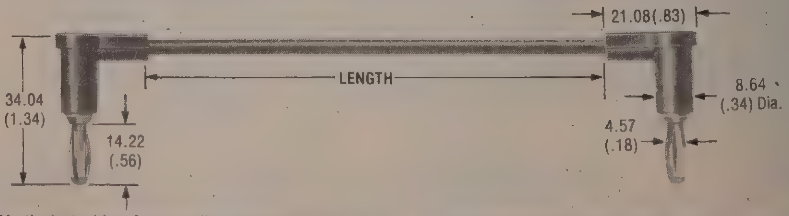


Designed for use where vertical space is limited. Right angle plug features concave ribbed top and oversize shoulder for ease of connect and disconnect in tight places.
BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25, per QQ-C-533. Nickel plated. Insulation: Polypropylene, +55°C. (+131°F.) Max.

Model No.	Length	*Net
4567-4 *	101.6 (4.0)	4.25
4567-8 *	203.2 (8.0)	4.25
4567-12*	304.8 (12.0)	4.25
4567-18*	457.2 (18.0)	4.25
4567-24*	609.6 (24.0)	4.25

WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible, polyvinyl insulated, 3.66 mm (.144) O.D.
RATING: 7 amps cont. 5000 W VDC.
***COLORS AVAILABLE:** -0 Black, -2 Red.

STACK-UP RIGHT ANGLE BANANA PLUG PATCH CORD



Model No.	Length	*Net
2864-4 *	101.6 (4.0)	4.50
2864-8 *	203.2 (8.0)	4.50
2864-12*	304.8 (12.0)	4.50
2864-18*	457.2 (18.0)	4.50
2864-24*	609.6 (24.0)	4.50
2864-36*	914.4 (36.0)	4.50
2864-48*	1219.2 (48.0)	4.70
2864-60*	1524.0 (60.0)	4.90

Vertical stacking feature allows endless circuit connections and the right angle design keeps wires close to the chassis. An oversize shoulder allows easy connect and disconnect.
BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25, per QQ-C-533. Nickel plated. Insulation: Polypropylene, +55°C. (+131°F.) Max.

WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible, polyvinyl insulated, 3.66 mm (.144) O.D.
RATING: 7 amps cont. 5000 W VDC.
***COLORS AVAILABLE:** -0 Black, -2 Red.

★See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
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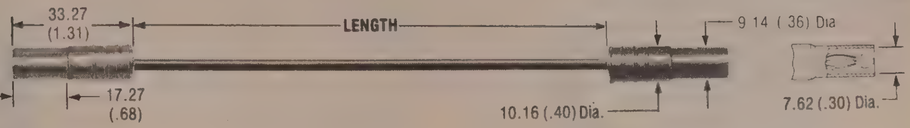
ITT POMONA ELECTRONICS

BANANA PLUGS/JACKS

FIXED SHEATHED BANANA PLUG PATCH CORD

Model No.	Length	*Net
4913-4 *	101.6 (4.0)	3.85
4913-8 *	203.2 (8.0)	3.85
4913-12*	304.8 (12.0)	3.85
4913-18*	457.2 (18.0)	3.85
4913-24*	609.6 (24.0)	3.85
4913-36*	914.4 (36.0)	3.85
4913-48*	1219.2 (48.0)	4.05
4913-60*	1524.0 (60.0)	4.25



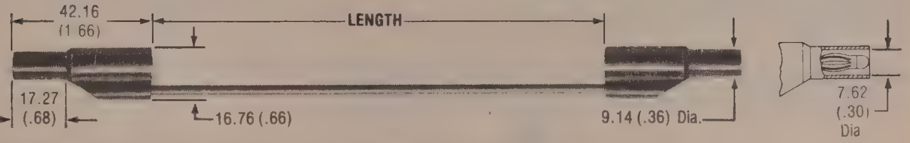
FEATURES:
- No exposed metal.
- Fits models 4921, 4922, 4934 and 4987.
- Will not short out when dropped.

BANANA PLUG: Spring, one piece beryllium copper, heat-treated. Body, brass. Nickel plated. Tip: Plastic.
INSULATION: Polypropylene.

WIRE: 18 AWG, strand, 65 x 36 T.C. Extra flexible polyvinyl insulation. 3.66 mm (.144) O.D.
RATINGS: 7 amps cont., 1200 V. AC/DC Max. +55°C. (+131°F.).
***COLORS AVAILABLE:** -0 Black, -2 Red.

FIXED SHEATHED STACKUP BANANA PLUG PATCH CORD

Model No.	Length	*Net
4912-4 *	101.6 (4.0)	3.95
4912-8 *	203.2 (8.0)	3.95
4912-12*	304.8 (12.0)	3.95
4912-18*	457.2 (18.0)	3.95
4912-24*	609.6 (24.0)	3.95
4912-36*	914.4 (36.0)	3.95
4912-48*	1219.2 (48.0)	4.15
4912-60*	1524.0 (60.0)	4.35
4912-72*	1829.0 (72.0)	4.55



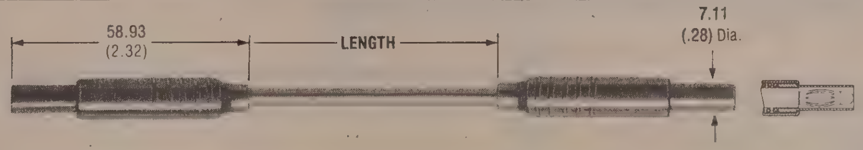
FEATURES:
- No exposed metal.
- Fits models 4921, 4922, 4934 and 4987.
- Will not short out when dropped.

BANANA PLUG: Spring, one piece beryllium copper, heat-treated. Body, brass. Nickel plated. Tip: Plastic.
INSULATION: Polypropylene.
WIRE: 18 AWG, strand, 65 x 36 T.C. Extra flexible polyvinyl insulation. 3.66 mm (.144) O.D.
RATINGS: 7 amps cont., 1200 V. AC/DC Max. +55°C. (+131°F.).

*COLOR CODES				
0-Black 1-Brown	2-Red 3-Orange	4-Yellow 5-Green	6-Blue 7-Violet	8-Gray 9-White

RETRACTABLE SHEATH BANANA PLUG PATCH CORD

Model No.	Length	*Net
4911-4 *	101.6 (4.0)	4.95
4911-8 *	203.2 (8.0)	4.95
4911-12*	304.8 (12.0)	4.95
4911-18*	457.2 (18.0)	4.95
4911-24*	609.6 (24.0)	4.95
4911-36*	914.4 (36.0)	4.95
4911-48*	1219.2 (48.0)	5.15
4911-60*	1524.0 (60.0)	5.35



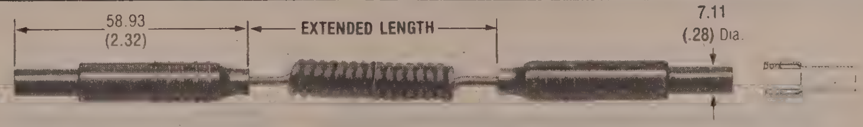
FEATURES:
- No exposed metal.
- Fits all standard banana jacks.
- Will not short out when dropped.

BANANA PLUG: Spring, one piece beryllium copper, heat-treated. Body, brass. Nickel plated. Tip: Plastic.

INSULATION: Nylon.
WIRE: 18 AWG, strand, 65 x 36 T.C. Extra flexible polyvinyl insulation. 3.66 mm (.144) O.D.
RATINGS: 7 amps cont., 1200 V. AC/DC Max. +80°C. (+176°F.).
***COLORS AVAILABLE:** -0 Black, -2 Red.

RETRACTABLE SHEATH BANANA PLUG PATCH CORD

Model No.	Extended Length	*Net
5036-36-*	914 (36.0)	6.95
5036-48-*	1219 (48.0)	7.85
5036-60-*	1524 (60.0)	8.75



FEATURES:
- No exposed metal.
- Fits all standard banana jacks.
- Will not short out when dropped.

BANANA PLUG: Spring, one piece beryllium copper, heat-treated. Body, brass. Nickel plated. Tip: Plastic.
INSULATION: Nylon.

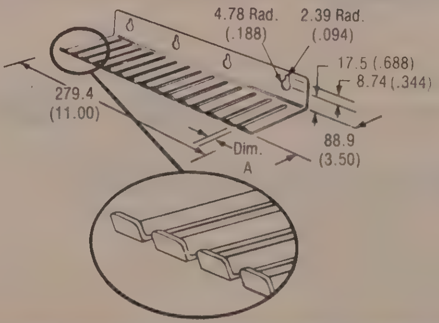
WIRE: 20 AWG, strand, 42 x 36 T.C. Rubber insulation 3.68 mm (.145) O.D.
RATINGS: 5 amps cont., 1200 V. AC/DC max. +55°C. (+131°F.) max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

TEST LEAD HOLDER

TEST LEAD HOLDER

No need to spend time searching for a particular test lead. With these new racks, all of your patch cords and cable assemblies can be conveniently filed for instant selection — within easy reach. Holder mounts quickly on any vertical surface. Test leads are easy to store, easy to remove. Three models to choose from for different size cables.
MATERIAL: Cold rolled steel.
FINISH: Baked enamel.

Model No.	Color	Max. Cable Dia. (Dim. A)
1508	Orange	5.33 (.210)
4408	Black	8.13 (.320)
2708	Blue	11.4 (.450)



*NET 5.95

*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
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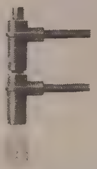
"PUSH-ON" STACKING BNC

"PUSH ON" STACKING BNC

These multiple stacking patch cords connect the center conductors of BNC jacks having a common chassis. Excellent for use with instruments such as oscilloscopes. Stacking feature enables a multiple number of connections to the same point.



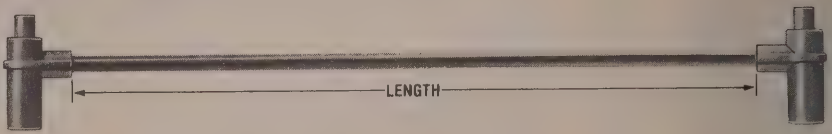
CHANNEL 1
CHANNE 2
VOLTS/CM
MODE
INPUT SELECTOR
SERIAL

FEATURES:

- **CONTACT:** Male and female, one piece heat-treated beryllium copper, gold plated.
- **INSULATION:** Polypropylene, molded around contact wire.
- **OPERATING TEMPERATURE:** +55°C. (+131°F.) Max.
- **WIRE:** 18 AWG. Strand. 65 x 36 T.C. Polyvinyl insulated 3.66 mm (.144) O.D.

"PUSH ON" STACKING BNC MALE BOTH ENDS

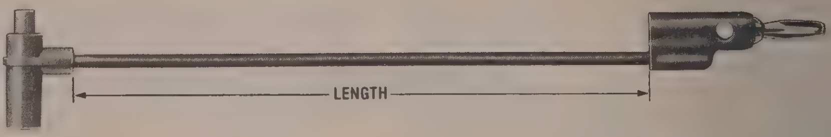
Model No.	Length	*Net
3201-4 *	101.6 (4.0)	6.75
3201-12*	304.8 (12.0)	6.75
3201-36*	914.4 (36.0)	6.75
3201-60*	1524.0 (60.0)	7.15



***COLORS AVAILABLE:** -0 Black, -2 Red.

"PUSH ON" STACKING BNC MALE TO STACKING BANANA PLUG

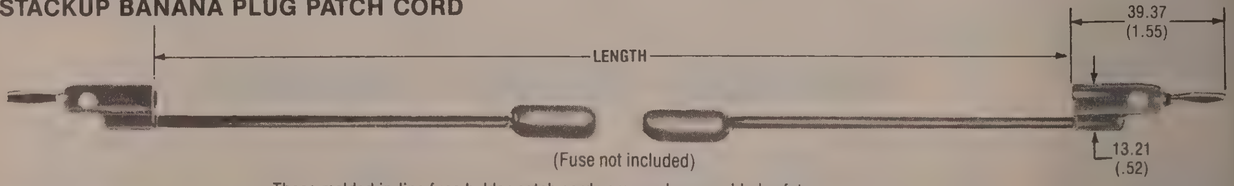
Model No.	Length	*Net
3202-18*	457.2 (18.0)	5.50
3202-36*	914.4 (36.0)	5.50
3202-60*	1524.0 (60.0)	5.90



***COLORS AVAILABLE:** -0 Black, -2 Red.

TEST LEADS & PATCH CORDS (WITH MOLDED IN-LINE FUSE HOLDERS)

STACKUP BANANA PLUG PATCH CORD



(Fuse not included)

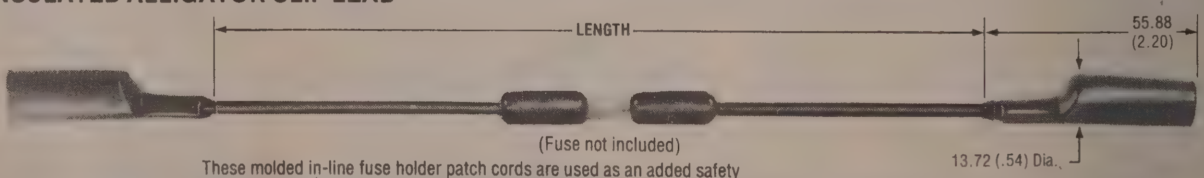
These molded in-line fuse holder patch cords are used as an added safety feature for your electronic test equipment. Fuse holder will accept 6.35 mm (.25) dia. SFE and AGC fuses (fuse not included).

- **RATINGS** — Banana plugs and wire:
  Operating temperature: +55°C. (+131°F.) Max.
  Voltage: 5000 W VDC. Current: 7 amps cont.
  Contact resistance: Less than .001 ohm per banana plug.

Model No.	Length	*Net
4274-12*	304.8 (12.0)	5.25
4274-24*	609.6 (24.0)	5.25
4274-36*	914.4 (36.0)	5.25
4274-60*	1524.0 (60.0)	5.65

WIRE: 18 AWG., strand. 65 x 36 T.C. Extra flexible Polyvinyl insulation 3.66 mm (.144) O.D.
FUSE HOLDER: Brass, tin plated, insulation polyvinyl chloride. Accepts 6.35 mm (.250) dia. fuse.
***COLORS AVAILABLE**: -0 Black, -2 Red.

INSULATED ALLIGATOR CLIP LEAD



(Fuse not included)

These molded in-line fuse holder patch cords are used as an added safety feature for your electronic test equipment. Fuse holder will accept 6.35 mm (.250) dia. SFE and AGC fuses (fuse not included).

CLIP: Alligator, steel, cad. plated.

- **RATINGS** — Alligator clips and wire:
  Operating temperature: +50°C. (+122°F.) Max.
  Voltage: 5000 W VDC
  Current: 7 amps cont.

Model No.	Length
4354-12*	304.8 (12.0)
4354-24*	609.6 (24.0)

WIRE: 18 AWG., strand. 65 x 36 T.C. Extra flexible Polyvinyl insulation 3.66 mm (.144) O.D.

FUSE HOLDER: Brass, tin plated, insulation polyvinyl chloride. Accepts 6.35 mm (.250) dia. fuse.
***COLORS AVAILABLE:** -0 Black, -2 Red.

***NET 6.85**

*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

# MINIATURE BANANA PLUG PATCH CORDS

Miniature patch cords for use with 2.64 mm (.104) dia. miniature banana jacks. Excellent for miniaturization of test equipment and high density packaging for patch systems.

Banana plug springs precision formed of one piece beryllium copper, heat-treated for maximum life and low contact resistance. Polypropylene molded to plug body and wire.

FEATURES:

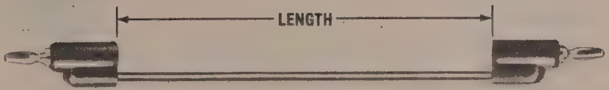
- Fits 2.64 mm (.104) dia. miniature banana jacks. Plug body brass, per QQ-B-626, alloy 360.
- Gold plated spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.

SPECIFICATIONS:

- Wire: 20 AWG, strand. 41 x 36 T. C. extra flexible polyvinyl insulation 2.21 mm (.087) O.D.
- Rated: 5 amps cont. 3000 VDC.
- Operating temperature: +55°C. (+131°F.) Max.

## MINIATURE BANANA PLUG STACKUP PATCH CORD

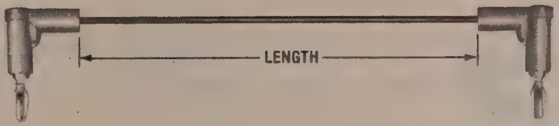
Model No.	Length	*Net
1081-4-*	101.6 (4.0)	3.25
1081-8-*	203.2 (8.0)	3.25
1081-12-*	304.8 (12.0)	3.25
1081-18-*	457.2 (18.0)	3.25
1081-24-*	609.6 (24.0)	3.25
1081-36-*	914.4 (36.0)	3.25
1081-48-*	1219.2 (48.0)	3.45
1081-60-*	1524.0 (60.0)	3.65



*

Color Code				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

MINIATURE RIGHT ANGLE BANANA PLUG PATCH CORD STACKUP



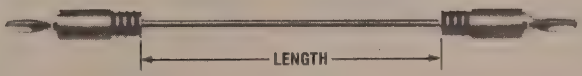
Model No.	Length	*Net
2860-4-*	101.6 (4.0)	3.25
2860-8-*	203.2 (8.0)	3.25
2860-12-*	304.8 (12.0)	3.25
2860-18-*	457.2 (18.0)	3.25
2860-24-*	609.6 (24.0)	3.25

*

Color Code
0 - Black
2 - Red

## MINIATURE BANANA PLUG PATCH CORD

Model No.	Length	*Net
2842-4-*	101.6 (4.0)	3.95
2842-8-*	203.2 (8.0)	3.95
2842-12-*	304.8 (12.0)	3.95
2842-18-*	457.2 (18.0)	3.95
2842-24-*	609.6 (24.0)	3.95
2842-36-*	914.4 (36.0)	3.95
2842-48-*	1219.2 (48.0)	4.15
2842-60-*	1524.0 (60.0)	4.35

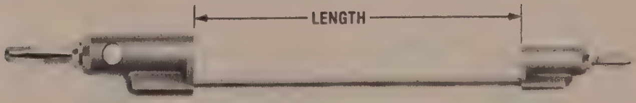


*

Color Code
0 - Black
2 - Red

STANDARD BANANA PLUG TO MINIATURE BANANA PLUG PATCH CORD

STANDARD BANANA PLUG: Spring, beryllium copper, nickel plated.



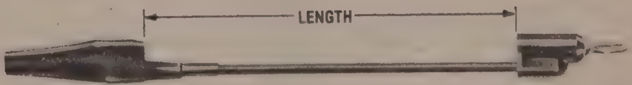
Model No.	Length	*Net
3014-12-*	304.8 (12.0)	3.25
3014-18-*	457.2 (18.0)	3.25
3014-24-*	609.6 (24.0)	3.25
3014-36-*	914.4 (36.0)	3.25
3014-48-*	1219.2 (48.0)	3.45
3014-60-*	1524.0 (60.0)	3.65

*

Color Code
0 - Black
2 - Red

INSULATED MINIGATOR CLIP TO MINIATURE BANANA PLUG

CLIP: Minigator, steel, cadmium plated.
INSULATOR: Vinyl, red with red wire, black with black wire.



Model No.	Length	*Net
3222-12-*	304.8 (12.0)	3.25
3222-24-*	609.6 (24.0)	3.25
3222-36-*	914.4 (36.0)	3.25
3222-48-*	1219.2 (48.0)	3.45
3222-60-*	1524.0 (60.0)	3.65

*

Color Code
0 - Black
2 - Red

*See page 126 of the Pomona Catalog for quantity purchases.

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ITT POMONA ELECTRONICS

12.70 (.500) SPACED MINIATURE DOUBLE BANANA PLUG PATCH CORDS

MOLDED MINIATURE DOUBLE BANANA PLUG PATCH CORDS ⅓ SMALLER

A miniature double banana plug on 12.70 mm (.500) centers. This patch cord enables miniaturization of test equipment and high density packaging for patch systems.

Banana plug springs precision formed of one piece beryllium copper, heat treated for maximum life and low contact resistance.

FEATURES:

- One piece beryllium copper heat treated spring for long life.
- Rounded spring design results in maximum contact area.
- GND., clearly molded on plug body and shell.
- Solder-bonded noise-free connections.

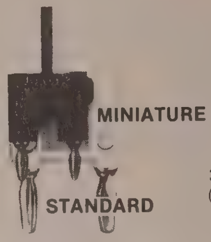
SPECIFICATIONS:

- Fits standard 2.64 mm (.104) dia. banana jacks, on 12.70 mm (.500) centers.
- Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
- Plug body brass per QQ-B-626, alloy 360.
- Gold plated.

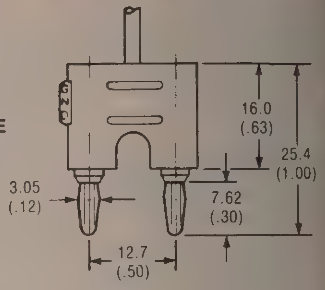
CABLE DESCRIPTION:

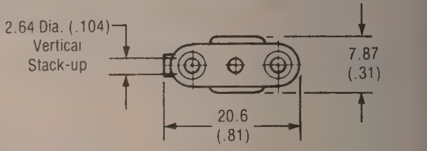
Shielded coax., RG174/U polyethylene insulation, vinyl jacket, nom. cap 30.8 pf/ft., nom. imp. 50 Ohms, nom. O.D. 2.54 mm (.100). Color: Black.

STACK-UP

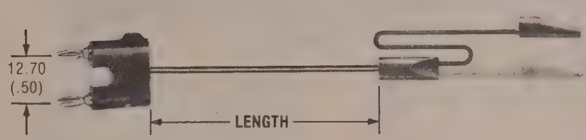


SIZE COMPARISON





MINIATURE — DOUBLE BANANA PLUG TO MINIGATOR CLIPS

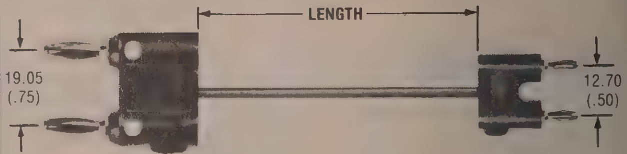


CONN: 1st END
Miniature double banana plug on 12.70 mm (.500) centers. Insulation: High density polyethylene +55°C. (+131°F.) Max.
CABLE:
Shielded coax., RG174/U.
Y-MOLD: Polyvinyl Chloride
CONN: 2nd END
Minigator clips, steel, cad. plated; insulators, vinyl. Color: One black, one red.

Model No.	Length
3027-K-24	609.6 (24.0)

***NET 12.95**

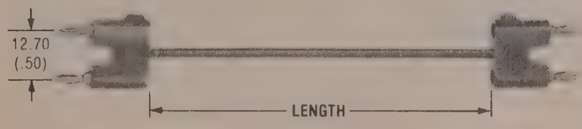
DOUBLE BANANA PLUG TO MINIATURE DOUBLE BANANA PLUG



CONN: 1st END
Double banana plug on 19.05 mm (.750) centers. Brass, nickel plated. Insulation: High density polyethylene, +55°C (131°F.) Max.
CABLE:
Shielded coax., RG174/U.
CONN: 2nd END
Miniature double banana plug on 12.70 mm (.500) center. Insulation: High density polyethylene.

Model No.	Length	*Net
2443-K-24	609.6 (24.0)	9.95
2443-K-36	914.4 (36.0)	9.95
2443-K-48	1219.2 (48.0)	10.55
2443-K-60	1524.0 (60.0)	11.15

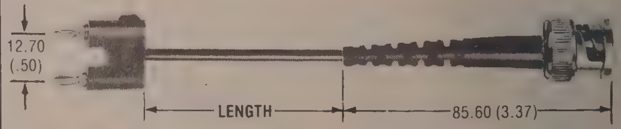
MINIATURE — DOUBLE BANANA PLUG BOTH ENDS



CONN: 1st END
Miniature double banana plug on 12.70 mm (.500) centers. Insulation: High density polyethylene, +55°C. (+131°F.) Max.
CABLE:
Shielded coax., RG174/U.
CONN: 2nd END
Miniature double banana plug on 12.70 mm (.500) centers. Insulation: High density polyethylene.

Model No.	Length	*Net
2247-K-12	304.8 (12.0)	8.95
2247-K-24	609.6 (24.0)	8.95
2247-K-36	914.4 (36.0)	8.95
2247-K-60	1524.0 (60.0)	10.15

MINIATURE — DOUBLE BANANA PLUG TO BNC MALE



CONN: 1st END
Miniature double banana plug on 12.70 mm (.500) centers. Insulation: High density polyethylene.
CABLE:
Shielded coax., RG174/U.
CONN: 2nd END
Male BNC. Insulation: Vinyl, +50°C. (+122°F.) Max.

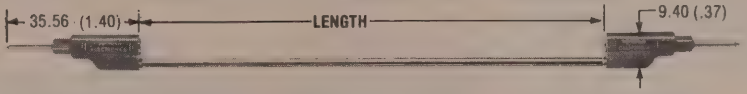
Model No.	Length	*Net
2248-K-24	609.6 (24.0)	14.95
2248-K-36	914.4 (36.0)	14.95
2248-K-48	1219.2 (48.0)	15.55
2248-K-60	1524.0 (60.0)	16.15

*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

2.03 mm (.080) PIN TIP PATCH CORDS

PIN TIP VERTICAL STACKING PATCH CORD



Model No.	Length	*Net
P-4 *	101.6 (4.0)	2.95
P-8 *	203.2 (8.0)	2.95
P-12*	304.8 (12.0)	2.95
P-18*	457.2 (18.0)	2.95
P-24*	609.6 (24.0)	2.95
P-36*	914.4 (36.0)	2.95
P-48*	1219.2 (48.0)	3.15
P-60*	1524.0 (60.0)	3.35

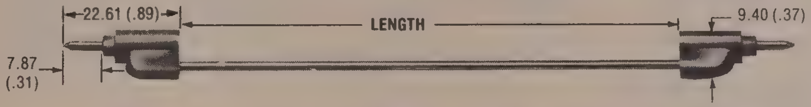
A must in circuit designing and testing, with instruments that utilize tip jacks.
PIN TIP: 2.03 mm (.080) dia., 12.70 mm (.500) long, brass, gold plated.
TIP JACK, STACKUP: Beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin.

WIRE: 20 AWG, strand. 41 x 36 T.C. Extra flexible polyvinyl insulation 2.21 mm (.087) O.D.
RATED: 5 amps cont. 3000 W VDC.
PIN TIP PLUG INSULATION: Polypropylene, +55°C. (+131°F.)

*

Color Codes				
0 - Black	2 - Red	4 - Yellow	6 - Blue	8 - Gray
1 - Brown	3 - Orange	5 - Green	7 - Violet	9 - White

LOW PROFILE PIN TIP VERTICAL STACKING PATCH CORD

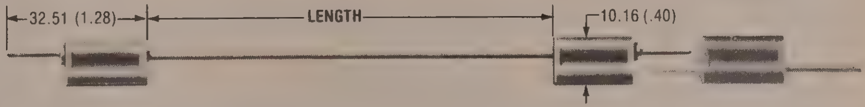


Model No.	Length	*Net
4740-4 *	101.6 (4.0)	3.95
4740-8 *	203.2 (8.0)	3.95
4740-12*	304.8 (12.0)	3.95
4740-18*	457.2 (18.0)	3.95
4740-24*	609.6 (24.0)	3.95
4740-36*	914.4 (36.0)	3.95
4740-48*	1219.2 (48.0)	4.15
4740-60*	1524.0 (60.0)	4.35

Excellent for low profile applications where space is at a premium. Overall length of body and tip 22.61 mm (.89).
PIN TIP: 2.03 mm (.080) dia., 7.87 mm (.31) long, brass, gold plated.
TIP JACK, STACKUP: Beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin.

WIRE: 20 AWG, strand. 41 × 36 T.C. Extra flexible polyvinyl insulation 2.21 mm (.087) O.D.
RATED: 5 amps cont., 3000 W VDC.
PIN TIP PLUG INSULATION: Polypropylene, +55°C. (+131°F.)
***COLORS AVAILABLE:** -0 Black, -2 Red.

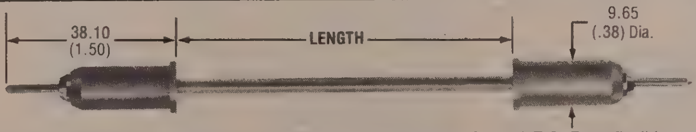
PIN TIP EXTENSION STACKING PATCH CORD



Model No.	Length	*Net
1727-4 *	101.6 (4.0)	4.95
1727-8 *	203.2 (8.0)	4.95
1727-12*	304.8 (12.0)	4.95
1727-18*	457.2 (18.0)	4.95
1727-24*	609.6 (24.0)	4.95
1727-36*	914.4 (36.0)	4.95
1727-48*	1219-2 (48.0)	5.15
1727-60*	1524.0 (60.0)	5.35

Dual purpose, insulates exposed leads when used as an extension cord. Endless extension coupling possible. Also provides stacking from 2.03 mm (.080) jack.
PIN TIP: 2.03 mm (.080) dia., 12.70 mm (.500) long, brass, gold plated.
TIP JACK: Beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin.
WIRE: 20 AWG, strand. 41 x 36 T.C. Extra flexible polyvinyl insulation 2.21 mm (.087) O.D.
RATED: 5 amps cont., 3000 W VDC.
PIN TIP PLUG INSULATION: Polypropylene, +55°C. (+131°F.)
***COLORS AVAILABLE:** -0 Black, -2 Red.

PIN TIP PATCH CORD

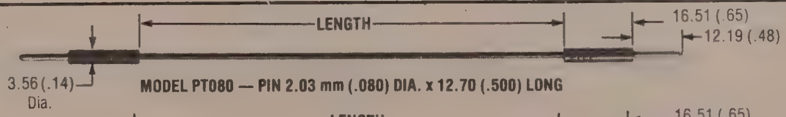


Model No.	Length	*Net
1990-8 *	203.2 (8.0)	3.50
1990-12*	304.8 (12.0)	3.50
1990-18*	457.2 (18.0)	3.50
1990-24*	609.6 (24.0)	3.50
1990-36*	914.4 (36.0)	3.50
1990-48*	1219.2 (48.0)	3.70
1990-60*	1524.0 (60.0)	3.90

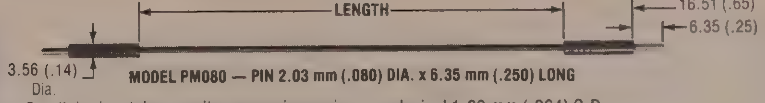
Heavy duty patch cord. Excellent for general lab work. Permits interconnection between test instruments that utilize tip jacks.
PIN TIP: 2.03 mm (.080) dia., 12.70 mm (.500) long, brass, nickel plated.

WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible polyvinyl insulation 3.66 mm (.144) O.D.
RATED: 7 amps cont., 5000 W VDC.
PIN TIP PLUG INSULATION: Polypropylene, +55°C. (+131°F.)
***COLORS AVAILABLE:** -0 Black, -2 Red.

HIGH DENSITY PIN TIP PATCH CORDS



MODEL PT080 — PIN 2.03 mm (.080) DIA. x 12.70 (.500) LONG

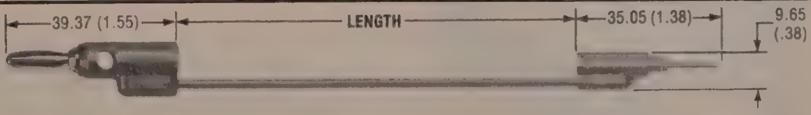


MODEL PM080 — PIN 2.03 mm (.080) DIA. x 6.35 mm (.250) LONG

Model No.	*Net	Model No.	Length	*Net
PT080-4 *	2.50	PM080-4 *	101.6 (4.0)	2.75
PT080-8 *	2.50	PM080-8 *	203.2 (8.0)	2.75
PT080-12*	2.50	PM080-12*	304.8 (12.0)	2.75
PT080-18*	2.50	PM080-18*	457.2 (18.0)	2.75
PT080-24*	2.50		609.6 (24.0)	
PT080-36*	2.50		914.4 (36.0)	
PT080-48*	2.70		1219.2 (48.0)	
PT080-60*	2.90		1524.0 (60.0)	

Small body style permits usage in equipment having receptacles spaced closely together.
PIN TIP: Tellurium copper. Gold plated.
WIRE: 22 AWG, strand, T.C. Insulation, polyvinyl 1.63 mm (.064) O.D.
RATED: 3 amps cont. 1000 W VDC.
PIN TIP PLUG INSULATION: Polypropylene, +55°C. (+131°F.)
***COLORS AVAILABLE:** -0 Black, -2 Red.

BANANA PLUG TO PIN TIP STACKUP PATCH CORD



Model No.	Length	*Net
1126-4 *	101.6 (4.0)	3.25
1126-8 *	203.2 (8.0)	3.25
1126-12*	304.8 (12.0)	3.25
1126-18*	457.2 (18.0)	3.25
1126-24*	609.6 (24.0)	3.25
1126-36*	914.4 (36.0)	3.25
1126-48*	1219.2 (48.0)	3.45
1126-60*	1524.0 (60.0)	3.65

Adapts to equipment using banana jacks and pin jacks. Banana plug and pin tip allow vertical stackup.
BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated.
PIN TIP: 2.03 mm (.080) dia., 12.70 mm (.500) long, brass, gold plated.

TIP JACK, STACKUP: Beryllium copper, gold plated. Accepts 2.03 mm (.080) dia. pin.
WIRE: 20 AWG, strand. 41 x 36 T.C. Extra flexible polyvinyl insulation 2.21 mm (.087) O.D.
RATED: 5 amps cont., 3000 W VDC.
***COLORS AVAILABLE:** -0 Black, -2 Red.

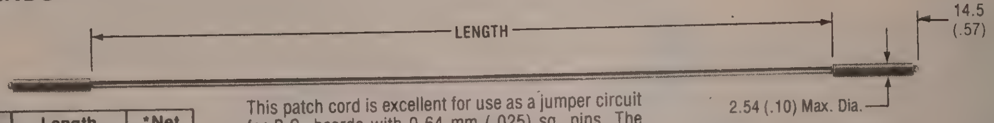
★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

0.64 mm (.025) SQ. PIN/RECEPTACLE ACCESSORIES

SQUARE PIN RECEPTACLE BOTH ENDS



Model No.	Length	*Net
4741-6*	152.4 (6.0)	4.95
4741-12*	304.8 (12.0)	4.95
4741-24*	609.6 (24.0)	4.95
4741-36*	914.4 (36.0)	4.95
4741-48*	1219.2 (48.0)	5.15
4741-60*	1524.0 (60.0)	5.35

This patch cord is excellent for use as a jumper circuit for P.C. boards with 0.64 mm (.025) sq. pins. The improved molded design and contact insures longer life and a more positive connection.

0.64 mm (.025) PIN RECEPTACLE: Gold plated beryllium copper contact.

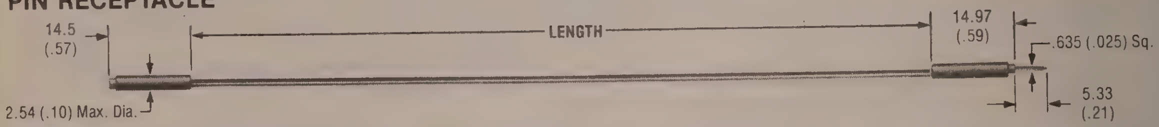
INSULATION: Polypropylene, +55°C. (+131°F.) max.

WIRE: 22 AWG, strand. T.C., PVC insulation, 1.63 mm (.064) O.D.

*

Color Code				
0 - Black 1 - Brown	2 - Red 3 - Orange	4 - Yellow 5 - Green	6 - Blue 7 - Violet	8 - Gray 9 - White

SQUARE PIN TO SQUARE PIN RECEPTACLE



Model No.	Length	*Net
4992-6*	152.4 (6.0)	4.50
4992-12*	304.8 (12.0)	4.50
4992-24*	609.6 (24.0)	4.50
4992-36*	914.4 (36.0)	4.50
4992-48*	1219.2 (48.0)	4.70

This patch cord can be used as a jumper circuit or as an extension patch cord with any of the other models on this and the next page having 0.64 mm (.025) sq. receptacles or pins.

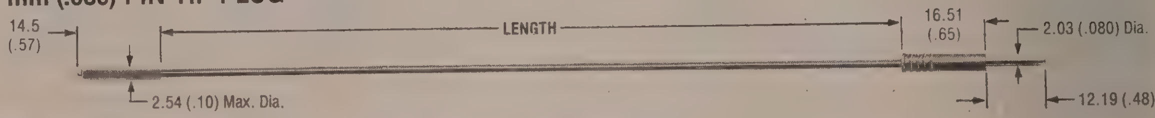
0.64 mm (.025) PIN/PIN RECEPTACLE: Gold plated beryllium copper contact.

INSULATION: Polypropylene, +55°C. (+131°F.) max.

WIRE: 22 AWG, strand. T.C., PVC insulation, 1.63 mm (.064) O.D.

***COLORS AVAILABLE:** -0 Black, -2 Red. Other colors available by special order.

SQUARE PIN RECEPTACLE TO 2.03 mm (.080) PIN TIP PLUG



Model No.	Length	*Net
4772-12*	304.8 (12.0)	4.25
4772-24*	609.6 (24.0)	4.25
4772-36*	914.4 (36.0)	4.25
4772-48*	1219.2 (48.0)	4.45
4772-60*	1524.0 (60.0)	4.65

This patch cord is used as a jumper between 0.64 mm (.025) sq. pins and equipment with 2.03 mm (.080) dia. pin jacks.

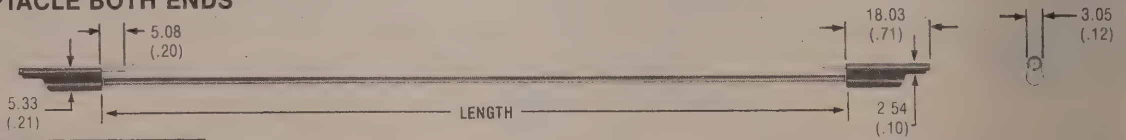
0.64 mm (.025) PIN RECEPTACLE: Gold plated beryllium copper contact.

INSULATION: Polypropylene, +55°C. (+131°F.) max.

WIRE: 22 AWG, strand. T.C., PVC insulation, 1.63 mm (.064) O.D.

***COLORS AVAILABLE:** -0 Black, -2 Red. Other colors available by special order.

STACKUP SQUARE PIN RECEPTACLE BOTH ENDS



Model No.	Length	*Net
4910-6*	152.4 (6.0)	5.25
4910-12*	304.8 (12.0)	5.25
4910-24*	609.6 (24.0)	5.25
4910-36*	914.4 (36.0)	5.25
4910-48*	1524.0 (48.0)	5.45

This patch cord is used as a jumper for cards with 0.64 mm (.025) sq. pins. The novel stackup feature allows continuous daisy chains or multiple pin connections.

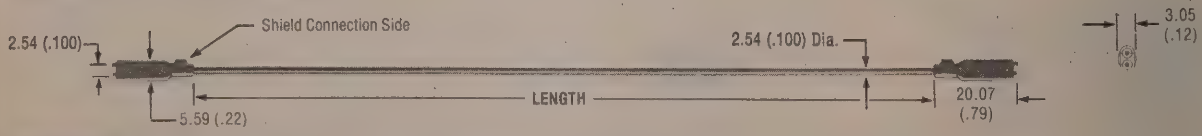
0.64 mm (.025) PIN/PIN RECEPTACLE: Gold plated beryllium copper.

INSULATION: Polypropylene, +55°C. (+131°F.) max.

WIRE: 22 AWG, strand. T.C., PVC insulation, 1.63 mm (.064) O.D.

***COLORS AVAILABLE:** -0 Black, -2 Red. Other colors available by special order.

DUAL SQUARE PIN RECEPTACLE BOTH ENDS



Model No.	Length	*Net
4929-K-12	304.8 (12.0)	11.95
4929-K-24	609.6 (24.0)	11.95
4929-K-36	914.4 (36.0)	11.95
4929-K-48	1219.2 (48.0)	12.55

This patch cord is used as a jumper circuit for P.C. boards with 0.64 mm (.025) sq. pins on 2.54 mm (.100) centers.

0.64 mm (.025) PIN RECEPTACLE: Gold plated beryllium copper contact.

INSULATION: Polyvinyl Chloride +50°C. (+122°F.) max.

CABLE: Shielded coaxial, RG174/U, 2.54 mm (.100) O.D.

★ See page 126 of the Pomona Catalog for quantity purchases.

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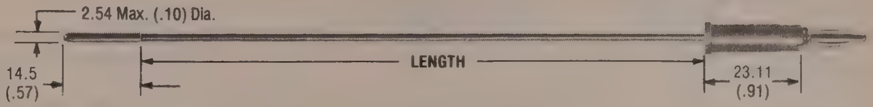
ITT POMONA ELECTRONICS

0.64 mm (.025) SQ. PIN RECEPTACLE ACCESSORIES

SQUARE PIN RECEPTACLE TO STANDARD BANANA PLUG



Model No.	Length	*Net
4771-12*	457.2 (18.0)	4.95
4771-24*	609.6 (24.0)	4.95
4771-36*	914.4 (36.0)	4.95
4771-48*	1219.2 (48.0)	5.15
4771-60*	1524.0 (60.0)	5.35

This patch cord is excellent for use as a jumper for circuit cards with 0.64 mm (.025) square pins and equipment with 4.22 mm (.166) banana jacks.

0.64 mm (.025) PIN RECEPTACLE: Gold plated beryllium copper contacts.

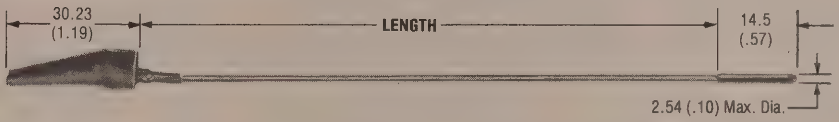
INSULATION: Polypropylene +55°C. (+131°F.) max.

WIRE: 22 AWG, T.C., PVC insulation, 1.63 mm (.064) O.D.

BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533; nickel plated.

***COLORS AVAILABLE:** -0 Black, -2 Red.

SQUARE PIN RECEPTACLE TO MINIGATOR CLIP



Model No.	Length	*Net
4974-12*	304.8 (12.0)	3.50
4974-24*	609.6 (24.0)	3.50
4974-36*	914.4 (36.0)	3.50
4974-48*	1219.2 (48.0)	3.70
4974-60*	1524.0 (60.0)	3.90

This patch cord is used as a jumper for circuit cards with 0.64 mm (.025) square pins.

0.64 mm (.025) PIN RECEPTACLE: Gold plated beryllium copper contact.

INSULATION: Polypropylene +55°C. (+131°F.) max.

WIRE: 22 AWG, T.C., PVC insulation, 1.63 mm (.064) O.D.

MINIGATOR CLIP: Steel, cadmium plated.

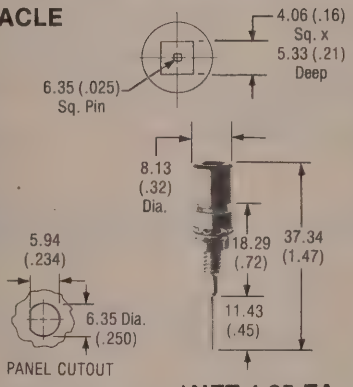
***COLORS AVAILABLE:** -0 Black, -2 Red.

SQUARE PIN RECEPTACLE PANEL MOUNT

UPPER: Lexan* polycarbonate insulator head molded to brass body, nickel plated per MIL-C-26074 Class 2. Gold plated 0.64 mm (.025) center pin. Accepts 0.64 mm (.025) sq. receptacle patch cords.

LOWER: Gold plated beryllium copper 0.64 mm (.025) sq. wrapped wire terminal. Provided with insulator, washer and nut.

RATINGS: 1500 WVDC, 3 Amp. cont., +115°C. (+239°F.) Max.



Model No.	Color
4972-0	Black
4972-2	Red

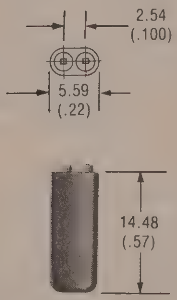
(Ten Per Pkg., unassembled) ***NET 1.25 EA.**

SQUARE PIN RECEPTACLE SHORTING BAR

This shorting bar is used on circuit cards with 0.64 mm (.025) square pins with 2.54 mm (.100) spacings.

0.64 mm (.025) PIN RECEPTACLE: Gold plated beryllium copper contacts.

INSULATION: Polypropylene, +55°C. (+131°F.) max.

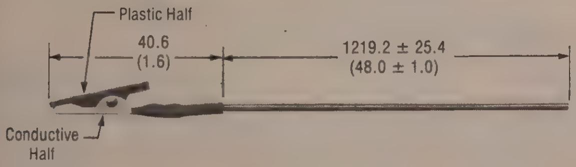


Model No.	Color
5004-0	Black
5004-2	Red

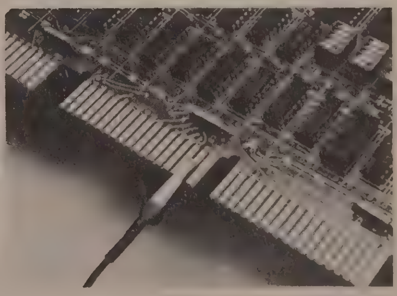
***NET 4.95**

P.C. BOARD TEST CLIP PATCH CORD

P.C. BOARD TEST CLIP PATCH CORD



(APPLICATION PHOTO)



This novel patch cord is conductive only on the lower half of this minigator clip. The upper half is insulated to keep the clip from contacting circuitry on the opposite side of the board. The patch cord is supplied with 1219.2 mm (48.0) of 20 AWG wire which can be cut to the desired length or be terminated with the desired plug or jack.

CLIP: One half Lexan* polycarbonate, other half steel, cadmium plated.

WIRE: 20 AWG strand 41 x 36 T.C., PVC insulation, 2.21 mm (.087) O.D.

RATING: 105°C. (+221°F.) max.

Model No.	Color
4931-48-0	Black
4931-48-2	Red

***NET 4.95**

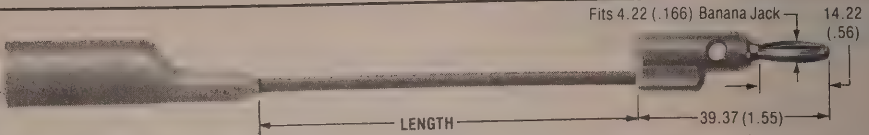
★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

TEST LEADS & PATCH CORDS

ALLIGATOR CLIP TO STACKING BANANA PLUG

Model No.	Length	*Net
1166-4 *	101.6 (4.0)	3.25
1166-8 *	203.2 (8.0)	3.25
1166-12*	304.8 (12.0)	3.25
1166-24*	609.6 (24.0)	3.25
1166-36*	914.4 (36.0)	3.25
1166-48*	1219.2 (48.0)	3.45
1166-60*	1524.0 (60.0)	3.65

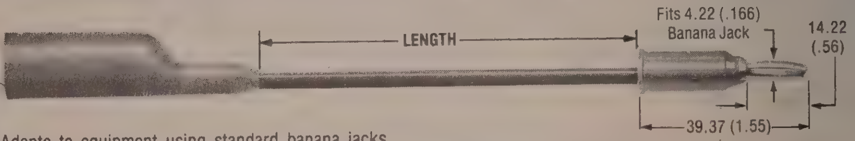


Adapts to equipment using standard banana jacks.
CLIP: Alligator, steel, cadmium plated. Vinyl insulated.
BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated. Polypropylene molded to plug body and wire.

WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible polyvinyl insulation 3.66 mm (.144) O.D.
OPERATING TEMPERATURE: +50°C. (+122°F.) Max.
RATED: 7 amps cont. 5000 W VDC.
***COLORS AVAILABLE:** -0 Black, -2 Red.

ALLIGATOR CLIP LEAD TO BANANA PLUG

Model No.	Length	*Net
1959-4 *	101.6 (4.0)	3.75
1959-8 *	203.2 (8.0)	3.75
1959-12*	304.8 (12.0)	3.75
1959-24*	609.6 (24.0)	3.75
1959-36*	914.4 (36.0)	3.75
1959-48*	1219.2 (48.0)	3.95
1959-60*	1524.0 (60.0)	4.15

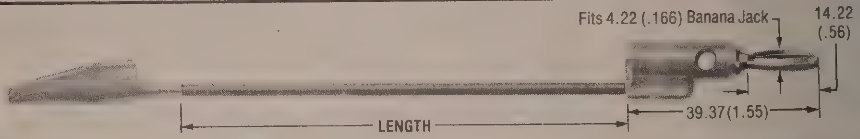


Adapts to equipment using standard banana jacks.
CLIP: Alligator, steel, cadmium plated. Vinyl insulated.
BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated. Polypropylene molded to plug body and wire.

WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible polyvinyl insulation 3.66 mm (.144) O.D.
OPERATING TEMPERATURE: +50°C. (+122°F.) Max.
RATED: 7 amps cont. 5000 W VDC.
***COLORS AVAILABLE:** -0 Black, -2 Red.

MINIGATOR CLIP TO STACKING BANANA PLUG

Model No.	Length	*Net
3220-4 *	101.6 (4.0)	2.95
3220-8 *	203.2 (8.0)	2.95
3220-12*	304.8 (12.0)	2.95
3220-24*	609.6 (24.0)	2.95
3220-36*	914.4 (36.0)	2.95
3220-48*	1219.2 (48.0)	3.15
3220-60*	1524.0 (60.0)	3.35

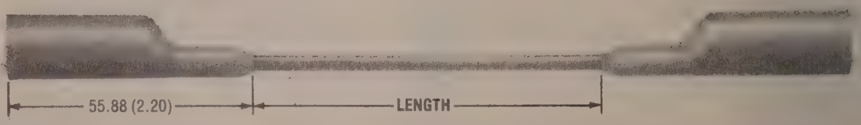


Adapts to equipment using standard banana jacks.
CLIP: Minigator, steel, cadmium plated. Vinyl insulated.
BANANA PLUG: Spring, beryllium copper, heat treated, nickel plated. Polypropylene molded to plug body and wire.

WIRE: 20 AWG, strand. 41 x 36 T.C. Extra flexible polyvinyl insulation 2.21 mm (.087) O.D.
OPERATING TEMPERATURE: +50°C. (+122°F.) Max.
RATED: 5 amps cont. 3000 W VDC.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED ALLIGATOR CLIP LEAD

Model No.	Length	*Net
AL-B-4 *	101.6 (4.0)	3.25
AL-B-8 *	203.2 (8.0)	3.25
AL-B-12*	304.8 (12.0)	3.25
AL-B-24*	609.6 (24.0)	3.25
AL-B-36*	914.4 (36.0)	3.25
AL-B-48*	1219.2 (48.0)	3.45
AL-B-60*	1524.0 (60.0)	3.65

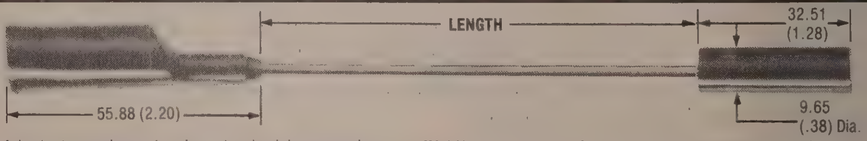


INSULATOR: Color matches color of wire.
CLIP: Alligator, steel cadmium plated.
WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible polyvinyl insulation 3.66 mm (.144) O.D.

OPERATING TEMPERATURE: +50°C. (+122°F.) Max.
RATED: 7 amps cont. 5000 W VDC.
***COLORS AVAILABLE:** -0 Black, -2 Red.

ALLIGATOR CLIP TO BANANA JACK

Model No.	Length	*Net
4944-12*	304.8 (12.0)	4.50
4944-24*	609.6 (24.0)	4.50
4944-36*	914.4 (36.0)	4.50
4944-48*	1219.2 (48.0)	4.70
4944-60*	1524.0 (60.0)	4.90

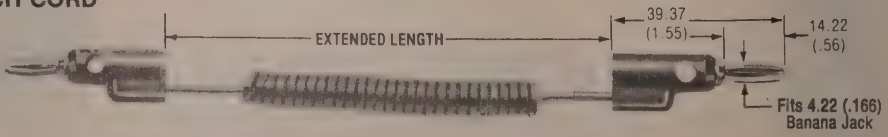


Adapts to equipment using standard banana plugs.
INSULATOR: Color matches color of wire.
CLIP: Alligator, steel, cadmium plated.
WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible polyvinyl insulation 3.66 mm (.144) O.D.
OPERATING TEMPERATURE: +50°C. (+122°F.) Max.

IN-LINE BANANA JACK: This in-line banana jack will accept all standard banana plugs. Brass, nickel plated per QQ-N-290. Insulation: Polypropylene.
RATING: 7 amps cont. 5000 W VDC.
***COLORS AVAILABLE:** -0 Black, -2 Red.

RETRACTILE (COILED) PATCH CORD WITH STACKING BANANA PLUGS

Model No.	Extended Length	*Net
2484-36*	914.4 (36.0)	7.35
2484-48*	1219.2 (48.0)	8.25
2484-60*	1524.0 (60.0)	9.15



Permits the use of one size patch cord in place of many various lengths.
BANANA PLUGS: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated. Polypropylene molded to body and wire.
WIRE: 20 AWG, strand, 42 x 36 T.C. Rubber insulation 3.68 mm (.145) O.D.
RATED: 5 amps cont. 3000 W VDC.
OPERATING TEMPERATURE: +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

★ See page 126 of the Pomona Catalog for quantity purchases.

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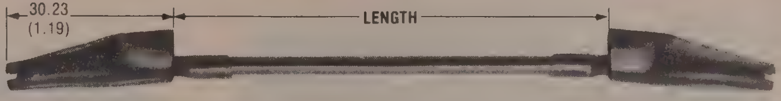
ITT POMONA ELECTRONICS

TEST LEADS & PATCH CORDS

INSULATED MINIGATOR CLIP LEAD — 18 AWG

Model No.	Length	*Net
MG-B-4 *	101.6 (4.0)	2.75
MG-B-8 *	203.2 (8.0)	2.75
MG-B-12*	304.8 (12.0)	2.75
MG-B-24*	609.6 (24.0)	2.75
MG-B-36*	914.4 (36.0)	2.75
MG-B-48*	1219.2 (48.0)	2.95
MG-B-60*	1524.0 (60.0)	3.15

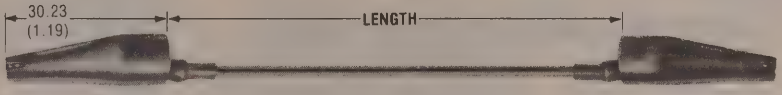


CLIP: Minigator, steel, cadmium plated.
WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible polyvinyl insulation 3.66 mm (.144) O.D.
INSULATOR: Color matches color of wire.

RATED: 7 amps cont., 5000 W VDC.
OPERATING TEMPERATURE: +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED MINIGATOR CLIP LEAD — 20 AWG

Model No.	Length	*Net
1236-4 *	101.6 (4.0)	2.75
1236-8 *	203.2 (8.0)	2.75
1236-12*	304.8 (12.0)	2.75
1236-24*	609.6 (24.0)	2.75
1236-36*	914.4 (36.0)	2.75
1236-48*	1219.2 (48.0)	2.95
1236-60*	1524.0 (60.0)	3.15

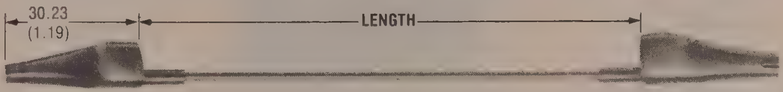


CLIP: Minigator, steel, cadmium plated.
WIRE: 20 AWG, strand. 41 x 36 T.C. Extra flexible polyvinyl insulation 2.21 mm (.087) O.D.
INSULATOR: Color matches color of wire.

RATED: 5 amps cont., 3000 W VDC.
OPERATING TEMPERATURE: +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED MICROGATOR CLIP LEAD — 20 AWG

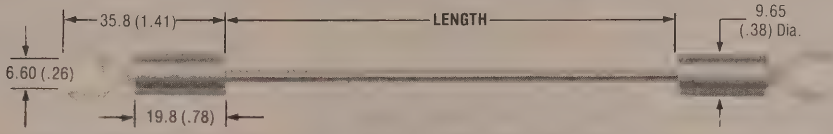
Model No.	Length	*Net
1613-4 *	101.6 (4.0)	3.25
1613-8 *	203.2 (8.0)	3.25
1613-12*	304.8 (12.0)	3.25
1613-24*	609.6 (24.0)	3.25
1613-36*	914.4 (36.0)	3.25
1613-48*	1219.2 (48.0)	3.45
1613-60*	1524.0 (60.0)	3.65



CLIP: Microgator, solid copper.
WIRE: 20 AWG, strand. 41 x 36 T.C. Extra flexible polyvinyl insulation 2.21 mm (.087) O.D.
INSULATOR: Color matches color of wire.

RATED: 5 amps cont., 3000 W VDC.
OPERATING TEMPERATURE: +50°C. (+122°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED SPADE LUG JUMPER

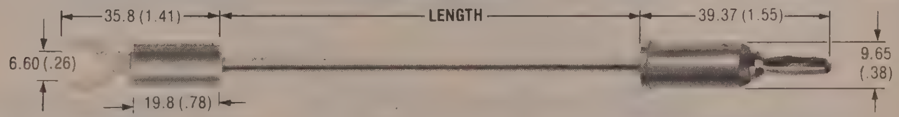


Model No.	Length	*Net
1743-12*	304.8 (12.0)	3.95
1743-24*	609.6 (24.0)	3.95
1743-36*	914.4 (36.0)	3.95
1743-48*	1219.2 (48.0)	4.15
1743-60*	1524.0 (60.0)	4.35

SPADE LUG: Brass 1.59 mm (.062) thick, nickel plated, polypropylene insulated.
WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible polyvinyl insulation 3.66 mm (.144) O.D.

RATED: 7 amps cont., 5000 W VDC.
OPERATING TEMPERATURE: +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED SPADE LUG TO BANANA PLUG

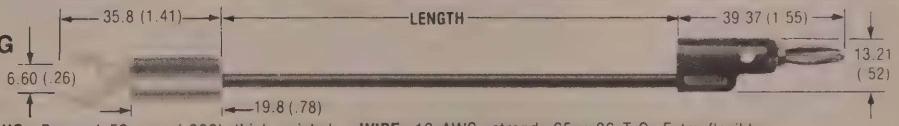


Model No.	Length	*Net
1987-12*	304.8 (12.0)	3.75
1987-24*	609.6 (24.0)	3.75
1987-36*	914.4 (36.0)	3.75
1987-48*	1219.2 (48.0)	3.95
1987-60*	1524.0 (60.0)	4.15

SPADE LUG: Brass 1.59 mm (.062) thick, nickel plated, polypropylene insulated.
BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated, polypropylene insulated.

WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible polyvinyl insulation 3.66 mm (.144) O.D.
RATED: 7 amps cont., 5000 W VDC.
OPERATING TEMPERATURE: +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED SPADE LUG TO STACKING BANANA PLUG

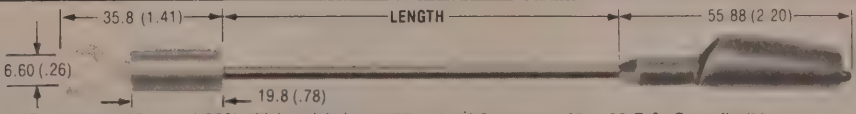


Model No.	Length	*Net
1370-12*	304.8 (12.0)	3.75
1370-24*	609.6 (24.0)	3.75
1370-36*	914.4 (36.0)	3.75
1370-48*	1219.2 (48.0)	3.95
1370-60*	1524.0 (60.0)	4.15

SPADE LUG: Brass 1.59 mm (.062) thick, nickel plated, polypropylene insulated.
BANANA PLUG: Spring, one piece heat-treated beryllium copper, berylco 25 per QQ-C-533, nickel plated, polypropylene insulated.

WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible polyvinyl insulation 3.66 mm (.144) O.D.
RATED: 7 amps cont., 5000 W VDC.
OPERATING TEMPERATURE: +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

INSULATED SPADE LUG TO ALLIGATOR CLIP



Model No.	Length	*Net
1960-12*	304.8 (12.0)	3.75
1960-24*	609.6 (24.0)	3.75
1960-36*	914.4 (36.0)	3.75
1960-48*	1219.2 (48.0)	3.95
1960-60*	1524.0 (60.0)	4.15

SPADE LUG: Brass 1.59 mm (.062) thick, nickel plated, polypropylene insulated.
INSULATOR: Color matches color of wire.
CLIP: Alligator, steel, cad. plated.

WIRE: 18 AWG, strand. 65 x 36 T.C. Extra flexible polyvinyl insulation 3.66 mm (.144) O.D.
RATED: 7 amps cont., 5000 W VDC.
OPERATING TEMPERATURE: +55°C. (+131°F.) Max.
***COLORS AVAILABLE:** -0 Black, -2 Red.

*See page 126 of the Pomona Catalog for quantity purchases.

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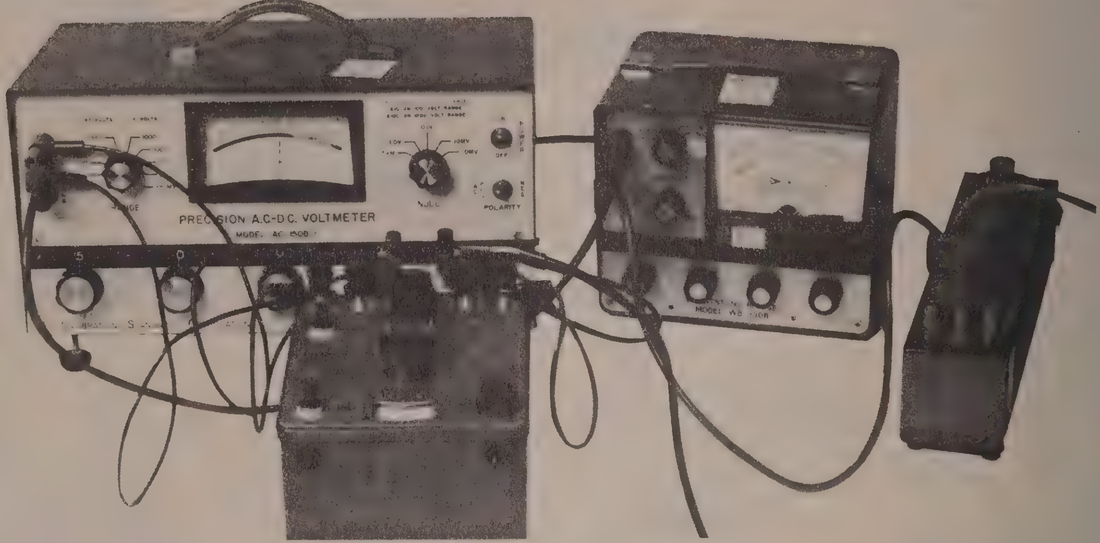
LOW THERMAL E.M.F. SPADE LUG JUMPERS



TELLURIUM COPPER LEADS FOR PRECISION MEASUREMENTS

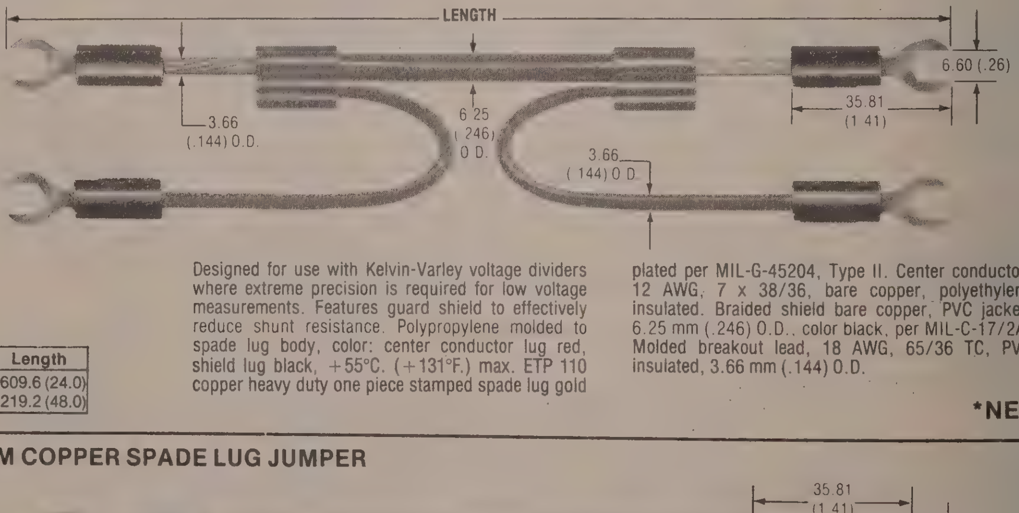
Pomona Electronics offers two products for use in measurements when thermoelectric effects are significant sources of error. Comparators designed for use with the Kelvin-Varley voltage divider and microvolt leads were tested with primary standards laboratory equipment.

Thermoelectric voltages were not detected until the most sensitive galvanometer range was used.

Thermoelectric properties—ETP 110 copper gold plated spade lugs cold-staked to multi-stranded 12 gauge copper wire minimize thermoelectric effects — an absolute necessity for low voltage, high precision measurements.

Low resistance — 12 gauge multi-stranded copper wire results in extremely low cable resistance. Spade lugs plated with 15 micro inches gold for minimum contact resistance and minimum thermal EMF when using copper binding posts (less than 0.01 $\mu V/°C$).

TELLURIUM COPPER SPADE LUGS, SHIELDED LEAD

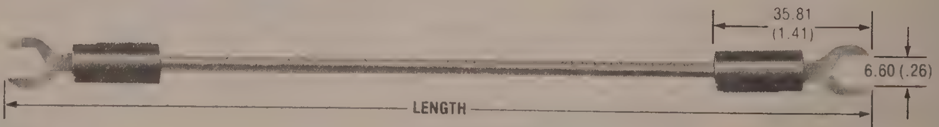


Model No.	Length
1756-24	609.6 (24.0)
1756-48	1219.2 (48.0)

Designed for use with Kelvin-Varley voltage dividers where extreme precision is required for low voltage measurements. Features guard shield to effectively reduce shunt resistance. Polypropylene molded to spade lug body, color: center conductor lug red, shield lug black, +55°C. (+131°F.) max. ETP 110 copper heavy duty one piece stamped spade lug gold plated per MIL-G-45204, Type II. Center conductor, 12 AWG, 7 x 38/36, bare copper, polyethylene insulated. Braided shield bare copper, PVC jacket, 6.25 mm (.246) O.D., color black, per MIL-C-17/2A. Molded breakout lead, 18 AWG, 65/36 TC, PVC insulated, 3.66 mm (.144) O.D.

***NET 22.95**

TELLURIUM COPPER SPADE LUG JUMPER



Model No.	Length	*Net
1693-12*	304.8 (12.0)	9.95
1693-18*	457.2 (18.0)	9.95
1693-24*	609.6 (24.0)	9.95
1693-36*	914.4 (36.0)	9.95
1693-48*	1219.2 (48.0)	10.85
1693-60*	1524.0 (60.0)	11.75

Single conductor tellurium copper spade lug jumper used in applications where guard shield is not required. Polypropylene molded to spade lug body, +55°C. (+131°F.) max. Color matches wire. ETP 110 copper heavy duty one piece stamped spade lug, gold plated per MIL-G-45204, Type II.. Conductor, 12 AWG, 7 x 38/36, bare copper, polyethylene insulated. PVC jacket, 3.66 mm (.144) O.D.

***COLORS AVAILABLE:** -0 Black, -2 Red.

* See page 126 of the Pomona Catalog for quantity purchases.

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All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

MOLDED BREAKOUTS

A series of "breakouts" designed to convert standard coaxial cables to test cables. By connecting proper breakout receptacle or plug to corresponding cable plug or receptacle, any standard coaxial cable becomes a test cable. All connections feature a tarnish resistant finish and tough thermoplastic insulation molded to connector and wire.

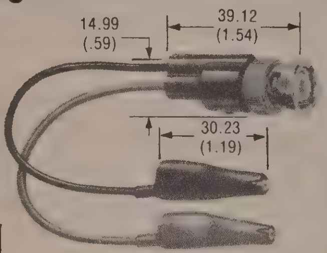
SPECIFICATIONS:

- **OPERATING TEMPERATURE:** +55°C. (+131°F.) Max.
- **WORKING VOLTAGE:** 500 V. peak.

BNC MALE TO TEST CLIPS

CONNECTOR: BNC male; gold plated brass center contact; tarnish resistant brass body.
WIRE: 20 AWG with minigator, 18 AWG with alligator clips.
TEST CLIPS: Minigator or alligator, steel, cadmium plated. Insulators, Vinyl: one black, one red.
OVERALL LENGTH: 177.8 mm (7.0)

Photo approximately one-half actual size.

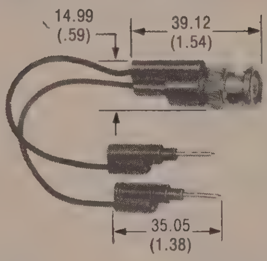


Model No.	
2885	(Alligator Clips)
2886	(Minigator Clips)

*NET 8.50

BNC MALE TO STACKING PIN TIP PLUGS

CONNECTOR: BNC male; gold plated brass center contact; tarnish resistant brass body.
WIRE: 20 AWG strand. 41 x 36 TC PVC Insul. 2.21 mm (.087) O.D.
STACKING PIN TIP PLUGS: two single plugs, 2.03 mm (.080) dia., gold plated, one black, one red.
OVERALL LENGTH: 177.8 mm (7.0).



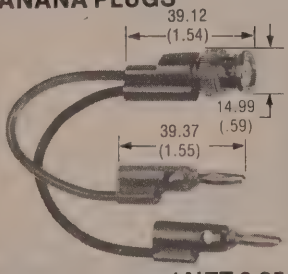
Model No.
3901

Photo approximately one-half actual size.

*NET 9.95

BNC MALE TO STACKING BANANA PLUGS

CONNECTOR: BNC male; gold plated brass center contact; tarnish resistant brass body.
WIRE: 18 AWG strand. 65 x 36 TC PVC Insul. 3.66 mm (.144) O.D.
STACKING BANANA PLUGS: Spring, one piece heat-treated beryllium copper nickel plated: one black, one red.
OVERALL LENGTH: 177.8 mm (7.0).



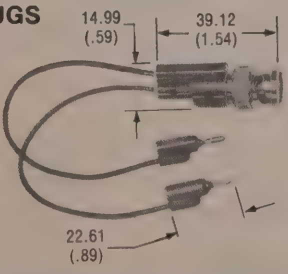
Model No.
3957

Photo approximately one-half actual size.

*NET 8.95

BNC MALE TO MINIATURE STACKING BANANA PLUGS

CONNECTOR: BNC male; gold plated brass center contact; tarnish resistant brass body.
WIRE: 20 AWG strand. 41 x 36 TC PVC Insul. 2.21 mm (.087) O.D.
MINIATURE STACKING BANANA PLUGS: For use with 2.64 mm (.104) dia. jacks. Spring, one piece beryllium copper, gold plated: one black, one red.
OVERALL LENGTH: 177.8 mm (7.0).



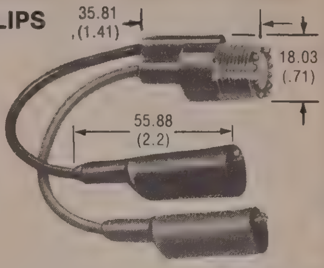
Model No.
4815

Photo approximately one-half actual size.

*NET 8.75

UHF FEMALE TO TEST CLIPS

CONNECTOR: UHF female; gold plated center contact; tarnish resistant shell.
WIRE: 18 AWG strand. 65 x 36 TC PVC Insul. 3.66 mm (.144) O.D.
TEST CLIPS: Alligator, steel, cadmium plated. Insulators, Vinyl: one black, one red.
OVERALL LENGTH: 177.8 mm (7.0).



Model No.
2632

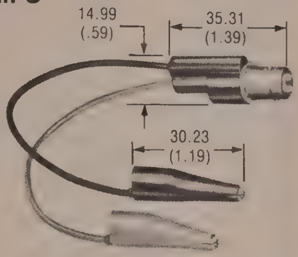
Photo approximately one-half actual size.

*NET 12.95

BNC FEMALE TO TEST CLIPS

CONNECTOR: BNC female; gold plated beryllium copper center contact; tarnish resistant brass body.
WIRE: 20 AWG with minigator, 18 AWG with alligator clips.
TEST CLIPS: Minigator or alligator, steel, cadmium plated. Insulators, Vinyl: one black, one red.
OVERALL LENGTH: 177.8 mm (7.0).

Photo approximately one-half actual size.

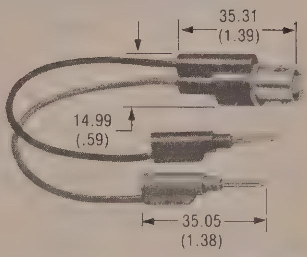


Model No.	
2630	(Alligator Clips)
2631	(Minigator Clips)

*NET 5.95

BNC FEMALE TO STACKING PIN TIP PLUGS

CONNECTOR: BNC female; gold plated beryllium copper center contact; tarnish resistant brass body.
WIRE: 20 AWG strand. 41 x 36 TC PVC Insul. 2.21 mm (.087) O.D.
STACKING PIN TIP PLUGS: 2 single plugs, 2.03 mm (.080) dia., gold plated, one black, one red.
OVERALL LENGTH: 177.8 mm (7.0).



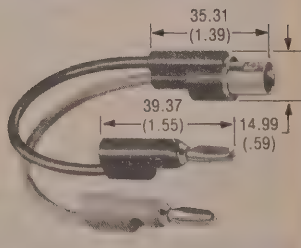
Model No.
3221

Photo approximately one-half actual size.

*NET 6.50

BNC FEMALE TO STACKING BANANA PLUGS

CONNECTOR: BNC female; gold plated beryllium copper center contact; tarnish resistant brass body.
WIRE: 18 AWG strand. 65 x 36 TC PVC Insul. 3.66 mm (.144) O.D.
STACKING BANANA PLUGS: Spring, one piece heat-treated beryllium copper, nickel plated: one black, one red.
OVERALL LENGTH: 177.8 mm (7.0).



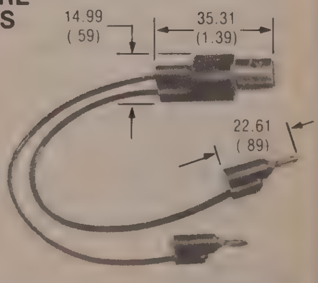
Model No.
3073

Photo approximately one-half actual size.

*NET 5.95

BNC FEMALE TO MINIATURE STACKING BANANA PLUGS

CONNECTOR: BNC female; gold plated beryllium copper center contact; tarnish resistant brass body.
WIRE: 20 AWG strand. 41 x 36 TC PVC Insul. 2.21 mm (.087) O.D.
MINIATURE STACKING BANANA PLUGS: For use with 2.64 mm (.104) dia. jacks. Spring, one piece beryllium copper, gold plated: one black, one red.
OVERALL LENGTH: 177.8 mm (7.0).



Model No.
3966

Photo approximately one-half actual size.

*NET 6.50

★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

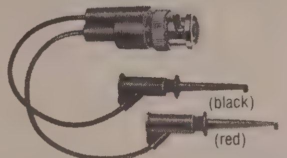
ITT POMONA ELECTRONICS

MOLDED BREAKOUTS

MICROGRABBER™ TEST CLIPS TO BNC MALE

NEW

This molded breakout converts a coaxial cable with a BNC female to a test cable with clips. Gold plated beryllium copper hooks on Micrograbber ™ test clips for maximum sensitivity.
CONNECTOR: BNC male; Gold plated brass center contact; Tarnish resistant brass body.
WIRE: 20 AWG strand. 41 x 36 T.C. PVC Insul. 2.21 mm (.08) O.D.
INSULATION: Polypropylene, +55°C. (+131°F.) Max., molded to connector and wire.
OVERALL LENGTH: 177.8 mm (7.0).



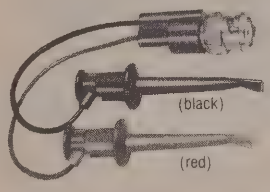
Model No.
5189

Photo approximately one-half actual size.

***NET 10.95**

MINIGRABBER™ TEST CLIPS TO BNC MALE

This molded breakout converts a coaxial cable with a BNC female to a test cable with clips. Gold plated beryllium copper hooks on Minigrabber™ test clips for maximum sensitivity.
CONNECTOR: BNC male; Gold plated brass center contact; Tarnish resistant brass body.
WIRE: 20 AWG strand. 41 x 36 T.C. PVC Insul. 2.21 mm (.087) O.D.
INSULATION: Polypropylene, +55°C. (+131°F.) Max., molded to connector and wire.
OVERALL LENGTH: 177.8 mm (7.0).



Model No.
3789

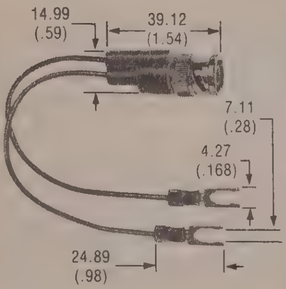
Photo approximately one-half actual size.

***NET 8.25**

BNC MALE TO #8 SPADE LUGS

NEW

This breakout allows a BNC cable to be used with equipment having #8 screw terminals, such as fanning strips, etc.
CONNECTOR: BNC male; Gold plated brass center contact; Tarnish resistant brass body.
SPADE LUGS: Crimp type #8, insulated.
WIRE: 20 AWG strand. 41 x 36 T.C. PVC Insul. 2.21 mm (.087) O.D.
OVERALL LENGTH: 177.8 mm (7.0).



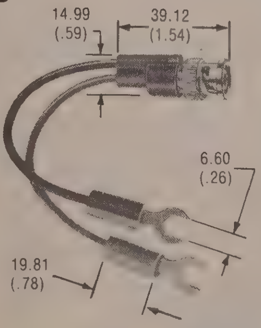
Model No.
5052

Photo approximately one-half actual size.

***NET 6.95**

BNC MALE TO SPADE LUGS

This breakout allows a BNC cable to be used with equipment having binding posts.
CONNECTOR: BNC male; Gold plated brass center contact; Tarnish resistant brass body.
SPADE LUGS: Brass, nickel plated, 6.60 mm (.26) opening.
WIRE: 18 AWG strand. 41 x 36 T.C. PVC Insul. 3.66 mm (.144) O.D.
INSULATION: Polypropylene, +55°C. (+131°F.) Max., molded to connector and wire.
OVERALL LENGTH: 177.8 mm (7.0).



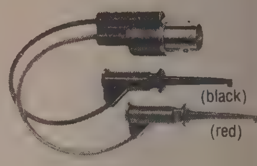
Model No.
5007

Photo approximately one-half actual size.

***NET 9.50**

MICROGRABBER™ TEST CLIPS TO BNC FEMALE

This molded breakout converts a coaxial cable with a BNC male to a test cable with clips. Gold plated beryllium copper hooks on Micrograbber™ test clips for maximum sensitivity.
CONNECTOR: BNC female; Gold plated beryllium copper center contact; Tarnish resistant brass body.
WIRE: 20 AWG strand. 41 x 36 T.C. PVC Insul. 2.21 mm (.087) O.D.
INSULATION: Polypropylene, +55°C. (+131°F.) Max., molded to connector and wire.
OVERALL LENGTH: 177.8 mm (7.0).



NE

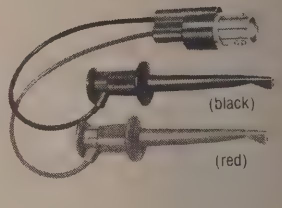
Model No.
5188

Photo approximately one-half actual size.

***NET 8.25**

MINIGRABBER™ TEST CLIPS TO BNC FEMALE

This molded breakout converts a coaxial cable with a BNC male to a test cable with clips. Gold plated beryllium copper hooks on Minigrabber™ test clips for maximum sensitivity.
CONNECTOR: BNC female; Gold plated beryllium copper center contact; Tarnish resistant brass body.
WIRE: 20 AWG strand. 41 x 36 T.C. PVC Insul. 2.21 mm (.087) O.D.
INSULATION: Polypropylene, +55°C. (+131°F.) Max., molded to connector and wire.
OVERALL LENGTH: 177.8 mm (7.0)



Model No.
3788

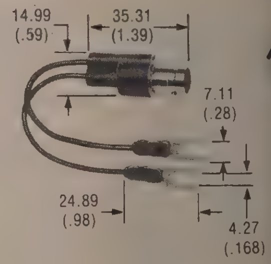
Photo approximately one-half actual size.

***NET 6.95**

BNC FEMALE TO #8 SPADE LUGS

NE

This breakout allows a BNC cable to be used with equipment having #8 screw terminals, such as fanning strips, etc.
CONNECTOR: BNC female; Gold plated beryllium copper center contact; Tarnish resistant brass body.
SPADE LUGS: Crimp type #8, insulated.
WIRE: 20 AWG strand. 41 x 36 T.C. PVC Insul. 2.21 mm (.087) O.D.
OVERALL LENGTH: 177.8 mm (7.0).



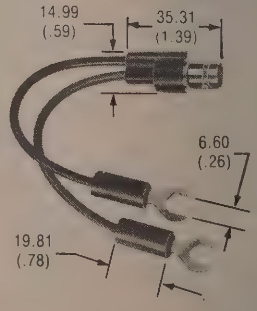
Model No.
5051

Photo approximately one-half actual size.

***NET 5.50**

BNC FEMALE TO SPADE LUGS

This breakout allows a BNC cable to be used with equipment having binding posts.
CONNECTOR: BNC female; Gold plated beryllium copper center contact; Tarnish resistant brass body.
SPADE LUGS: Brass, nickel plated, 6.60 mm (.26) opening.
WIRE: 18 AWG strand. 41 x 36 T.C. PVC Insul. 3.66 mm (.144) O.D.
INSULATION: Polypropylene, +55°C. (+131°F.) Max., molded to connector and wire.
OVERALL LENGTH: 177.8 mm (7.0).



Model No.
5009

Photo approximately one-half actual size.

***NET 7.95**

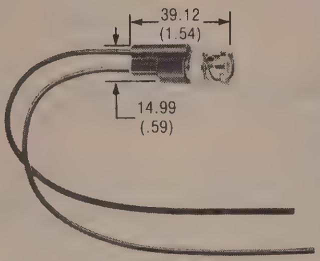
* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MOLDED BREAKOUTS

BNC MALE TO 20 AWG LEADS

Attach your own breakout or wire directly to circuit board.
CONNECTOR: BNC male; Gold plated brass center contact; Tarnish resistant brass body.
WIRE: 20 AWG strand. 41 x 36 T.C. PVC Insul. 2.21 mm (.087) O.D.
INSULATION: Polypropylene, +55°C. (+131°F.) Max., molded to connector and wire.
OVERALL LENGTH: 177.8 mm (7.0).



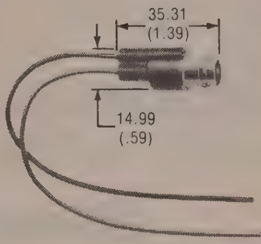
Model No.
4970

Photo approximately one-half actual size.

***NET 6.95**

BNC FEMALE TO 20 AWG LEADS

Attach your own breakout or wire directly to circuit board.
CONNECTOR: BNC female; Gold plated beryllium copper center contact; Tarnish resistant brass body.
WIRE: 20 AWG strand. 41 x 36 T.C. PVC Insul. 2.21 mm (.087) O.D.
INSULATION: Polypropylene, +55°C. (+131°F.) Max., molded to connector and wire.
OVERALL LENGTH: 177.8 mm (7.0).



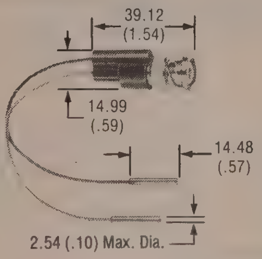
Model No.
4969

Photo approximately one-half actual size.

***NET 4.35**

BNC MALE TO 0.64 mm (.025) SQ. RECEPTACLES

This molded breakout can be attached directly to the 0.64 mm (.025) square pins on a circuit card.
CONNECTOR: BNC male; Gold plated brass center contact; Tarnish resistant brass body.
WIRE: 22 AWG strand. T.C. PVC insulation, 1.63 mm (.064) O.D.
INSULATION: Polypropylene, +55°C. (+131°F.) Max., molded to connector and wire.
OVERALL LENGTH: 177.8 mm (7.0).



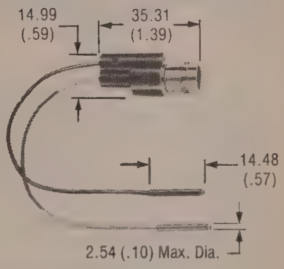
Model No.
5070

Photo approximately one-half actual size.

***NET 9.50**

BNC FEMALE TO 0.64 mm (.025) SQ. RECEPTACLES

This molded breakout can be attached directly to the 0.64 mm (.025) square pins on a circuit card.
CONNECTOR: BNC female; Gold plated beryllium copper center contact; Tarnish resistant brass body.
WIRE: 22 AWG strand. T.C. PVC insulation, 1.63 mm (.064) O.D.
INSULATION: Polypropylene, +55°C. (+131°F.) Max., molded to connector and wire.
OVERALL LENGTH: 177.8 mm (7.0).



Model No.
5069

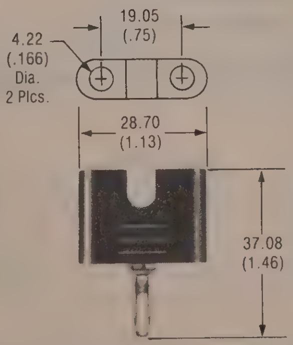
Photo approximately one-half actual size.

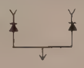
***NET 7.95**

BANANA PLUGS WITH ISOLATION DIODES

DOUBLE BANANA JACK TO BANANA PLUG WITH ISOLATION DIODES

Ideal for troubleshooting solid state TV's. Protects bench power supply or meter by preventing reverse power flow from TV.
UPPER: Banana jacks, 4.22 mm (.166) dia. on 19.05 mm (.750) centers. Brass, nickel plated.
CENTER: Isolation diodes.
LOWER: Single banana plug. Spring, one piece heat-treated beryllium copper; body, brass, nickel plated.
INSULATION: ABS, +50°C. (+122°F.) Max.
COLOR: Green.

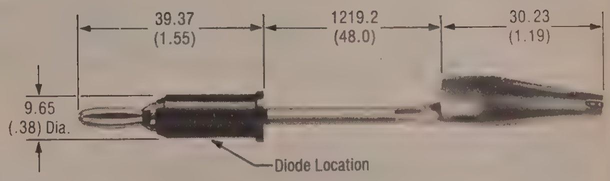




Model No.
5050

***NET 6.95**

BANANA PLUG TO MINIGATOR WITH ISOLATION DIODE



NEW

Ideal for troubleshooting solid state TV's. Protects bench power or meter by preventing reverse power flow from TV.

WIRE: 18 AWG, strand. 65 x 35 T.C. extra flexible polyvinyl insulation. 366 mm (.144) O.D.
CLIP: Minigator, steel cadmium plated. Vinyl insulator.

BANANA PLUG: Spring, one piece heat-treated beryllium copper; body, brass, nickel plated.
INSULATION: Polypropylene +55°C. (+131°F.) Max.
COLOR: Green.

Model No.
5055-48

***NET 6.95**

* See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

MICROWAVE COAXIAL CABLE ASSEMBLIES

These coaxial cables allow testing of frequencies up to 12.4 Gigahertz. Microwave coaxial cables can also be built to your specifications on special order. Just tell us the length you want, the cable you would prefer (it can even be your special cable) and what type of connectors. We will be happy to quote prices.

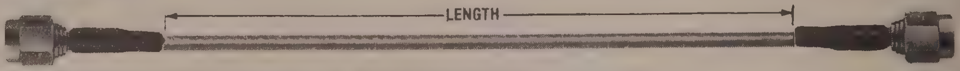
CABLE CHARACTERISTICS:

CABLE: RG 174/U coaxial cable
CHARACTERISTICS:
Impedance: 50 Ohm
Cable O.D.: 2.54 mm (.100)
Loss: .45 dB/ft. at 1.0 GHz Max.
Temperature: 85°C. (185°F.) Max.

CABLE: RG 316/U coaxial cable
CHARACTERISTICS:
Impedance: 50 Ohm
Cable O.D.: 2.49 mm (.098)
Loss: .56 dB/ft. at 3 GHz Max.
Temperature: 200°C. (392°F.) Max.

CABLE: RG 142 B/U
CHARACTERISTICS:
Impedance: 50 Ohm
Cable O.D.: 4.95 mm (.195)
Loss: .67 dB/ft. at 12.4 GHz
Temperature: 200°C (392°F.) Max.

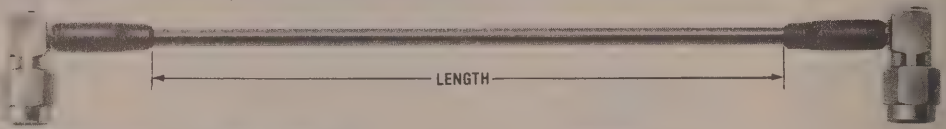
MICROWAVE CABLE ASSEMBLY, SMA MALE BOTH ENDS



Model No. RG 174/U	*Net	Model No. RG 316/U	*Net	Model No. RG 142 B/U	*Net	Length
4846-K-24	32.25	4846-BB-24	35.15	4846-X-24	44.85	609.6 (24.0)
4846-K-48	33.45	4846-BB-48	41.15	4846-X-48	58.85	1219.2 (48.0)
4846-K-60	34.05	4846-BB-60	44.15	4846-X-60	65.85	1524.0 (60.0)

CONN: 1st END
SMA, male. Gold plated center conductor. Passivated steel shell. Meets conditions of MIL-C-39012.
CABLE: (See top of page for characteristics)
CONN: 2nd END
Same as 1st end

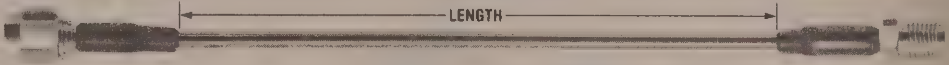
MICROWAVE CABLE ASSEMBLY, RIGHT ANGLE SMA MALE BOTH ENDS



Model No. RG 174/U	*Net	Model No. RG 316/U	*Net	Model No. RG142B/U	*Net	Length
4813-K-24	41.25	4813-BB-24	45.15	4813-X-24	57.95	609.6 (24.0)
4813-K-48	42.45	4813-BB-48	51.15	4813-X-48	71.95	1219.2 (48.0)
4813-K-60	43.05	4813-BB-60	54.15	4813-X-60	78.95	1524.0 (60.0)

CONN: 1st END
Right angle, SMA male. Gold plated center conductor. Nickel plated stainless steel shell. Meets conditions of MIL-C-39012.
CABLE: (See top of page for characteristics)
CONN: 2nd END
Same as 1st end

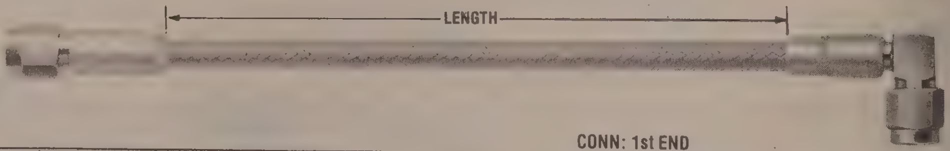
MICROWAVE CABLE ASSEMBLY, SMA MALE TO SMA FEMALE



Model No. RG 174/U	*Net	Model No. RG 316/U	*Net	Model No. RG 142 B/U	*Net	Length
4528-K-24	34.50	4528-BB-24	37.25	4528-X-24	45.15	609.6 (24.0)
4528-K-48	35.10	4528-BB-48	40.25	4528-X-48	57.15	1219.2 (48.0)
4528-K-60	35.70	4528-BB-60	43.25	4528-X-60	64.15	1524.0 (60.0)

CONN: 1st END
SMA, male. Gold plated center conductor. Passivated steel shell. Meets conditions of MIL-C-39012.
CABLE: (See top of page for characteristics)
CONN: 2nd END
SMA, female. Gold plated center conductor. Passivated steel shell. Meets conditions of MIL-C-39012.

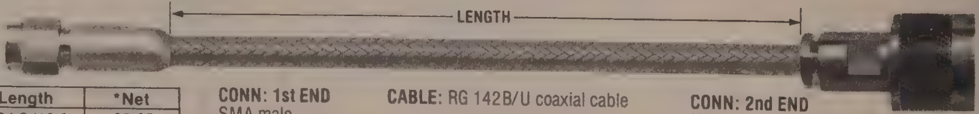
MICROWAVE CABLE ASSEMBLY, SMA MALE TO RIGHT ANGLE SMA MALE



Model No. RG 174/U	*Net	Model No. RG 316/U	*Net	Model No. RG 142B/U	*Net	Length
4814-K-24	36.25	4814-BB-24	40.15	4814-X-24	51.45	609.6 (24.0)
4814-K-48	37.45	4814-BB-48	46.15	4814-X-48	65.45	1219.2 (48.0)
4814-K-60	38.05	4814-BB-60	49.15	4814-X-60	72.45	1524.0 (60.0)

CONN: 1st END
SMA, male. Gold plated center conductor. Passivated steel shell. Meets conditions of MIL-C-39012.
CABLE: (See top of page for characteristics)
CONN: 2nd END
Right angle, SMA male. Gold plated center conductor. Nickel plated stainless steel shell. Meets conditions of MIL-C-39012.

SMA MALE TO TYPE "N" MALE



Model No.	Length	*Net
5058-X-12	304.8 (12.0)	33.95
5058-X-24	609.6 (24.0)	33.95
5058-X-36	914.4 (36.0)	39.95
5058-X-48	1219.2 (48.0)	45.95
5058-X-60	1524.0 (60.0)	51.95

CONN: 1st END
SMA male.

CABLE: RG 142B/U coaxial cable

CONN: 2nd END
"N" male.

(See top of page for characteristics.)

★See page 126 of the Pomona Catalog for quantity purchases.

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All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

CABLE ASSEMBLIES

STRESS-RELIEVED/WEATHERPROOFED CABLE ASSEMBLIES

The following cable assemblies with molded boot feature extra-long, stress-relieved PVC molded directly onto cable jacket and connector body. The advantages are stress protection against failure from excess bending, flexing & twisting and a weatherproof seal between cable and connector.

BNC MALE BOTH ENDS

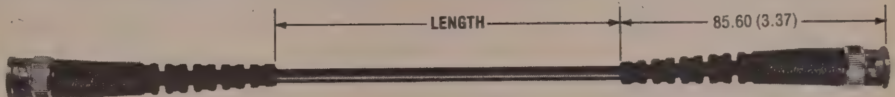

Photo approximately one-half actual size.

RG58C/U 50 Ohm	*Net	RG59B/U 75 Ohm	*Net	RG174/U 50 Ohm	*Net	RG62A/U 93 Ohm	Length	*Net
2249-C-12	9.95	2249-E-12	11.25	2249-K-12	18.25	2249-M-12	304.8(12.0)	12.95
2249-C-24	9.95	2249-E-24	11.25	2249-K-24	18.25	2249-M-24	609.6(24.0)	12.95
2249-C-36	9.95	2249-E-36	11.25	2249-K-36	18.25	2249-M-36	914.4(36.0)	12.95
2249-C-48	10.55	2249-E-48	11.85	2249-K-48	18.85	2249-M-48	1219.2(48.0)	13.55
2249-C-60	11.15	2249-E-60	12.45	2249-K-60	19.45	2249-M-60	1524.0(60.0)	14.15
2249-C-72	11.75	2249-E-72	13.05				1828.8(72.0)	
2249-C-120	14.15						3048.0(120.0)	
2249-C-180	17.15						4572.0(180.0)	

CONN: 1st END Crimp male BNC
CABLE: Shielded coaxial, RG58C/U 4.95 mm (.195) O.D.
RG59B/U 6.15mm (.242) O.D.
RG62A/U 6.15mm (.242) O.D.
RG174/U 2.54mm (.100) O.D.
CONN: 2nd END Crimp male BNC.

RIGHT ANGLE BNC MALE BOTH ENDS

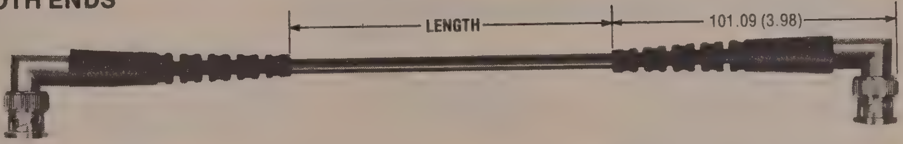

Photo approximately one-half actual size.

RG58C/U 50 Ohm	Length	*Net
4276-C-12	304.8 (12.0)	27.50
4276-C-24	609.6 (24.0)	27.50
4276-C-36	914.4 (36.0)	27.50
4276-C-48	1219.2 (48.0)	28.10
4276-C-60	1524.0 (60.0)	28.70

CONN: 1st END Crimp male BNC, right angle.
CABLE: Shielded coaxial RG58C/U 4.95 mm (.195) O.D.
CONN: 2nd END Crimp male BNC, right angle.

LOW-NOISE BNC MALE BOTH ENDS

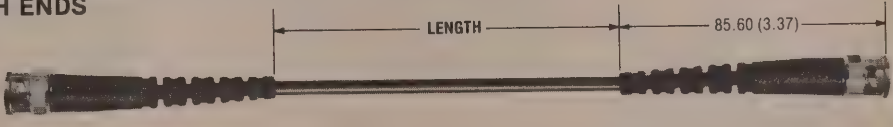

Photo approximately one-half actual size.

Belden 9223 50 Ohm	Length	*Net
4964-SS-24	609.6 (24.0)	10.50
4964-SS-36	914.4 (36.0)	10.50
4964-SS-48	1219.2 (48.0)	12.00
4964-SS-60	1524.0 (60.0)	13.50

CONN: 1st END Crimp male BNC.
CABLE: Low noise shielded coaxial, Belden 9223 or equivalent, 50 Ohm, 4.95 mm (.195) O.D.
CONN: 2nd END Crimp male BNC.

CRIMPED BNC ON RETRACTILE (COILED) CORD

This one size cord can be used in place of many varied lengths.

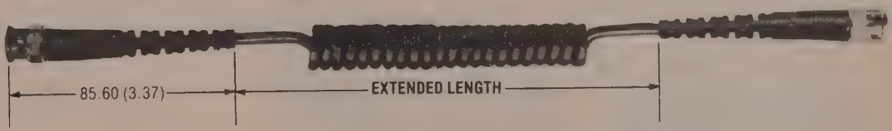

Photo approximately one-half actual size.

Model No.	Extended Length	*Net
4487-48	1219.2 (48.0)	32.95
4487-60	1524.0 (60.0)	33.85
4487-72	1829.0 (72.0)	34.75

CONN: 1st END
Crimp male BNC.

CABLE: Shielded microphone. Center conductor 24 AWG (45 x 40), rubber insulated Spiral T.C. shield with neoprene jacket 4.32 mm (.170) O.D. Color: Black.

CONN: 2nd END
Crimp male BNC.

BNC MALE TO BNC FEMALE

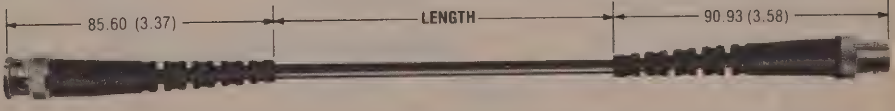

Photo approximately one-half actual size.

RG58C/U 50 Ohm	Length	*Net
4524-C-12	304.8 (12.0)	14.95
4524-C-24	609.6 (24.0)	14.95
4524-C-36	914.4 (36.0)	14.95
4524-C-48	1219.2 (48.0)	15.55
4524-C-60	1524.0 (60.0)	16.15

RG59B/U 75 Ohm	Length	*Net
4524-E-12	304.8 (12.0)	18.95

CONN: 1st END Crimp male BNC
CABLE: Shielded coaxial, RG58C/U 4.95mm (.195) O.D.
RG59B/U 6.15mm (.242) O.D.
CONN: 2nd END Crimp female BNC.

*See page 126 of the Pomona Catalog for quantity purchases.

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ITT POMONA ELECTRONICS

CABLE ASSEMBLIES

BNC FEMALE BOTH ENDS

LENGTH
90.93 (3.58)

Photo approximately one-half actual size.

RG58C/U 50 Ohm	Length	*Net
4277-C-12	304.8 (12.0)	15.95
4277-C-24	609.6 (24.0)	15.95
4277-C-36	914.4 (36.0)	15.95
4277-C-48	1219.2 (48.0)	16.55
4277-C-60	1524.0 (60.0)	17.15

CONN: 1st END
Crimp female BNC.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.

CONN: 2nd END
Crimp female BNC.

UHF MALE TO BNC MALE

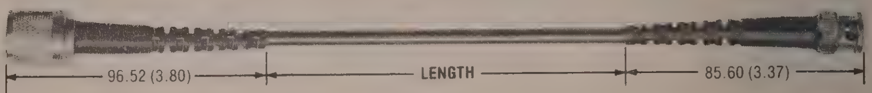

Photo approximately one-half actual size.

Model No.	Length	*Net
1367-C-18	457.2 (18.0)	13.95
1367-C-24	609.6 (24.0)	13.95
1367-C-36	914.4 (36.0)	13.95
1367-C-48	1219.2 (48.0)	14.55
1367-C-60	1524.0 (60.0)	15.15

CONN: 1st END
Crimp UHF male.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.

CONN: 2nd END
Male BNC.

UHF MALE BOTH ENDS

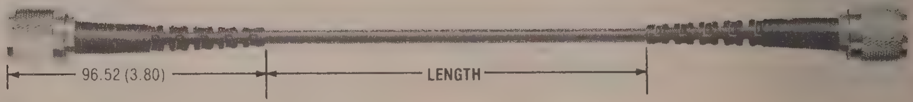

Photo approximately one-half actual size.

Model No.	Length	*Net
UHF-C-18	457.2 (18.0)	13.75
UHF-C-24	609.6 (24.0)	13.75
UHF-C-36	914.4 (36.0)	13.75
UHF-C-48	1219.2 (48.0)	14.35
UHF-C-60	1524.0 (60.0)	14.95

CONN: 1st END
Crimp UHF, male.

CABLE:
Shielded coax., RG58C/U 4.95mm (1.95) O.D.

CONN: 2nd END
Crimp UHF, male.

TYPE "F" PUSH-ON TO BNC MALE

This "F" type fits standard female "F" connectors. Positive connection is made by pushing the male onto the female connector. Excellent for television inputs, video recorders, cable TV systems, etc., where input into a BNC system is needed.

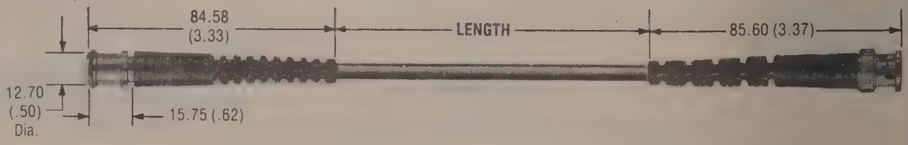

Photo approximately one-half actual size.

Model No.	Length	*Net
4939-PP-24	609.6 (24.0)	10.95
4939-PP-36	914.4 (36.0)	10.95
4939-PP-48	1219.2 (48.0)	11.70
4939-PP-60	1524.0 (60.0)	12.45

CONN: 1st END
Push-on Type "F", male.

CABLE:
Shielded coax., RG59 type CATV cable. 6.15 mm (.242) O.D.

CONN: 2nd END
Crimp male BNC.

TYPE "F" MALE PUSH-ON BOTH ENDS

This "F" type fits standard female "F" connectors. Positive connection is made by pushing the male onto the female connector. Excellent for television inputs, video recorders, cable TV systems, etc.

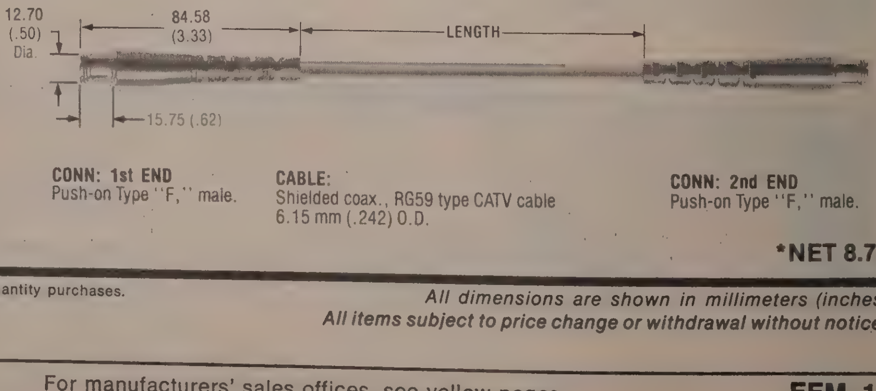

Photo approximately one-half actual size

Model No.
4920-PP-48

CONN: 1st END
Push-on Type "F," male.

CABLE:
Shielded coax., RG59 type CATV cable 6.15 mm (.242) O.D.

CONN: 2nd END
Push-on Type "F," male.

***NET 8.75**

★ See page 126 of the Pomona Catalog for quantity purchases.

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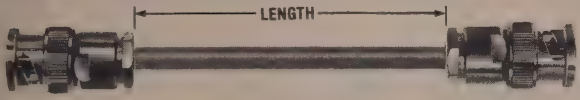
CABLE ASSEMBLIES

BNC MALE BOTH ENDS



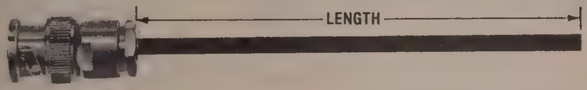
CONN: 1st END
BNC, male.

CABLE:
Shielded mic. 4.95 mm (.195) O.D.
RG58C/U 4.95 mm (.195) O.D.
RG59B/U 6.15 mm (.242) O.D.
RG62A/U 6.15 mm (.242) O.D.

CONN: 2nd END
BNC, male.

Shielded Mic. Cable 50 Ohms	RG58C/U 50 Ohms	*Net	RG59B/U 75 Ohms	RG62A/U 93 Ohms	Length	*Net
BNC-B-18	BNC-C-18	10.95	BNC-E-18	BNC-M-18	457.2 (18.0)	11.95
BNC-B-24	BNC-C-24	10.95	BNC-E-24	BNC-M-24	609.6 (24.0)	11.95
BNC-B-30	BNC-C-30	10.95	BNC-E-30	BNC-M-30	762.0 (30.0)	11.95
BNC-B-36	BNC-C-36	10.95	BNC-E-36	BNC-M-36	914.4 (36.0)	11.95
BNC-B-48	BNC-C-48	11.55	BNC-E-48	BNC-M-48	1219.2 (48.0)	12.55
BNC-B-60	BNC-C-60	12.15	BNC-E-60	BNC-M-60	1524.0 (60.0)	13.15

BNC MALE ONE END ONLY



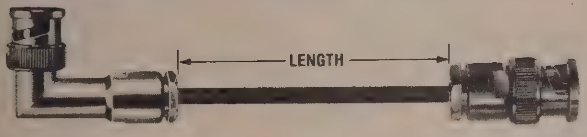
CONN: 1st END
BNC, male.

CABLE:
Shielded coax.,
RG58C/U 4.95 mm (.195) O.D.
RG59B/U 6.15 mm (.242) O.D.

CONN: 2nd END
None.

RG58C/U	*Net	RG59B/U	Length	*Net
1661-C-12	7.95	1661-E-12	304.8 (12.0)	8.25
1661-C-24	7.95	1661-E-24	609.6 (24.0)	8.25
1661-C-36	7.95	1661-E-36	914.4 (36.0)	8.25
1661-C-48	8.55	1661-E-48	1219.2 (48.0)	8.85
1661-C-60	9.15	1661-E-60	1524.0 (60.0)	9.45

RIGHT ANGLE BNC TO BNC MALE



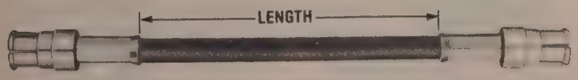
CONN: 1st END
BNC, angle male.

CABLE:
Shielded coax.,
RG58C/U 4.95 mm (.195) O.D.

CONN: 2nd END
BNC, male.

Model No.	Length	*Net
1383-C-18	457.2 (18.0)	19.95
1383-C-24	609.6 (24.0)	19.95
1383-C-36	914.4 (36.0)	19.95
1383-C-48	1219.2 (48.0)	20.55
1383-C-60	1524.0 (60.0)	21.15

PUSH-ON BNC MALE BOTH ENDS



CONN: 1st END
Crimp push-on
BNC, male.

CABLE:
Shielded coax.,
RG58C/U 4.95 mm
(.195) O.D.

CONN: 2nd END
Crimp push-on
BNC, male.

Model No.	Length	*Net
3199-C-12	304.8 (12.0)	10.50
3199-C-24	609.6 (24.0)	10.50
3199-C-36	914.4 (36.0)	10.50
3199-C-48	1219.2 (48.0)	11.10
3199-C-60	1524.0 (60.0)	11.70

A test cable for rapid interconnection of equipment. Connector is pushed on and requires no twisting. Beryllium copper outer fingers maintain continuity of shield. Excellent for hard-to-get-at places.

BNC MALE TO BNC FEMALE

CONN: 1st END
BNC, male.

CABLE:
Shielded coax.,
RG58C/U 4.95 mm
(.195) O.D.

CONN: 2nd END
BNC, female.

Model No.	Length	*Net
2223-C-12	304.8 (12.0)	11.75
2223-C-24	609.6 (24.0)	11.75
2223-C-36	914.4 (36.0)	11.75
2223-C-48	1219.2 (48.0)	12.35
2223-C-60	1524.0 (60.0)	12.95

BNC FEMALE BOTH ENDS

CONN: 1st END
BNC, female.

CABLE:
Shielded coax.,
RG58C/U 4.95 mm
(.195) O.D.

CONN: 2nd END
BNC, female.

Model No.	Length	*Net
1808-C-12	304.8 (12.0)	12.50
1808-C-24	609.6 (24.0)	12.50
1808-C-36	914.4 (36.0)	12.50
1808-C-48	1219.2 (48.0)	13.10
1808-C-60	1524.0 (60.0)	13.70

BNC MALE TO TNC MALE

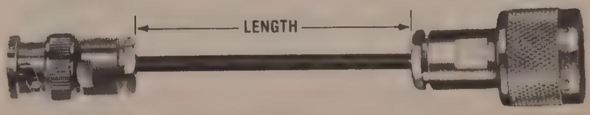
CONN: 1st END
BNC, male.

CABLE:
Shielded coax.,
RG58C/U 4.95 mm
(.195) O.D.

CONN: 2nd END
TNC, male.

Model No.	Length	*Net
1948-C-12	304.8 (12.0)	16.95
1948-C-24	609.6 (24.0)	16.95
1948-C-36	914.4 (36.0)	16.95
1948-C-48	1219.2 (48.0)	17.55
1948-C-60	1524.0 (60.0)	18.15

BNC MALE TO SERIES "N" MALE



CONN: 1st END
BNC, male.

CABLE:
Shielded coax.,
RG58C/U 4.95 mm (.195) O.D.

CONN: 2nd END
"N" male.

Model No.	Length	*Net
1366-C-24	609.6 (24.0)	13.50
1366-C-36	914.4 (36.0)	13.50
1366-C-48	1219.2 (48.0)	14.10

★ See page 126 of the Pomona Catalog for quantity purchases.

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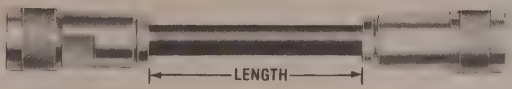
CABLE ASSEMBLIES

SERIES "N" MALE BOTH ENDS



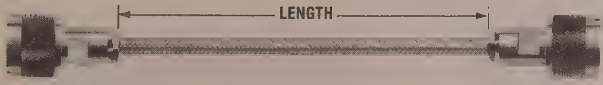
CONN: 1st END
"N" male.

CABLE:
Coax., RG213/U 10.29 mm (.405) O.D. or RG214/U 10.80 mm (.425) O.D.

CONN: 2nd END
"N" male.

RG213/U	*Net	Length	RG214/U	*Net
1658-S-18	24.95	457.2 (18.0)	1658-T-18	33.95
1658-S-24	24.95	609.6 (24.0)	1658-T-24	40.95
1658-S-36	24.95	914.4 (36.0)	1658-T-36	47.95
1658-S-48	25.65	1219.2 (48.0)	1658-T-48	54.95
1658-S-60	26.35	1524.0 (60.0)	1658-T-60	61.95

SERIES "N" MALE BOTH ENDS



CONN: 1st END
"N" male.

CABLE:
RG58C/U coaxial cable or RG142-B/U coaxial cable. (See top of page 109 for characteristics.)

CONN: 2nd END
"N" male.

RG58C/U	*Net	Length	RG142B/U	*Net
2256-C-24	14.50	609.6 (24.0)	2256-X-24	36.25
2256-C-36	14.50	914.4 (36.0)	2256-X-36	42.25
2256-C-48	15.10	1219.2 (48.0)	2256-X-48	48.25
2256-C-60	15.70	1524.0 (60.0)	2256-X-60	54.25

SERIES "N" MALE TO "N" FEMALE

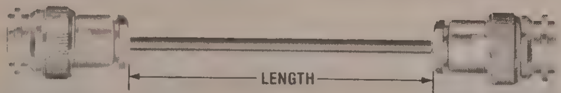
CONN: 1st END
"N" male.

CABLE:
Coax., RG213/U 10.29 mm (.405) O.D. or RG214/U 10.80 mm (.425) O.D.

CONN: 2nd END
"N" female.

RG213/U	*Net	Length	RG214/U	*Net
4496-S-18	26.95	457.2 (18.0)	4496-T-18	54.95
4496-S-24	26.95	609.6 (24.0)	4496-T-24	61.95
4496-S-36	26.95	914.4 (36.0)	4496-T-36	68.95
4496-S-48	27.65	1219.2 (48.0)	4496-T-48	75.95
4496-S-60	28.35	1524.0 (60.0)	4496-T-60	82.95

TNC MALE BOTH ENDS



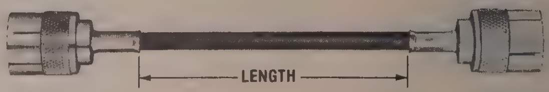
CONN: 1st END
TNC, male.

CABLE:
RG58C/U coaxial cable or RG142B/U coaxial cable. (See top of page 109 for characteristics.)

CONN: 2nd END
TNC male.

RG58C/U	*Net	Length	RG142B/U	*Net
		304.8 (12.0)	1944-X-12	31.25
1944-C-18	19.95	457.2 (18.0)		
1944-C-24	19.95	609.6 (24.0)	1944-X-24	38.25
1944-C-36	19.95	914.4 (36.0)	1944-X-36	45.25
		1219.2 (48.0)	1944-X-48	52.25
1944-C-60	21.15	1524.0 (60.0)	1944-X-60	59.25

PUSH ON UHF MALE BOTH ENDS



CONN: 1st END
Crimp push-on UHF, male.

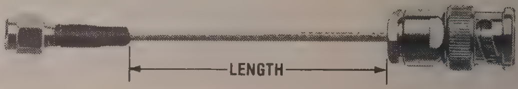
CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.

CONN: 2nd END
Crimp push-on UHF, male.

Model No.	Length
3137-C-36	914.4 (36.0)

***NET 27.50**

SMA MALE TO BNC MALE



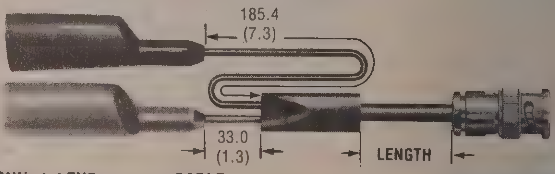
CONN: 1st END
SMA male.

CABLE: RG 316/U coaxial cable
CHARACTERISTICS:
Impedance: 50 Ohm
Cable O.D.: 2.49 mm (.098)
Loss: .56 dB/ft. at 3 GHz Max.
Temperature: 200°C. (392°F.) Max.

CONN: 2nd END
BNC male.

Model No.	Length	*Net
4935-BB-24	609.6 (24.0)	48.95
4935-BB-48	1219.2 (48.0)	54.95
4935-BB-60	1524.0 (60.0)	59.95

ALLIGATOR CLIPS TO BNC MALE



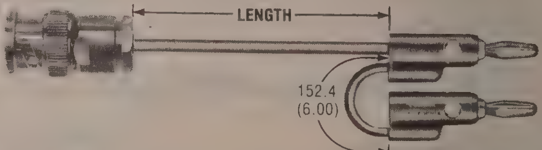
CONN: 1st END
Alligator clips, steel. Insulators, vinyl: one black, and one red. +50°C. (+122°F.) Max.

CABLE:
Shielded mic. or shielded coax., RG58C/U 4.95 mm (.195) O.D.
Y-MOLD INSULATION:
Polyvinyl chloride.

CONN: 2nd END
BNC, male.

Shielded Mic. Cable	Shielded Coax. Cable	Length	*Net
AL-B-BNC-18	AL-C-BNC-18	457.2 (18.0)	11.95
AL-B-BNC-24	AL-C-BNC-24	609.6 (24.0)	11.95
AL-B-BNC-30	AL-C-BNC-30	762.0 (30.0)	11.95
AL-B-BNC-36	AL-C-BNC-36	914.4 (36.0)	11.95
AL-B-BNC-48	AL-C-BNC-48	1219.2 (48.0)	12.55
AL-B-BNC-60	AL-C-BNC-60	1524.0 (60.0)	13.15

BNC MALE TO SINGLE BANANA PLUGS



CONN: 1st END
BNC, male.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.

CONN: 2nd END
Single banana plugs. Color: one black, one red.

Model No.	Length	*Net
2241-C-18	457.2 (18.0)	14.95
2241-C-24	609.6 (24.0)	14.95
2241-C-36	914.4 (36.0)	14.95
2241-C-48	1219.2 (48.0)	15.55

*See page 126 of the Pomona Catalog for quantity purchases.

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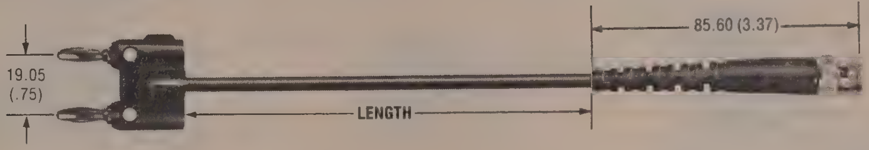
CABLE ASSEMBLIES

DOUBLE BANANA PLUG TO BNC MALE



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Model No.	Length	*Net
4530-C-18	457.2 (18.0)	10.95
4530-C-24	609.6 (24.0)	10.95
4530-C-36	914.4 (36.0)	10.95
4530-C-48	1219.2 (48.0)	11.55
4530-C-60	1524.0 (60.0)	12.15

CONN: 1st END
Double banana plug, on 19.05 mm (.750) centers.

CABLE:
Shielded coaxial, RG58C/U 4.95mm (.195) O.D.

CONN: 2nd END
Crimp male BNC.

MINIGATOR CLIPS TO BNC MALE

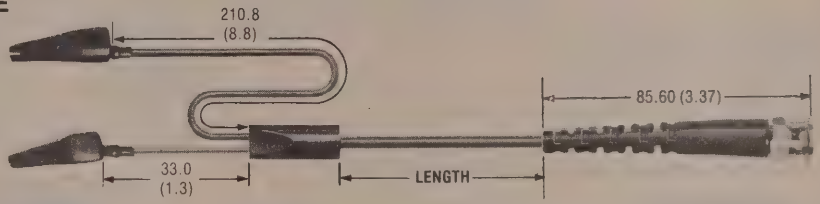


Photo approximately one-half actual size.

Model No.	Length	*Net
4532-C-18	457.2 (18.0)	10.50
4532-C-24	609.6 (24.0)	10.50
4532-C-30	762.0 (30.0)	10.50
4532-C-36	914.4 (36.0)	10.50
4532-C-48	1219.2 (48.0)	11.10
4532-C-60	1524.0 (60.0)	11.70

CONN: 1st END
Minigator clips, steel, cadmium plated. Insulators, vinyl: Black-red.

CABLE:
Shielded coaxial, RG58C/U 4.95 mm (.195) O.D.
Y-MOLD INSULATION: Polyvinyl chloride.

CONN: 2nd END
Crimp male BNC.

ALLIGATOR CLIPS TO BNC MALE

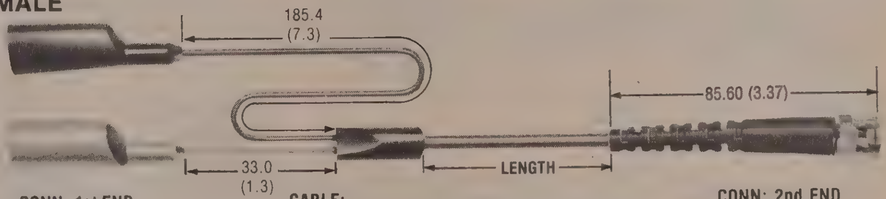


Photo approximately one-half actual size.

Model No.	Length	*Net
4531-C-18	457.2 (18.0)	11.50
4531-C-24	609.6 (24.0)	11.50
4531-C-30	762.0 (30.0)	11.50
4531-C-36	914.4 (36.0)	11.50
4531-C-48	1219.2 (48.0)	12.10
4531-C-60	1524.0 (60.0)	12.70

CONN: 1st END
Alligator clips, steel, cadmium plated. Insulators, vinyl: Black-red.

CABLE:
Shielded coaxial, RG58C/U 4.95 mm (.195) O.D.
Y-MOLD INSULATION: Polyvinyl chloride.

CONN: 2nd END
Crimp male BNC.

0.635 mm (.025) SQUARE RECEPTACLES TO BNC MALE

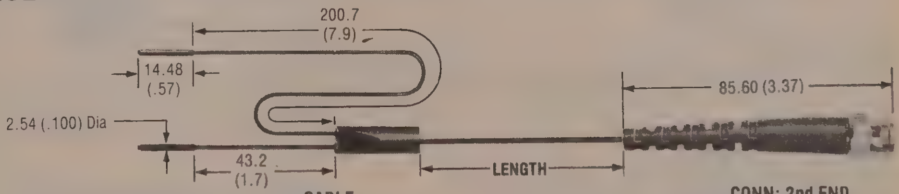


Photo approximately one-half actual size.

Model No.	Length	*Net
4945-K-18	457.2 (18.0)	16.95
4945-K-24	609.6 (24.0)	16.95
4945-K-36	914.4 (36.0)	16.95
4945-K-48	1219.2 (48.0)	17.55
4945-K-60	1524.0 (60.0)	18.15

CONN: 1st END
0.635 mm (.025) square pin receptacles, beryllium copper center contacts.

CABLE:
Shielded coaxial, RG174/U 2.54 mm (.100) O.D.
Y-MOLD INSULATION: Polyvinyl chloride.

CONN: 2nd END
Crimp male BNC.

ALLIGATOR CLIPS TO UHF MALE

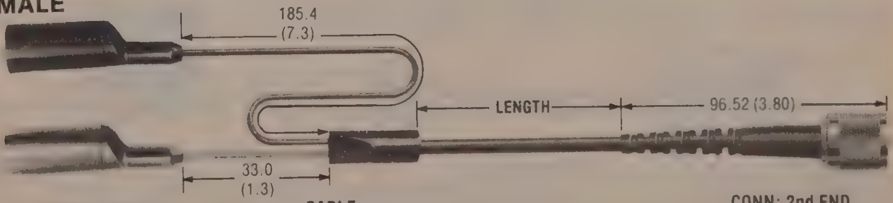


Photo approximately one-half actual size.

Model No.	Length	*Net
AL-C-UHF-36	914.4 (36.0)	13.50
AL-C-UHF-60	1524.0 (60.0)	14.70

CONN: 1st END
Alligator clips, steel, cadmium plated. Insulators, vinyl: Black-red.

CABLE:
Shielded coax., RG58C/U 4.95mm (.195) O.D.
Y-MOLD INSULATION: Polyvinyl chloride.

CONN: 2nd END
Crimp UHF, male.

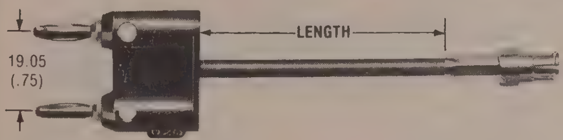
★ See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

CABLE ASSEMBLIES

DOUBLE BANANA PLUG TO "PUSH ON" BNC MALE



CONN: 1st END	CABLE:	CONN: 2nd END
Double banana plug, on 19.05 mm (.750) centers. Insulation: High density polyethylene, +55°C. (+131°F.) Max.	Shielded coax., RG58C/U 4.95 mm (.195) O.D.	Crimp "PUSH ON" BNC, male.

A test cable for rapid interconnection of equipment. Connector is pushed on and requires no twisting. Beryllium copper outer fingers maintain continuity of shield. Excellent for hard-to-get-at places.

Model No.	Length	*Net
4767-C-24	609.6 (24.0)	10.95
4767-C-36	914.4 (36.0)	10.95
4767-C-48	1219.2 (48.0)	11.55
4767-C-60	1524.0 (60.0)	12.15

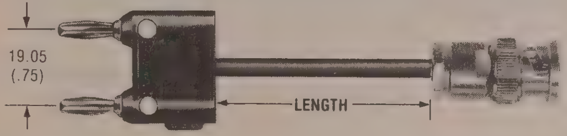
SHIELDED DOUBLE PLUG TO BNC MALE

19.05
(.75)
LENGTH

CONN: 1st END	CABLE:	CONN: 2nd END
Shielded double plug, on 19.05 mm (.750) centers. Black anodized aluminum.	Shielded coax., RG58C/U 4.95 mm (.195) O.D.	BNC, male.

Model No.	Length	*Net
1555-C-36	914.4 (36.0)	19.95
1555-C-60	1524.0 (60.0)	21.15

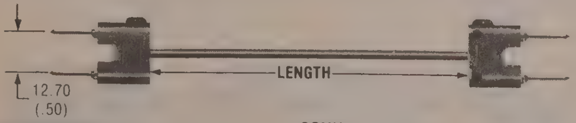
DOUBLE BANANA PLUG TO BNC MALE



CONN: 1st END	CABLE:	CONN: 2nd END
Double banana plug, on 19.05 mm (.750) centers.	Shielded microphone Shielded coax., RG58C/U 4.95 mm (.195) O.D.	BNC, male.

Shielded Mic. Cable	Shielded Coax. Cable	Length	*Net
2BB-BNC-18	2BC-BNC-18	457.2 (18.0)	11.50
2BB-BNC-24	2BC-BNC-24	609.6 (24.0)	11.50
2BB-BNC-30	2BC-BNC-30	762.0 (30.0)	11.50
2BB-BNC-36	2BC-BNC-36	914.4 (36.0)	11.50
2BB-BNC-48	2BC-BNC-48	1219.2 (48.0)	12.10
2BB-BNC-60	2BC-BNC-60	1524.0 (60.0)	12.70

MINIATURE — DOUBLE PIN TIP PLUG BOTH ENDS



Model No.	Length	*Net
4774-K-12	304.8 (12.0)	9.25
4774-K-24	609.6 (24.0)	9.25
4774-K-36	914.4 (36.0)	9.25
4774-K-48	1219.2 (48.0)	9.85
4774-K-60	1524.0 (60.0)	10.45

CONN: Both ends.
Miniature double pin tip plug on 12.70 mm (.500) centers. Insulation: Polystyrene, +50°C. (+122°F.) Max.

CABLE:
Shielded coax., RG174/U 2.54 mm (.100) O.D.

DOUBLE PLUG TO STACKING BANANA PLUGS

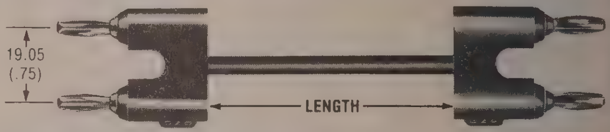
19.05
(.75)
LENGTH

CABLE DESCRIPTION: 2 COND. TWISTED PAIR
18 AWG, strand. 65 x 36 T.C. vinyl insulation. Vinyl jacket, 6.35 mm (.250) O.D. nom. cap. 30 pf/ft.

Color: Double plug, gray. Single plugs: red, black.

Model No.	Length	*Net
1368-A-18	457.2 (18.0)	14.95
1368-A-24	609.6 (24.0)	14.95
1368-A-30	762.0 (30.0)	14.95
1368-A-36	914.4 (36.0)	14.95
1368-A-48	1219.2 (48.0)	15.55
1368-A-60	1524.0 (60.0)	16.15

NON-STACKING DOUBLE PLUG BOTH ENDS

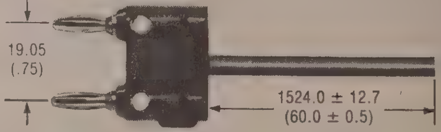


This non-stacking cable is excellent for those applications requiring no exposed metal when inserted. There is no side or top stacking.

DOUBLE BANANA PLUG: On 19.05 mm (.750) center. Spring, one piece beryllium copper, heat-treated, nickel plated. Tough thermoplastic molded onto double plug body and cable. Insulation: High density polyethylene, +55°C. (+131°F.) Max.

Two Cond. Twisted Pr.	*Net	RG58C/U	Length	*Net
4059-A-36	13.95	4059-C-36	914.4 (36.0)	11.95
4059-A-48	14.55	4059-C-48	1219.2 (48.0)	12.55
4059-A-60	15.15	4059-C-60	1524.0 (60.0)	13.15

DOUBLE BANANA PLUG ONE END ONLY

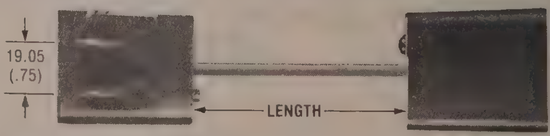


CONN: 1st END	CABLE:	CONN: 2nd END
Double banana plug, on 19.05 mm (.750) centers.	Two cond., twisted pair, 6.35 mm (.250) O.D., shielded coax. or RG58C/U 4.95 mm (.195) O.D.	None

Two Cond. Twisted Pr.	RG58C/U	Length
1326-A-60	1326-C-60	1524.0 (60.0)

*NET 7.95

SHIELDED DOUBLE PLUG BOTH ENDS



CONN: 1st END	CABLE:	CONN: 2nd END
Shielded double plug — black anodized aluminum. Insulation: High density polyethylene, +55°C. (+131°F.) Max.	Shielded coax., RG58C/U 4.95 mm (.195) O.D.	Same as 1st

Model No.	Length
1550-C-36	914.4 (36.0)

*NET 22.50

*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
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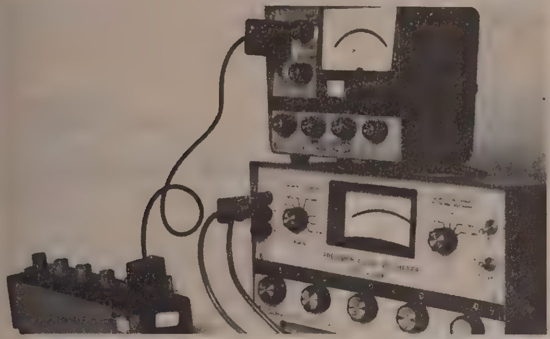
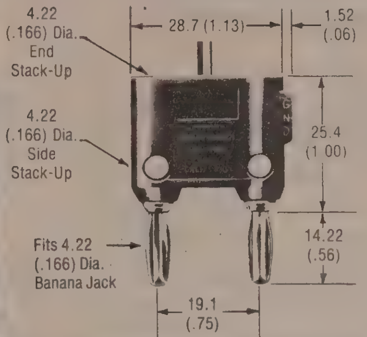
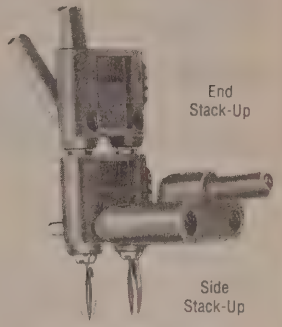
ITT POMONA ELECTRONICS

19.05 mm (.750) DOUBLE BANANA PLUG PATCH CORDS







These patch cords are indispensable for bridge transformer connection, three terminal capacitor measurements and general hookup for two wire system. Parallel connections can be made in side or end stackup. High density polyethylene thermoplastic molded to banana plug body and cable assures maximum strength, moisture resistance and excellent insulative properties.

FEATURES:

- One piece beryllium copper heat-treated spring for long life.
- Rounded spring design results in maximum contact area.
- GND., clearly molded on plug body and shell.
- Solder-bonded noise-free connections.

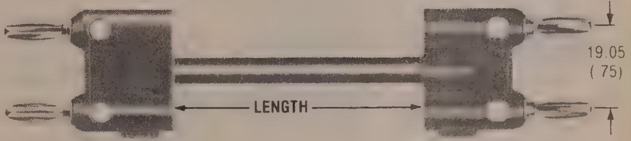
SPECIFICATIONS:

- Spring: one piece heat-treated beryllium copper, berylco 25 per QQ-C-533.
- Plug body; brass per QQ-B-626, alloy 360.
- Nickel plated per QQ-N-290, Class 2.

DOUBLE PLUG BOTH ENDS

CABLE TYPE DESCRIPTION

Two cond. twisted pair: 18 AWG, strand 65 x 36 T.C. vinyl insulation. Vinyl Jacket, 6.35 mm (.250) O.D. Nom. Cap. 30 pf/ft. Color: Gray.
Shielded microphone cable: Polyethylene insulation. Vinyl jacket, 4.95 mm (.195) O.D. nom. cap. 30.8 pf/ft. Color: Gray.
RG58C/U: Polyethylene insulation, vinyl jacket, nominal impedance 50 Ohms, 30.8 pf/ft., 4.95 mm (.195) O.D. Color: Black.
RG59B/U: Polyethylene insulation, vinyl jacket, nominal impedance 75 Ohms, 20.5 pf/ft., 6.15 mm (.242) O.D. Color: Black.
NOTE: Molded double plug matches color of cable.

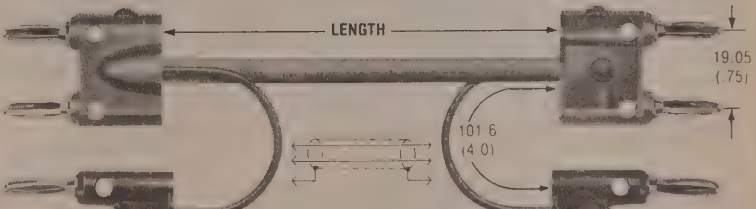


Two Cond. Twisted Pr.	*Net	Shielded Mic. Cable	*Net	RG58C/U	*Net	RG59B/U	Length	*Net
2BA-18	10.95	2BB-18	9.95	2BC-18	9.95	2BE-18	457.2 (18.0)	9.95
2BA-24	10.95	2BB-24	9.95	2BC-24	9.95	2BE-24	609.6 (24.0)	9.95
2BA-36	10.95	2BB-36	9.95	2BC-36	9.95	2BE-36	914.4 (36.0)	9.95
2BA-48	11.55	2BB-48	10.55	2BC-48	10.55	2BE-48	1219.2 (48.0)	10.55
2BA-60	12.15	2BB-60	11.15	2BC-60	11.15	2BE-60	1524.0 (60.0)	11.15

TWO COND. SHIELDED BALANCED LINE

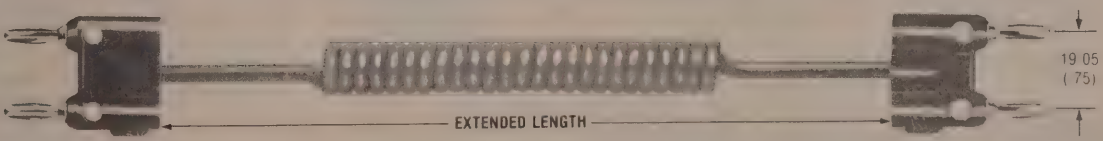
CABLE DESCRIPTION

Two cond. shielded mic. cable. Polyethylene insulation, Vinyl jacket, 5.87mm (.231) O.D. nom. cap. between cond. 18pf/ft. nom. cap. between one cond. and remaining cond. connected to shield, 32pf/ft. Color: Cable and double plug, gray. Single ground plug, green.



Model No.	Length	*Net
1167-18	457.2 (18.0)	20.95
1167-24	609.6 (24.0)	20.95
1167-30	762.0 (30.0)	20.95
1167-36	914.4 (36.0)	20.95
1167-48	1219.2 (48.0)	21.55
1167-60	1524.0 (60.0)	22.15

RETRACTILE (COILED) PATCH CORD WITH DOUBLE BANANA PLUGS BOTH ENDS



Model No.	Extended Length	*Net
3864-48	1219.2 (48.0)	17.95
3864-60	1524.0 (60.0)	18.85
3864-72	1829.0 (72.0)	19.75

CABLE: Shielded microphone. Center conductor 24 AWG (45 x 40), rubber insulated Spiral T.C. shielded with neoprene jacket 4.32 mm (.170) O.D. Color: Black.

★See page 126 of the Pomona Catalog for quantity purchases.

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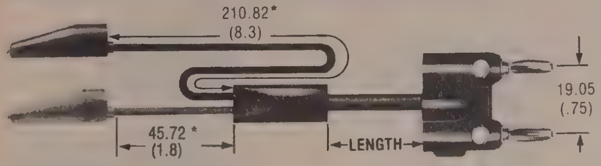
All items subject to price change or withdrawal without notice.

ITT POMONA ELECTRONICS

CABLE ASSEMBLIES

MINIGATOR CLIPS TO DOUBLE BANANA PLUG



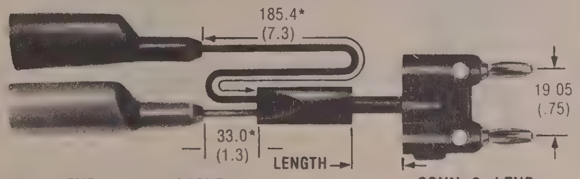
CONN: 1st END
Minigator clips, steel, cadmium plated. Insulators, vinyl: one black, and one red. +50°C. (+122°F.) Max.

CABLE:
Two cond., twisted pair, 6.35 mm (.250) O.D., shielded mic. 5.87 mm (.231) O.D. or shielded coax., RG58C/U 4.95 mm (.195) O.D.
INSULATION: Y-MOLD, PVC
DOUBLE BANANA PLUG:
High density polyethylene.

CONN: 2nd END
Double banana plug, on 19.05 mm (.750) centers.
*Breakout lengths on 2BA-MG are each 109.2 mm (4.3) long.

Two Cond. Twisted Pair	Shielded Mic. Cable	Shielded Coax. Cable	Length	*Net
2BA-MG-18		2BC-MG-18	457.2 (18.0)	13.50
2BA-MG-24		2BC-MG-24	609.6 (24.0)	13.50
2BA-MG-30		2BC-MG-30	762.0 (30.0)	13.50
2BA-MG-36	2BB-MG-36	2BC-MG-36	914.4 (36.0)	13.50
2BA-MG-48		2BC-MG-48	1219.2 (48.0)	14.10
2BA-MG-60		2BC-MG-60	1524.0 (60.0)	14.70

ALLIGATOR CLIPS TO DOUBLE BANANA PLUG



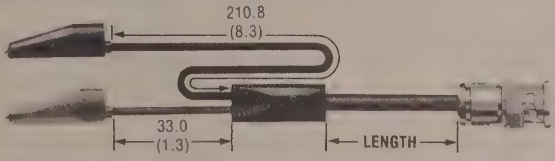
CONN: 1st END
Alligator clips, steel, cadmium plated. Insulators, vinyl: one black, and one red. +50°C. (+122°F.) Max.

CABLE:
Two cond., twisted pair, 6.35 mm (.250) O.D. shielded mic. or shielded coax., RG58C/U 4.95 mm (.195) O.D.
INSULATION: Y-MOLD, PVC
DOUBLE BANANA PLUG:
High density polyethylene.

CONN: 2nd END
Double banana plug on 19.05 mm (.750) centers.
*Breakout lengths on 2BA-AL are each 96.52 mm (3.8) long.

Two Cond. Twisted Pair	*Net	Shielded Mic. Cable	Shielded Coax. Cable	Length	*Net
2BA-AL-18	13.50	2BB-AL-18	2BC-AL-18	457.2 (18.0)	12.95
2BA-AL-24	13.50	2BB-AL-24	2BC-AL-24	609.6 (24.0)	12.95
2BA-AL-30	13.50	2BB-AL-30	2BC-AL-30	762.0 (30.0)	12.95
2BA-AL-36	13.50	2BB-AL-36	2BC-AL-36	914.4 (36.0)	12.95
2BA-AL-48	14.10	2BB-AL-48	2BC-AL-48	1219.2 (48.0)	13.55
2BA-AL-60	14.70	2BB-AL-60	2BC-AL-60	1524.0 (60.0)	14.15

MINIGATOR CLIPS TO BNC MALE



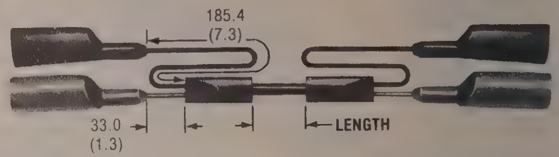
CONN: 1st END
Minigator clips, steel, cadmium plated. Insulators, vinyl: one black, and one red. +50°C. (+122°F.) Max.

CABLE:
Shielded mic. or Shielded coax., RG58C/U 4.95 mm (.195) O.D.
Y-MOLD INSULATION:
Polyvinyl chloride.

CONN: 2nd END
BNC, male.

Shielded Mic. Cable	Shielded Coax. Cable	Length	*Net
MG-B-BNC-18	MG-C-BNC-18	457.2 (18.0)	11.95
MG-B-BNC-24	MG-C-BNC-24	609.6 (24.0)	11.95
MG-B-BNC-30	MG-C-BNC-30	762.2 (30.0)	11.95
MG-B-BNC-36	MG-C-BNC-36	914.4 (36.0)	11.95
MG-B-BNC-48	MG-C-BNC-48	1219.2 (48.0)	12.55
MG-B-BNC-60	MG-C-BNC-60	1524.0 (60.0)	13.15

ALLIGATOR CLIPS BOTH ENDS



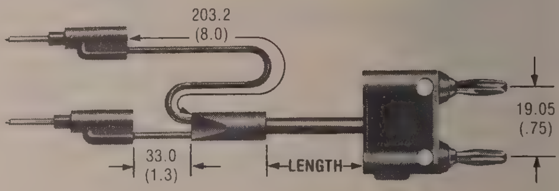
CONN: 1st END
Alligator clips, steel, cad. plated. Insulators, vinyl: Black-red. +50°C. (+122°F.) Max.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.

Y-MOLD INSULATION:
Polyvinyl chloride.
CONN: 2nd END
Alligator clips, steel, cad, plated. Insulators, vinyl: Black-red.

Model No.	Length	*Net
1152-C-12	304.8 (12.0)	13.95
1152-C-24	609.6 (24.0)	13.95
1152-C-36	914.4 (36.0)	13.95
1152-C-48	1219.2 (48.0)	14.55
1152-C-60	1524.0 (60.0)	15.15

DOUBLE PLUG TO STACKUP PIN TIPS



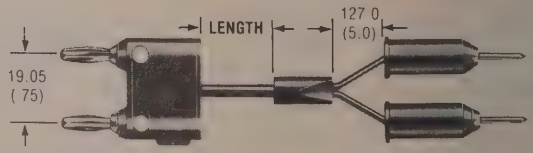
CONN: 1st END
Single stackup pin tip plugs, 2.03 mm (.080) dia. Color: 1 black, 1 red. Insulation: Polypropylene, +55°C. (+131°F.) Max.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.
Y-MOLD INSULATION
Polyvinyl chloride.

CONN: 2ND END
Double banana plug, on 19.05 mm (.750) centers.
Insulation: High density polyethylene

Model No.	Length	*Net
2BC-PP-18	457.2 (18.0)	12.75
2BC-PP-24	609.6 (24.0)	12.75
2BC-PP-36	914.4 (36.0)	12.75
2BC-PP-48	1219.2 (48.0)	13.35
2BC-PP-60	1524.0 (60.0)	13.95

DOUBLE PLUG TO SINGLE PIN TIPS



CONN: 1st END
Double banana plug, on 19.05 mm (.750) centers. Insulation: High density polyethylene.

CABLE:
Two conductor twisted 18 AWG 6.35 mm (.250) O.D.
Y-MOLD INSULATION:
Polyvinyl chloride.

CONN: 2nd END
Single pin tip plugs, 2.03 mm (.080) dia. Color: 1 black, 1 red. Insulation: Polypropylene, +55°C. (+131°F.) Max.

Model No.	Length	*Net
2184-A-36	914.4 (36.0)	16.95
2184-A-48	1219.2 (48.0)	17.55
2184-A-60	1524.0 (60.0)	18.15

* See page 126 of the Pomona Catalog for quantity purchases.

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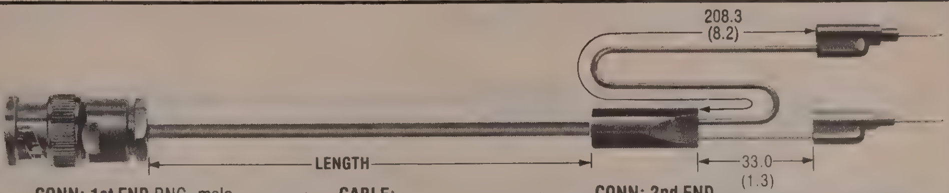
CABLE ASSEMBLIES

BNC MALE TO STACKING PIN TIPS



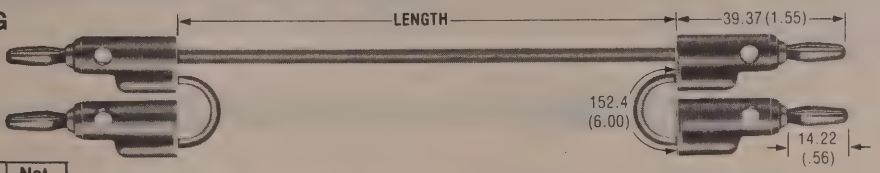
Model No.	Length	*Net
2882-C-18	457.2 (18.0)	11.95
2882-C-24	609.6 (24.0)	11.95
2882-C-36	914.4 (36.0)	11.95
2882-C-48	1219.2 (48.0)	12.55
2882-C-60	1524.0 (60.0)	13.15

CONN: 1st END BNC, male.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.
Y-MOLD INSULATION:
Polyvinyl chloride.

CONN: 2nd END
Single stacking pin tip plugs, 2.03 mm (.080) dia. Color: one black, one red. Insulation: Polypropylene.

SINGLE STACKING BANANA PLUGS BOTH ENDS



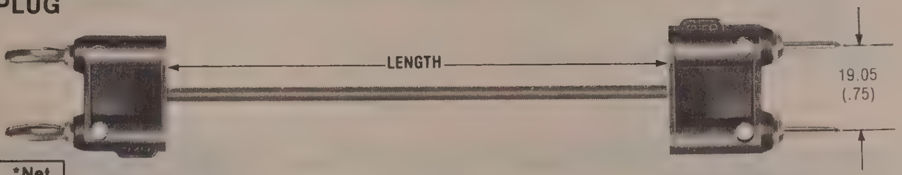
Model No.	Length	Net
2239-C-24	609.6 (24.0)	15.95
2239-C-36	914.4 (36.0)	15.95
2239-C-48	1219.2 (48.0)	16.55
2239-C-60	1524.0 (60.0)	17.15

CONN: 1st END
Single banana plugs. Colors: Inner conductor plug, red. Insulation: High density polyethylene. Ground plug, black. Insulation: Polypropylene, +55°C. (+131°F.) Max.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.

CONN: 2nd END
Same as first end.

DOUBLE BANANA PLUG



Model No.	Length	*Net
2288-C-36	914.4 (36.0)	10.75
2288-C-48	1219.2 (48.0)	11.35
2288-C-60	1524.0 (60.0)	11.95

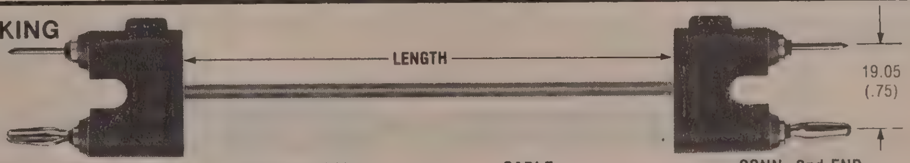
CONN: 1st END
Double banana plug, on 19.05 mm (.750) centers.

CABLE:
Shielded coax., RG58C/U 4.95 mm (.195) O.D.

CONN: 2nd END
Double pin tip plug, 2.03 mm (.080) dia. on 19.05 mm (.750) centers. Insulation: High density polyethylene +55°C. (+131°F.) max.

POLARIZED PATCH CORD/COMPONENTS

POLARIZED NONSTACKING DOUBLE PLUG



Two Cond. Twisted Pr.	*Net	RG58C/U	Length	*Net
4973-A-36	14.95	4973-C-36	914.4 (36.0)	11.95
4973-A-48	15.55	4973-C-48	1219.2 (48.0)	12.55
4973-A-60	16.15	4973-C-60	1524.0 (60.0)	13.15

CONN: 1st END
One 2.03 mm (.080) pin tip and one standard banana plug on 19.05 mm (.75) centers. Nickel plated. Pin tip on ground side.

CABLE:
Two conductor twisted pair, 18 AWG. Shielded coax., RG58C/U.

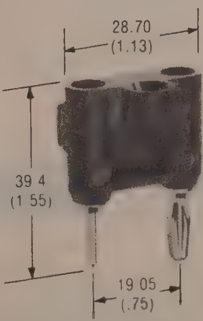
CONN: 2nd END
Same as first end. Insulation: High density polyethylene +55°C. (+131°F.) max.

For use with Model 4967.

POLARIZED DOUBLE PLUG

This polarized double plug makes it virtually impossible to insert into a mating jack incorrectly. Setscrews secure leads. (Used with Model 4967).
UPPER: Banana/Pin jack, brass, nickel plate, with gold plated beryllium copper spring in pin jack.
LOWER: Banana/Pin tip plug. Brass, nickel plated.
INSULATION: ABS, +50°C. (+122°F.) Max.
RATING: 2500 W VDC, 5 amps cont.

For use with Model 4967.



Model No.	Color
4966-0	Black
4966-2	Red

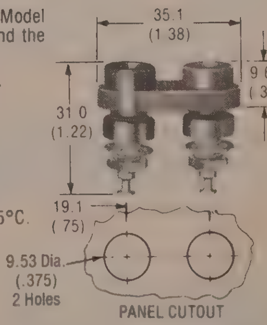
***NET 2.25**

DOUBLE POLARIZED JACK

This double polarized jack is used with Model 4966 and 4973. One side is a pin jack and the other a banana jack.

- Tin plated brass body per MIL-T-10727.
- Nickel plated lockwasher and hex nut.
- Molded in Lexan* polycarbonate.
- Mounts in panels 1.60 mm (.063) to 9.53 mm (.375) thick.
- Choice of black or red mounting base.
- ¼-32 thread, 19.05 mm (.75) centers.
- Rated 2500 W VDC, 5 amps cont. +115°C. (+239°F.) Max.

For use with Models 4966 and 4973.



Model No.	Color
4967-0	Black
4967-2	Red

(unassembled)

***NET 2.50**

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*See page 126 of the Pomona Catalog for quantity purchases.

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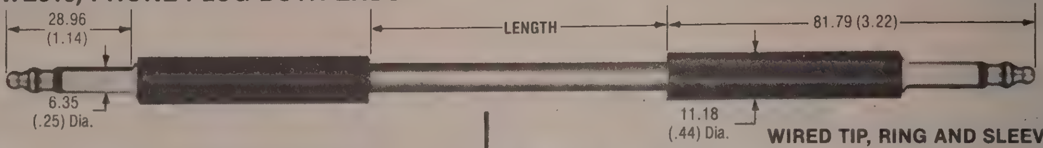
AUDIO/VIDEO CABLE ASSEMBLIES

PJ-051 (WE310) PHONE PLUG BOTH ENDS



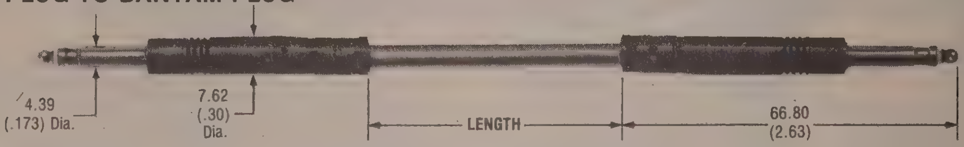
Model No.	Length	*Net
2524-A-18	457.2 (18.0)	25.95
2524-A-24	609.6 (24.0)	25.95
2524-A-36	914.4 (36.0)	25.95
2524-A-48	1219.2 (48.0)	26.55
2524-A-60	1524.0 (60.0)	27.15

WIRED TIP AND RING ONLY
Cable Description:
Two cond. twisted pair. 18 AWG, strand, 65 x 36 T.C. vinyl insulation. Vinyl jacket 6.35 mm (.250) O.D. nom, cap. 30 pf/ft. Color: Cable, gray. Phone plug handle, red.

Model No.	Length	*Net
2524-J-18	457.2 (18.0)	29.95
2524-J-24	609.6 (24.0)	29.95
2524-J-36	914.4 (36.0)	29.95
2524-J-48	1219.2 (48.0)	30.55
2524-J-60	1524.0 (60.0)	31.15

WIRED TIP, RING AND SLEEVE
Cable Description:
Two cond. shielded microphone cable. Polyethylene insulation. Vinyl jacket 5.87 mm (.231) O.D. nom. cap. between cond. 18 pf/ft. nom. cap. between one cond. and remaining cond. connected to shield 32 pf/ft. Color: Cable, gray. Phone plug handle, red.

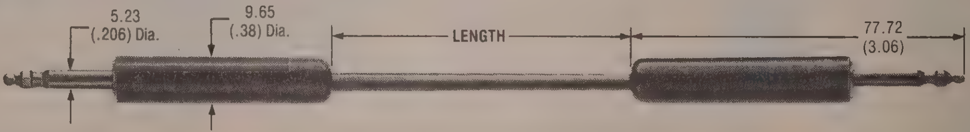
BANTAM PLUG TO BANTAM PLUG



Model No.	Length	*Net
4279-12	304.8 (12.0)	23.95
4279-24	609.6 (24.0)	23.95
4279-36	914.4 (36.0)	23.95
4279-48	1219.2 (48.0)	24.55
4279-60	1524.0 (60.0)	25.15

WIRED TIP, RING AND SLEEVE
Miniaturized 3 cond. phone plug, 4.39 mm (.173) dia. Both ends.
MATERIAL: Brass.
INSULATION: Molded black PVC.
CABLE: Plastic jacketed, 2 conductor, shielded, tinned copper conductors. Color: Gray.

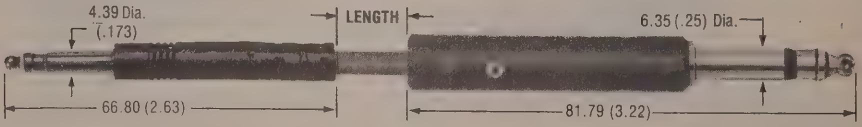
PJ-068 (WE 309) PHONE PLUG BOTH ENDS



Model No.	Length	*Net
1479-J-18	457.2 (18.0)	34.95
1479-J-24	609.6 (24.0)	34.95
1479-J-36	914.4 (36.0)	34.95
1479-J-48	1219.2 (48.0)	35.55
1479-J-60	1524.0 (60.0)	36.15

WIRED TIP, RING AND SLEEVE
Cable Description:
Two cond. shielded microphone cable. Polyethylene insulation. Vinyl jacket 5.87 mm (.231) O.D. nom. cap. between cond. 18 pf/ft. nom. cap. between one cond. and remaining cond. connected to shield 32 pf/ft. Color: Cable, gray. Phone plug handle, red.

BANTAM PLUG TO PJ-051 (WE 310)

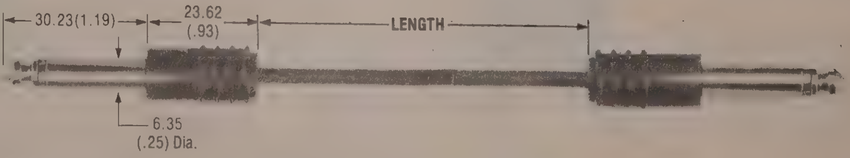


WIRED TIP, RING AND SLEEVE

1st END: Miniaturized 3 cond. phone plug, 4.39 mm (.173) dia.
MATERIAL: Brass.
INSULATION: Molded black PVC.
CABLE: Plastic jacketed, 2 conductor, shielded, tinned copper conductors. Color: Gray.
2nd END: PJ-051 phone plug with red handle.

Model No.	Length	*Net
4280-36	914.4 (36.0)	49.95
4280-48	1219.2 (48.0)	50.55
4280-60	1524.0 (60.0)	51.15

STANDARD PHONE PLUG BOTH ENDS



Model No.	Length	*Net
4053-B-36	914.4 (36.0)	11.75
4053-B-60	1524.0 (60.0)	12.95

STANDARD 2 CONDUCTOR PLUG: Tip and sleeve, brass, nickel plated.
INSULATION: Polyethylene molded directly to handle and cable.
CABLE: Shielded microphone coaxial, polyethylene insulation, gray vinyl jacket 4.95 mm (.195) O.D. nom. cap. 30.8 pf/ft. Color: Plug handle and cable, gray.

★ See page 126 of the Pomona Catalog for quantity purchases.

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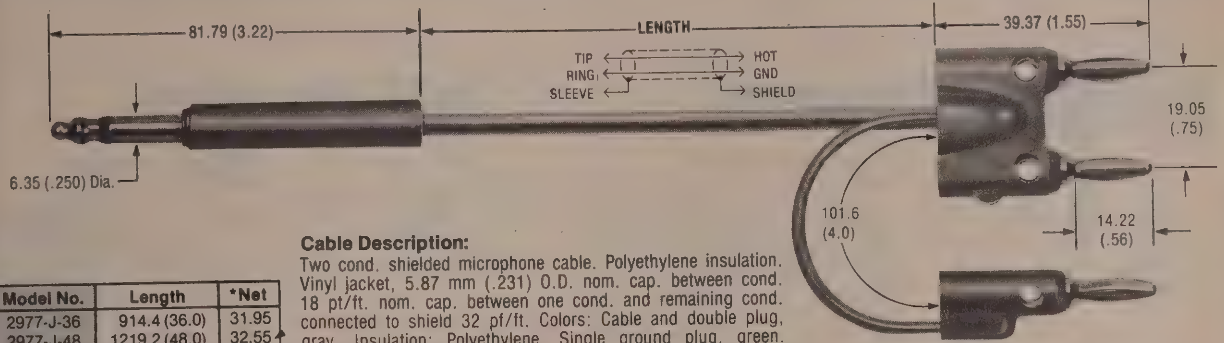
AUDIO/VIDEO CABLE ASSEMBLIES

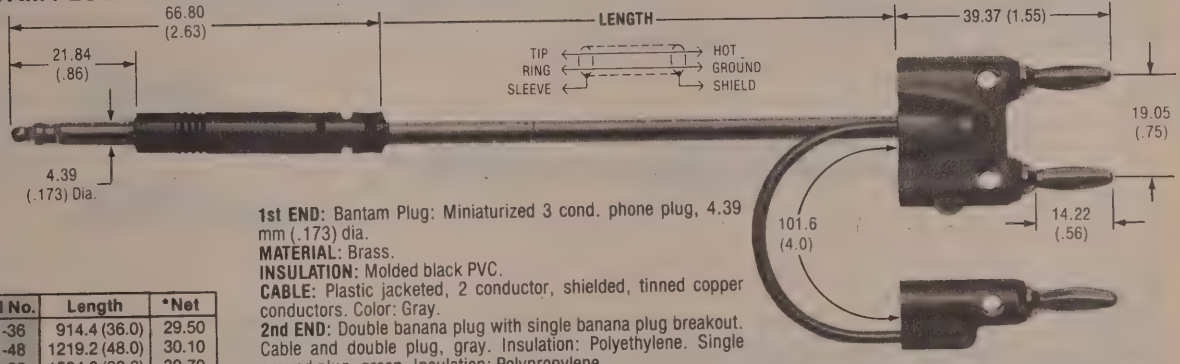
PJ-051 (WE310) TO DOUBLE PLUG BALANCED LINE


81.79 (3.22)
LENGTH
39.37 (1.55)
TIP
RING
SLEEVE
HOT
GND
SHIELD
19.05
(.75)
6.35 (.250) Dia.
101.6
(4.0)
14.22
(.56)

Cable Description: Two cond. shielded microphone cable. Polyethylene insulation. Vinyl jacket, 5.87 mm (.231) O.D. nom. cap. between cond. 18 pt/ft. nom. cap. between one cond. and remaining cond. connected to shield 32 pf/ft. Colors: Cable and double plug, gray. Insulation: Polyethylene. Single ground plug, green. Insulation: Polypropylene.

Model No.	Length	*Net
2977-J-36	914.4 (36.0)	31.95
2977-J-48	1219.2 (48.0)	32.55
2977-J-60	1524.0 (60.0)	33.15

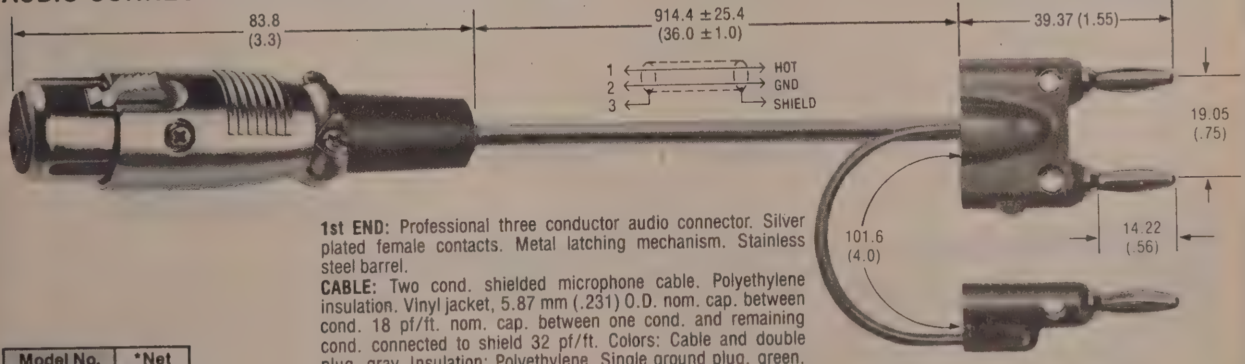
BANTAM PLUG TO DOUBLE PLUG BALANCED LINE


66.80
(2.63)
LENGTH
39.37 (1.55)
21.84
(.86)
TIP
RING
SLEEVE
HOT
GROUND
SHIELD
19.05
(.75)
4.39
(.173) Dia.
101.6
(4.0)
14.22
(.56)

1st END: Bantam Plug: Miniaturized 3 cond. phone plug, 4.39 mm (.173) dia.
MATERIAL: Brass.
INSULATION: Molded black PVC.
CABLE: Plastic jacketed, 2 conductor, shielded, tinned copper conductors. Color: Gray.
2nd END: Double banana plug with single banana plug breakout. Cable and double plug, gray. Insulation: Polyethylene. Single ground plug, green. Insulation: Polypropylene.

Model No.	Length	*Net
4281-36	914.4 (36.0)	29.50
4281-48	1219.2 (48.0)	30.10
4281-60	1524.0 (60.0)	30.70

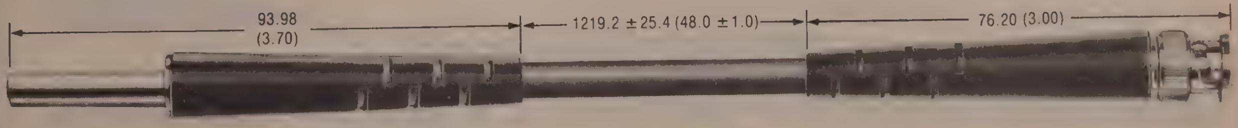
AUDIO CONNECTOR TO THREE BANANA PLUGS


83.8
(3.3)
914.4 ±25.4
(36.0 ±1.0)
39.37 (1.55)
1
2
3
HOT
GND
SHIELD
19.05
(.75)
101.6
(4.0)
14.22
(.56)

1st END: Professional three conductor audio connector. Silver plated female contacts. Metal latching mechanism. Stainless steel barrel.
CABLE: Two cond. shielded microphone cable. Polyethylene insulation. Vinyl jacket, 5.87 mm (.231) O.D. nom. cap. between cond. 18 pf/ft. nom. cap. between one cond. and remaining cond. connected to shield 32 pf/ft. Colors: Cable and double plug, gray. Insulation: Polyethylene. Single ground plug, green. Insulation: Polypropylene.

Model No.	*Net
4953-J-36	34.95

VIDEO (WE .090) PLUG TO BNC MALE


93.98
(3.70)
1219.2 ±25.4 (48.0 ±1.0)
76.20 (3.00)

1st END: Video 2.29 mm (.090) plug. Gold plated brass 2.29 mm (.090) dia. Nickel plated brass outer shell. Strain relief, polyvinyl chloride.
CABLE: 75 Ohm precision video cable, Belden 8281, 7.72 mm (.304) O.D.
2nd END: Crimp male BNC. Strain relief, polyvinyl chloride.

Model No.	*Net
4954-RR-48	39.95

★See page 126 of the Pomona Catalog for quantity purchases.

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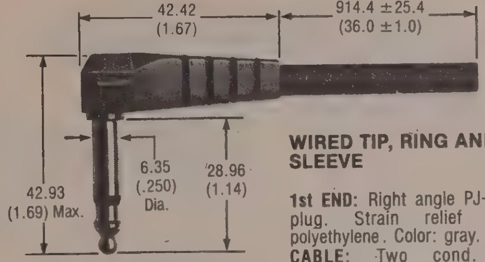
AUDIO/VIDEO CABLE ASSEMBLIES

RIGHT ANGLE PJ-051 (WE 310) PHONE PLUG

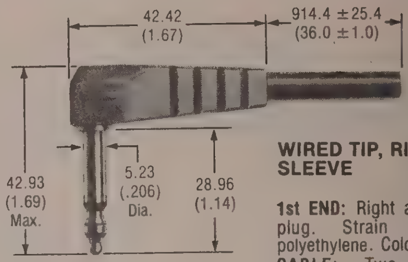

42.42
(1.67)
914.4 ±25.4
(36.0 ±1.0)
6.35
(.250)
Dia.
28.96
(1.14)
42.93
(1.69) Max.

WIRED TIP, RING AND SLEEVE

1st END: Right angle PJ-051 phone plug. Strain relief insulation, polyethylene. Color: gray.
CABLE: Two cond. shielded microphone cable. Polyethylene insulation. Vinyl jacket 5.87 mm (.231) O.D. nom. cap. between cond. 18 pf/ft. nom. cap. between one cond. and remaining cond. connected to shield 32 pf/ft. Color: gray.

Model No.	*Net
4949-J-36	12.95

RIGHT ANGLE PJ-068 (WE 309) PHONE PLUG

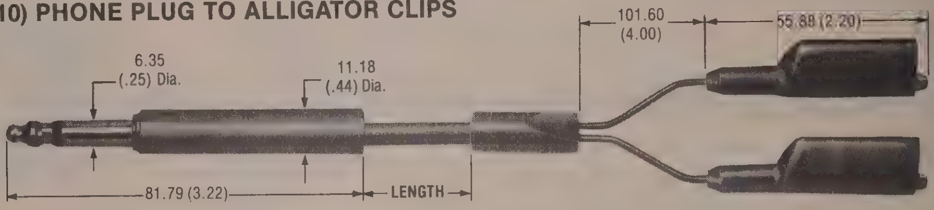

42.42
(1.67)
914.4 ±25.4
(36.0 ±1.0)
5.23
(.206)
Dia.
28.96
(1.14)
42.93
(1.69)
Max.

WIRED TIP, RING AND SLEEVE

1st END: Right angle PJ-068 phone plug. Strain relief insulation, polyethylene. Color: gray.
CABLE: Two cond. shielded microphone cable. Polyethylene insulation. Vinyl jacket 5.87 mm (.231) O.D. nom. cap. between cond. 18 pf/ft. nom. cap. between one cond. and remaining cond. connected to shield 32 pf/ft. Color: gray.

Model No.	*Net
5003-J-36	19.95

PJ-051 (WE 310) PHONE PLUG TO ALLIGATOR CLIPS

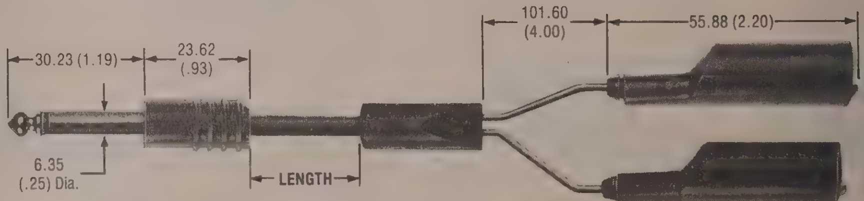

6.35
(.25) Dia.
11.18
(.44) Dia.
101.60
(4.00)
55.88 (2.20)
81.79 (3.22)
LENGTH

Model No.	Length	*Net
3352-A-36	914.4 (36.0)	19.95
3352-A-60	1524.0 (60.0)	19.95
3352-A-84	2133.6 (84.0)	23.45
3352-A-120	3048.0 (120)	26.95

Plug wired tip to red alligator and ring to black alligator.
PHONE PLUG: PJ-051 with red handle.
CLIPS: Alligator, steel, cadmium plated.
INSULATORS: Vinyl, one red and one black.

CABLE DESCRIPTION:
Two cond. twisted pair, 18 AWG, strand. 65 x 36 T.C. vinyl insulation. Vinyl jacket 6.35 mm (.250) O.D., nom. cap. 30 pf/ft. Color: Cable, gray.

STANDARD PHONE PLUG TO ALLIGATOR CLIPS

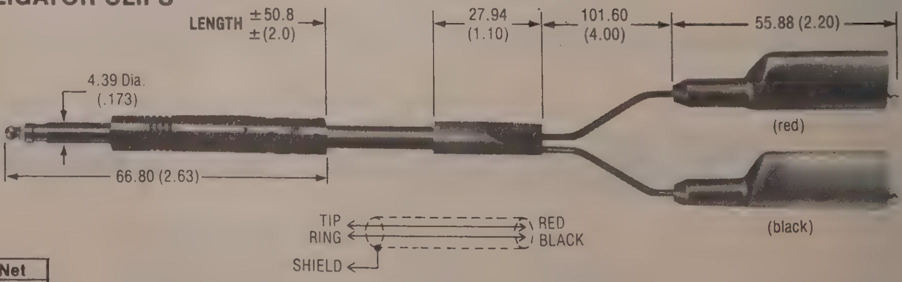

101.60
(4.00)
55.88 (2.20)
30.23 (1.19)
23.62
(.93)
6.35
(.25) Dia.
LENGTH

Model No.	Length	*Net
4990-B-36	914.4 (36.0)	11.95
4990-B-60	1524.0 (60.0)	13.15
4990-B-84	2133.6 (84.0)	14.35
4990-B-120	3048.0 (120)	16.15

Plug wired tip to red alligator and ring to black alligator.
PHONE PLUG: Standard, with molded polyethylene handle.
CLIPS: Alligator, steel cadmium plated.

INSULATORS: Vinyl, one red and one black.
CABLE: Shielded microphone coaxial, polyethylene insulation, gray vinyl jacket 4.95 mm (.195) O.D. nom. cap. 30.8 pf/ft. Color: Plug handle and cable, gray.

BANTAM PLUG TO ALLIGATOR CLIPS


LENGTH ±50.8
±(2.0)
27.94
(1.10)
101.60
(4.00)
55.88 (2.20)
4.39 Dia.
(.173)
66.80 (2.63)
(red)
(black)
TIP
RING
SHIELD
RED
BLACK

Model No.	Length	*Net
5026-36	914 (36.0)	19.95
5026-60	1524 (60.0)	21.15
5026-84	2134 (84.0)	22.35

BANTAM PLUG: Miniature three conductor phone plug.

CABLE: Two conductor shielded microphone. Gray vinyl jacket.

ALLIGATOR CLIPS: Steel, cadmium plated. Insulators, vinyl: one black, and one red.

★ See page 126 of the Pomona Catalog for quantity purchases.

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AUDIO/VIDEO CABLE ASSEMBLIES

PHONO PLUG TO UHF MALE

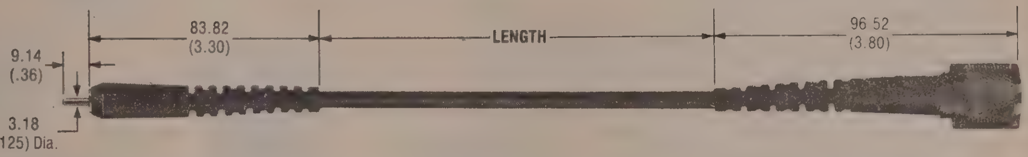


Photo approximately one-half actual size.

Model No.	Length	*Net
5047-E-36	914.4 (36.0)	10.95
5047-E-48	1219.2 (48.0)	11.55
5047-E-60	1524.0 (60.0)	12.15

This computer interface cable connects the computer to the video display unit. For use with WANG and other units using the UHF connector.

CONN: 1st END
Phono plug, Strain relief insulation, polyvinyl chloride.
CABLE: Coaxial, RG59B/U. Impedance: 75 Ohms, 6.15 mm (.242) O.D.

CONN: 2nd END
Crimp UHF, male.

NEW

PHONO PLUG BOTH ENDS

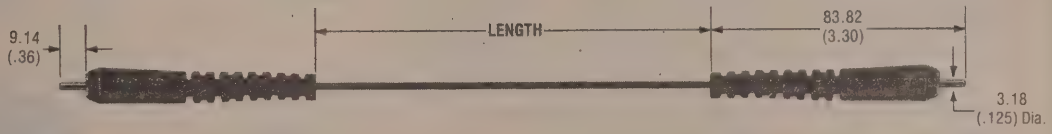


Photo approximately one-half actual size.

Model No.	Length	*Net
5092-K-18	457.2 (18.0)	7.95
5092-K-24	609.6 (24.0)	7.95
5092-K-36	914.4 (36.0)	7.95
5092-K-48	1219.2 (48.0)	8.55

CONN: 1st END
Phono plug. Strain relief insulation, polyvinyl chloride.

CABLE: Shielded coaxial, RG 174/U 2.54 mm (.100) O.D.

CONN: 2nd END
Same as 1st end.

NEW

TYPE "F" PUSH-ON TO PHONO PLUG

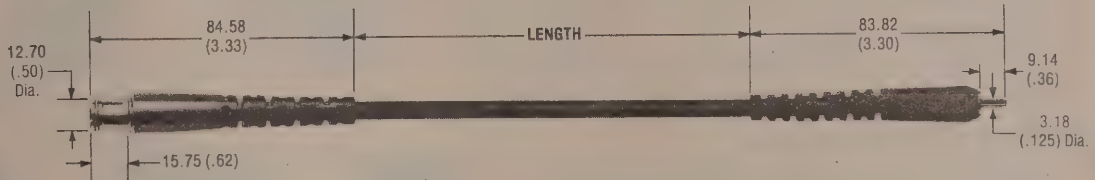


Photo approximately one-half actual size.

Model No.	Length	*Net
5025-E-72	1829 (72.0)	12.95
5025-E-144	3658 (144.0)	16.55

"F" PUSH-ON: Fits over standard "F" screw type female. PVC strain relief.

CABLE: RG 59B/U shielded coaxial cable. Nominal Impedance 75 Ohms, 6.15 mm (.242) O.D.

PHONO PLUG: Standard RCA type. PVC strain relief.

NEW

TYPE "F" PUSH-ON TO UHF MALE

This "F" type fits standard female "F" connectors. Positive connection is made by pushing the male onto the female connector. Excellent for television inputs, video recorders, cable TV systems, etc.

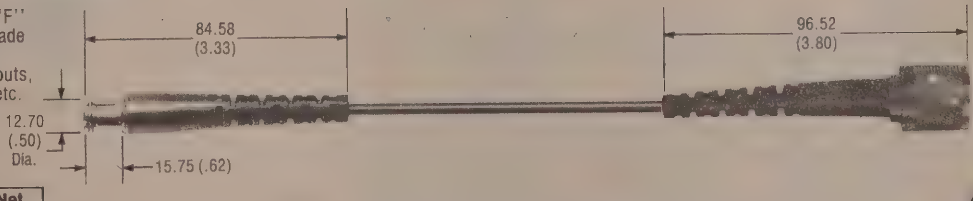


Photo approximately one-half actual size.

Model No.	Length	*Net
5045-E-36	914.4 (36.0)	13.50
5045-E-48	1219.2 (48.0)	14.10
5045-E-60	1524.0 (60.0)	14.70

CONN: 1st END
Push-on Type "F," male.

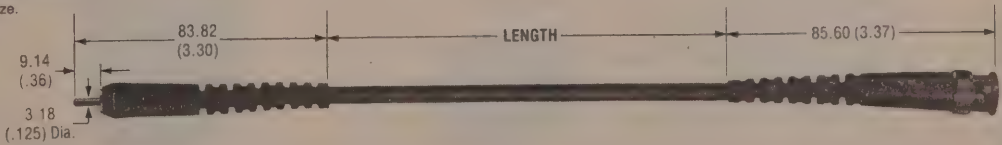
CABLE: Coaxial, RG59B/U. Impedance 75 Ohms, 6.15 mm (.242) O.D.

CONN: 2nd END
UHF, male.

NEW

PHONO PLUG TO BNC MALE

Photo approximately one-half actual size.



Model No.	Length	*Net
4963-E-24	609.6 (24.0)	12.95
4963-E-36	914.4 (36.0)	12.95
4963-E-48	1219.2 (48.0)	13.55
4963-E-60	1524.0 (60.0)	14.15

1st END: Phono plug. Strain relief insulation, polyvinyl chloride.

CABLE: Coaxial, RG59B/U Impedance 75 Ohms, 6.15 mm (.242) O.D.

2nd END: Crimp BNC strain relief insulation, polyvinyl chloride.

★ See page 126 of the Pomona Catalog for quantity purchases.

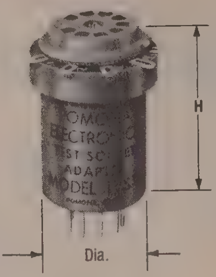
All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

TUBE TEST SOCKET ADAPTERS & SOCKET SAVER® ADAPTERS

TEST SOCKET TUBE ADAPTERS

Ideal for making measurements of voltage, resistance, audio and video without tracing complicated circuits from the bottom of the chassis. They feature: Extended test tabs for easy use with either alligator or test prods; low loss mica-filled molded phenolic construction per MIL-M-14, MFE. Power factor less than 0.010 at 10 MHz; high insulation resistance, the I.R. exceeds 500,000 megohms at 40% R.H., at 24°C; distributed capacity, inter-element approximately 1 pico farad; high voltage operation, voltage breakdown elements exceeds 1,700 VAC or DC. Models 1779 and TV-12 molded of electrical grade black phenolic. Model TVS-8 has 2.36 mm (.093) dia. pins. All other models have 1.02 mm (.040) dia. pins.

Model No.	Type	Size H x Dia.	Pin Circle Dia.	*Net
TVS-7	7 Pin Miniature	36.07 (1.42) x 19.05 (.75)	9.53 (.375)	9.75
TVS-8	8 Pin Octal	27.94 (1.10) x 29.46 (1.16)	17.45 (.687)	13.50
TVS-9	9 Pin Miniature	35.56 (1.40) x 22.10 (.87)	11.89 (.468)	11.25
1779	9 Pin Novar	36.83 (1.45) x 30.22 (1.19)	17.45 (.687)	10.95
TVS-12	12 Pin Compactron	35.31 (1.39) x 29.72 (1.17)	19.05 (.750)	11.25



MODEL TVS-9

MODEL 1779

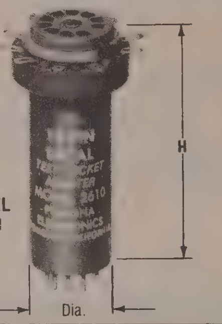
TALL TEST SOCKET TUBE ADAPTERS (For sockets having captive or telescoping tube shields)

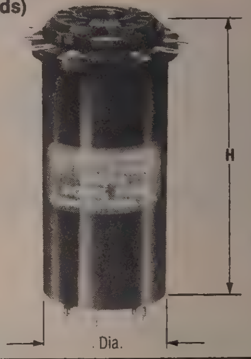
- Extra height — clears shields.
- Ready access to socket connections.
- Exposed operation saves time.
- Pins 1.02 mm (.040) dia.

These adapters rise above the shield and place testing in the open. Shields or tuner covers do not have to be removed. All construction is the highest quality. Inter-element distributed capacity is approximately 1.5 pico farad. Voltage breakdown elements exceed 1800 VAC or DC.

Model No.	Type	Size H x Dia.	Pin Circle Dia.	*Net
1447	7 Pin Miniature	54.36 (2.14) x 16.51 (.65)	9.53 (.375)	8.95
1449	9 Pin Miniature	54.36 (2.14) x 19.05 (.75)	11.89 (.468)	9.85
1710	10 Pin Miniature	54.36 (2.14) x 19.05 (.75)	11.89 (.468)	9.95
2610	10 Pin Decal	54.36 (2.14) x 19.05 (.75)	11.89 (.468)	15.95
2742	12 Pin Compactron	66.30 (2.61) x 29.46 (1.16)	19.05 (.750)	14.95
2749	9 Pin Novar	70.87 (2.79) x 28.70 (1.13)	17.45 (.687)	14.75

MODEL 2610





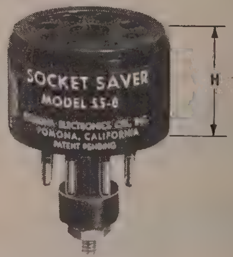
MODEL 2742

SOCKET SAVER® ADAPTERS

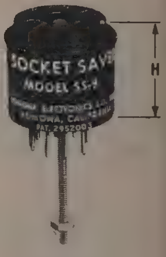
The Socket Saver® Adapter is designed to be installed on tube checkers and other electronic equipment to prevent wear and tear of sockets on original equipment. They are easy to install and remove. This eliminates the necessity of replacing and rewiring sockets on original equipment. Built of quality materials. Beryllium copper long life contacts to give maximum service. Models 1847 and 1849 are miniaturized for use in applications where vertical height is restricted.

Model No.	Type	Size H	Pin Circle Dia.	*Net
SS-7	7 Pin Miniature	20.57 mm (.81)	9.53 (.375)	9.75
1847	7 Pin Miniature*	8.38 mm (.33)	9.53 (.375)	8.35
SS-8	8 Pin Octal	20.57 mm (.81)	17.45 (.687)	16.95
SS-9	9 Pin Miniature	20.57 mm (.81)	11.89 (.468)	10.50
1849	9 Pin Miniature*	8.38 mm (.33)	11.89 (.468)	10.75
SS-11	11 Pin Octal	34.29 mm (1.35)	19.05 (.750)	19.75
SS-12	12 Pin Compactron	20.57 mm (.81)	19.05 (.750)	9.35
1451	9 Pin Magnoval	22.35 mm (.88)	17.45 (.687)	10.50
1751	9 Pin Novar	20.57 mm (.81)	17.45 (.687)	11.95

MINIATURIZED MODEL 1847



MODEL SS-8



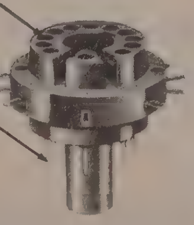
MODEL SS-9

*Miniaturized

90° COLOR CRT TEST SOCKET ADAPTER

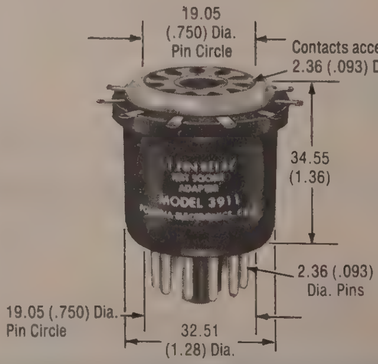
MINIATURE DIHEPTAL
For 90° Color Television
Picture Tubes

MODEL 2380
(with solder tabs)



Model No.	Pin Circle Dia.	*Net
2380	20.32 (.800)	10.95

11 PIN RELAY TEST SOCKET ADAPTER



Model No.	*Net
3911	20.95

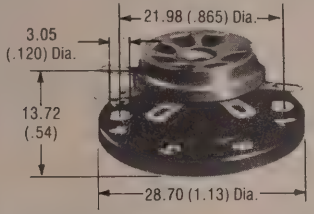
*See page 126 of the Pomona Catalog for quantity purchases.

All dimensions are shown in millimeters (inches)
All items subject to price change or withdrawal without notice.

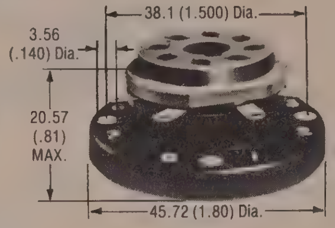
BREADBOARD SOCKETS
TEST SOCKET ADAPTERS

SURFACE MOUNTED BREADBOARD SOCKETS

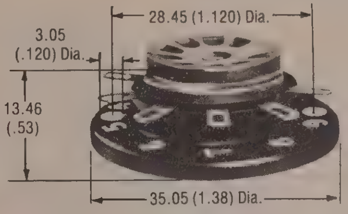
Surface mounted breadboard sockets are ideal for experimental circuit design, portable and enclosed units, plug-in and packaged assemblies. They feature: An insulated base to prevent connections from shorting to chassis; elimination of double chassis design; circuits may be wired in an enclosed unit; base connections are numbered for easy identification; grade A phosphor bronze spring contacts; standard center to center mounting holes. For ease of installation the 7 and 9 pin miniatures may be mounted either in the center or on the sides, the 8 pin octal is mounted on the sides; small mounting holes permits the reuse of experimental chassis.



MODEL XS-7



MODEL XS-8



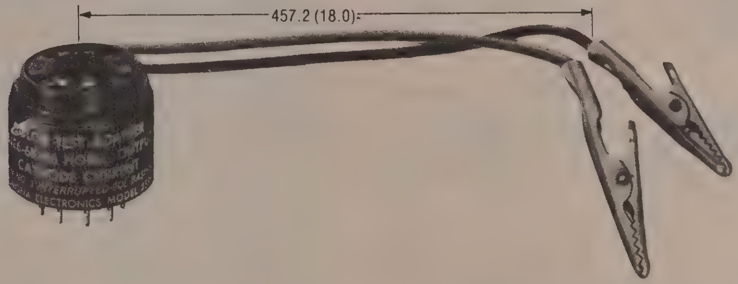
MODEL XS-9

Model No.	Pin Circle Dia.	*Net
XS-7	9.53 (.375)	3.15
XS-8	17.45 (.687)	5.35
XS-9	11.89 (.468)	3.75

NOVAR 6JE6 CATHODE CURRENT HORIZONTAL OUTPUT COLOR TEST ADAPTER

When making adjustments of the horizontal efficiency coil, this adapter is used to measure cathode current of horizontal output tubes without removing chassis or unsoldering jumpers. 9QL basing, with pin No. 3 interrupted.

TEST TAB ON PIN NO. 2 FOR CONTROL GRID (G-1) HORIZONTAL DRIVE MEASUREMENT



Model No.	Pin Circle Dia.	*Net
2599A	17.45 (.687)	14.95

HOOKUP (PATCH CORD) WIRE

This quality wire is used to make up the patch cords throughout the catalog. It is available for purchase in 152.4 meter (500 foot) reels. These wires are ideal for do-it-yourself test leads or point-to-point electrical connections.

18 AWG WIRE

This is the same quality wire that Pomona uses on their 18 AWG patch cords.

SPECIFICATIONS:
STRANDING: 65 x 36 tinned copper.
O.D.: 3.66 mm (.144).
JACKET: PVC.
TEMP. RANGE: −20°C. (−68°F.) to +105°C. (+221°F.).
RATED: 15 amps, max 5000 W VDC. max.

Model No.	Color
4418-0	Black
4418-2	Red

(Std. Pkg. 500′ Reel) ***NET 140.00**

20 AWG WIRE

This is the same quality wire that Pomona uses on their 20 AWG patch cords.

SPECIFICATIONS:
STRANDING: 41 x 36 tinned copper.
O.D.: 2.21 mm (.087).
JACKET: PVC.
TEMP. RANGE: −20°C. (−68°F.) to +105°C. (+221°F.).
RATED: 12 amps. max 3000 W VDC max.

Model No.	Color
4420-0	Black
4420-2	Red

(Std. Pkg. 500′ Reel) ***NET 115.00**

★ See page 126 of the Pomona Catalog for quantity purchases.

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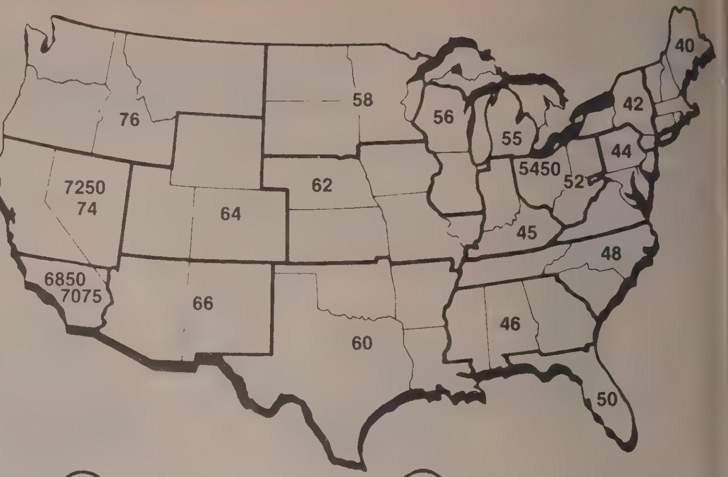
SALES REPRESENTATIVES, DOMESTIC

Listed below are the names of our Factory Representatives who have contributed greatly to the growth of our organization. The representatives in your area are staffed to provide you with fast responses to your inquiries regarding ITT Pomona Electronics products and their application to your needs.



㊵ **Al Appell Associates, Inc.**
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Sharon, Massachusetts 02067
(617) 784-3439
Territory: Massachusetts, Connecticut, Rhode Island, Maine, New Hampshire and Vermont

㊷ **D. F. Tobias & Co.**
234 Washington Avenue
Belleville, New Jersey 07109
(201) 751-8680
Territory: Metropolitan New York, New York State and Northern New Jersey

㊹ **David S. Linz, Inc.**
238 Shelmire Street
Philadelphia, Pennsylvania 19111
(215) 379-0734
Territory: So. New Jersey, E. Pennsylvania, Delaware, Maryland, District of Columbia and Virginia

㊺ **Blind Electronic Sales Co.**
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P.O. Box 24269
Indianapolis, Indiana 46224
(317) 291-0860
(317) 293-6205
Territory: Indiana and Kentucky

㊻ **South Eastern Associates, Inc.**
110 Celtic Circle
P.O. Box 155
Madison, Alabama 35758
(205) 772-9616
Outside Alabama call (800) 633-7210
Territory: Alabama, Mississippi and Georgia

㊽ **Hal C. Norman Sales Co.**
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Greenville, South Carolina 29606
(803) 244-6254
Territory: North Carolina, South Carolina and Tennessee

㊿ **L. Haas Co., Inc.**
8444 Mentor Avenue
Hialeah, Florida 33181
(305) 822-2300
Territory: Florida

(52) **Perry Lohse & Co., Inc.**
8621 Station Street
P.O. Box 322
Mentor, Ohio 44060
(216) 255-1992
Territory: Ohio, W. Pennsylvania and W. Virginia

(5450) **Lessis Associates**
2185 South Dixie
Dayton, Ohio 45419
(513) 294-1551
Territory: Government Sales — Ohio

(55) **C. A. Geer Company**
4601 Blaine Avenue S.E.
Kentwood, Michigan 49508
(616) 534-9449
(616) 243-2746
Territory: Michigan

(56) **William M. Linz Associates, Inc.**
821 Skokie Blvd.
Northbrook, Illinois 60062
(312) 498-9600
Territory: Illinois (South to and including Jacksonville, Springfield, Decatur, Moline and Rock Island) Wisconsin (West to and including Wausau, Wisconsin Rapids and Madison)

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Territory: Minnesota, North and South Dakota and Western Wisconsin

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(214) 357-9212
Territory: Arkansas, Oklahoma, Texas and Louisiana

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TWX: 910-771-2074
Territory: Western Missouri and Kansas
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10132 Glenfield Terrace
Crestwood, Missouri 63126
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730 34th Place
West Des Moines, Iowa 50265
(515) 225-9866
Territory: Iowa and Nebraska

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Territory: Arizona and New Mexico

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Territory: So. California and So. Nevada

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12069 W. Jefferson Blvd.
Culver City, California 90230
(213) 827-2202
Territory: So. California and So. Nevada

(7250) **Engineering Associates Corp.**
Indus. OEM Sales
2936 Scott Boulevard
Santa Clara, California 95050
(408) 988-5001
Territory: No. California and No. Nevada

(74) **Carelli/EMA, Inc.**
Distributor Sales
320 Lang Road
Burlingame, California 94010
(415) 342-4514
Territory: No. California and No. Nevada

(76) **Eclipse Marketing Group**
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Redmond, Washington 98052
(206) 885-6991
Territory: Washington, Oregon, Idaho, Montana & Alaska
(Branch Office)
2360 S.W. 170th Avenue
Beaverton, Oregon 97006
(503) 642-1661

ITT POMONA ELECTRONICS
1500 E. Ninth St. • P.O. Box 2767 • Pomona, CA 91769
(714) 623-6751 • (714) 623-3463 • TWX: 910-581-3822

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SEE OUR SPECIFICATIONS IN VSMF MICROFILM CATALOG FILE

PROBLEM SOLVERS IN High-voltage

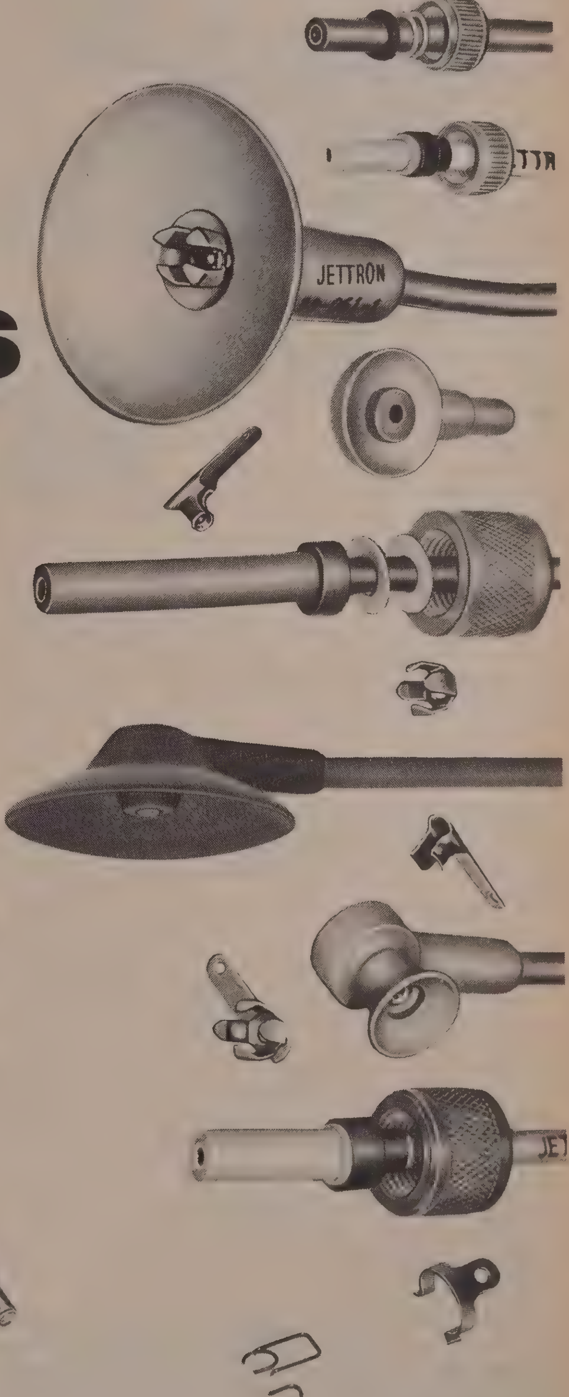
A COMPLETE DESIGN-ENGINEERING AND MANUFACTURING SERVICE FOR ALL O.E.M. PROPRIETARY PRODUCTS FOR OVER 27 YEARS

- ***MILITARY & COMMERCIAL***

MAGNETRON CONNECTORS

JETTRON'S

Extensive line of high voltage connections to 50KVDC including molded silicone CRT anode leads (leakproof & corona free), in-line connectors, splices, and CRT anode connector kits for customer assembly. Potting contacts of BeCu for the JEDEC J1-21, J1-22, J1-25, J1-30, and J1-32 anode terminals.



Custom Molding
IN SILICONE RUBBER

New!
J1-25
CONNECTORS

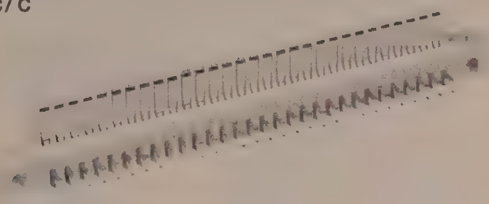
JETTRON PRODUCTS, INC.

jettron®
56 ROUTE 10, P.O. BOX 337E, EAST HANOVER, N.J. 07936
Telephone (201) 887-0571

KEL-AM
INCORPORATED
P.O. BOX 313 / ELDON, MO. 65026 / (314) 392-7174 / TELEX: 42-301

RIGHT ANGLE PLUG/PR SERIES

.100 c/c

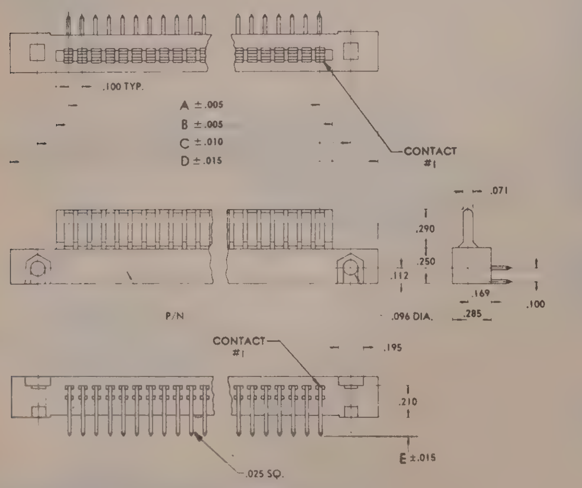


'Pluggem' Right Angle Plug Connector mates with RC and RF Series KEL-AM receptacles. It is available with either dip solder or wire wrap .025 sq. terminals. Slot may be molded in plug to accommodate polarizing key.

HOW TO ORDER:

PR 30 - 65 01 - 15 - 19 (EXAMPLE)

- Series — PR
- No. of contacts per row — 30
- Terminal type — 65
  - 61 = Dip solder
  - 65 = Wire wrap .560 Lg.
- Contact plating — 01
- MTG style, right angle — 15
- Add to catalog number only if polarizing slot is required. Omit if no slot is required. (See table below) — 19

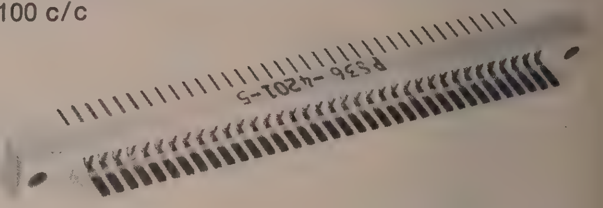

.100 TYP.
A ±.005
B ±.005
C ±.010
D ±.015
CONTACT #1
.071
.290
.250
.112
.169
.100
.096 DIA.
.285
P/N
CONTACT #1
.195
.210
E ±.015
.025 SQ.

STANDARD SLOT POSITIONS OF PR-PS-PF				
NUMBER OF CONTACTS	10 THRU 18	20 THRU 30	36 THRU 40	50
SLOT BETWEEN CONTACTS	8-10	18-20	30-32	44-46
ADD TO END OF CATALOG NO.	-9	-19	-31	-45

DIMENSIONS						
PART NUMBER	A	B	C	D	E DIP SOLDER	E WIRE WRAP
PR10-XX01-15	.900	1.090	1.360	1.760	.130	.560
PR13-XX01-15	1.200	1.390	1.660	2.060	.130	.560
PR15-XX01-15	1.400	1.590	1.860	2.260	.130	.560
PR17-XX01-15	1.600	1.790	2.060	2.460	.130	.560
PR18-XX01-15	1.700	1.890	2.160	2.560	.130	.560
PR20-XX01-15	1.900	2.090	2.360	2.760	.130	.560
PR22-XX01-15	2.100	2.290	2.560	2.960	.130	.560
PR25-XX01-15	2.400	2.590	2.860	3.260	.130	.560
PR30-XX01-15	2.900	3.090	3.360	3.760	.130	.560
PR36-XX01-15	3.500	3.690	3.960	4.360	.130	.560
PR40-XX01-15	3.900	4.090	4.360	4.760	.130	.560
PR50-XX01-15	4.900	5.090	5.360	5.760	.130	.560

STRAIGHT PLUG/PS SERIES

.100 c/c

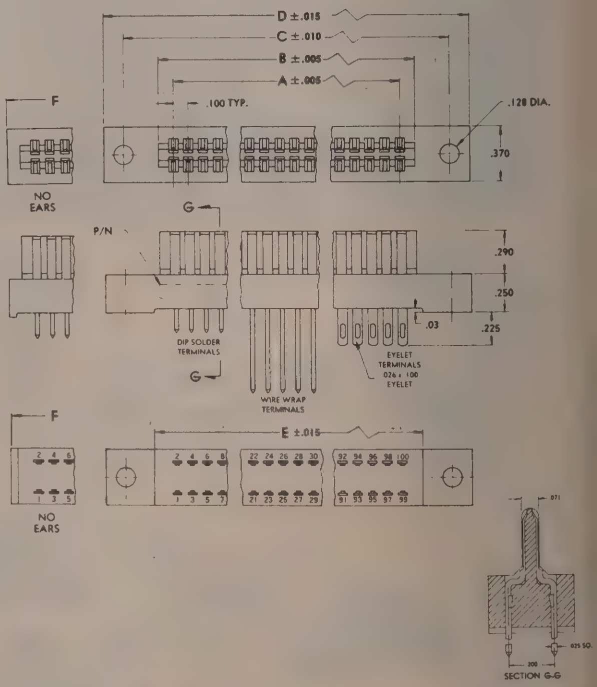


'Pluggem' Straight Plug Connector mates with RC and RF Series KEL-AM receptacles. It is available with either dip solder, wire wrap or eyelet terminals and is available with or without mounting ears. Cable hoods for connectors with ears are shown on page 9.

HOW TO ORDER:

PS - 30 - 85 01 - 5 (EXAMPLE)

- Series — PS
- No. of contacts per row — 30
- Terminal type: — 85
  - 01 = Eyelet
  - 41 = Dip solder .130 Lg.
  - 42 = Dip solder .220 Lg.
  - 85 = Wire wrap .560 Lg.
- Plating — 01
- 5 = With ears
- 0 = No ears


D ±.015
C ±.010
B ±.005
A ±.005
F
.100 TYP.
.128 DIA.
.370
NO EARS
G
P/N
.290
.250
.03
.225
DIP SOLDER TERMINALS
G
WIRE WRAP TERMINALS
EYELET TERMINALS .026 x .100 EYELET
F
E ±.015
2 4 6
1 3 5
2 4 6 8
1 3 5 7
22 24 26 28 30
21 23 25 27 29
92 94 96 98 100
91 93 95 97 99
NO EARS
.071
.025 SQ.
.200
SECTION G-G

DIMENSIONS						
PART NUMBER	A	B	C	D	E	F
PS10-XX01-X	.900	1.090	1.575	1.835	1.180	1.260
PS13-XX01-X	1.200	1.390	1.875	2.135	1.480	1.560
PS15-XX01-X	1.400	1.590	2.075	2.335	1.680	1.760
PS17-XX01-X	1.600	1.790	2.275	2.535	1.880	1.960
PS18-XX01-X	1.700	1.890	2.375	2.635	1.980	2.060
PS20-XX01-X	1.900	2.090	2.575	2.835	2.180	2.260
PS22-XX01-X	2.100	2.290	2.775	3.035	2.380	2.460
PS25-XX01-X	2.400	2.590	3.075	3.335	2.680	2.760
PS30-XX01-X	2.900	3.090	3.575	3.835	3.180	3.260
PS36-XX01-X	3.500	3.690	4.175	4.435	3.780	3.860
PS40-XX01-X	3.900	4.090	4.575	4.835	4.180	4.260
PS50-XX01-X	4.900	5.090	5.575	5.835	5.180	5.260

KEL-AM
INCORPORATED
P.O. BOX 313 / ELDON, MO. 65026 / (314) 392-7174 / TELEX: 42-301

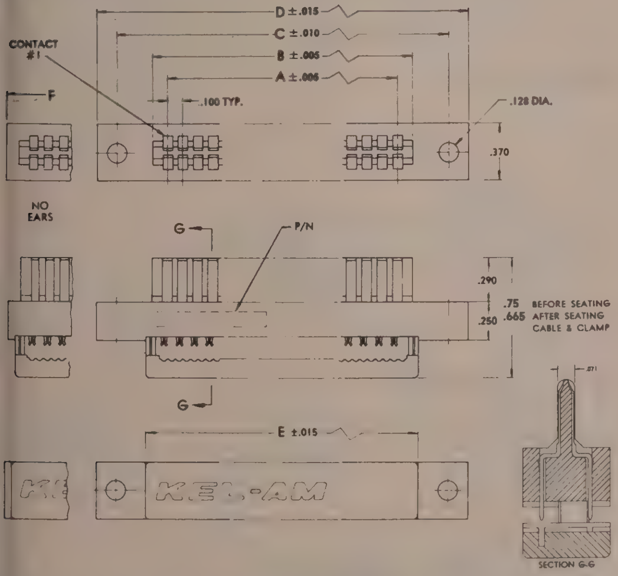
IBBON CABLE PLUG/PF SERIES
100 c/c

Pluggem' Ribbon Cable Plug Connectors mate with KEL-AM C and RF receptacle connectors. Select the size cable required, (number of conductors and gage of the conductors). f, as an example, your ribbon cable has (40) #28 AWG conductors, order a PF20-2852-0 or -5 plug. KEL-AM PF plugs annot be terminated to ribbon cable without using T-51878-2 ixture. See page 1 for information on polarizing key slot if equired.

OW TO ORDER:

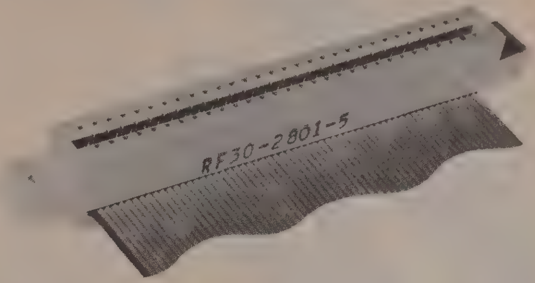
PF - 30 - 28 52 - 5 (EXAMPLE)

eries — PF
o. of contacts per row — 30
erminal size 28 = 28 AWG (stranded) — 28
Contact plating — 52
0 = No ears
5 = With ears


CONTACT #1
F
D ±.015
C ±.010
B ±.005
A ±.005
.100 TYP.
.128 DIA.
.370
NO EARS
G
P/N
.290
.250
.75 BEFORE SEATING
.665 AFTER SEATING CABLE & CLAMP
E ±.015
KEL-AM
SECTION G-G

DIMENSIONS						
PART NUMBER	A	B	C	D	E	F
PF10-2852-X	.900	1.090	1.575	1.835	1.175	1.260
PF13-2852-X	1.200	1.390	1.875	2.135	1.475	1.560
PF17-2852-X	1.600	1.790	2.275	2.535	1.875	1.960
PF18-2852-X	1.700	1.890	2.375	2.635	2.975	2.060
PF20-2852-X	1.900	2.090	2.575	2.835	2.175	2.260
PF22-2852-X	2.100	2.290	2.775	3.035	2.375	2.460
PF25-2852-X	2.400	2.590	3.075	3.335	2.675	2.760
PF30-2852-X	2.900	3.090	3.575	3.835	3.175	3.260
PF36-2852-X	3.500	3.690	4.175	4.435	3.775	3.860

RIBBON CABLE EBPC RECEPTACLE/RF SERIES .100 c/c

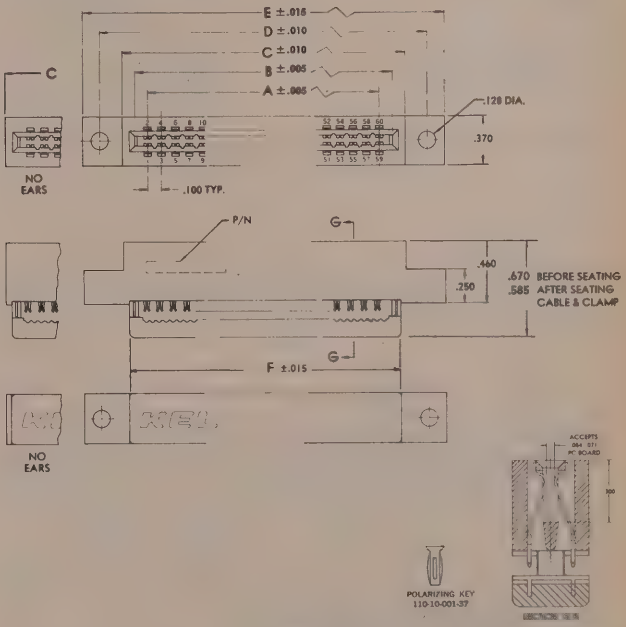


These receptacles mate with KEL-AM PF, PR and PS series plugs and mate with 1/16 inch edge card PC boards. Select the size cable required (number of conductors) and gage of wire. If, as an example your cable has 50 conductors of #28 AWG the correct connectors would be a RF 25-2852-0 or 5.

HOW TO ORDER:

RF 30 - 28 52 - 5 (EXAMPLE)

Series — RF
No. of contacts per row — 30
Terminal size 28 = 28 AWG (stranded) — 28
Contact plating — 52
0 = No ears
5 = With ears


E ±.015
D ±.010
C ±.010
B ±.005
A ±.005
C
.128 DIA.
.370
NO EARS
.100 TYP.
P/N
G
.460
.250
.670 BEFORE SEATING
.585 AFTER SEATING CABLE & CLAMP
F ±.015
NO EARS
KEL
POLARIZING KEY 110-10-001-37

DIMENSIONS						
PART NUMBER	A	B	C	D	E	F
RF10-2852-X	.900	1.100	1.260	1.575	1.835	1.180
RF13-2852-X	1.200	1.400	1.560	1.875	2.135	1.480
RF17-2852-X	1.600	1.800	1.960	2.275	2.535	1.880
RF18-2852-X	1.700	1.900	2.060	2.375	2.635	1.980
RF20-2852-X	1.900	2.100	2.260	2.575	2.835	2.180
RF22-2852-X	2.100	2.300	2.460	2.775	3.035	2.380
RF25-2852-X	2.400	2.600	2.760	3.075	3.335	2.680
RF30-2852-X	2.900	3.100	3.260	3.575	3.835	3.180
RF36-2852-X	3.500	3.700	3.860	4.175	4.435	3.780

KEL-AM
INCORPORATED
P.O. BOX 313 / ELDON, MO. 65026 / (314) 392-7174 / TELEX: 42-301

RIBBON CABLE HEADERS/HFM SERIES

These headers mate with SFM series sockets. They are available with straight or right angle terminals and are dimensionally compatible with MIL-C-83503.

HOW TO ORDER:

HFM 34 - 61 41 - 0 (EXAMPLE)

Header series — HFM

Total No. of contacts — 34

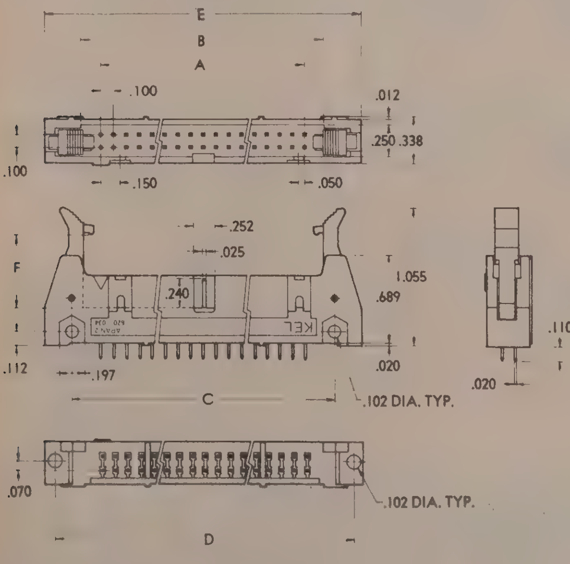
Terminal style
61 = R/A dip solder
41 = Straight dip solder

Plating:
Gold over nickel on nose, tin on terminals

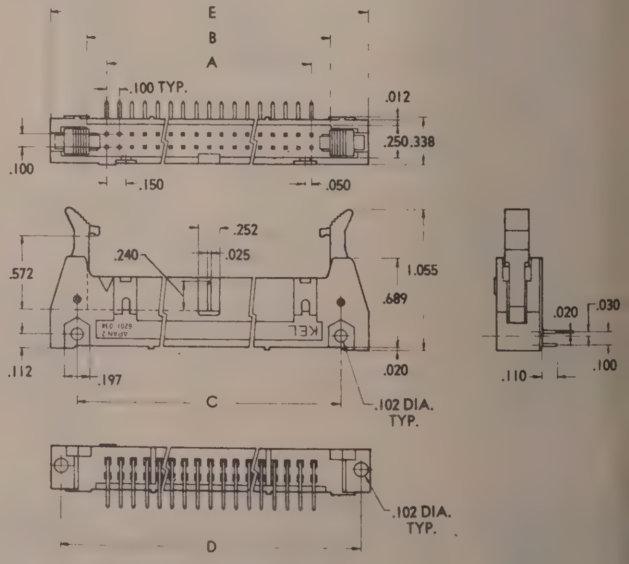
Omit for std long latches
0 = No latch
S = Short latch

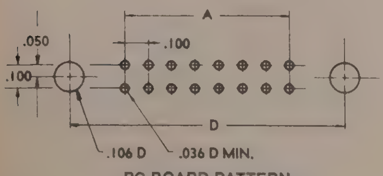
SIZE	A	B	C	D	E	F
10	.400	.690	.860	1.100	1.260	Long Latch = .572
14	.600	.890	1.060	1.300	1.460	
16	.700	.990	1.160	1.400	1.560	
20	.900	1.190	1.360	1.600	1.760	
26	1.200	1.490	1.660	1.900	2.060	
30	1.400	1.690	1.860	2.100	2.260	
34	1.600	1.890	2.060	2.300	2.460	Short Latch = .412
40	1.900	2.190	2.360	2.600	2.760	
50	2.400	2.690	2.860	3.100	3.260	
60	2.900	3.190	3.360	3.600	3.760	

HEADER, STRAIGHT

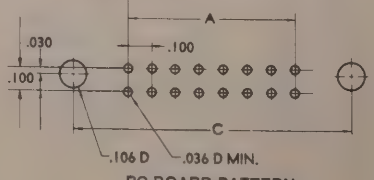

E
B
A
.100
.012
.250
.338
.100
.150
.050
.252
.025
F
.240
1.055
.689
.112
.197
.020
.110
.020
C
.102 DIA. TYP.
.070
.102 DIA. TYP.
D

HEADER, R/A

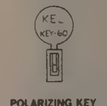

E
B
A
.100 TYP.
.012
.250
.338
.100
.150
.050
.252
.240
.025
.572
1.055
.689
.112
.197
.020
.020
.030
.110
.100
C
.102 DIA. TYP.
.102 DIA. TYP.
D


A
.050
.100
.100
D
.106 D
.036 D MIN.

PC BOARD PATTERN FOR STRAIGHT HEADER


A
.030
.100
.100
C
.106 D
.036 D MIN.

PC BOARD PATTERN FOR R/A HEADER

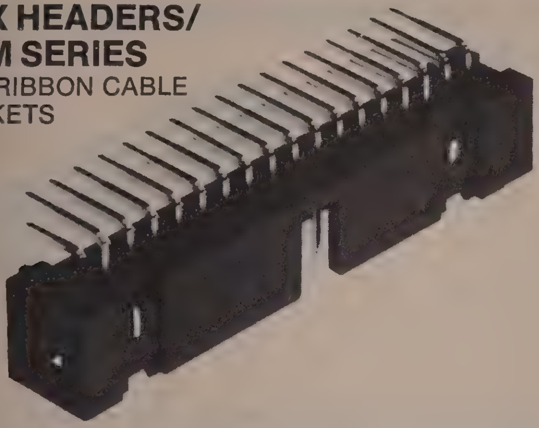


POLARIZING KEY

KEL-AM
INCORPORATED
P.O. BOX 313 / ELDON, MO. 65026 / (314) 392-7174 / TELEX: 42-301

BOX HEADERS/ BHM SERIES

FOR RIBBON CABLE SOCKETS



These box headers accept KEL-AM SFM series ribbon cable sockets and meet the requirements of MIL-C-83503. These headers accept the same polarizing keys as KEL-AM HFM series headers. These headers are basically identical to the HFM series except they have no ejector latches and are smaller in size. To disengage the socket A "pull tab" on the socket is recommended. See page 5.

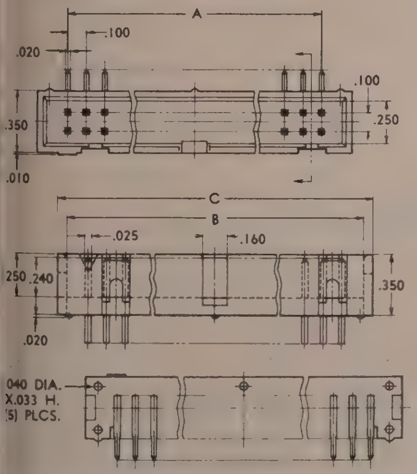
HOW TO ORDER:

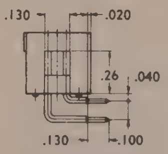
BHM 20 - 61 41 (EXAMPLE)

Box header series — BHM
Total No. of contacts — 20
61 = Right angle terminals
41 = Straight terminals
Plating
41 - Straight tail
01 - Right angle

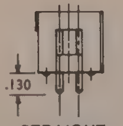
FEATURES

- Seven sizes, BHM — ten sizes, HFM.
- PBT (Polyester) body, color black.
- Phos. bronze contacts.
- Plating: gold over Ni (straight tails have bright tin terminals).
- Meets MIL-C-83503.
- Shrouded contacts.
- Occupies min. "real estate."


A
.100
.020
.100
.350
.250
.010
C
B
.025
.160
.250
.240
.350
.020
.040 DIA.
X.033 H.
(5) PLCS.


.130
.020
.26
.040
.130
.100

RIGHT ANGLE TERMINALS

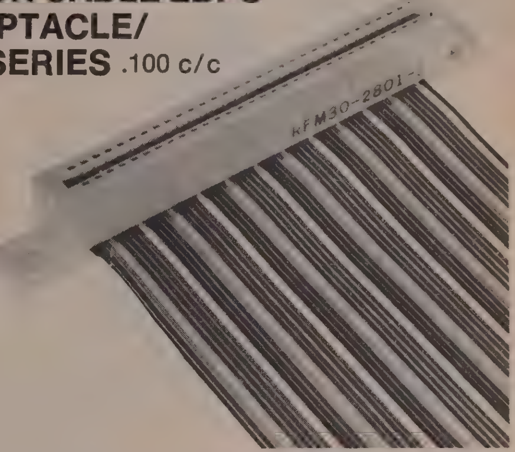


STRAIGHT TERMINALS

POLARIZING KEY

DIMENSIONS			
Part Number	A	B	C
BHM10-XXXX	.400	.700	.800
BHM20-XXXX	.900	1.200	1.300
BHM26-XXXX	1.200	1.500	1.600
BHM34-XXXX	1.600	1.900	2.000
BHM40-XXXX	1.900	2.200	2.300
BHM50-XXXX	2.400	2.700	2.800
BHM60-XXXX	2.900	3.200	3.300

RIBBON CABLE EBPC RECEPTACLE/ RFM SERIES .100 c/c

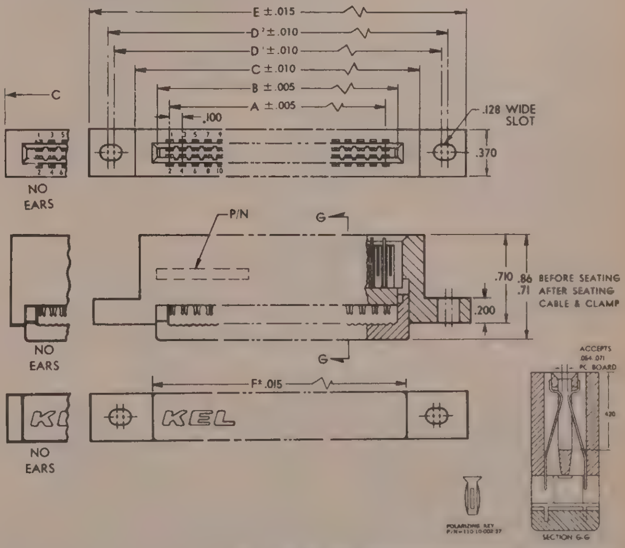


These receptacles mate with 1/16 inch edge card PC boards. Select the size cable required (number of conductors). If, as an example your cable has 50 conductors of #28 AWG the correct connector would be a RFM 25-2852-0 or 5. These ribbon cable receptacles are directly interchangeable with those of most major manufacturers. Note that pin 1 is reversed from pin 1 on RF series.

HOW TO ORDER:

RFM 30 - 28 52 - 5 (EXAMPLE)

Series — RFM
No. of contacts per row — 30
Terminal size 28 = 28 AWG (stranded) ribbon cable — 28
Contact plating — 52
0 = No ears
5 = With ears


E ±.015
D²±.010
D¹±.010
C ±.010
B ±.005
A ±.005
.100
C
.128 WIDE SLOT
.370
NO EARS
P/N
G
.710
.86 BEFORE SEATING
.71 AFTER SEATING CABLE & CLAMP
.200
NO EARS
G
F±.015
KEL
NO EARS
ACCEPTS .054-.071 PC BOARD
POLARIZING KEY P/N=110-10-002 37
SECTION G-G

DIMENSIONS							
Part Number	A	B	C	D^1	D^2	E	F
RFM10-2852-X	.900	1.105	1.460	1.800	1.900	2.200	1.175
RFM13-2852-X	1.200	1.405	1.760	2.100	2.200	2.500	1.475
RFM17-2852-X	1.600	1.805	2.160	2.500	2.600	2.900	1.875
RFM20-2852-X	1.900	2.105	2.460	2.800	2.900	3.200	2.175
RFM25-2852-X	2.400	2.605	2.960	3.300	3.400	3.700	2.675
RFM30-2852-X	2.900	3.105	3.460	3.800	3.900	4.200	3.175
RFM40-2852-X	3.900	4.105	4.460	4.800	4.900	5.200	4.175

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RIBBON CABLE SOCKETS/ SFM SERIES

These connectors are per MIL-C-83503.
These headers and sockets provide a low cost reliable means to connect ribbon cable to printed circuit boards. The socket accepts .025 sq. pins on .100 x .100 pattern and is provided with or without a cable strain relief. If it is to be mated to a BHM series header a pull tab to disengage the socket is recommended. See below.

HOW TO ORDER:

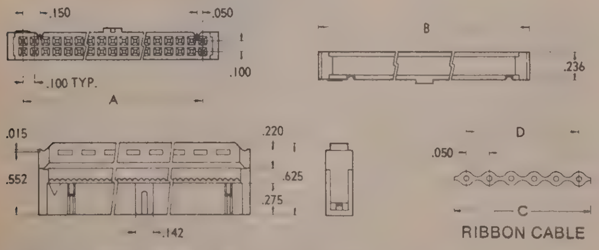
SFM 34 - 28 41 - 0 P (EXAMPLE)

Socket — SFM
Total No. of contacts — 34
#28 AWG IDC contacts — 28
Plating Gold over nickel on nose, tin on terminals — 41
Omit if with strain relief 0 = No strain relief — 0
With pull tab — P

SPECIFICATIONS

- 10 sizes — 10 - 14 - 16 - 20 - 26 - 30 - 34 - 40 - 50 - 60
- Socket accepts 28 AWG stranded wire
- Current capacity = 1 Amp
- Contact resistance = 16 mΩ max.
- Insulation resistance = 500 VDC 1000 MΩ max.
- Insulator material = PBT G.R.
- Dielectric withstanding = 800 VAC
- Contact material = header, brass-socket, BECU

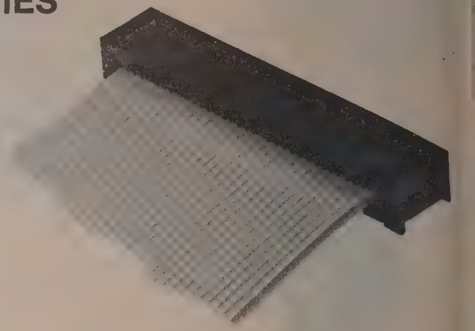
SOCKET



RIBBON CABLE

SIZE	A	B	C	D
10	.400	.680	.500	.450
14	.600	.880	.700	.650
16	.700	.980	.800	.750
20	.900	1.180	1.000	.950
26	1.200	1.480	1.300	1.250
30	1.400	1.680	1.500	1.450
34	1.600	1.880	1.700	1.650
40	1.900	2.180	2.000	1.950
50	2.400	2.680	2.500	2.450
60	2.900	3.180	3.000	2.950

TRANSITION CONNECTOR/ 6100 SERIES



These transition connectors provide a low cost simple way to terminate 28 AWG ribbon cable to a PC board. Where disconnect capability is not required. The ribbon cable is terminated to the connector in the same way as the SFC-PF-RF-RFM series using standard tooling.

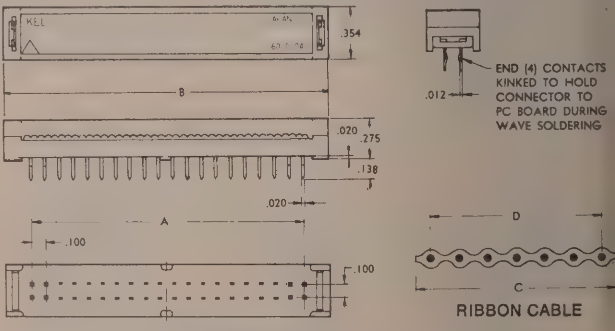
HOW TO ORDER:

6100 - XXX - 602 (EXAMPLE)

Series — 6100
No. of contacts — XXX

FEATURES

- (11) Sizes
- Insulator body & cover, black PBT (polyester)
- Contact tails formed on each end to grip board holes & prevent lifting during wave soldering
- Contacts = phosphor bronze
- Contact plating = 10-6 Au on IDC forks and bright tin on tails


KEL
.354
B
.020
.275
.138
.020
A
.100
.100
.012
END (4) CONTACTS KINKED TO HOLD CONNECTOR TO PC BOARD DURING WAVE SOLDERING
D
C

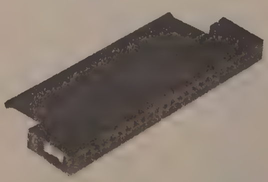
RIBBON CABLE

DIMENSIONS				
Part Number	A	B	C	D
6100-10-602	.400	.754	.500	.450
6100-14-602	.600	.954	.700	.650
6100-16-602	.700	1.054	.800	.750
6100-20-602	.900	1.254	1.000	.950
6100-24-602	1.100	1.454	1.200	1.150
6100-26-602	1.200	1.554	1.300	1.250
6100-30-602	1.400	1.754	1.500	1.450
6100-34-602	1.600	1.954	1.700	1.650
6100-40-602	1.900	2.254	2.000	1.950
6100-50-602	2.400	2.754	2.500	2.450
6100-60-602	2.900	3.254	3.000	2.950

PULL-TAB

P/N = PT - 34

Siz — 34
Serie — PT



The pull tab shown at left shoul be used when the mating header i a HFM series without latches or BHM series header. The pull ta is the only way to disengage th socket from such a header.

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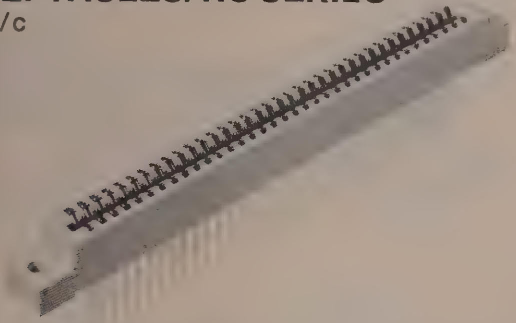
RECEPTACLES/RC SERIES

100 c/c

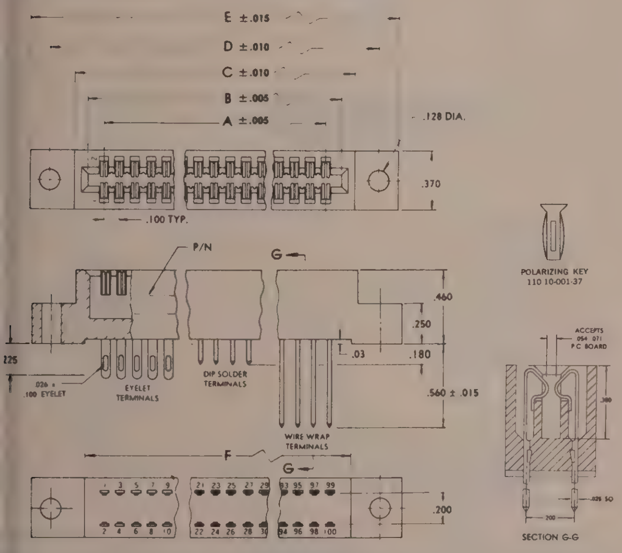


These KEL-AM printed circuit receptacle connectors accept standard 1/16 edge boards and also mate with PF, PS and PR series KEL-AM plugs. They are available with either wire wrap, dip solder or eyelet terminals. Cable hoods for these connectors are shown on page 9.

HOW TO ORDER:

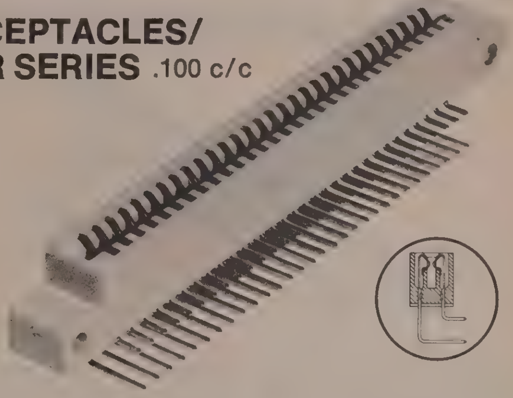
RC 36 - 85 42 - 5 (EXAMPLE)

Series — RC
No. of contacts per row — 36
Terminal type: — 85
)1 = Eyelet
42 = Dip solder .025 sq.
85 = Wire wrap .025 sq.
Contact Plating — 42
5 = With ears


E ±.015
D ±.010
C ±.010
B ±.005
A ±.005
.128 DIA.
.370
.100 TYP.
P/N
G
.460
.250
.180
.03
225
.026 x .100 EYELET
EYELET TERMINALS
DIP SOLDER TERMINALS
.560 ± .015
WIRE WRAP TERMINALS
F
G
1 3 5 7 9
21 23 25 27 29
93 95 97 99
2 4 6 8 10
22 24 26 28 30
94 96 98 100
.200
POLARIZING KEY 110 10-001-37
ACCEPTS .054 .071 P.C BOARD
.380
.025 SQ
.200
SECTION G-G

DIMENSIONS						
PART NUMBER	A	B	C	D	E	F
RC10-XX42-5	.900	1.100	1.260	1.575	1.835	1.180
RC13-XX42-5	1.200	1.400	1.560	1.875	2.135	1.480
RC15-XX42-5	1.400	1.600	1.760	2.075	2.335	1.680
RC17-XX42-5	1.600	1.800	1.960	2.275	2.535	1.880
RC18-XX42-5	1.700	1.900	2.060	2.375	2.635	1.980
RC20-XX42-5	1.900	2.100	2.260	2.575	2.835	2.180
RC22-XX42-5	2.100	2.300	2.460	2.775	3.035	2.380
RC25-XX42-5	2.400	2.600	2.760	3.075	3.335	2.680
RC30-XX42-5	2.900	3.100	3.260	3.575	3.835	3.180
RC36-XX42-5	3.500	3.700	3.860	4.175	4.435	3.780
RC40-XX42-5	3.900	4.100	4.260	4.575	4.835	4.180
RC50-XX42-5	4.900	5.100	5.260	5.575	5.835	5.180

RECEPTACLES/ RCR SERIES .100 c/c

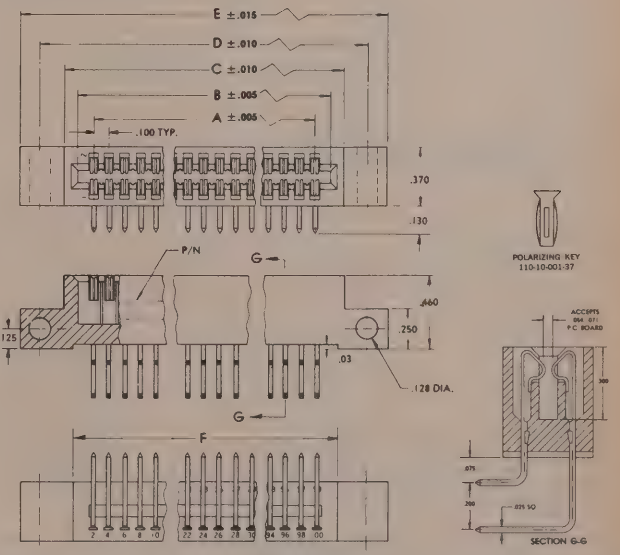


These KEL-AM printed circuit receptacle connectors accept standard 1/16 edge boards and also mate with PF, PS and PR series KEL-AM plugs. They are available with right angle dip solder terminals.

HOW TO ORDER:

RCR 36 - 61 42 - 15 (EXAMPLE)

Series — RCR
No. of contacts per row — 36
Terminal type: Right angle, dip solder, .130 Lg. — 61
Contact plating — 42
15 = With ears right angle holes


E ±.015
D ±.010
C ±.010
B ±.005
A ±.005
.100 TYP.
.370
.130
P/N
G
.460
.250
.125
.03
.128 DIA.
G
F
2 4 6 8 10
22 24 26 28 30
94 96 98 100
POLARIZING KEY 110-10-001-37
ACCEPTS .054 .071 P.C BOARD
.300
.075
.200
.025 SQ
SECTION G-G

DIMENSIONS						
PART NUMBER	A	B	C	D	E	F
RCR10-6142-15	.900	1.100	1.260	1.575	1.835	1.180
RCR13-6142-15	1.200	1.400	1.560	1.875	2.135	1.480
RCR15-6142-15	1.400	1.600	1.760	2.075	2.335	1.680
RCR17-6142-15	1.600	1.800	1.960	2.275	2.535	1.880
RCR18-6142-15	1.700	1.900	2.060	2.375	2.635	1.980
RCR20-6142-15	1.900	2.100	2.260	2.575	2.835	2.180
RCR22-6142-15	2.100	2.300	2.460	2.775	3.035	2.380
RCR25-6142-15	2.400	2.600	2.760	3.075	3.335	2.680
RCR30-6142-15	2.900	3.100	3.260	3.575	3.835	3.180
RCR36-6142-15	3.500	3.700	3.860	4.175	4.435	3.780
RCR40-6142-15	3.900	4.100	4.260	4.575	4.835	4.180
RCR50-6142-15	4.900	5.100	5.260	5.575	5.835	5.180

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RECEPTACLES/RCV SERIES .100 c/c

These KEL-AM printed circuit receptacle connectors accept standard 1/16 edge boards and also mate with PF, PS and PR series KEL-AM plugs. They are available with either wire wrap or dip solder terminals.

HOW TO ORDER:

RCV 35 - 85 42 - 0 (EXAMPLE)

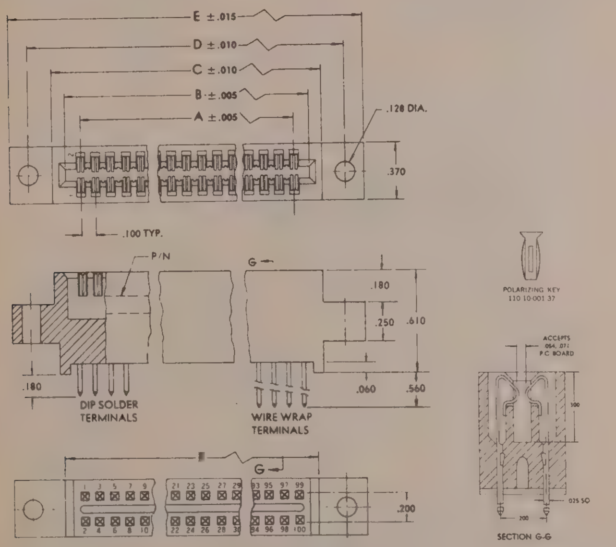
25 = With centered ears
0 = No ears

Series

No. of contacts per row

Contact plating

Terminal type:
42 = Dip solder .025 sq.
85 = Wire wrap .025 sq.

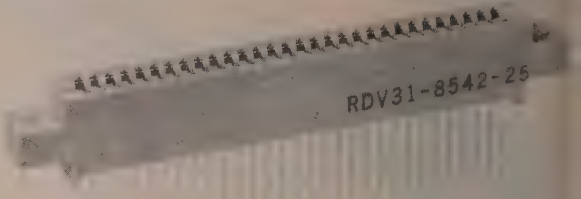

E ±.015
D ±.010
C ±.010
B ±.005
A ±.005
.128 DIA.
.370
.100 TYP.
P/N
G
.180
.250
.610
.180
DIP SOLDER TERMINALS
.060
.560
WIRE WRAP TERMINALS
F
G
1 3 5 7 9
21 23 25 27 29
93 95 97 99
2 4 6 8 10
22 24 26 28 30
94 96 98 100
.200
POLARIZING KEY 110-10-001-37
ACCEPTS .054, .071 P.C. BOARD
.300
.025 SQ
.200
SECTION G-G

DIMENSIONS						
PART NUMBER	A	B	C	D	E	F
RCV10-XX42-25	.900	1.100	1.260	1.575	1.835	1.180
RCV15-XX42-25	1.400	1.600	1.760	2.075	2.335	1.680
RCV18-XX42-25	1.700	1.900	2.060	2.375	2.635	1.980
RCV20-XX42-25	1.900	2.100	2.260	2.575	2.835	2.180
RCV22-XX42-25	2.100	2.300	2.460	2.775	3.035	2.380
RCV25-XX42-25	2.400	2.600	2.760	3.075	3.335	2.680
RCV28-XX42-25	2.700	2.900	3.060	3.375	3.635	2.980
RCV30-XX42-25	2.900	3.100	3.260	3.575	3.835	3.180
RCV35-XX42-25	3.400	3.600	3.760	4.075	4.375	3.680
RCV36-XX42-25	3.500	3.700	3.860	4.175	4.435	3.780
RCV40-XX42-25	3.900	4.100	4.260	4.575	4.835	4.180
RCV43-XX42-25	4.200	4.400	4.560	4.875	5.135	4.480
RCV49-XX42-25	4.800	5.000	5.160	5.475	5.735	5.080
RCV50-XX42-25	4.900	5.100	5.260	5.575	5.835	5.180
RCV55-XX42-25	5.400	5.600	5.760	6.075	6.335	5.680
RCV60-XX42-25	5.900	6.100	6.260	6.575	6.835	6.180
RCV65-XX42-25	6.400	6.600	6.760	7.075	7.335	6.680

No ears = 0

Type Terminal

RECEPTACLES/RDV SERIES .125 c/c


RDV31-8542-25

These KEL-AM receptacles accept standard 1/16 edge boards with edge fingers on .125 centers. They are available with either wire wrap or dip solder terminals.

HOW TO ORDER:

RDV 35 - 85 42 - 25 (EXAMPLE)

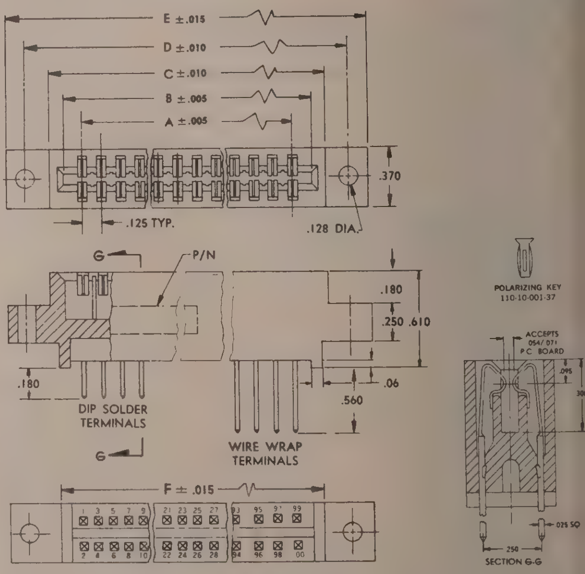
25 = Centered MTG ears

Contact plating

Series

No. of contacts per row

Terminal type:
42 = Dip solder .025 sq.
85 = Wire wrap .025 sq.


E ±.015
D ±.010
C ±.010
B ±.005
A ±.005
.370
.125 TYP.
.128 DIA.
G
P/N
.180
.250
.610
.180
DIP SOLDER TERMINALS
.06
.560
WIRE WRAP TERMINALS
G
F ± .015
1 3 5 7 9
21 23 25 27
93 95 97 99
2 4 6 8 10
22 24 26 28
94 96 98 00
POLARIZING KEY 110-10-001-37
ACCEPTS .054/.071 P.C. BOARD
.095
.025 SQ
.250
SECTION G-G

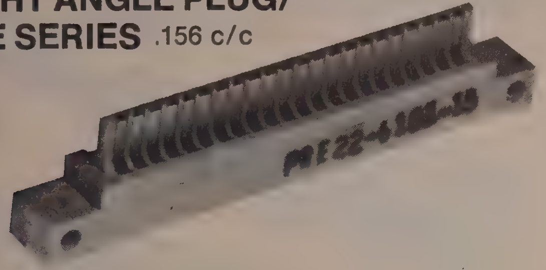
DIMENSIONS						
PART NUMBER	A	B	C	D	E	F
RDV15-XX42-25	1.750	2.000	2.160	2.420	2.680	2.000
RDV18-XX42-25	2.125	2.375	2.535	2.795	3.055	2.375
RDV22-XX42-25	2.625	2.875	3.035	3.295	3.555	2.875
RDV28-XX42-25	3.375	3.625	3.785	4.045	4.305	3.625
RDV31-XX42-25	3.750	4.000	4.160	4.420	4.680	4.000
RDV35-XX42-25	4.250	4.500	4.660	4.920	5.180	4.500
RDV40-XX42-25	4.875	5.125	5.285	5.545	5.805	5.125
RDV50-XX42-25	6.125	6.375	6.535	6.795	7.055	6.375

Type Terminal

KEL-AM
INCORPORATED

P.O. BOX 313 / ELDON, MO. 65026 / (314) 392-7174 / TELEX: 42-301

IGHT ANGLE PLUG/ RE SERIES .156 c/c



luggem' Right Angle Plug Connector mates with RE and REV
eries KEL-AM receptacles. It is available with dip solder ter-
inals. Slot may be molded in plug to accommodate polarizing
ey. (See table below)

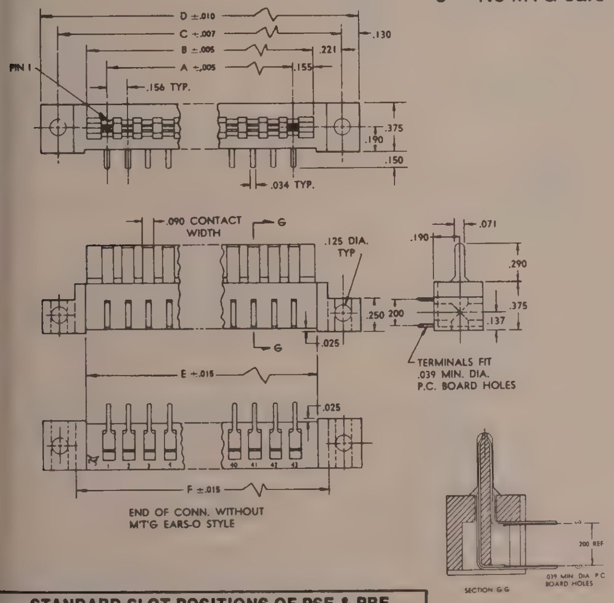
OW TO ORDER:

PRE 22 - 61 01 - 15 - (J-K) (EXAMPLE)

eries
o. of ontacts er row
erminal type: 1 = Dip solder
ontact plating

Add to catalog number only if polarizing slot is required. Omit if no slot is required. (See table below)

MTG style,
15 = Right angle
0 = No MTG ears

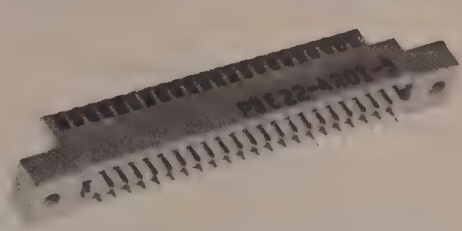


D ±.010
C ±.007
B ±.005
A ±.005
.130
.221
.155
PIN 1
.156 TYP.
.375
.190
.150
.034 TYP.
.090 CONTACT WIDTH
G
.125 DIA. TYP
.071
.190
.290
.375
.250
.200
.137
.025
TERMINALS FIT .039 MIN. DIA. P.C. BOARD HOLES
E ±.015
.025
F ±.015
END OF CONN. WITHOUT MT'G EARS-O STYLE
200 REF
.039 MIN DIA P.C. BOARD HOLES
SECTION G-G

STANDARD SLOT POSITIONS OF PSE & PRE				
NUMBER OF CONTACTS	10 THRU 15	18 THRU 22	25 THRU 28	36 THRU 43
SLOT BETWEEN CONTACTS	4 & 5	8 & 9	12 & 13	16 & 17
ADD TO END OF CATALOG NO.	(D-E)	(J-K)	(N-P)	(T-U)

DIMENSIONS						
PART NUMBER	A	B	C	D	E	F
PRE10-6101-X	1.404	1.714	2.160	2.420	1.720	1.878
PRE15-6101-X	2.184	2.494	2.940	3.200	2.500	2.658
PRE18-6101-X	2.652	2.962	3.408	3.668	2.968	3.126
PRE22-6101-X	3.276	3.586	4.032	4.292	3.592	3.750
PRE28-6101-X	4.212	4.522	4.968	5.228	4.528	4.686
PRE36-6101-X	5.460	5.770	6.216	6.476	5.776	5.934
PRE43-6101-X	6.552	6.862	7.308	7.568	6.868	7.026

STRAIGHT PLUG/PSE SERIES .156 c/c

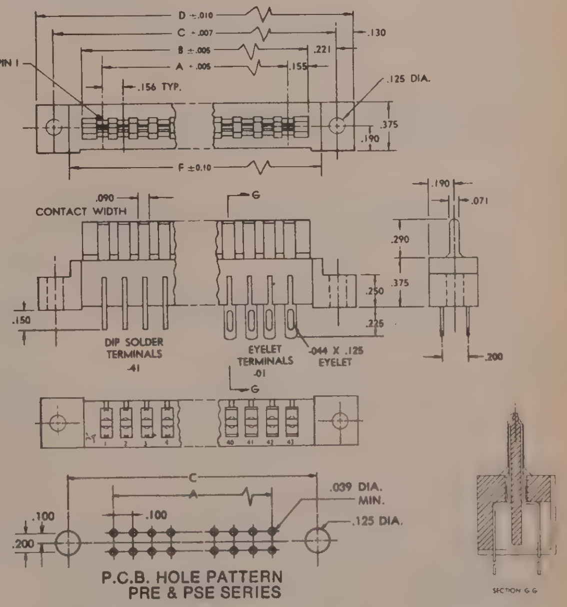


'Pluggem' Straight Plug Connector mates with RE and REV series KEL-AM receptacles. It is available with either dip solder, or eyelet terminals and is available with or without mounting ears. Cable hoods for connectors with ears are shown on page 9. See page 1 for information on polarizing key slot if required.

HOW TO ORDER:

PSE - 22 - 01 01 - 5 (EXAMPLE)

Series
No. of contacts per row
Terminal type:
01 = Eyelet
41 = Dip solder .150 Lg.
Plating
0 = No ears
5 = With ears



D ±.010
C ±.007
B ±.005
A ±.005
.130
.221
.155
PIN 1
.156 TYP.
.125 DIA.
.375
.190
F ±0.10
.090 CONTACT WIDTH
G
.190
.071
.290
.375
.250
.150
.225
DIP SOLDER TERMINALS -41
EYELET TERMINALS -01
.044 X .125 EYELET
.200
C
A
.039 DIA. MIN.
.125 DIA.
.100
.100
.200
P.C.B. HOLE PATTERN PRE & PSE SERIES
SECTION G-G

DIMENSIONS						
PART NUMBER	A	B	C	D	E	F
PSE10-XXXX-X	1.404	1.714	2.160	2.420	1.720	1.878
PSE15-XXXX-X	2.184	2.494	2.940	3.200	2.500	2.658
PSE18-XXXX-X	2.652	2.962	3.408	3.668	2.968	3.126
PSE22-XXXX-X	3.276	3.586	4.032	4.292	3.592	3.750
PSE28-XXXX-X	4.212	4.522	4.968	5.228	4.528	4.686
PSE36-XXXX-X	5.460	5.770	6.216	6.476	5.776	5.934
PSE43-XXXX-X	6.552	6.862	7.308	7.568	6.868	7.026

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RECEPTACLES/REV SERIES .156 c/c

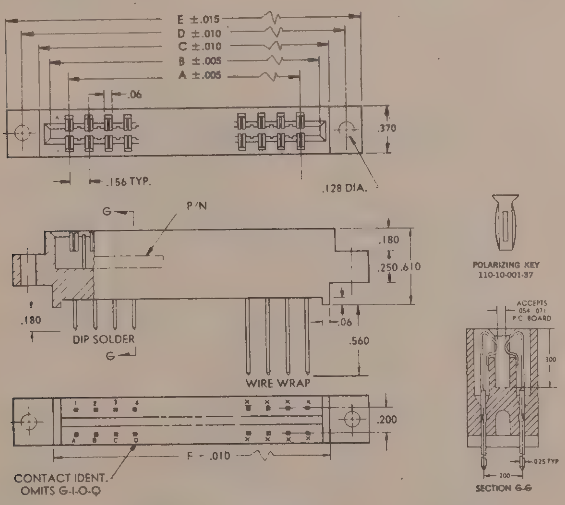
REV22-4242-25

These receptacle connectors accept standard 1/16 edge cards with edge fingers on .156 centers. They are available with either dip solder or wire wrap terminals.

HOW TO ORDER:

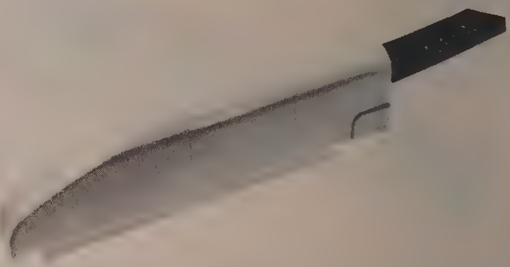
REV 22 - 42 42 - 25 (EXAMPLE)

- Series — REV
- No. of contacts per row — 22
- Terminal — 42
  - 42 = .180 Lg.
  - 85 = .560 Lg.
- Contact plating — 42
- Mounting style — 25
  - —25 = Centered ears


E ±.015
D ±.010
C ±.010
B ±.005
A ±.005
.06
.370
.156 TYP.
.128 DIA.
G
P/N
.180
.250
.610
.180
DIP SOLDER
G
.06
.560
WIRE WRAP
POLARIZING KEY 110-10-001-37
ACCEPTS .054-.071 P.C BOARD
.100
.200
F ±.010
CONTACT IDENT. OMITS G-I-O-Q
.025 TYP
.200
SECTION G-G

DIMENSIONS						
PART NUMBER	**A**	**B**	**C**	**D**	**E**	**F**
REV18-XX42-25	2.652	2.972	3.126	3.408	3.668	2.868
REV22-XX42-25	3.276	3.596	3.750	4.032	4.292	3.492
REV28-XX42-25	4.212	4.532	4.686	4.968	5.228	4.428
REV31-XX42-25	4.680	5.000	5.154	5.436	5.696	4.896
REV36-XX42-25	5.460	5.780	5.934	6.216	6.476	5.676
REV43-XX42-25	6.552	6.872	7.026	7.308	7.568	6.768

CABLE HOODS/CH SERIES



These cable hoods (or backshells) fit standard KEL-AM edge board receptacles series RC, RD and RE and also the PS series plugs, with mounting ears. When terminating discrete wires to eyelet terminals these hoods provide a streamlined means to protect the wire connection and a cable clamp to prevent cable strains being transmitted to the terminals.

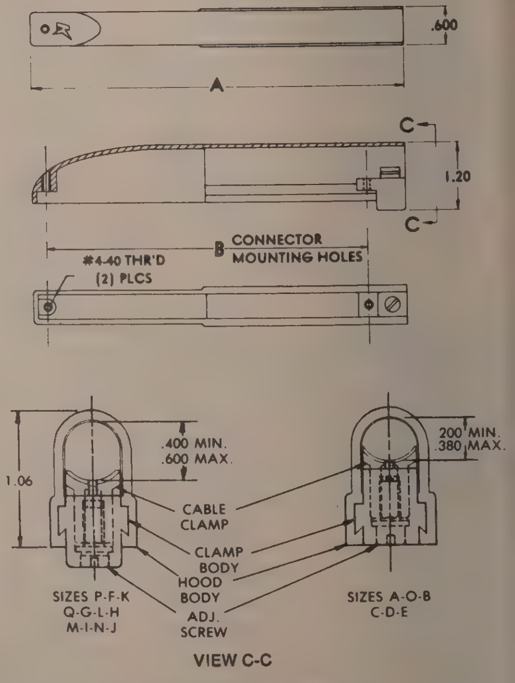
Large clamp accepts up to (100) #24 AWG wires or (76) #22 AWG wires or (40) #20 AWG wires. Smaller (shorter) length hoods come supplied with smaller cable opening. See views C-C below.

NOTE: May be ordered using short form catalog number such as: CH25-F, which is CH25-4H-3.075 F.

HOW TO ORDER:

CH 36 - 4 H - 4.175 (EXAMPLE)

- Series — CH
- No. of contacts per row of conn. — 36
- Conn. Contact Centers: — 4
  - 4 = .100
  - 5 = .125
  - 6 = .156
- Hood Mat'l PBT-White — H
- "B" dimen. Distance between conn. mounting holes — 4.175


.600
A
C
1.20
C
B
CONNECTOR MOUNTING HOLES
#4-40 THR'D (2) PLCS
1.06
.400 MIN.
.600 MAX.
CABLE CLAMP
CLAMP BODY
HOOD BODY
ADJ. SCREW
SIZES P-F-K Q-G-L-H M-I-N-J
SIZES A-O-B C-D-E
.200 MIN.
.380 MAX.
VIEW C-C

Note: Clamp body slides back and forth up to .070 to fit varying length "B" dimensions.

DIMENSIONS								
HOODS FOR .100 C/C CONNECTORS			**HOODS FOR .125 C/C CONNECTORS**			**HOODS FOR .156 C/C CONNECTORS**		
Hood Number	**A**	**B**	**Hood Number**	**A**	**B**	**Hood Number**	**A**	**B**
CH15-4H-2.075A	2.900	2.075	CH15-5H-2.420C	3.245	2.420	CH10-6H-2.156O	2.981	2.156
CH17-4H-2.275B	3.100	2.275	CH18-5H-2.795E	3.620	2.795	CH15-6H-2.937P	3.762	2.937
CH18-4H-2.375C	3.245	2.375	CH22-5H-3.295K	4.120	3.295	CH18-6H-3.406Q	4.231	3.406
CH20-4H-2.575D	3.400	2.575	CH28-5H-4.045L	4.870	4.045	CH22-6H-4.032L	4.870	4.032
CH22-4H-2.775E	3.620	2.775	CH31-5H-4.420M	5.245	4.420	CH28-6H-4.964N	5.789	4.964
CH25-4H-3.075F	3.900	3.075	CH35-5H-4.920N	5.789	4.920			
CH30-4H-3.575G	4.400	3.575	CH40-5H-5.545J	6.400	5.545			
CH36-4H-4.175H	5.000	4.175	HOOD NOT AVAILABLE FOR 50/100 SIZE					
CH40-4H-4.575I	5.400	4.575						
CH50-4H-5.575J	6.400	5.575						

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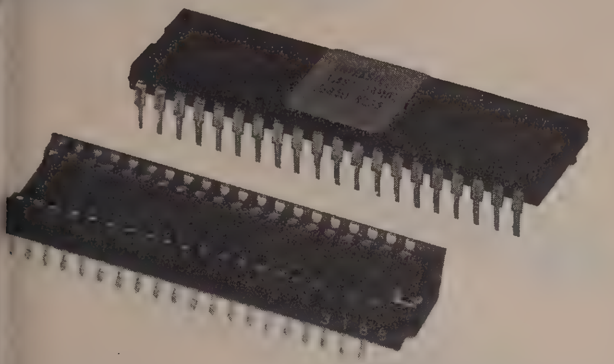
ZERO INSERTION FORCE IC SOCKETS/ZIC SERIES



his new (patent pending) zero insertion force I.C. socket is esigned for production applications with high cost integrated ircuits. Eliminates the risk of damage to I.C. leads during nsertion. High retention force. 24, 28 and 40 contacts, end tackable to accommodate 64 pins.

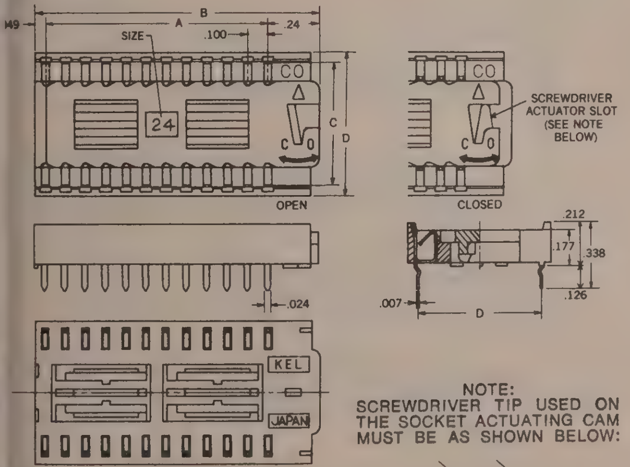
OW TO ORDER:

ZIC 28 - 01 T (EXAMPLE)

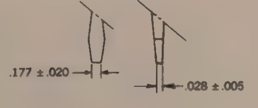
eries — ZIC
o. of contacts — 28
4 - 28 - 40
Plating: — T
T = Tin
G = Gold/nickel

PECIFICATIONS

urrent rating — 1 Amp
ontact resistance — 15 MΩ @ 1 Amp
emp. rating — −55°C/ +125°C (G)
−55°C/ +105°C (T)
nsulator mat'l. — PBT
ontact mat'l. — Phos brz

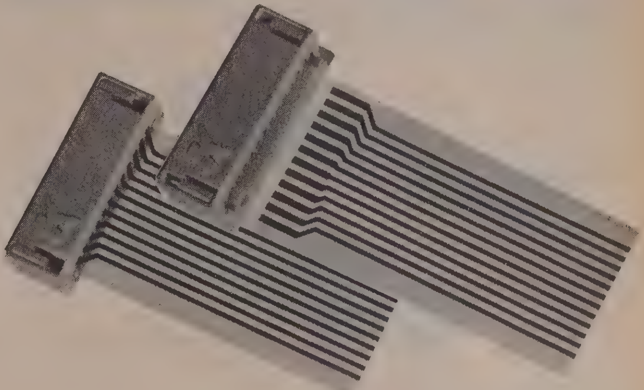

B
A
SIZE
.100
.24
CO
24
C
D
C
0
OPEN
CO
C
0
SCREWDRIVER ACTUATOR SLOT (SEE NOTE BELOW)
CLOSED
.212
.177
.338
.126
.007
D
.024
KEL
JAPAN

NOTE:
SCREWDRIVER TIP USED ON THE SOCKET ACTUATING CAM MUST BE AS SHOWN BELOW:


.177 ± .020
.028 ± .005

DIMEN.	SIZE		
	24	28	40
A	1.100	1.300	1.900
B	1.380	1.580	2.180
C	.600	.600	.600
D	.700	.700	.700

MEMBRANE SWITCH CONNECTOR/ MSC SERIES PATENT PENDING



This unique one piece—no mating connector required, connector is designed to accept soft or hard circuitry of membrane switch pigtails. The circuits may be "up" or "down". The simple two piece insulator has zero insertion force. Contacts are opened or closed on the circuits by sliding the top cover backward or forward. This connector is also excellent for use with flexible circuitry or flat conductor cables.

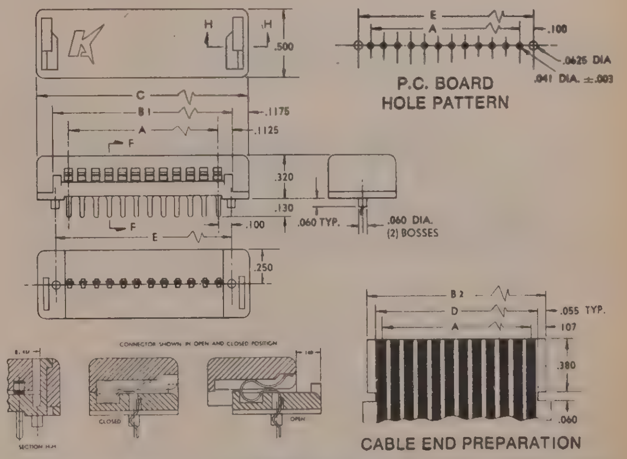
HOW TO ORDER:

MSC 08 - 6114 (EXAMPLE)

Series — MSC
No. of contacts — 08
R/A D.S. terminals — 61
Plating — 14

FEATURES

- Zero insertion force
- Positive retention bosses
- Occupies small area
- Low cost
- Simple to install
- Tin plated contacts
- Polyester insulator
- Solder bath retention terminals


H
H
.500
E
A
.100
.0625 DIA
.041 DIA. ±.003
P.C. BOARD HOLE PATTERN
C
B1
A
F
.1175
.1125
.320
.130
.060 TYP.
.100
F
E
.060 DIA. (2) BOSSES
.250
CONNECTOR SHOWN IN OPEN AND CLOSED POSITION
SECTION H-H
CLOSED
OPEN
B2
D
A
.055 TYP.
.107
.380
.060
CABLE END PREPARATION

DIMENSION TABLE							
PART NUMBER	SIZE	A	B1	B2	C	D	E
MSC04-6114	4	.300	.525	.515	.760	.405	.500
MSC05-6114	5	.400	.625	.615	.860	.505	.600
MSC08-6114	8	.700	.925	.915	1.160	.805	.900
MSC10-6114	10	.900	1.125	1.115	1.360	1.005	1.100
MSC12-6114	12	1.100	1.325	1.315	1.560	1.205	1.300
MSC13-6114	13	1.200	1.425	1.415	1.660	1.305	1.400
MSC15-6114	15	1.400	1.625	1.615	1.860	1.505	1.600
MSC16-6114	16	1.500	1.725	1.715	1.960	1.605	1.700
MSC18-6114	18	1.700	1.925	1.915	2.160	1.805	1.900
MSC20-6114	20	1.900	2.124	2.115	2.260	2.005	2.100

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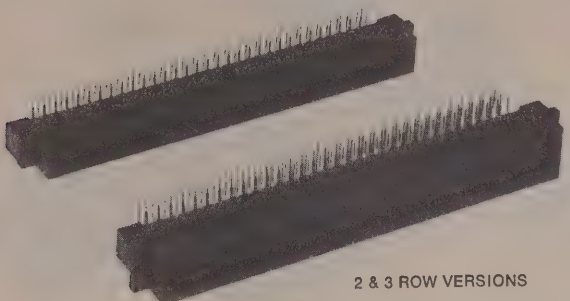
DIN CONNECTORS/STANDARD, PIN CONTACTS/ DIN STANDARD SERIES



2 & 3 ROW VERSIONS

FEATURES

- Meets requirement of DIN 41612 & IEC 130/14
- Insulator = PBT, glass reinforced, 94 V-O
- Contacts = copper alloy
- Plating = gold ^{OV} Ni contact area, tin on terminals
- Current rating = 2 Amps/contact
- Contact resistance = 20 mΩ max.
- Withstanding voltage = 1000 VAC/ 1 min.
- Insulation resistance = 10^6 MΩ min. @ 500 VDC
- Total insertion/withdrawal force

	64	96
Insertion	6.13 KG max.	9.18 Max.
Withdrawal	1.22 KG min.	1.94 min.

- Contact retention — 2.04 KG min.
- Temperature range, operating −55° to +85°C

HOW TO ORDER:

8301 — 064 — 290 X X (EXAMPLE)

Series — 8301

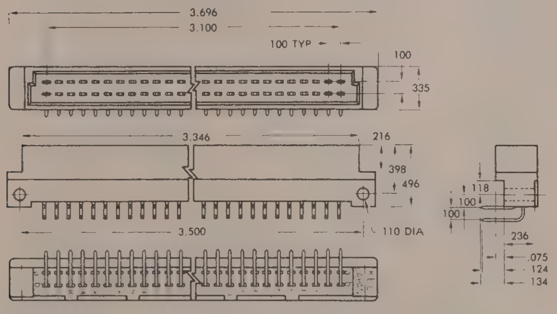
No. of contact positions 064 096

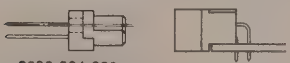
290 = R/A dip solder terminals .134 long

Contact plating
- Omit for 10^{-6} gold
- "D" for 30^{-6} gold

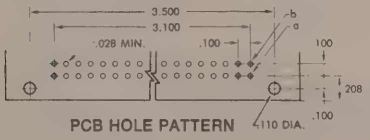
Loaded rows

2 ROW (PLUG)


3.696
3.100
100 TYP
100
335
3.346
216
398
496
3.500
110 DIA
118
100
100
236
.075
124
134

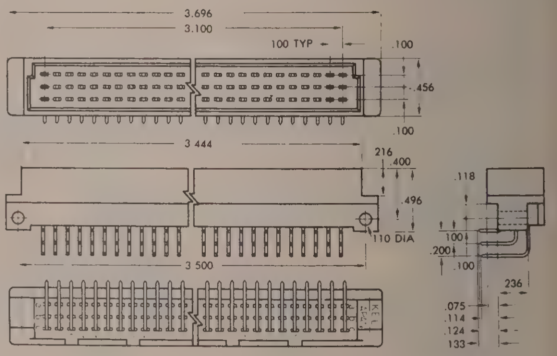


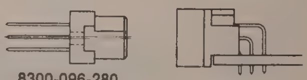
8300-064-280


3.500
3.100
.028 MIN.
.100
b
a
100
208
.100
.110 DIA.

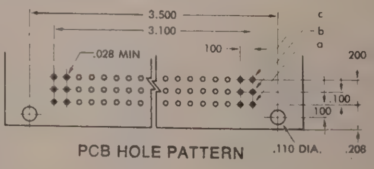
PCB HOLE PATTERN

3 ROW (PLUG)


3.696
3.100
100 TYP
.100
.456
.100
3 444
216
.400
.118
.496
110 DIA
3 500
100
.200
.100
236
.075
.114
.124
133



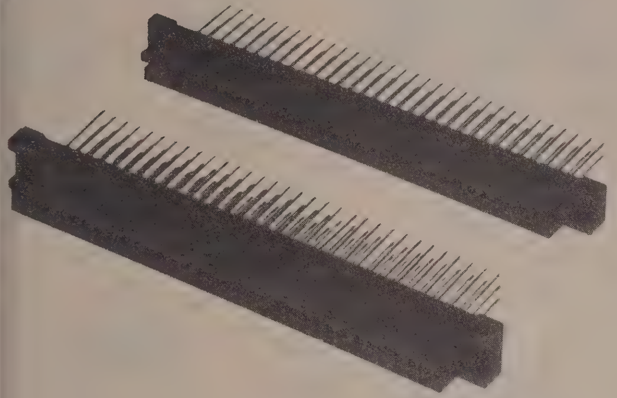
8300-096-280


3.500
3.100
c
b
a
.028 MIN
100
200
.100
.100
.110 DIA.
.208

PCB HOLE PATTERN

KEL-AM
INCORPORATED
P.O. BOX 313 / ELDON, MO. 65026 / (314) 392-7174 / TELEX: 42-301

DIN CONNECTORS/STANDARD, SOCKET CONTACTS/ DIN STANDARD SERIES



Connectors may be ordered with all contact positions loaded or only some rows loaded. Add the appropriate number, as shown below, to the end of the catalog number:

No number req'd if all rows to be loaded
1 - Row A fully loaded
2 - Row A & B only loaded (3 row body)
3 - Row A & C only loaded (3 row body)

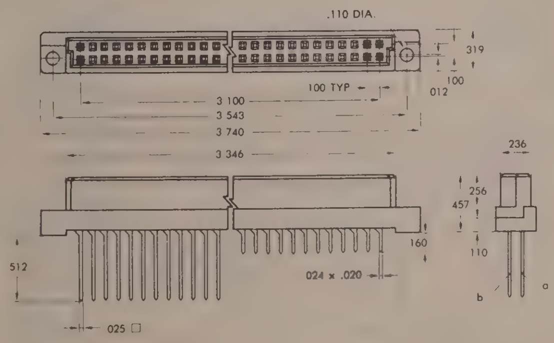
HOW TO ORDER:

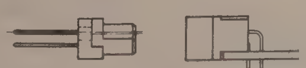
8300 — 096 — 280 X X (EXAMPLE)

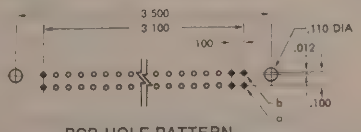
Series — 8300
No. of contact positions 064 096
280 = W.W.
281 = D.S.
Contact plating
- Omit for 10^{-6} gold
- D = 30^{-6} gold

Loaded rows (See above)

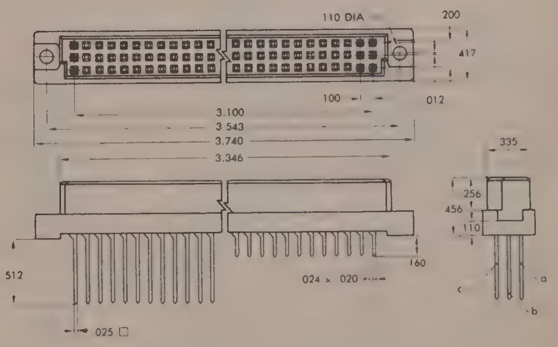
2 ROW (SOCKET)

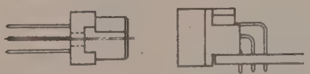

.110 DIA.
319
.100
012
100 TYP
3 100
3 543
3 740
3 346
236
256
457
160
110
512
024 x .020
025 □
b
a

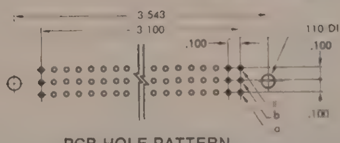

8301-064-290


3 500
3 100
100
.110 DIA
.012
.100
b
a
PCB HOLE PATTERN

3 ROW (SOCKET)


110 DIA
200
417
100
012
3.100
3 543
3.740
3.346
335
256
456
110
160
512
024 x 020
025 □
c
a
b


8301-096-290


3 543
3 100
110 DIA
.100
.100
.100
b
a
PCB HOLE PATTERN

KEYSTONE

SEND FOR COMPLETE CATALOG

BATTERY HOLDERS

A standard line of battery holders available for immediate shipment from stock. Low cost, lightweight and sturdily constructed of quality materials. Good electrical contact, low leakage current and snap-fit clips are the outstanding features.

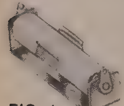


FIG. 1

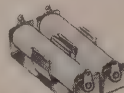


FIG. 2

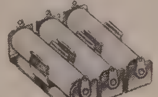


FIG. 3

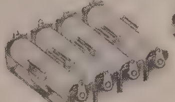


FIG. 4

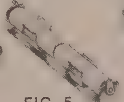


FIG. 5

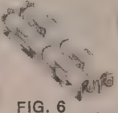


FIG. 6

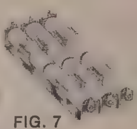


FIG. 7

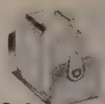


FIG. 8

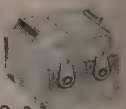


FIG. 9

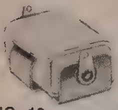


FIG. 10

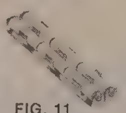


FIG. 11

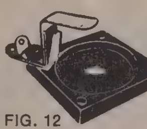


FIG. 12

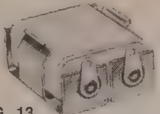


FIG. 13

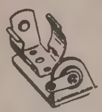


FIG. 14

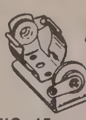


FIG. 15

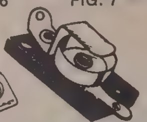


FIG. 16

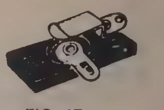


FIG. 17

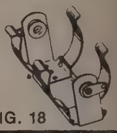


FIG. 18

			All Batteries Listed Within Boxes Are in the Same Size Group BATTERY CROSS REFERENCE			
No.	Holds No. of Cells	Fig. No.	Eveready	Duracell	Ray-O-Vac	NEDA

"AAA" CELL HOLDERS

Battery Size: $\frac{.375}{.468}$ O.D. x $\frac{1.673}{1.752}$ H.

137	1	1	E92, 912	M24F, MN2400	400, 410, 824	24A, 24F, 24P
138	2	2				
169	3	3				
170	4	4				

"AA" CELL HOLDERS

Battery Size: $\frac{.531}{.656}$ O.D. x $\frac{1.906}{1.988}$ H.

139	1	1	E9, E12, E12N, CH15, HS15, E91, HS91, E133, E133N, E177, CH500, 505, 523, 1015, 1215	ZM9, RM12, RM12R, NC15AA, MI5F, MI5HD, PX21, TR133, TR133R, TR177, M505, ID1500, MN1500	5AA, 7AA, 15, RPX21, WM40, 221, 615, 715, 815	15, 15A, 15C, 15D, 15F, 15M, 15NC, 221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M
140	2	2				
171	3	3				
182	4	4				
189	2	5				
192	4	6				
193	6	7				

"C" CELL HOLDERS

Battery Size: $\frac{.875}{1.125}$ O.D. x $\frac{1.875}{1.969}$ H.

173	1	1	CH35, HS35, E93, HS93, E286, 935, 1235	M14F, M14HD, NC14C, TR286, ID1400, MN1400	1C, 4C, WM15, 614, 814	14A, 14C, 14D, 14F, 14NC, 1600M
174	2	2*				
187	3	3				
185	2	5				
196	4	6*				
197	6	7				

"D" CELL HOLDERS

Battery Size: $\frac{1.187}{1.375}$ O.D. x $\frac{2.312}{2.412}$ H.

175	1	1	E42N, CH50, HS50, E95, HS95, E289, 950, 1250, HS150	M13F, NC13D, RM42R, S42, M13HD, TR289, ID1300, MN1300	2D, 3D, 6D, WM10, WM30, 613, 813, IND813	13A, 13C, 13D, 13F, 13NC, 1115M, 1810M
176	2	2*				
190	3	3				
186	2	5				
200	4	6*				
201	6	7				
205	6	11*				

"N" CELL HOLDERS

Battery Size: $\frac{.375}{.468}$ O.D. x $\frac{1.110}{1.189}$ H.

154	1	1	E90, CH150, E340E, E401E, EP401E, E401N	MP401H, RM401H, RM401R, M910F, MN910H, MN9100	RN, R401, RP401, 716, 810	910A, 910F, 910M, 1117M, 1118M
155	2	2				
156	3	3				

"9" VOLT CELL HOLDERS

139B	1	1	206	TR146X	A1604	1611
173P	1	1	226	ID146X	D1604 1604	1600
203P	1	13	CH22, HS22, E146X. 216, S22, 1222, E303396	NC169V, M1604, M1604HD, ID1604,MN1604, 303396	NC1604	1604, 1604A, 1604C, 1604D, 1604NC, 1619M
1290	Ref. EEM p. 3					
1291	Ref. EEM p. 3					

"15" VOLT CELL HOLDERS

163	1	10	417			224
161	1	10	411			
166	1	8				
167	2	9				208
225	1	1	504	M504	220	220
226	2	2				

"22½" VOLT CELL HOLDERS

139	1	1	505	M505	221	221
168	1	10	420			225
177	1	8	412	M215	215	215
178	2	9				

"30" VOLT CELL HOLDERS

183	1	8	413			210
184	2	9				

* #98 clips used.

MERCURY BATTERY HOLDERS

Duracell	No.	Fig. No.	No.	Fig. No.	No.	Fig. No.
PX1	101*	12	1101	14	2101	15
RM1R	101*	12	1101	14	2101	15
RM4R	104*	12	1104	14	2104	15
ZM9	139	1	1139	18	2139	18
RM12	139	1	1139	18	2139	18
RM12R	139	1	1139	18	2139	18
PX13	117	16				
RM42R	175	1	1175	18	2175	18
TR115R	132	1	1132	14	2132	15
TR126	139B	1				
TR132H	132	1	1132	14	2132	15
TR132R	132	1	1132	14	2132	15
TR133	139B	1				
TR133R	139B	1				
TR134	134	1	1134	18	2134	18
TR134R	134	1	1134	18	2134	18
TR135R	135	1	1135	18	2135	18
TR136	189	5	1189	18	2189	18
TR163	132	1	1132	14	2132	15
TR164	109	1	1109	18	2109	18
TR164R	109	1	1109	18	2109	18
TR165	110	1	1110	18	2110	18
TR175	154	1				
TR177			1142	18	2142	18
D343	111*	17				
RM400R	111*	17				
MP401	154	1				
RM401H	154	1				
RM401R	154	1				
MP401H	154	1				
RM601R			1116	14	2116	15
RM625R	117	16				
PX625	117	16				
RM63CH	126*	17				
RM640	118*	12				
PX640	118*	12				
RM675H	127*	17				
MP675H	127*	17				
PX675	127*	17				

* Phenolic base only

STANDARDIZED ALUMINUM BATTERY HOLDERS WITH CONNECTOR STRAPS ATTACHED

• ELIMINATE WIRING • LABOR SAVING • AVAILABLE FROM STOCK

These holders feature pre-connected jumper straps which are insulated from the Aluminum base. Batteries are held in a series circuit without the need of additional wiring.

FIG. 2

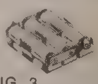


FIG. 3

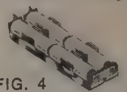


FIG. 4

			All Batteries Listed Within Boxes Are in the Same Size Group BATTERY CROSS REFERENCE			
No.	Holds No. of Cells	Fig. No.	Eveready	Duracell	Ray-O-Vac	NEDA

"AA" CELL HOLDERS

Battery Size: $\frac{.531}{.656}$ O.D. x $\frac{1.906}{1.988}$ H.

146	2	2	E9, E12, E12N, CH15, HS15, E91, HS91, E133, E133N, E177, CH500, 505, 523, 1015, 1215	ZM9, RM12, RM12R, NC15AA, MI5F, MI5HD, PX21, TR133, TR133R, TR177, M505, ID1500, MN1500	5AA, 7AA, 15, RPX21, WM40, 221, 615, 715, 815	15, 15A, 15C, 15R, 15F, 15M, 15NC, 221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M
147	3	3				
148	4	4				

"C" CELL HOLDERS

Battery Size: $\frac{.875}{1.125}$ O.D. x $\frac{1.875}{1.969}$ H.

149	2	2	CH35, HS35, E93, HS93, E286, 935, 1235	M14F, 14HD, NC14C, TR286, ID1400, MN1400	1C, 4C, WM15, 614, 814	14A, 14C, 14D, 14F, 14NC, 1600M
150	3	3				
151	4	4				

"D" CELL HOLDERS

Battery Size: $\frac{1.187}{1.375}$ O.D. x $\frac{2.312}{2.412}$ H.

152	2	2	E42N, CH50, HS50, E95, HS95, E289, 950, 1250	M13F, NC13D, RM42R, 542, M13HD, TR289, ID1300, MN1300	2D, 3D, 6D, WM10, WM30, 613, 813, IND813	13A, 13C, 13D, 13F, 13NC, 115M, 1810M
153	3	3				
158	4	4				

KEYSTONE ELECTRONICS CORP., 49 BLEECKER STREET, NEW YORK, NY 10012 • (212) 475-4600 • TWX-710-581-2861

BATTERY HOLDERS BATTERY CLIPS

KEYSTONE

SEND FOR COMPLETE CATALOG

ALL STEEL BATTERY HOLDERS

Wide acceptance for Military and commercial use. Spring tension assures constant pressure and low resistance. Holds up to 4 cells in sturdy insulating tube. Retainer Clips available to lock battery securely.

Material Specifications:

Clips: Corrosion Resistant. Carbon Steel, SAE 1065 to MIL Spec. 17919. Heat treated to spring temper, nickel plated

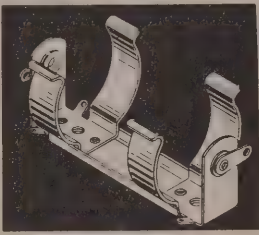
Contacts: Stainless steel, per MIL-S-18170, comp. 304.

Washers: Moisture Proof Resin Impregnated Fibre.

Base. Ribbed for additional support, Stainless Steel.

Ideal for NI-CAD and Alkaline Cells.

2 Mounting holes for ease in mounting.



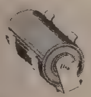


FIG. 19

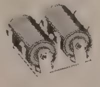


FIG. 23
PHENOLIC BASE

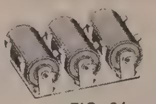


FIG. 24
PHENOLIC BASE

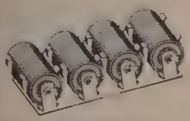


FIG. 25
PHENOLIC BASE

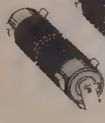


FIG. 20

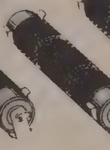


FIG. 21

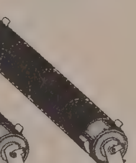
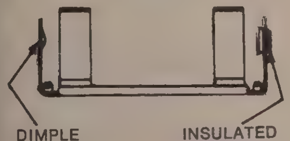
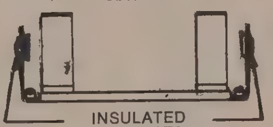


FIG. 22

NO. 1100 SERIES



NO. 2100 SERIES



No. 1100 Series One Insulated Contact No.	No. 2100 Series All Contacts Insulated No.	Fig. No.	Holds No. of Cells	All Batteries Listed Within Boxes Are in the Same Size Group BATTERY CROSS REFERENCE			
				Eveready	Duracell	Ray-O-Vac	NEDA
"AA" CELL HOLDERS				Battery Size: $\frac{.531}{.656}$ O.D. x $\frac{1.906}{1.988}$ H.			
1139	2139	19	1	E9, E12, E12N, CH15, HS15, E91, HS91, E133, E133N, E177, CH500, 505, 523, 1015, 1215	ZM9, RM12, RM12R, NC15AA, MI5F, MI5HD, PX21, TR133, TR133R, TR177, M505, ID1500, MN1500	5AA, 7AA, 15, RPX21, WM40, 221, 615, 715, 815	15, 15A, 15C, 15D, 15F, 15M, 15NC, 221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M
—	2140*	23	2				
—	2171*	24	3				
—	2182*	25	4				
1189	2189	20	2				
1191	2191	21	3				
1194	2194	22	4				
"C" CELL HOLDERS				Battery Size: $\frac{.875}{1.125}$ O.D. x $\frac{1.875}{1.969}$ H.			
1173	2173	19	1	CH35, HS35, E93, HS93, E286, 935, 1235	M14F, 14HD, NC14C, TR286, ID1400, MN1400	IC, 4C, WM15, 614, 814	14A, 14C, 14D, 14F, 14NC, 1600M
—	2174*	23	2				
—	2187*	24	3				
—	2188*	25	4				
1185	2185	20	2				
1195	2195	21	3				
1198	2198	22	4				
"D" CELL HOLDERS				Battery Size: $\frac{1.187}{1.375}$ O.D. x $\frac{2.312}{2.412}$ H.			
1175	2175	19	1	E42N, CH50, WS50, E95, HS95, E289, 950, 1250	M13F, NC13D, RM42R, S42, M13HD, TR289, ID1300, MN1300	2D, 3D, 6D, WM10, WM30, 613, 813, IND813	13A, 13C, 13D, 13F, 13NC, 1115M, 1810M
—	2176*	23	2				
—	2190*	24	3				
—	2192*	25	4				
1186	2186	20	2				
1199	2199	21	3				
1162	2162	22	4				

* Clips mounted on Phenolic 1/16" thick Mil Spec 31150

SPACE SAVER BATTERY CLIPS

Positive contact grips battery securely. Clips accommodate "AA" - "C" - "D" - Mercury and NI-CAD batteries.

Material Specifications: Refer to all steel battery holders

No.	Fig.	A Dia. Min. - Max.	Steel Thickness	For Coils
86	1	.875 to 1.125	.020	C
87	2	.875 to 1.125	.020	C
88	2	1.187 to 1.350	.020	D
89	1	1.187 to 1.350	.020	D
99	1	.531 to .650	.015	AA
100	2	.531 to .650	.015	AA

FIG. 1

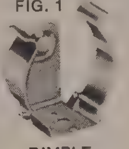
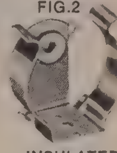

DIMPLE CONTACT
NOS 86, 89, 99

FIG.2

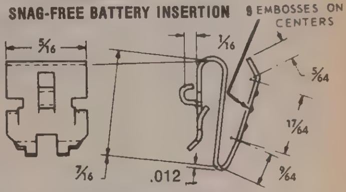

INSULATED CONTACT
NOS 87, 88, 100

"AA" CELL SNAP-ON BATTERY HOLDER CLIPS

Clips over panels from .060 to .070 thick and is anchored by sharp barbs, eliminating the need for special grooves, slots or holes. Spring tension of contact leg provides excellent contact and takes up any variation in battery lengths. External solder ear will hold wire for easy soldering. Made of spring tempered steel, nickel plated.

- IDEAL FOR MOLDED CASES
- LOW COST
- SELF ANCHORING
- SNAG-FREE BATTERY INSERTION

NO. 209



ECONOMY CLIPS FOR "AA", "C" AND "D" CELLS

NO. 206

NO. 207

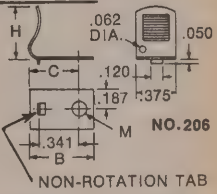
NO. 208

A low cost clip used with non-metallic bases.

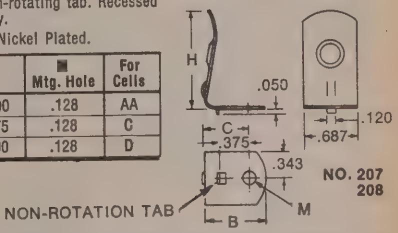
Features: Single eyelet mount — non-rotating tab. Recessed Contact holds Battery Contact firmly.

Material: Spring Temper Steel and Nickel Plated.

No.	B	C	H	■ Mtg. Hole	For Cells
206	.609	.468	.500	.128	AA
207	.687	.547	.875	.128	C
208	.765	.562	1.290	.128	D



NO. 206



NO. 207
208

BATTERY AND COMPONENT HOLDERS

A complete line of clips suitable for secure mounting of round or square battery cells or electronic components.

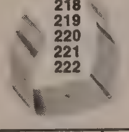
NO. 90

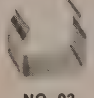
NO. 91

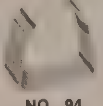
NO. 78

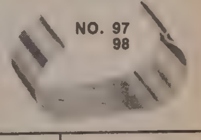
NO. 80, 95

NOS. 69, 70, 71, 79


NO. 217
218
219
220
221
222


NO. 93


NO. 94


NO. 97
98

No.	Min.-Max. Dia. or Size	Material	For Cells
69	.562 (2)	.015 Steel	(2) AA
70	.656 (2)	.025 Alum.	(2) RM12
71	.593 x 1.031	.015 Steel	"9" Volt
78	1.187 to 1.350	.020 Steel	D
79	.650 x 1.280	.015 Steel	TR146X
80	.650 x 1.280	.015 Steel	"9" Volt
90	.375 to .468	.016 Alum.	AAA
91	.531 to .656	.020 Alum.	AA
93	.875 to 1.125	.025 Alum.	C
94	1.187 to 1.375	.032 Alum.	D
95	.625 x 1.000	.025 Alum.	"9" Volt
97	1.031 (2)	.025 Alum.	(2) C
98	1.312 (2)	.032 Alum.	(2) D
217	1.375 to 1.500	.025 Steel	NI-CAD
218	1.437 to 1.687	.025 Steel	NI-CAD
219	2.000 to 2.500	.025 Steel	NI-CAD
220	.187 to .203	.010 Steel	5mm
221	.859 to .890	.020 Steel	.875
222	.875 to 1.125	.020 Steel	C

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KEYSTONE

SEND FOR COMPLETE CATALOG

BATTERY HOLDERS, STRAPS AND CLIPS

ALUMINUM & STEEL BATTERY HOLDERS WITH PRINTED CIRCUIT LUGS

- ELIMINATE WIRING
- LABOR SAVING
- AVAILABLE FROM STOCK

Your choice of single or multiple holders with printed circuit lugs attached. With the popularity of printed circuitry we have standardized our most popular holders with the P.C. Lugs.

ALUMINUM HOLDERS

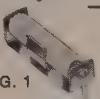


FIG. 1

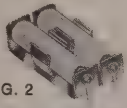


FIG. 2

			All Batteries Listed Within Boxes Are in the Same Size Group BATTERY CROSS REFERENCE			
No.	Holds No. of Cells	Fig. No.	Eveready	Duracell	Ray-O-Vac	NEDA
"AA" Cell Holders			Battery Size: $\frac{.531}{.656}$ O.D. x $\frac{1.906}{1.988}$ H.			
2222	1	1	E9, E12, E12N, CH15, HS15, E91, E133, E133N, E177, CH500, 505, 523, 1015, 1215	ZM9, RM12, RM12R, NC15AA, MI5F, MI5HD, PX21, TR133, TR133R, TR177, M505, ID1500, MN1500	5AA, 7AA, 15, RPX21, WM40, 221, 615, 715, 815	15, 15A, 15C, 15D, 15F, 15M, 15NC, 221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M
2223	2	2				
"C" Cell Holders			Battery Size: $\frac{.875}{1.125}$ O.D. x $\frac{1.875}{1.969}$ H.			
2224	1	1	CH35, HS35, E93, HS93, E286, 935, 1235	M14F, 14HD, NC14C, TR286, ID1400, MN1400	1C, 4C, WM15, 614, 814	14A, 14C, 14D, 14F, 14WC, 1600M
2225	2	2				
"D" Cell Holders			Battery Size: $\frac{1.187}{1.375}$ O.D. x $\frac{2.312}{2.412}$ H.			
2226	1	1	E42N, CH50, WS50, E95, HS95, E289, 950, 1250	M13F, NC13D, RM42R, S42, M13HD, TR289, ID1300, MN1300	2D, 3D, 6D, WM10, WM30, 613, 813, IND813	13A, 13C, 13D, 13F, 13NC, 1115M, 1810M
2227	2	2				

STEEL HOLDERS

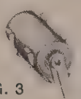


FIG. 3

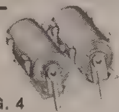


FIG. 4

			All Batteries Listed Within Boxes Are in the Same Size Group BATTERY CROSS REFERENCE			
No.	Holds No. of Cells	Fig. No.	Eveready	Duracell	Ray-O-Vac	NEDA
"AA" Cell Holders			Battery Size: $\frac{.531}{.656}$ O.D. x $\frac{1.906}{1.988}$ H.			
2228	1	3	E9, E12, E12N, CH15, HS15, E91, E133, E133N, E177, CH500, 505, 523, 1015, 1215	ZM9, RM12, RM12R, NC15AA, MI5F, MI5HD, PX21, TR133, TR133R, TR177, M505, ID1500, MN1500	5AA, 7AA, 15, RPX21 WM40, 221, 615, 715, 815	15, 15A, 15C, 15D, 15F, 15M. 15NC,221, 1101M, 1113M, 1306AP, 1306M, 1314M, 1606M
2229	2	4				
"C" Cell Holders			Battery Size: $\frac{.875}{1.125}$ O.D. x $\frac{1.875}{1.969}$ H.			
2230	1	3	CH35, HS35, E93, HS93, E286, 935, 1235	M14F, 14HD, NC14C, TR286, ID1400, MN1400	1C, 4C, WM15, 614, 814	14A, 14C, 14D, 14F, 14WC, 1600M
2231	2	4				
"D" Cell Holders			Battery Size: $\frac{1.187}{1.375}$ O.D. x $\frac{2.312}{2.412}$ H.			
2232	1	3	E42N, CH50, WS50, E95, HS95, E289, 950, 1250	M13F, NC13D, RM42R, S42, M13HD, TR289, ID1300, MN1300	2D, 3D, 6D, WM10, WM30, 613, 813, IND813	13A, 13C, 13D, 13F, 13NC, 1115M, 1810M
2233	2	4				

BATTERY STRAPS

Assembled with one each Male and Female contact. **No. 68** Has no wire attached. **No. 72** Assembled with Jr. Straps to single ⅟₁₆" fibre wafer. **No. 83** Fishpaper is folded over wire providing increased insulation as in Fig. 2. MODIFICATION AVAILABLE WITH LONGER OR SHORTER LEAD LENGTHS.

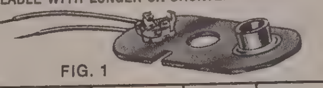


FIG. 1

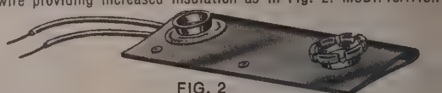


FIG. 2

					"L" Wire	Battery Cross References			
No.	Fig.	A	B	C	⅜" Strip	Eveready	Duracell	Ray-O-Vac	NEDA
68	1	.500	.535	1.020	None	CH22 HS22 E146X 216 246 415 416 522 1222 E303396	NC169V M1604HD ID146X TR146X TR146X M1604 D1604 MN1604 303396	NC1604 D1604 1604 A1604	1604NC 1604C 1604M 1604 1602 213 217 1604A 1604D 1619M
72	1	.500	.535	1.020	6.50				
83	2	.500	.565	.875	6.50				

The connectors above will fit all standard "9" volt batteries as listed

The connectors listed below are for various types of Snap Connector batteries. Refer to battery listings as shown.

73	2	.250	.720	1.750	9.00	266			1605
74	2	.937	.720	1.843	8.50	477 479 2356N			211 214 1612
75	2	1.375	.720	2.500	8.50	276			1603
76	2	1.500	.720	2.615	8.00	455 457 467			201 203 206
77	2	2.500	.720	3.429	7.00	490			204

L = Approximate Length of Wire Leads Including ⅜" stripped end

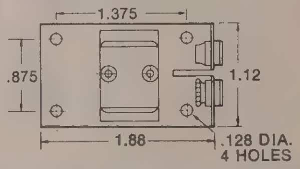
"9" VOLT SNAP-IN BATTERY HOLDER

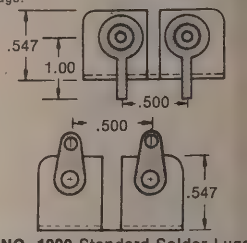
For use with any standard "9" volt battery. Battery snaps in place to insure positive contact. Ideal where severe shoc and vibration are encountered. Available with standard solder lugs or printed circuit lugs.

Material:
Frame — Aluminum
Solder Lugs — Brass Hot Tin
Contacts & Clip — Steel Nickel Plate
Insulation — Resin Impregnated Fibre

NO. 1290

NO. 1291





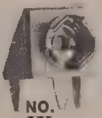
NO. 1290 Standard Solder Lugs
NO. 1291 Printed Circuit Lugs

PRINTED CIRCUIT SNAP-ONS ("9" VOLT)

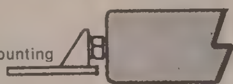
MOUNT DIRECTLY TO PRINTED CIRCUIT BOARD

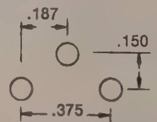
P.C. Male/Female for any standard "9" Volt Battery. Cut costs by eliminating wiring. Compact Space Saver.

Material: Frame — Steel, Tin Plate
Contacts — Steel Nickel Plate

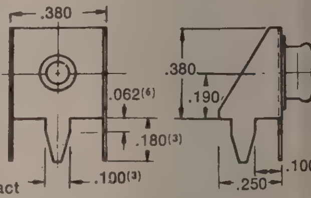

NO. 636

NO. 635


Side view mounting position



MOUNTING HOLES

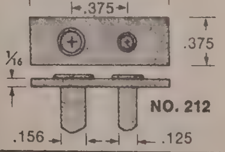


NO. 635 Male Contact
NO. 636 Female Contact

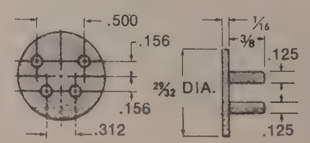
BATTERY PLUGS

SPECIFICATIONS:
Wafer: ⅟₁₆ XP Phenolic
Pins: Brass Nickel Plate

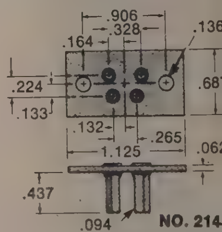
Note: Other variations can be made to your specifications



NO. 212



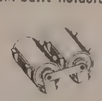
NO. 213

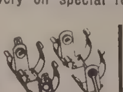


NO. 214

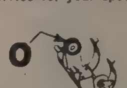
MODIFICATIONS AVAILABLE

Variety of stock parts permits fast delivery on special requirements. Use our engineering service for your special custom-built holders.


JUMPERS
Jumpers permit cost cutting and elimination of wiring


SPECIAL LUGS
Printed Circuit Solderless Connections and Quick Disconnect Lugs Available on special order

MULTIPLE UNITS
Multiple Units with Jumpers, Special Lugs and Polarized Contacts


POLARIZED CONTACT
Polarized Contacts Insure proper insertion of Batteries

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TRANSISTOR SOCKETS PLUG-IN HOUSINGS

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MOLDED TRANSISTOR SOCKETS FOR TO-3 CASE

NE-PIECE ALL MOLDED TRANSISTOR SOCKETS

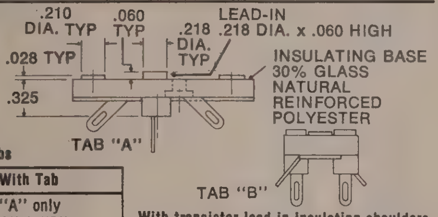
ated 5 amps DC continuous and 15 amps DC intermittent

ll molded TO-3 Transistor socket features an all-in-one mounting plate and solder tabs, oviding complete electrical isolation of the solder tab connections, choice of single or al solder tabs.

aterial: Insulating base glass filled reinforced polyester — 94V-0 rating.

ontacts: Phosphor bronze tin plate.

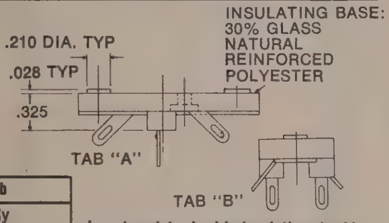
tg. Bracket: Brass cadmium plate.



hoice of Single or Dual Tabs

No.	With Tab
4513	"A" only
4514	"A" & "B"

With transistor lead-in insulating shoulders



hoice of Single or Dual Tabs

No.	With Tab
4515	"A" only
4516	"A" & "B"

Less transistor lead-in insulating shoulder

PLUG-IN HOUSING

olded Housings: Suited for packing relays, logic packages, networks & miniature circuitry.

overs: Durable, lightweight, withstands vibration & rough usage.

eaders: Variety of molded materials & good chemical resistance.

aterial Characteristics:

olystyrene: For general purpose use where high impact strength s not required and temperature would not exceed 170°F.

exan: 3 times the impact strength of Polystyrene and excellent lectrical properties, use wherever temperatures of 210°F exist.

ylon: Impact strength slightly less than Butyrate but recomended for use where temperatures are as high as 300°F.

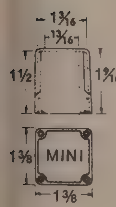


FIG. 1

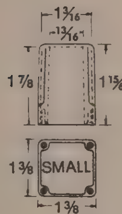


FIG. 2

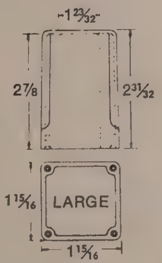


FIG. 3

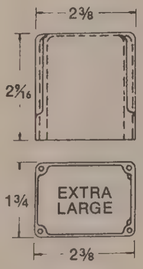


FIG. 4

Housing with Octal Header & 4 Screws No.	Housing Only No.	Fig. No.	Type	Material	Color
660	670	1	Mini	Lexan	Clear
661	671	1	Mini	Nylon	White
662	672	1	Mini	Polystyrene	Clear
641	645	1	Mini	Polystyrene	Opaque Black
642	646	1	Mini	Polystyrene	Transp. Red
663	673	2	Small	Lexan	Clear
664	674	2	Small	Nylon	White
665	676	2	Small	Polystyrene	Clear
643	647	2	Small	Polystyrene	Opaque Black
544	648	2	Small	Polystyrene	Transp. Red
650	649	3	Large	Lexan	Clear
668	679	3	Large	Polystyrene	Clear
677	666	3	Large	Polystyrene	Opaque Black
678	667	3	Large	Polystyrene	Transp. Red
639	640	4	Xtra-Large	Polystyrene	Clear
710	711	4	Xtra-Large	Polystyrene	Opaque Black
712	713	4	Xtra-Large	Lexan	Clear

POWER TRANSISTOR SOCKETS

Achieve better electrical performance and mechanical sturdiness by using these low cost, compact, rugged sockets. Avoids soldering directly to the semiconductor. Sockets are easier and faster to mount with the least amount of hardware required. Metal parts of the socket are corrosion resistant, and cadmium plated for better solderability which meets EIA Solderability Spec RS178A.

Spring brass contacts provide positive contact immediately upon insertion. Hard steel collector plates with 6-20 threaded formings at each end engage screws and hold securely with maximum torque of 9 pounds. Various boss heights on the precision molded nylon tops eliminates the need of loose bushings.

Printed Circuit Lugs Available on Special Order.

Material Specifications:

Collector Plate: Cadmium plate steel.

Contacts: .012 thick Brass Cadmium plated.

Materials: Molded nylon plates per MIL-P-20693A. Phenolic PBE Grade Natural Color.

Modifications Available: Variety of stock parts permits fast delivery on special requirements. Use our engineering service.

• SPACE SAVER • LABOR SAVING • EASIER SERVICING • SIMPLER MOUNTING • FROM STOCK IMMEDIATELY • GREATER FLEXIBILITY • TIME SAVING • BETTER THERMAL EFFICIENCY • UNIFORM • AVAILABLE FROM STOCK

SOCKETS IN A WIDE SELECTION FOR THE POPULAR TO-3 AND TO-66 CASES

SOCKETS FOR TO-3 CASE VARIOUS MOLDED BOSS HEIGHTS

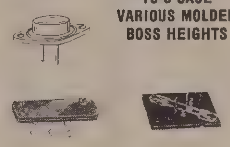
MOLDED NYLON TOP PLATE — PHENOLIC BASE
The socket is held underneath the chassis and the semiconductor is inserted into the contacts of the socket holding the assembly in position. The 6-20 screws engage the formed holes in the collector plate and complete the mounting.

No.	A Dim.
4603	.030
4602	.045
4601	.090

PRINTED CIRCUIT SOCKET FOR TO-3

MOLDED NYLON TOP PLATE — PHENOLIC BASE
Easily assembles onto printed circuit board. Eliminates wiring. Stops on P.C. terminal permits assembly of transistor to socket. Can be screwed down tightly to heat sink.

NO. 4600



SOCKETS FOR TO-3 CASE VARIOUS MOLDED BOSS HEIGHTS

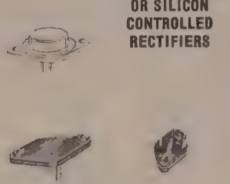
MOLDED NYLON TOP PLATE — PHENOLIC BASE
Pre-assembling the socket to the chassis by eyelets or rivets permits the installation of the semiconductor at a later stage in the assembly.

No.	A Dim.
4607	.030
4608	.045
4609	.060
4610	.090
4618	.125

FOR TO-3 CASE ALL PHENOLIC SOCKET

PHENOLIC TOP AND BASE — These sockets are eyeletted or rivited to the chassis and use external bushings to insulate the screws in the final mounting. The semiconductor may be installed at the last stage of the assembly.

NO. 4606



FOR TO-66 CASE OR SILICON CONTROLLED RECTIFIERS

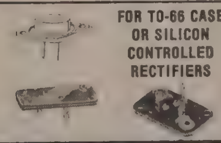
MOLDED NYLON TOP PLATE — PHENOLIC BASE
The socket is held underneath the chassis and the semiconductor is inserted into the contacts of the socket holding the assembly in position. The 6-20 screws engage the formed holes in the collector plate and complete the mounting. Printed Circuit Lugs Available on special order.

No.	A Dim.
4611	.030
4612	.045
4613	.060
4614	.090

FOR TO-66 CASE OR SILICON CONTROLLED RECTIFIERS

PHENOLIC TOP & BASE — Printed Circuit Lugs Available on special order. Pre-assembling the socket to the chassis by eyelets or rivets permits the installation of the semiconductor at a later stage in the assembly.

NO. 4615



FOR TO-66 CASE OR SILICON CONTROLLED RECTIFIERS

MOLDED NYLON TOP PLATE — PHENOLIC BASE
These sockets are pre-assembled to the chassis by either eyelets or rivets. Has .080 High Boss and eliminates the need of washers or bushings.

NO. 4625

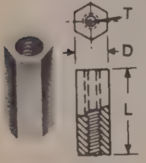
EYSTONE ELECTRONICS CORP., 49 BLEECKER STREET, NEW YORK, NY 10012 • (212) 475-4600 • TWX-710-581-2861

KEYSTONE

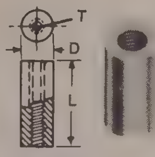
SEND FOR COMPLETE CATALOG

SPACERS

THREADED SPACERS



Specifications:
Brass: QQ-B-626, Alloy 360, ½ Hard
Aluminum: QQ-A-225/3, Alloys 2011-T3
Cadmium Plate: QQ-P-416, Type 2, Class B
Nickel Plate: QQ-N-290, Type VII
Iridite Finish: MIL-C-5541



BRASS AND ALUMINUM

HEX					ROUND	
Aluminum Iridite Finish No.	Brass Cadmium Plate No.	D	L	T Thread	Aluminum Iridite Finish No.	Brass Nickel Plate No.
1797A	1798A	.156	.187	2-56	1801A	1802A
1797B	1798B	.156	.250	2-56	1801B	1802B
1797C	1798C	.156	.312	2-56	1801C	1802C
1797D	1798D	.156	.375	2-56	1801D	1802D
1891	1450	.188	.250	4-40	2025	1547
1892	1803	.188	.375	4-40	2026	1864
1893	1656	.188	.500	4-40	2027	1657
1894	1804	.188	.625	4-40	2028	1865
1895	1656A	.188	.750	4-40	2029	1657A
1896	1805	.188	.875	4-40	2030	1866
1897	1656B	.188	1.000	4-40	2031	1657B
2201	1450A	.250	.250	4-40	3478	1547A
2202	1450B	.250	.375	4-40	3479	1547B
2203	1450C	.250	.500	4-40	3480	1547C
1808	1829	.250	.625	4-40	1839	1867
2204	1450D	.250	.750	4-40	3481	1547D
1809	1830	.250	.875	4-40	1846	1876
2205	1450E	.250	1.000	4-40	3482	1547E
2206	1831	.250	1.500	4-40	3483	1877
2207	1832	.250	2.000	4-40	3484	1878
2208	1451A	.250	.250	6-32	3485	1548A
2209	1451B	.250	.375	6-32	3486	1548B
2210	1451C	.250	.500	6-32	3487	1548C
1813	1451D	.250	.625	6-32	1847	1548D
2211	1451E	.250	.750	6-32	3488	1548E
1816	1833	.250	.875	6-32	1848	1879
2212	1635	.250	1.000	6-32	3489	1548F
1818	1636	.250	1.250	6-32	1853	1881
2213	1637	.250	1.500	6-32	3490	1882
1819	1638	.250	1.750	6-32	1855	1883
2214	1639	.250	2.000	6-32	3491	1884
1820	1642	.250	2.250	6-32	1856	1885
1825	1643	.250	2.500	6-32	1857	1886
2215	1474A	.250	.250	8-32	3492	1692A
2216	1474B	.250	.375	8-32	3493	1692B
2217	1474C	.250	.500	8-32	3494	1692C
1827	1834	.250	.625	8-32	1858	1887
2218	1474D	.250	.750	8-32	3495	1692D
1828	1836	.250	.875	8-32	1859	1888
2219	1474E	.250	1.000	8-32	3496	1692E
2220	1837	.250	1.500	8-32	3497	1889
2221	1838	.250	2.000	8-32	3498	1899
1926A	1452A	.375	.375	8-32	2315A	1549A
1926B	1452B	.375	.500	8-32	2315B	1549B
1926C	1452C	.375	.625	8-32	2315C	1549C
1926D	1452D	.375	.750	8-32	2315D	1549D
1926E	1452E	.375	1.000	8-32	2315E	1549E

1.500 and 2″ are tapped ⅜ deep each end

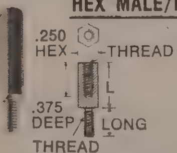
PHENOLIC SPACERS

Material: PBE Grade Natural Color Phenolic

Length Inches	Spacers — Drilled Hole Only			Spacers — With Tapped Hole		
	For #4 Screw .120 Hole No.	For #6 Screw .140 Hole No.	For #8 Screw .171 Hole No.	4-40 Thread No.	6-32 Thread No.	8-32 Thread No.
¼ (.250)	360	367	1490	376	383	390
⅜ (.375)	361	368	1491	377	384	391
½ (.500)	362	369	1492	378	385	392
¾ (.750)	363	370	1493	379	386	393
1 (1.000)	364	371	1494	380	387	394
1½ (1.500)	365	372	374	381	388	395
2 (2.000)	366	373	375	382	389	396

1.500 and 2″ are tapped ⅜ deep each end

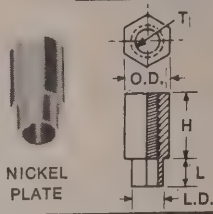
HEX MALE/FEMALE THREADED SPACERS (BRASS N.P.)

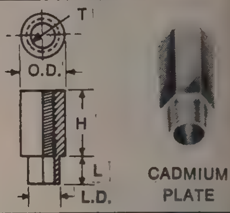


* ⅜″ External Thread on 8-32 Spacers. ¼″ External Thread on 6-32 Spacers. 3⁄16″ External Thread on 4-40 Spacers.

Length Inches L	4-40 Thread No.	6-32 Thread No.	8-32 Thread No.
½ (.500)	1944	1952	1957
⅝ (.625)	1945	1953	1958
¾ (.750)	1946	1954	1959
1 (1.000)	1947	1644	1960
1¼ (1.250)	1948	1955	1961
1⅜ (1.375)	1949	1956	1962
1½ (1.500)	1950	1645	1963
2 (2.000)	1951	1646	1964

BRASS SWAGE TYPE THREADED STAND-OFFS



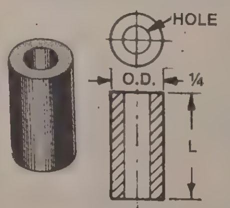


Round No.	H Height Above Panel	L	For Panel Thickness	LD	OD	T Thread	Hex No.
1589-2	.125	.109	1⁄16	.125	5⁄32	2-56	1731-2
1589-3	.125	.140	3⁄32	.125	5⁄32	2-56	1731-3
1590-2	.187	.109	1⁄16	.125	5⁄32	2-56	1734-2
1590-3	.187	.140	3⁄32	.125	5⁄32	2-56	1734-3
1591-2	.250	.109	1⁄16	.125	5⁄32	2-56	1740-2
1591-3	.250	.140	3⁄32	.125	5⁄32	2-56	1740-3
1596-2	.375	.109	1⁄16	.125	5⁄32	2-56	1743-2
1596-3	.375	.140	3⁄32	.125	5⁄32	2-56	1743-3
1560A	.125	.109	1⁄16	.187	.250	4-40	1653-2
1560F	.125	.140	3⁄32	.187	.250	4-40	1653-3
1790-2	.187	.109	1⁄16	.187	.250	4-40	1746-2
1790-3	.187	.140	3⁄32	.187	.250	4-40	1746-3
1650-2	.250	.109	1⁄16	.187	.250	4-40	1627-2
1650-3	.250	.140	3⁄32	.187	.250	4-40	1627-3
1651-2	.375	.109	1⁄16	.187	.250	4-40	1628-2
1651-3	.375	.140	3⁄32	.187	.250	4-40	1628-3
1623-2	.500	.109	1⁄16	.187	.250	4-40	1629-2
1623-3	.500	.140	3⁄32	.187	.250	4-40	1629-3
1624-2	.625	.109	1⁄16	.187	.250	4-40	1654-2
1624-3	.625	.140	3⁄32	.187	.250	4-40	1654-3
1625-2	.750	.109	1⁄16	.187	.250	4-40	1655-2
1625-3	.750	.140	3⁄32	.187	.250	4-40	1655-3
1792-2	.875	.109	1⁄16	.187	.250	4-40	1749-2
1792-3	.875	.140	3⁄32	.187	.250	4-40	1749-3
1652-2	1.000	.109	1⁄16	.187	.250	4-40	1630-2
1652-3	1.000	.140	3⁄32	.187	.250	4-40	1630-3
1560B	.125	.109	1⁄16	.187	.250	6-32	1620-2
1560C	.125	.140	3⁄32	.187	.250	6-32	1620-3
1560D	.125	.171	⅛	.187	.250	6-32	1620-4
1612-2	.187	.109	1⁄16	.187	.250	6-32	1752-2
1612-3	.187	.140	3⁄32	.187	.250	6-32	1752-3
1612-4	.187	.171	⅛	.187	.250	6-32	1752-4
1546	.250	.109	1⁄16	.187	.250	6-32	1621-2
1546B	.250	.140	3⁄32	.187	.250	6-32	1621-3
1546D	.250	.171	⅛	.187	.250	6-32	1621-4
1561B	.375	.109	1⁄16	.187	.250	6-32	1622-2
1561C	.375	.140	3⁄32	.187	.250	6-32	1622-3
1561D	.375	.171	⅛	.187	.250	6-32	1622-4
1604-2	.500	.109	1⁄16	.187	.250	6-32	1758-2
1604-3	.500	.140	3⁄32	.187	.250	6-32	1758-3
1604-4	.500	.171	⅛	.187	.250	6-32	1758-4
1605-2	.625	.109	1⁄16	.187	.250	6-32	1759-2
1605-3	.625	.140	3⁄32	.187	.250	6-32	1759-3
1605-4	.625	.171	⅛	.187	.250	6-32	1759-4
1608-2	.750	.109	1⁄16	.187	.250	6-32	1761-2
1608-3	.750	.140	3⁄32	.187	.250	6-32	1761-3
1608-4	.750	.171	⅛	.187	.250	6-32	1761-4
1796-2	.875	.109	1⁄16	.187	.250	6-32	1775-2
1796-3	.875	.140	3⁄32	.187	.250	6-32	1775-3
1796-4	.875	.171	⅛	.187	.250	6-32	1775-4
1609-2	1.000	.109	1⁄16	.187	.250	6-32	1784-2
1609-3	1.000	.140	3⁄32	.187	.250	6-32	1784-3
1609-4	1.000	.171	⅛	.187	.250	6-32	1784-4

NYLON SPACERS

ROUND THRU-HOLE

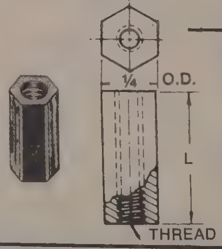
Material: Nylon 6/6. Economical for terminal or printed circuit board supports.



Length Inches	For #4 Screw .120 Hole No.	For #6 Screw .140 Hole No.	For #8 Screw .171 Hole No.
⅛ (.125)	875	883	891
¼ (.250)	876	884	892
⅜ (.375)	877	885	893
½ (.500)	878	886	894
⅝ (.625)	879	887	895
¾ (.750)	880	888	896
⅞ (.875)	881	889	897
1 (1.000)	882	890	898

HEX THREADED

Material: Nylon 6/6.



Length Inches	4-40 Thread No.	6-32 Thread No.	8-32 Thread No.
¼ (.250)	1902A	1903A	1904A
⅜ (.375)	1902B	1903B	1904B
½ (.500)	1902C	1903C	1904C
¾ (.750)	1902D	1903D	1904D
1 (1.000)	1902E	1903E	1904E

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SPACERS-WASHERS GROMMETS

KEYSTONE

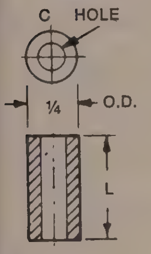
SEND FOR COMPLETE CATALOG

ROUND CLEAR SPACERS

BRASS OR ALUMINUM

HOICE OF
- BRASS — NICKEL PLATE (QQ-N-290, TYPE VII)
- ALUMINUM — IRIDITE FINISH (MIL-C-5541)

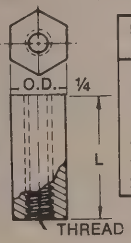
LEARANCE HOLE:
- .120 FOR #4 SCREW
- .140 FOR #6 SCREW
- .171 FOR #8 SCREW



L Length	C Hole	Brass No.	Aluminum No.
.125	.120	1909	2036
.250	.120	1454A	3457
.375	.120	1454B	3458
.500	.120	1454C	3459
.625	.120	1919	2314
.750	.120	1454D	3460
.875	.120	1920	3402
1.000	.120	1454E	3461
1.500	.120	1924	3462
2.000	.120	1925	3463
.125	.140	1934	3403
.250	.140	1457A	3464
.375	.140	1457B	3465
.500	.140	1457C	3466
.625	.140	1935	3429
.750	.140	1457D	3467
.875	.140	1936	3438
1.000	.140	1457E	3468
1.500	.140	1937	3469
2.000	.140	1938	3470
.125	.171	1942	4258
.250	.171	1480	3471
.375	.171	1481	3472
.500	.171	1482	3473
.625	.171	2032	4259
.750	.171	1483	3474
.875	.171	2033	4260
1.000	.171	1484	3475
1.500	.171	2034	3476
2.000	.171	2035	3477

HEX STAINLESS STEEL SPACERS

Material: Per QQ-S-764, Class 303 — Corrosion Resistant
- 4-40 Thread ¾″ Long and Over, Tapped ¼″ Each End
- 6-32 & 8-32 Thread 1″ Long and Over, Tapped ⅜″ Each End



L — Length Inches	4-40 Thread No.	6-32 Thread No.	8-32 Thread No.
¼ (.250)	1921	1922	1923
⅜ (.375)	1921A	1922A	1923A
½ (.500)	1921B	1922B	1923B
¾ (.750)	1921C	1922C	1923C
1 (1.000)	1921D	1922D	1923D
1½ (1.500)	1921E	1922E	1923E
2 (2.000)	1921F	1922F	1923F

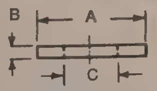
FLAT WASHERS NYLON & FIBRE

We can manufacture many other sizes and materials.

Material:

Fibre: Commercial per MIL-F-1148A, Grade CH.

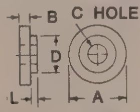
Nylon: Grade 6/6 per MIL-P-20693A.



FIBRE B — Thickness						NYLON B — Thickness		
.032 No.	.047 No.	.062 No.	Screw Size	C I.D.	A O.D.	.032 No.	.047 No.	.062 No.
3111	3148	3366	#2	.098	.187	3114	3151	3356
3112	3149	3367			.250	3347	3152	3357
3113	3150	3194			.312	3115	3153	3195
3116	3154	3368	#4	.120	.250	3348	345	3358
348	3155	3196			.312	3359	3157	3198
3117	3156	3197			.375	3118	3158	3200
3119	3159	3369	#6	.140	.250	3122	3162	3360
3120	3160	3370			.312	3349	346	3361
3121	3161	3201			.375	3123	3163	3202
3124	3164	3203	#8	.171	.312	3127	3167	3205
3125	3165	3372			.375	3350	3168	3363
3126	3166	3204			.437	3128	3169	3206
349	3170	3207	#10	.196	.312	3364	3174	3211
3129	3171	3208			.375	3352	3175	3212
3130	3172	3209			.437	3132	3176	3213
3131	3173	3210			.500	3133	3177	3214
3134	3178	3215	¼	.260	.437	3138	3182	3218
3135	3179	3373			.500	3353	3183	3365
3136	3180	3216			.625	3139	3184	3219
3137	3181	3217			.750	3140	3185	3220
3141	3186	3221	⅜	.385	.500	3145	3190	3225
3142	3187	3222			.625	3354	3191	3226
3143	3188	3223			.750	3146	3192	3227
3144	3189	3224			1.000	3147	3193	3228

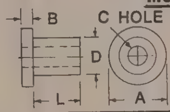
FIBRE SHOULDER WASHERS

Material: Fibre, Commercial per MIL-F-1148A, Grade CH



No.	Screw Size	L	A	B	C	D
3229	2	.025	.250	.047	.093	.156
3061	2	.025	.250	.047	.093	.156
344	4	.015	.312	.062	.125	.203
343	4	.025	.312	.062	.125	.203
3062	4	.031	.250	.031	.115	.187
3230	4	.031	.281	.062	.115	.175
3231	4	.031	.312	.062	.120	.180
4698	6	.031	.250	.062	.140	.187
3064	6	.031	.312	.062	.140	.187
3232	6	.031	.375	.062	.140	.210
3233	6	.031	.375	.062	.140	.240
3234	6	.031	.500	.062	.140	.240
3065	8	.031	.375	.062	.170	.246
3066	8	.031	.417	.062	.170	.210
3235	8	.031	.312	.062	.170	.218
3236	8	.031	.375	.062	.170	.215
3237	8	.031	.500	.062	.170	.240
4702	10	.031	.375	.062	.194	.308
3238	10	.031	.375	.062	.194	.240
3239	10	.031	.500	.062	.196	.240
4711	¼	.031	.500	.062	.253	.308
3240	¼	.031	.625	.062	.265	.359
3069	⅜	.031	.625	.062	.385	.498
3241	⅜	.031	.750	.062	.385	.498

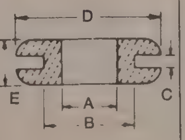
MOLDED NYLON SHOULDER BUSHINGS



No.	Screw Size	L	A	B	C	D
3051	2	.125	.181	.047	.090	.120
3101	2	.187	.181	.047	.090	.120
3052	2	.250	.181	.047	.090	.120
3053	4	.093	.235	.047	.115	.145
3102	4	.125	.235	.047	.115	.145
3103	4	.187	.235	.047	.115	.145
340	4	.250	.235	.047	.115	.145
3054	6	.125	.290	.047	.140	.170
3104	6	.187	.290	.047	.140	.170
341	6	.250	.290	.047	.140	.170
3055	6	.500	.290	.047	.140	.170
3056	8	.140	.344	.062	.171	.205
3105	8	.250	.344	.062	.171	.205
342	8	.375	.344	.062	.171	.205
3106	8	.500	.344	.062	.171	.205
3107	10	.093	.438	.062	.200	.260
3108	10	.250	.399	.062	.200	.260
3057	10	.500	.399	.062	.200	.260
3058	10	.750	.399	.062	.200	.260
3059	¼	.187	.513	.062	.260	.312
3109	¼	.250	.513	.062	.260	.312
3110	¼	.375	.513	.062	.260	.312
3060	¼	.500	.513	.062	.260	.312

RUBBER GROMMETS

Made from BUNA S. Ideal for electrical insulation.



No.	I.D. "A"	Groove "B"	For Panel "C"	"D"	"E"
733	.125	.250	.062	.343	.187
734	.125	.437	.062	.625	.187
735	.125	.375	.093	.500	.312
736	.187	.312	.062	.437	.187
737	.187	.281	.093	.437	.218
738	.250	.437	.062	625	.187
739	.250	.375	.062	.500	.250
740	.250	.375	.093	.500	.250
741	.312	.562	.062	.812	.312
742	.312	.437	.062	.625	.281
743	.312	.437	.093	.625	.312
744	.375	.625	.062	.875	.312
745	.375	.500	.062	.625	.250
746	.437	.687	.062	.937	.312
747	.500	.812	.062	1.062	.312
748	.500	1.250	.062	1.500	.250
749	.500	.750	.093	.875	.343
750	.562	.812	.062	1.062	.312
752	.625	.875	.062	1.125	.312
753	.625	1.250	.062	1.500	.250
755	.750	1.062	.062	1.375	.375
756	.750	1.437	.062	1.812	.375
757	.875	1.250	.062	1.625	.437

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KEYSTONE

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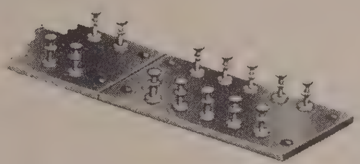
TURRET TERMINAL BOARDS-SCREW BINDING POST STRIPS

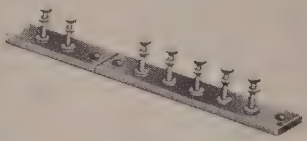
SCORED TURRET TERMINAL BOARDS

Standardized Turret Terminal Boards — Available from Stock

Terminals: QQ-626, comp. 22, ½ hard, Hot Dip Solder finish: MIL-F-14072 Type 221.
Material: Your choice of either PBE or GEE Phenolic.

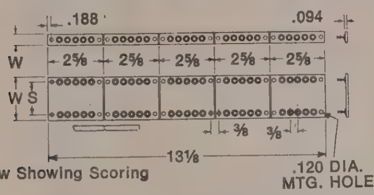
PBE: Paper base electrical, MIL-P-3115C, Temp. 250°F max. Type XXXP.
GEE: Glass Epoxy, MIL-P-18177, Temp. 300°F max. Type G-10.

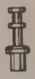
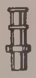
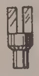
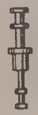




TURRET TERMINAL BOARDS
3/8″ SPACING AND SCORED

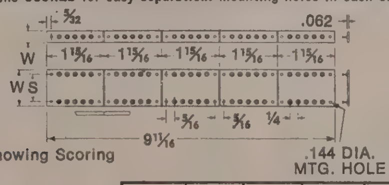
3/32″ Thick Phenolic — Choice of 4 Types of Terminals.
Overall Length of Board 13⅛″, Five 2⅝″ Sections.
Five sections **SCORED** for easy **separation.** Mounting holes in each section.

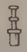
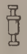
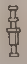
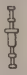
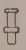


CHOICE OF TERMINALS					 Hole thru	 Hole thru	
W	S	No. of Terms.	Material	With 1503 Term. No.	With 1509 Term. No.	With 1507 Term. No.	With 1545 Term. No.
½	Single Row	25	PBE	15031	15091	15071	15041
			GEE	15231	15291	15271	15241
1½	1	50	PBE	15032	15092	15072	15042
			GEE	15232	15292	15272	15242
1½	1³⁄₁₆	50	PBE	15036	15096	15076	15046
			GEE	15236	15296	15276	15246
2	1½	50	PBE	15033	15093	15073	15043
			GEE	15233	15293	15273	15243
2½	2	50	PBE	15034	15094	15074	15044
			GEE	15234	15294	15274	15244
3	2½	50	PBE	15035	15095	15075	15045
			GEE	15235	15295	15275	15245

MINIATURE TURRET TERMINAL BOARDS
¼″ SPACING AND SCORED

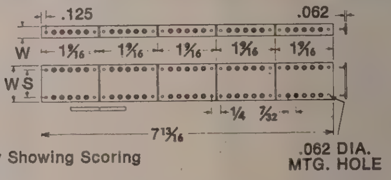
¼″ Spacing and Scored — 1/16″ Thick Phenolic.
Overall Length of Board is 9¹¹⁄₁₆″, Five 1¹⁵⁄₁₆″ Sections — Choice of 6 Types of Terminals.
Five sections **SCORED** for easy **separation.** Mounting holes in each section.

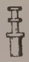
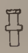
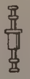


CHOICE OF TERMINALS									
W	S	No. of Terms.	Material	With 1572 Term. No.	With 1573 Term. No.	With 1574 Term. No.	With 1575 Term. No.	With 1583 Term. No.	With 1559 Term. No.
5/16	Single Row	25	PBE	15047	15057	15067	15077	15087	15097
			GEE	15247	15257	15267	15277	15287	15297
⅞	9/16	50	PBE	15048	15058	15068	15078	15088	15098
			GEE	15248	15258	15268	15278	15288	15298
1⅛	13/16	50	PBE	15049	15059	15069	15079	15089	15099
			GEE	15249	15259	15269	15279	15289	15299

MINIATURE TURRET TERMINAL BOARDS
7/32″ SPACING AND SCORED

7/32″ Spacing and Scored — 1/16″ Thick Phenolic.
Overall Length of Board 7¹³⁄₁₆″, Five 1⁹⁄₁₆″ Sections — Choice of 5 Types of Terminals.
Five sections **SCORED** for easy **separation.** Mounting holes in each section.



CHOICE OF TERMINALS								
W	S	No. of Terms.	Material	With 1502 Term. No.	With 1562 Term. No.	With 1526 Term. No.	With 1512 Term. No.	With 1533 Term. No.
5/16	Single Row	25	PBE	15021	15023	15025	15063	15053
			GEE	15221	15223	15225	15263	15253
¾	½	50	PBE	15028	15029	15026	15064	15054
			GEE	15228	15229	15226	15264	15254
1	¾	50	PBE	15022	15024	15030	15065	15056
			GEE	15222	15224	15230	15265	15256

SCREW BINDING POST STRIPS

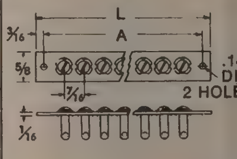
Your Choice of Glass Epoxy or Fiberglass Materials.

Material Specifications

Fiberglass: Reinforced Polyester NEMA Grade GPO-3. Rated for 300°F (155°C).
GEE: Glass Epoxy, MIL-P-18177 temp., 300°F. Max. Type G-10.
Terminal: Standard Strip: 6-32 tapped brass - cadmium plated
Heavy Duty: 8-32 tapped brass - hot tin dipped

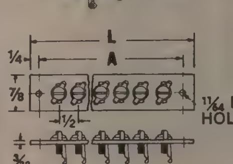
STANDARD BINDING POST STRIPS

1/16″ Thick Material ⅝″ Wide				
Glass Epoxy No.	Fiber-glass No.	L Length	A — Mtg. Centers	No. Term.
4177	4167	1¼	⅞	1
4178	4168	1¹¹⁄₁₆	1⁵⁄₁₆	2
4179	4169	2⅛	1¾	3
4180	4170	2⁹⁄₁₆	2³⁄₁₆	4
4181	4171	3	2⅝	5
4182	4172	3⁷⁄₁₆	3¹⁄₁₆	6
4183	4173	3⅞	3½	7
4184	4174	4⁵⁄₁₆	3¹⁵⁄₁₆	8
4185	4175	4¾	4⅜	9
4186	4176	5³⁄₁₆	4¹³⁄₁₆	10



HEAVY DUTY BINDING POST STRIPS

3/32″ Thick Material ⅞″ Wide				
Glass Epoxy No.	Fiber-glass No.	L Length	A — Mtg. Centers	No. Term.
4147	4157	1½	1	1
4148	4158	2	1½	2
4149	4159	2½	2	3
4150	4160	3	2½	4
4151	4161	3½	3	5
4152	4162	4	3½	6
4153	4163	4½	4	7
4154	4164	5	4½	8
4155	4165	5½	5	9
4156	4166	6	5½	10



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HINGES-INSTRUMENT CASES TERMINAL STRIPS-SPACER KITS

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SPACER ORGANIZER

Reaching is Easier than Searching

BRASS, ALUMINUM & NYLON — TAPPED & CLEAR HOLE

All practical sizes and types. Complete inventory of most frequently used sizes.

- Choice of 8 different kits
- Labeled for easy identification
- Clear Plastic drawers

¼" O.D. Round (Threaded) Standoff
Brass Nickel Plated
Assortment of 1500 pcs.
In ¼", ⅜", ½", ¾" and 1" lengths.
With thread sizes of 4-40, 6-32 and 8-32.
100 pcs. of each size complete with cabinet.
KIT NO. STR-15

¼" HEX (Threaded) Standoff
Brass Cadmium Plated
Assortment of 1500 pcs.
In ¼", ⅜", ½", ¾" and 1" lengths.
With thread sizes of 4-40, 6-32 and 8-32.
100 pcs. of each size complete with cabinet.
KIT NO. STH-14

¼" O.D. Round (Threaded) Standoff
Aluminum Iridite Finish
Assortment of 1500 pcs.
In ¼", ⅜", ½", ¾" and 1" lengths.
With thread sizes of 4-40, 6-32 and 8-32.
100 pcs. of each size complete with cabinet.
KIT NO. STR-35

¼" HEX (Threaded) Standoff
Aluminum Iridite Finish
Assortment of 1500 pcs.
In ¼", ⅜", ½", ¾" and 1" lengths.
With thread sizes of 4-40, 6-32 and 8-32.
100 pcs. of each size complete with cabinet.
KIT NO. STH-22

¼" O.D. Round (Clear) Spacer
Brass Nickel Plated
Assortment of 1500 pcs.
In ¼", ⅜", ½", ¾" and 1" lengths.
With clearance holes for #4, #6 and #8.
100 pcs. of each size complete with cabinet.
KIT NO. SPR-13.

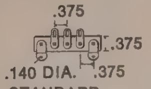
¼" HEX Male/Female Standoffs
Brass Nickel Plated
Assortment of 750 pcs.
In ½", ¾", 1", 1¼", and 1½" lengths.
With thread sizes of 4-40, 6-32 and 8-32.
50 pcs. of each size complete with cabinet.
KIT NO. STH-19

¼" O.D. Round (Clear) Spacer
Aluminum Iridite Finish
Assortment of 1500 pcs.
In ¼", ⅜", ½", ¾" and 1" lengths.
With clearance holes for #4, #6 and #8.
100 pcs. of each size complete with cabinet.
KIT NO. SPR-34

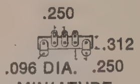
¼" Round (Clear) Spacer
Nylon 6/6
Assortment of 1500 pcs.
In ¼", ⅜", ½", ¾" and 1" lengths.
With clearance holes for #4, #6 and #8.
100 pcs. of each size complete with cabinet.
KIT NO. SPR-8

TERMINAL STRIPS (Standard & Miniature)

These bakelite strips will neatly support resistors, capacitors, etc., in circuit wiring. Cadmium plated steel lugs and brackets. Bakelite XP 1/16 thick. **STANDARD** strips are .375 wide on .375 centers with .140 diameter mounting holes on bracket. **MINIATURE** strips are .312 wide on .250 centers with .096 diameter mounting holes on bracket. In addition to the strips shown, we manufacture many other varieties in any configuration and materials required. Send samples or sketch for prompt quotation.



STANDARD



MINIATURE

FIG. 1

FIG. 2

FIG. 3

FIG. 4

FIG. 5

FIG. 6

FIG. 7

FIG. 8

FIG. 9

FIG. 10

FIG. 11

FIG. 12

FIG. 13

FIG. 14

FIG. 15

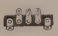


FIG. 16

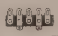


FIG. 17

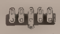


FIG. 18

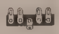


FIG. 19

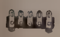


FIG. 20

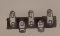


FIG. 21

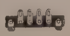


FIG. 22

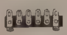


FIG. 23

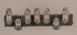


FIG. 24

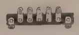


FIG. 25

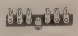


FIG. 26

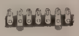


FIG. 27

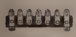


FIG. 28

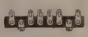


FIG. 29

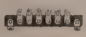


FIG. 30

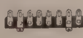


FIG. 31

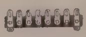


FIG. 32

FIG. 33

FIG. 34

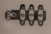


FIG. 35

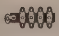


FIG. 36

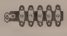


FIG. 37

Standard No.	Fig. No.	Miniature No.
800	1	837
801	2	838
802	3	839
803	4	840
804	5	841
805	6	842
806	7	843
807	8	844
808	9	845
809	10	846
810	11	847
811	12	848
812	13	849

Standard No.	Fig. No.	Miniature No.
813	14	850
814	15	851
815	16	852
816	17	853
817	18	854
818	19	855
819	20	856
820	21	857
821	22	858
822	23	859
823	24	860
824	25	861
825	26	862

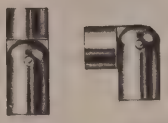
Standard No.	Fig. No.	Miniature No.
826	27	863
827	28	864
828	29	865
829	30	866
830	31	867
831	32	868
832	33	869
833	34	870
834	35	871
835	36	872
836	37	873

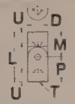
HINGED STANDOFFS FOR TERMINAL BOARDS

APPLICATIONS UNLIMITED • TIME SAVING • CUT COST OF SERVICING • SPACE SAVER INTERCONNECT CIRCUITS OR SERVICES WITHOUT DANGER OF SHORTING • WIRING EXPOSED FOR EASY TEST

MATERIAL: Brass MIL SPEC. QQ-B-626A Comp. 22—½ Hard.
FINISH: Cadmium Plate per QQ-P-416 Class 2, Type 2 and gold Iridite.

FEMALE/FEMALE HINGE

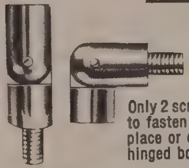




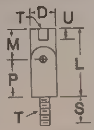
STANDOFF ONLY
For Front of Board
These standoffs mount at front of the board.

Hinge No.	T Thread	D Diam.	L Length	U	M	P	No.	L Length
351	4-40	.187	.750	.172	.375	.375	1657A	.750
352	4-40	.187	1.000	.250	.375	.625	1657B	1.000
330	4-40	.187	1.250	.250	.625	.625	1881	1.250
353	6-32	.250	.750	.172	.375	.375	1548E	.750
354	6-32	.250	1.000	.250	.375	.625	1548F	1.000
331	6-32	.250	1.250	.250	.625	.625	1881	1.250
355	8-32	.250	.750	.172	.375	.375	1692D	.750
356	8-32	.250	1.000	.250	.375	.625	1692E	1.000
332	8-32	.250	1.250	.250	.625	.625	1881	1.250

MALE/FEMALE HINGE



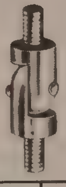
Only 2 screws used to fasten board in place or open the hinged board.

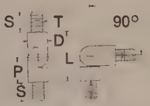


STANDOFF ONLY
For Front of Board
These standoffs mount at front of the board.

Hinge No.	T Thread	L Length	D Diam.	S	U	P	M	No.	L Length
333	4-40	.625	.187	.250	.172	.250	.375	1865	.625
334	4-40	.875	.187	.250	.250	.250	.625	1866	.875
335	6-32	.625	.250	.312	.172	.250	.375	1548D	.625
336	6-32	.875	.250	.312	.250	.250	.625	1879	.875
337	8-32	.625	.250	.312	.172	.250	.375	1887	.625
338	8-32	.875	.250	.312	.250	.250	.625	1888	.875

MALE/MALE HINGE





STANDOFF ONLY
For Front of Board
These standoffs mount at front of the board.

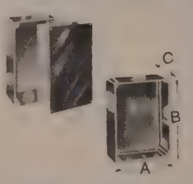
Hinge No.	T Thread	L Length	D Diam.	S	P	No.
357	4-40	½	.187	¼	¼	1657
358	6-32	½	.250	5/16	¼	1548C
359	8-32	½	.250	5/16	¼	1692C

PHENOLIC INSTRUMENT CASES

- **For General Purpose Use • Sturdy Construction • .125 Thick Walls — Molded Glossy Black Phenolic MIL-M-14, CFG.**

BOXES: Precision molded with rounded outside corners, and 6-32 x 3/16" deep threaded Brass inserts imbedded in each corner.

Your Choice of Aluminum or Phenolic Panels.



Case Only No.	A	B	C	Black Phenolic Panel Only No.	Aluminum Panel Only No.
*703	2⅞	3 15/16	1 7/16	2042	2044
†705	2⅞	3 15/16	1 7/16	2042	2044
*704	3 1/16	5⅞	2¼	2043	2045
700	3¾	6¼	2	2037	2046
701	5¼	6¾	2 5/16	2038	2047
702	7⅜	8⅜	3	2039	2048

* 703 and 704 have 4-40 tapped hole in each corner — no brass insert.
† 705 mounting holes untapped — use #4 self tapping screw.
Panels or boxes will be drilled to your specifications. Ask for quotation.

KEYSTONE ELECTRONICS CORP., 49 BLEECKER STREET, NEW YORK, NY 10012 • (212) 475-4600 • TWX-710-581-2861

KEYSTONE

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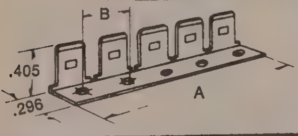
DISCONNECT TABS ANGLE BRACKETS

K WIK DISCONNECT TABS

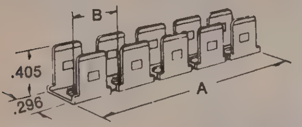
- ECONOMICAL • DELIVERY FROM STOCK • MAXIMUM DENSITY OF PACKAGING
- APPLICATIONS UNLIMITED • MOUNT DIRECTLY TO PRINTED CIRCUIT BOARD
- MATES WITH STANDARD FEMALE CONNECTORS
- MATING TAB PORTION DESIGNED TO NEMA STANDARDS

These space saving tabs are supplied from stock in sizes .110, .187, .205, and .250. They are easily assembled into punched or pre-drilled holes. Create special circuitry at lowest cost and on short notice.

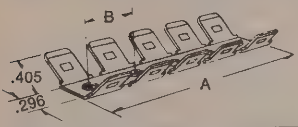
MULTIPLE



No.	A	B	Hole	Pairs
1001	.625	.375	.130	2
1002	1.052	.375	.130	3
1003	1.422	.375	.130	4
1004	1.792	.375	.130	5

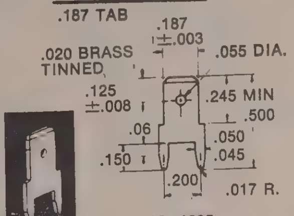


No.	A	B	Hole	Pairs
1005	.703	.375	.130	2
1006	1.075	.375	.130	3
1007	1.442	.375	.130	4
1008	1.837	.375	.130	5

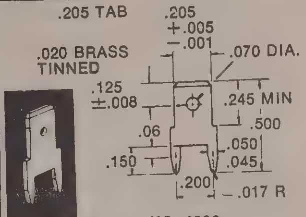


No.	A	B	Hole	Pairs
1009	.703	.375	.130	2
1010	1.075	.375	.130	3
1011	1.442	.375	.130	4
1012	1.837	.375	.130	5

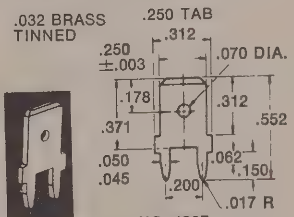
PRINTED CIRCUIT


.187 TAB
.187 ±.003
.020 BRASS TINNED
.055 DIA.
.125 ±.008
.245 MIN
.500
.06
.050
.045
.150
.200
.017 R.

NO. 1285

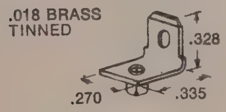

.205 TAB
.205 +.005 −.001
.020 BRASS TINNED
.070 DIA.
.125 ±.008
.245 MIN
.500
.06
.050
.045
.150
.200
.017 R

NO. 1286

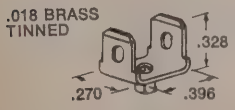

.032 BRASS TINNED
.250 TAB
.312
.250 ±.003
.070 DIA.
.178
.312
.552
.371
.050
.045
.062
.150
.200
.017 R

NO. 1287

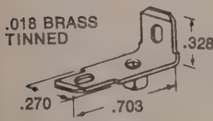
STAKE ON


.018 BRASS TINNED
.328
.270
.335

NO. 1253

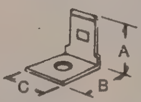

.018 BRASS TINNED
.328
.270
.396

NO. 1254

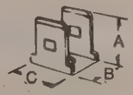

.018 BRASS TINNED
.328
.270
.703

NO. 1255

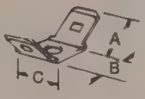
RIVET ON



No.	A	B	C	Tab	Mat.	Hole
1261	.370	.245	.250	.187	.020	.099
1256	.405	.343	.312	.250	.032	.130



No.	A	B	C	Tab	Mat.	Hole
1262	.312	.250	.250	.187	.020	.099
1257	.405	.343	.312	.250	.032	.130

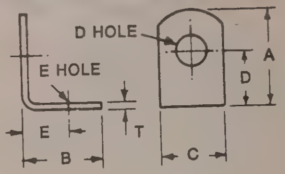


No.	A	B	C	Tab	Mat.	Hole
1263	.343	.250	.265	.187	.020	.135
1258	.405	.281	.312	.250	.032	.130

UNIVERSAL BRACKETS

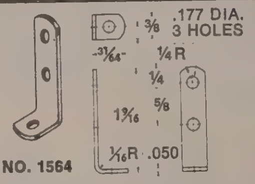
A wide range of Brackets for many uses and for your particular applications. Available from stock — Made of approved materials and platings.

610
633
611
612
613
615
614
634
616
617
618
619
620


D HOLE
E HOLE
A
D
E
B
T
C

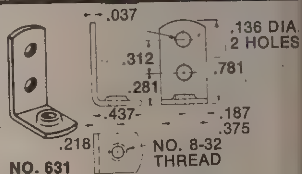
Standard Brackets
Brass and Steel
(See Cat. P. 44)

No.	A	B	C	D	D Hole Dia.	E	E Hole Dia.	T Material	Finish
610	.171	.171	.125	.109	.067	.109	.067	.018 BRASS	TIN
611	.375	.422	.312	.234	.135	.250	8-32 TAP	.037 BRASS	TIN
612	.343	.375	.250	.203	.128	.250	4-40 TAP	.062 STEEL	ZINC
633	.375	.375	.281	.218	.140	.218	.140	.032 BRASS	N.P.
634	.375	.375	.281	.218	.140	.218	6-32 TAP	.032 BRASS	N.P.
613	.390	.453	.375	.234	.147	.299	.128	.032 BRASS	N.P.
614	.406	.343	.312	.250	.144	.187	6-32 TAP	.032 BRASS	TIN
615	.437	.343	.281	.281	.144	.203	.125	.032 BRASS	TIN
616	.453	.312	.250	.265	.136	.187	4-40 TAP	.046 BRASS	TIN
617	.578	.500	.500	.328	.165	.299	6-32 TAP	.062 STEEL	TIN
618	.628	.628	.375	.378	.169	.378	.169	.050 BRASS	N.P.
619	.687	.687	.375	.500	.144	.500	.144	.032 STEEL	N.P.
620	1.156	.656	.375	.906	.169	.406	.169	.032 STEEL	TIN


.177 DIA.
3 HOLES
3/8
-31/64-
1/4 R
1/4
5/8
1 3/16
1/16 R
.050

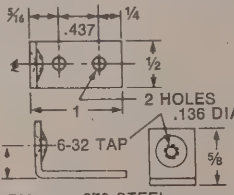
NO. 1564

.062 STEEL — NICKEL PLATE

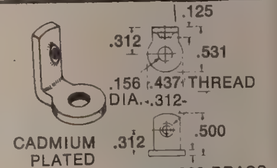

.037
.136 DIA.
2 HOLES
.312
.781
.281
.437
.187
.375
.218
NO. 8-32
THREAD

NO. 631

.037 STEEL, CADMIUM PLATED


5/16
1/4
.437
1/2
1
2 HOLES
.136 DIA.
6-32 TAP
3/8
5/8

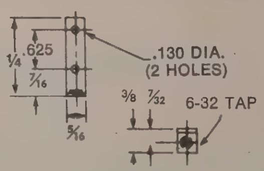
NO. 709 .078 STEEL CADMIUM PLATED


.125
.312
.531
.156 DIA.
.437
THREAD
.312
.312
.500

CADMIUM PLATED

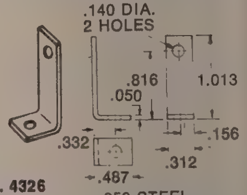
.062 BRASS

NO. 4332 (TAPPED 6-32)
NO. 4333 (TAPPED 8-32)


1/4
.625
7/16
.130 DIA.
(2 HOLES)
3/8
7/32
6-32 TAP
5/16

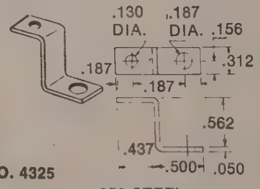
NO. 708

.062 STEEL
CADMIUM PLATED


.140 DIA.
2 HOLES
.816
1.013
.050
.156
.332
.312
.487

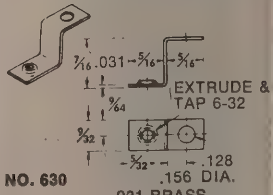
NO. 4326

.050 STEEL
CADMIUM PLATED


.130 DIA.
.187 DIA.
.156
.187
.312
.187
.562
.437
.500
.050

NO. 4325

.050 STEEL
CADMIUM PLATED


7/16
.031
5/16
5/16
EXTRUDE &
TAP 6-32
9/64
3/32
5/32
.128
.156 DIA.

NO. 630

.031 BRASS
CADMIUM PLATED

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SEMICONDUCTOR MOUNTING KITS- FUSE MOUNTS

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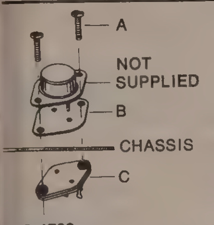
• EASIER MOUNTING TO CHASSIS • BETTER THERMAL EFFICIENCY

Avoids soldering directly to the semiconductor. Purchase the complete kit consisting of socket, mica insulator and all hardware included in one package.

MATERIAL SPECIFICATIONS:
Nylon: 101 MIL-P-20693A.
Phenolic: XP grade Federal L-P-509 Type 1, Form S.
Socket Contacts: Brass, QQ 626 Comp 22, Cadmium Plated QQ-P-416 Type 2.
Screws: Steel, type B, 4-40 or 6-20 as required.
Collector Plate: Steel .030 thick, Cadmium Plated.
COMPLETE KITS OR INDIVIDUAL HARDWARE

ORDERING INFORMATION: Individual parts are sold in not less than 100 pieces of an item. Complete kits are ordered by specifying the complete mounting kit catalog number.

SOCKET MOUNTING FOR TO-3 CASE



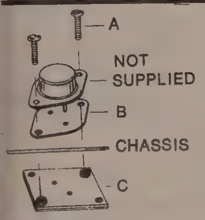
NO.4732

The socket and transistor are assembled without previous attachment to the chassis. Contacts are spaced .430 apart and accept the pins of the semiconductor easily and hold securely. Bosses on top plate are .045 high.

Item	No.	Description	Quantity
A	4706	6-20 Screws	2
B	4651	Mica Insulator	1
C	4602	Diamond Shaped Socket	1

Complete Mounting Kit (includes all of the above) **No. 4732**

SOCKET MOUNTING FOR TO-3 CASE



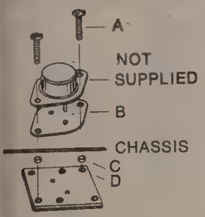
NO. 4734

An all phenolic socket that is pre-assembled to the chassis by eyelets or rivets. Spacing of brass contacts .430 Centers.

Item	No.	Description	Quantity
A	4706	6-20 Screws	2
B	4651	Mica Insulator	1
C	4684	Nylon Bushings	4
D	4606	Square Phenolic Socket	1

Complete Mounting Kit (includes all of the above) **No. 4734**

SOCKET MOUNTING TO-66 CASE



NO. 4738

All phenolic socket assembled with contacts on .200 centers sturdily constructed for heavy duty usage, pre-assembled to the chassis by eyelets or rivets.

Item	No.	Description	Quantity
A	4706	6-20 Screws	2
B	4666	Mica Insulator	1
C	4684	Spacers	4
D	4615	Socket	1

Complete Mounting Kit (includes all of the above) **No. 4738**

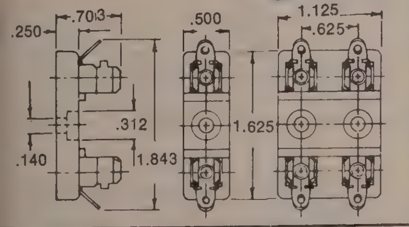
MOLDED FUSE MOUNTINGS FOR 3 AG FUSES

UL APPROVED MATERIALS — LOW CONTACT RESISTANCE
LOW COST — FLAME RETARDANT — FROM STOCK

A new improved Fuse Holder for the popular 3 AG fuse. Molded with barriers to prevent flashover and withstand breakdown at 1080 RMS at 60 Hz for 1 minute and 3000 V. DC for 1 minute.

NO. 3523

NO. 3524



MATERIAL SPECIFICATIONS: Clips stamped from Brass alloy type CDA 260 and Bright Dip Plated.

MOLDED PLASTIC is mineral filled flame retardant Alkyd, UL rated 94V-0 and conforms to the 180 seconds arc tracking test spec per ASTM 495-D.

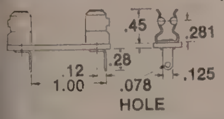
STANDARD STOCK: Blocks are assembled with our #3535 fuse clip, Bright Dip Plated. Black plastic base.

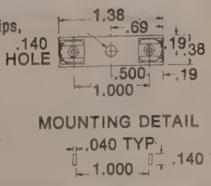
MODIFICATIONS: We will substitute any clips of your choice assembled to these bases. Quotations will be promptly rendered.

CONTACT RESISTANCE: Will not exceed 50m ohms before and after being in atmosphere of 100% R.H. at 65 deg. Centigrade for 48 hours, then air dried for 1 hour.

FUSE STRIP FOR 3 AG FUSES

MATERIAL: .062 GPO-3
PLATING: Terminals, Tinned Clips, Tinned





MOUNTING DETAIL

NO. 3526

COMPLETE KITS OR INDIVIDUAL HARDWARE

Provides all necessary hardware and insulators required to securely mount semiconductor to chassis. Purchase the complete kit consisting of all hardware included in one package. Choice of individual items available in 100 piece packages.

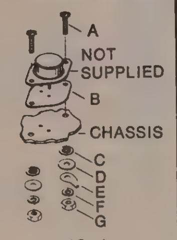


FIG. 1

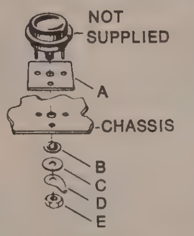


FIG. 2

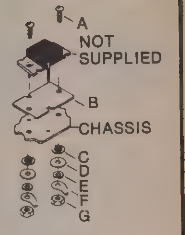


FIG. 3

FOR TO-66 CASES (FIG. 1)

Item	No.	Description	Quan.
A	4696	6-32 Screws	2
B	4666	Mica Insulator	1
C	4698	Shoulder Washers	2
D	4699	Metal Washers	2
E	4004	Solder Terminal	1
F	4700	Lockwashers	2
G	4701	6-32 Nuts	2

For Complete Kit — Specify **No. 4726**

FOR TO-3 CASES (FIG. 1)

Item	No.	Description	Quan.
A	4696	6-32 Screws	2
B	4651	Mica Insulator	1
C	4698	Shoulder Washers	2
D	4699	Metal Washers	2
E	4004	Solder Terminal	1
F	4700	Lockwashers	2
G	4701	6-32 Nuts	2

For Complete Kit — Specify **No. 4725**

FOR PLASTIC CASES (FIG. 3)

Item	No.	Description	Quan.
A	4690	4-40 Screws	2
B	4663	Mica Insulator	1
C	343	Shoulder Washers	2
D	4692	Metal Washers	2
E	4693	Lockwashers	2
F	4695	Solder Terminals	2
G	4694	4-40 Nuts	2

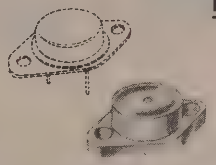
For Complete Kit — Specify **No. 4728**

FOR TO-36 CASES (FIG. 2)

Item	No.	Description	Quan.
A	4656	Mica Insulator	1
B	4702	Shoulder Washer	1
C	4703	Metal Washer	1
D	4704	Solder Terminal	1
E	4705	10-32 Nut	1

For Complete Kit — Specify **No. 4727**

MOLDED NYLON COVERS

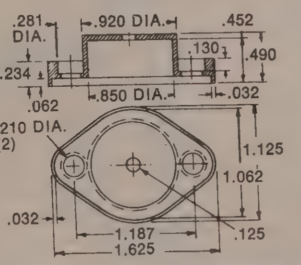


These low cost molded Nylon type 66 covers easily mount over and insulate the transistor. Will withstand temperatures to approx. 300 deg F.

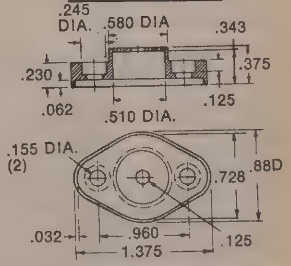
For **TO-3** Specify **NO. 4632** (no eyelets)
With **Eyelets** Specify **NO. 4634** (.140 ID)

For **TO-66** Specify **NO. 4633** (no eyelets)
With **Eyelets** Specify **NO. 4635** (.130 ID)

FOR TO-3 CASES



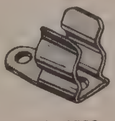
FOR TO-66 CASES



FUSE CLIPS FOR 3 AG FUSES

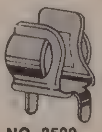
It is less costly to assemble clips of this type as an integral part of your circuit board if fuse in circuit is required. They are rugged, and inexpensive.

• LOW CONTACT RESISTANCE • PERFORMANCE TESTED • .020 BRASS • RATING: 15 AMPS



NO. 3533

NO. 3535



NO. 3529

NO. 3530

COMBINATION ONE PIECE LUG/CLIP — End stops permit use

Nickel Plated	P.C. Type Hot Tin
No. 3533	No. 3529
No. 3535	No. 3530

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KEYSTONE

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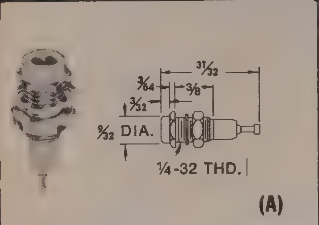
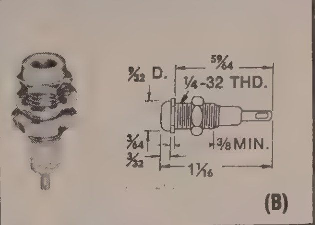
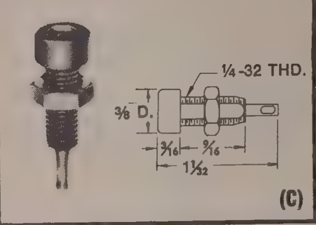
PHONE TIP JACKS-PLUGS



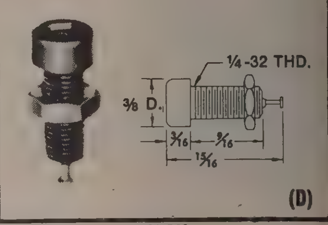
(A)



(B)



(C)



(D)

(A) METAL-CLAD TIP JACK (MILITARY TYPE)

ACCEPTS .080″ TIP (WITH CLOSED ENTRY CONTACT)

No.	Color
6012	WHITE
6013	RED
6014	BLACK
6015	GREEN
6016	YELLOW
6017	BLUE

Recessed closed etnry contact. Current rating: 5 amps. Peak voltage: 8000 volts. Meets MS-16108 Rev. F of MIL-STD-242A and MIL-C-39024/10. Capacitance to metal panel 3.8 pF. Supplied complete with hardware.

MATERIAL SPECIFICATIONS:

BODY: Molded Nylon MIL-20693A.

SHELL & NUT: Brass QQ-B-626; Nickel Plate QQ-N-290.

CONTACT: Beryllium Copper Per QQ-C-533.
Gold Plate MIL-G-45204.

(B) METAL-CLAD TIP JACK (STANDARD)

ACCEPTS .080″ TIP

No.	Color
6024	WHITE
6025	RED
6026	BLACK
6027	GREEN
6028	YELLOW
6029	BLUE

Current rating: 10 amps. Peak voltage: 7000 volts. Capacitance to metal panel 3.8 pF. Supplied with nut.

MATERIAL SPECIFICATIONS:

BODY: Molded Nylon MIL-20693A.

SHELL: Brass Nickel Plated.

CONTACT: Phosphor Bronze Silver Plated.

(C) FULLY-INSULATED STANDARD TIP JACK

ACCEPTS .080″ TIP

No.	Color
6018	WHITE
6019	RED
6020	BLACK
6021	GREEN
6022	YELLOW
6023	BLUE

Low contact resistance. Formed phosphor bronze contact with solder hole for ease in attaching wire. Current rating 10 amps. Peak voltage 9000 volts. Capacitance to metal panel 3.8 pF. Supplied with nut.

MATERIAL SPECIFICATIONS:

BODY: Molded Nylon MIL-20693A.

CONTACT: Phosphor Bronze Cadmium Plated.

(D) FULLY-INSULATED DELUXE TIP JACK

ACCEPTS .080″ TIP (WITH CLOSED ENTRY CONTACT)

No.	Color
6030	WHITE
6031	RED
6032	BLACK
6033	GREEN
6034	YELLOW
6035	BLUE

Molded body with recessed closed entry design. Current rating: 10 amps. Peak voltage 11,000 volts. Capacitance to metal panel 2.0 pF. Supplied with nut.

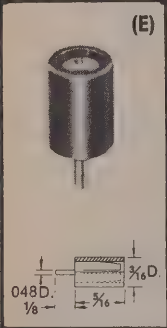
MATERIAL SPECIFICATIONS:

BODY: Molded Nylon MIL-20693A.

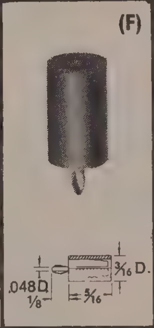
CONTACT: Beryllium Copper Silver Plated.

TERMINAL: Brass, Tin Plated.

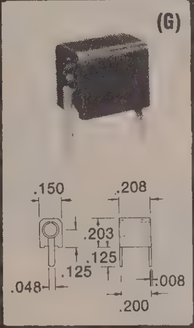
(E)



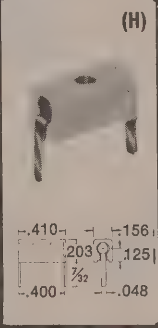
(F)



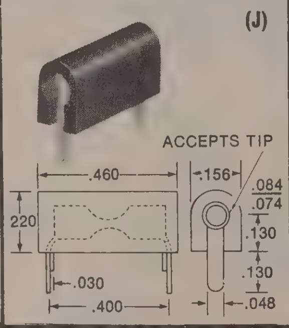
(G)



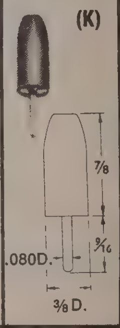
(H)



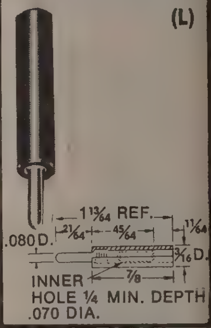
(J)



(K)



(L)



(E) VERTICAL P.C. TEST JACK

ACCEPTS .080″ TIP

No.	Color
6036	WHITE
6037	RED
6038	BLACK
6039	YELLOW
6040	GREEN
6041	BLUE

The contact is recessed to prevent accidental shorting. Capacitance between two adjacent jacks less than 1.0 pF at 1 MHz. Operating voltage is 1500 volts RMS. Current rating 5 amps max.

CONTACT: Machined Beryllium Copper Silver Plated.

BODY: Nylon per ML-P-20693A

(F) SNAP-IN P.C. VERTICAL TEST JACK

No.	Color
6042	WHITE
6043	RED
6044	BLACK
6045	YELLOW
6046	GREEN
6047	BLUE

Contact recessed to prevent accidental shorting. Current rating: 5 amps. Operating voltage 1500 volts RMS. Capacitance between two adjacent jacks less than 1.0 pF at 1 MHz.

CONTACT: Formed Beryllium Copper Silver Plated.

BODY: Nylon per ML-P-20693A

(G) MINIATURE HORIZONTAL P.C. TEST JACK

ACCEPTS .080″ TIP

No.	Color
6048	WHITE
6049	RED
6050	BLACK
6051	YELLOW
6052	GREEN
6053	BLUE

Accepts .080″ tip plug in either end. Can be spaced side by side on .160″ centers minimum. Two common terminals. Current rating: 5 amps. Breakdown voltage: 3000 volts D.C. Capacitance 1.0 pF.

CONTACT: Beryllium Copper Silver Plated.

BODY: Nylon per ML-P-20693A

(H) UNIVERSAL HORIZONTAL P.C. TEST JACK

ACCEPTS .080″ TIP

No.	Color
6054	WHITE
6055	RED
6056	BLACK
6057	YELLOW
6058	GREEN
6059	BLUE

Accepts .080″ tip plug in either end, or from top or bottom. Two common terminals. Current rating: 5 amps. Breakdown voltage: 3000 volts D.C. Capacitance 1.0 pF. Mounts on .400″ centers in .052″ holes. Side by side mounting on .160″ centers.

CONTACT: Beryllium Copper Silver Plated.

BODY: Nylon per ML-P-20693A

(J) LOW PROFILE HORIZONTAL P.C. TEST JACK

ACCEPTS .080″ TIP

Side by side mounting. Closed entry design will not accept tips larger than .084″, and will accept probes of .074″ minimum diameter. Mounts on .400″ centers in .052″ holes. Current rating: 5 amps. W.V.A.C. 1500 volts max. Contact resistance 0.01 ohms maximum.

MATERIAL SPECIFICATIONS:

CONTACT: Beryllium Copper, Silver or Gold Plated.

BODY: Nylon per ML-P-20693A

CHOICE OF GOLD OR SILVER PLATED CONTACTS

WITH GOLD PLATING		WITH SILVER PLATING	
No.	Color	No.	Color
6060	WHITE	6066	WHITE
6061	RED	6067	RED
6062	BLACK	6068	BLACK
6063	YELLOW	6069	YELLOW
6064	GREEN	6067	GREEN
6065	BLUE	6071	BLUE

(K) SOLDERLESS TIP PLUG WITH .080″ DIA.

Recessed metal head eliminates possibility of shock or grounding. Designed for solderless connection of up to 16 gauge stranded wire which fits through handle and tip and is secured by screwing handle tight. Current rating 10 amps.

MATERIAL SPECIFICATIONS:

HANDLE: Nylon Per MIL-P-20693A.

TIP: Brass Nickel Plated.

No.	Color	No.	Color
6000	WHITE	6003	GREEN
6001	RED	6004	YELLOW
6002	BLACK	6005	BLUE

(L) MINIATURE TIP PLUG WITH .080″ DIA.

Solder leads connection. Base of tip is recessed to eliminate shock or grounding. Fits all standard tip jacks. Current rating 10 amps.

MATERIAL SPECIFICATIONS:

HANDLE: Nylon Per MIL-P-20693A.

TIP: Brass Nickel Plated.

No.	Color	No.	Color
6006	WHITE	6009	GREEN
6007	RED	6010	YELLOW
6008	BLACK	6011	BLUE

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BINDING POSTS- BANANA PLUGS- AND JACKS

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BINDING POSTS

FIG. 1

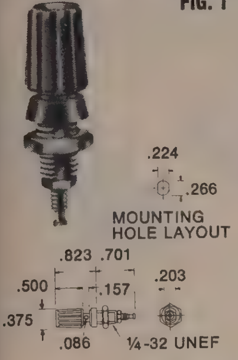

.224
.266
MOUNTING
HOLE LAYOUT
.823
.701
.500
.157
.203
.375
.086
¼-32 UNEF

FIG. 2

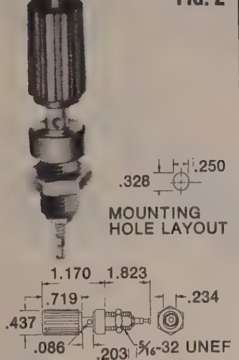

.328
.250
MOUNTING
HOLE LAYOUT
1.170
1.823
.719
.234
.437
.086
.203
5⁄16-32 UNEF

FIG. 3

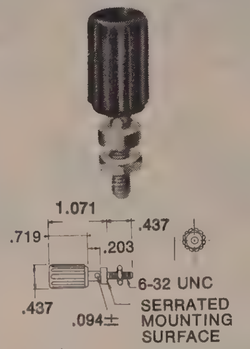

1.071
.437
.719
.203
6-32 UNC
.437
.094±
SERRATED
MOUNTING
SURFACE

FIG. 4

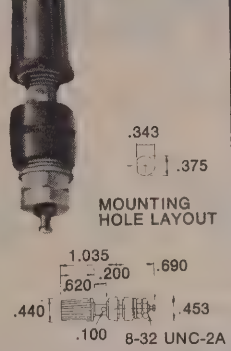
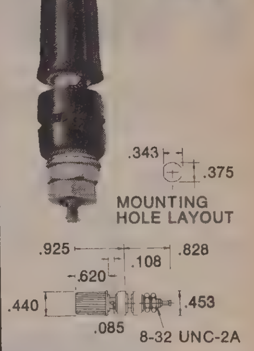

.343
.375
MOUNTING
HOLE LAYOUT
1.035
.620
.200
.690
.440
.453
.100
8-32 UNC-2A

FIG. 5


.343
.375
MOUNTING
HOLE LAYOUT
.925
.828
.108
.620
.440
.453
.085
8-32 UNC-2A

MINIATURE BINDING POSTS (FIG. 1)

FOR .080″ TIP PLUG

No.	Color
7000	RED
7001	BLACK

FOR .120″ PLUG

No.	Color
7002	RED
7003	BLACK

FOR PANELS UP TO .156″ THICK.
CHOICE OF TWO STYLES — FOR .080″ TIP PLUG — FOR .120″ BANANA PLUG

CONTACT SPRING: Beryllium Copper Per QQ-C-533 Silver Plate.

RATINGS: Current 5 Amps. Breakdown Voltage 5000 V.D.C. Stud to Panel Capacitance: 2.0 pF Nominal.

CONTACT RESISTANCE: 0.010 Ohms Max.

STANDARD BINDING POST (FIG. 2)

No.	Color
7004	RED
7005	BLACK

WILL ACCEPT .175″ PLUG
FOR PANELS UP TO .281″ THICK

CURRENT: 15 Amps. Breakdown Voltage — 8000 V.D.C.

STUD TO PANEL CAPACITANCE: 3.3 pF Nominal.

PLATING: Silver.

METAL BINDING POST (FIG. 3)

No.	Color
7006	RED
7007	BLACK

WILL ACCEPT .175″ PLUG
FOR PANELS UP TO .313″ THICK
INSULATED THUMB NUT

CURRENT RATINGS: 15 Amps.

PLATING: Nickel.

STANDARD MIL-TYPE BINDING POST (FIG. 4)

WITH GOLD PLATING

No.	Color
7008	RED
7009	BLACK

WITH BRIGHT TIN

No.	Color
7010	RED
7011	BLACK

WILL ACCEPT .175″ PLUG
FOR PANELS FROM .062″ TO .188″ THICK
CHOICE OF GOLD OR BRIGHT TIN PLATING

CURRENT: 15 Amps.

CONTINUOUS WORKING VOLTAGE: 1000 V.A.C.

STUD TO PANEL CAPACITANCE: 3.0 pF Nominal.

CONTACT RESISTANCE: 0.01 Ohms Max.

STANDARD U.L.-TYPE BINDING POST (FIG. 5)

WITH GOLD PLATING

No.	Color
7012	RED
7013	BLACK

WITH BRIGHT TIN

No.	Color
7014	RED
7015	BLACK

WILL ACCEPT .175″ PLUG
FOR PANELS FROM .062″ TO .188″ THICK
MEETS U.L.-1244, I.E.C. 348.P AND C 39.5-1974 FOR DISTANCE OF THUMB NUT OPENING
CHOICE OF GOLD OR BRIGHT TIN PLATING

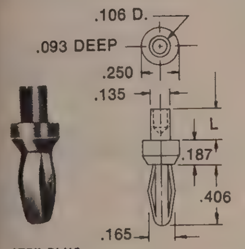
CURRENT: 15 Amps.

CONTINUOUS WORKING VOLTAGE: 1000 V.A.C.

STUD TO PANEL CAPACITANCE: 3.0 pF Nominal.

CONTACT RESISTANCE: 0.01 Ohms Max.

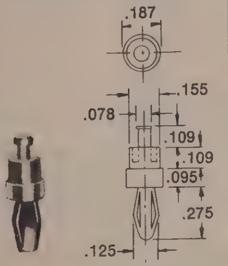
BANANA PLUGS AND JACKS


.106 D.
.093 DEEP
.250
.135
L
.187
.406
.165

.175″ PLUG

No.	L
552-3	.156
552-4	.218

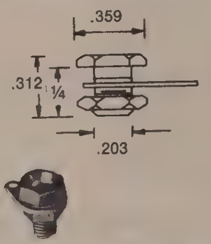
SPRING: Beryllium Copper.
BODY: Brass, Silver Plate.


.187
.155
.078
.109
.109
.095
.275
.125

.120″ PLUG **NO. 452 PLUG**

Jack

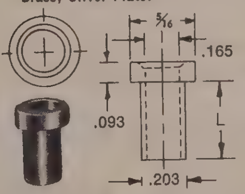
BODY: Brass, Nickel Plate.
TERMINAL: Copper, Tinned.


.359
.312
¼
.203

FOR .120″ PLUG **NO. 6090**

Jack

Brass, Silver Plate.

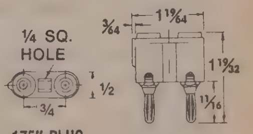

5⁄16
.165
.093
L
.203

FOR .175″ PLUG

No.	L
575-4	.218
575-6	.265
575-8	.350

DUAL BANANA PLUG

SPRING: Nickel Silver.
BODY: Brass, Nickel Plate.
FRAME: Nylon.

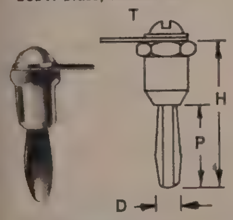

¼ SQ.
HOLE
3⁄64
1 13⁄64
1 13⁄32
½
1 1⁄16
¾

.175″ PLUG

SOLDERLESS

No.	Color
6086	RED
6087	BLACK

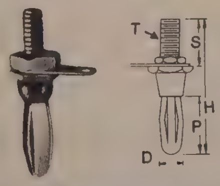
SPRING: Nickel Silver.
BODY: Brass, Nickel Plate.



INTERNAL THREAD

No.	D	P	H	T
6072	.175	.531	.937	6-32
6073	.300	.750	1.12	10-32

SPRING: Nickel Silver.
BODY: Brass, Nickel Plate.

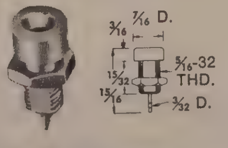


EXTERNAL THREAD

No.	D	P	H	S	T
6074-1	.175	.531	1⅛	.375	6-32
6074-2	.175	.531	1½	.750	6-32
6075	.300	.750	1¾	.625	¼-28

Jack

BODY: Nylon.
CONTACT: Brass, Cadmium Plate.


3⁄16
7⁄16 D.
5⁄16-32
THD.
15⁄32
15⁄16
3⁄32 D.

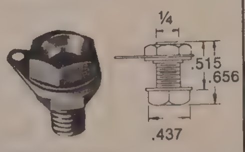
FOR .175″ PLUG

FULLY INSULATED

No.	Color
6091	RED
6092	BLACK

Jack

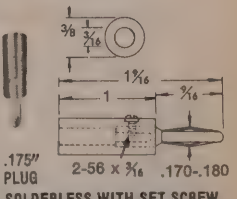
BODY: Brass, Nickel Plate.
TERMINAL: Copper, Tinned.
HEX HEAD: Nylon.


¼
.515
.656
.437

FOR .175″ PLUG

No.	Color
6093	RED
6094	BLACK

SPRING: Nickel Silver.
BODY: Brass, Nickel Plate.
HANDLE: Nylon.


⅜
3⁄16
1 9⁄16
1
9⁄16
.175″
PLUG
2-56 x 3⁄16
.170-.180

SOLDERLESS WITH SET SCREW

No.	Color
6084	RED
6085	BLACK

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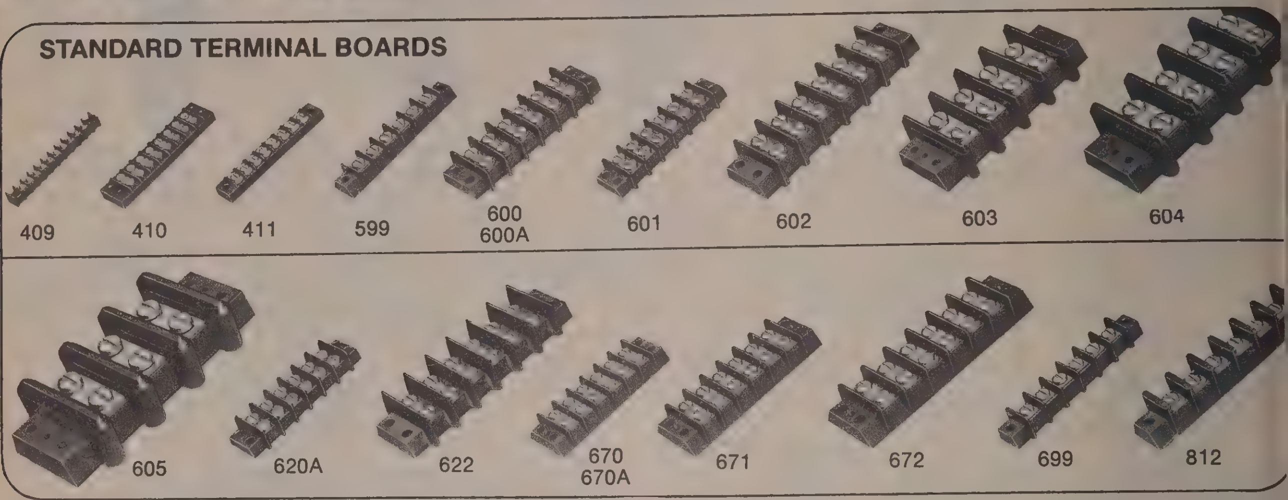
Kulka®

THERMOSET FLAT MOUNT STANDARD TERMINAL BOARDS

STANDARD TERMINAL BOARDS



STANDARD BOARDS: READY REFERENCE

Type	Special Features	Current Rating AMPS	Voltage Rating w/ M/S Volts RMS	Voltage Rating w/o M/S Volts RMS	Maximum Wire Size w/Comm. Lugs	Screw Size	Terminal Spacing C to C (inches)	Overall Width (inches)	Overall Height (inches)	No. of Terminals
409	Subminiature	2	1500	750	#26-22GA	0-80	3/16	5/16	17/64	1 thru 21
410	Miniature	5	2000	1000	#20-18GA	2-56	1/4	5/8	5/16	1 thru 22
411	Miniature-single row	5	2000	1000	#20-18GA	2-56	1/4	13/32	5/16	1 thru 22
599	Single row	15	2500	1100	#22-16GA	5-40	3/8	9/16	13/32	1 thru 30
600	Standard series	15	2500	1100	#22-16GA	5-40	3/8	7/8	13/32	1 thru 22
600A	Standard series	15	2500	1100	#22-16GA	6-32	3/8	7/8	13/32	1 thru 22
601	Standard series	20	3000	1100	#16-14GA	6-32	7/16	1 1/8	1/2	1 thru 23
602	Standard series	30	3300	1600	#14-12GA	8-32	9/16	1 5/16	5/8	1 thru 26
603	Heavy duty	50	3000	1700	#6GA	10-32	11/16	1 13/16	3/4	1 thru 12
604	Heavy duty	70	3400	1800	#4GA	12-32	7/8	2	15/16	1 thru 8
605	Heavy duty	90	3800	2100	#2GA	1/4-28	1 1/8	2 1/2	1 1/8	1 thru 6
620A	High barrier	15	3000	1100	#22-16GA	6-32	3/8	7/8	1/2	1 thru 23
622	High barrier	30	4000	1600	#14-12GA	8-32	9/16	1 3/8	3/4	1 thru 26
670	Closed back	15		2500	#22-16GA	5-40	3/8	7/8	29/64	1 thru 30
670A	Closed back	15		2500	#22-16GA	6-32	3/8	7/8	29/64	1 thru 30
671	Closed back	20		3000	#16-14GA	6-32	7/16	1 1/8	35/64	1 thru 30
672	Closed back	30		3300	#14-12GA	8-32	9/16	1 5/16	21/32	1 thru 26
699	Single row	20	3000	1100	#16-14GA	6-32	7/16	11/16	1/2	1 thru 23
812	Single row	30	3300	1600	#14-12GA	8-32	9/16	3/4	23/32	1 thru 18

MOLDING MATERIALS AVAILABLE

The table below is compiled from various sources and is presented to facilitate comparison between the various materials. Values given are average and are not to be considered as absolute values.

Material	Description
General purpose phenolic	An economical material with good appearance, good electrical properties and well-balanced physical properties (94V-0).
Cellulose filled phenolic (CFG)	An economical material with good appearance, good electrical properties and well-balanced physical properties.
Mica filled phenolic (MFE)	Recommended for applications requiring low power factor, low loss, high resistivity and low water absorption. Comparatively fragile.
Diallyl phthalate mineral filled (MDG)	Provides dependable performance under adverse temperature and humidity conditions. Excellent electrical characteristics. Low impact strength.
Glass fiber filled phenolic (MFE)	Has the superior electrical properties of mica-filled phenolic (Type MFE) in addition to high strength and heat resistance.
Melmine mineral filled (MME)	Excellent dielectric properties with high arc and flame resistance. Excellent for airborne electronic equipment.
Alkyd glass fiber filled (MAI-60)	For applications requiring high strength and good electrical properties. After prolonged exposure to high humidity, there is a reduction of insulation resistance.
Diallyl phthalate long glass fiber filled (GDI-30F)	Good strength characteristics combined with physical stability and good electrical properties. Retains high insulation resistance after prolonged exposure to humidity. GDI-30F is flame-resistant and self-extinguishing.
Diallyl phthalate short glass fiber filled (SDGF)	Has good electrical properties of GDI-30F in addition to moldability, especially in thin-walled and/or deep section.

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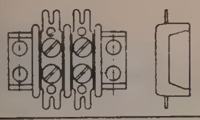
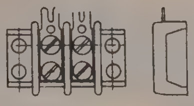
Kulka® TYPICAL HARDWARE VARIATIONS & ORDERING CODES/THERMOSET

TYPICAL HARDWARE VARIATIONS FOR STANDARD BOARDS

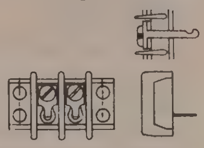
ST LUG



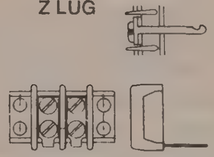
3/4ST LUG



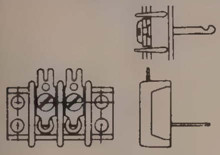
Y LUG



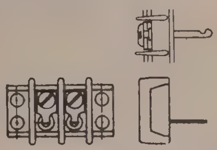
Z LUG



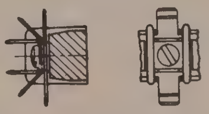
XY LUG



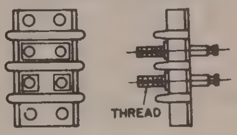
YSY LUG



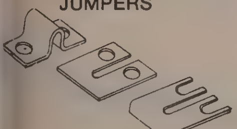
KLIPTITES



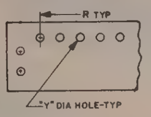
STUD & TURRET



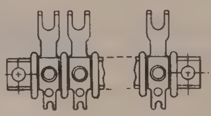
JUMPERS



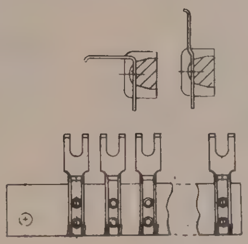
MARKER STRIP



TERMINAL SPREADERS



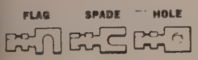
FANNING STRIPS



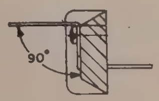
MARKING ON TERMINAL BOARDS

Standard method of marking terminal boards is rubber stamping. Engraving is available on special order. We use inks which contrast with the surface of the board; silver white on dark surfaces, and black on light surfaces.

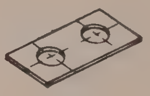
SOLDER LUGS



FEED-THRU WIRE WRAP



STRADDLE PLATE



ORDERING CODES FOR STANDARD BOARDS

MOLDED MATERIALS

Description	Military Grade	Kulka Code
General purpose phenolic (94V-0)	—	**
Cellulose filled phenolic	CFG	C
Mica filled phenolic	MFE	M
Diallyl phthalate mineral filled	MDG	B
Glass fiber filled phenolic	MFE	RX
Melmine mineral filled	MME	GMF
Alkyd, glass fiber filled	MAI-60	D
Diallyl phthalate long glass fiber filled	GDI-30F	JJ
Diallyl phthalate short glass fiber filled	SDGF	DG
Nylon	—	RZ
Thermoplastic	—	THP

See page 10 for information on molding materials.

HARDWARE
Standard Terminal (Lug) Types

Description	Code
Screw terminals	**
Solder terminals – one side only	3/4 ST
Solder terminals – two sides	ST
Solder terminals – two sides (split)	DST
Solder terminals – Feed-thru	Y
Solder terminals – Feed-thru (extra long)	YSY
Solder terminals – Feed-thru (over edge)	Z
Solder terminals – 3/4 ST & Y combined	XY
Solder terminals – Feed-thru turrets Printed Circuit terminals – Feed-thru Wire Wrap terminals – Push-On (Kliptite) terminals –	See product catalog drawing

HARDWARE
Screws and Washers

Description	Code
Binding head screws	**
Sems screws – internal tooth lockwasher	SI
Sems screws – external tooth lockwasher	SE
Sems screws – split "K" monel lockwasher	L
Phillips head screws	P
Phillips head sems screws internal tooth	PSI
Phillips head sems screws external tooth	PSE
Flat washer (nickel plated brass)	W
Beveled edged washers (nickel plated brass)	BW
AN type split lockwasher	AN
Stainless steel split lockwasher	SS
Screws (any type) stainless	CRES
Guillotine Screws	GS

SERVICE

Description	Code
Varnish machined ends with fungus and moisture resistant varnish	F
Cadmium plating	Detail
Supplied without screws	NH
Supplied with screws but unassembled	UH

**No code required.

TYPICAL ORDERING CODE EXAMPLE FOR STANDARD BOARDS

For convenience and accuracy in ordering, please specify catalog numbers as shown.

Series**	Material Code*	Lug Type*	Number of Terminals	Special Hardware*	Service*
600	C	3/4ST	22	SI	F

600C—3/4ST—22SIF

*Omit if not applicable

**Specify 600A for blocks with .170 dia. mounting holes and 6-32 screws.

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Kulka®

THERMOPLASTIC HIGH BARRIER TERMINAL BOARDS

FLAT MOUNT

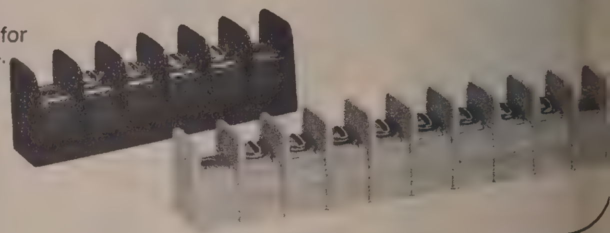
UL File #E47811; CSA File #21356

ELECTRICAL RATING
Rated voltage — up to 600 volts
Current rating — 20 amps

HARDWARE
Screws — brass, nickel plated
Terminals — brass, tin plated
Mounting plate — steel, nickel plated
Number of terminations — up to 23

WIRE SIZE
Will accommodate lugs for wire sizes thru AWG #14.

MOLDED MATERIAL
94V-0 polypropylene in black. Available in red, green, blue and white.



PRINTED CIRCUIT

UL File #E47811; CSA File #21356

Also available in thermoset material. Consult 17C catalog or call factory.

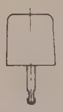
ELECTRICAL RATING
Rated voltage — up to 600 volts
Current rating — 20 amps

HARDWARE
Screws — brass, nickel plated
Terminals — brass, tin plated
Mounting plate — steel, nickel plated
Number of terminations — up to 25

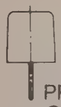
WIRE SIZE
Will accommodate lugs for wire sizes thru AWG #14.

MOLDED MATERIAL
94V-0 polypropylene in black. Available in red, green, blue and white.

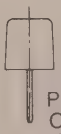
BOTTOM TERMINATIONS



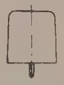
SOLDER TURRET



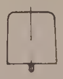
PRINTED CIRCUIT LONG PIN (WIRE WRAP)



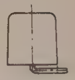
PRINTED CIRCUIT LONG PIN (WIRE WRAP)



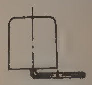
PRINTED CIRCUIT STANDARD PIN



PRINTED CIRCUIT SHORT PIN



PRINTED CIRCUIT RIGHT ANGLE PIN



PRINTED CIRCUIT RIGHT ANGLE PIN

INSULATED FEED THRU

UL File #E47811; CSA File #21356

Also available in thermoset material. Consult 17C catalog or call factory.

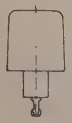
ELECTRICAL RATING
Rated voltage — up to 600 volts
Current rating — 20 amps

HARDWARE
Screws — brass, nickel plated
Terminals — brass, tin plated
Mounting plate — steel, nickel plated
Terminations — up to 25

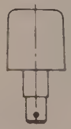
WIRE SIZE
Will accommodate lugs for wire sizes AWG #14.

MOLDED MATERIAL
94V-0 polypropylene in black. Available in red, green, blue and white.

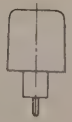
TURRET TERMINATIONS



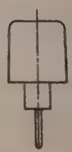
SOLDER TURRET



KLIPTITE PUSH-ON



PRINTED CIRCUIT STANDARD PIN



PRINTED CIRCUIT LONG PIN (WIRE WRAP)

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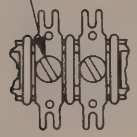
Kulka® TYPICAL HARDWARE VARIATIONS & ORDERING CODES/THERMOPLASTIC

TYPICAL HARDWARE VARIATIONS FOR THERMOPLASTIC BOARDS

ST LUG

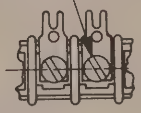
AVAILABLE ONLY WITH NO.6-32 x 1/4 LG. BIND.HD. SCR.



MATERIAL: BRASS.
FINISH: HOT TIN.

3/4ST LUG

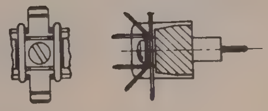
AVAILABLE ONLY WITH NO. 6-32 x 1/4 LG. BIND. HD. SCR.



MATERIAL: BRASS.
FINISH: HOT TIN.

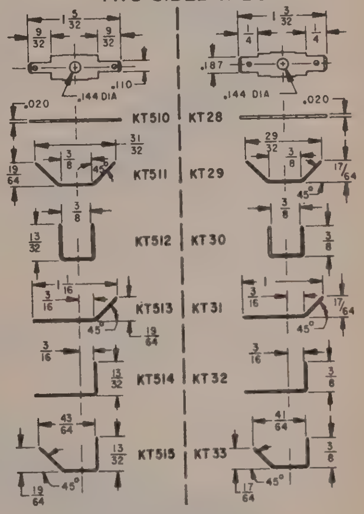
KLIPTITES

SCREW CONSTRUCTION
NO. 6-32 BIND.HD.SCR.



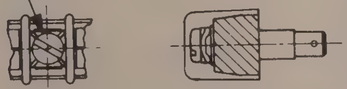
MATERIAL: BRASS.
FINISH: ELECTRO-TIN.

TWO-SIDED TABS


1 5/32
9/32
9/32
.110
.144 DIA
.020
KT510
KT28
1 3/32
1/4
1/4
.187
.144 DIA
.020
31/32
3/8
45°
19/64
KT511
KT29
29/32
3/8
17/64
45°
3/8
13/32
KT512
KT30
3/8
3/8
1 1/16
3/16
45°
19/64
KT513
KT31
3/16
17/64
45°
3/16
13/32
KT514
KT32
3/16
3/8
43/64
13/32
19/64
45°
KT515
KT33
41/64
3/8
17/64
45°

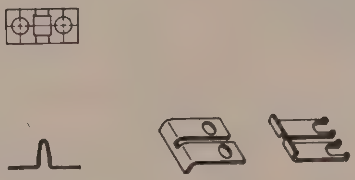
WIRE CLAMP

NO.6-32 x 5/16 LG. SCREW



MATERIAL: STEEL.
FINISH: NICKEL PLATE.

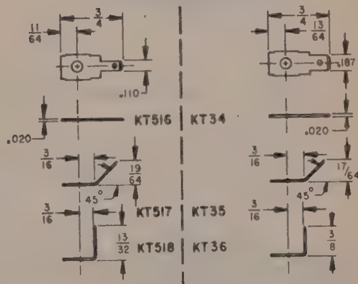
JUMPERS



MATL: COPPER (NOT SUITABLE FOR USE WITH WIRE CLAMP) BRASS BRASS

FINISH: NICKEL PLATE.

ONE-SIDED TABS


11/64
3/4
.110
.020
KT516
KT34
3/4
13/64
.187
.020
3/16
19/64
45°
KT517
KT35
3/16
17/64
45°
3/16
13/32
KT518
KT36
3/16
3/8

TYPICAL ORDERING CODE EXAMPLE FOR THERMOPLASTIC BOARDS

For convenience and accuracy in ordering, please specify catalog numbers as shown.

SERIES	MATERIAL CODE *	LUG TYPE **	NO. OF TERM.	SPECIAL * HARDWARE	KLIPTITE TAB TYPE PER TERMINAL
3599A			10		KT28-29-30

3599A-10-KT28-29-30

*Omit if not applicable. **Or screw clamp.

Material color code

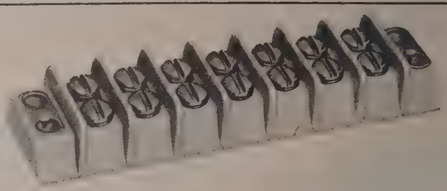
—	black
WH	white
RD	red
GN	green
BLU	blue

Kulka Smith, Inc. 1913 Atlantic Ave., Manasquan, NJ 08738 Tel: 201 223 9400

Kulka®

MILITARY & NAVY CLASS TERMINAL BOARDS

MILITARY CLASS: CLOSED BACK



These military boards feature molded-in terminals in an improved Kulka design for greater strength and flexibility. The mounting holes are covered with molded-in reinforcement straddle plates. The boards can be supplied with Sems or other types of special screws. They come in 3 sizes, Class 37TB through Class 39TB.

MIL-T-55164 Class No.	Current Rating Amps.	**Dielectric With standing Voltage (Test) Volts RMS	Maximum No. of Terminals	Type of Terminal	Terminal Screw Size	Commercial Equivalent, Interchangeable with Standard Kulka Series
37TB	15	3000	31	Screw	5-40x.192	670
40TB	7½	3000	31	Feed thru	5-40x1/4	670-YSY
*lug #TBLD	15	3000	31	Two-sided	5-40x.192	670-ST
*lug #TBLS	15	3000	31	One-sided	5-40x.192	670-3/4ST
38TB	20	3400	23	Screw	6-32x1/4	671
41TB	10	3400	23	Feed thru	6-32x1/4	671-YSY
*lug #TBLD	20	3400	23	Two-sided	6-32x1/4	671-ST
*lug #TBLS	20	3400	23	One-sided	6-32x1/4	671-3/4ST
39TB	30	4000	18	Screw	8-32x1/4	672
42TB	15	4000	18	Feed thru	8-32x5/16	672-YSY
*lug #TBLD	30	4000	18	Two-sided	8-32x5/16	672-ST
*lug #TBLS	30	4000	18	One-sided	8-32x5/16	672-3/4ST

*This designation describes only the lug. A class number has not been assigned for the assembly.
**Test voltage specified per MIL-T-55164. This is a minimum and not actual breakdown voltage.

NAVY CLASS: MIL-T-55164

Designed and manufactured in accordance with MIL-T-55164, formerly MIL-T-16784, and BUSHIPS Dwg. 9000-S4505-73214 and BUORD S64101.

Class	Descr.*	Type Desig.	Federal Stock No. N5940-	Max. Volt. Rating	Maximum Applic. Set [2]	Amp. Rating	Max. No. of Wires Per Term.	Wire Terminal Spec. MIL-E-16366
3TB	SR	3TB10	500-5381	600	C	45	4	L-80
4TB	DR	4TB8	500-5378	600	C	40	4	L-80
		4TB20	502-8470	600	C	40	4	L-80
5TB	SRTC	5TB8	542-8547	600	C	50	4	L-80
		5TB10	502-8474	600	C	50	4	L-80
		5TB12	518-9610	600	C	50	4	L-80
6TB	DR	6TB6	500-5373	600	B	30	4	L-81
		6TB10	542-9333	600	B	30	4	L-81
		6TB24	577-7462	600	B	30	4	L-81
7TB	SRTC	7TB8	502-8476	600	B	40	4	L-81
		7TB12	502-8473	600	B	40	4	L-81
8TB [3]	DRL	8TB2	500-5388	300	B-(A)	30-(20)	2-(3)	L-83
		8TB6	542-8546	300	B-(A)	30-(20)	2-(3)	L-83
		8TB8	502-4522	300	B-(A)	30-(20)	2-(3)	L-83
		8TB10	518-9611	300	B-(A)	30-(20)	2-(3)	L-83
(This series is also available molded of Cellulose filled and Mineral filled phenolic compounds. The part numbers are usually so designated by the suffix "C" or "M".)								
9TB	SR	9TB2	500-5389	300	B	35	4	L-81
		9TB4	500-5390	300	B	35	4	L-81
10TB	DR	10TB8	892-3149	600	B	30	4	L-84
		10TB12	893-7485	600	B	30	4	L-84
		10TB18	502-8469	600	B	30	4	L-84
		10TB28	502-8480	600	B	30	4	L-84
11TB	SRTC	11TB4	502-8479	600	B	40	4	L-84
		11TB6	502-8478	600	B	40	4	L-84
		11TB9	837-8044	600	B	40	4	L-84
		11TB14	502-8471	600	B	40	4	L-84
15TB	DR	15TB10	502-8466	600	B	30	4	L-82
		15TB24	502-8465	600	B	30	4	L-82
16TB	DR	16TB4	500-5392	1000	C	40	4	L-80
		16TB10	502-8467	1000	C	40	4	L-80
17TB [3], [4]	DRL	17TB4	538-4089	600	C-(B)	40-(30)	3-(4)	L-80
		17TB10	583-2118	600	C-(B)	40-(30)	3-(4)	L-80
25TB	SR	25TB2	—	300	A	25	3	L-85
		25TB5	681-9771	300	A	25	3	L-85
		25TB6	681-9777	300	A	25	3	L-85
		25TB7	836-7671	300	A	25	3	L-85
		25TB9	—	300	A	25	3	L-85
		25TB10	836-7401	300	A	25	3	L-85
		25TB12	702-3733	300	A	25	3	L-85
26TB [3]	DRL	26TB2	836-7672	300	A	20	2-(3)	L-86
		26TB6	827-6575	300	A	20	2-(3)	L-86
		26TB8	836-7402	300	A	20	2-(3)	L-86
		26TB10	838-4353	300	A	20	2-(3)	L-86
		26TB12	818-8903	300	A	20	2-(3)	L-86
27TB	SRTC	27TB12	836-7404	300	A	30	3	L-85

NOTES:

Molded material is MAI-60 or SDG-F in accordance with MIL-M-14.

*Description:
SR = single row DR = double row DRL = double row linked
SRTC = single row through connection

[2] Application sets are as follows:
Set A – These terminal boards are intended for use in equipment where the effect of a short circuit is limited to the terminal board and where normal operation powers up to 50 watts are involved.
Set B – These terminal boards are intended for use where secondary short circuit protection in the form of fuses, circuit breakers and other parts are provided in the circuit, and where normal operating power does not exceed 2000 watts per terminal.
Set C – These terminal boards are for power applications in excess of 2000 watts (per terminal) but still protected by secondary devices in the circuit which can safely interrupt resultant short circuit currents.

[3] The stud connector for these terminal boards is considered part of the stud and is required, unless otherwise specified. With the stud connector removed, the terminal board will provide twice the number of connection points and allow for an additional wire per terminal; however, the application set will be reduced as shown.

[4] The designation plate shall be supplied with the terminal board unless otherwise specified.

Kulka Smith, Inc. 1913 Atlantic Ave., Manasquan, NJ 08738 Tel: 201 223 9400

Kulka® HI-LO™; WIRE WRAP; MARKER & INSULATOR STRIPS; 17C CATALOG

HI-LO™ 0987 SERIES HIGH VOLTAGE-LOW PROFILE TERMINAL BLOCKS

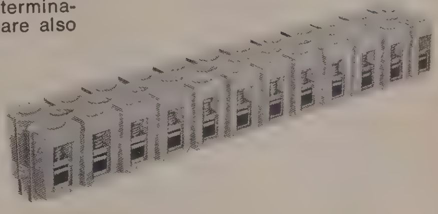
Kulka's new Hi-Lo™ terminal blocks are ideal for both light and heavy duty applications such as control cabinets, data processing equipment, etc. Made of break-resistant, flame retardant thermoplastic these blocks accommodate up to a number 8 AWG wire. The standard termination contact is a tubular clamp but feed-thru wire wraps, solder tabs and PC pins are also available. They are recognized by UL, and approved by CSA & VDE.

ELECTRICAL RATING:
Rated voltage — 600 VOLTS
Current rating — 50 AMPS

HARDWARE:
Screws — steel, nickel plated
Terminal Contacts — copper alloy, nickel plated
Feed-thru Contacts — copper alloy, electro tin plated

WIRE SIZES:
Will accommodate wire sizes thru AWG #8

MOLDED MATERIAL:
94V-0 thermoplastic



WIRE WRAP TERMINAL BOARDS

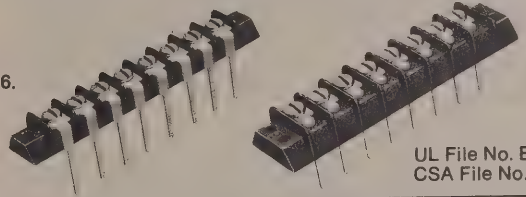
UL File #E47811; CSA File #21356

ELECTRICAL RATING:
Rated Voltage — 2500 VOLTS RMS*
Current rating — 15 AMPS

HARDWARE:
Screws – brass, nickel plated
Terminals – brass, electro-tin

WIRE SIZE:
Wire wrap — AWG #26 to 20
Under screw — AWG #22 to 16.

MOLDED MATERIAL:
General purpose phenolic.
599 Series available in MAI-60, CFG and GDI-30F.



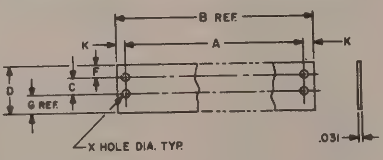
UL File No. E47811
CSA File No. 21356

MARKER & INSULATOR STRIPS

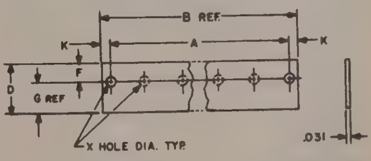
Marker and Insulator strips are available for Kulka's 409 thru 1699 SERIES Terminal Boards. These include double & single row, single row insulated turret and single & double row wide "Z". Drawings for these different types and the various printing styles offered are shown on pages 2 and 3. Marker strip dimensions are listed in Tables I and II.

Dimensions for insulator strips, which are narrower (see dimension "N" in Table II) and do not afford a marking surface, are the same as marker strips except for dimension "D".

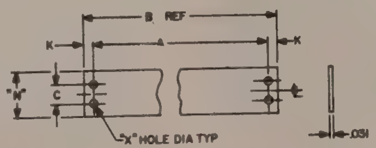
DOUBLE ROW MARKER STRIP EXAMPLE



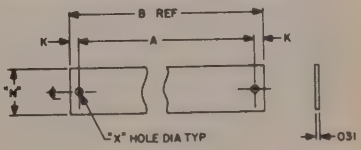
SINGLE ROW MARKER STRIP EXAMPLE



DOUBLE ROW INSULATOR STRIP EXAMPLE

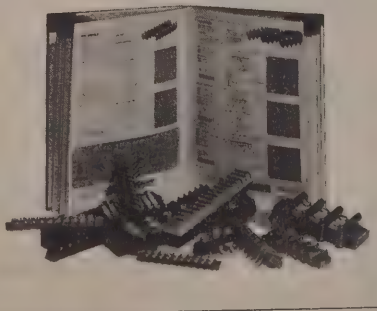


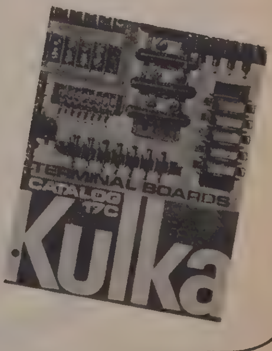
SINGLE ROW INSULATOR STRIP EXAMPLE



CATALOG & DESIGN MANUAL

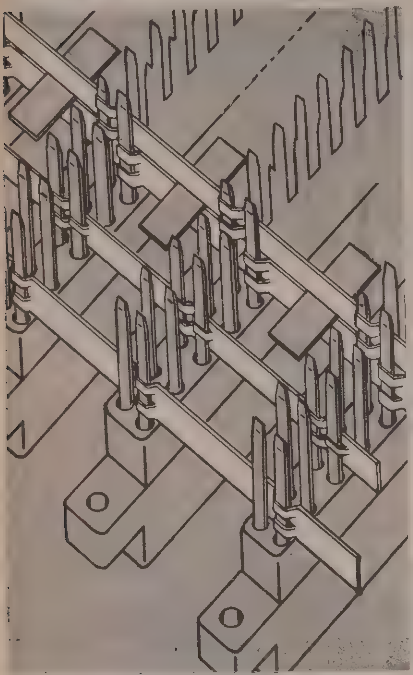
Kulka's 17C Terminal Board Catalog contains drawings, dimensions, and application criteria, in conjunction with data on related components and overall terminal board, block, and strip configurations. Send for free copy today.





Kulka Smith, Inc. 1913 Atlantic Ave., Manasquan, NJ 08738 Tel: 201 223 9400

Pin Bar® means:



- Thousands of "hi-rel" solderless bussing connections per hour at a fraction the cost of your present busing method.
- Fast, simple, "foolproof" connections that lower production costs — eliminate continuity checks.
- Low uniform contact resistance that will electrically enhance any circuit — especially frequency applications.
- Efficient back panel design (greater pin exposure, increased discrete wiring area and easier checkout).
- A "spec" performance electrical component produced to your exact requirements.

solderless bus bar for common connections

SPECIFICATIONS

Terminal Spacing and Length: Selectable.

Spacing Tolerance: ±0.010″ between terminals — ±0.020/foot cumulative.

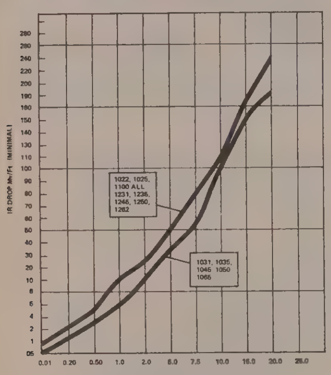
Material: 1000, 1200 Series: Beryllium Copper Alloy #172 per QQ-C-533.
1100 Series: Beryllium Copper Alloy #175 per QQ-C-533.

Standard Finishes:
Tin: Electro-tin plate, fused, per MIL-T-10727, Type I, 0.0003″ thickness.
Gold: Gold plate per MIL-G-45204, Type II, 0.000050″ minimum thickness over nickel plate per QQ-N290, 0.000050″ minimum thickness.

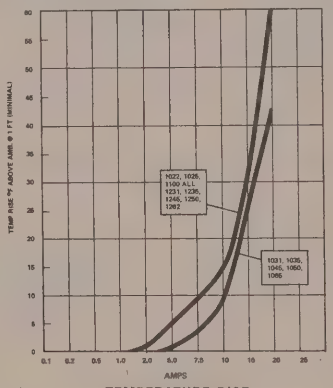
Options: Insulation, special finishes, unique end configurations.

Insertion: Manual or semi-automatic insertion equipment available.

PERFORMANCE DATA



IR DROP



TEMPERATURE RISE

The following performance data meets or exceeds MIL-STD-202 "D" (Full Report Available).

Thermal Shock: Method 107, Condition A.

Mechanical Shock:
Method 213, Condition H.

Vibration: Method 201.

Corrosion Resistance: Method 101, Condition B 48 Hour Exposure Salt Spray.

Contact Voltage Drop:
0.533 millivolts maximum per amp.

Gas Tight Contact: 10 minutes of 1:1 hydrochloric/nitric acid followed by 10 minutes of ammonium sulfide fumes.

DESIRED PIN BAR CONFIGURATION

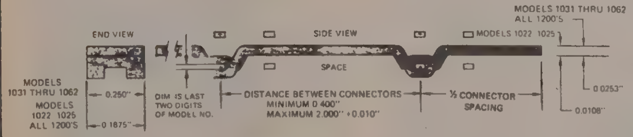
Alternate Pins (Series 1000 & 1200)		Connector Pin Size	Adjacent Pins (Series 1100)
	1022	.022″ x .036″	1122
	1025	.025″ x .025″	1125
1031	1231	.031″ x .062″	1131
1035	1235	.035″ x .050″	1135
1045	1245	.045″ x .045″	1145
1050	1250	.050″ x .035″	1150
1062	1262	.062″ x .031″	1162

HOW TO ORDER

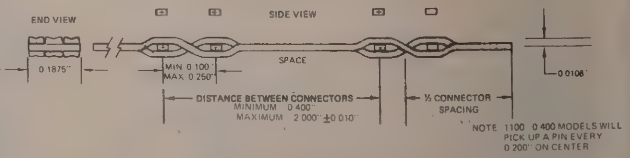
An 11-digit number is used for ordering. An example would be as follows:

1031	— 0.500	— 32	— G	or T
Model No.	Connector Spacing 0.500″	No. of Connectors	gold finish	tin finish

MODEL 1000 & 1200 SERIES ALTERNATE PIN BUSS


END VIEW
SIDE VIEW
SPACE
MODELS 1031 THRU 1062 ALL 1200'S
MODELS 1022 1025
MODELS 1031 THRU 1062
0.250″
MODELS 1022 1025 ALL 1200'S
0.1875″
DIM IS LAST TWO DIGITS OF MODEL NO.
DISTANCE BETWEEN CONNECTORS
MINIMUM 0.400″
MAXIMUM 2.000″ +0.010″
½ CONNECTOR SPACING
0.0253″
0.0108″

MODEL 1100 SERIES ADJACENT PIN BUSS


END VIEW
SIDE VIEW
SPACE
0.1875″
MIN 0.100″
MAX 0.250″
DISTANCE BETWEEN CONNECTORS
MINIMUM 0.400″
MAXIMUM 2.000″ ±0.010″
½ CONNECTOR SPACING
0.0108″
NOTE 1100 0.400 MODELS WILL PICK UP A PIN EVERY 0.200″ ON CENTER

LEAR SIEGLER INC.
ELECTRONIC INSTRUMENTATION DIVISION
PIN BAR PRODUCTS
714 NORTH BROOKHURST STREET, ANAHEIM, CALIFORNIA 92803
TEL. (714) 774-1010 • TWX 910-591-1157 • TLX 65-5444

LEMO Electronic Connectors

The following 10 pages represent an overview of LEMO's product line. For more details, complete catalogs and information on local representatives, please contact LEMO U.S.A. at (707) 578-8811.

RELIABILITY: Positive locking mechanism and gold plated contacts assure consistent signal transmission to 1.5 GHz.

Quick-Lok mechanism assures secure contact by audible click when lock is engaged. Color coding is available too.

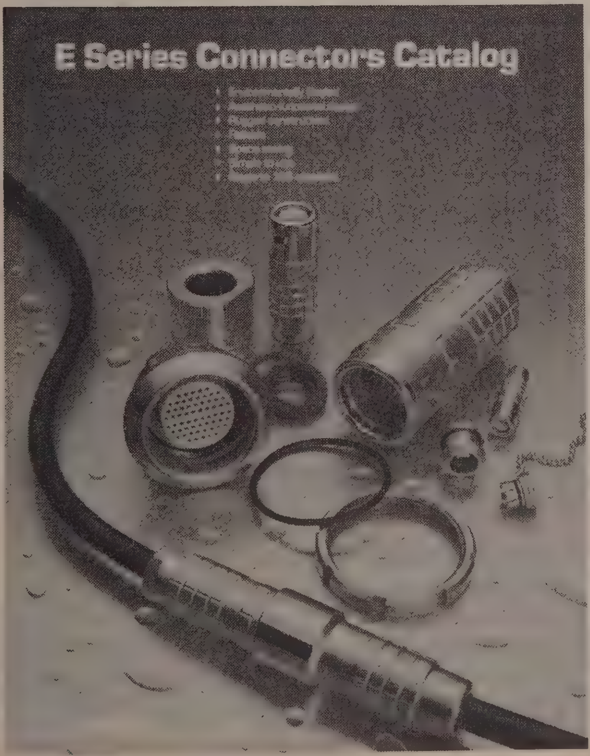
SPACE SAVINGS: Only finger clearance needed to engage and disengage connectors. No need to twist or turn locking ring.

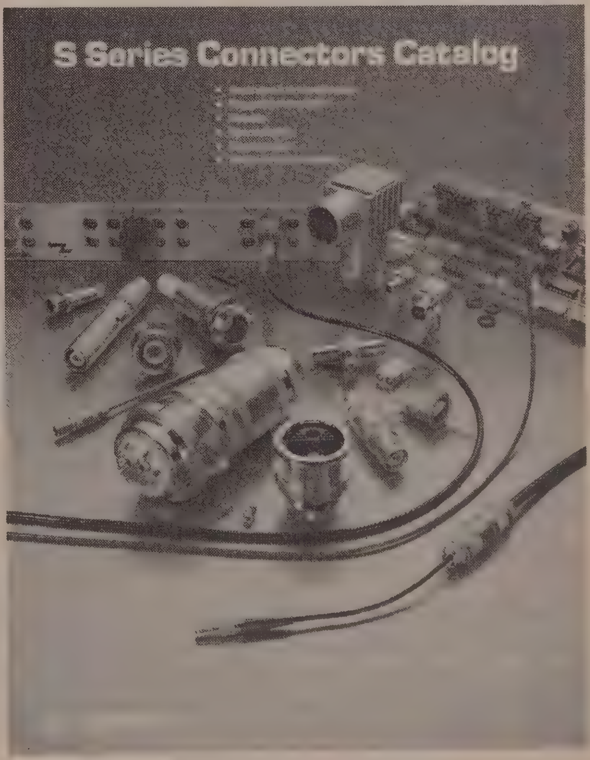
RUGGEDNESS: Connector components are precision machined. Locking mechanism is totally protected by outer shell, virtually eliminating accidental disconnections and damage to locking mechanism, cables and contacts.

SPEED: Connectors engage and disengage simply and quickly by pushing and pulling axially on the outer shell of the plug.

AESTHETIC-FUNCTIONAL DESIGN: Outer shell and back nut finished with matte chrome plating. Contacts are gold plated. LEMO connectors will complement any front panel application.

B Series Connectors Catalog


E Series Connectors Catalog


S Series Connectors Catalog

LEMO USA INC

P.O. Box 11006, Santa Rosa, CA 95406
(707) 578-8811, Telex 340-933 (LEMO USA SARO)

The LEMO Choices

LEMO manufactures a complete line of high quality connectors specifically engineered and designed for a wide variety of applications.

STANDARD S SERIES: LEMO's Standard S Series has the widest choice of shell sizes. Proper connection is assured by hermaphroditic insulator and contact configuration.

Range of contact configuration: Single contact; coaxial; triaxial; multiple contact; mixed (coaxial and multiple or high voltage and multiple); and high voltage versions.
Range of cable outer diameter: .059″ to 1.188″/1.5mm to 30.2mm.
Range of contacts: 1 to 106.
S Series is also available in sealed version for special applications.

B SERIES: LEMO's B Series offers greater ruggedness, greater contact density, keying pattern for contact exclusivity, all male pins in plug; all female contacts in receptacle; choice of crimp or solder contacts and color-coded bend reliefs.

Range of contact configuration: Multiple and mixed (coaxial and multiple or high voltage multiple).
Range of cable outer diameter: .083″ to .986″/2.1mm to 25.3mm.
Range of contacts: 2 to 64.

SPECIAL COAXIAL SERIES: LEMO has developed a wide range of coaxial connectors to meet most applications.

01-MINAX Series: LEMO's smallest coaxial connector accommodates cable sizes RG.196A/U, RG.178B/U and RG.174A/U.
00-NIM (Nuclear Instrumentation Module) - CAMAC (Computer Automated Measurement and Control) Series: Designed for cables RG.174A/U, RG.188A/U and RG.316/U.
OA-Telecommunications Series: Designed with contacts to accommodate telecommunications requirements in mind. These accommodate cables RG.58C/U, RG.174A/U.
Other Coaxial Connectors are available in Standard S Series to accommodate cables up to .874″/22.2mm.

TRIAXIAL SERIES: LEMO's triaxial series is used mainly for video camera applications. LEMO has a number of standard connectors in this series and is in the forefront of developing new ones to meet clients' needs.

COMPACT 2C SERIES: LEMO's 2C Series is specially designed for applications where space is critical. It features shorter length shells and contacts.

Range of contact configuration: Multi contact only.
Range of cable outer diameter: .106″ to .314″/2.7mm to 8.1mm.
Range of contacts: 2 to 14.

ENVIRONMENTAL E SERIES: LEMO's E Series is dust and splash down water resistant. Proper connection is assured by hermaphroditic mating.

Range of contact configuration: Single contact, coaxial, triaxial, multiple and mixed (coaxial and multiple or high voltage and multiple).
Range of cable outer diameter: .047″ to 1.070″/1.2mm to 27.2mm.
Range of contacts: 1 to 106.

THERMOCOUPLE SERIES: LEMO's Thermocouple connectors are designed to assure continuous and accurate monitoring of hostile environments where extreme surface or ambient temperatures, gases or liquids must be controlled.

HIGH VOLTAGE SERIES: Originally developed for CERN nuclear facility in Switzerland, LEMO's High Voltage Series is designed for applications where there is a constant non-fluctuating flow of electricity and where power can be cut prior to connecting and disconnecting connector.

Range of contact configuration: Single contact only.
Range of cable: AWG 18 and 12/1.2mm and 2.5mm.

RP, RPL SERIES: This Series is specially designed for use on Printed Circuit Boards.

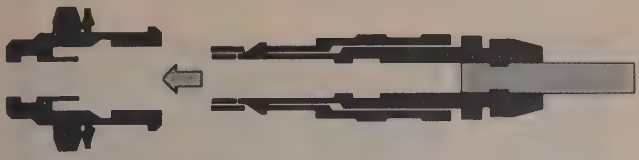
SPECIAL ORDERS: LEMO welcomes the opportunity to consider development of connectors to meet your requirements. Many of our present connectors were created through client requests.

SALES AND SERVICE
LEMO connectors are manufactured in Switzerland. North American inventory and sales headquarters are in Santa Rosa, California. Sales and service are available through a network of representatives or directly from LEMO U.S.A., in Santa Rosa, California.

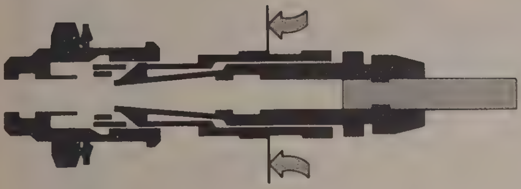
LEMO USA INC

P.O. Box 11006, Santa Rosa, CA 95406
(707) 578-8811, Telex 340-933 (LEMO USA SARO)

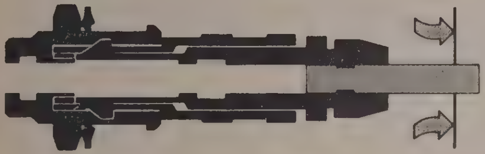
Quality Construction



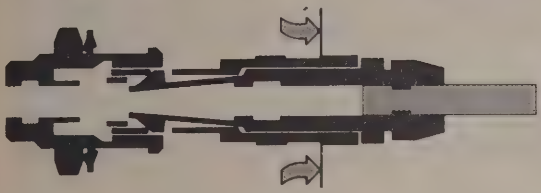
Connection is made simply by pushing plug directly into receptacle. An audible click is heard assuring lock is engaged.



The self-latching system assures the connector to be mated by simply pushing the plug axially into the receptacle.



Connection remains intact resisting stresses of pulling on the cable and any other component part except the outer shell.



When required, the connection is disengaged by a single straight axial pull on the outer shell.

Components	Material	Surface Treatment in microns(*)			
		Copper min.	Nickel min.	Chrome min.	Gold min.
Outer shell and collet nut	Brass ASTM C385	0.5	3	0.3	-
Inner latching sleeve	Special Brass	0.5	3	0.3	-
Earthing Crown	Bronze ASTM C544	0.5	3	-	-
Retaining Ring	Brass ASTM C385	0.5	3	-	-
Lockwasher	Brass ASTM C521	0.5	3	-	-
Locknut	Brass ASTM C385	0.5	3	2.3	-
Male contact	Brass ASTM C385	0.5	3	-	1.5
Female contact	Bronze ASTM C544	0.5	3	-	2.0

(*)Minimum thickness MIL-STD-45204 Type 1, Class 1

Insulator

Characteristics	Standards	Units	PTFE Standard for Single Contact, Coax, Triax and High Voltage	Nylatron Standard for Multipin & Mixed	PEEK	PEhd
					Special Order	
Dielectric strength	ASTM D149	kV/mm	17.2-24	30	19	17.6-24
Volume resistivity	ASTM D257	Ω cm	– 10^{15}	10^{14}	10^{15}	1.6×10^{15}
Thermal resistivity	ASTM C177	W/mk	0.01	0.19	0.28	0.57
Max. working temperature	-	°C(°F)	260 (500)	140 (280)	260 (500)	85 (185)
Water absorption in 24 hrs. at 23°C (73°F)	ASTM D570	o/o	0.005	0.06	0.1	0.01
Radiation stability	-	rd	10^4	10^6	10^9	10^7

rd = 100 erg absorbed in a 1 g of material = 10^{-5} Ws/g

OPTIONS:

Materials: LEMO can provide alternate compatible materials (stainless steel, aluminum, etc.)

Surface treatment: Custom finishes such as black, green chrome plating and anodizing can be supplied.

Insulator materials: Other insulator materials to meet specific needs can be supplied.

Before specifying special features, please contact your local representative or LEMO U.S.A. Inc. for more information on how we can meet your specific requirements.

LEMO USA INC

P.O. Box 11006, Santa Rosa, CA 95406
(707) 578-8811, Telex 340-933 (LEMO USA SARO)

Special Application—Series 01 MINAX

SUB-MINIATURE COAXIAL 01 SERIES

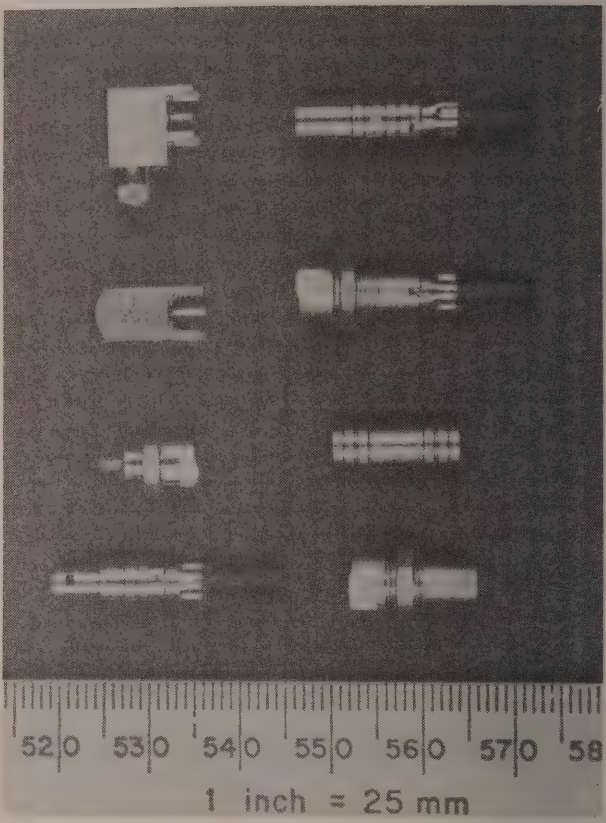
MINAX (Sub-Miniature Coaxial) 01 series 50 Ohms

The MINAX is LEMO's smallest connector uniquely designed for applications where space is extremely limited. The materials and precision engineering assure excellent connections.

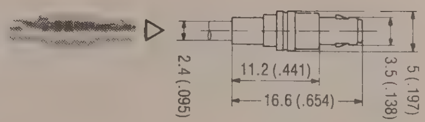
Mechanical Properties:
Coupling: Quick connect/disconnect self-locking snap-latch.
Shells: Brass, plated .000120 gold over .000240 nickel.
Contact: Phosphor bronze, plated .000120 gold over .000020 chromium over .000120 nickel.
Operating Temperature: −60°C to +120°C
Insulator: Nylatron
Panel Thickness: 1/16″ nominal.

Electrical Properties:
Impedance: 50 ohms ± 4%
VSWR: 1.045:1 @ 1 GHz; 1.14:1 @ 10 GHz
Insulator Resistance: $\geqslant 7 \times 10^{12}$ ohms
Contact Resistance: $\leqslant 3 \times 10^{-3}$ ohms
Test Voltage: 1200 VDC
Operating Voltage: 500 VDC
Operating Current: 3 amps
For use with subminiature cables (.100″ max. O.D.) such as RG.196A/U, RG.178B/U, RG.174A/U.
Do not mate with standard series units.
Crimping tool PS01S0030B0000 can be supplied.

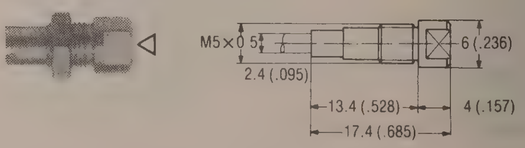
How to order:
Please specify cable to be used and connector configuration from those shown below.


52 0
53 0
54 0
55 0
56 0
57 0
58
1 inch = 25 mm

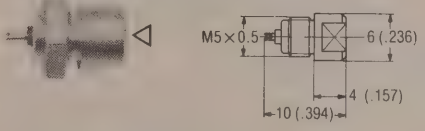
F01.250 CABLE PLUG


2.4 (.095)
11.2 (.441)
16.6 (.654)
3.5 (.138)
5 (.197)

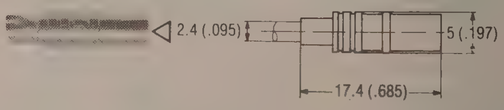
RASC01.250 RECEPTACLE WITH CABLE COLLET


M5×0.5
2.4 (.095)
6 (.236)
13.4 (.528)
4 (.157)
17.4 (.685)

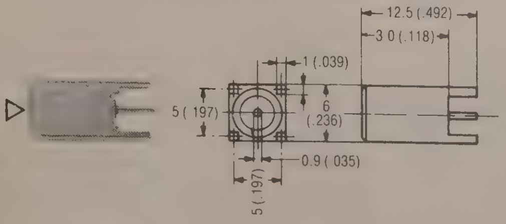
RA01.250 RECEPTACLE


M5×0.5
6 (.236)
4 (.157)
10 (.394)

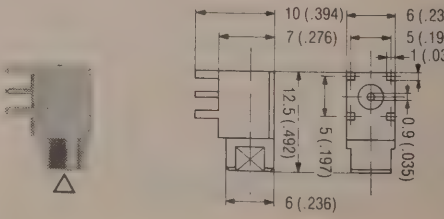
RC01.250 CABLE RECEPTACLE


2.4 (.095)
5 (.197)
17.4 (.685)

RP01.250 STRAIGHT RECEPTACLE FOR PRINTED CIRCUIT


12.5 (.492)
3.0 (.118)
1 (.039)
5 (.197)
6 (.236)
0.9 (.035)
5 (.197)

RPL01.250 RIGHT ANGLE RECEPTACLE FOR PRINTED CIRCUIT


10 (.394)
6 (.236)
7 (.276)
5 (.197)
1 (.039)
12.5 (.492)
5 (.197)
0.9 (.035)
6 (.236)

LEMO USA INC

P.O. Box 11006, Santa Rosa, CA 95406
(707) 578-8811, Telex 340-933 (LEMO USA SARO)

Receptacles—Plugs—NIM-CAMAC

MINIATURE COAXIAL SERIES

NIM-CAMAC (Miniature Coaxial) 00 Series, 50 Ohms

This series is designed to meet the specifications of CD/N549 Norm

Mechanical Properties:
Outer Shell: Brass 59A
Insulator: Teflon
Contacts: Brass with high modulus of elasticity. Low and constant resistance. With copper flash, 3 microns nickel, 1.5 microns gold
Working Temperature: −250°C + 260°C (−410°F + 500°F)

Electrical Properties:
Impedance: 50 ohms ± 2%
Frequency: over 1 GHz
Max. Wave Resistance: 1 to 1.2 GHz
Contact Resistance: <8mΩ
Insulator Resistance: >10^{12}Ω
Working Voltage: 1000 Vdc
Test Voltage: 3000 Vdc

Recommended Cables: RG.174A/U, RG.188A/U, RG.316/U, RG.58C/U, RG.178B/U, RG.187A/U, RG.196A/U.

Collet Sizes Available:

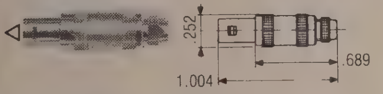
MM. 1.5	1.7	2.2	2.7	2.9	3.1 MM.	5.2
In. .059	.066	.086	.106	.114	.122 In.	.204

Options: Alternative compatible insulators can be supplied. Before specifying other materials please contact your representative or LEMO for information.

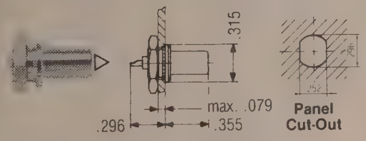
Cable bend reliefs can be supplied for crimped type cables as follows:
FOOS195N for cables up to 2.7mm (.106″) O.D.
FOOS196N for cables up to 3.1mm (.122″) O.D.
FOOS197N for cables up to 3.5mm (.138″) O.D.

Part numbers are for black strain reliefs. If other colors are required, please replace suffix "N" by proper color code.

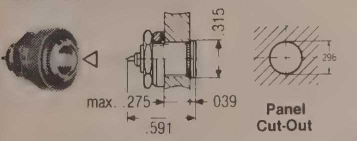
F STRAIGHT PLUG


.252
.689
1.004

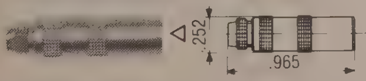
FA PANEL MOUNTING PLUG


.315
max. .079
.296
.355
Panel Cut-Out

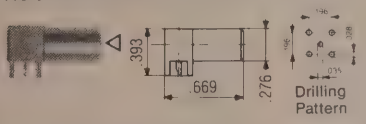
RAW SEALED RECEPTACLE


.315
296
max. .275
.039
.591
Panel Cut-Out

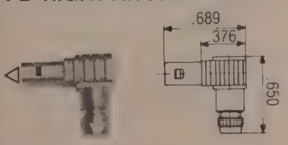
RC FREE RECEPTACLE



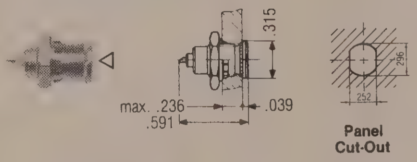
RPL RIGHT ANGLE RECEPTACLE FOR PRINTED CIRCUIT


.393
.669
.276
Drilling Pattern

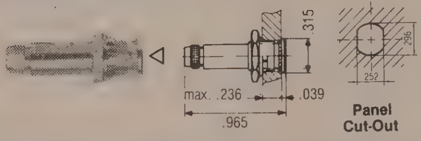
FL RIGHT ANGLE PLUG



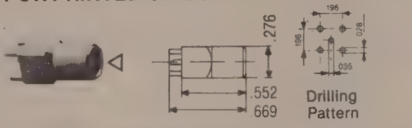
RA RECEPTACLE


.315
max. .236
.039
.591
296
252
Panel Cut-Out

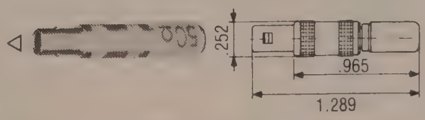
RASC RECEPTACLE WITH CABLE COLLET


.315
max. .236
.039
.965
296
252
Panel Cut-Out

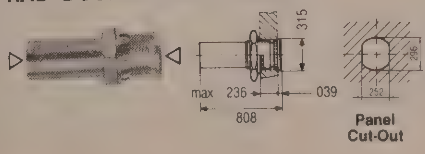
RP RECEPTACLE FOR PRINTED CIRCUIT


.276
.552
.669
Drilling Pattern

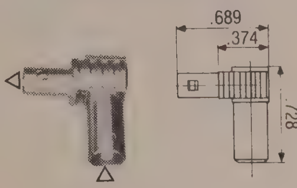
FRT PLUG WITH RESISTOR


.252
.965
1.289

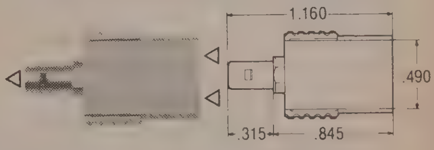
RAD DOUBLE RECEPTACLE


.315
max 236
039
808
296
252
Panel Cut-Out

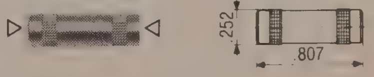
FR RIGHT ANGLE PLUG AND RECEPTACLE



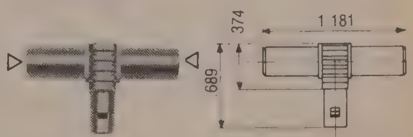
FY TWIN RECEPTACLE WITH MALE EXIT


1.160
.490
.315
.845

RM FREE DOUBLE RECEPTACLE



FT T-PIECE


374
1 181
689

LEMO USA INC
P.O. Box 11006, Santa Rosa, CA 95406
(707) 578-8811, Telex 340-933 (LEMO USA SARO)

S Series Inserts— Single, Coaxial, Triaxial and Multi Contact Connectors

INSERTS FOR S SERIES SINGLE CONTACT UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage
		AWG	MM.	
00	1	20	1.0	
0	1	18	1.4	500
1	1	14	1.8	500
	1	12	2.7	500
2	1	12	2.7	1000
	1	8	3.7	700
3	1	8	3.7	1000
	1	5	5.5	700
4	1	8	3.7	1500
	1	5	5.5	1000
5	1	-	12.0	1000

INSERTS FOR S SERIES COAX UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
0	1	24	0.8	1200	1600
1	1	18	1.4	1200	1600
	1	20	1.0	1000	1500
2	1	14	1.8	1300	1800
	1	18	1.4	700	1000
3	1	12	2.7	1400	2000
	1	14	1.8	1100	1600
4	1	8	3.7	700	1100
	1	12	2.7	600	900
5	1	-	4.5	1500	2200

INSERTS FOR S SERIES TRIAXIAL UNITS

(550 and 575 for cables without shield)
(650 and 675 for cables with shield)

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
0	1	24	0.8	100	150
	1	24	0.8	300	500
1	1	24	0.8	300	400
	1	24	0.8	300	400
2	1	18	1.4	400	600
	1	18	1.4	500	700
	1	24	0.8	500	700
	1	24	0.8	600	800
3	1	14	1.8	500	700
	1	14	1.8	200	300
	1	-	-	-	-
	1	-	-	-	-
4	1	12	2.7	-	-
	1	12	2.7	500	700
	1	-	-	-	-
	1	-	-	-	-

Specifications are based on Teflon insulators. For other insulators consult LEMO.

In some applications the female contact is required in the plug. Add "X" to shell configuration (ex. FX) and consult LEMO before specifying this feature.

INSERTS FOR S SERIES MULTI CONTACT UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
0	2	24	0.8	500	700
	3,4	26	0.6	300	500
1	2	20	1.0	400	600
	3,4	24	0.8	400	600
	5,6	26	0.6	500	700
2	2	18	1.4	600	900
	3,4,5,6	20	1.0	500	700
	3 4	20 24	1.0 0.8	300 300	400 400
	8,10	24	0.8	300	400
3	2,3	14	1.8	1000	1400
	4	14	1.8	500	700
	2 3	14 20	1.8 1.0	500 500	700 700
	6	20	1.0	700	1000
	7,8,10	20	1.0	300	500
	12,13,14	24	0.8	400	600
	16	24	0.8	300	500
	18	24	0.8	300	400
4	2	8	3.7	700	1000
	1 2	8 12	3.7 2.7	700 700	1000 1000
	4	12	2.7	700	1000
	2 3	12 14	2.7 1.8	700 700	1000 1000
	6	14	1.8	700	1000
	3 4	14 20	1.8 1.0	700 700	1000 1000
	8	20	1.0	900	1300
	9,10,12 13,14	20	1.0	700	1000
	16,18,20 22,24	24	0.8	700	1000

INSERTS FOR S SERIES MULTI-CONTACT UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
5	2	5	5.5	1200	1800
	1 2	5 8	5.5 3.7	1200 1200	1600 1600
	4	8	3.7	1200	1800
	2 3	8 12	3.7 2.7	1000 1000	1500 1500
	6	12	2.7	1000	1400
	8	12	2.7	800	1100
	10,12	14	1.8	700	1000
	2 12	12 14	2.7 1.8	700 700	1000 1000
	16	14	1.8	700	1000
	2 16	12 18	2.7 1.4	600 600	800 800
	20	18	1.4	600	800
	2 20	12 18	2.7 1.4	600 600	800 800
	24	18	1.4	700	1100
	30,36	20	1.0	600	800
	40,44,48	20	1.0	400	600
6	4	-	-	1000	1400
	12	7	4.5	700	1000
	18	8	3.7	400	500
	20	12	2.7	500	700
	24	12	2.7	400	600
	30	12	2.7	700	1100
	48	20	1.0	500	700
	60	14	1.8	500	700
	64	20	1.0	700	1000
	72	20	1.0	300	500
	106	24	0.8	300	400

PROCEDURE FOR DETERMINING TEST VOLTAGES AND WORKING VOLTAGES FOR LEMO CONNECTORS:

Test Voltage: Test voltages are determined by taking an average of the point at which arcing occurred and reducing it by ⅓.
Working Voltage: Working voltages are determined by taking test voltages and reducing them further by ⅔.

LEMO guarantees the proper functioning of the connector at working voltages.

Although this may appear quite conservative, it is in keeping with LEMO's insistence on assuring proper functioning and maintenance of high-quality standards.

LEMO USA INC

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S Series Inserts— Mixed Contacts and Thermocouple Connectors

INSERTS FOR S SERIES MIXED CONTACT UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
3	1 HV	20	1.0	-	3000
	2 multi	14	1.8	500	700
	1 HV	20	1.0	-	3000
	4 multi	20	1.0	300	500
	1 HV	20	1.0	-	3000
	5 multi	20	1.0	300	500
	1 HV	20	1.0	-	3000
	6 multi	20	1.0	400	600
	1 HV	20	1.0	-	3000
	7 multi	20	1.0	400	600
	1 HV	20	1.0	-	3000
	8 multi	24	0.8	300	500
	2 HV	20	1.0	-	3000
	2 multi	20	1.0	500	700
	2 HV	20	1.0	-	3000
	4 multi	20	1.0	300	500
	2 HV	20	1.0	-	3000
	1 coax 50 ohms	26	0.6	400	500
	1 multi	20	1.0	1000	1400
	1 coax 50 ohms	26	0.6	400	500
	2 multi	20	1.0	500	700
	1 coax 50 ohms	26	0.6	400	500
	3 multi	20	1.0	700	1000
	1 coax 50 ohms	26	0.6	400	500
	4 multi	20	1.0	300	500
	1 coax 50 ohms	26	0.6	400	500
	5 multi	24	0.8	300	500

INSERTS FOR S SERIES MIXED CONTACT UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
4	1 HV	14	1.8	-	3000
	2 multi	12	2.7	700	1000
	1 HV	14	1.8	-	3000
	6 multi	20	1.0	700	1000
	1 HV	14	1.8	-	3000
	12 multi	24	0.8	700	1000
	2 HV	14	1.8	-	3000
	5 multi	20	1.0	700	1000
	2 HV	14	1.8	-	3000
	7 multi	20	1.0	700	1000
	2 HV	14	1.8	-	3000
	9 multi	24	0.8	700	1000
	2 HV	14	1.8	-	3000
	10 multi	24	0.8	700	1000
	2 HV, 3 HV, 4 HV	14	1.8	-	3000
	1 coax 50 ohms	26	0.6	400	500
	6 multi	20	1.0	700	1000
	1 coax 50 ohms	26	0.6	400	500
	9 multi	24	0.8	700	1000
	1 coax 50 ohms	26	0.6	400	500
	12 multi	24	0.8	700	1000
	2 coax 50 ohms	26	0.6	400	500
	4 multi	20	1.0	900	1300
	2 coax 50 ohms	26	0.6	400	500
	16 multi	24	0.8	500	800

INSERTS FOR S SERIES MIXED CONTACT UNITS

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
5	1 HV	14	1.8	-	5000
	8 multi	14	1.8	700	1000
	2 HV	14	1.8	-	5000
	4 multi	12	2.7	800	1100
	2 HV	14	1.8	-	5000
	8 multi	14	1.8	700	1000
	2 HV	14	1.8	-	5000
	16 multi	20	1.0	600	800
	1 HV	12	2.7	-	10KV
	10 multi	14	1.8	600	800
	4 HV	14	1.8	-	5KV
	8 HV	14	1.8	-	3KV
	2 coax 50 ohms	24	0.8	600	800
	8 multi	20	1.0	700	1000
	2 coax 50 ohms	24	0.8	600	800
	12 multi	20	1.0	700	1100
	2 coax 50 ohms	24	0.8	600	800
	20 multi	20	1.0	400	600
	2 coax 50 ohms	24	0.8	600	800
	24 multi	20	1.0	400	600
6	4 coax 75 ohms	20	1.0	500	700
	3 coax 50 ohms	24	0.8	600	800
	26 multi	14	1.8	500	700
	8 coax 50 ohms	26	0.6	-	-
	20 multi	18	1.4	500	700
	3 coax 75 ohms	20	1.0	500	700
	26 multi	20	1.0	500	700

INSERTS FOR S SERIES THERMOCOUPLE CONNECTORS

Sz.	No. of Cntcs.	Insulators Available	Type of Contacts Available
0	2	Nylatron	(J) Iron Constantan
	2	Teflon	(J) Iron Constantan
	2	Ceramic	(J) Iron Constantan
	2	Nylatron	(K) Chromel Alumel
	2	Teflon	(K) Chromel Alumel
	2	Ceramic	(K) Chromel Alumel
	2	Nylatron	(T) Copper Constantan
	2	Teflon	(T) Copper Constantan
	2	Ceramic	(T) Copper Constantan
	2	Nylatron	Brass Bronze
	2	Teflon	Brass Bronze
	2	Ceramic	Brass Bronze
	3	PEEK	Chromel Alumel Bronze
	4	Teflon	(K) Chromel Alumel
	4	Teflon	(J) Iron Constantan
1	2	Nylatron	(K) Chromel Alumel
	2	Teflon	(K) Chromel Alumel
	2	Nylatron	(J) Iron Constantan
	2	Teflon	(J) Iron Constantan

PROCEDURE FOR DETERMINING TEST VOLTAGES AND WORKING VOLTAGES FOR LEMO CONNECTORS:

Test Voltage: Test voltages are determined by taking an average of the point at which arcing occurred and reducing it by ⅓.
Working Voltage: Working voltages are determined by taking test voltages and reducing them further by ⅔.

LEMO guarantees the proper functioning of the connector at working voltages.

Although this may appear quite conservative, it is in keeping with LEMO's insistence on assuring proper functioning and maintenance of high-quality standards.

LEMO USA INC

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B Series Inserts— Multi Contact and Mixed Contact Connectors

INSERTS FOR B SERIES CONNECTORS WITH MULTI CONTACT CONNECTORS

Contact types: C = solder contact (standard version)
S = crimp contact
P = printed circuit contact

Wire sizes in this table are valid for solder-type contacts (standard version). For crimp contacts please contact LEMO.

Shell Size	Number of Contacts	Wire Sizes Maximum		Contact Types Available			Working Voltage	
		AWG	MM.	C	S	P	AC	DC
OB	2	21	0.8	x	x	x	460	660
	3	21	0.8	x	x	x	420	600
	4	24	0.6	x	x		460	660
	5	24	0.6	x	x		260	400
1B	2	19	1.0	x	x		530	760
	3	19	1.0	x	x		420	600
	4	21	0.8	x	x		630	900
	5	21	0.8	x	x		460	660
	6	24	0.6	x	x	x	460	660
	7	24	0.6	x	x	x	460	660
2B	2	14	1.8	x	x		700	1000
	3	16	1.4	x	x		560	830
	4	19	1.0	x	x		1000	1300
	5	19	1.0	x	x		860	1200
	6	19	1.0	x	x		630	900
	7	19	1.0	x	x		500	730
	8	21	0.8	x	x	x	1000	1500
	10	21	0.8	x	x	x	560	830
	12	24	0.6	x	x	x	560	830
	14	24	0.6	x	x	x	560	830
	16	24	0.6	x	x	x	500	730
	18	24	0.6	x	x	x	460	660
	19	24	0.6	x	x	x	460	660
3B	2	10	2.7	x			760	1100
	3	14	1.8	x	x		1200	1600
	4	14	1.8	x	x		830	1100
	5	16	1.4	x			860	1200
	6	16	1.4	x			730	1000
	7	16	1.4	x			730	1000
	8	19	1.0	x	x		700	1000
	10	19	1.0	x	x		460	660
	12	21	0.8	x	x		560	830
	14	21	0.8	x	x		560	830
	16	21	0.8	x	x		460	660
	18	21	0.8	x	x		460	660
	20	24	0.6	x	x		500	730
	22	24	0.6	x	x		400	560
	24	24	0.6	x	x		400	560
	26	24	0.6	x	x		260	400
	30	24	0.6	x	x		260	400

INSERTS FOR B SERIES CONNECTORS WITH MULTI CONTACT CONNECTORS

Shell Size	Number of Contacts	Wire Sizes Maximum		Contact Types Available			Working Voltage	
		AWG	MM.	C	S	P	AC	DC
4B	4	10	2.7	x			930	1300
	6	14	1.8	x			930	1300
	10	16	1.4	x			700	1000
	12	19	1.0	x			500	700
	16	21	0.8	x			1000	1400
	20	21	0.8	x			700	1000
	24	21	0.8	x			630	900
	30	21	0.8	x			460	660
	40	24	0.6	x			560	800
5B	4	8	3.7		x		2500	3500
	10	10	2.7		x		1200	1800
	16	14	1.8		x		1500	2100
	48	19	1.0	x	x		630	900
	64	21	0.8		x		530	700

INSERTS FOR B SERIES CONNECTORS WITH MIXED CONTACTS

Shell Size	Number of Contacts	Wire Sizes Maximum		Contact Types Available			Working Voltage	
		AWG	MM.	C	S	P	AC	DC
2B	1 coax 50 ohms 2 multi	21	0.8	x x			330	300 500
3B	1 coax 50 ohms 6 multi	24	0.6	x x			400	300 600
	1 HV 18 multi	22 24	0.6	x x	x		2000 400	3000 600
5B	1 triax 75 ohms 32 multi	19	1.0	x x			500	800 700

PROCEDURE FOR DETERMINING TEST VOLTAGES AND WORKING VOLTAGES FOR LEMO CONNECTORS:

Test Voltage: Test voltages are determined by taking an average of the point at which arcing occurred and reducing it by ⅓.

Working Voltage: Working voltages are determined by taking test voltages and reducing them further by ⅔.

LEMO guarantees the proper functioning of the connector at working voltages.

Although this may appear quite conservative, it is in keeping with LEMO's insistence on assuring proper functioning and maintenance of high-quality standards.

LEMO USA INC

P.O. Box 11006, Santa Rosa, CA 95406
(707) 578-8811, Telex 340-933 (LEMO USA SARO)

E Series Inserts— Single, Coaxial, Triaxial, Multi and Mixed Contacts

INSERTS FOR E SERIES SINGLE CONTACT UNITS ENVIRONMENTALLY SEALED

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage
		AWG	MM.	
0	1	18	1.4	500
1	1	14	1.8	500
	1	12	2.7	500
2	1	12	2.7	1000
	1	-	3.7	700
3	1	-	3.7	1000
	1	-	5.5	700

INSERTS FOR E SERIES COAXIAL UNITS ENVIRONMENTALLY SEALED

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
0	1	24	0.8	1200	1600
1	1	18	1.4	1200	1600
	1	20	1.0	1000	1500
2	1	14	1.8	1300	1800
	1	18	1.4	700	1000
3	1	12	2.7	1400	2000
	1	14	1.8	1100	1600
4	1	-	3.7	700	1100
	1	12	2.7	600	900

INSERTS FOR E SERIES TRIAXIAL UNITS

(550 and 575 for cables without shield)
(650 and 675 for cables with shield)

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
0	1	24	0.8	100	150
	1	24	0.8	300	500
1	1	24	0.8	300	400
	1	24	0.8	300	400
2	1	18	1.4	400	600
	1	18	1.4	500	700
	1	24	0.8	500	700
	1	24	0.8	600	800
3	1	14	1.8	500	700
4	1	12	2.7	-	-
	1	12	2.7	500	700
	1	-	-	-	-
	1	-	-	-	-

INSERTS FOR E SERIES MULTI-CONTACT UNITS ENVIRONMENTALLY SEALED

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
0	2	24	0.8	500	700
	3,4	26	0.6	300	500

INSERTS FOR E SERIES MULTI CONTACT UNITS ENVIRONMENTALLY SEALED

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
1	2	20	1.0	400	600
	3,4	24	0.8	400	600
	5,6	26	0.6	500	700
2	2	18	1.4	600	900
	3,4,5,6	20	1.0	500	700
	3 4	20 24	1.0 0.8	300 300	400 400
	8,10	24	0.8	300	400
3	2,3	14	1.8	1000	1400
	4	14	1.8	500	700
	2 3	14 20	1.8 1.0	500 500	700 700
	6	20	1.0	700	1000
	7,8,10	20	1.0	300	500
	12,14	24	0.8	400	600
	16,18	24	0.8	300	400
4	2	8	3.7	700	1000
	1 2	8 12	3.7 2.7	700 700	1000 1000
	4	12	2.7	700	1000
	2 3	12 14	2.7 1.8	700 700	1000 1000
	6	14	1.8	700	1000
	3 4	14 20	1.8 1.0	700 700	1000 1000
	8	20	1.0	900	1300
	9,10,12,14	20	1.0	700	1000
	16,18,20 22	24	0.8	700	1000
	24	24	0.8	700	2000
5	2	5	5.5	1200	1800
	1 2	5 8	5.5 3.7	1200 1200	1600 1600
	4	8	3.7	1200	1800
	6	12	2.7	1000	1400
	8	12	2.7	800	1100
	10,12	14	1.8	700	1000
	2 12	12 14	2.7 1.8	700 700	1000 1000
	2 16	12 18	2.7 1.4	600 600	800 800
	20	18	1.4	600	800
	2 20	12 18	2.7 1.4	600 600	800 800
	24	18	1.4	700	1100
	30,36	20	1.0	600	800
	44,48	20	1.0	400	600
6	12	7	4.5	700	1000
	24	12	2.7	400	600
	30	12	2.7	700	1100
	48	20	1.0	500	700
	60	14	1.8	500	700
	64	20	1.0	700	1000
	72	20	1.0	300	500
	106	24	0.8	300	400

INSERTS FOR E SERIES MIXED CONTACT UNITS ENVIRONMENTALLY SEALED

Sz.	No. of Cntcs.	Wire Sizes Maximum		Working Voltage	
		AWG	MM.	AC	DC
3	1 HV 5 multi	20 20	1.0 1.0	- 300	3000 500
	1 HV 6 multi	20 20	1.0 1.0	- 400	3000 600
	1 HV 8 multi	20 24	1.0 0.8	- 300	3000 500
	2 HV 4 multi	20 20	1.0 1.0	- 300	3000 500
	1 coax 50 ohms 5 multi	26 24	0.6 0.8	400 300	500 500
4	1 HV 3 multi	14 14	1.8 1.8	- 700	3000 1000
	1 HV 10 multi	14 24	1.8 0.8	- 700	3000 1000
	2 HV 5 multi	14 20	1.8 1.0	- 700	3000 1000
	2 HV 12 multi	14 24	1.8 0.8	- 700	3000 1000
	1 coax 50 ohms 6 multi	26 20	0.6 1.0	400 700	500 1000
	1 coax 50 ohms 12 multi	26 24	0.6 0.8	400 700	500 1000
	2 coax 50 ohms 4 multi	26 20	0.6 1.0	400 900	500 1300
5	2 HV 8 multi	14 14	1.8 1.8	- 700	5000 1000
	8 HV	14	1.8	-	3KV
	2 coax 50 ohms 12 multi	24 20	0.8 1.0	600 700	800 1100
	2 coax 50 ohms 24 multi	24 20	0.8 1.0	600 400	800 600
	1 coax 75 ohms 3 multi	18 12	1.4 2.7	- -	- -
6	3 coax 50 ohms 26 multi	24 14	0.8 1.8	600 500	800 700
	2 coax 75 ohms 26 multi	20 14	1.0 1.8	- -	- -
	4 coax 75 ohms 20 multi	20 20	1.0 1.0	500 500	700 700
	8 coax 50 ohms 20 multi	26 18	0.6 1.4	- 500	- 700
	3 coax 75 ohms 26 multi	20 20	1.0 1.0	500 500	700 700
	6 multi 30 multi	- 20	4.5 1.0	- -	- -

Specifications are based on Teflon insulators. For other insulators contact LEMO.

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Special Applications

VIDEO TRIAX 4A (American) SERIES

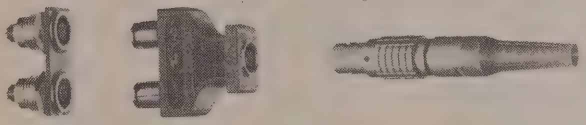
Technical Characteristics:
Nominal impedance: 75 ohms
Operating frequency: 2.5 GHz
VSWR: 1.01 + 0.076f[GHz]
Insertion loss: <0.4 dB
Contact resistance: center contacts <3mμ
internal ground <1mμ
Breakdown voltage: center contact/internal ground: 4KVrms
internal/external ground: 9.5kVrms
Operating temperatures: −50°C + 260°C (−58°F + 500°F)
Connector retention force, engaged: min. 28N
Cable retention force: min. 500N

Recommended cables: Triax Felten & Guillaume Part No. 127657 and 127664
Triax BIW Part No. 10069-C-G20 and 10070-C-G14
Triax Belden types 9232, 8233, 9267 and 8232

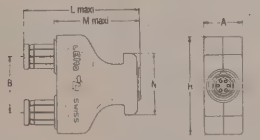
STEREO CONNECTOR SYSTEM

The LEMO stereo connector system consists of two receptacles, one double plastic panel washer, one bridge plug with or without monitoring output and one plug. The connector system may be either of the 3 pole type (303) or the 6 pole type (306).

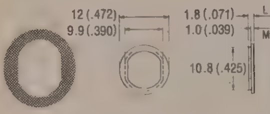
The double plastic panel washer, the bridge plug and the strain relief of the plug are available in nine colors. Color coding washers and strain reliefs match the colored bridge plug shells.



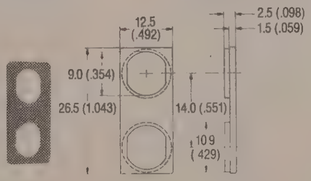
Bridge Plug: CAVF = Bridge plug with two non-latching plugs
CAVR = Bridge plug with two non-latching plugs and one monitoring receptacle for straight plug (test point)



RA 0.269-☐ ROUND INSULATING WASHER
(specify color)



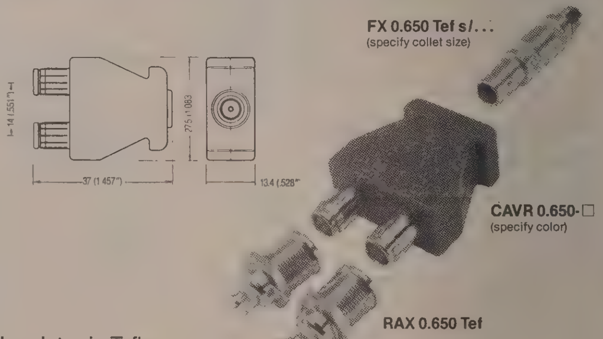
CAVR0B294-☐ RECTANGULAR INSULATING WASHER
(specify color)



CAVR 0.650 AND CAVR 0.651 TRIAXIAL BRIDGE PLUGS

CAVR 0.650 is - ☐ bridge plug with test point as shown
CAVR 0.651 is - ☐ bridge plug without test point.

These units are particularly suited for audio mixer or patching panel applications. LEMO's self-latching system is used between the FX 0.650 plugs and the RAX 0.650 receptacles as well as between the FX 0.650 and the CAVR 0.650 bridge plugs. LEMO's self-latching system is not used between the CAVR 0.650/CAVR 0.651 and the RAX 0.650 receptacles since the spring type contacts of the bridge plugs require a strong pulling strength.



Insulator is Teflon.
Wave resistance is 50 Ω.
Insulator resistance is 5 • 10^6 MΩ.
Contacts are made of BZ4 gold plated.
Shells of bridge plugs can be supplied in black, red, yellow, blue and white.

Sz.	No. of Cntcs.	Bridge Plug Part Number (*)	Working Voltage DC	Curr. Amps	Respective Receptacles	Monitoring Plug (**)	Double Panel Washer (*)	Strain Relief (*)/(**)
1B	3	CAVF1B303P-N 211	420	5	RG1B303CA222	no monitor	CAVR0B294N	-
	3	CAVR1B303P-N 202	420	5	RG1B303CA222	FG1B303WO060	CAVR0B294N	F1B192-N
	6	CAVF1B306P-N 211	270	3	RG1B306CA222	no monitor	CAVR0B294N	-
	6	CAVR1B306P-N 211	270	3	RG1B306CA222	FB1B306WO060	CAVR0B294N	F1B192-N

(*) Above part numbers cover units in black color. For other colors, replace suffix N by relevant color code from color code table.
(**) Above part numbers are shown assuming a .220″ O.D. cable is used. For other cable sizes, please contact LEMO U.S.A. Inc.

Bridge Plug Dimensions

Part Number	Number of Contacts	A		B		H		L		M		N	
		In.	MM.	In.	MM.	In.	MM.	In.	MM.	In.	MM.	In.	MM.
CAVF1B303P-N 211	3	.591	15.0	.787	20.0	1.378	35.0	1.654	42.0	1.220	31.0	.866	22.0
CAVR1B303P-N 202	3	.591	15.0	.787	20.0	1.378	35.0	1.654	42.0	1.220	31.0	.866	22.0
CAVF1B306P-N 211	6	.591	15.0	.787	20.0	1.378	35.0	1.654	42.0	1.220	31.0	.866	22.0
CAVR1B306P-N 202	6	.591	15.0	.787	20.0	1.378	35.0	1.654	42.0	1.220	31.0	.866	22.0

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eem

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A

AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire guage

B

BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction code
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C

CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D

D/A digital to analog
DAC digital to analog converter
DC direct curent
DIL dual in-line
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E

EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EPROM electrically programmable ROM
ESR equivalent series resistance

F

FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G

GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H

HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I

IC integrated circuit
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J

JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K

kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L

LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LSI large scale integration
LVDT linear velocity displacement transformer

M

MATV master antenna television
μF microforad
MHz megahertz
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N

NBS National Bureau of Standards
NIM nuclear instrumentation module
NOR not OR

O

OEM original equipment manufacturer
OR a logical operator

P

pF picofarad
PC printed circuit
PCB printed circuit board
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PPI plan position indicator
PROM programmable read only memory
PUT programmable unijunction transistor

Q

QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R

RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S

SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic

T

TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TTL transistor-transistor logic
TTY teletypewriter

U

UHF ultra high frequency (300 MHz to 3 GHz)
UL Underwriters Laboratory
UPS uninterruptible power supply

V

VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W

WPS word processing software

Y

YIG yttrium iron garnet

THE SOURCE.

Nobody offers you more in mass termination - more connectors, more concepts, more cable, more tooling, more proven reliability - than 3M.

What's in your head right now? Point-to-point interconnects? Designing for circuit density? Reducing interconnection costs? Improving reliability? Today there are so many interconnect options available to the engineer that selection is often as complicated as the design process itself.

3M is The Source for solutions: Scotchflex® Brand mass termination systems. 3M pioneered the development of the insulation displacement concept. We were the first to make it available to electronic designers for industry-wide application.

Scotchflex cable and connectors represent the industry standard for insulation displacement systems. Quality is one reason: 3M's wide range of precision spaced cables and computer-designed connectors give you optimum long term electrical and mechanical characteristics. (Another reason: the industry has put more Scotchflex mass termination products to work than any other brand.)

You get benefits from the technological leader that you can't get anywhere else. For example, technical back-up from 3M sales and laboratory experts. They can help solve difficult interconnect problems with existing products, or help create special products to fit your needs.

With today's critical production parameters, availability counts. A nationwide network of Scotchflex distributors, backed up by additional inventory in regional locations makes product available to you when you need it. Most of our distributors can also supply you with custom jumper assemblies in prototype or full production quantities.

Nobody offers you more in mass termination than 3M–THE SOURCE.

A hefty promise. But we can prove it, every time you put your mind to work on making reliable interconnections.

All the product data you'll need for mass termination is in our 80-page Scotchflex catalog—a valuable design resource. It's yours free. Ask your 3M Scotchflex distributor, or write Electronic Products Division/3M, Building 225-1N, 3M Center, St. Paul, MN 55144.

"Scotchflex" is a registered trademark of 3M Co.

SPECIFY THE SOURCE

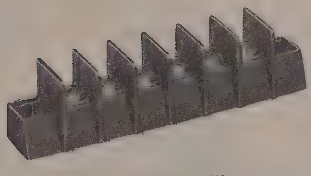
3M

MAGNUM®

SINGLE ROW TERMINAL STRIPS—3/8 CENTERS

SERIES A2000 & LP2000

STANDARD DELIVERY 3 WEEKS



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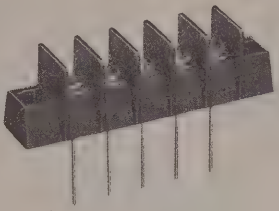


A207105-NL

NEW
LOW PROFILE

LP201205-NL

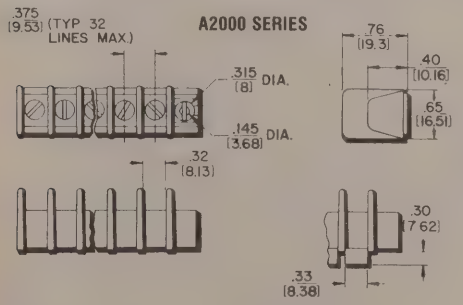
SERIES A2000 single row strips have connections on 3/8 in. centers, with mount or barrier ends, flat or insulator bases, and feed-thru terminals (straight hand wire, straight or right angle PC, wire-wrapping or quick connect). Strips can also be specified with non feed-thru bases (either open or closed type).

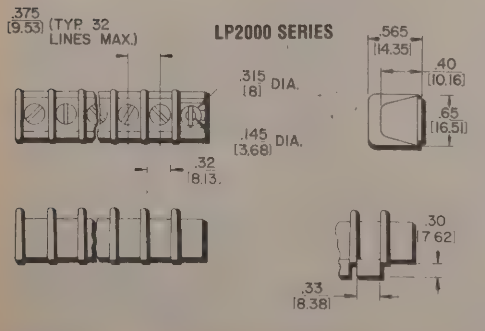
NEW SERIES LP2000 "Low Profile" single row strips have low silhouette barriers for compatibility with miniature and subminiature solid state circuitry for "tight" packaging situations. Other features are the same as Series A2000.

No. 6-32 screws are standard top hardware for both series; screws accept AWG 12 & smaller wiring and .312 wide rings and spade terminals. A wide variety of top and bottom hardware . . . and covers, marker strips, legends, colored strips are available . . . most from standard dies.

DIMENSIONS & RATINGS

		A2000 Series	LP2000 Series
U.L. Rated Voltages (rms)	V	300	250
U.L. Rated Current	A	20	20
Creepage Distance Between Terminals	Thru Air	.34 (8.64)	.17 (4.32)
	Over Surface	.38 (9.65)	.34 (8.64)
Creepage Distance Terminal to Ground (Open Base)	Thru Air	.27 (6.86)	.27 (6.86)
	Over Surface	.41 (10.41)	.41 (10.41)
Creepage Distance Terminal to Ground (Closed Base)	Thru Air	.46 (11.68)	.46 (11.68)
	Over Surface	.51 (12.95)	.51 (12.95)
Mtg. Dim. Accuracy	In./line	± .001 (.03)	± .001 (.03)
Operating Temperature Range °F (°C)	Max.	180 (82)	180 (82)
	Min.	−40 (−40)	−40 (−40)





PART NUMBERS

Part No.[1]	Part No.[1]	Bottom Terminals	Ends[2]	Base[3]
A2011XX-NL	LP2011XX-NL	Straight, Hand Wire	M	F
A2012XX-NL	LP2012XX-NL		B	F
A2013XX-NL	LP2013XX-NL		M	I
A2014XX-NL	LP2014XX-NL		B	I
A2021XX-NL	LP2021XX-NL	Straight PC	M	F
A2022XX-NL	LP2022XX-NL		B	F
A2031XX-NL	LP2031XX-NL	None	M	F
A2032XX-NL	LP2032XX-NL		B	F
A2035XX-NL	LP2035XX-NL[4]		M	F
A2041XX-NL	LP2041XX-NL[5]	PC or Straight Wire-Wrapping	M	F
A2042XX-NL	LP2042XX-NL[5]		B	F
A2043XX-NL	LP2043XX-NL		M	I
A2044XX-NL	LP2044XX-NL		B	I
A2071XX-NL	LP2071XX-NL[5]	Right Angle PC	M	F
A2072XX-NL	LP2072XX-NL[5]		B	F
A2073XX-NL	LP2073XX-NL[5]		M	I
A2074XX-NL	LP2074XX-NL[5]		B	I
A2091XX-NL	LP2091XX-NL	.250 Quick-Connect	M	F
A2092XX-NL	LP2092XX-NL		B	F
A2101XX-NL	LP2101XX-NL	.187 Quick-Connect	M	F
A2102XX-NL	LP2102XX-NL		B	F
A2103XX-NL	LP2103XX-NL		M	I
A2104XX-NL	LP2104XX-NL		B	I
A2111XX-NL	LP2111XX-NL	.110 Quick-Connect	M	F
A2112XX-NL	LP2112XX-NL		B	F
A2113XX-NL	LP2113XX-NL		M	I
A2114XX-NL	LP2114XX-NL		B	I
A2193XX-NL	LP2193XX-NL	.250 Quick-Connect	M	I
A2194XX-NL	LP2194XX-NL		B	I

1. 01-32 for XX digits to specify no. of lines.
   30 max. for mount ends; 32 max. for barrier ends.
2. M = Mount; B = Barrier
3. F = Flat; I = Insulator
4. Base molded completely closed.
5. Add suffix -RXX for right angle bends. Contact Magnum for details.

ORDERING

Order by part number from table. Contact Magnum for any applications assistance required.

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Tel. (800) 521-0330 TWX: 810-231-7160

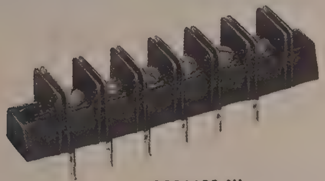
COOPER INDUSTRIES **MAGNUM**

MAGNUM®

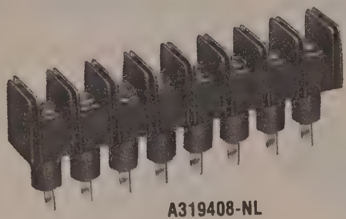
SINGLE ROW TERMINAL STRIPS— 7/16 CENTERS

SERIES A3000 & LP3000

STANDARD DELIVERY 2 WEEKS



A301106-NL



A319408-NL

NEW
LOW PROFILE

LP301205-NL

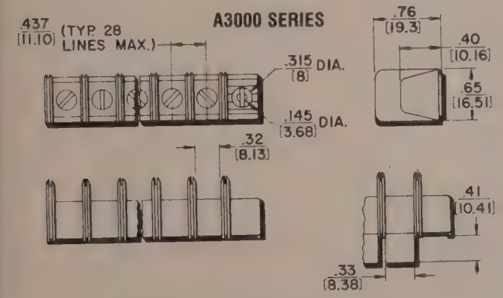
SERIES A3000 single row strip terminations are spaced on 9/16 in. centers and offer higher rating than Series A2000. Choice of features include mount or barrier ends, flat or insulator bases, and bottom terminals (straight hand wire, straight or right angle PC, wire-wrapping or quick connects). Strips can be specified with non feed-thru bases (either open or closed type).

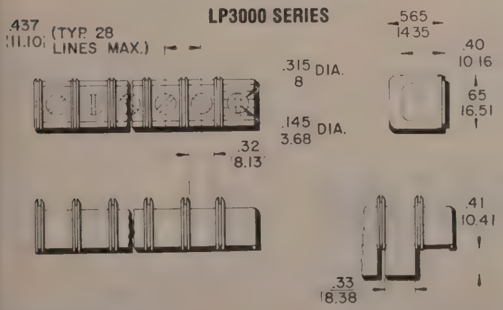
NEW SERIES LP3000 "Low Profile" single row strips have low silhouette barriers for "tight" electrical/electronic packages with a full 7/16 in. centers for high performance.

No. 6-32 screws are standard top hardware for both series; screws accept AWG 12 & smaller wiring and .312 wide rings and spade terminals. A wide variety of top and bottom hardware . . . and covers, marker strips, legends, colored strips are available.

DIMENSIONS & RATINGS

		A3000 Series	LP3000 Series
U.L. Rated Voltages (rms)	V	600	250
U.L. Rated Current	A	20	20
Creepage Distance Between Terminals	Thru Air	.40 (10.16)	.23 (5.84)
	Over Surface	.52 (13.21)	.51 (12.95)
Creepage Distance Terminal to Ground (Open Base)	Thru Air	.39 (9.91)	.39 (9.91)
	Over Surface	.51 (12.95)	.51 (12.95)
Creepage Distance Terminal to Ground (Closed Base)	Thru Air	.46 (11.68)	.46 (11.68)
	Over Surface	.51 (12.95)	.51 (12.95)
Mtg. Dim. Accuracy	In./line	± .001 (.03)	± .001 (.03)
Operating Temperature Range °F (°C)	Max.	180 (82)	180 (82)
	Min.	−40 (−40)	−40 (−40)





PART NUMBERS

Part No.[1]	Part No.[1]	Bottom Terminals	Ends[2]	Base[3]
A3011XX-NL	LP3011XX-NL	Straight Hand Wire	M	F
A3012XX-NL	LP3012XX-NL		B	F
A3013XX-NL	LP3013XX-NL		M	I
A3014XX-NL	LP3014XX-NL		B	I
A3021XX-NL	LP3021XX-NL	Straight PC	M	F
A3022XX-NL	LP3022XX-NL		B	F
A3031XX-NL	LP3031XX-NL	None	M	F
A3032XX-NL	LP3032XX-NL		B	F
A3035XX-NL	LP3035XX-NL[4]		M	F
A3041XX-NL	LP3041XX-NL[5]	PC or Straight Wire-Wrapping	M	F
A3042XX-NL	LP3042XX-NL[5]		B	F
A3043XX-NL	LP3043XX-NL		M	I
A3044XX-NL	LP3044XX-NL		B	I
A3071XX-NL	LP3071XX-NL[5]	Right Angle PC	M	F
A3072XX-NL	LP3072XX-NL[5]		B	F
A3073XX-NL	LP3073XX-NL[5]		M	I
A3074XX-NL	LP3074XX-NL[5]		B	I
A3091XX-NL	LP3091XX-NL	.250 Quick-Connect	M	F
A3092XX-NL	LP3092XX-NL		B	F
A3101XX-NL	LP3101XX-NL	.187 Quick-Connect	M	F
A3102XX-NL	LP3102XX-NL		B	F
A3103XX-NL	LP3103XX-NL		M	I
A3104XX-NL	LP3104XX-NL		B	I
A3111XX-NL	LP3111XX-NL	.110 Quick-Connect	M	F
A3112XX-NL	LP3112XX-NL		B	F
A3113XX-NL	LP3113XX-NL		M	I
A3114XX-NL	LP3114XX-NL		B	I
A3193XX-NL	LP3193XX-NL	.250 Quick-Connect	M	I
A3194XX-NL	LP3194XX-NL		B	I

1. 01-28 for XX digits to specify no. of lines.
26 max. for mount ends; 28 max. for barrier ends.
2. M = Mount; B = Barrier
3. F = Flat; I = Insulator
4. Base molded completely closed.
5. Add suffix -RXX for right angle bends. Contact Magnum for details.

ORDERING

Order by part number from table. Contact Magnum for any applications assistance.

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6385 Dixie Hwy., Erie, MI 48133
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COOPER INDUSTRIES MAGNUM

MAGNUM®

SERIES D1, D2, D3, D7 STANDARD DELIVERY 3 WEEKS

DOUBLE ROW TERMINAL STRIPS

CR151D10512
CR151D30112

SPECIFICATIONS	SERIES D1	SERIES D2	SERIES D3	SERIES D7
Rating*	15 A, 1200 V	20 A, 1600 V	30 A, 2500 V	15 A, 1200 V
Center Spacing; In. (mm)	3/8 (9.53)	7/16 (11.11)	9/16 (14.29)	3/8 (9/53)
Wiring, Max. AWG	#14	#12	#10	#14
Terminal Screws	#5-40	#6-32	#8-32	#6-32
Distance Between Barriers; In (mm)	0.3 (7.62)	.33 (8.4)	.42 (10.67)	0.3 (7.62)
Molding Material	General Purpose Phenolic, Black			
Mounting Screws	#6	#6	#8	#6
Materials & Finishes	Screws: bright zinc plated steel Terms & access.: tin plated brass.			
Breakdown Voltage Ratings	Suitability for specific application depends upon the equipment specification in terms of creepage, clearance and breakdown voltage requirements, mounting, and wire connectors used.			
Voltage, V	3600	4800	7500	3600
Creepage path over molded surface Terminal-to-terminal In. (mm)	.275 (6.99)	.4 (10.16)	.5 (12.7)	.275 (6.99)
Terminal-to mtg. surface In. (mm)	.3 (7.62)	.375 (9.53)	.450 (11.43)	.3 (7.62)

*Rating based on 1/3 breakdown voltage.

ORDERING

Order by part numbers from table.
Contact Magnum for any applications assistants.

PART NUMBERS – D1 SERIES 3/8 CENTERS, DOUBLE ROW, MOUNT ENDS

Part No.	Top Hardware		Bottom Hardware
CR151D101XX[1]	Screw	Screw	—
CR151D102XX[1]	Solder lug & #5-40 tapped hole	Solder lug & #5-40 tapped hole	—
CR151D103XX[1]	Screw	Solder lug & #5-40 tapped hole	—
CR151D104XX[1]	Screw	See "Bottom Hardware"	Feed Thru Solder Tail
CR151D106XX[1]	Solder lug & Screw	Solder lug & Screw	—
CR151D107XX[1]	Screw	Solder lug & Screw	—
CR151D137XX[1]	Screw	See "Bottom Hardware"	Feed Thru Solder Tail

1. Insert number (01-36) for number of positions desired.

PART NUMBERS – D2 SERIES 7/16 CENTERS, DOUBLE ROW, MOUNT ENDS

CR151D201XX[2]	Screw	Screw	—
CR151D202XX[2]	Solder lug & #6-32 tapped hole	Solder lug & #6-32 tapped hole	—
CR151D203XX[2]	Screw	Solder lug & #6-32 tapped hole	—
CR151D204XX[2]	Screw	See "Bottom Hardware"	Feed Thru Solder Tail
CR151D206XX[2]	Solder lug & Screw	Solder lug & Screw	—
CR151D207XX[2]	Screw	Solder lug & Screw	—
CR151D227XX[2]	Screw	See "Bottom Hardware"	Wire-Wrapping 90° Down

2. Insert number (01-30) for number of positions desired.

PART NUMBERS – D3 SERIES 9/16 CENTERS, DOUBLE ROW, MOUNT ENDS

CR151D301XX[3]	Screw	Screw	—
CR151D302XX[3]	Solder lug & #8-32 tapped hole	Solder lug & #8-32 tapped hole	—
CR151D303XX[3]	Screw	Solder lug & #8-32 tapped hole	—
CR151D304XX[3]	Screw	See "Bottom Hardware"	Feed Thru Solder Tail
CR151D306XX[3]	Solder lug & Screw	Solder lug & Screw	—
CR151D307XX[3]	Screw	Solder lug & Screw	—

3. Insert number (01-24) for number of positions desired.

PART NUMBERS – D7 SERIES 3/8 CENTERS, DOUBLE ROW, MOUNT ENDS

CR151D701XX[4]	Screw	Screw	—
CR151D702XX[4]	Solder lug & #6-32 tapped hole	Solder lug & #6-32 tapped hole	—
CR151D703XX[4]	Screw	Solder lug & #6-32 tapped hole	—
CR151D704XX[4]	Screw	See "Bottom Hardware"	Feed Thru Solder Tail
CR151D706XX[4]	Solder lug & Screw	Solder lug & Screw	—
CR151D707XX[4]	Screw	Solder lug & Screw	—
CR151D727XX[4]	Screw	—	Wire-wrapping Term. 90° down
CR151D734XX[4]	Screw	Wire-wrapping Term. straight[5]	—
CR151D735XX[4]	Screw	Wire-wrapping Term. 45° up[5]	—
CR151D736XX[4]	Screw	Wire-wrapping Term. 90° up[5]	—
CR151D737XX[4]	Screw	See "Bottom Hardware"	Feed Thru Solder Tail

4. Insert number 01-30 for number of positions desired. 5. .031 x .062 in. post.

FOR FURTHER INFORMATION,
CONTACT MAGNUM TODAY!

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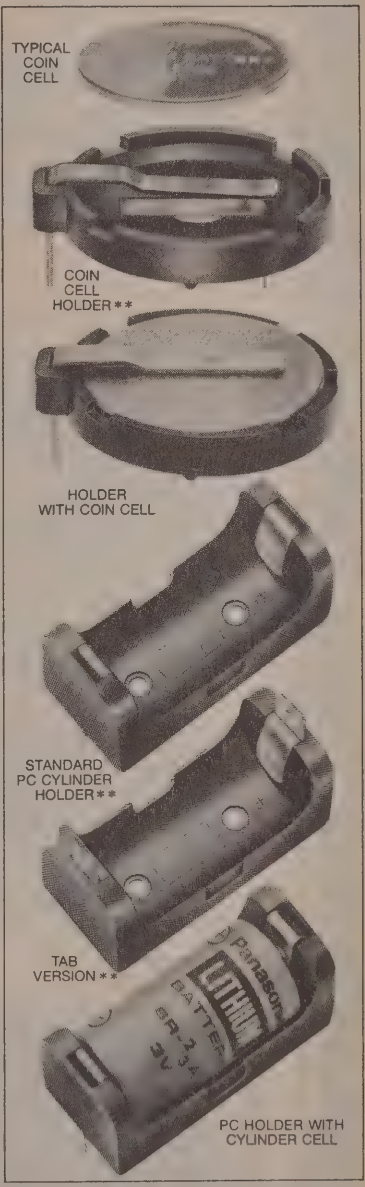
LITHIUM BATTERY HOLDERS

Also for NiCad, Carbon, Carbon-Zinc and Alkaline Cells

Lithium Batteries have gained wide usage for IC Memory Back-Up Systems due to long-lasting stable performance with low power consumption. A limitation in application has now been overcome with the introduction of MPD's printed circuit board mounted coin and horizontal battery holders. The need for permanent mounting of the cell by use of solder tabs is now eliminated.

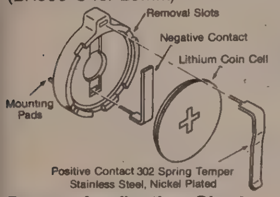
SPECIFICATIONS: Holder material—Self-extinguishing thermoplastic Polyester, VALOX® 420 SEO • Contacts—302 spring temper stainless steel, nickel plated • Flammability rating—UL94 V-0 • Dielectric strength—560 volts/mil at 25°C for 5 sec. • Color—Black • Temperature range— -55°C to +140°C • Resistance to solvents—Xylene; ethyl, butyl, methyl & propyl alcohol; ethyl acetate; heptane; toluene.

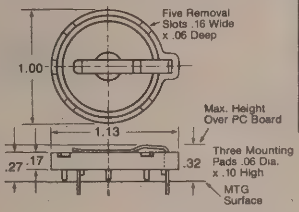
APPLICATIONS: • CMOS, Microprocessors & Microcomputer hold-memory • Electronic communications devices • Telecommunication equipment • Time clock back up.

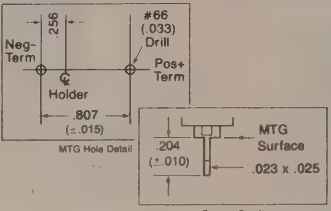

TYPICAL COIN CELL
COIN CELL HOLDER**
HOLDER WITH COIN CELL
STANDARD PC CYLINDER HOLDER**
TAB VERSION**
Panasonic
LITHIUM BATTERY
BR-2/3A
3V
PC HOLDER WITH CYLINDER CELL

LITHIUM COIN CELLS

FEATURES: • Fits all 3 volt coin-type cells up to 24mm x 3.2mm (BH906 for 23mm, BH1000 for 24mm single cell) • Printed circuit board mounting • Unique molded design offers easy insertion & removal of battery without desoldering or special tools • Special designed contacts assure proper polarity of inserted battery • Raised mounting tabs permit free air flow around battery & insulation from extreme solder bath temperatures • Low profile for high density packaging • Permits multiple battery/holder use for 6 volt application, stacking holder available (BH906-S for 23mm)


Removal Slots
Negative Contact
Lithium Coin Cell
Mounting Pads
Positive Contact 302 Spring Temper Stainless Steel, Nickel Plated


Five Removal Slots .16 Wide x .06 Deep
1.00
1.13
Max. Height Over PC Board
.27
.17
.32
Three Mounting Pads .06 Dia. x .10 High
MTG Surface


.256
#66 (.033) Drill
Neg- Term
Pos+ Term
Holder
.807 (±.015)
.204 (±.010)
MTG Surface
.023 x .025

MTG Hole Detail

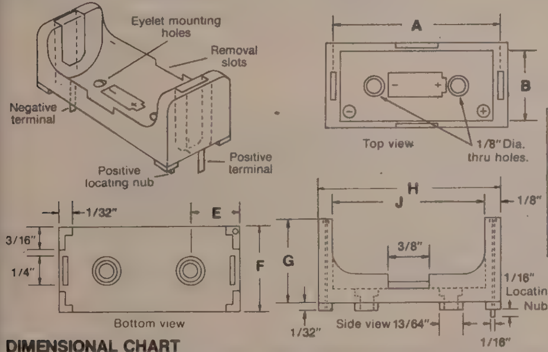
Contact Detail

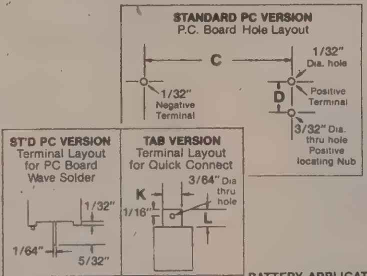
Battery Application Chart

MANUFACTURER	MODEL NO.	NOMINAL VOLTAGE	CAPACITY (mAh)	DIMENSIONS OUTSIDE DIA	(mm) HEIGHT	WEIGHT (g)
PANASONIC and RAY-O-VAC	BR2016	3V	60	20.0	1.6	1.5
	BR2320	3V	110	23.0	2.0	2.5
	BR2325	3V	160	23.0	2.5	3.1
GENERAL ELECTRIC SANYO and VARTA DURACELL (DL)	CR2016	3V	50	20.0	1.6	1.7
	CR2025	3V	110	20.0	2.5	2.6
	CR2016	3V	50	20.0	1.6	2.0
	CR2025	3V	120	20.0	2.5	2.5
	CR2025H	3V	100	20.0	2.5	2.4
	CR2032	3V	170	20.0	3.2	3.0
	CR2032H	3V	130	20.0	3.2	2.8

HORIZONTAL BATTERY HOLDERS

FEATURES: • Fits all 3-volt Lithium cylinder cells (see table) • Also accommodates Ni-Cad, Carbon, Carbon-Zinc and Alkaline cells (see table) • Printed circuit board mounting • Unique molded design offers easy insertion & removal of battery without desoldering or special tools • Special design molded base assures proper polarity of inserted battery • Raised mounting tabs permit free air flow around battery & insulation from extreme solder bath temperatures • Fast-on tab terminal for hardwire soldering & eyelet mounting holder BH-T (see table) • High temperature resistant UL 94V-O VALOX® Material.


Eyelet mounting holes
Removal slots
Negative terminal
Positive terminal
Positive locating nub
A
B
Top view
1/8" Dia. thru holes.
1/32"
E
3/16"
1/4"
F
G
Bottom view
H
J
1/8"
3/8"
1/16" Locating Nub Dim.
1/32"
Side view 13/64"
1/16"


STANDARD PC VERSION
P.C. Board Hole Layout
C
1/32" Dia. hole
1/32" Negative Terminal
D
Positive Terminal
3/32" Dia. thru hole Positive locating Nub
ST'D PC VERSION
Terminal Layout for PC Board Wave Solder
1/32"
1/64"
5/32"
TAB VERSION
Terminal Layout for Quick Connect
3/64" Dia thru hole
K
1/16"
L

DIMENSIONAL CHART

MODELS	STANDARD STYLE BATTERIES	FAST-ON-TAB	WEIGHT IN GRAMS	DIRECTION FINDER	DIMENSIONS A	B	C	D	E	F	G	H	J	L	K
BH 2/3A	2/3A		7	•	1-1/2	5/8	1-1/2	21/64	29/64	23/32	25/32	1-5/8	1-3/8	—	—
BH 2/3A-T	2/3A	•	7.3	•	1 1/2	5/8	—	-	29/64	23/32	25/32	1-5/8	1-3/8	9/32	3/16
BH 1/2 AA	1/2 AA		5.5	•	1-11/64	9/16	1-11/64	19/64	11/32	41/64	25/32	1-19/64	1-1/32	—	—
BH 1/2 AA-T	1/2 AA	•	6	•	1-11/64	9/16	—	—	11/32	41/64	25/32	1 19/64	1 1/32	9/32	3/16
BH AA	AA		18	•	2-11/64	9/16	2-11/64	19/64	15/32	41/64	25/32	2-19/64	2-1/32	—	—
BH AA-T	AA	•	19	•	2-11/64	9/16	—	—	15/32	41/64	25/32	2-19/64	2-1/32	9/32	3/16
BH-C	C		20	•	2 11/64	31/32	2 11/64	33/64	15/32	1 3/32	1 1/8	2-19/64	2 1/32	—	—
BH-C-T	C	•	20.7	•	2-11/64	31/32	—	—	15/32	1 3/32	1 1/8	2-19/64	2-1/32	9/32	3/16

BATTERY APPLICATION CHART MPD MODEL BH 2/3A, BH 1/2AA, BHAA, BHC & T VERSIONS FITS THE FOLLOWING LITHIUM CYLINDER CELLS MANUFACTURER'S

* BATTERY SIZES	PANASONIC	RAY O VAC	SANYO	ELECTROCHEM IND INC	DURACELL	TADIRAN	SAFT	POWER CONVERSION INC.	ALTUS CORP
2/3A	•	•	• CR-2/3ASE		•		• LX-16/34	•	
1/2AA			• CR-1/2AASE			•		•	
AA				•		•	• LS-6	•	• w/o TAB
C	•			•		•		•	• w/o TAB

**Patent Pending

*Also accommodates Ni-Cad, Carbon Zinc and Alkaline Batteries

Memory Protection Devices inc.

320 Broad Hollow Rd., Farmingdale, N.Y. 11735 • (516) 454-0340

Connector and Cable Division

Microdot Connector Group

The Connector and Cable Division of Microdot Connector Group has a longstanding worldwide reputation as a respected supplier of a broad array of electronic/electromechanical connecting devices and specialty cable. The Connector and Cable Division charter encompasses the engineering and manufacture of high-reliability MIL-Spec and commercial electronic/electromechanical connectors, specialty electronic cable and cable assemblies, and metal backpanels and plastic/metal headers. Products range from simple, low-cost wire-to-wire connectors, to highly sophisticated interconnect systems for electronic equipment. The Connector and Cable Division consists of the following manufacturing facilities.

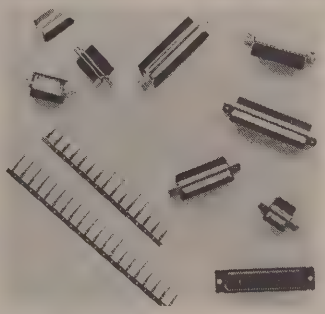
MALCO

MALCO Montgomeryville
12 Progress Drive
Montgomeryville, PA 18936
(215) 699-5373

Connector Industries Of America
639 North Wayne Avenue
Cincinnati, OH 45215
(513) 733-3680

MALCO

MALCO
306 Pasadena Avenue
South Pasadena, CA 91030
(818) 799-9171



D-subminiature Connectors
D-Subminiature
376 Series

Complies with most industry interface standards such as EIA-RS-232C, EIA-RS-449 and IEEE Project 802. Available in all standard contact configurations including 9, 15, 25, 37 and 50 pin positions.

- Complete line of mounting and latching hardware types.
- Unique single-piece metal back shell hardware provides maximum EMI/RFI isolation.
- Application tooling available for both high and low volume cable assembly production.
- Compatible with AMP's HDP-20 Series

For additional information contact MALCO Montgomeryville, (215) 699-5373.

Microminiature D Connectors
(Meets Mil-C-83513)

Microminiature D Connectors (MCK series - metal shell and MCD Series - plastic shell) utilize a precision #24 AWG patented low force (5oz. max) twist pin reducing individual contact insertion forces by 33%, while maintaining all previous mechanical, electrical and environmental standards.

- 8 different insert arrangements – 9, 15, 21, 25, 31, 37, 51 and 100 contacts on .050 inch centerlines.
- Meets MIL-C-83513 requirements.

For additional information contact MALCO South Pasadena, (818) 799-9171.

MALCO
Montgomeryville

Connector
Industries
Of America

MALCO
South Pasadena

Connector and Cable Division
Microdot Connector Group

DIN Connectors
302 through 309 Series

Provide increased contact density and high reliability. 8 product lines including box and box contact versions of 96 and 64 position DIN PCB connectors, reverse DIN configurations, DIN modules with 21 contacts, grid spacing of .100 x .100 inches, or post and box versions with .200 x .200 inches grid spacing.

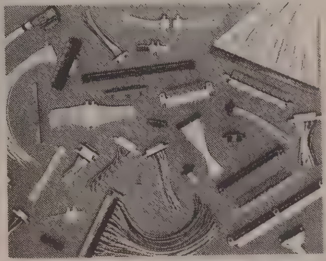
- Meets following specifications:
- MIL-C-55302
- IEC 130-14
- DIN 41612
- VG 95324
- British Telecom PO 222

For additional information contact MALCO Montgomeryville, (215) 699-5373.

Rectangular Connectors

High density microminiature connectors featuring Malco's patented Twist Pin high reliability contact system. Provides perfect contact alignment with low engaging forces. Includes plastic and metal shell "D" connectors, plastic and metal shell two piece edgeboard connectors and strip connectors.

- Twist pins provide 7 points of contact no discontinuity in excess of 1 micro second and have a 3 amp rating.
- Contacts on .050 centers.
- Wire range #30 AWG and #24 AWG.
- Insert arrangements available from 9 pin to 400 pin.



For additional information contact MALCO South Pasadena, (818) 799-9171.

Telephone Module Plug
375 Series

Meets both FCC and REA specifications and has the latest design improvements, including a superior strain relief. Modular plugs available in 4, 6 and 8 circuit configurations for a host of telephone, computer or other key electronics applications.

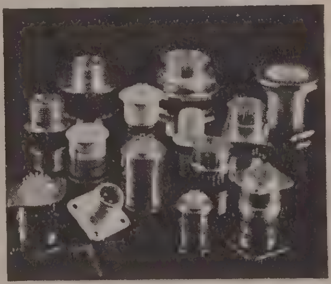
- Shielded computer versions.
- Readily terminated to either stranded or tinsel cables.
- Available off-the-shelf in sub assembly form to minimize total applied cost.
- Contacts selectively gold plated for maximum economy and reliability.
- State-of-the-art application equipment is available for small & large volumes.

For additional information contact MALCO Montgomeryville, (215) 699-5373.

Mil Qualified
Circular Hermetic Receptacles

Circular hermetically sealed environmental connectors are designed and fabricated to specialized military and commercial specifications and drawings. Primarily utilized in military/aerospace applications subjected to severe environmental conditions such as heat, humidity, vibration and shock.

- Military specifications include Mil-C-5015, Mil-C-25955, Mil-C-26482, Mil-C-26500, Mil-C-38999, Mil-C-83723, Mil-C-81703.
- Mounting styles include bulkhead mount, square flange, round flange, and weld mount.



For additional information contact Connector Industries Of America, (513) 733-3680.

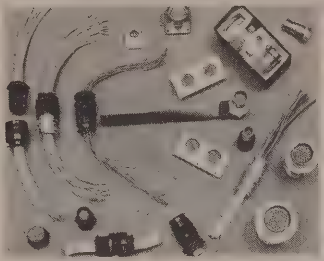
MALCO
Montgomeryville

Connector
Industries
Of America

MALCO
South Pasadena

Connector and Cable Division

Microdot Connector Group



Circular Connectors

Malco's proprietary line of high density, precision circular connectors represents the only modular multi-pin available in the industry today. Miniature 50-ohm, 75-ohm and 95 ohm coax contacts.

- Wire sizes 22 through 12 guage.
- Rear removable/insertable configuration – permits pre-termination of wires.
- Unsealed, environmentally sealed, or hermetically sealed.
- High density contact spacings as close as .065 centers.

For additional information contact MALCO South Pasadena, (818) 799-9171.

Coaxial Connectors - Microminiature

One of the best known, accepted lines of miniature and ultra miniature coax connectors in the industry, Malco lines include Standard, Golden Crimp™ Series, and Lepra/Con™ Series.

Each series offers straight and angle plugs, cabled jacks, bulkhead receptacles and adapters. A line of hermetic coax connectors is also available.

Standard Line

- Fits 50-95 ohm miniature cables.
- Threaded, "quick-connect", or slide-on coupling.
- Solder assembled center contact.
- Center contact gold plated; other metal parts silver plated.

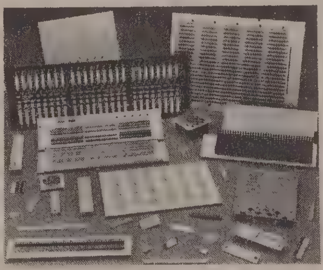
Golden Crimp™ Series

- Rapid crimp assembly.
- Housing, nut, and contact gold plated.
- Operating temperature to 200°C.

Lepra/Con™ Series

- Ultra-Miniature Size.
- Fits 50 Ohm Miniature Cables.
- Threaded or Slide-On Coupling.
- Rapid Crimp Assembly (Straight Plugs and Jacks).
- Housing, Nut, and Contact Gold Plated.
- Operating Temperature to 200°C.

For additional information contact MALCO South Pasadena, (818) 799-9171.



Back Panel Assemblies and Headers Meets Mil-C-28754)

Malco, the originator of the metal back plane technology produces aluminum metal plates for both card edge and metal to metal contact interfaces. Using a slide and tuning fork system, known as the wrappost assembly system panel, thousands of electrical terminations can be mounted on a single WASP plate, featuring 6 amp contacts with .045 inch square wire wrapposts on 0.200″ centers.

- High density up to 300 contacts per square inch with each contact positioned to permit use with automatic wire wrapping machines.
- Malco offers a complete line of extruded, metal and molded headers.
- Extruded headers series 440 & 441 provide reliable interconnection between the back plane and printed circuit board, selective plating, increased rigidity and maximum utilization of space.

For additional information contact MALCO Montgomeryville, (215) 699-5373.

Wire and Cable

Malco offers a broad line of high-performance cables for a diverse range of applications.

These include microminiature coaxial cables, "Mini-Noise" cables, high temperature cables, and high speed data lines, including the increasingly popular Local Area Network cables.

Product offerings include:

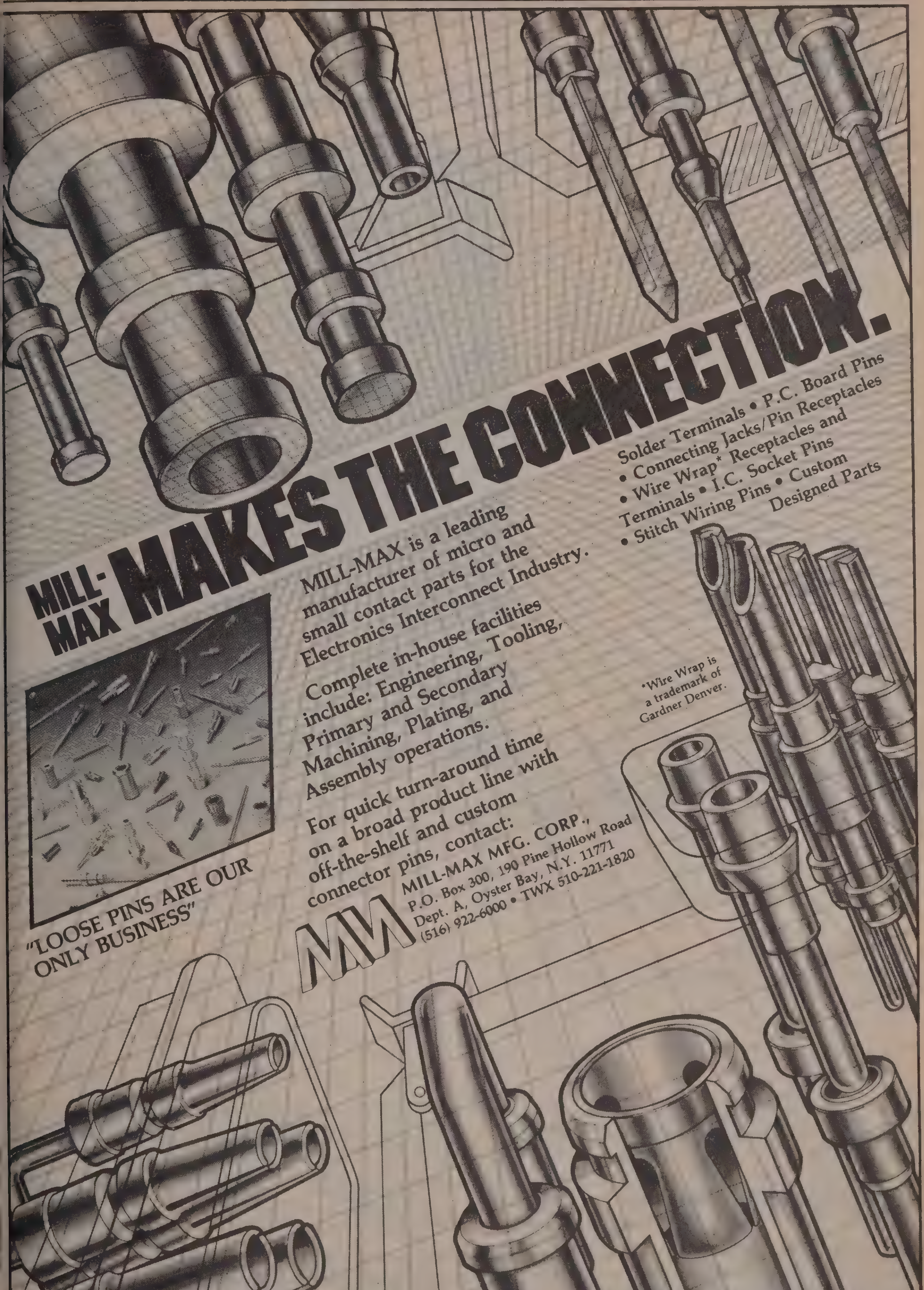
- Microminiature coaxes, triaxes, twinaxes, etc.
- "Mini-Noise" cables reduce or eliminate the noise generated when the cables are flexed.
- Military type coax, twinax, and triaxial cables using PVC, polyethylene, nylon and flurocarbon materials.
- Foamed dielectrics including, FEP, polyethylene, and polypropylene.
- A wide range of cables classified by Underwriters Laboratory for fire and smoke characteristics (in accordance with Section 725-2(b) of the National Electric Code) for conduit-free installations in ducts and plenums.

For additional information contact MALCO South Pasadena, (818) 799-9171.

MALCO
Montgomeryville

Connector
Industries
Of America

MALCO
South Pasadena



MILL-MAX MAKES THE CONNECTION.

Solder Terminals • P.C. Board Pins • Connecting Jacks/Pin Receptacles • Wire Wrap* Receptacles and Terminals • I.C. Socket Pins • Stitch Wiring Pins • Custom Designed Parts

MILL-MAX is a leading manufacturer of micro and small contact parts for the Electronics Interconnect Industry.

Complete in-house facilities include: Engineering, Tooling, Primary and Secondary Machining, Plating, and Assembly operations.

For quick turn-around time on a broad product line with off-the-shelf and custom connector pins, contact:

MILL-MAX MFG. CORP.,
P.O. Box 300, 190 Pine Hollow Road
Dept. A, Oyster Bay, N.Y. 11771
(516) 922-6000 • TWX 510-221-1820

"LOOSE PINS ARE OUR ONLY BUSINESS"

*Wire Wrap is a trademark of Gardner Denver.

METUCHEN CAPACITORS INC.

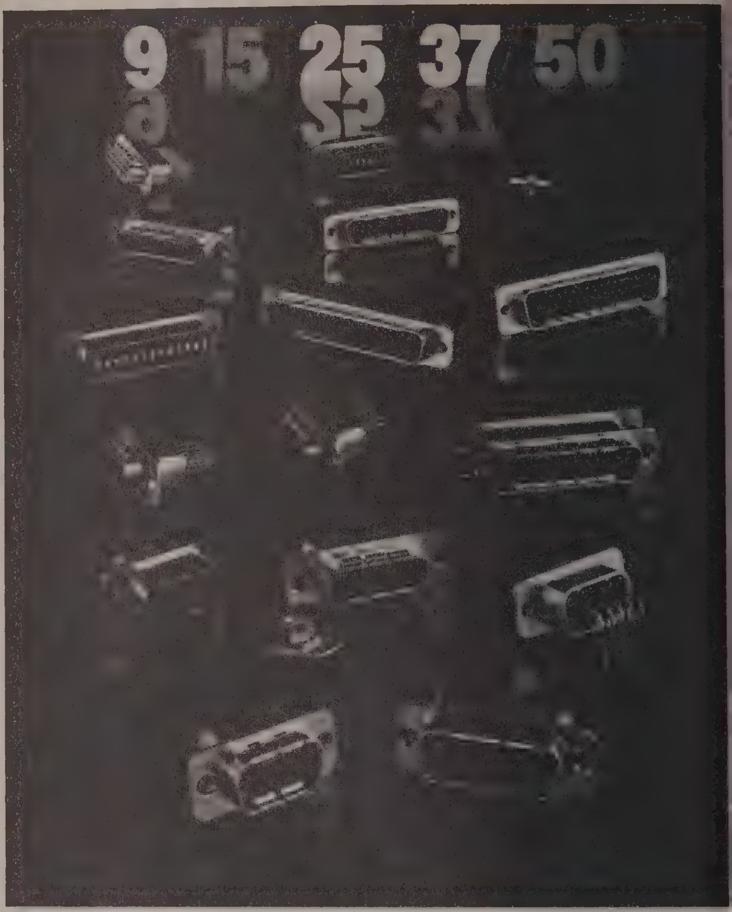
EMI Filtered D Subminiature Connectors

PRODUCT BENEFITS

- Provides optimum positioning of interference control at interconnect interface.
- Provides maximum volumetric efficiency.
- Design is based on proprietary ceramic technology of proven reliability and RF performance.
- Connectors mount in existing chassis hole pattern.
- A cost effective solution to electromagnetic compatibility (EMC).
- Provides a wide range of filter performance options.
- Adaptor styles provide for ease of retrofitting existing equipment.
- Testing 100% for key parameters ensures quality levels.
- Designed to provide compatibility with EIA RS-232 and RS-449.

M.C.I. has the world's largest inventory of filtered D-Subminiature connectors. These connectors are manufactured by the leader of the industry . . . Spectrum Control, Inc. Spectrum Control's Filtered D Subminiature connectors are designed to provide a cost effective method of complying with FCC Part 15, Sub Part J, VDE and MIL STD 461 A/B regulations. The filters are feed-thru capacitors and pi sections.

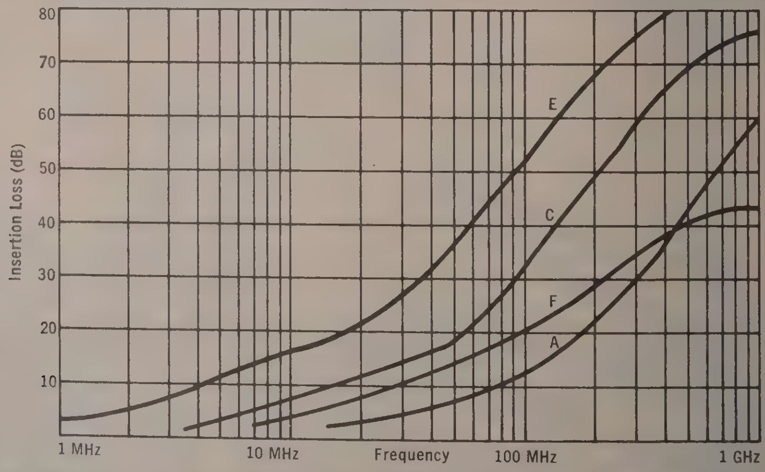
Our in-house stock includes all five shell sizes, 9, 15, 25, 37 and 50 position connectors in pin contacts (plugs), socket contacts (receptacles) and in the very versatile pin/socket adaptors. The four standard electrical configurations along with their performance values follows:



EMI FILTER PERFORMANCE

Filter Designation	*Filter Circuits	Capacitance		3 dB Max Cut-Off Frequency (MHz)	Dielectric W'Standing Voltage	Contact Rating	Contact Resist.	DC Working Voltage	Minimum Insertion Loss — Decibels (dB)							
		Value	Tolerance					−55°C to +125°C	5 MHz	10 MHz	20 MHz	50 MHz	100 MHz	200 MHz	500 MHz	1 GHz
A	Pi	310 pF	±20%	17	300V	5A	.010 Ω Max.	100V	—	—	—	5	10	18	39	52
C	Pi	1000 pF	+100 −0%	3.2	300V	5A	.010 Ω Max.	100V	—	5	9	15	25	43	65	70
E	Pi	4000 pF	+100 −0%	0.8	150V	5A	.010 Ω Max.	200V	8	13	18	31	46	60	75	75
F	FT	830 pF	±20%	6.4	600V	5A	.010 Ω Max.	200V	—	3	6	12	17	23	30	35

TYPICAL PI FILTER AND FEED THROUGH CAPACITOR PERFORMANCE*



The following pages depict HM RS-232 series (shell size 25)

All EMI Filtered D Subminiature Connectors stocked by MCI are manufactured in the U.S.A. by **Spectrum Control Inc. . .** *The world's leading manufacturer of Electro-Magnetic Components. Distributed for Spectrum Control Inc.*

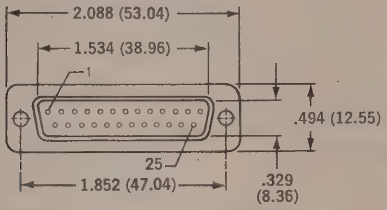
Metuchen Capacitors Inc. / Dept. EM, 420 Park Avenue, Perth Amboy, NJ 08861 / (201) 442-0500 / TWX 710-998-0892

METUCHEN CAPACITORS INC.

EMI Filtered
D Subminiature Connectors: 25 Pin Plug

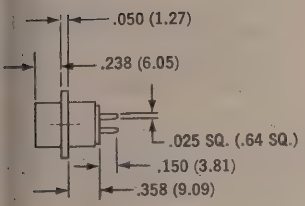
PIN CONTACT (PLUG)

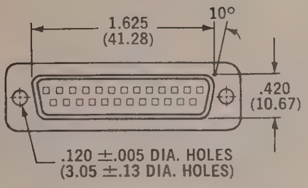
FRONT VIEW
(All Configurations)


2.088 (53.04)
1.534 (38.96)
1
.494 (12.55)
25
1.852 (47.04)
.329
(8.36)

Dimensions Shown in Inches (mm)

PRINTED CIRCUIT BOARD MOUNT

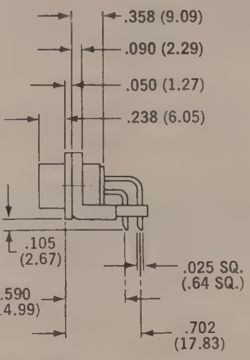

.050 (1.27)
.238 (6.05)
.025 SQ. (.64 SQ.)
.150 (3.81)
.358 (9.09)

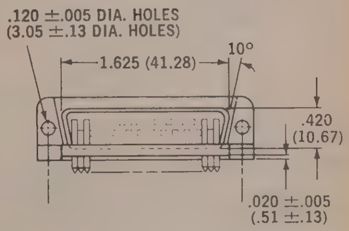

1.625
(41.28)
10°
.420
(10.67)
.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)

REAR VIEW

Spectrum Part Number	EMI Filter Type*	EMI Filter Cap Value	EMI Filter Lines Filtered	Voltage Rating
56-721-001	A	310 pF Pi	25	100 VDC
56-721-003	C	1000 pF Pi	25	100 VDC
56-721-005	E	4000 pF Pi	25	50 VDC
56-721-033	F	830 pF FT	25	200 VDC

PRINTED CIRCUIT RIGHT ANGLE MOUNT

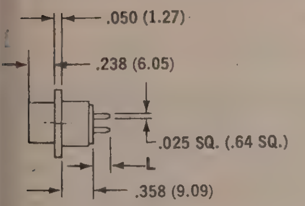

.358 (9.09)
.090 (2.29)
.050 (1.27)
.238 (6.05)
.105
(2.67)
.025 SQ.
(.64 SQ.)
.590
(14.99)
.702
(17.83)


.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)
1.625 (41.28)
10°
.420
(10.67)
.020 ±.005
(.51 ±.13)

REAR VIEW

Spectrum Part Number	EMI Filter Type*	EMI Filter Cap Value	EMI Filter Lines Filtered	Voltage Rating
56-722-001	A	310 pF Pi	25	100 VDC
56-722-003	C	1000 pF Pi	25	100 VDC
56-722-005	E	4000 pF Pi	25	50 VDC
56-722-008	F	830 pF FT	25	200 VDC

SOLDERLESS WIRE WRAP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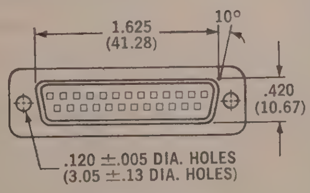
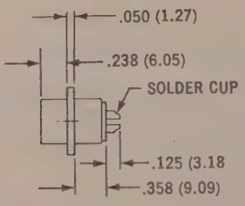
.238 (6.05)
.025 SQ. (.64 SQ.)
L
.358 (9.09)


1.625
(41.28)
10°
.420
(10.67)
.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)

REAR VIEW

Spectrum Part Number	L .500	L .375	L .225	EMI Filter Type*	EMI Filter Cap Value	EMI Filter Lines Filtered	Voltage Rating
56-721-	006	028	024	A	310 pF Pi	25	100 VDC
56-721-	008	030	026	C	1000 pF Pi	25	100 VDC
56-721-	010	032	027	E	4000 pF Pi	25	50 VDC
56-721-	042	039	036	F	830 pF FT	25	200 VDC

SOLDER CUP TERMINATION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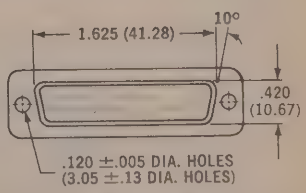
.238 (6.05)
SOLDER CUP
.125 (3.18
.358 (9.09)


1.625 (41.28)
10°
.420
(10.67)
.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)

REAR VIEW

Spectrum Part Number	EMI Filter Type*	EMI Filter Cap Value	EMI Filter Lines Filtered	Voltage Rating
56-721-011	A	310 pF Pi	25	100 VDC
56-721-013	C	1000 pF Pi	25	100 VDC
56-721-015	E	4000 pF Pi	25	50 VDC
56-721-045	F	830 pF FT	25	200 VDC

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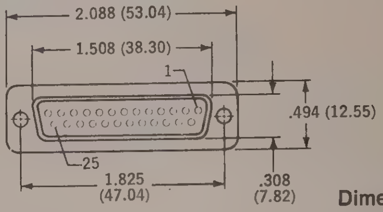
METUCHEN CAPACITORS INC.

EMI Filtered D Subminiature Connectors: 25 Socket Receptacle

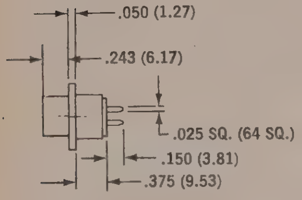
SOCKET CONTACT (RECEPTACLE)

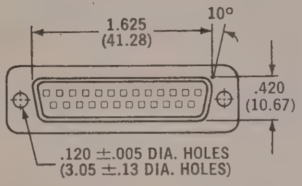
FRONT VIEW
(All Configurations)


2.088 (53.04)
1.508 (38.30)
1
.494 (12.55)
25
1.825
(47.04)
.308
(7.82)

Dimensions Shown in Inches (mm)

PRINTED CIRCUIT BOARD MOUNT

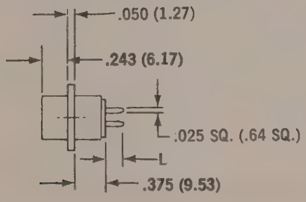

.050 (1.27)
.243 (6.17)
.025 SQ. (64 SQ.)
.150 (3.81)
.375 (9.53)

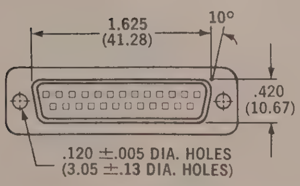

1.625
(41.28)
10°
.420
(10.67)
.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)

REAR VIEW

Spectrum Part Number	Type*	EMI Filter		Voltage Rating
		Cap Value	Lines Filtered	
56-723-001	A	310 pF Pi	25	100 VDC
56-723-003	C	1000 pF Pi	25	100 VDC
56-723-005	E	4000 pF Pi	25	50 VDC
56-723-023	F	830 pF FT	25	200 VDC

SOLDERLESS WIRE WRAP

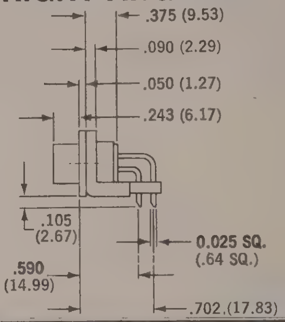

.050 (1.27)
.243 (6.17)
.025 SQ. (.64 SQ.)
L
.375 (9.53)


1.625
(41.28)
10°
.420
(10.67)
.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)

REAR VIEW

Spectrum Part Number	L .500	L .375	L .250	EMI Filter			Voltage Rating
				Type*	Cap Value	Lines Filtered	
56-723-	006	017	012	A	310 pF Pi	25	100 VDC
56-723-	008	019	014	C	1000 pF Pi	25	100 VDC
56-723-	010	021	016	E	4000 pF Pi	25	50 VDC
56-723-	032	029	026	F	830 pF FT	25	200 VDC

PRINTED CIRCUIT RIGHT ANGLE MOUNT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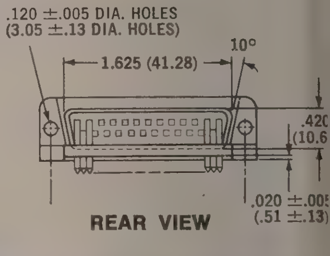
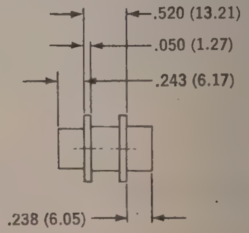
.090 (2.29)
.050 (1.27)
.243 (6.17)
.105
(2.67)
0.025 SQ.
(.64 SQ.)
.590
(14.99)
.702 (17.83)


.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)
10°
1.625 (41.28)
.420
(10.6
.020 ±.00
(.51 ±.13)

REAR VIEW

Spectrum Part Number	Type*	EMI Filter		Voltage Rating
		Cap Value	Lines Filtered	
56-724-001	A	310 pF Pi	25	100 VDC
56-724-003	C	1000 pF Pi	25	100 VDC
56-724-005	E	4000 pF Pi	25	50 VDC
56-724-008	F	830 pF FT	25	200 VDC

EMI FILTERED CONNECTOR ADAPTOR: PIN/SOCKET (PLUG/ RECEPTACLE)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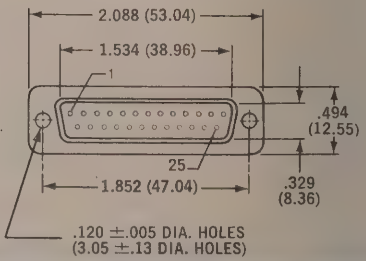
.243 (6.17)
.238 (6.05)


2.088 (53.04)
1.534 (38.96)
1
.494
(12.55)
25
1.852 (47.04)
.329
(8.36)
.120 ±.005 DIA. HOLES
(3.05 ±.13 DIA. HOLES)

Spectrum Part Number	Type*	EMI Filter		Voltage Rating
		Cap Value	Lines Filtered	
56-725-001	A	310 pF Pi	25	100 VDC
56-725-003	C	1000 pF Pi	25	100 VDC
56-725-005	E	4000 pF Pi	25	50 VDC
56-725-019	F	830 pF FT	25	200 VDC

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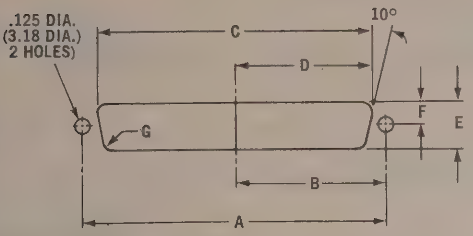
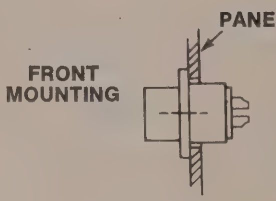
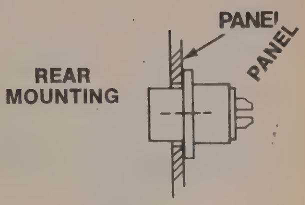
METUCHEN CAPACITORS INC.

Application Notes

25 D SUBMINIATURE PANEL CUTOUTS





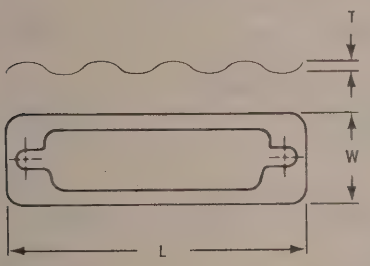


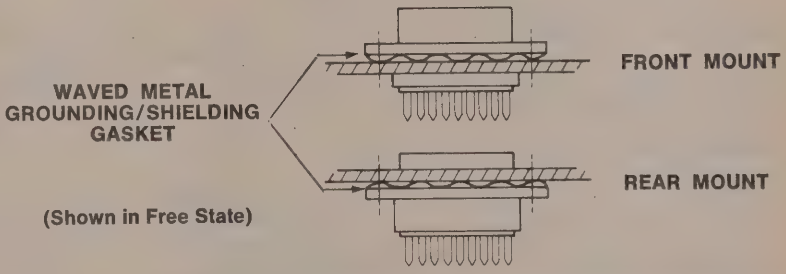
Mounting Method*	A ±.005 (0,13)	B ±.005 (0,13)	C ±.005 (0,13)	D ±.005 (0,13)	E ±.005 (0,13)	F ±.005 (0,13)	G ±.002 (0,05)
Front Mounting	1.852 (47,04)	.926 (23,52)	1.645 (41,78)	.822 (20,89)	.440 (11,18)	.220 (5,59)	.150 (3,81)
Rear Mounting	1.852 (47,04)	.926 (23,52)	1.528 (38,81)	.764 (19,41)	.360 (9,14)	.180 (4,57)	.110 (2,79)

* When Rear Mounting Pin (Plug) Connector use Front Mounting Panel Cutout.

Mounting Considerations
Waved Metal Gaskets...For Complete EMI Protection

Proper mounting of any EMI filter — including the EMI filtered D Subminiature — is critical to the achievement of electromagnetic compatibility. The mounting surface for grounding the connector must be free from paint or any other insulating material. The sketches below indicate the use of one of Spectrum's EMI gaskets to fill any tolerance gaps and adjust for irregularities in the flatness of the mounting surface.





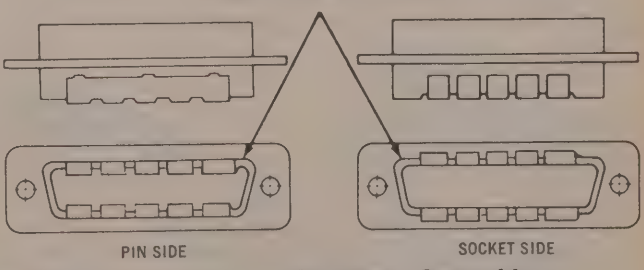
(Shown in Free State)

Shell Size	Mounting Configuration	L	W	T Free State	T Compressed	Spectrum Control Part No.
25	Front - Socket	2.088 (53,04)	.600 (15,24)	.030 (0,76)	.005 (0,13)	572019-00102-70
	Rear - Pin					
	Rear - Socket	2.088 (53,04)	.600 (15,24)	.030 (0,76)	.005 (0,13)	572019-00107-70

Spectrum EMI Filtered D Subminiature...Unique

Spectrum D subminiature connectors feature a unique ground plane to effectively block bulkhead leakage of EMI. The design also provides line to line isolation separation to limit cross talk (line to line mutual coupling) to an absolute minimum. Another, and a most important feature, is the coaxial spring contact that provides proper electrical grounding when mating one connector to another connector.

R. F. GROUNDING SPRING CONTACT*



* Provided on all shell sizes — all termination styles Patent Pending.

All EMI Filtered D Subminiature Connectors stocked by MCI are manufactured in the U.S.A. by **Spectrum Control Inc. . .**
The world's leading manufacturer of Electro-Magnetic Components. Distributed for Spectrum Control Inc.

Metuchen Capacitors Inc. / 420 Park Avenue, Perth Amboy, NJ 08861 / (201) 442-0500 / TWX 710-998-0892

A COMPLETE LINE OF ELECTRICAL and ELECTRONIC TEST ACCESSORIES

Mueller

MUELLER ELECTRIC COMPANY
1583 East 31st Street, Cleveland, Ohio 44114
CALL TOLL FREE 800/222-2600, ext. 174
(In Ohio 800/556-1600 ext. 174)

MICRO-GATOR CLIP
(Smallest Insulated Clip Ever Made)

U.S. Patent No. 2,762,028 Trademark Reg.

The alligator clip with the microscopic tip! This is the alligator clip you now can use where no other clip will do . . . on printed circuits, in tight spots and on tiny terminals too crowded for anything but its microscopic tip. Including separate skin-tight insulator the tip is no bigger than the head of a pin! Yet the Micro-gator has ample thumb grip, and plenty of bite to stand up straight on the smallest terminals. Ample 7/32″ jaw spread. 1 3/32″ long. Solder connection. Skin-tight flexible vinyl insulator (sold separately) has "lip-action" tip slot so that jaws stay covered whether open or closed.

Micro-Gator

Micro-Gator with Insulator

No. 34 — Steel, cadmium plated
No. 34-C — Solid Copper
No. 36 — Insulator for 34 and 34-C

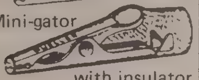
MINI-GATOR CLIP

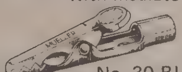
U.S. Patent No. 3,321,736 Trademark Reg.

Indispensable for testing or incorporation into miniaturized equipment. New design features rivet hinge for greater strength, full-meshing teeth to grip finest wires. Skin-tight flexible Vinyl insulator (sold separately) covers completely — has slotted "lip action" tip. Clip weighs 1/20th oz. has tiny 11/64″ O.D. nose, but ample 3/16″ jaw spread 1 3/32″ long. Crimping ears. Solder connection. Surprisingly strong bite penetrates corrosion and coatings.

Mini-gator

Mini-gator with insulator





No. 30-BL

No. 30-TBO

No. 30 — Steel, cadmium plated
No. 30-C — Solid Copper
No. 30-BL — Steel, cadmium plated with rolled barrel tail section; 1-1/4″ long
No. 30-TBO — Steel, cadmium plated with 6-32 thread steel barrel, 1-1/4″ long
No. 32 — insulator for 30, 30-C, 30-BL, 30-TBO

"60 SERIES" ALLIGATOR CLIPS

U.S. Patent No. 3,321,736

No. 60 — CONVENTIONAL TYPE

New slim design with full-meshing teeth. Convenient, round thumb grip, barrel connection for banana plug. Equipped with small soldering lip. Strong spring with a hard bite. Cadmium plated. 2″ long.

No. 60-S — SCREW CONNECTION

Eliminates necessity for soldering. Otherwise same as No. 60.

No. 60-CS — COPPER ALLIGATOR CLIP

Solid copper version of No. 60-S. Screw connection. 2″ long. 10 per box.

No. 60-NS — ALLIGATOR NEEDLE CLIP

Like No. 60-S, but with insulation piercing needle in one jaw. Screw connection. 2″ long. 10 per box.

No. 60PR-2 — SPECIAL BARREL FOR TEST PROD OR PHONE TIP

Barrel crimped to provide friction fit on standard test prod or phone tip. Holds prod on test, frees hand for other work.

No. 60-U — SPECIAL U-SHAPED BARREL

U-Shaped barrel allows for greater variety in wire sizes and mechanical use. Steel, cadmium plated, 2″ long

No. 60-TBO — THREADED STEEL BARREL

Tail section of clip has a threaded steel barrel to allow connection to any 8-32 threaded male test prod or screw. Steel, cadmium plated, 2-11/32″ long.

No. 60-HS — STEEL ALLIGATOR CLIP WITH INSULATED HANDLE

Same as No. 60-S except equipped with red and black insulating sleeves on end. Very convenient for distinguishing leads. Has screw connection also. Cadmium plated. 2 11/32″ long. Shipped half red, half black.

No. 60-CHS — COPPER ALLIGATOR CLIP, INSULATED HANDLE

Solid copper version of No. 60-HS. Screw connection. Shipped with half red, half black insulating sleeves. 10 per box.

No. 62 FLEXIBLE VINYL INSULATOR

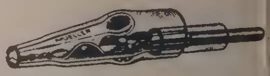
Red and black insulators for Alligator Clips 60, 60-S, 60-CS, 60PR-2, 60-NS, 60-U.

COMPLETELY INSULATED ALLIGATOR CLIPS

Patent Pending

No. 63 or 63-C Clip

Sold only as a unit, with factory-applied insulators.



Completely insulated right down to the nose. Fliexible 2-piece skin-type vinyl insulator of high dielectric strength, with "lip action" slotted tip that permits opening of clip without exposing metal. Insulator nose is only 13/64″ O.D. The tight fitting sheath preserves all the slimness of the Alligator Clip, still giving compete protection against shorts in even the tightest spots. Screw connecion easily made by slipping insulator forward. 2 1/8″ long.

No. 63 — INSULATED ALLIGATOR CLIP (STEEL)

Composed of Mueller No. 60-S Alligator Clip steel, cadmium plated, screw connection, complete with 2-piece vinyl insulator. Shipped half with red insulators, half black. 10 per box.

No. 63-C — INSULATED ALLIGATOR CLIP (COPPER)

Composed of Mueller No. 60-CS Alligator Clip, solid copper, screw connection. Shipped half with red insulators, half black. 10 per box.

"70 SERIES" ALLIGATOR CLIPS

U.S. Patent No. 2,762,028

Features simplified design, fast connection of wire with cord strain relief ears, patented hinge construction and lower cost.

No. 70 — FOR SOLDERED CONNECTION

Steel, cadmium plated, 1 11/64″ long.

No. 70-CS — COPPER SCREW CONNECTION

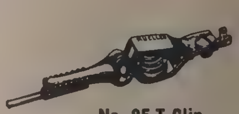
Solid copper version of No. 70-S.

No. 72 — SKIN-TIGHT INSULATOR FOR 70 SERIES ALLIGATOR CLIPS!

For the first time complete, skin-tight, one-piece insulation for a standard size Alligator Clip! Covers entire clip right down to nose. Special tip slot permits full jaw opening without exposing teeth.

CROCODILE CLIPS

No. 85 or 85-C Clip with No. 87 Insulator



No. 85-T Clip

No. 85 — A very smal clip with slender, elongated jaws for getting into tight places in radio or electrical test work. Screw connection. 2 1/8″ long.

No. 85-C — Same as No. 85, except solid copper with phosphor bronze spring, brass screw. A radio frequency, entirely non-ferrous test clip. 10 per box.

No. 85-T — Crocodile "Tip-Clip" — equipped with standard phone tip on one jaw, otherwise same as No. 85. Ideal for use as a prod for ordinary clip connections and for connections to insulated binding posts having nonremovable heads. 2 5/8″ long. 10 per box.

Use No. 87 Insulators for clips 85, 85-C and 85-T. Red and Black. Cover entire clip except nose. Protect against short and shock. Help to distinguish leads.

A COMPLETE LINE OF ELECTRICAL and ELECTRONIC TEST ACCESSORIES

Mueller

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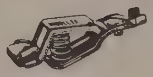
(In Ohio 800/556-1600 ext. 174)

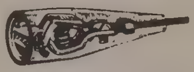
TEST CLIPS

No. 45 PEE WEE



A very small test clip for radio, ignition, meter and similar work. 1½" long. Jaw spread 5/16" Steel cadmium plated.

No. 45-C
Solid Copper R.F. Test Clip

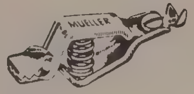


No. 45-C Clip
No. 47 Insulator

Solid copper radio frequency test clip. Phosphor bronze spring, brass screw. Will not heat up in high frequency test work, entirely nonferrous. 1½" long. 10 per box.

Use No. 47 Insulator for clips 45 and 45-C.

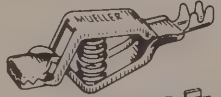
No. 48-B



A small test and battery clip for radio use and general testing purposes. 2" long. Jaw spread ½". Steel, cadmium plated. 10 per box.

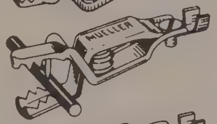
No. 48C — Solid Copper. Same as 48-B.

No. 48B-2E



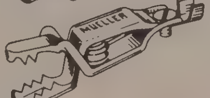
A small test and battery clip for general testing purposes. 2" ong. Jaw spread 1/2". Two rear clinching ears. Steel, cadmium plated.

No. 50-C COPPER NEEDLE CLIP



Solid copper clip with beryllium copper piercing needle in the op jaw for quick test contact through wire insulation. 6-32 brass set screw, 2-9/32" long. 10 per box.

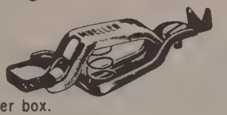
No. 51-C COPPER CLIP



Same as No. 50-C but without needle. Ideal for meter testing.

Use No. 49 Insulator for clip No.
8-B, 48-C, 48B-2E, 50-C and 51-C

No. 27

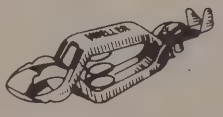


A high grade test clip with meshing teeth n three sides of jaws. For laboratory and shop test work. 2⁷⁄₁₆" long. Jaw spread ⅝". Steel, cadmium plated. 10 per box.

No. 27-C — Solid copper. Same size as No. 27. 10 per box.

Use No. 29 Insulator for clips 27 and 27-C.

No. 27-CG GEOPHONE COPPER CLIP



Highly specialized solid copper clips for use in geophysical work. Curved jaws clip onto seismograph cable rings. May be simply "yanked out" when test is completed. 10 per box
No. 27-CG has 7/32" wide jaw
No. 27-CGW has 13/32" wide jaw

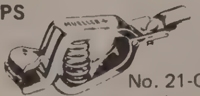
Use No. 29 Insulator for clips
7, 27-C, 27-CG and 27-CGW

LARGER SIZES OF CLIPS

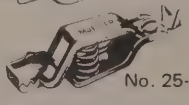
No. 24-A — 25 Amp. Steel, lead plated. 2⅞" long
No. 25 — 40 Amp. Steel, cadmium plated. 3" long
No. 25-C — 75 Amp. Solid Copper. 3" long
No. 21-A — 50 Amp. Steel, lead plated. 4" long
No. 21-C* — 100 Amp. Solid Copper. 4½" long
No. 11-A* — 100 Amp. Steel, lead plated. 6" long
No. 11-C* — 200 Amp. Solid Copper. 6" long
No. 33-C* — 300 Amp. Solid Copper. 7¾" long

All packed 10 per box.

Furnished with detachable lug connection for easy securing to large cables



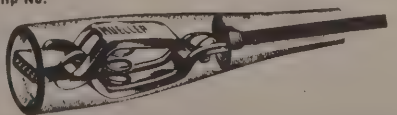
No. 21-C



No. 25-C

FLEXIBLE INSULATORS FOR CLIPS

A convenient protection against short circuit and electrical shock. Colors help to distinguish leads. Packed half red and half black to indicate polarity. Long tail prevents breakage of wire. Constructed so that clip is held in firmly. NOW AVAILABLE also in blue, white, yellow and green at 10% above regular price re insulators marked * below.



Insulator No.	For Use With Clip No.
3*	11-A, 11-C
3*	21-A, 21-C
6*	24-A, 25, 25-C
9*	27, 27-C 30-BL
2*	30, 30-C
5	33-C
36*	34, 34-C
47*	45, 45-C
49*	48-B, 48-C, 50-C, 51-C
62*	60, 60-S, 60-CS, 60PR-2, 60-NS, 60-U (also 70 Series)
72*	70, 70-S, 70-CS
87*	85, 85-C, 85-T

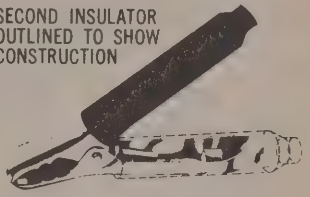
*Also available in blue, white, yellow and green.

HIPPO-CLIP

HIPPO-CLIP — For battery booster cables and fast chargers. Proved higher quality and superior design. Built-in solder strap and clinching ears for fast, sure cable connection. Supplied with vinyl handle insulators in red or black. Full 1⁹⁄₁₆" jaw spread. 6" long.

No. 41-A — Steel, bright copper plated. 100 amp

No. 41-C — Solid Copper, 300 amp



SECOND INSULATOR OUTLINED TO SHOW CONSTRUCTION

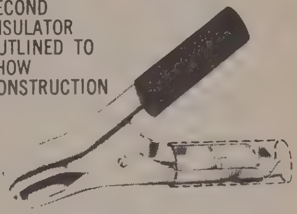
PIGMY HIPPO-CLIP

PIGMY HIPPO-CLIP — A new small plier clip for battery operated equipment and automotive test. Flat, wide handle allows positive grip. Won't "squirt away". Built-in solder strap and wire clinching ears. Supplied with vinyl handle insulators in red or black. Ample 1⅛" jaw spread. 3" long.

No. 46-A — Steel, bright copper plated, 50 amp

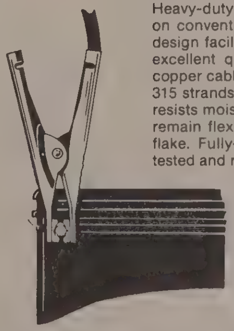
No. 46-C — Solid Copper, 75 amp

No. 46-1 — Insulator Only

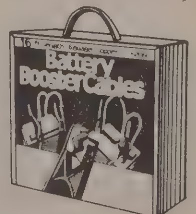


SECOND INSULATOR OUTLINED TO SHOW CONSTRUCTION

QUALITY BOOSTER CABLES FOR ALL BATTERIES



Heavy-duty Slim Jim™ cables provide a firm spring-loaded grip on conventional top terminals and newer side-terminals. Slim design facilitates working in tight areas. Slim Jim cables are of excellent quality; featuring true A.W. gauge cable. All solid copper cables are available in 6-gauge, 133 strands or 4-gauge, 315 strands (see chart). Heavy thermoplastic rubber insulation resists moisture, salt, acids, oils and grease. Tangle-free cables remain flexible at extreme temperatures and will not crack or flake. Fully-insulated vinyl-clad steel clips are independently tested and rated at 300 amps.

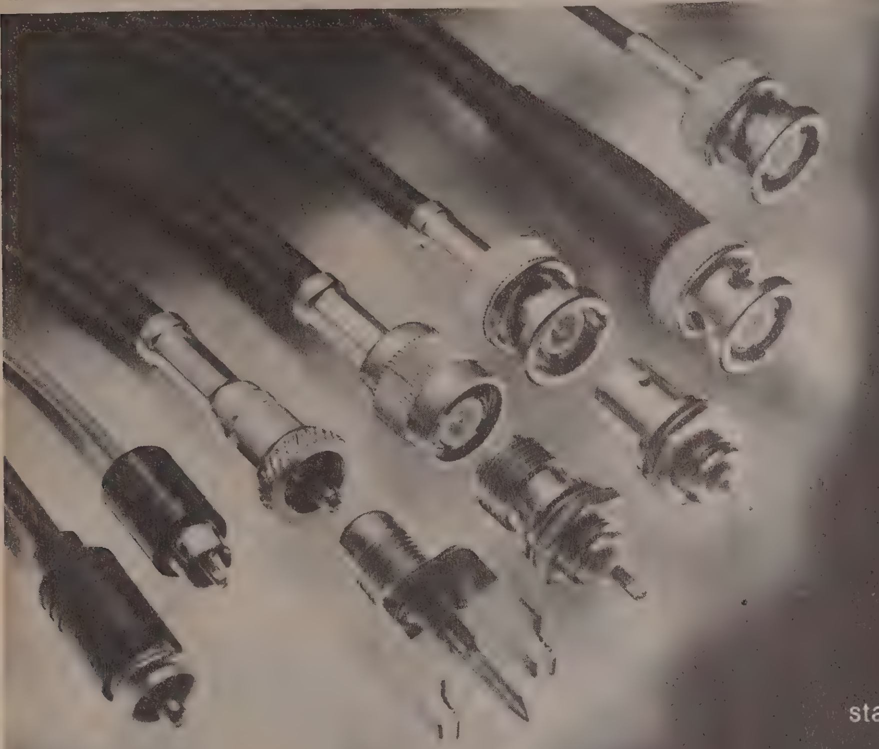


BATTERY BOOSTER CABLES

MODEL	LENGTH	SOLID COPPER A.W.G.	NO. OF COPPER STRANDS	O.D.	MASTER CARTON
612	12′	6	133	.400″	10
616	16′	6	133	.400″	10
620	20′	6	133	.400″	10
416	16′	4	315	.400″	10
420	20′	4	315	.400″	10

SLIM JIM™ Clip only

CAT. NO.	AMP RATING	JAWS	SKIN PACK	PACKAGING BOX	STD. PACK
44	300	solid copper		10 clips with display header	1 box of 10 clips
PK44	300	solid copper	2 clips on card		1 box of 10 cards



National Tel•Tronics has been supplying the OEM market for 35 years. Complete tool shop and stamping facilities in Pennsylvania and Texas give us the manufacturing flexibility to produce electronic connectors and components either to standard or custom specifications. Our lines are among the most comprehensive available from any supplier in the world, providing you with a real choice of types and sizes.

GET IT TOGETHER

ANTENNA PLUGS AND JACKS
A wide selection of plugs and jacks used extensively in automobile radios, CATV, MATV and CCTV applications.

BANANA PLUGS AND JACKS
Precision manufactured in standard, miniature and dual styles. Springs are silver or nickel plated phosphor bronze. Beryllium copper springs are also available. NT•T standard plugs mate with NT•T banana jacks and binding posts.

BINDING POSTS
Molded insulated binding posts available with fluted head, hex head and multi-way in single or dual styles. Metal binding posts are brass nickel plated.

CABLE ASSEMBLIES AND TEST LEADS
These utilize NT•T manufactured connectors of the highest quality. Styles include coaxial cables with BNC or TNC connectors, threaded coaxial connectors, miniature coaxial connectors, molded dual banana plugs, phone plugs, phono plugs, alligator clips, or any combination of the above. Test leads, patch cords, and special cable assemblies to customer's specifications are also available.

FUSE HOLDERS
Both 15 amp., 250 volt cartridge types and molded fuse blocks in single or double pole styles are available. Fuse blocks may be specified with one piece quick disconnect terminals in .187, .205 and .250 wide tabs.

PHONE PLUGS AND JACKS
Designed to provide superior reliability in micro-miniature, miniature, and standard sizes. Available in two or three conductor. Jacks are available in open or closed circuits. Completely enclosed jacks are similar to standard jacks except molded in plastic.

PHONO PLUGS AND JACKS
Low cost plugs and jacks available in a variety of styles and materials. Single and multiple connections. Plugs and jacks are also available in miniature size. NT•T has the plug or jack to meet your requirements.

BINDING POST BOARDS
Phenolic boards with steel or brass lugs and screws.

INTERLOCK RECEPTACLES
Standard and polarized in flush and recessed styles. Pins facilitate feed-thru, wrap around or quick disconnect type connection.

LUGS AND BRACKETS
Complete assortment of the most widely used styles including quick disconnect types.

TERMINAL STRIPS
Miniature and standard strips on 1/4'', 3/8'' and 1/2'' centers. Lug combinations are unlimited.

NEW FROM NT•T

ALLIGATOR CLIPS
A wide selection which virtually guarantees a clip to meet your specifications. Insulators are available.

BATTERY CLIPS
Plier type and grounding wire clips designed with heavy duty spring. Supplied with or without insulator.

JUMPER TEST LEADS
Available in small, medium or large size clips: 5 amp. or 10 amp. Wires and insulators are color coded.

BNC CONNECTORS
Male and female BNC and TNC connectors are of proprietary unique unitized construction. Male parts are crimp style. All BNC and TNC connectors meet MIL spec performance.

They are manufactured for assembly to all coaxial cables including miniature styles RG174, RG178 and RG179.

COAXIAL CONNECTORS AND ADAPTERS

Quality precision connectors and adapters are available in many styles suitable for cable TV, computer, medical electronics and other applications. Special threaded and miniature types are exclusively manufactured by NT•T. Miniatures are for use where space is limited.

PC STYLE PHONO JACKS

Used in computers, video games, audio amplifiers, mobile communications, television, video cassette recorders, and many other applications.

WITH ntt

Whether you crimp it, plug it, solder it, screw it, clip it, wrap it, interlock it, bayonet it— however you make your connection, get it together with NT•T.

National Tel•Tronics
State Road Hill
Meadville, PA 16335
(814) 724-6440
Telex: NATL TEL MEAD 914-405

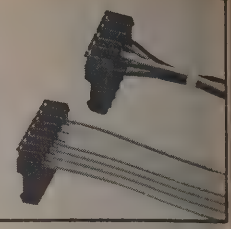
ntt
NATIONAL
TEL TRONICS

PANDUIT™ MAS-CON®

Mass Terminated Connector System

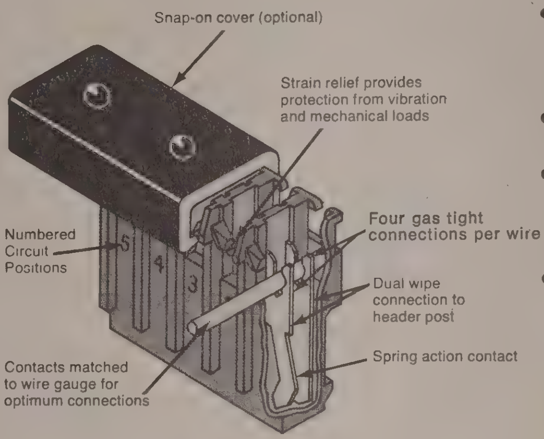
Connectors—Headers—Installation Tools

For Discrete
Wire and
Flat Cable



LOWER INSTALLED CONNECTOR COSTS

Preloaded insulation displacement contacts eliminate wire stripping, individual crimping and hand loading contacts into housings.

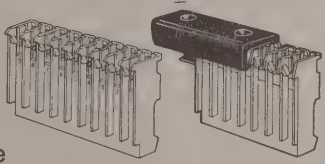

Snap-on cover (optional)
Strain relief provides protection from vibration and mechanical loads
Numbered Circuit Positions
5
4
3
Four gas tight connections per wire
Dual wipe connection to header post
Spring action contact
Contacts matched to wire gauge for optimum connections

- End and through connectors accept discrete wire, notched round conductor flat cable and pre-split ribbon cable.
- Industry intermateable and stackable end-to-end.
- Female contacts are made of special brass alloy with bright acid tin or selective gold over nickel plating.
- Housings are molded of 6/6 nylon (U.L. 94V-2) with color-coded stripes to indicate contact wire gauge.

.100″ and .156″ CENTERLINE CONNECTORS

.100″ (2.54mm) CENTERLINE CONNECTORS

- End and Through connectors offered with 2 through 28 circuit positions.
- For 22, 24, 26 and 28 AWG wire
- Available with tin or selective gold plating.



Matching covers available for all connectors.

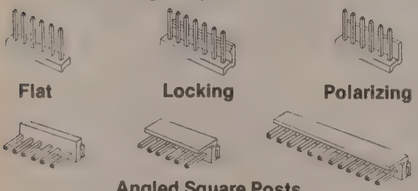
.156″ (3.96mm) CENTERLINE CONNECTORS

- End and Through connectors offered with 2 through 24 circuit positions.
- For 18, 20, 22, 24 and 26 AWG wire.

.100″ and .156″ HEADER ASSEMBLIES

.100″ Centerline Spacing

Straight Square Posts

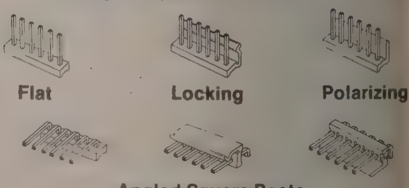

Flat
Locking
Polarizing

Angled Square Posts

- .100″ (2.54mm) center headers with 2 through 28 posts.
- .156″ (3.96mm) headers with 2 through 24 posts.
- Black thermoplastic wafer (UL 94V-0).
- Posts available with tin or gold plating.

.156″ Centerline Spacing

Straight (Square or Round) Posts

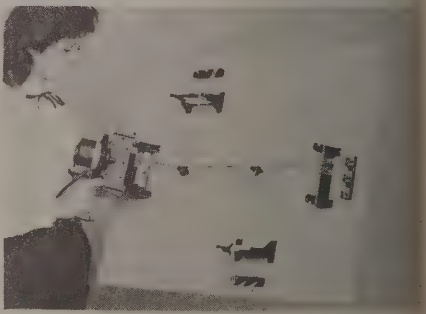

Flat
Locking
Polarizing

Angled Square Posts

MASS TERMINATION TOOLING

For high volume discrete wire harness assembly

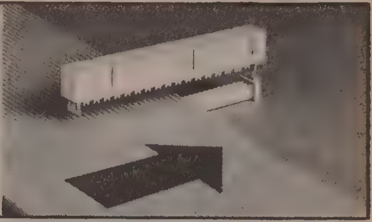
THE PPHT HARNESS SYSTEM. Economical bases are installed permanently on wiring harness boards and fixtures are easily inserted into these bases when the boards are to be used. Connectors are placed in the fixtures and the harness is fabricated by inserting wires into connectors. The tool is locked onto each fixture and then operated to reliably mass terminate all wires in each connector.



PANDUIT CORP
ELECTRONICS GROUP

DEPT. EM, 17301 RIDGELAND AVENUE, TINLEY PARK, ILLINOIS 60477
PHONE (312) 532-1800 TELEX 25-4560

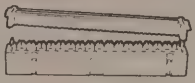
PANDUIT™ LAT-CON™
.050″ Flat Cable Connector System



A revolutionary approach to .050″ flat cable connector assembly

- Unique open-sided socket allows cable to be inserted *laterally instead of axially* to simplify assembly, reduce termination time.
- Termination press recesses cable end from edge of sockets to provide ideal recessed cable location for end termination, eliminates rejections and rework.
- Uses same socket and presses for both end or daisychain terminations.
- Makes extremely close daisychain terminations easy.
- High volume assembly equipment offers reel fed sockets on tape.

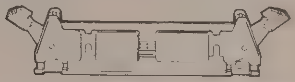
EXCLUSIVE PREASSEMBLED OPEN SIDED SOCKET



INTEGRAL METAL LOCKING CLIPS on both ends assure positive retention of cover to socket when terminated.

ONE SOCKET FOR END OR DAISYCHAIN TERMINATIONS simplifies planning and cuts parts inventory requirements.

UNIQUE LOW-PROFILE EJECTOR/LATCH for use with or without strain relief. Saves space and reduces separate parts inventory.

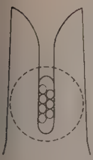


FOUR WALL HEADER protects contacts and provides for unique "Coding Wedge" system.

The LAT-CON System provides superior terminations

An end termination made by the LAT-CON System is shown below. Note that the cable end is recessed a controlled distance from the edge of the socket. This process ensures that the cable end is inserted far enough to provide good termination but recessed enough to protect the cable end. This eliminates rejects and rework and reduces the hazard of subsequent short circuits and potential damage to equipment.

MORE REASONS TO SPECIFY LAT-CON SOCKETS & HEADERS



Mass terminating insulation displacement contacts for fast, reliable, gas-tight connection with conductors.

Selective Gold Plating is STANDARD. Choose 15μ'' or 30μ'' gold plating only where it's needed (on mating surfaces) for maximum reliability at minimum cost. Wire insulation displacement slot and printed circuit board portion of header pins are tin-plated.

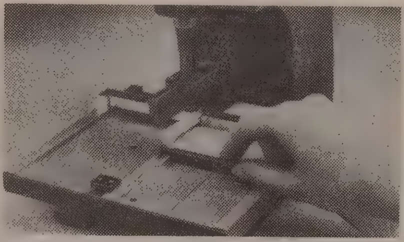
Cover recessed on both ends to permit tight cable folds in any cable entry configuration.

MIL spec keying system

Provide MIL spec polarization. Aid in correct mating of connector and header. Two key positions in 20 circuit and larger headers. Standard Package: 10 keys. Part No. 100-000-061.

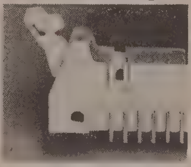
Termination presses for low to medium volume

A LAT-CON manual termination press is shown below. An open-sided socket is placed in the feed track. Then, the flat cable is located against a stop in the front of the die and moved laterally into the socket. Both the socket and cable are then slid into terminating position and the press is actuated. Typically, this takes 6 seconds or less. A pneumatic version of this press is also available.

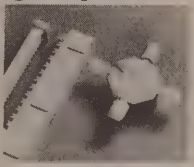


Daisychain terminations are also greatly simplified in the LAT-CON System. The cable is simply moved into the connector and the press activated. Daisychain connectors can be added even after both cable ends have been terminated and this system permits extremely close spacing of connectors on the cable (less than .1″ or 2.5 mm, wall to wall).

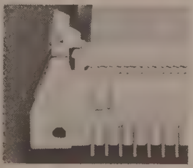
The "Coding Wedge" system



1. Break out the prescored wedge sections from the header wall.



2. Use the convenient tab to insert coding wedge into the corresponding slot in the socket wall.



3. Repeat as necessary to meet coding requirements.

For high volume applications . . .

In addition to the low to medium volume press, the LAT-CON application equipment line includes a high volume press which also features lateral cable insertion and automatic recessing of the cable ends. With this system the open-sided sockets are automatically fed into the back of the press from a reel of sockets on pressure sensitive tape. This equipment automatically ejects the terminated cable assembly and feeds another socket into the die, positioned for the next termination.

MIL-C-83503 INTERMATEABLE. LAT-CON sockets and headers meet the requirements of and are fully intermateable with all MIL-C-83503 products. Also meet DIN 41651 (draft) and BSI 9525F0023 (draft).

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PANDUIT™ *HI-CON*™

Two-Piece DIN 41612 Euro-Connectors

A Complete HIGH DENSITY, HIGH RELIABILITY Connector Family

B
C
F
HALF C
D
E

- Precision engineered to meet DIN 41612 and MIL-C-55302, and IEC 130-14 specifications.
- Select 16, 32, 48, 64 or 96 contacts in DIN Types B, C, D, E, F and R. Also half B and C sizes.
- Standard and Inverse Styles available.
- Optimum contact pressure for low insertion force and maximum mating cycle capability.
- Strict tolerances eliminate need for costly boards and heavy gold plating.
- High density selective gold plating on all mating surfaces.

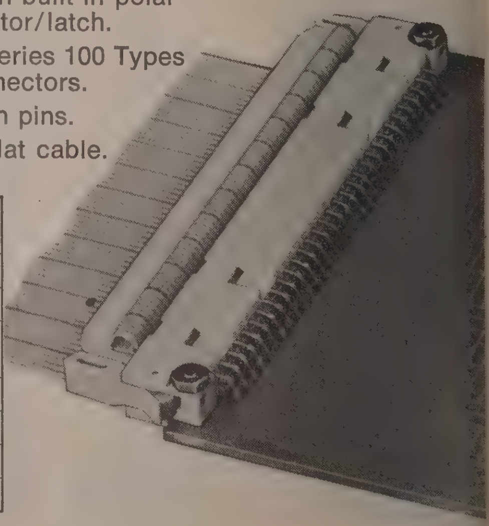
DIN CONNECTOR SPECIFICATIONS

Series	100						101	130	120		
Connector Type	B	Half B	C	Half C	D	E	F	R	B	C	Half C
Number of Contacts Possible	32 or 64	16 or 32	32, 64 or 96	16, 32 or 48	16 or 32	48	32 or 48	32, 64 or 96	64	64	32
Operating Voltage (Max.)	300V r.m.s.				600V r.m.s.			300V r.m.s.			
Amperes @ 68°F (20°C)	3 amps. max.				6 amps. max.			2 amps. max.	1 amp. max.		
Housing Material	Glass-filled Polyester				Glass-filled Polycarbonate		G.-F. Nylon	Glass-filled Polyester			
Temp. Range	−67°F to 257°F (−55°C to 125°C)										
U.L. Flammability	94V-O				94V-1		HB	94V-O			

Series 120 Flat Cable Connectors

Dual row .100″ center sockets for termination of .050″ flat cable.

- Three types: B-64 contacts on .100″ x .100″ grid; C-64 contacts on .100″ x .200″ grid; Half C-32 contacts.
- Preassembled socket and cover with integral metal locking clip.
- Selective high density gold plating.
- Four-wall header with built-in polarization, optional ejector/latch.
- Intermateable with Series 100 Types B, C and Half C connectors.
- Variety of termination pins.
- Same-source .050″ flat cable.



Wire Gauge/Style	28 AWG, 7 strand, .050″ (1.27mm) Flat Cable. PVC insulated. UL style 2651
Operating Voltage	300V
Amperes @ +68°F (+20°C)	1 amp max.
Contact Material	Male—Brass Female—Beryllium Copper
Contact Resistance	≤ 15 milliohms
Housing Material	Glass Filled Polyester
Dielectric Strength	1000V
Insulation Resistance	10^{12} ohms

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EEM PRODUCT SELECTION GUIDES

There are 33 Guides in this edition of EEM. See page 2 (1A•2, 1B•2, 2•2, 3•2) of each volume to locate the Product Selection Guides that pertain to your needs.

INTERNATIONAL

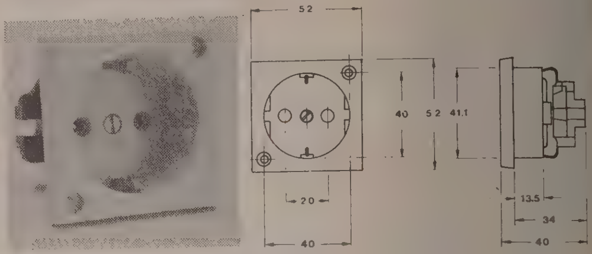
INTERNATIONAL Plugs, Sockets and Socket Strips

Plugs are also available for each of the socket standards listed below. Sockets can be used in test and burn-in racks designed for equipment that is being exported.

Contact us for a complete catalog of our line of international plugs, sockets and socket strips.

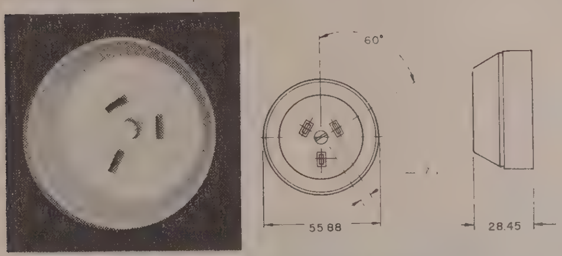
Most models stocked.

Continental European



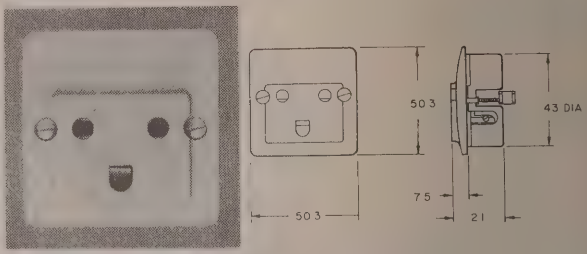
Model 88010610 (Prev. 1061): "Schuko" socket with square face plate.
Current rating: 16 amps/250 volts
Approvals: VDE, KEMA
Color: Ivory

Australian



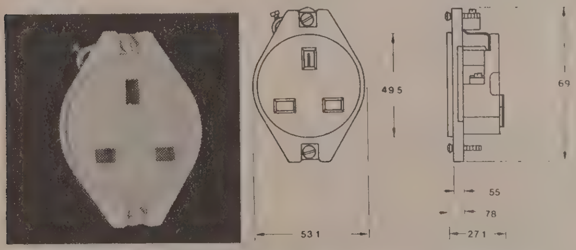
Model 88010510 (Prev. 1051): Australian socket; can be mounted directly on a panel. Also mates with New Zealand cords, although not approved by New Zealand safety agency.
Current rating: 10 amps/250 volts
Approval: EANSW
Color: White

Danish



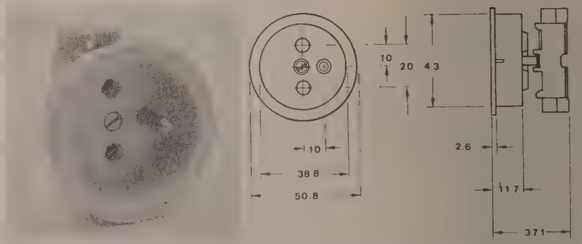
Model 88010540 (Prev. 1054): Danish socket. (Prior to January 1, 1981, Denmark used the "Schuko" German socket standard.)
Note: Although the Schuko plug (German, see our model 88010610) can be plugged into Danish socket, this presents an extreme safety hazard because the plug will not be grounded to the socket.
Current rating: 10 amps/250 volts
Approval: DEMKO
Color: Gray

British



Model 88010620 (Prev. 1062): British socket for mounting in round panel cutout conforms to BS 1363. Line and neutral contacts are shuttered to minimize the possibilities of accidental entry of an object other than the mating plug.
Current rating: 13 amps/250 volts
Color: White

French



Model 88010550: French socket (mates with all PCC Continental European cords).
Current rating: 16 amps/250 volts
Color: Ivory

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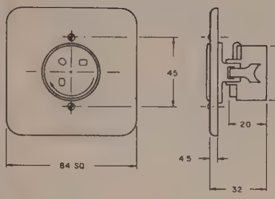
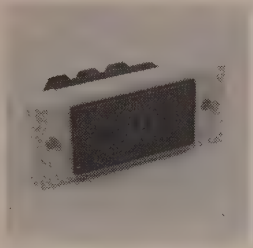
Plugs, Sockets and Socket Strips

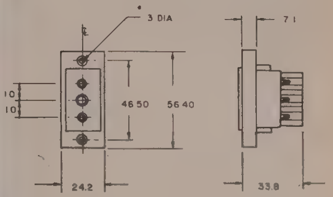
Israeli



Model 88010580: Israeli socket.
Current rating: 16A/250V
Approval: SII
Color: White

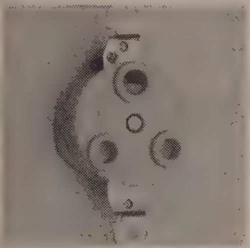
Italian

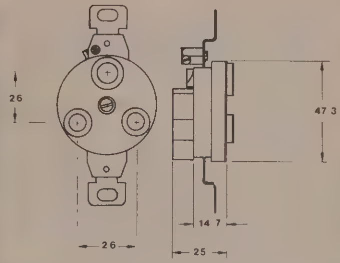




Model 88010570: Italian socket; comes with mounting bracket and hardware.
Current rating: 10A/250V (16A/250V socket also available)
Approval: IMQ
Color: Brown/Beige

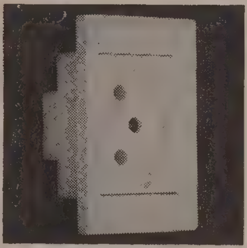
South African

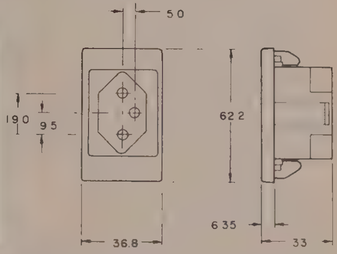




Model 88010560 (Prev. 1056): South African socket. Line and neutral contacts are shuttered to minimize the possibilities of accidental entry of an object other than mating plug. Complies with SABS 164.
Current rating: 16 amps/250 volts
Approval: SABS
Color: Ivory

Swiss





Model 88010530 (Prev. 1053): Swiss socket. It can be mounted directly on a panel, using a mounting system that does not require screws.
Currect rating: 10 amps/250 volts
Approval: SEV
Color: Ivory

Australian

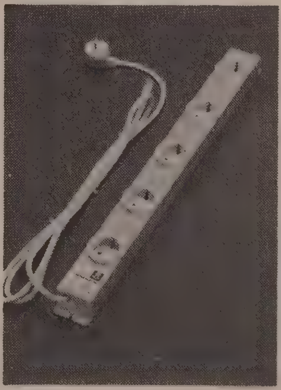
Model 85010020: Australian socket strip.
Current rating: 10A/250V
Color: White

British

Model 85010320 (Prev. 1032): British socket strip conforms to BS 1363. Each socket is shuttered to minimize the possibilities of accidental entry of an object other than the mating plug.
Note: Cord is not provided. Made of impact resistant thermoplastic.
Current rating: 13 amps/250 volts
Number of sockets: 4
Circuit protection: 13A fuse (BS 1362)
Color: Black

European Continental

"Schuko" German



Model 85023050 (Prev. 3.002.305.2): German socket strip without switch rated at 16 amps. Cable length is 2.5 meters with VDE-approved Schuko plugs.
Color: Orange
Note: Models with rocker switch or circuit breaker also available.

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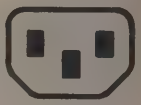
INTERNATIONAL

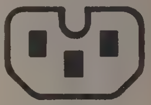
Use of a primary power connector and cordset instead of a permanently installed power supply cord makes it possible for the equipment user to easily replace a cordset if it is damaged. It also makes it very easy and economical for the equipment manufacturer to supply the correct cordset for a foreign client because cordsets with a molded IEC-320/CEE-22 primary power connector are available with virtually any of the world's power plugs installed on the other end.

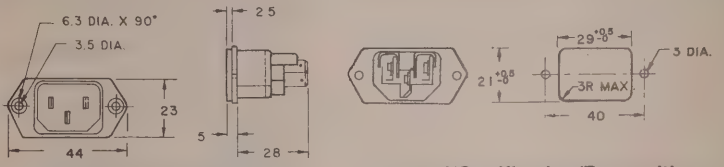
The IEC-320/CEE-22 connector is by far the most commonly used 3-wire (grounded) primary power connector in North America and Europe. It is also used in Australia and Japan as well as major developing countries.

The connector illustrated at right is the most widely used of the IEC-320/CEE-22 types. Rated for use at 65°C.



The connector at right has a polarizing key which prevents insertion of "cool" cord connector above. Rated for use at 120°C.

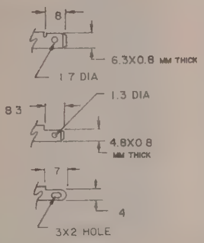




8843.FSG.40.60
with 6.3 × 0.8 mm (.250 × .032 inch) solder/quick disconnect tab terminals

8843.FSM.40.60
with 4.8 × 0.8 mm (.187 × .032 inch) solder/quick disconnect tab terminals

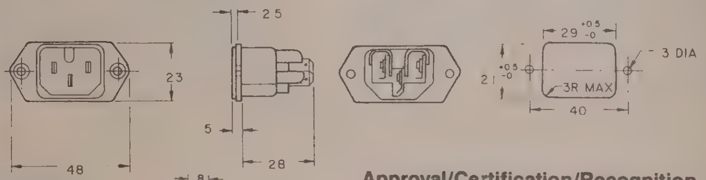
8843.Z.40.60
with soldering tabs



Approval/Certification/Recognition
CSA NEMKO SEV DEMKO
OVE UL KEMA SEMKO VDE

Especially recommended for new applications, this general purpose power cord receptacle is rated at 6 amps, 65°C, for use on electrical equipment. Mounting holes are 40 mm on center and oriented horizontally. Contacts are formed from brass strip stock and nickel plated.

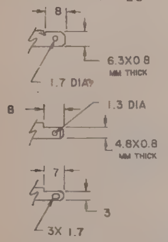
Insulator is molded from a polyamide-type thermoplastic. Weight is 9 grams.



8843.FSG.W.40.60
with 6.3 × 0.8 mm (.250 × .032 inch) solder/quick disconnect tab terminals

8843.FSM.W.40.60
with 4.8 × 0.8 mm (.187 × .032 inch) solder/quick disconnect tab terminals

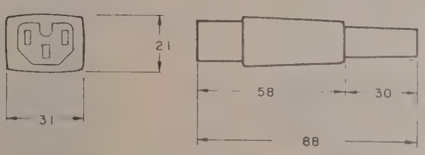
8843.Z.W.40.60
with soldering tabs



Approval/Certification/Recognition
CSA DEMKO KEMA NEMKO OVE SEMKO SEV UL VDE

Especially recommended for a new applications, this power cord receptacle has a 10 amp (15A at CSA), 120°C rating for use on electrical equipment. Includes a polarizing key which prevents use with cordsets rated at 6 amps, 65°C. Mounting holes are 40 mm on center and oriented horizontally. Contacts are formed from brass strip stock and are nickel plated.

Insulator is molded from a polyamide-type thermoplastic. Weight is 9 grams.



8943.W.60
General purpose power cord plug with 10 amp, 120°C rating (15 amps, UL and CSA) for use on electrical equipment. Mates with all 6 amp, 65°C and 10 amp, 120°C receptacles. Contains integral cable-clamp strain relief and screw-type connections.

Plug body and insulator molded from a polyamide-type thermoplastic. Weight is 24 grams.

Approval/Certification/Recognition
CSA SEV SECV OVE UL SEMKO VDE

For mating International Cords and Cordsets, see our ad in Section 6000. **If you need a Primary Power Connector with Integral RFI Line Filter**, see our ad in Section 2700.

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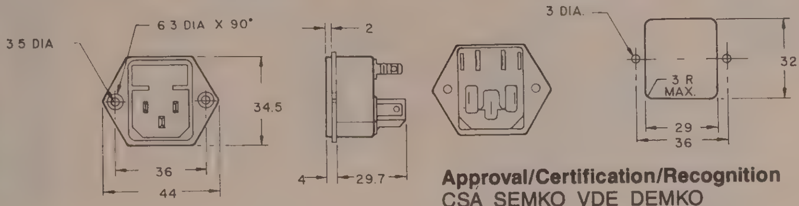
Primary Power Connectors

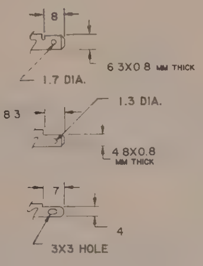


65°C

8843.SP.FSG.60
with 6.3 × 0.8 mm (.250 × .032 inch)
solder/quick disconnect tab terminals

8843.SP.FSM.60
with 4.8 × 0.8 mm (.187 × .032 inch)
solder/quick disconnect tab terminals

8843.SP.Z.60
with soldering tabs



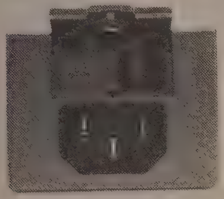
Approval/Certification/Recognition
CSA SEMKO VDE DEMKO
NEMKO SEV KEMA OVE UL

Recommended for new applications: General purpose combination single fuseholder/power cord receptacle rated at 6 amps, 65°C, for use on electrical equipment to be sold in international markets. Fuseholder is touchproof in accordance with international product safety requirements and accommodates one international 5 × 20 mm fuse with space for a spare fuse. Fuse connections are externally accessible and isolated from power connections. Contacts are formed from brass strip stock and nickel plated.

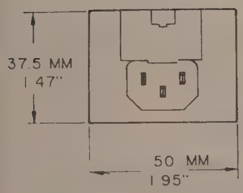
Insulator is molded from a polyamide-type thermoplastic. Weight is 14 grams.

International Combicon™

65°C



Single Fuse

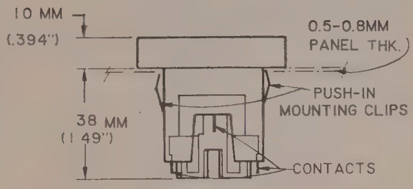


Double Fuse Models
Also Available

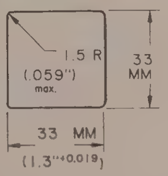
The International Combicon™ combines two functions: a **universal** IEC 320 AC power connector and a fuseholder which accepts **either** the North American standard ¼ × 1¼ inch fuse or the international 5 × 20 mm fuse. The Combicon makes it easy to adapt your product to any major North American or international wall plug and fuse requirement.

Fuse carriers ordered separately; see below.
Materials:
Contacts: Nickel-plated brass
Body: UL-94 V-0 glass reinforced PBTP
Approvals and current rating: SEV, VDE — 6A/250V
UL CSA DEMKO KEMA OVE NEMKO
SEMKO — 10A/250V

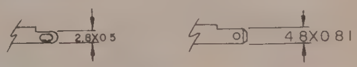
Part No.	Description	Weight w/o fuse carrier
83010150	Single fused Combicon with contacts	42.6 grams
83010170	Single fused Combicon with 4.8 mm (.187") quick disconnects	42.6 grams



MOUNTING HOLE



SOLDER CONTACTS: 4.8 MM Q.D.'s:



Combicon Fuse Carriers

(Fuse carriers ordered separately)

Color-coded fuse carriers:
Red - International 5 × 20 mm fuse
Gray - North American 6.3 × 32 mm (¼ × 1¼") fuse

Materials:
Fuse carrier: UL-94 V-2 unreinforced polycarbonate
Contacts: Nickel-plated brass

International
5 × 20 mm fuse

Part No.	Description	Weight w/o fuse
83010130	Red fuse carrier for 5 × 20 mm fuse	2.3 grams

North American
¼ × 1¼" fuse

Part No.	Description	Weight w/o fuse
83010140	Gray fuse carrier for 6.3 × 32 mm (¼ × 1¼") fuse	1.6 grams

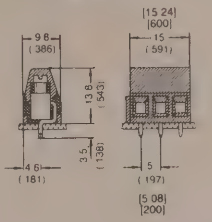
PANEL
COMPONENTS
CORPORATION
P.O. Box 6626, Santa Rosa, CA 95406 • (707) 523-0600 • TX 176-747

PCB TERMINAL BLOCKS

For 5 mm & 5.08 mm pin spacing

300 volt rating

MKDS 1.5



[15 24]
[600]
9 8
(.386)
15
(.591)
13 8
(.543)
3 5
(.138)
4 6
(.181)
5
(.197)
[5 08]
[200]

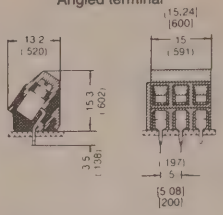
AWG	Amps	Volts
14	10	300

Pin dimensions 0.9x0.9 (.035x.035)

Hole diameter 1.3 (.051)

SMKDS 1.5

Angled terminal



[15.24]
[600]
13 2
(.520)
15
(.591)
15 3
(.602)
3 5
(.138)
(.197)
5
[5 08]
[200]

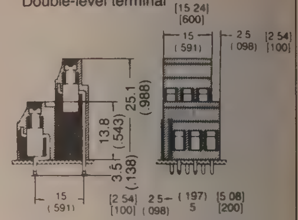
AWG	Amps	Volts
14	10	300

Pin dimensions 0.9x0.9 (.035x.035)

Hole diameter 1.3 (.051)

MKKDS 1.5

Double-level terminal



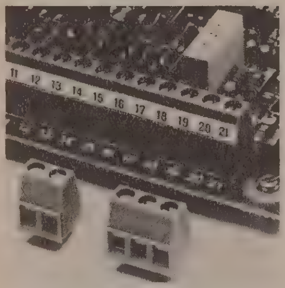
[15 24]
[600]
15
(.591)
2 5
(.098)
[2 54]
[100]
25.1
(.988)
13.8
(.543)
3.5
(.138)
15
(.591)
[2 54]
[100]
2 5
(.098)
(.197)
5
[5 08]
[200]

AWG	Amps	Volts
14	10	300

Pin dimensions 0.9x0.9 (.035x.035)

Hole diameter 1.3 (.051)

Description	TYPE	PART NO.	PKG.	TYPE	PART NO.	PKG.	TYPE	PART NO.	PKG.
Terminal Block, 5.08 mm pin spacing									
2 position	**MKDS 1.5/2-5.08**	**17 15 72 1**	**50**	**SMKDS 1.5/2-5.08**	**17 16 72 0**	**50**	**MKKDS 1.5/2-5.08**	**17 25 03 8**	**50**
3 position	**MKDS 1.5/3-5.08**	**17 15 73 4**	**50**	**SMKDS 1.5/3-5.08**	**17 16 73 3**	**50**	**MKKDS 1.5/3-5.08**	**17 25 04 1**	**50**
4 position	**MKDS 1.5/4-5.08**	**17 15 74 7**	**50**						
8 position	**MKDS 1.5/8-5.08**	**17 15 78 9**	**50**						
10 position	**MKDS 1.5/10-5.08**	**17 15 80 2**	**50**						
12 position	**MKDS 1.5/12-5.08**	**17 15 82 8**	**50**						
Terminal Block, 5.0mm pin spacing									
2 position	**MKDS 1.5/2**	**17 15 02 2**	**50**	**SMKDS 1.5/2**	**17 16 02 1**	**50**	**MKKDS 1.5/2**	**17 25 01 2**	**50**
3 position	**MKDS 1.5/3**	**17 15 03 5**	**50**	**SMKDS 1.5/3**	**17 16 03 4**	**50**	**MKKDS 1.5/2**	**17 25 02 5**	**50**

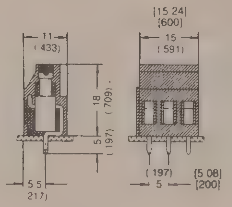


11
12
13
14
15
16
17
18
19
20
21

Phoenix PCB Terminal Block line offers the broadest variety of types available—screw clamp single and multiple positions, double level, fuse, quick connect, spring and disconnecting types in horizontal, vertical and angled wire entry versions.

300 volt rating

MKDS



[15 24]
[600]
11
(.433)
15
(.591)
18
(.709)
5
(.197)
5 5
(.217)
(.197)
5
[5 08]
[200]

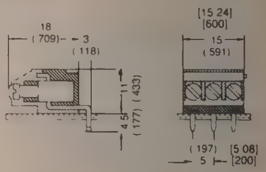
AWG	Amps	Volts
12	10	300

Pin dimensions 0.9x0.9 (.035x.035)

Hole diameter 1.3 (.051)

MKDSF

With angled solder pin



[15 24]
[600]
18
(.709)
3
(.118)
15
(.591)
11
(.433)
4 5
(.177)
(.197)
5
[5 08]
[200]

AWG	Amps	Volts
12	10	300

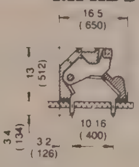
Pin dimensions 0.9x0.9 (.035x.035)

Hole diameter 1.3 (.051)

Description	TYPE	PART NO.	PKG.	TYPE	PART NO.	PKG.
Terminal Block, 5.0mm pin spacing						
2 position	**MKDS 3/2**	**17 11 02 6**	**50**	**MKDSF 3/2**	**17 12 02 5**	**50**
3 position	**MKDS 3/3**	**17 11 03 9**	**50**	**MKDSF 3/3**	**17 12 03 8**	**50**
4 position	**MKDS 3/4**	**17 11 04 2**	**50**	**MKDSF 3/4**	**17 12 04 1**	**50**
8 position	**MKDS 3/8**	**17 11 08 4**	**50**	**MKDSF 3/8**	**17 12 08 3**	**50**
12 position	**MKDS 3/12**	**17 11 12 3**	**50**	**MKDSF 3/12**	**17 12 12 2**	**50**
Terminal Block, 5.08mm pin spacing						
2 position	**MKDS 3/2-5.08**	**17 11 72 5**	**50**	**MKDSF 3/2-5.08**	**17 12 72 4**	**50**
3 position	**MKDS 3/3-5.08**	**17 11 73 8**	**50**	**MKDSF 3/3-5.08**	**17 12 73 7**	**50**

300 volt rating

MFKDS



16 5
(.650)
13
(.512)
3 4
(.134)
3 2
(.126)
10 16
(.400)

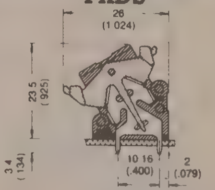
AWG	Amps	Volts
16	10	300

Pole pitch 5.08 (.200) or 7.62 (.300)

Pin dimensions 0.5x1 (.020x.039)

Hole diameter 1 3 (.051)

FKDS



26
(1 024)
23 5
(.925)
3 4
(.134)
10 16
(.400)
2
(.079)

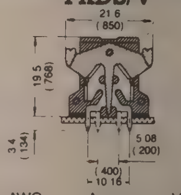
AWG	Amps	Volts
16	10	300

Pole pitch 5.08 (.200) or 7.62 (.300)

Pin dimensions 0.5x1 (.020x.039)

Hole diameter 1.3 (.051)

FKDS/V



21 6
(.850)
19 5
(.768)
3 4
(.134)
5 08
(.200)
(.400)
10 16

AWG	Amps	Volts
16	10	300

Pole pitch 5.08 (.200) or 7.62 (.300)

Pin dimensions 0.5x1 (.020x.039)

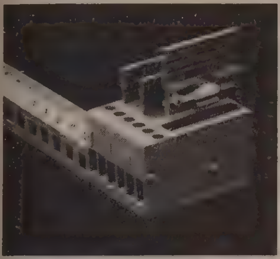
Hole diameter 1.3 (.051)

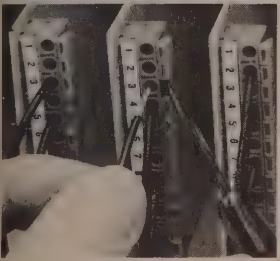
Description	TYPE	PART NO.	PKG.	TYPE	PART NO.	PKG.	TYPE	PART NO.	PKG.
Mini Spring Terminal, 5.08mm wide, 45° wire entry	**MFKDS-5.08**	**17 90 11 5**	**50**						
Spring Terminal, 5.08mm wide, 60° double wire entry				**FKDS-5.08**	**17 90 01 8**	**50**			
Spring Terminal, 5.08mm wide, vertical double wire entry							**FKDSV-5.08/ SA 5.08** **FKDSV-5.08/ SA 10.16**	**17 90 41 6** **17 90 42 9**	
End Terminal, 7.62mm wide required at the end of a terminal row	**MFKDSA-7.62**	**17 90 13 1**	**50**	**FKDSA-7.62**	**17 90 21 2**	**50**	**FKDSVA-7.62/ SA 5.08** **FKDSVA-7.62/ SA 10.16**	**17 90 43 2** **17 90 44 5**	

PHOENIX CONTACT

PCB TERMINAL BLOCKS

For 5 mm & 5.08 mm pin spacing

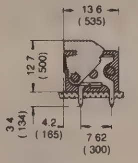




300 volt rating

UL
CSA
pending

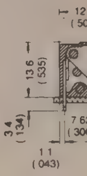
FFKDS/H



AWG	Amps	Volts
16	10	300

Terminal width 5.08 (.200) or 7.62 (.300)
Pin dimensions 0.5x1 (.020x.039)
Hole diameter 1.3 (.051)

FFKDS/V1

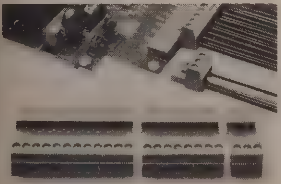


AWG	Amps	Volts
16	10	300

Terminal width 5.08 (.200) or 7.62 (.300)
Pin dimensions 0.5x1 (.020x.039)
Hole diameter 1.3 (.051)

Description	TYPE	PART NO.	PKG.	TYPE	PART NO.	PKG.
Spring Terminal, 5.08 mm wide, horizontal wire entry	**FFKDS/H-5.08**	**17 90 33 5**	**50**			
Spring Terminal, 5.08 mm wide, vertical wire entry				**FFKDS/V1-5.08**	**17 90 31 9**	**50**
End Terminal, 7.62 mm wide required at the end of a terminal row.	**FFKDSA/H-7.62**	**17 90 35 1**	**50**	**FFKDSA/V1-7.62**	**17 90 36 4**	**50**

PLUG-IN



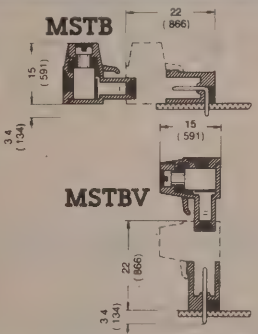
Plug-In PCB Terminal Blocks combine the patented Phoenix screw wire clamping technique with PC connector pluggability. Available in a full range from 2 through 24 positions, the MSTB line offers pluggability in both the vertical and horizontal planes. The MSTB blocks, capable of accepting from #28 to #14 AWG wires, are rated for 10 amps at 300 volts AC.

300 volt rating

UL
CSA
pending

Description

Plug-in Terminal Block consisting of plug and header. Number of positions: available in green and black housings



Also available in 5.08mm pin spacing

MSTB

Horizontal version consisting of plug & header

AWG	Amps	Volts
14	10	300

Pin spacing 5.0 (.197)
Pin dimensions 1x1 (.039x.039)
Hole diameter 1.3 (.051)

MSTBV

Vertical version consisting of plug & header

AWG	Amps	Volts
14	10	300

Pin spacing 5.0 (.197)
Pin dimensions 1x1 (.039x.039)
Hole diameter 1.3 (.051)

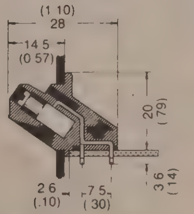
	TYPE	PART NO. GREEN	PART NO. BLACK	TYPE	PART NO. GREEN	PART NO. BLACK
2	**MSTB 1.5/2**	**17 54 01 2**	**17 56 01 0**	**MSTBV 1.5/2**	**17 53 01 3**	**17 55 01 1**
3	**MSTB 1.5/3**	**17 54 02 5**	**17 56 02 3**	**MSTBV 1.5/3**	**17 53 02 6**	**17 55 02 4**
4	**MSTB 1.5/4**	**17 54 03 8**	**17 56 03 6**	**MSTBV 1.5/4**	**17 53 03 9**	**17 55 03 7**
5	**MSTB 1.5/5**	**17 54 04 1**	**17 56 04 9**	**MSTBV 1.5/5**	**17 53 04 2**	**17 55 04 0**
6	**MSTB 1.5/6**	**17 54 05 4**	**17 56 05 2**	**MSTBV 1.5/6**	**17 53 05 5**	**17 55 05 3**
7	**MSTB 1.5/7**	**17 54 06 7**	**17 56 06 5**	**MSTBV 1.5/7**	**17 53 06 8**	**17 55 06 6**
8	**MSTB 1.5/8**	**17 54 07 0**	**17 56 07 8**	**MSTBV 1.5/8**	**17 53 07 1**	**17 55 07 9**
9	**MSTB 1.5/9**	**17 54 08 3**	**17 56 08 1**	**MSTBV 1.5/9**	**17 53 08 4**	**17 55 08 2**
10	**MSTB 1.5/10**	**17 54 09 6**	**17 56 09 4**	**MSTBV 1.5/10**	**17 53 09 7**	**17 55 09 5**
11	**MSTB 1.5/11**	**17 54 10 6**	**17 56 10 4**	**MSTBV 1.5/11**	**17 53 10 7**	**17 55 10 5**
12	**MSTB 1.5/12**	**17 54 11 9**	**17 56 11 7**	**MSTBV 1.5/12**	**17 53 11 0**	**17 55 11 8**
13	**MSTB 1.5/13**	**17 54 12 2**	**17 56 12 0**	**MSTBV 1.5/13**	**17 53 12 3**	**17 55 12 1**
14	**MSTB 1.5/14**	**17 54 13 5**	**17 56 13 3**	**MSTBV 1.5/14**	**17 53 13 6**	**17 53 13 4**
15	**MSTB 1.5/15**	**17 54 14 8**	**17 56 14 6**	**MSTBV 1.5/15**	**17 53 14 9**	**17 55 14 7**
16	**MSTB 1.5/16**	**17 54 15 1**	**17 56 15 9**	**MSTBV 1.5/16**	**17 53 15 2**	**17 55 15 0**
17	**MSTB 1.5/17**	**17 54 16 4**	**17 56 16 2**	**MSTBV 1.5/17**	**17 53 16 5**	**17 55 16 3**
18	**MSTB 1.5/18**	**17 54 17 7**	**17 56 17 5**	**MSTBV 1.5/18**	**17 53 17 8**	**17 55 17 6**
19	**MSTB 1.5/19**	**17 54 18 0**	**17 56 18 8**	**MSTBV 1.5/19**	**17 53 18 1**	**17 55 18 9**
20	**MSTB 1.5/20**	**17 54 19 3**	**17 56 19 1**	**MSTBV 1.5/20**	**17 53 19 4**	**17 55 19 2**
21	**MSTB 1.5/21**	**17 54 39 7**	**17 56 20 1**	**MSTBV 1.5/21**	**17 53 39 8**	**17 55 20 2**
22	**MSTB 1.5/22**	**17 54 40 7**	**17 56 21 4**	**MSTBV 1.5/22**	**17 53 40 8**	**17 55 21 5**
23	**MSTB 1.5/23**	**17 54 41 0**	**17 56 22 7**	**MSTBV 1.5/23**	**17 53 41 1**	**17 55 22 8**
24	**MSTB 1.5/24**	**17 54 42 3**	**17 56 23 0**	**MSTBV 1.5/24**	**17 53 42 4**	**17 55 23 1**

THRU-PANEL

Phoenix feed through terminal blocks are delivered as pre-assembled blocks of 10 and have fully enclosed individual housings with 5mm pin spacing. By loosening mutual interlocks, pin spacing can be increased to 5.08mm.

Description	
Feed through terminal block with screw clamp connection	green

DMKDS 2.5

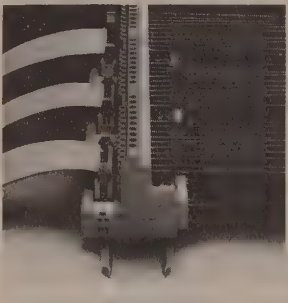


Stripping length 7 (.28)
Terminal width 5.0 (.197)
Pin dimensions 1.1x0.7 (.04x.03)
Hole diameter 1.3 (.051)

	Solid	Stranded (mm^2)	AWG	I (A)	VAC (V)
Screw connection	2.5	2.5	14	15	250*

*In accordance with VDE 0110/GR C; 500 V when pitch spacer RZ 2.5-DMKDS is used.

TYPE	ORDER NO.	PCS./G PKT./STCK.
DMKDS 2.5	**17 40 00 0**	**50/3.0**

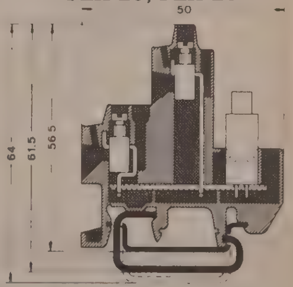


Description

Flat cable terminal, block for mounting on ⊏⊐ or ⌐⊔⌐ with 20 position header and locking levers for cable plugs with strain relief

Flat cable terminal, as above with 26 positions.

FLK 20, FLK 26



Stripping length 9
Terminal width FLK 20 60.0
FLK 26 75.2

	Solid	Fine Strand (mm^2)	AWG	I (A)	VAC (V)
Connection data	2.5	2.5	12	1	60*

*Rated voltage according to VDE 0110/Gr.B

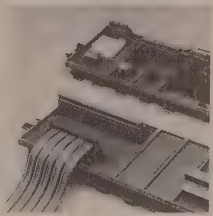
TYPE	ORDER NO.	PCS./G PKT./STCK.
FLK 20	22 80 01 9	10/100,7
FLK 26	22 80 05 1	10/130,0

PHOENIX CONTACT

PHOENIX

Selection without equal for design flexibility

1. Modular Interface Components

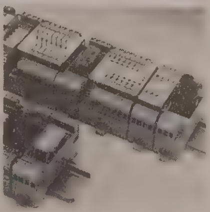


Phoenix universal modules are truly multi-purpose electronic circuit and component carriers. Mounting on all types of DIN rails, they can be used as simple octal sockets for relays or as interfaces for microprocessor outputs with solid state relays and fuses. In between these applications there are flat cable IDC interfaces, with 10 to 64 positions, subminiature connector interfaces, with 9 to 50 positions, and many other configurations. Size and variety is only limited by the designer's imagination. Special covers make the contents of these modules touch and contamination-proof. Custom designs are available.

2. Plug-in Card Blocks

The full line of Phoenix plug-in card blocks is designed to accept single or double Eurocards and is produced in accordance with DIN 41612 and DIN 41617 specifications. The SKBI block is a total system with card guides, clamping and releasing latches and receptacle sizes to accept 31, 32, 48 or 64 position Eurocards. The SKBD card edge block handles single-sided PCB's and has from 8 to 20 positions.

3. Electronic Control Systems Modules EM

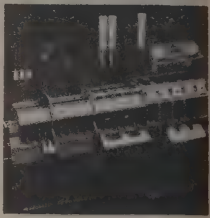


EM electronic control modules include relay, diode array, varistor, LED indicator, fuse holder and custom circuit modules. All are rail mounted, eliminating the need for many off-rail mounted components and PC boards.

4. Fuse Blocks & Component Holders

For applications that dictate using fuses, Phoenix offers a variety of fuse terminal blocks. If your design requires electronic components such as diodes, resistors, capacitors, etc., Phoenix features many configurations of terminal blocks to house these components.

5. UK. Universal Feed-Through 600V & 300V



Universal Terminal Blocks are feed-through blocks with mounting feet which allow the block to be snap mounted or removed from all DIN rail types—C, flat or mini. This versatility reduces requirement for stocking many different types of terminal blocks.

The versatility of the UK terminal block can be expanded through using the Phoenix accessory line.

6. Panel or Rail Mounted BK

BK Strip Terminal Blocks are supplied in continuous strips of 250 pieces which can be custom cut to any length, and be panel or rail mounted. With a 600 volt rating, each terminal block has two walls eliminating the need for end covers. The Phoenix open top design allows for excellent visibility of the wire connection points and easy screwdriver use.

7. Direct Mount G5

This series of compact terminal blocks can be mounted directly in a piece of equipment without additional hardware. Each has a fully enclosed polyamide 6.6 housing and requires one or two screws for mounting. Groups with any number of wiring positions can be formed by interlocking the built-in tongues and grooves.

PHOENIX CONTACT

Call or write Phoenix Terminal Blocks Inc.
1900 Greenwood Street, Harrisburg, PA 17104
(717)232-0500 TWX: 510-650-4919
In Canada, call 416-848-2820

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DRAWINGS?
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QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?

CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
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LOCAL SOURCE?
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LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?

Power Dynamics, Inc.

177 Valley Street, South Orange, New Jersey 07079 • (201) 762-6886 • TWX: 136567 (PDI)

IEC POWER RECEPTACLES/CONNECTORS

POWER CORD RECEPTACLES FOR ELECTRONIC EQUIPMENT

UL, VDE, CSA, SEV, SEMKO, NEMKO, DEMKO Approved

Colors: Black
Grey
White
Brown

Rating: 6 Amp. 65°C, 2 Pole + Ground
10 Amp. 120°C, 2 Pole + Ground
10 Amp. 175°C, 2 Pole + Ground
6 Amp. 65°C, 2 Pole
10 Amp. 120°C, 2 Pole

SNAP-IN MOUNTING

TYPE GST3-42R

Snap-in configuration available for 0.75 through 4.0mm panel thickness.

RECESSED FLANGE SCREW MOUNTING

TYPE GST3-42R

SCREW MOUNT

TYPE GST3-42R

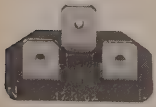
Mounting hole distance 36mm or 40mm

VERTICAL SCREW MOUNT

TYPE GST3-42R

All above available with any of the following terminal configurations.

FASTON TERMINAL



SCREW TERMINAL

SOLDER TERMINAL

42R36 SNAP-IN MOUNTING IEC CONNECTOR With On/Off Power Switch

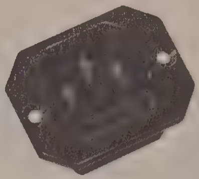
Approvals: UL, VDE, CSA, SEV, SEMKO, NEMKO, DEMKO
Colors: Black, Grey, White, Brown
Terminals: Faston or Solder
Poles: 1 and 2 Pole Switch Configurations Available

UL, VDE, CSA, SEV, SEMKO, NEMKO Approved

Combination single fuse holder/power cord receptacle for Domestic & International markets. Meets all International Product Safety requirements. Unit accepts one 5 x 20mm fuse (Space for spare fuse).

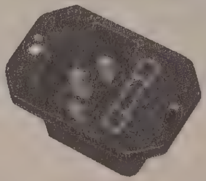
Colors: Black
Grey
White
Brown

Ratings: 6 Amp. 65°C, 2 Pole + Ground
10 Amp. 120°C, 2 Pole + Ground - with polarizing key to prevent use with cords rated @ 6 Amp. 85°C.



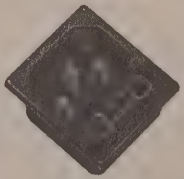
HORIZONTAL SCREW MOUNT

TYPE GSI-42R



VERTICAL SCREW MOUNT

TYPE GSI-42R

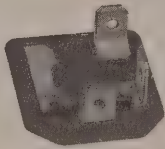


SNAP-IN MOUNTING

TYPE GSI-42R

Snap-in configuration available for 1.0mm through 3.0mm panel thickness.

All above available with any of the following terminal configurations.



FASTON TERMINAL
.190 or .250 Width

SCREW TERMINAL

SOLDER TERMINAL

42R37 SNAP-IN MOUNTING IEC CONNECTOR Fuseholder, On/Off Power Switch ACCEPTS AMERICAN OR EUROPEAN FUSES!

Approvals: UL, VDE, CSA, SEMKO, SEV, NEMKO, DEMKO
Colors: Black, Grey, White, Brown
Terminals: Faston or Solder
Ratings: 6 Amp. and 10 Amp with 1 or 2 fuses
Poles: 1 & 2 Pole Switch Configurations Available

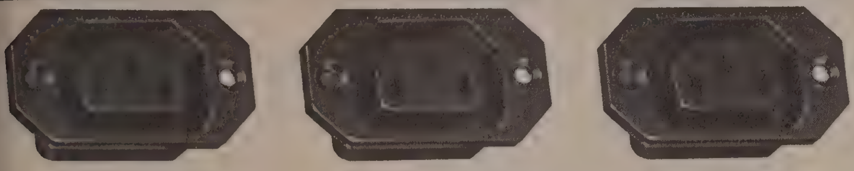
ANY MECHANICAL CONFIGURATIONS AVAILABLE IN COMBINATION WITH ANY ELECTRICAL CONFIGURATION

CALL OR WRITE POWER DYNAMICS, INC. FOR COMPLETE ENGINEERING CATALOG • FSC60046

Power Dynamics, Inc.

77 Valley Street, South Orange, New Jersey 07079 • (201) 762-6886 • TWX: 136567 (PDI)
FSC 60046

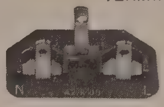
IEC POWER RECEPTACLES/CONNECTORS



FASTON TERMINAL

SCREW TERMINAL

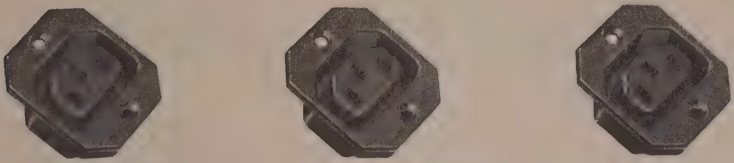
SOLDER TERMINAL



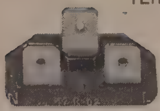
TYPE GSD4-43R02

POWER INLET CONNECTORS WITH HORIZONTAL SCREW MOUNTING
VDE Approved

Colors:	Black, Grey, White, Brown
Terminals:	Faston, Solder, Screw
Ratings:	6 Amp. — 250 V 10 Amp. — 250V

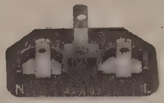


FASTON TERMINAL



SCREW TERMINAL

SOLDER TERMINAL



TYPE GSD4-43R02

POWER INLET CONNECTORS WITH VERTICAL SCREW MOUNTING
VDE Approved

Colors:	Black, Grey, White, Brown
Terminals:	Faston, Solder, Screw
Ratings:	6 Amp. — 250 V 10 Amp. — 250V

FASTON TERMINAL

SCREW TERMINAL

SOLDER TERMINAL

TYPE GSD4-43R02

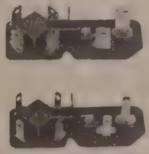
POWER INLET CONNECTORS WITH SNAP-IN MOUNTING
VDE Approved

Colors:	Black, Grey, White, Brown
Terminals:	Faston, Solder, Screw
Ratings:	6 Amp. — 250 V 10 Amp. — 250V

Snap-in configuration available for 1.0mm through 3.0mm panel thickness.

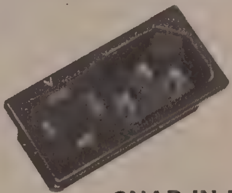
IEC RECEPTACLES with Fused Voltage Selector (Available with European or American Fuse Holder)

TYPE GSS-42R34



SCREW MOUNT

TYPE GSS-42R34



Snap-in configuration available for 1.0mm through 2.5mm panel thickness.

SNAP-IN MOUNT

UL, VDE, CSA, SEMKO, NEMKO, SEV Approved

Integral combination IEC power cord receptacle, fuse holder and voltage selector switch. This unique combination meets all INTERNATIONAL SAFETY REQUIREMENTS, and can be used throughout the world without modification at time of installation.

Colors:	Black, Grey, White, Brown
Terminals:	Faston 4.8mm or Solder 2.8 x 0.8mm
Ratings:	6 Amp. 65°C, 2 Pole + Ground 10 Amp. 125°C, 2 Pole + Ground
Voltage Ratings:	100, 120, 220, 240

Unit accepts European or American Fuse

CALL OR WRITE POWER DYNAMICS, INC. FOR COMPLETE ENGINEERING CATALOG

Power Dynamics, Inc.

177 Valley Street, South Orange, New Jersey 07079 • (201) 762-6886 • TWX: 136567 (PDI)

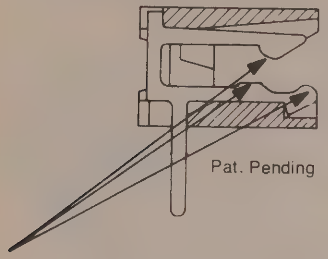
LCD CONNECTORS

Positive contact over extended periods of time at higher operating temperatures. (Replaces "obsolete" plastic contacts that may be influenced by contact pressure.)

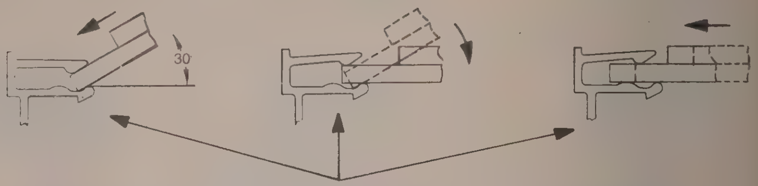
Unique Prong Type contacts provide pressure and reaction with single metal unit.

MATERIALS: Connector Body: Glass filled polycarbonate Contacts: Tin-plated Brass alloy

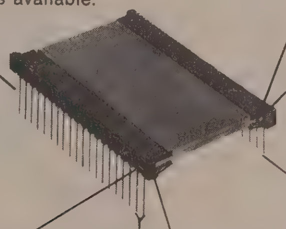
CROSS SECTION



Triple supports provide minimum plug-in pressure regardless of number of contacts. Spring mounted by rotary movement.



No injury can occur to contact surface or plating during plugging-in of display; the ultimate in contact reliability.



Up to 45 contacts available. Additional contacts available.

For LCD glass thickness of .04 through .05 ±.004. (Other thicknesses available).

LCD's do not require beveled edge on glass borders. Although LCD's are sharp, they cannot damage Power Dynamics' unique Connector Contacts.

Wide range of standard soldering pin lengths (.12, .19, .29, .41).

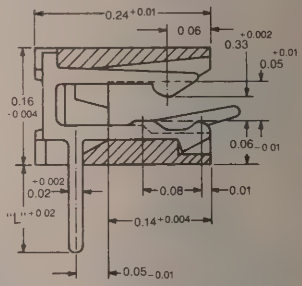
Molded-in contacts insure long contact life and reliability under harsh environmental conditions (as opposed to conventional type exposed contacts).

Molded shoulders insure against longitudinal movement under the most severe shock and vibration conditions. (No epoxy or bezel required for LCD retention.)

Contact pin spacing of .10.

.05 SPACING AVAILABLE

CROSS SECTION



EXAMPLE & ORDERING CODE

31R30 - 2 1 1 1 001

TERMINAL LENGTH

Dimensions "L"

.12 = 1

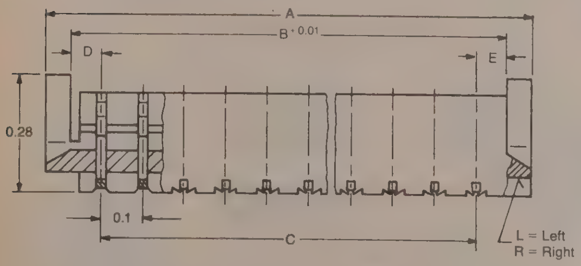
.19 = 2

.29 = 3

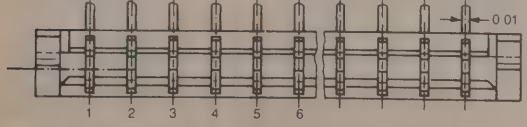
.41 = 4

No. of Chambers	No. of Contacts	Empty Chambers*	Dimensions A	B	C	D	E	Versions
20	20		2.13	2.01	1.90	0.05	0.05	001
26	20	1, 2, 3 24, 25, 26	2.87	2.76	2.50	0.13	0.13	002
26	26		2.87	2.76	2.50	0.13	0.13	003
26	25	1	2.87	2.76	2.50	0.13	0.13	004
26	25	26	2.87	2.76	2.50	0.13	0.13	005
29	29		3.13	3.01	2.80	0.10	0.10	006
31	31		3.32	3.20	3.00	0.10	0.10	007
36L	34	1, 2	3.82	3.70	3.50	0.08	0.12	008
36R	34	35, 36	3.82	3.70	3.50	0.12	0.08	009
36L	36		3.82	3.70	3.50	0.08	0.12	010
36R	36		3.82	3.70	3.50	0.12	0.08	011
45	45		4.61	4.50	4.40	0.05	0.05	012
11	9	1, 11	1.22	1.11	1.00	0.05	0.05	013

* Note: Other arrangements of empty chambers available.



Tolerance from contact to contact ±0.004 (non-cumulative).



Patent Pending

CALL OR WRITE POWER DYNAMICS, INC. FOR COMPLETE ENGINEERING CATALOG • FSC60046

SOCKETS...ADAPTER ASSEMBLIES... SOCKET & PINS TERMINALS

SOCKETS

All Precicontact Sockets (with the exception of the LSO Series) feature four-leaf closed entry BeCu inner contact and machined outer sleeve. Sockets are designed to accept short IC leads and to eliminate wicking.

Series SO Low Profile DIP Sockets Designed to meet MIL-S-83734. (See description on facing page.) Continuous grid spacing. Packaged for automatic insertion.

Series USO Low Profile DIP Sockets (Open Frame) Open construction provides excellent convection cooling. Designed to meet MIL-S-83734. Accommodates 8 thru 64 flat lead DIP IC's or .041/.016 to 0.51/.021 dia" round leads maintaining high retention.

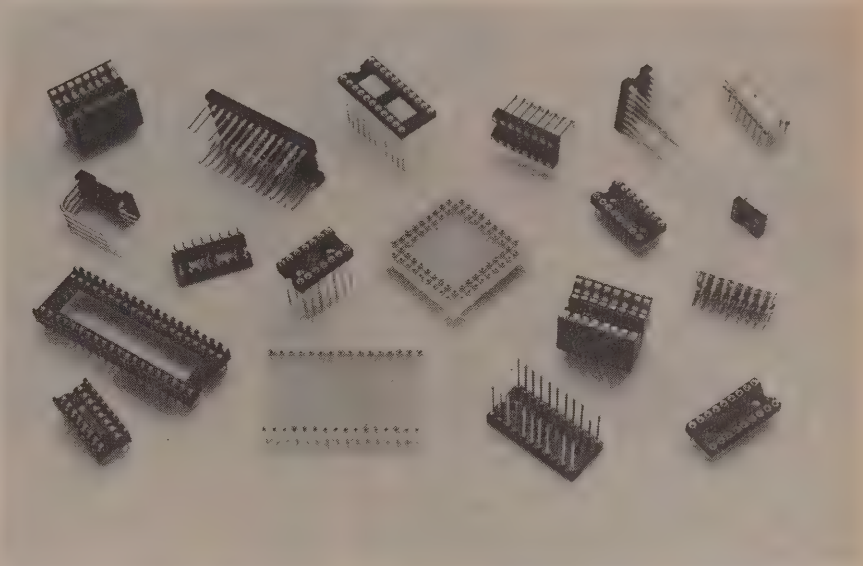
Series WW Low Profile Wire Wrap Sockets Accommodates 8 thru 40 flat lead DIP C's or 0.41/.016 to 0.51/.021 dia" round leads maintaining high retention. Designed to meet MIL-S-83734. 1, 2, or 3-level wrap.

Series UWW Low Profile Wire Wrap Sockets (Open Frame) Free-standing contacts provide excellent cooling. Accommodates same lead sizes as Series WW. Also designed to meet MIL-S-83734.

Series UH Low Profile/High Temp Machined Sockets (Open Frame) Design facilitates board cleaning and inspection. Meets the most severe environmental operating conditions. Operates at -65°C to 250°C. 6 thru 40 pins.

Series CSO Carrier Strip Disposable brass carrier provides patterns of sockets for easy group insertion into PC board. Fast assembly. Direct visibility for soldering inspection and repair.

Series L.E.D. Display Sockets 6 thru 40 socket assemblies for mounting at right angles. Allows user to group units side-by-side with consistent alignment.



Series SSO Snap-A-Part Sockets (Single) Single-in-line 32 pins with .100 spacing. Create your own part on any centers. Save PCB real estate by installing end-to-end or side-by-side.

Series DSO Snap-A-Part Sockets (Dual) Same design specs as Series SSO but dual 64 pins on .600 centers with .100 spacing.

Series LSO Low Profile Stamped Sockets (Dual Wipe) Side wipe contacts for high reliability and constant low contact resistance. Stackable end-to-end and side-to-side for high board density. Easy DIP insertion.

Series LSI Sockets Designed for socketing the new sizes of LSI dual-in-line and quad-in-line circuits with up to 64 pins on .900 centers. Low profile. Also available in wire wrap.

Pin Grid Array Sockets Off the shelf. Every known pattern and configuration from 64 thru 179 pins. Precision-machined contacts provide low insertion force and highest reliability. Inner contact accepts short lead devices. Closed-end construction. No wicking. Solder or wire wrap tails. Also custom design.

ADAPTERS

Series SA, SB, SC & SD Adapters Low profile. 8 thru 40 positions. Rigid contact-terminals for easy PCB mounting. Stackable end-to-end or side-by-side for high board density.

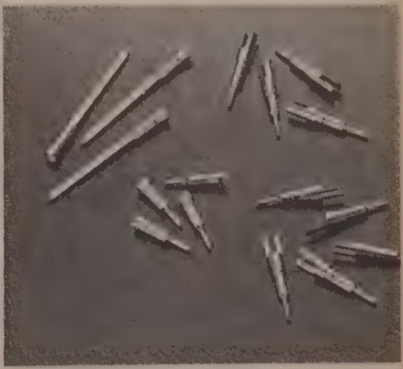
Series SA (Bifurcated)
Series SB (Bifurcated with flat)
Series SC (Feed thru)
Series SD (Solder cup)

CUSTOM SOCKETS

Our custom capability is as diverse as your requirements. Advise us of your special requirements and we will design to your specs efficiently and economically.

SOCKET & PIN TERMINALS

Series 3000 Wide variety of sockets and terminals in solder or wire wrap tails. High reliability sockets feature four leaf closed entry, inner contact (BeCu per QQ-C-533) and machined outer sleeve (Brass per QQ-B-626). Various styles available such as bifurcated, stitch-weld and feed-thru.



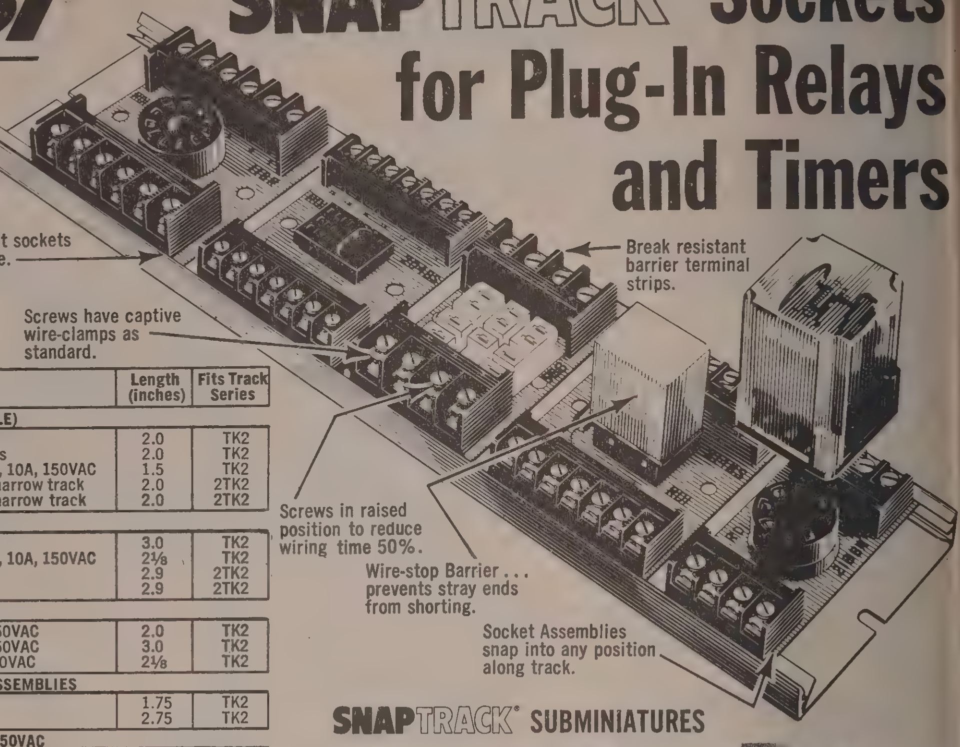
Precicontact, inc.

1150 WHEELER WAY, P.O. BOX 798, LANGHORNE, PA 19047
215-757-1202 TELEX: 83-4253

AUGAT® RDI®

Quality and Innovation

SNAPTRACK® Sockets for Plug-In Relays and Timers



PVC non-conductive track up to 48″ long. Mounts quickly.

Over 50 different sockets fit one track size.

Break resistant barrier terminal strips.

Screws have captive wire-clamps as standard.

Screws in raised position to reduce wiring time 50%.

Wire-stop Barrier . . . prevents stray ends from shorting.

Socket Assemblies snap into any position along track.

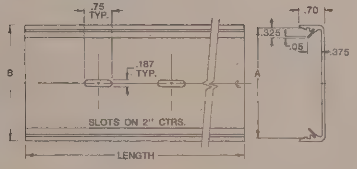
All SNAPTRACK assemblies are shipped with screws in raised position which reduces wiring time as much as 50%.

RDI Cat. No.	Description	Length (inches)	Fits Track Series
OCTAL (8 PIN) SOCKET ASSEMBLIES (1 & 2 POLE)			
608BR	#8 Screws, 10A, 250VAC	2.0	TK2
208BR	#4 Screws, holes for bails	2.0	TK2
218BR	Space Saver — #4 Screws, 10A, 150VAC	1.5	TK2
708BR	#6 Screws, 10A, 250VAC, narrow track	2.0	2TK2
708BRA	#6 Binder Head Screws, narrow track	2.0	2TK2
11 PIN ROUND SOCKET ASSEMBLIES (3 POLE)			
611BR	#8 Screws, 10A, 250VAC	3.0	TK2
211BR	Space Saver — #4 Screws, 10A, 150VAC	2⅛	TK2
711BR	#6 Screws, 10A, 250VAC	2.9	2TK2
711BRA	#6 Binder Head Screws	2.9	2TK2
SQUARE BASE SOCKETS (2, 3 & 4 POLE)			
608BS	2PDT, #8 Screws, 10A, 250VAC	2.0	TK2
611BS	3PDT, #8 Screws, 10A, 250VAC	3.0	TK2
211BS	3PDT, #4 Screws, 10A, 150VAC	2⅛	TK2
10 AMP/250VAC RATED MINIATURE SOCKET ASSEMBLIES			
622BS	2PDT, #6 Screws	1.75	TK2
624BS	4PDT, #6 Screws	2.75	TK2
MINIATURE RELAY SOCKET ASSEMBLIES, 5A, 150VAC			
214BS	4PDT, #4 Screws	2.5	TK2
814BS	4PDT, #3 Screws, mini track	2¼	8TK2
SUB-MINIATURE RELAY SOCKET ASSEMBLIES, 5A, 150VAC			
202BS	2PDT, #4 Screws	1.5	TK2
802BS	2PDT, #3 Screws, mini track	2.0	8TK2
204BS	4PDT, #4 Screws	2.5	TK2
804BS	4PDT, #3 Screws, mini track	2.25	8TK2
206BS	6PDT, #4 Screws	3.75	TK2
806BS	6PDT, #3 Screws, mini track	3.0	8TK2
SPECIALTY SOCKET, FUSE AND TERMINAL BLOCK ASSEMBLIES			
220BR	20 Pin Round, #4 Screws, latch	3.5	TK2
BT6	Double Terminal Block, 6 #8 Screws	3.0	TK2
2BT8	Double Terminal Block, 8 #4 Screws	2.38	TK2
6BF-2	2 sets 3AG Fuse clips, #6 Screws	1.2	TK2
6BF-3	3 sets 3AG Fuse clips, #6 Screws	1.75	TK2
816DP	16 pin DIP socket, #3 Screws	2.25	8TK2
820FC	20 pin flat cable connector, w/o strain relief, #3 Screws	2.75	8TK2
820FCB	Same but with strain relief	2.75	8TK2

Order SNAPTRACK® mounting track separately. See below.

SNAPTRACK® MOUNTING CHANNEL

Nominal P.C.B. Width Dim. A (Inches)	Overall Track Width Dim. B (Inches)	RDI Cat. No. (48″ lg.)
2.187	2.30	8TK2-48
2.75	2.90	2TK2-48
3.00	3.16	TK2-48
3.25	3.40	3TK2-48
4.00	4.15	6TK2-48
Split-Apart		4TK2-48



To specify lengths of 6, 12, or 24 inches, substitute 6, 8, 12 or 24 in place of "48". Example: TK2-24 is 24 inches long.
Custom cutting available. Contact factory.

SM SERIES SOCKETS

Cat. No. SM8 Octal (DPDT) socket assembly

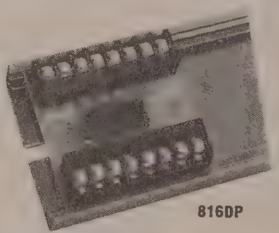
Cat. No. SM11, 11-pin (3PDT) socket assembly

SM8 and SM11 in a 2TK2 Series SNAPTRACK™ mounting channel

MOLDED SOCKET ASSEMBLIES

SM8-001	Octal, #6 Binder Head Screws	1.63	2TK2
SM8	Octal, #6 Wireclamp Screws	1.63	2TK2
SM11-001	11 Pin, #6 Binder Head Screws	2.34	2TK2
SM11	11 Pin, #6 Wireclamp Screws	2.34	2TK2

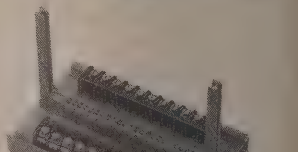
SNAPTRACK® SUBMINIATURES



816DP

820FC

SNAPTRACK® EDGE CONNECTOR PANEL MOUNTING SYSTEMS



822PCB

ORDERING AND DIMENSIONAL DATA

Number Pins Out	RDI Catalog Number	Dimensions (Inches)				Fits SNAPTRACK Series
		A P.C. Card Width	B Overall Length	C Overall Height	D Track Width	
22	22PCB	4.5	5	3 9/16	3.16	TK
22	822PCB	4.5	5	3 9/16	2.30	8TK
22	822PC	3.58	4½	3 9/16	2.30	8TK
22	22PC	3.58	4½	3⅛	3.16	TK
44	44PCA	4.5	7½	3 9/16	3.16	TK
44	44PCB	4.5	7½	3 9/16	3.16	TK

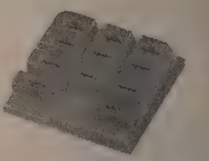
Now Featuring Phosphor Bronze Contacts Standard

SOCKETS FOR P.C. BOARDS

8R & 11R are molded of polyester, 8S and 11S are nylon.

8-pin (Octal)

11-pin Round



8S - 2PDT Relays
11S - 3PDT Relays

RDI / Reed Devices Inc. a subsidiary of **AUGAT**

525 Randy Road, Carol Stream, Illinois 60188 • Phone 312/682-4100 • TWX: 910-252-2118

Manufacturers of SNAPTRACK™ Relay and Timer Socket Assemblies, Barrier Terminal Blocks, Proximity Switches, Custom Circuits

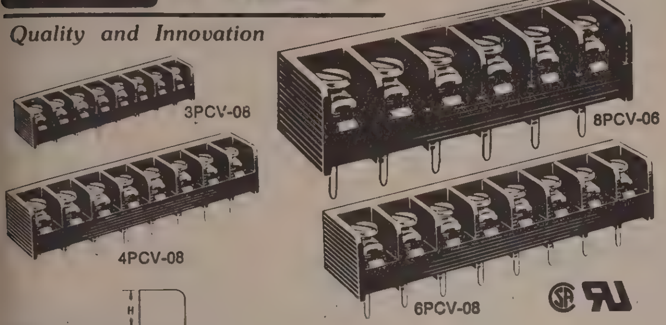
AUGAT® RDI®

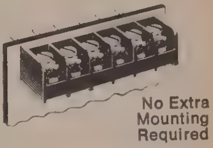
Quality and Innovation

Tri-Barrier Terminal Blocks for PCB's

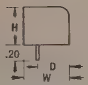
RESILIENT THERMOPLASTIC

- Back Barrier safeguards components from field wiring, stops shorting of adjacent wires.
- Wire-clamping plate screws secure 2 different gauge wires without wire lugs.
- Stand offs allow cleaning flux from top side of pcb.
- Screws in wire-ready raised position.
- UL grade (94V-0) polypropylene.


3PCV-08
8PCV-06
4PCV-08
6PCV-08


No Extra Mounting Required

VERTICAL MOUNT



3PCV .250" C-C, H = .50", W = .55" 5 AMPS, 150 V.

4PCV .325" C-C, H = .50", W = .60" 15 AMPS, 150V.

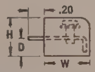
6PCV .375" C-C, H = .60", W = .70" 20 AMPS, 300V.

8PCV .4375" C-C, H = .70", W = .80" 25 AMPS, 300V.

RDI Type	Length (inches)	RDI Type	Length (inches)	RDI Type	Length (inches)	RDI Type	Length (inches)
3PCV-04	1.07	4PCV-04	1.38	6PCV-02	.83	8PCV-02	.95
3PCV-05	1.32	4PCV-05	1.71	6PCV-03	1.21	8PCV-03	1.38
3PCV-06	1.57	4PCV-06	2.03	6PCV-04	1.58	8PCV-04	1.82
3PCV-07	1.82	4PCV-07	2.36	6PCV-05	1.96	8PCV-05	2.26
3PCV-08	2.07	4PCV-08	2.68	6PCV-06	2.33	8PCV-06	2.70
3PCV-09	2.32	4PCV-09	3.01	6PCV-07	2.71	8PCV-07	3.13
3PCV-10	2.57	4PCV-10	3.33	6PCV-08	3.08	8PCV-08	3.57
				6PCV-09	3.46	8PCV-09	4.01
				6PCV-10	3.83	8PCV-10	4.45

Available to 32 positions — Available to 30 positions — Available to 28 positions — Available to 26 positions

RIGHT ANGLE MOUNT



3PCR .250" C-C, H = 50", W = .55", D = .23" 5 AMPS, 150V.

4PCR .325" C-C, H = .50", W = .60", D = .23" 15 AMPS, 150V.

6PCR .375" C-C, H = .60", W = 70", D = .27" 20 AMPS, 300V.

8PCR .4375" C-C, H = .70" W = .80", D = .32" 25 AMPS, 300V.

RDI Type	Length (inches)	RDI Type	Length (inches)	RDI Type	Length (inches)	RDI Type	Length (inches)
3PCR-02	.57	4PCR-02	.73	6PCR-02	.83	8PCR-02	.95
3PCR-03	.82	4PCR-03	1.06	6PCR-03	1.21	8PCR-03	1.38
3PCR-04	1.07	4PCR-04	1.38	6PCR-04	1.58	8PCR-04	1.82
3PCR-05	1.32	4PCR-05	1.71	6PCR-05	1.96	8PCR-05	2.26
3PCR-06	1.57	4PCR-06	2.03	6PCR-06	2.33	8PCR-06	2.70
3PCR-07	1.82	4PCR-07	2.36	6PCR-07	2.71	8PCR-07	3.13
3PCR-08	2.07	4PCR-08	2.68	6PCR-08	3.08	8PCR-08	3.57
3PCR-09	2.32	4PCR-09	3.01	6PCR-09	3.46	8PCR-09	4.01
3PCR-10	2.57	4PCR-10	3.33	6PCR-10	3.83	8PCR-10	4.45

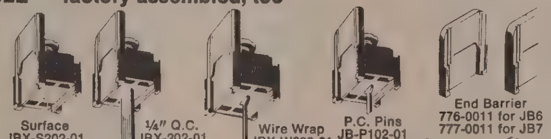
Available to 32 positions — Available to 30 positions — Available to 28 positions — Available to 26 positions

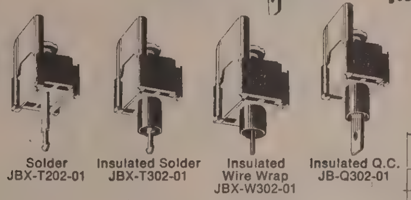
All also available with solder-turret & wire-wrap terminals & surface mount.

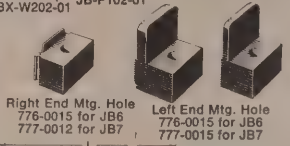
RDI JELLY BEANS®

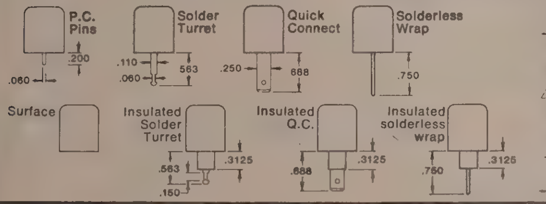
BULK-PAK, READ TO ASSEMBLE — factory assembled, too

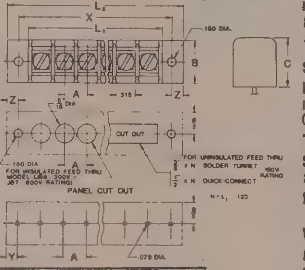
Buy by the bag.
Just slide the modules together to assemble the block you need.


Surface
JBX-S202-01
¼" Q.C.
JBX-202-01
Wire Wrap
JBX-W202-01
P.C. Pins
JB-P102-01
End Barrier
776-0011 for JB6
777-0011 for JB7


Solder
JBX-T202-01
Insulated Solder
JBX-T302-01
Insulated
Wire Wrap
JBX-W302-01
Insulated Q.C.
JB-Q302-01


Right End Mtg. Hole
776-0015 for JB6
777-0012 for JB7
Left End Mtg. Hole
776-0015 for JB6
777-0015 for JB7


P.C. Pins
.200
.060
Solder Turret
.110
.060
563
Quick Connect
.250
688
Solderless Wrap
.750
Surface
Insulated Solder Turret
.563
.150
.3125
Insulated Q.C.
.688
.3125
Insulated solderless wrap
.750
.3125


L2
X
L1
.160 DIA.
B
C
A
.315
Z
5/16 DIA
CUT OUT
.160 DIA
FOR INSULATED FEED THRU MODEL (JB6 300V / JB7 600V RATING)
PANEL CUT OUT
FOR UNINSULATED FEED THRU
3/8" x N SOLDER TURRET
1/2" x N QUICK-CONNECT
150V RATING
N = L1 .123
Y
.073 DIA

COLOR CODE IN 9 COLORS

100 module Bulk Pack includes 10 ends

Terminal Configuration	Spacing ⅜ in. C-C	Spacing 7/16 in. C-C
Printed circuit pins*	JB6-P102-01	JB7-P102-01
Solder-turret†	JB6-T202-01	JB7-T202-01
Insulated solder-turret†	JB6-T302-01	JB7-T302-01
Quick-connect†	JB6-Q202-01	JB7-Q202-01
Insulated quick-connect†	JB6-Q302-01	JB7-Q302-01
Solderless wrap†	JB6-W202-01	JB7-W202-01
Insulated solderless wrap†	JB6-W302-01	JB7-W302-01
Surface mount†	JB6-S202-01	JB7-S202-01
Extra end barriers pak of 25	776-0011	777-0011
Extra right end mounting hole, pak of 25	776-0012	777-0012
Extra left end mounting hole, pak of 25	776-0015	777-0015

* Including 10 end barriers

† Including 10 left and right end mounting holes.

To order colors, add following code to Cat. No. 1 White (natural), 2 Red, 3 Blue, 4 Green, 5 Orange, 6 Yellow, 7 Purple, 8 Brown. Black, standard no code. Ex.: JB6-102-01 is black JB6-102-01-2 is red.

SPECIFICATIONS

BARRIER MATERIAL: Flame Retardant Nyon, U.L. 94V-0 flammability, working temperature of 105°C, black color standard. Colors on special order.

TERMINALS: Bright acid-tin plated brass.

SCREWS: Cadmium plated 6-32 steel undercut binderhead. Brass and screws with wire clamp plates available on special order.

RATING: JB6 Series: 20 Amperes, 300 Volts.
JB7 Series: 20 Amperes, 600 Volts.

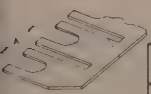
WIRE RANGE: 12-22 AWG.

APPROVALS: UL recognized File No. E54800. Guide XCFR2. CSA certified, File No. LR30811, Guide 184-N-90.

Terminal Block Series	A Center-to-Center Spacing	B Width	C Height	L1 Overall Length	L2 Overall Length With Mtg. Foot	X Centers End Mounting Holes	Y	Z
JB6	.375	.625	.750	.375(N)+.095	.375(N)+.690	.375(N+1)	.218	.157
JB7	.4375	.700	.800	.4375(N)+.150	.4375(N)+.818	.4375(N+1)	.281	.187

ACCESSORIES FOR ALL JB SERIES BLOCKS

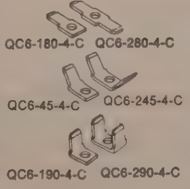
JUMPERS



To Fit Series	"A" (Inches)	Catalog No. 2 positions
JB6	⅜	J6-2
JB7	7/16	J7-2

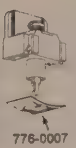
TOP HARDWARE

3/16" and ¼" Quick connect tabs available in bulk and installed. Shown are Cat. Nos. for bulk (100 pcs), ¼" tab.

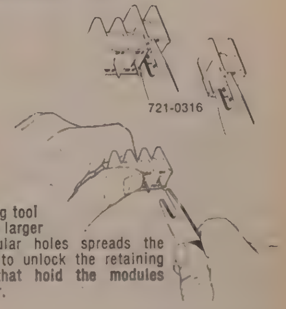

QC6-180-4-C
QC6-280-4-C
QC6-45-4-C
QC6-245-4-C
QC6-190-4-C
QC6-290-4-C

RETAINING CLIPS

Spring metal retaining clips fit around insulating barrel to mount blocks to panels without the need for mounting holes.



TAKE APART TOOL



Inserting tool into the larger rectangular holes spreads the plastic to unlock the retaining barbs that hold the modules together.

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525 Randy Road, Carol Stream, Illinois 60188 • Phone 312/682-4100 • TWX: 910-252-2118

Manufacturers of SNAPTRACK™ Relay and Timer Socket Assemblies, Barrier Terminal Blocks, Proximity Switches, Custom Circuits

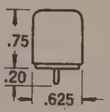
AUGAT® RDI

Quality and Innovation

Terminal Blocks for PCB's

JC6 SERIES

Insulated feed thrus with solder, wire-wrap and quick connect terminals also available.



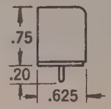
CENTERLINE TERMINALS

JC6 SERIES 20 AMPS, 300V

Catalog Number	Length (Inches)
JC6-P102-02	.81
JC6-P102-03	1.19
JC6-P102-04	1.56
JC6-P102-05	1.94
JC6-P102-06	2.31
JC6-P102-07	2.69
JC6-P102-08	3.06
JC6-P102-09	3.44
JC6-P102-10	3.81

Available to 28 positions

BC6 SERIES



- Directly interchangeable with conventional blocks
- Wire clamp screws, standard
- Resilient barriers
- Integral standoffs for easy flux removal
- Full range of terminal styles
- Avalable 2 thru 28 positions
- Available offset terminal

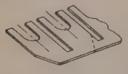
TRI-BARRIER–CENTERLINE TERMINALS

BC6 SERIES 20 AMPS, 300V

Catalog Number	Length (Inches)
BC6-P104-02	.81
BC6-P104-03	1.19
BC6-P104-04	1.56
BC6-P104-05	1.94
BC6-P104-06	2.31
BC6-P104-07	2.69
BC6-P104-08	3.06
BC6-P104-09	3.44
BC6-P104-10	3.81

Available to 28 positions

JUMPERS



J6 Series Jumper

For connecting adjacent terminals. Available in two thru nine positions. To order: Catalog Number J6-2 is a two position jumper, J6-3 is three positions, and so on.

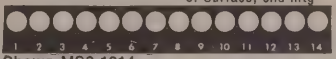
MARKER STRIPS

Alternate to hot stamping for terminal identification. U.L. grade vinyl with silk screened epoxy ink.

Catalog Number Code

MS6 — 1314

Pin Spacing	Print Style		No. Position
6 .375	0. No Printing	1. PC Pin, no end mtg	02 = 2
	1. Bot. Forward	2. PC Pin, end mtg	03 = 3
	2. Top Forward	3. Insul., no end mtg	10 = 10
	3. Bot. Reverse	4. Insul., end mtg	
	4. Top Reverse	5. Surface, end mtg	



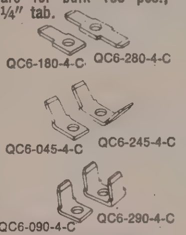
Shown MS6-1314

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Shown: MS6-1114

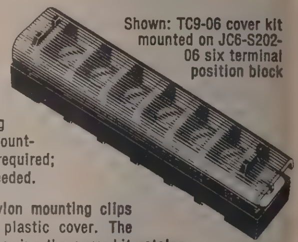
TOP HARDWARE

Quick connect tabs available in single and double tab, 3/16″ and 1/4″ wide. Cat. Nos. shown are for bulk 100 pcs., 1/4″ tab.



COVER KITS

Used to protect against accidental shorting of terminal screws. End mounting feet on the block are required; specify when feature is needed.



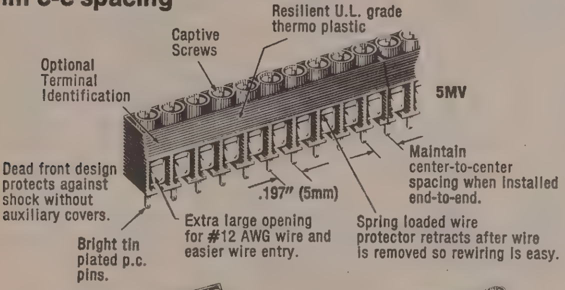
Shown: TC9-06 cover kit mounted on JC6-S202-06 six terminal position block

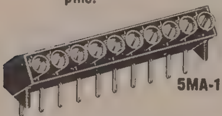
Cover kit includes two nylon mounting clips and the translucent PVC plastic cover. The two digit dash number following the cover kit catalog number specifies number of live terminals covered, not total number of plastic positions. Order TC9-XX for JC6 series, TC2-XX for BC6 series.

Example: TC9-04 specifies a cover kit for a terminal block with end mounting holes. Would fit JC6-P2022-04 block.

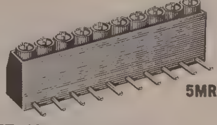
Subminiature Blocks

5mm c-c spacing


Resilient U.L. grade thermo plastic
Captive Screws
Optional Terminal Identification
5MV
Maintain center-to-center spacing when installed end-to-end.
Dead front design protects against shock without auxiliary covers.
.197″ (5mm)
Extra large opening for #12 AWG wire and easier wire entry.
Spring loaded wire protector retracts after wire is removed so rewiring is easy.
Bright tin plated p.c. pins.



5MA-10



5MR-10

No. of Terminals	L - Length (inches)	L - Length (mm)	Catalog Number Standard	Catalog Number 45° Angle	Catalog Number Right Angle
2	.394	10	5MV-02	5MA-02	5MR-02
3	.591	15	5MV-03	5MA-03	5MR-03
4	.787	20	5MV-04	5MA-04	5MR-04
5	.984	25	5MV-05	5MA-05	5MR-05
6	1.181	30	5MV-06	5MA-06	5MR-06
7	1.378	35	5MV-07	—	5MR-07
8	1.575	40	5MV-08	5MA-08	5MR-08
9	1.773	45	5MV-09	—	5MR-09
10	1.969	50	5MV-10	5MA-10	5MR-10
12	2.362	60	5MV-12	5MA-12	5MR-12
13	2.561	65	5MV-13	—	5MR-13
15	2.955	75	5MV-15	—	5MR-15
18	3.543	90	5MV-18	5MA-18	5MR-18
20	3.937	100	5MV-20	5MA-20	5MR-20
22	4.331	110	5MV-22	5MA-22	5MR-22
24	4.724	120	5MV-24	5MA-24	5MR-24

GENERAL SPECIFICATIONS

Rating: 15 Amperes, 250 Volts U.L., 10A, 300V. or 15A, 150V. CSA.

Air Gap: 4mm minimum

Breakdown Voltage: 3000 Volts, Minimum

Barrier Material: Polyamid 6/6, U.L. approved, UL 94V-0, flammability classification, 105°C, green.

Terminals: Box type with spring loaded wire protector, brass, bright-tin plated.

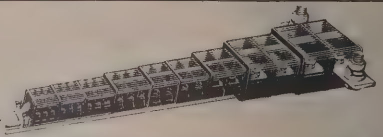
Screws: M2.5, steel, passivated zinc plated.

Wire Range: 12-22 AWG.

Approvals: Creepage and air distance designed to VDE 0110. U.L. recognized and CSA certification.

Power Blocks

rail mount, all fit one size, heavy duty track

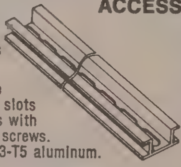


@ 600V	Description	Cat. No.
15 amps	Block, 1.38w x 1.34h x .35Th	F-15
20 amps	Block, 1.38w x 1.44h x .41Th	F-20
35 amps	Block, 1.38w x 1.44h x .47Th	F-25
45 amps	Block, 1.77w x 1.61h x .61Th	F-35
60 amps	Block, 1.77w x 1.73h x .73Th	F-60
70 amps	Block, 1.89w x 1.87h x .83Th	F-80
125 amps	Block, 2.38w x 2.09h x 1.06Th	F-125
200 amps	Block, 2.95w x 2.36h x 1.77Th	F-200
300 amps	Block, 2.95w x 2.36h x 1.77Th	F-300
400 amps	Block, 3.54w x 2.76h x 2.28Th	F-400
600 amps	Block, 7.07w x 2.76h x 2.28Th	F-600

Models F-15 thru F-125 require one end barrier per group. Aluminum track 39.37″ long is BLF-1000. Covers and marker strips available.

ACCESSORIES

MOUNTING RAIL

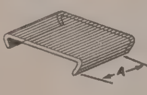


All blocks fit this one size rail.

Heavy duty gauge with pre-punched slots on .79 in. centers with clearance for #8 screws. Extruded of A6063-T5 aluminum.

Cat. No.	Length	Std. Pack
BLF-1000	1 Meter (39in.)	10
BLF-24	24 in.	10
BLF-12	12 in.	10
BLF-6	6 in.	10

PROTECTION COVERS

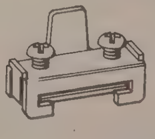


Cat. No.	For Series	"A" Dim.	Std. Pack
CF-15	F-15,-20, -25	1 meter[1]	10
CF-35	F-35 & -60	1 meter[1]	10
CF-80	F-80	1 meter[1]	10
CF-125	F-125	1 meter[1]	10
CF-200	F-200 & -300	width of block	10
CF-400	F-400 & -600	width of block	10

Clear Polycarbonate

[1] Cut to desired length.

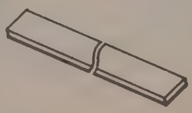
LOCKING BRACKET



Cat. No.	Std. Pack
FK-1	10

Two required per rail length.
Cold rolled steel, zinc dichromate plated.

MARKER STRIPS



Cat. No.	For Series	Std. Pack
NPF	F15,20, 25, 225 60, 80 and 125	10

White PVC, 0.8mm thick, .9 meter long. Marker strips are standard on F-200, -300, -400 and -600.

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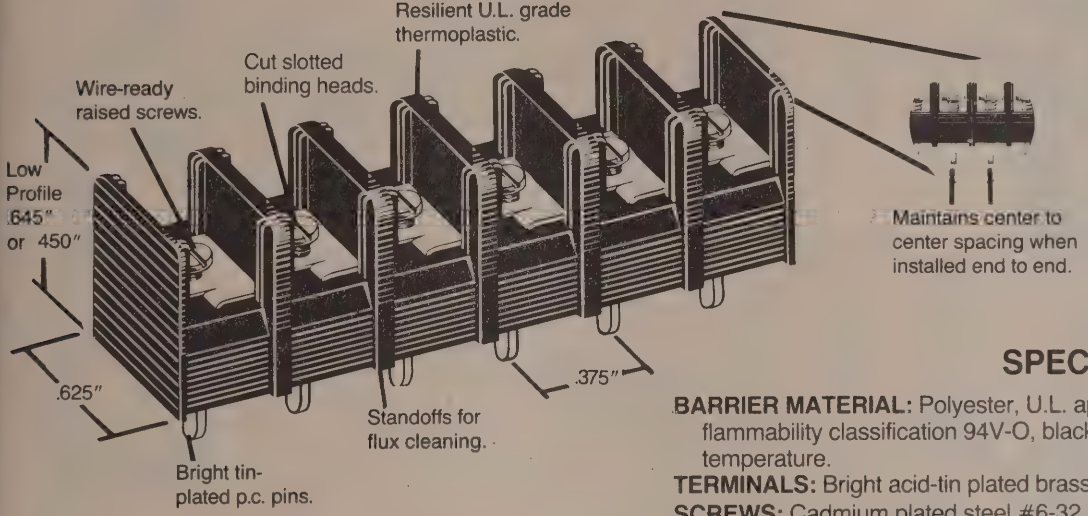
Manufacturers of SNAPTRACK™ Relay and Timer Socket Assemblies, Barrier Terminal Blocks, Proximity Switches, Custom Circuits

AUGAT® RDI®

Quality and Innovation

Barrier Terminal Blocks Models LC6 and MC6


Resilient U.L. grade thermoplastic.
Cut slotted binding heads.
Wire-ready raised screws.
Low Profile .645" or .450"
.625"
.375"
Standoffs for flux cleaning.
Bright tin-plated p.c. pins.
Maintains center to center spacing when installed end to end.

Choice of two low profile barriers: .645 and .450 inches

GENERAL SPECIFICATIONS

BARRIER MATERIAL: Polyester, U.L. approved flammability classification 94V-O, black, 130°C operating temperature.

TERMINALS: Bright acid-tin plated brass.

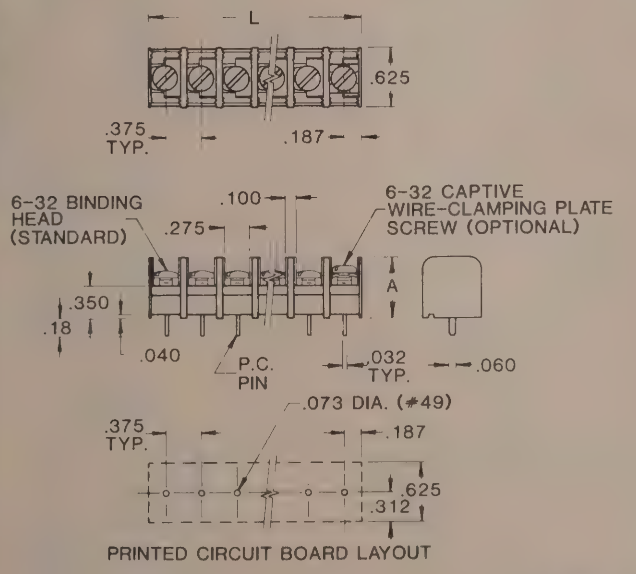
SCREWS: Cadmium plated steel #6-32 under-cut binding head standard. Steel screws with captive wire-clamp washers. Brass screws available as an option.

RATING: LC6 Series: 20 Amperes, 300 Volts, U.L. & CSA. MC6 Series: 20 Amperes, 250 Volts, U.L. & CSA.

WIRE RANGE: 12-22 AWG.

APPROVALS: U.L. recognized, File No. E54800, Guide XCFR2. C.S.A. certified, File No. LR30811, Guide 184-N-90. VDE 0110 acceptable.

DIMENSIONS


L
.625
.375 TYP.
.187
6-32 BINDING HEAD (STANDARD)
.100
.275
6-32 CAPTIVE WIRE-CLAMPING PLATE SCREW (OPTIONAL)
A
.350
.18
.040
P.C. PIN
.032 TYP.
.060
.073 DIA. (#49)
.375 TYP.
.187
.625
.312
PRINTED CIRCUIT BOARD LAYOUT

	'A' DIM.
LC6 SERIES	.645
MC6 SERIES	.450

'L'= .375 x N

ORDERING INFORMATION

Number of Terminal Postions	All Positions Filled		
	L Length (inches)	300 Volt 20 Ampere Catalog No.	250 Volt 20 Ampere Catalog No.
2	.75	LC6-P102-02	MC6-P102-02
3	1.125	LC6-P102-03	MC6-P102-03
4	1.50	LC6-P102-04	MC6-P102-04
5	1.875	LC6-P102-05	MC6-P102-05
6	2.25	LC6-P102-06	MC6-P102-06
7	2.625	LC6-P102-07	MC6-P102-07
8	3.00	LC6-P102-08	MC6-P102-08
9	3.375	LC6-P102-09	MC6-P102-09
10	3.75	LC6-P102-10	MC6-P102-10
11	4.125	LC6-P102-11	MC6-P102-11
12	4.50	LC6-P102-12	MC6-P102-12
13	4.875	LC6-P102-13	MC6-P102-13
14	5.25	LC6-P102-14	MC6-P102-14
15	5.625	LC6-P102-15	MC6-P102-15
16	6.00	LC6-P102-16	MC6-P102-16
17	6.375	LC6-P102-17	MC6-P102-17
18	6.75	LC6-P102-18	MC6-P102-18
19	7.125	LC6-P102-19	MC6-P102-19
20	7.50	LC6-P102-20	MC6-P102-20
21	7.875	LC6-P102-21	MC6-P102-21
22	8.25	LC6-P102-22	MC6-P102-22
23	8.625	LC6-P102-23	MC6-P102-23
24	9.00	LC6-P102-24	MC6-P102-24
25	9.375	LC6-P102-25	MC6-P102-25
26	9.75	LC6-P102-26	MC6-P102-26
27	10.125	LC6-P102-27	MC6-P102-27
28	10.50	LC6-P102-28	MC6-P102-28

RDI/Reed Devices Inc. a subsidiary of AUGAT
525 Randy Road, Carol Stream, Illinois 60188 • Phone 312/682-4100 • TWX: 910-252-2118
Manufacturers of SNAPTRACK™ Relay and Timer Socket Assemblies, Barrier Terminal Blocks, Proximity Switches, Custom Circuits

ROBINSON NUGENT, INC.

800 EAST EIGHTH STREET NEW ALBANY INDIANA 47150 (812) 945 0211 TWX 810 540 4082

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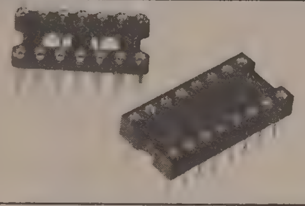
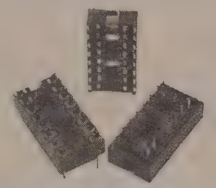
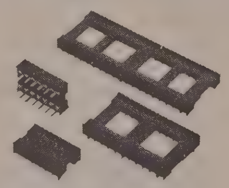
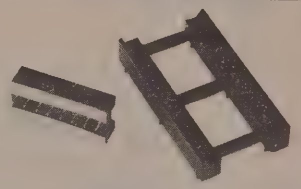
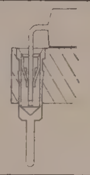
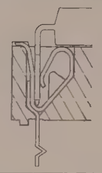
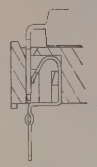
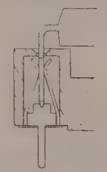
Production DIP Sockets

High Reliability/High Retention		Popular Dual-Wipe		Type		Economical — Gas-Tight		General Purpose
								
ICA/ICT Series		**ICO/ICB Series**		**Family**		**ICU/ICL Series**		**ICN Series**
Precision Screw Machine 		**Dual Wipe Stamped** 		No. of Pins	Row/ Row Dim.	**Single Side Wipe** 		**Dual Leaf Stamped** 
ICA-063-S-X	ICT-063-S-X	ICO-063-S8-X	ICB-063-S8-X	6	.300	—	—	ICN-063-S3-X
ICA-083-S-X	ICT-083-S-X	ICO-083-S8-X	ICB-083-S8-X	8	.300	ICU-083-S6-X	ICL-083-S6-X	ICN-083-S3-X
ICA-143-S-X	ICT-143-S-X	ICO-143-S8-X	ICB-143-S8-X	14	.300	ICU-143-S6-X	ICL-143-S6-X	ICN-143-S3-X
ICA-163-S-X	ICT-163-S-X	ICO-163-S8-X	ICB-163-S8-X	16	.300	ICU-163-S6-X	ICL-163-S6-X	ICN-163-S3-X
ICA-183-S-X	ICT-183-S-X	ICO-183-S8-X	ICB-183-S8-X	18	.300	ICU-183-S6-X	ICL-183-S6-X	ICN-183-S3-X
ICA-203-S-X	ICT-203-S-X	ICO-203-S8-X	ICB-203-S8-X	20	.300	ICU-203-S6-X	ICL-203-S6-X	ICN-203-S3-X
ICA-224-S-X	ICT-224-S-X	ICO-224-S8-X	ICB-224-S8-X	22	.400	ICU-224-S7-X	ICL-224-S7-X	ICN-224-S5-X
ICA-243-S-X	ICT-243-S-X	ICO-243-S8-X	ICB-243-S8-X	24	.300	—	—	—
—	—	—	—	24	.400	—	—	ICN-244-S4-X
ICA-246-S-X	ICT-246-S-X	ICO-246-S8-X	ICB-246-S8-X	24	.600	ICU-246-S7-X	ICL-246-S7-X	ICN-246-S5-X
ICA-286-S-X	ICT-286-S-X	ICO-286-S8-X	ICB-286-S8-X	28	.600	ICU-286-S7-X	ICL-286-S7-X	ICN-286-S5-X
ICA-326-S-X	ICT-326-S-X	—	—	32	.600			ICN-326-S4-X
ICA-406-S-X	ICT-406-S-X	ICO-406-S8-X	ICB-406-S8-X	40	.600	ICU-406-S7-X	ICL-406-S7-X	ICN-406-S5-X
ICA-426-S-X	ICT-426-S-X	—	—	42	.600	—	—	ICN-426-S4-X
—	—	—	—	48	.600	—	—	ICN-486-S5-X
—	—	ICO-509-S8-X	ICB-509-S8-X	50	.900	—	—	ICN-509-S5-X
ICA-649-S-X	—	ICO-649-S8-X	ICB-649-S8-X	64	.900	—	—	ICN-649-S5-X
Beryllium Copper		Phosphor Bronze	Beryllium Copper	Contact Material		Phosphor Bronze	Beryllium Copper	Phosphor Bronze
-GG Gold Shell, Gold Contact -GG30 30 μ in. Gold Contact -TG Tin Shell, Gold Contact -TG30 30 μ in. Gold Contact -TT Tin Shell, Tin Contact		-TG Tin Tail, Gold Contact -T Tin Tail and Contact		-X Denotes Plating		-G Gold Tail and Contact -TG Tin Tail, Gold Contact -T Tin Tail and Contact		-G Gold Tail and Contact -T Tin Tail and Contact
2 and 3 Level Wrap Pins (ICA Only) ICA — Closed Body Mold ICT — Open Body Mold Low Profile Option Hi Temp Contact Option		Closed Bottom Prevents Flux and Solder Wicking Lead is .140″ Long Automatic Insertion Straight Lead Antioverstress Contact Protection		Features		Gastight Contact Design Antioverstress Contact Protection Self Locking "Basket Weave" Lead Automatic Insertion Lead Available		2 and 3 Level Wrap Pins Anti-wicking Wafer Beryllium Copper Contacts Available

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ROBINSON NUGENT, INC.
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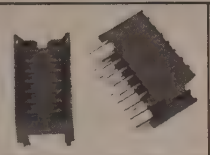
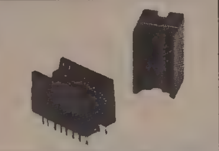
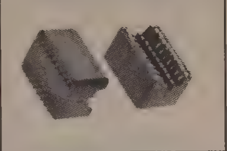
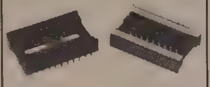
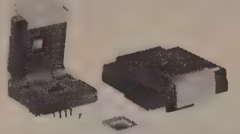
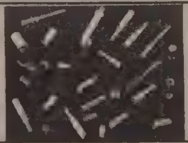
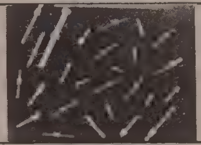
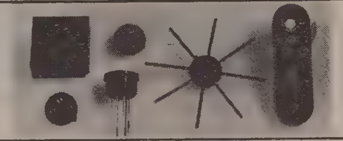
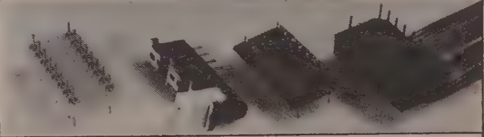
Burn-In, Test Sockets

Popular Production		Low Insertion	Economy	Type	
					
TST-Series	**TSN-Series**	**TS-Series**	**ICN-S2-Series**	**Family**	
Beryllium Copper Contacts (-TG)	Beryllium Copper or 200°C Contacts (-HT)			No. of Contacts	Row Spacing
TST-083-X	—	—	ICN-083-S2-X	8	.300″
TST-143-X	TSN-143-X	TS-31014-X	ICN-143-S2-X	14	.300″
TST-163-X	TSN-163-X	TS-31016-X	ICN-163-S2-X	16	.300″
TST-183-X	TSN-183-X	TS-31018-X	ICN-183-S2-X	18	.300″
TST-203-X	TSN-203-X	—	ICN-203-S2-X	20	.300″
—	TSN-224-X	TS-41022-X	ICN-224-S2-X	22	.400″
TST-243-X	—	—	—	24	.300″
—	—	TS-41024-X	—	24	.400″
TST-246-X	TSN-246-X	TS-61024-X	ICN-246-S2-X	24	.600″
TST-286-X	TSN-286-X	TS-61028-X	ICN-286-S2-X	28	.600″
TST-406-X	TSN-406-X	TS-61040-X	ICN-406-S2-X	40	.600″
TST-649-X	—	—	—	64	.900″
-TNG Tin Tail, Gold Contact -TNG30 Tin Tail, 30 μ in. Gold Contact	-TNG Tin Tail, Gold Contact -TNG30 Tin Tail, 30 μ in. Gold Contact	-HT 30 μ in. Gold Contact		-X Denotes Plating	
-Low Profile -Large Target Area -Bottom Channel	-Narrow Body Width -Rugged Protected Contacts -Removable Insulator	-Low Insertion Force -For Programming & Test -Strips Available	-Low Cost -220°C Option -Low Profile	Features	

Leadless Sockets		
		
LCS-Series		
Beryllium Copper Std. (-Blank) or Beryllium Nickel Contacts (-HT)	No. of Contacts	Contact Spacing
LCS-99116-X	16	.040
LCS-99118-X	18	.050
LCS-99020-X	20	.040
LCS-99022-X	22	.050
LCS-99024-X	24	.050
LCS-99028-X	28	.050
LCS-99J32-X	32	.040
LCS-99036-X	36	.040
LCS-99J40-X	40	.040
LCS-99048-X	48	.040
LCS-99164-X	64	.040
LCS-99J84-X	84	.040
-Blank Gold Tail, Gold Contact -HT 30 μ in. Gold Contact		
-35 Standard Configurations -Custom Designs Available -Zero Insertion Force		

TO and Flat Pak		
TS and FP-Series		
Beryllium Copper Contacts		
Part No.	TO Style	No. Leads
MP-3452-G	TO-3	2
MP-66302-1G	TO-66	2
TS-5173	TO-5	3
TS-5174	TO-5	4
TS-5178-2	TO-5	8
TS-51710-23	TO-5	10
Flat-Pak Sockets		
FP-3314	—	14
FP-3316	—	16
FP-3324	—	24
FP-3326	—	26
FP-3336	—	36
FP-3344	—	44
FP-3364	—	64
FP-3384	—	84
Contact Factory for Various Plating Options		
-Accepts Caps ICs -Many Options		

Pin Sockets, Terminals and Special Products

Pin Sockets	Terminals	Spring Loaded Contacts	TO-Patterns	Interconnect Plugs, Programming Shunts
				
NS, PS, Series	**CP-Series**	**N-Series**	**LP/TP, MP/DP, HP/MD-Series**	**FPB, MPB, SWS, WJC and WPB-Series**
Industry Standard Designs for Component Test and Bread Boarding. Applicable for Commercial, Industrial, and Military Uses. Contact Factory for Details.		Used for Matrix Arrangements in Test Fixtures for Leadless or Radial-Lead Components.	TO-5, 18, 46, & 100 Styles for P.C. Chassis and Radial-Lead Mount. TO-3, 8, & 66 for Power Devices. Wide Variety of Mounting Styles.	Preassembled Cable Plugs. Individual Adapter Plugs and Covers. Economical Switch and Programming Shunts in Three Different Mounting Styles.

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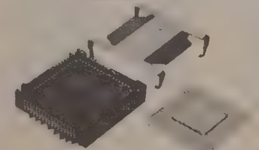
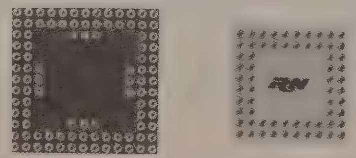
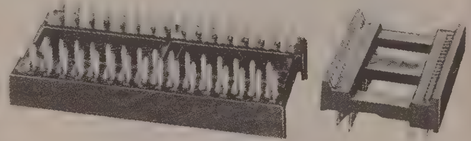
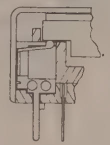
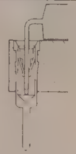
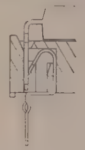
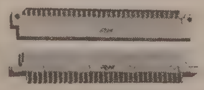
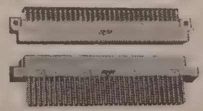
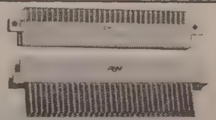
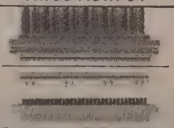
High Density Sockets

Type	Leadless Chip Carrier		Pin Grid Aray		Quad-in-Line	
						
Family	**ICC-Series**		**PGA-Series**		**ICD-Series**	
Contact Style	**Deflection Beam Contact** 		**Machine Screw Contact** 		**Single Side Wipe** 	
Standard Part No.		No. of Pins		No. of Pins		No. of Pins
	ICC-50J44-1-X	44	PGA-056AM-S-X	56	ICD-406-S7-X	40
	ICC-50J52-1-X	52	PGA-064AM-S-X	64	ICD-486-S7-X	48
	ICC-50J68-1-X	68	PGA-072AM-S-X	72	ICD-646-S7-X	64
	ICC-50J84-1-X	84	PGA-084AM-S-X	84		
			PGA-120AM-S-X	120		
			PGA-132AM-S-X	132		
			PGA-144AM-S-X	144		
-X Denotes Plating	-G 10 μ in. Gold Contact		-TG Tin Shell, Gold Contact -TG30 30 μ in Gold Contact		-G Gold Tail, Gold Contact -T Tin Tail, Tin Contact	
Features	Accepts Jedec A, B, C, or D. Removable Lid is Standard. Hinged Lid Available.		Molded Plastic or G-10 Bodies Available. Custom Loaded Matrices: 9 x 9 Thru 15 x 15.		Accepts DIP ICs with .050″ Lead Spacing. Tails on Staggered .100″ Spacing	

RNE-Series/Two-Piece (DIN 41612) Connectors

Mounting Style		Standard				Reverse		IDC
Body Style / No. of Pins		Two-Row/64		Three Row/64 or 96		Three Row/64 or 96		Three Row/64
								
Termination		Straight Solder	Right Angle Solder	Straight Solder	Right Angle Solder	Right Angle Solder	Straight Solder	Insulation Displacement
Connector		Socket	Plug	Socket	Plug	Socket	Plug	Socket
Row Load	A & B	RNE-64BS-S-X	RNE-64BP-SR-X	—	—	—	—	—
	A & C	—	—	RNE-64CS-S-X	RNE-64CP-SR-X	RNE-64CRS-SR-X	RNE-64CRP-S-X	RNE-IDC-64C-X
	A, B & C	—	—	RNE-96CS-S-X	RNE-96CP-SR-X	RNE-96CRS-SR-X	RNE-96CRP-S-X	—
-X Denotes Plating		-TG Tin on Tails, Gold on Contact Area. -TG30 Tin on Tails, 30 μ in. Gold on Contact Area.						
Features		3-Level Wrap Pin Available		3-Level Wrap Pin Available			3-Level Wrap Pin Available	

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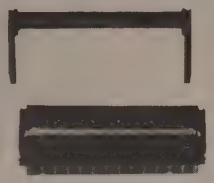
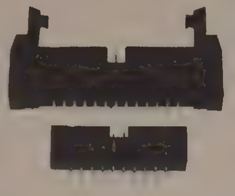
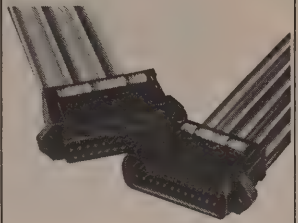
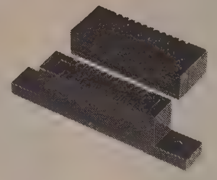
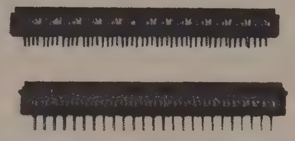
Insulation Displacement Connectors for Flat Cable (IDC)

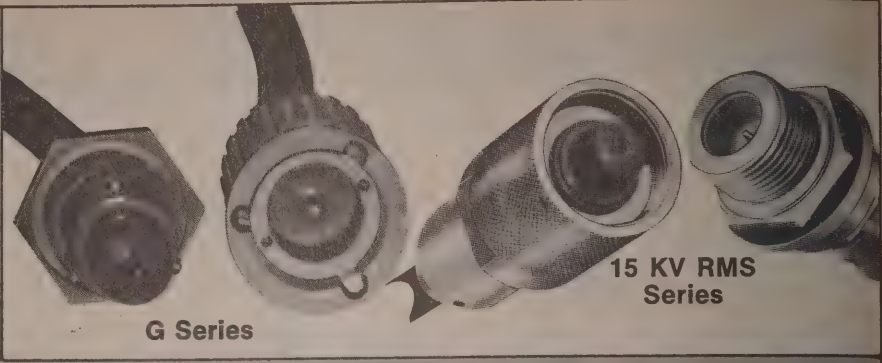
Sockets	Headers	D-Subminiature		Type	Card-Edge	P.C. Mount		Cable Plugs
								
IDS-Series	**IDH-Series**	**IDD-Series**		**Family**	**IDE-Series**	**IDT-Series**	**IDL-Series**	**IDP-Series**
With Center Polarization Tab	4-Sided Shroud Straight Solder for .062″ PCB	One Piece Plastic Construction		Std. Part	For .062″ PCB	Staggered Leads	In-Line Leads	In-Line Leads
10 Thru 60	10 Thru 60	Plug	Socket	No. of Pins	10 Thru 60	10 Thru 50		14, 16, 24 and 40
—	—	IDD-C9P-X	IDD-C9S-X	9	—	—	—	—
IDS-C10PK-X	IDH-10PK-S3-X	—	—	10	IDE-C10-X	IDT-C10-1-X	IDL-C10-1-X	—
IDS-C14PK-X	IDH-14PK-S3-X	—	—	14	—	IDT-C14-1-X	IDL-C14-1-X	IDP-C143-X
—	—	IDD-C15P-X	IDD-C15S-X	15	—	—	—	—
IDS-C16PK-X	IDH-16PK-S3-X	—	—	16	IDE-C16-X	IDT-C16-1-X	IDL-C16-1-X	IDP-C163-X
IDS-C20PK-X	IDH-20PK-S3-X	—	—	20	IDE-C20-X	IDT-C20-1-X	IDL-C20-1-X	—
—	—	—	—	24	—	—	—	IDP-C246-X
—	—	IDD-C25P-X	IDD-C25S-X	25	—	—	—	—
IDS-C26PK-X	IDH-26PK-S3-X	—	—	26	IDE-C26-X	—	—	—
IDS-C34PK-X	IDH-34PK-S3-X	—	—	34	IDE-C34-X	IDT-C34-1-X	IDL-C34-1-X	—
—	—	IDD-C37P-X	IDD-C37S-X	37	—	—	—	—
IDS-C40PK-X	IDH-40PK-S3-X	—	—	40	IDE-C40-X	IDT-C40-1-X	IDL-C40-1-X	IDP-C406-X
IDS-C50PK-X	IDH-50PK-S3-X	—	—	50	IDE-C50-X	IDT-C50-1-X	IDL-C50-1-X	—
IDS-C60PK-X	IDH-60PK-S3-X	—	—	60	IDE-C60-X	IDT-C60-1-X	IDL-C60-1-X	—
Phosphor Bronze	Phosphor Bronze	Beryllium Copper		Contact Material	Phosphor Bronze	Phosphor Bronze		Phosphor Bronze
	-TG Tin Tail, Gold Contact -TG30 30 μ in. Gold Contact -T Tin Tail, Tin Contact			-X Denotes Plating		-TG Tin Tail, Gold Contact -TG30 30 μ in. Gold Contact -T Tin Tail, Tin Contact		
No Polarization TAB Strain Relief Available Beryllium Copper Backplane Option Closed Lid Option	Solder Tails for .125″ PCB & Wrap Tails Available Right Angle Terminations 3-Sided Shrouding Non-Shrouded Header Available Low Profile Option	Strain Relief Included		Features and Options	Three Styles of Mounting Available Beryllium Copper Contacts Available Individual Polarization Keys	Tail Lengths for .125″ PCB Available Beryllium Copper Contacts Available IDL May Be Mounted in		Strain Relief and Retaining Clips Available Beryllium Copper Contacts Available

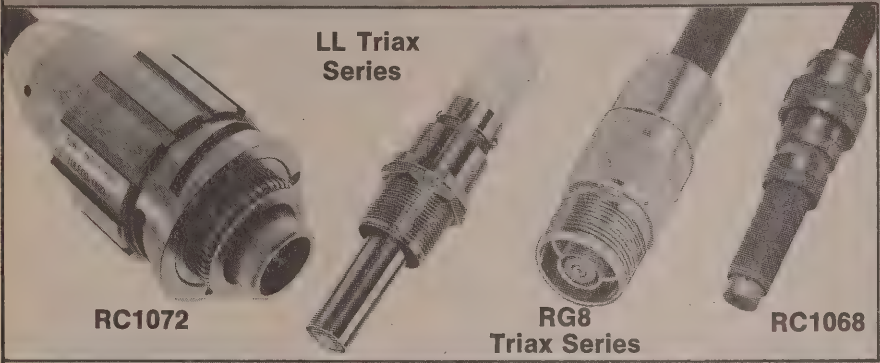
Phone 812/945-0211 Robinson Nugent, Inc., 800 East Eighth St., New Albany, Indiana 47150 U.S.A. • TWX 810-540-4082 Cable: ROBNU

Rowe Coaxial

Connectors and Cable Assemblies

Employ high-voltage, corona-free design techniques. They are ideal for use in pulse as well as DC voltage applications, through 150 KV. A wide variety of molded-on or field assembly types are offered. Available in quick disconnect or screw couplings.


G Series
15 KV RMS Series


LL Triax Series
RC1072
RG8 Triax Series
RC1068

Rowe Triaxial

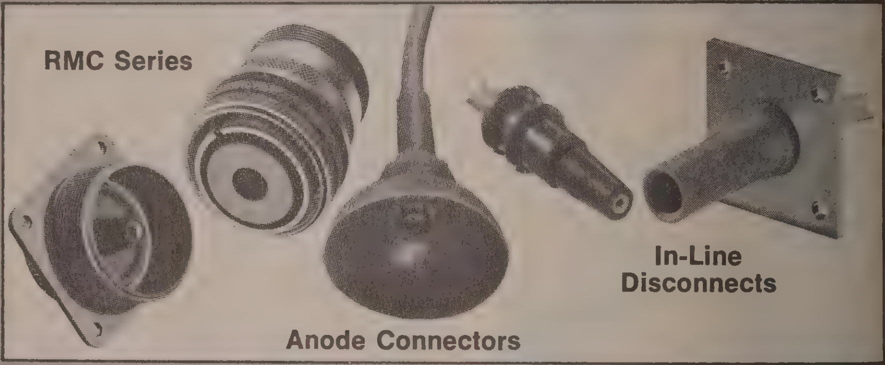
Connectors and Cable Assemblies

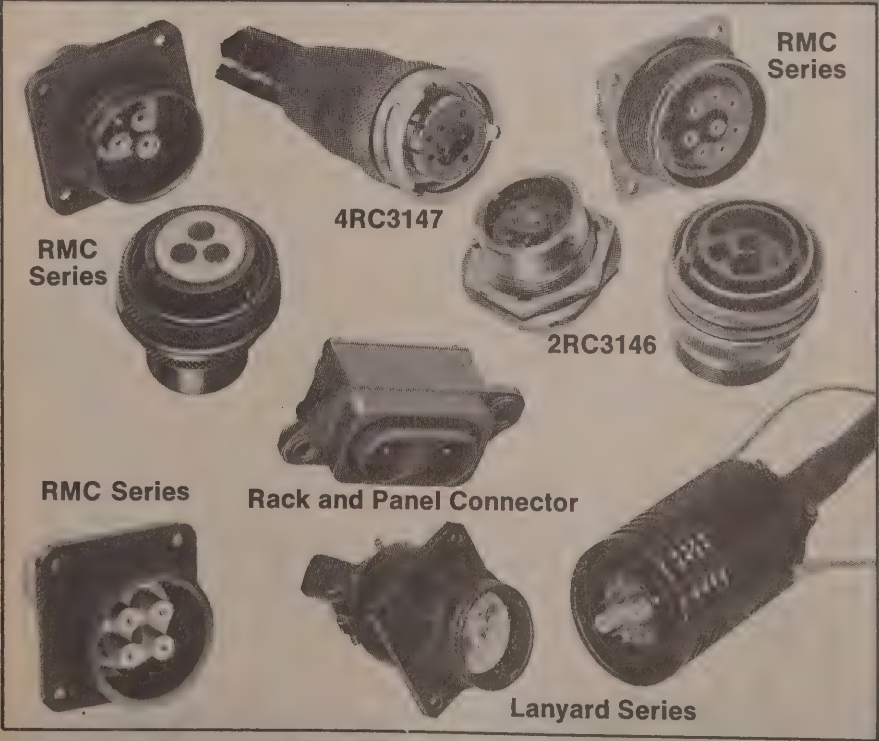
A full spectrum of both molded-on and field assembly types are available for a wide variety of cable types such as the triaxial version of RG-8, up through and including specialized construction for operation in excess of 100 KV.

Rowe Single Contact

Connectors and Cable Assemblies

Offered is an extensive listing of single contact high-voltage assemblies, which include anode connectors, in-line disconnects and others which are used unshielded to solve your simple high-voltage interconnection problems.


RMC Series
In-Line Disconnects
Anode Connectors


RMC Series
4RC3147
RMC Series
2RC3146
RMC Series
Rack and Panel Connector
Lanyard Series

Rowe Multiple Contact

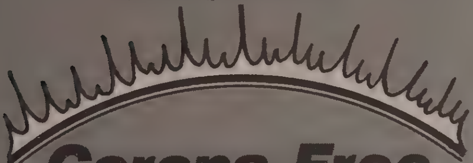
Connectors and Cable Assemblies

Offer contact arrangements from one to thirty contacts, panel receptacles, cable plugs, rack and panel combinations, in-line types and many others. Both field assemblies and molded-on types are standard in this line.

Rowe Industries has designed and developed over 700 specialized interconnections for which tooling is available.

World's Leader in High-Voltage

(through 200 KV)



Corona-Free CONNECTORS and CABLE ASSEMBLIES

ROWE INDUSTRIES

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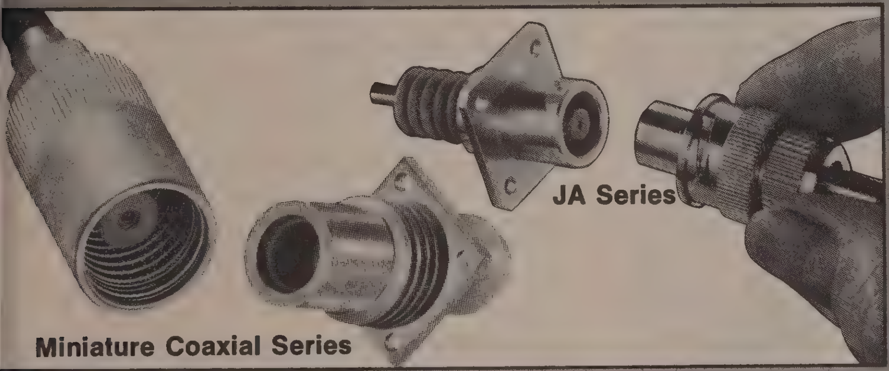
DEPT. 241 • 6225 BENORE ROAD • TOLEDO, OHIO 43612 • (419) 729-9761
WEST COAST OFFICE: (415) 969-4831 OR (213) 235-2070
EAST COAST OFFICE: (617) 273-3888

DESIGN — DEVELOPMENT — MANUFACTURING

For reliable high voltage and all temperature wire and cable, see Rowe's ad in the Wire/Cable/Harnesses Section.

FOR YOUR COMMERCIAL, INDUSTRIAL OR MILITARY DESIGN NEEDS



Rowe Miniature Coaxial

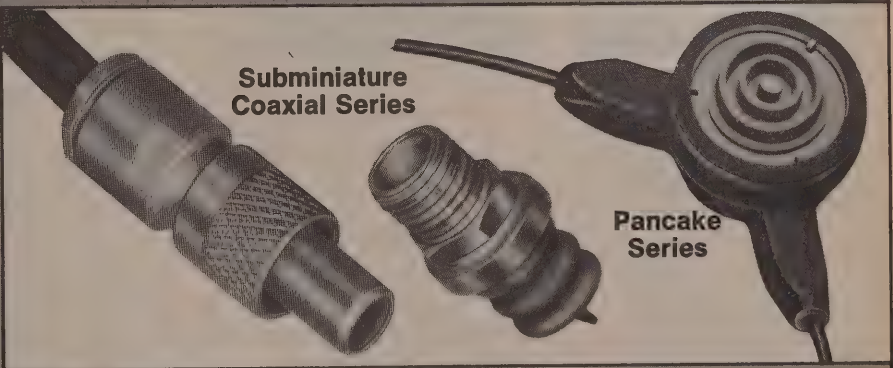
Connectors and Cable Assemblies

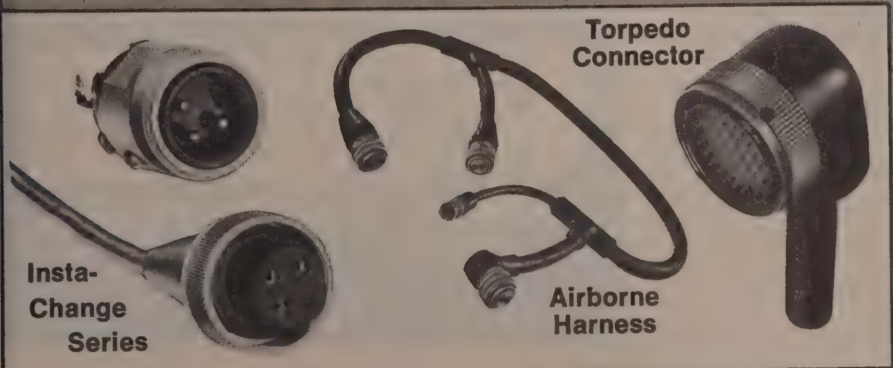
Employ the same high-voltage design techniques as the coaxial series, but are much smaller in size for use in restricted spaces. Available in quick disconnect and screw couplings (the JA Series can be adapted to such standard type cables as RG 58 and RG 59).

Rowe Subminiature Coaxial

Connectors and Cable Assemblies

Are ideally suited for use where space is at a premium. Employing the traditional Rowe high capability features, the subminiature sizes offer unusually high voltage operating capabilities, through 20 KV.





Rowe Low-Voltage, Molded-On

Connectors and Cable Assemblies

For use in severe environments. We can mold your STD connectors to cable for an environmental seal and provide a molded strain relief. Our exclusive Insta-Change series was designed for factory, mining, nuclear and oil well use.

ROWE knows Specialized Interconnections

We're specialists in complete interconnection systems and, in particular, connectors and cable assemblies for extreme environments and unique applications. In fact, we've designed and manufactured hundreds of different connectors and cable assemblies for nuclear instrumentation and control, high voltage, corona-free thru 200 KV+, underwater instrumentation, geophysical, high and low temperatures, corrosive environments, high altitude and deep space, high and low pressures and other sophisticated military and industrial systems.

Rowe engineers design and specify custom products to meet exacting requirements and Rowe craftsmen produce them to the highest quality standards. In addition, we operate one of the most complete testing facilities in the industry. Our destructive and non-destructive testing capability includes:

Electrical Testing
Dielectric strength, corona measurement, RFI/EMI and DIT-MCO computer controlled circuit testing.

Mechanical and Physical Testing
Plating verification thru microscopic analysis, shock and vibration, hydrostatic pressure and helium leak, tensile strength, contact force measurement, optical comparitor equipment, complete x-ray lab.

Environmental Testing
Altitude thru 150,000 feet, temperature, humidity, corrosive atmospheres, accelerated life combining various conditions simultaneously.

Quality Control
Rowe's quality control and inspection systems meet or exceed MIL-Q-9858, ISR-1, NRC's 10CFR50 appendix B and standards of all aerospace and industrial firms.

With so many interconnections to choose from, chances are that we've already developed the one that meets your needs. If not, we'll custom design one for you.

Life testing facilities.

High altitude pressure chamber.

RFI-EMI-EMP test chamber.

High voltage, corona and dielectric test chamber.

Humidity chamber.

DIT-MCO computerized random access testing.

X-Ray equipment.

Hydrostatic pressure testing.

Rowe Industries, Dept. 241/6100 Benore Rd, Toledo, OH 43612

Gentlemen: Please send technical literature I've checked. Thank you.

- ☐ Corona: simple techniques to eliminate it
- ☐ H.V. In-Line Disconnects and Anode Connectors thru 60 KV
- ☐ Rowe multi-contact H.V. connectors
- ☐ Sub-Miniature H.V. coax connectors thru 15 KV
- ☐ RG cable H.V. connectors (JA Series)
- ☐ Miniature Coax Connectors thru 30 KV
- ☐ Corona-free coax connectors thru 20 KV
- ☐ Corona-free high pulse coax connectors thru 40 KV
- ☐ 75 KV coax connectors (R75 Series)
- ☐ Lanyard/Umbilical Connectors
- ☐ Triaxial Connectors thru 30 KV
- ☐ Triaxial Connectors thru 55 KV
- ☐ Molded-On Interconnections
- ☐ Low-Voltage Multi-Pin Connectors (Insta-Change Series)
- ☐ High-Voltage Cable & Wire
- ☐ "All-Temp" High Temperature Wire and Cable
- ☐ SRML, SF-2, SFF-2, Aircraft & Locomotive

Print Name ____________________

Company ____________________

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WEST COAST OFFICE: (415) 969-4831 OR (213) 235-2070
EAST COAST OFFICE: (617) 273-3888

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES

TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 84/85 EDITION OF EEM

Abbreviations/Acronyms .... **1A**•1137, **1B**•1035, **2**•1014, **3**•1014
ASCII Code .... **3**•1103
Batteries, Product Selection Guide .... **3**•1399
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide .... **2**•1003
Capacitors, Basic Formulas .... **1A**•1093
Capacitors, Miniglossary .... **1A**•1069
Capacitors, Product Selection Guide .... **1A**•1003
Circuit Boards (Printed), Product Selection Guide .... **2**•1089
Coils, Chokes, & Inductors, Product Selection Guide .... **1A**•1219
Connectors, Miniglossary .... **2**•1264
Connectors, Terminals, & Sockets, Product Selection Guide .... **2**•1097
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide .... **1A**•1309
Delay Lines, Product Selection Guide .... **1A**•1445
Discrete Semiconductors, Product Selection Guide .... **1A**•2087
Displays, Readouts, Lamps, & Lights, Product Selection Guide .... **1B**•1021
EBCDIC Code .... **3**•1153
Encapsulation, Miniglossary .... **2**•1082
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide .... **2**•1801
Filters, Product Selection Guide .... **1A**•1577
Instruments, Graphic Recording, Product Selection Guide .... **3**•1381
Instruments, Panel Meters, Product Selection Guide .... **3**•1321
Instruments, Test & Measuring, Product Selection Guide .... **3**•1182
Interconnection Systems, Product Selection Guide .... **2**•1873
Keyboards & Keypads, Product Selection Guide .... **1B**•1759
Microwave Components, Product Selection Guide .... **1A**•1685
Military Qualified Products Lists .... **1B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide .... **1B**•1121
Opto Semiconductors, Miniglossary .... **1B**•1218
Oscilloscopes, Product Selection Guide .... **3**•1361
Panel Hardware, Product Selection Guide .... **2**•1757
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide .... **1A**•2017
Power Supplies, Miniglossary .... **3**•1455
Power Supplies, AC, Product Selection Guide .... **3**•1815
Power Supplies, DC, Product Selection Guide .... **3**•1439
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide .... **1B**•1255
Relay Contact Forms .... **1B**•1317
Relays, Electromechanical, Miniglossary .... **1•B**1292
Relays, Product Selection Guide .... **1B**•1289
Resistor Color Codes .... **1A**•1791
Resistors, Product Selection Guide .... **1A**•1789
Servo Components, Miniglossary .... **3**•1935
Solenoids, Product Selection Guide .... **1B**•1481
Switches, Product Selection Guide .... **1B**•1499
Thyristors/High Power Diodes, Miniglossary .... **1A**•1652
Transducers & Encoders, Product Selection Guide .... **1B**•1827
Transformers, Product Selection Guide .... **1A**•2115
Wire & Cable, Product Selection Guide .... **2**•1935

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INSIDE THE BACK COVER OF
VOLUMES 1A, 1B & 2

SPECS?
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LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?

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CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?

WORLD'S MOST COMPREHENSIVE CONNECTOR COMPENDIUM.

SOLDERLESS SMA
SEALECTRO SOLDERLESS SMA SEMI-RIGID CABLE CONNECTORS
SEALECTRO CORPORATION

BRAND NEW! Solderless SMA Semi-Rigid Cable Connectors. A major breakthrough in semi-rigid SMA cable connectors…fully assembled without soldering! Fast, easy assembly without expensive tooling. Meets or exceeds electrical, cable retention and torque requirements of MIL-C-39012.

HIGH FREQUENCY SLIDE-ON CONNECTORS
SMS
SIS
SMA PLUG
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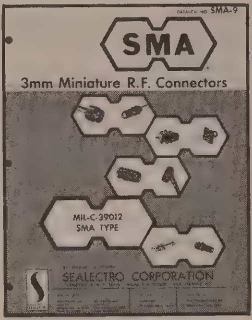
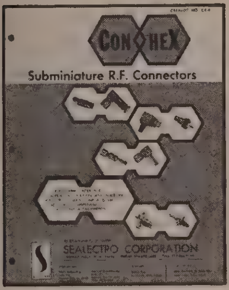
BRAND NEW! High Frequency Slide-On Connectors. New SMS connectors provide equally excellent VSWR up to and beyond 18 GHz with no degradation of reliability. Available in SMS, SSMS, SIS Intermediate, and SMA Slide-On Plugs.


SMA-9
SMA
3mm Miniature R.F. Connectors
MIL-C-39012 SMA TYPE
SEALECTRO CORPORATION

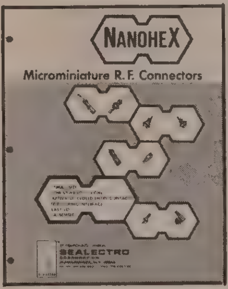
SMA 3mm RF Connectors. Broadest line of SMA connector types in the industry. Six cable attachment methods. Semi-rigid designs available in thick or thin wall construction with low VSWR to 18 GHz, operational to 26 GHz.

RF Microwave Coaxial Cable Assemblies

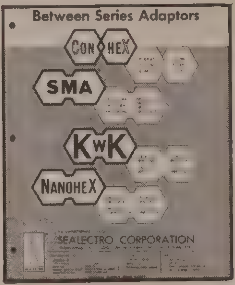
RF & Microwave Coaxial Cable Assemblies. Complete technical data on pre-assembled flexible and semi-rigid cable assemblies to your specs, 100% guaranteed mechanically and electrically!


CON HEX
Subminiature R.F. Connectors
SEALECTRO CORPORATION

CONHEX Subminiature RF Connectors (SMB/SMC). Subminiature connectors for use from DC to 12.4 GHz. Screw-on, snap-on and slide-on types, with five cable attachment methods. For 50-ohm or 75-ohm impedance. Series SMB, series SMC per MIL-C-39012.


NANOHEX
Microminiature R.F. Connectors
SEALECTRO

NANOHEX Microminiature RF Connectors. Microminiature RF connectors (proposed types SSMB and SSMC) with 0.100 diameter jacks. Low VSWR from DC to 12.4 GHz. Screw-on, snap-on and slide-on mating types. Meet or exceed the requirements of MIL-C-39012.


Between Series Adaptors
CON HEX
SMA
KwK
NANOHEX
SEALECTRO CORPORATION

Between-Series Adaptors. CONHEX adaptors to SMA, GR-874, GR-900, APC-7, BNC, TNC, N. SMA adaptor to GR-874, GR-900, BNC, TNC, N, APC-7. NANOHEX adaptors to CONHEX (SMB/SMC), SMA, BNC.

QPL R.F. COAXIAL CONNECTORS
SMA SMB SMC

QPL RF Coaxial Connectors. A complete 16 page catalog of Qualified Product Listings to MIL-C-39012, Series SMA, SMB, and SMC. Defines complete envelope dimensions for all designs.

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Mamaroneck, NY 10543

New from Sealectro

K-Connectors* 46 GHz Coax! A complete line of precision K connectors with excellent performance to 46 GHz.

Commercial BNC's A new line of BNC connectors, including the popular crimp type cable plugs and bulkhead jack receptacles, for high volume commercial applications.

Coax DINserts 50 and 75 ohm matched impedance coaxial inserts for DIN 41612 connectors. These improved designs feature closed entry female contacts and overlapping dielectrics.

*K Connector is a registered TM of Wiltron

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CONNECTORS, PLUGS & CIRCUIT HARDWARE

The products illustrated and listed are only a small representation of the full range of items available.

PLUGS

Sub-Miniature Plug 2.5 mm Pin Dia.
Miniature Plug 3.5 mm Pin Dia.
U.S. Type Miniature Plug 3.5 mm Pin Dia.
Phone Plug 6 mm Pin Dia.
¼″ Communication Plug
¼″ Barrel Plug
¼″ Microphone Plug
Automobile Antenna Plug
Automobile Plug
Din Plug
2 Pin Plug
RCA Phono Pin Plug
¼″ Phone Plug
RCA Phono Plug
DC Plug
Pin Tip Plug
Banana Plug
Solderless Banana Plug
Polarizing Plug

JACKS

Sub Miniature Jack
Miniature Jack
"L" Type Jack
"L" Type Communications Jack
Two Conductor Closed Circuit Phone Jack
Three Conductor Open Circuit Phone Jack
"B" Type Stereo Jack
"A" Type Stereo Jack
Three Conductor Closed Circuit Phone Jack
Jack with Removable Bakelite Handle
Three Conductor ¼″ In-Line Jack
¼″ In-Line Jack
¼″ Phone Jack
¼″ Barrel Jack
¼″ Metal Barrel Jack
Three Conductor ¼″ Jack
Sub Miniature Enclosed Phone Jack
Sub Miniature PC Mount
Panel Mount DC Jack
Panel Mount Open Frame DC Jack
DC Power Jack Insert Type
DC Power Jack for Printed Circuit Mounting
Two Conductor Open Circuit Jack
Three Conductor Open Circuit Phone Jack
Auto Antenna Jack Assembly
6.4ϕ Headphone Jack W/Hexagon Nut (Stereo)
P.C.B. Type DC Power Jack
DC Power Jack
Din Jack
P.C.B. Type Earphone Jack W/Round Nut (Mono)
P.C.B. Type Earphone Jack W/O Nut (Mono)
Connector W/Switch
Earphone Jack W/Round Nut (Mono)
3.5ϕ Insulation Jack W/Round Nut (Mono)
3.5ϕ Earphone Jack W/O Nut (Stereo)
3.5ϕ P.C.B. Type A.U.X. Jack
P.C.B. Type RCA Jack (Open)
6.4ϕ Insulation Headphone Jack W/Hexagon Nut (Stereo)
6.4ϕ P.C.B. Type Headphone Jack W/Hexagon Nut (Stereo)
6.4ϕ Headphone Jack W/Hexagon Nut (Mono)
6.4ϕ Headphone Jack W/O Nut (Stereo)
2 Pin Polarized
Banana Jack
Combination Jack
Three Conductor ¼″ Phone Jack
U.S. Type Miniature Jack
Three Conductor Double Closed Circuit Phone Jack
Two Conductor Fully Insulated Phone Jack
RCA Phono Jack
RCA Chassis Mount Phone Jack

CONNECTORS

Panel Mount AC Connector
UL Listed AC Chassis Mount Connector
UL Recognized Panel Mount AC Connector
European Type Panel Mount AC Connector
Chassis Mount AC Connector
Panel Mount Pin Socket with Metal Shell and Thermo Plastic Insert
5 Pin Printed Circuit Mount Din Socket
Panel Mount Coaxial Cable Connector Jack
Chassis Mount Coaxial Cable Connector Jack
Coaxial Cable Connector Adaptor
Right Angle Coaxial Cable Connector
Small Male Chassis Mount Microphone Connector
Small Female Microphone Connector
Standard Female Microphone Connector
Standard Chassis Mount Microphone Connector
"T" Coaxial Connector

COAXIAL CONNECTORS & ADAPTORS

BNC Male Connector
BNC Female Chassis Connector
BNC Receptacle
Double Female Adaptor
Double Male Adaptor
T-Connector 2 Female - 1 Male
BNC Male to UHF Female Adaptor

UHF Male - RCA Jack
UHF Female - F Plug
BNC Male - RCA Jack
BNC Male - F Jack

BNC Female to UHF Male Adaptor
BNC Male Connector
  Crimp to RG 58U, 59U Cable
Connector
  5.3ϕ Inside Dia. Meter
Connector
  9ϕ Inside Dia. Meter
Connector Push On Type

BNC Female - F Jack
BNC Female - F Plug
F Plug - RCA Jack
BNC Female - RCA Plug

Double Female Connector
Connector Solderless Type
Dummy Load W/Lamp
Chassis Connector
Receptacle
Universal Jack Adaptor
3.5mm Adaptor
T-Connector

MIC In-Line Socket
Lightning Arrestor
2.3.4.5.6 Pin MIC Plug
2.3.4.5.6 Pin MIC Socket

Right Angle Adaptor
Antenna Connector
  L-Type W/European Thread
Antenna Connector
  L-Type PL259 for RG 58U Cable
Quick DIS Connector
Double Male Connector

Standard MIC Connector
Standard Coaxial Plug for TV Antenna

SEE OUR OTHER CATALOG PAGES IN EEM SECTIONS 1300/2450/2950/4750/5600/6000

The products illustrated and listed are only a small representation of the full range of items available.

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CABLE: "SHOGYONEWYORK"
TELEX: 12218 + 4758024

CONNECTORS, PLUGS & CIRCUIT HARDWARE

TERMINAL BOARDS

4 Position Screw Terminal Board
2 Position Screw Terminal Board
3 Position Screw Terminal Board
1 Position Phono Jack Terminal Board
2 Position Phono Jack Terminal Board
4 Position Phono Jack Terminal Board
Solder Type Terminal Board
3 Position Phono Jack Terminal Board
5 Position Phono Jack Terminal Board
Screw Type Terminal Board
2 Position Push Terminal Board
3 Position Push Terminal Board
4 Position Push Terminal Board
Speaker Terminal Board

LAMP BRACKETS

Neon Lamp Bracket
Square Lens Neon Lamp Bracket
High Voltage Open Frame Lamp Bracket
High Voltage Closed Frame Lamp Bracket
Brown Lens Lamp Bracket
Miniature Lamp Bracket
Communication Type Lamp Bracket
Molded Lamp Bracket
Square Lens Lamp Bracket
Round Type Lamp Bracket
C Type Lamp Bracket
L Type Miniature Lamp Bracket
L Type Lamp Bracket

CABLE & CORD TERMINATIONS

2.5 mm Plug
3.5 mm Plug
Right Angle Plug
¼″ Phone Plug
¼″ Stereo Phone Plug
Molded RCA Male Plug
Molded RCA Female Jack
Photo Flash Male Connector
Photo Flash Female Connector
2 Pin Female Plug
3 Pin Female Plug
Polarizing Plug
Molded DIN Plug
European Plug
Right Angle European Plug
4 Way Combination Plug
Molded Strain Relief
DC Plug

ZIP & COIL CORDS

2 Conductor Zip Cord
RCA Phone Plug
2.5 mm 2 Conductor Zip Cord
DIN Plug Cord
2 Conductor Coil Cord
Molded RCA Phono Plug
Right Angle ¼″ Phone Plug
Right Angle RCA Phono Plug
3.5 mm 2 Conductor Zip Cord
Standard Female Microphone Connector Cable

FUSE HOLDERS

1 Piece In-Line Fuse Holder
Chassis Mount Fuse Holder
Miniature Fuse Holder
In-Line Fuse Holder
Screw Type Miniature Panel Fuse Holder

BINDING POSTS/ BARRIER STRIPS

Sub Miniature Binding Post
Miniature Binding Post
Communication Type Binding Post
Barrier Strip 2-15 Position
Barrier Strip W/Solder Terminals 2-15 Positions

TEST LEAD SETS

Solderless Banana Type Test Lead Set
Molded Handle Banana Plug Type Test Lead Set
Molded Handle Pin Type Test Lead Set
Alligator Clip Test Lead Set

LAMP BASES/ SOCKETS

Screw Type Lamp Base
Bayonet Type Lamp Base
Lamp Socket

CLIPS

Battery Clip
Alligator Clip

RETRACTABLE TELEPHONE CABLE

See our catalog page in Vol. 2, Section 6000.

MISCELLANEOUS

Miniature Consent Connector
Feeder Consent
Tube Socket
2 Pin Conversion Plug
TV-FM Feeder Cable Connector
Chassis Mount DIN Connector

SEE OUR OTHER CATALOG PAGES IN EEM SECTIONS 1300/2450/2950/4750/5600/6000

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INTERNATIONAL CORPORATION

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GREAT NECK, NEW YORK 11021
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CABLE: "SHOGYONEWYORK"
TELEX: 12218 + 4758024

BATTERY HOLDERS, SNAPS & HANDSTRAPS

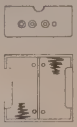
Standard lead length, 4". Also available with solder lugs. Dimensions shown are in millimeters.

The products illustrated and listed are only a small representation of the full range of items available.

D Cells

BH-1 for one cell

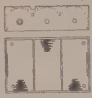
BH-2 for two cells


BH-3 for two cells

BH-4 for two cells

BH-5 for two cells

BH-6 for three cells


BH-7 for three cells

BH-8 for four cells

BH-9 for four cells

BH-10 for four cells

BH-11 for four cells

BH-12 for four cells

BH-13 for four cells

BH-14 for four cells

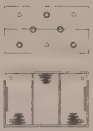
BH-15 for six cells

BH-16 for six cells

BH-17 for eight cells

BH-18 for eight cells

BH-19 for six cells


BH-20 for six cells

BH-21 for eight cells

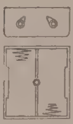
BH-22 for eight cells

BH-23 for one cell

BH-24 for two cells

C Cells

BH-25 for one cell


BH-26 for two cells

BH-27 for three cells

BH-28 for four cells

BH-29 for four cells

BH-30 for four cells

BH-31 for four cells

BH-32 for four cells

BH-33 for four cells

BH-34 for four cells

BH-35 for six cells

BH-36 for eight cells

BH-37 for one cell

BH-38 for two cells

BH-39 for two C cells and one 9V battery

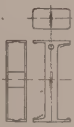
AA Cells

BH-40 for two cells

BH-41 for two cells

BH-42 for three cells

BH-43 for three cells

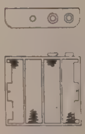

BH-44 for two cells

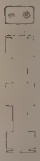
BH-45 for three cells

BH-46 for four cells

BH-47 for four cells

BH-48 for four cells

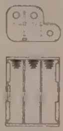

BH-49 for four cells


BH-50 for four cells

BH-51 for four cells

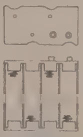
BH-52 for four cells

BH-53 for four cells

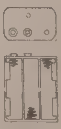

BH-54 for five cells

BH-55 for six cells

BH-56 for eight cells


BH-57 for eight cells

BH-58 for six cells


BH-59 for six cells

BH-60 for eight cells

BH-61 for ten cells

BH-62 for ten cells

BH-63 for one cell

Battery Snaps

Standard head length, 4"

SN-1 for BH-14
SN-2 for BH-16
SN-3 for BH-24
SN-4 for BH-24
SN-5 for lantern battery
SN-6 for 9V battery
SN-7 for 9V battery
SN-8 for 9V battery
SN-9 for 9V battery
SN-10 unmounted snaps
SN-11 separate snaps for 9V battery
SN-12 separate snaps for lantern battery
SN-14A for 9V battery
SN-14B for lantern batteries

Hand Straps

Available in nylon, vinyl and cloth. Length and attachment devices to your specifications.

HS-1 HS-2 HS-3 HS-4 HS-5 HS-6 HS-7 HS-8 HS-9 HS-10

Send for free, full line catalog: 516/466-0911.

SEE OUR OTHER CATALOG PAGES IN EEM SECTIONS 1300/2450/2950/4750/5600/6000

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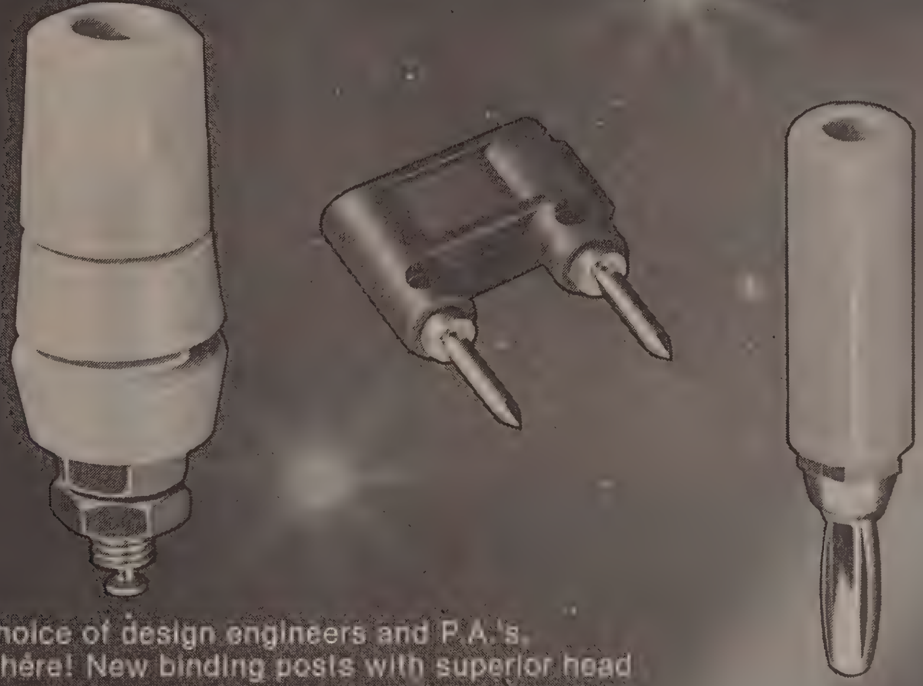
FUTURETECH™

Binding Posts, Plugs & Jacks



First choice of design engineers and P.A.'s, everywhere! New binding posts with superior head captivation, variety of platings, uncompromised reliability. New plugs & jacks — in standard, miniature and giant. . . insulated, non-insulated, solder and solderless. Need custom modifications? Specify Smith. Contact our "rep" or distributor.

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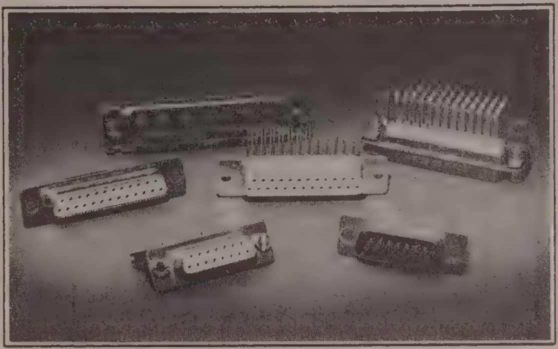
See EEM pages 2•1865 and 3•1303 for more HHSmith Products

SOURIAU CONNECTORS



D SUBMINIATURE CONNECTORS

- **D• M SERIES**
  Qualified to Mil-C-24308
  Layouts from 9 to 50 contacts
  Solder, P.C., High Power and Coax contact styles
  Monobloc DAP insulator
- **S• MA SERIES**
  Qualified to Mil-C-24308
  5 layouts — 9, 15, 25, 37 and 50 contacts
  Crimp contacts, Rear-release
  Monobloc DAP insulator
- **ORIGINAL D SERIES**
  Intermateable with Mil-C-24308 connectors
  Layouts from 9 to 50 contacts
  Solder, Wirewrap, Straight P.C. and Angled P.C. contact termination
  UL94VO approved insulator material
- **FRUGAL D SERIES**
  Intermateable with Mil-C-24308 connectors
  Low cost stamped and formed contacts
  Layouts 9, 15, 25, 37 and 50
  Solder and Straight P.C. contacts
  UL94VO approved insulator material
- **NORMAN D SERIES**
  Intermateable with Mil-C-24308 connectors
  Low cost crimp version
  Semi-automatic stripper/crimper machine for termination
  Layouts from 9 to 50 contacts
  UL94VO approved insulator material
- **ACCESSORIES**
  Designed for use with all Mil-C-24308 type connectors
  Junction shells, cable clamps, potting shells and locking assemblies available
  Plastic parts are made from UL94VO approved material

851/8526 CIRCULAR CONNECTORS

- **851 SOLDER SERIES**
  Qualified to Mil-C-26482 Series 1
  Shell sizes 8-24
  MS classes E, F and P
  Additional commercial classes available
- **851 CRIMP SERIES**
  Conforms to Mil-C-26482 Series 1
  Arrangements from 3 through 61 contacts
  MS classes E, F and P
  EMI/RFI shielding capability
- **851 WIREWRAP SERIES**
  Conforms to Mil-C-26482 Series 1
  Box Mount and Jam Nut shell styles
  Two and three level contact lengths
  Shell sizes 8-24
  Arrangements from 3 through 61 contacts
- **851 STRAIGHT P.C. SERIES**
  Conforms to Mil-C-26482 Series 1
  Box Mount and Jam Nut receptacles
  Two termination lengths
  Shell sizes 8-24
  Arrangements from 2-61 contacts
- **8526 SERIES**
  Qualified to Mil-C-26482 Series 2
  High temperature rating (200°C)
  Resistant to petroleum fluids
  Shell sizes 8 through 24
  Arrangements from 3 through 61 contacts
- **83723 SERIES**
  Conforms to Mil-C-83723 Series III
  Firewall capability (250°C)
  Fluid resistant
  Contact sizes from AWG #20 through AWG #12

For information on all Souriau products, please contact:

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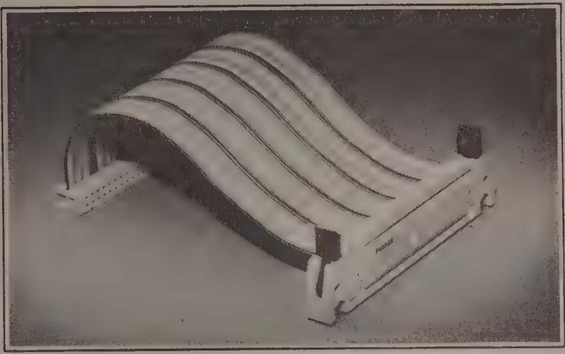
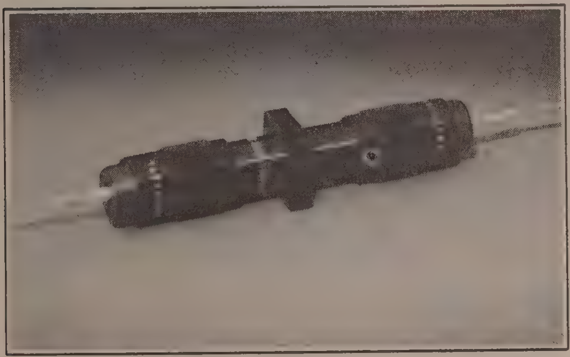
SOURIAU CONNECTORS



INSULATION DISPLACEMENT CONNECTORS

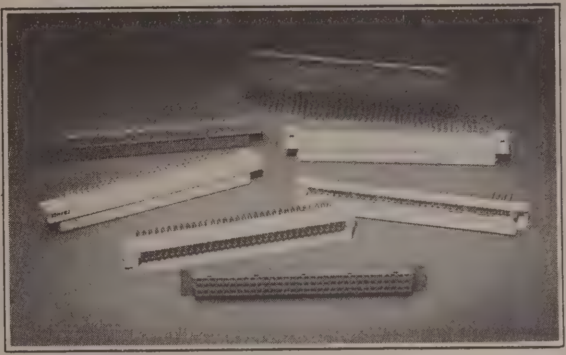
- **8613 SERIES**
  Conforms to Mil-C-83503
  Insulation Displacement termination
  Wirewrap, Straight P.C. and Angled P.C. also available
  Layout with 10, 14, 16, 20, 26, 34, 40 and 50 contacts



FIBER OPTIC CONNECTORS

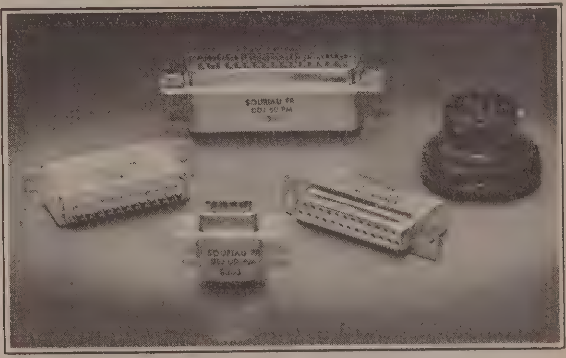
- **8016 SERIES — (PLASTIC)**
  Single channel — disconnectable connector system
  Low insertion loss (average 0.5 dB)
  3 Polarization and antirotation keys
  Replaceable spare probes
  Other configurations available

- **8005 SERIES — (FSMA TYPE)**
  Single channel connector system
  Two methods of termination (crimp/cleaving and crimp/polishing)
  Intermateable with competitive product of similar type
  Used with either 100/140μm or 200/280μm silica fibers



PRINTED CIRCUIT CONNECTORS

- **8609 SERIES**
  Qualified to DIN-41612/Mil-C-55302
  Contact layouts for 16, 32, 48, 64 and 96 terminations — .100" and .200" spacing
  Solder, Wirewrap, Straight P.C. and Angled P.C. contact styles
  Wide variety of accessory hardware
  Standard & reverse mounting
  Grounding pins and selective loading available
  Applications in computers, instrumentation control systems & telecommunications



EMI/RFI FILTER CONNECTORS

- Filtering of interferences at the input/output of electronic equipment
  Derived from standard specification Mil-C-24308
  Selection among 7 types of filters for the appropriate application
  Space savings and cost reduction as compared to discrete filters wired downstream of connector
  Filtered circular connectors also available

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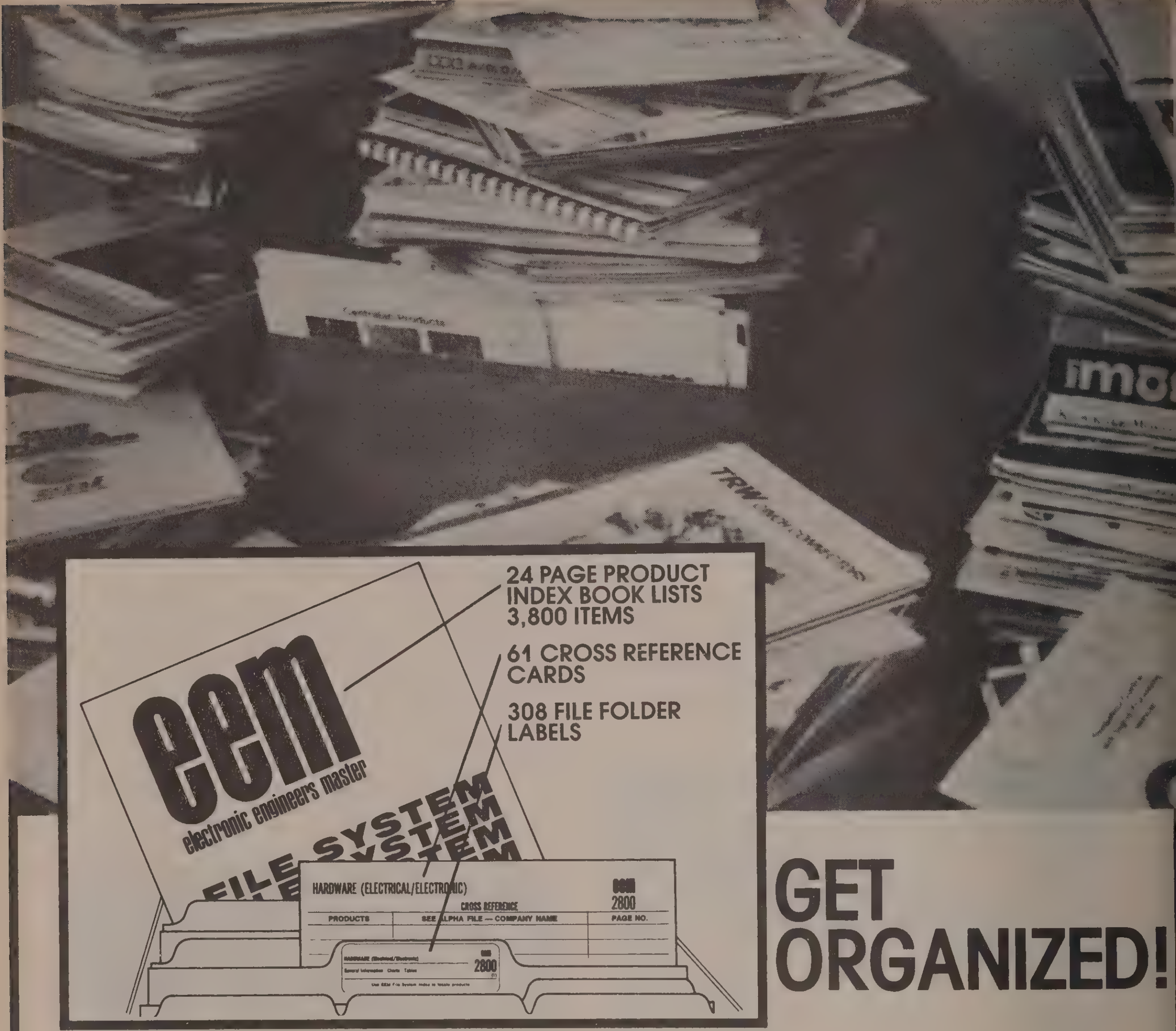
eem
electronic engineers master
FILE SYSTEM
HARDWARE (ELECTRICAL/ELECTRONIC)
CROSS REFERENCE
eem
2800
PRODUCTS
SEE ALPHA FILE — COMPANY NAME
PAGE NO.
TRW

24 PAGE PRODUCT INDEX BOOK LISTS 3,800 ITEMS

61 CROSS REFERENCE CARDS

308 FILE FOLDER LABELS

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SPECTRUM CONTROL INC.

IN STOCK

EMI FILTERED D SUBMINIATURE CONNECTORS

a cost effective way to comply with FCC, MIL-STD-461 A/B, VDE regulations

Spectrum's distributor stocked filtered connector product line is described in detail over the next few pages. All dimensions are shown in inches (metric equivalents in millimeters are in parentheses). Decimal tolerances, unless otherwise specified, are ±.015. All electrical engagement areas (plug and receptacle) are gold plated copper alloy. All terminations (printed circuit board right angle, solderless wire wrap and solder cup) are solderable. Shells are tinned aluminum. Insulators and right angle brackets are UL rated 94 V-0. Radio frequency ground contact from the connector shell to the mating connector is assured by a coaxial spring clip on the pin side of the plug, the socket side of the receptacle and both pin and socket sides of the adaptor. EMI filter types specified are either Pi-Section (Pi) or Feed-through (FT).

EMI FILTER PERFORMANCE

Filter Designation	Filter Circuits	Capacitance		3 dB Max Cut-Off Frequency (MHz)	Dielectric W'Standing Voltage	Contact Rating	Contact Resist.	Working Voltage DC	Minimum Insertion Loss — Decibels (dB)							
		Value	Tolerance					-55°C to +125°C	5 MHz	10 MHz	20 MHz	50 MHz	100 MHz	200 MHz	500 MHz	1 GHz
A	Pi	310 pF	±20%	17	300V	5A	.010 Max.	100V	—	—	—	5	10	18	39	52
C	Pi	1000pF	+100 -0%	3.2	300V	5A	.010 Max.	100V	—	5	9	15	25	43	65	70
E	Pi	4000 pF	+100 -0%	0.8	150V	5A	.010 Max.	50V	8	13	18	31	46	60	75	75
F	FT	830 pF	±20%	6.4	600V	5A	.010 Max.	200V	—	3	6	12	17	23	30	35

Engineering Bulletin 27-0027-53 Rev. 1 describes Spectrum's complete filtered D connector.

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SEE SPECTRUM'S EMI FILTERS AND CAPACITORS IN EEM SECTION 2700 PAGES **1A**•1625 TO **1A**•1627

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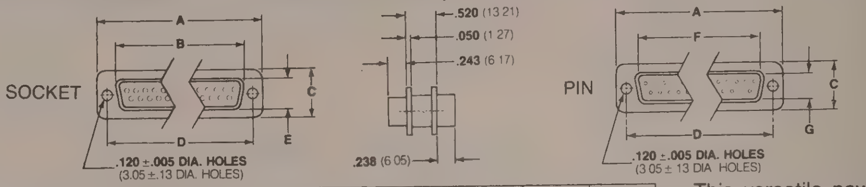
EMI FILTERED D SUBMINIATURE CONNECTORS

EMI FILTERED CONNECTOR ADAPTOR: PIN/SOCKET (PLUG/RECEPTACLE)

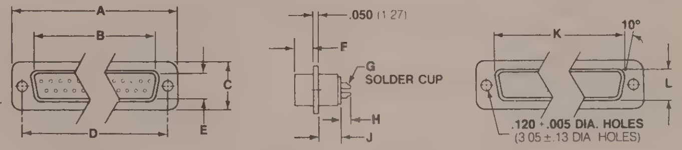


SHELL SIZE	SCI PART NUMBER	FILTER TYPE	A	B	C	D	E	F	G
9	56-705-001 56-705-003 56-705-005 56-705-008	A C E F	1.213 (30.81)	.640 (16.26)	.494 (12.55)	.984 (24.99)	.308 (7.82)	.666 (16.92)	.329 (8.36)
15	56-715-001 56-715-003 56-715-005 56-715-007	A C E F	1.541 (39.14)	.968 (24.59)	.494 (12.55)	1.312 (33.32)	.308 (7.82)	.994 (25.25)	.329 (8.36)
25	56-725-001 56-725-003 56-725-005 56-725-019	A C E F	2.088 (53.04)	1.508 (38.30)	.494 (12.55)	1.852 (47.04)	.308 (7.82)	1.534 (38.96)	.329 (8.36)
37	56-735-001 56-735-003 56-735-005 56-735-008	A C E F	2.729 (69.32)	2.156 (54.76)	.494 (12.55)	2.500 (63.50)	.308 (7.82)	2.182 (55.42)	.329 (8.36)
50*	56-745-001 56-745-003 56-745-005 56-745-006	A C E F	2.635 (66.93)	2.062 (52.37)	.605 (15.37)	2.406 (61.11)	.420 (10.67)	2.079 (52.81)	.436 (11.07)

This versatile new idea fills a variety of needs. Several OEM's are using the product to avoid costly system redesign while some consumers of personal computers are using the adaptor to eliminate troublesome field 'glitches'. The adaptor also features a coaxial grounding system to insure that proper filtering is achieved.

IN STOCK

SOLDER CUP TERMINATION: PIN CONTACT (PLUG)



SHELL SIZE	SCI PART NUMBER	FILTER TYPE		A	B	C	D	E	F	G	H	J	K	L
9	56-701-011 56-701-013 56-701-015 56-701-040	A C E F	PIN	1.213 (30.81)	.666 (16.92)	.494 (12.55)	.984 (24.99)	.329 (8.36)	.238 (6.05)	SOLDER CUP	.125 (3.18)	.358 (9.09)	.757 (19.23)	.420 (10.67)
15	56-711-011 56-711-013 56-711-015 56-711-040	A C E F	PIN	1.541 (39.14)	.994 (25.25)	.494 (12.55)	1.312 (33.32)	.329 (8.36)	.238 (6.05)	SOLDER CUP	.125 (3.18)	.358 (9.09)	1.085 (27.56)	.420 (10.67)
25	56-721-011 56-721-013 56-721-015 56-721-045	A C E F	PIN	2.088 (53.04)	1.534 (38.96)	.494 (12.55)	1.852 (47.04)	.329 (8.36)	.238 (6.05)	SOLDER CUP	.125 (3.18)	.358 (9.09)	1.625 (41.28)	.420 (10.67)
37	56-731-011 56-731-013 56-731-015 56-731-040	A C E F	PIN	2.729 (69.32)	2.182 (55.42)	.494 (12.55)	2.500 (62.50)	.329 (8.36)	.238 (6.05)	SOLDER CUP	.125 (3.18)	.358 (9.09)	2.273 (57.73)	.420 (10.67
50*	56-741-011 56-741-013 56-741-015 56-741-039	A C E F	PIN	2.635 (66.93)	2.079 (52.81	.605 (15.37)	2.406 (61.11)	.436 (11.07)	.238 (6.05)	SOLDER CUP	.125 (3.18)	.358 (9.09)	2.170 (55.12)	.527 (13.39)

See page 4 for performance characteristics of filter types.

*Shell size 50 has three rows of terminations, shell sizes 9 through 37 have two rows of terminations as depicted.

For Panel Cutouts see page 8.

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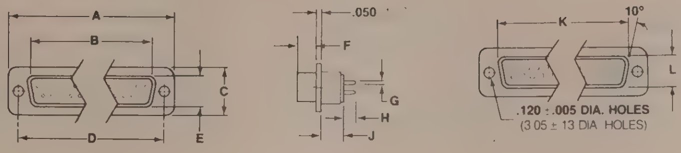
EMI FILTERED D SUBMINIATURE CONNECTORS

SOLDERLESS WIRE WRAP:

SOCKET CONTACT (RECEPTACLE)

PIN CONTACT (PLUG)

IN STOCK



SHELL SIZE	SCI PART NUMBER	FILTER STYLE		A	B	C	D	E	F	G	H	J	K	L
9	56-703-011 56-703-013 56-703-015 56-703-025	A C E F	SOCKET	1.213 (30.81)	.640 ((16.26) OUTSIDE	.494 (12.55)	.984 (24.99)	.308 (7.82) OUTSIDE	.243 (6.17)	.025 SQ (64 SQ)	.250 (6.35)	.375 (9.53)	.757 (19.23)	.420 (10.67)
	56-701-017 56-701-019 56-701-021 56-701-031	A C E F	PIN	1.213 (30.81)	.666 (16.92) INSIDE	.494 (12.55)	.984 (24.99)	.329 (8.36) INSIDE	.238 (6.05)	.025 SQ (.64 SQ)	.225 (5.72)	.358 (9.09)	.757 (19.23)	.420 (10.67)
15	56-713-011 56-713-013 56-713-015 56-713-024	A C E F	SOCKET	1.541 (39.14)	.968 (24.59) OUTSIDE	.494 (12.55)	1.312 (33.32)	.308 (7.82) OUTSIDE	.243 (6.17)	.025 SQ (.64 SQ)	.250 (6.35)	.375 (9.53)	1.085 (27.56)	.420 (0.67)
	56-711-018 56-711-020 56-711-022 56-711-031	A C E F	PIN	1.541 (39.14)	.994 (25.25) INSIDE	.494 (12.55)	1.312 (33.32)	.329 (8.36) INSIDE	.238 (6.05)	.025 SQ (.64 SQ)	.225 (5.72)	.358 (9.09)	1.085 (27.56)	.420 (10.67)
25	56-723-012 56-723-014 56-723-016 56-723-026	A C E F	SOCKET	2.088 (53.04)	1.508 (38.30) OUTSIDE	.494 (12.55)	1.852 (47.04)	.308 (7.82) OUTSIDE	.243 (6.17)	.025 SQ (.64 SQ)	.250 (6.35)	.375 (9.53)	1.625 (41.28)	.420 (10.67)
	56-721-024 56-721-026 56-721-027 56-721-036	A C E F	PIN	2.088 (53.04)	1.534 (38.96) INSIDE	.494 (12.55)	1.852 (47.04)	.329 (8.36) INSIDE	.238 (6.05)	.025 SQ (.64 SQ)	.225 (5.72)	.358 (9.09)	1.625 (41.28)	.420 (10.67)
37	56-733-011 56-733-013 56-733-015 56-733-024	A C E F	SOCKET	2.729 (69.32)	2.156 (54.76) OUTSIDE	.494 (12.55)	2.500 (63.50)	.308 (7.82) OUTSIDE	.243 (6.17)	.025 SQ (.64 SQ)	.250 (6.35)	.375 (9.53)	2.273 (57.73)	.420 (10.67)
	56-731-018 56-731-020 56-731-022 56-731-031	A C E F	PIN	2.729 (69.32)	2.182 (55.42) INSIDE	.494 (12.55)	2.500 (62.50)	.329 (8.36) INSIDE	.238 (6.05)	.025 SQ (.64 SQ)	.225 (5.72)	.358 (9.09)	2.273 (57.73)	.420 (10.67)
50*	56-743-011 56-743-013 56-743-015 56-743-024	A C E F	SOCKET	2.635 (66.93)	2.062 (52.37) OUTSIDE	.605 (15.37)	2.406 (61.11)	.420 (10.67) OUTSIDE	.243 (6.17)	.025 SQ (.64 SQ)	.250 (6.35)	.375 (9.53)	2.170 (55.12)	.527 (13.39)
	56-741-017 56-741-019 56-741-021 56-741-030	A C E F	PIN	2.635 (66.93)	2.079 (52.81) INSIDE	.605 (15.37)	2.406 (61.11)	.436 (11.07) INSIDE	.238 (6.05)	.025 SQ (.64 SQ)	.225 (5.72)	.358 (9.09)	2.170 (55.12)	.527 (13.39)

The wrap post termination tail will accommodate #28 or #30 AWG rigid wire.

See page 4 for performance characteristics of filter types.

* Shell size 50 has three rows of terminations, shell sizes 9 through 37 have two rows of terminations as depicted.

For Panel Cutouts see page 8.

THE PRODUCTS ON THIS PAGE ARE IN STOCK AT SPECTRUM AUTHORIZED DISTRIBUTORS

SPECTRUM CONTROL INC.

Since 1968 . . . . Making Technology Compatible With Technology

2185 West Eighth St., Erie, PA 16505 Phone (814) 455-0966 TWX 510-699-6871

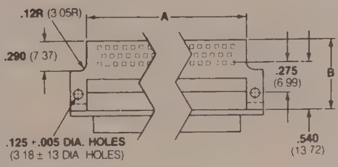
EMI FILTERED D SUBMINIATURE CONNECTORS

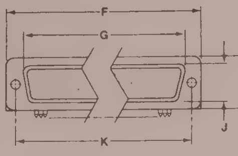
PRINTED CIRCUIT RIGHT ANGLE MOUNT:

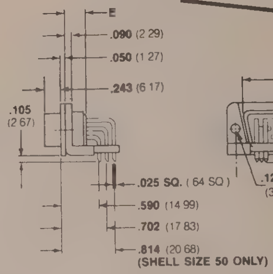
SOCKET CONTACT (RECEPTACLE)

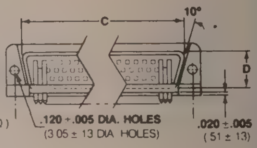
PIN CONTACT (PLUG)

IN STOCK









SHELL SIZE	SCI PART NUMBER	FILTER STYLE		A	B	C	D	E	F	G	H	J	K
9	56-704-001 56-704-003 56-704-005 56-704-007	A C E F	SOCKET	.618 (15.70)	.740 (18.80)	.757 (19.23)	.420 (10.67)	.375 (9.53)	1.213 (30.81)	.640 (16.26) OUTSIDE	.494 (12.55)	.308 (7.82) OUTSIDE	.984 (24.99)
	56-702-001 56-702-003 56-702-005 56-702-007	A C E F	PIN	.618 (15.70)	.740 (18.80)	.757 (19.23)	.420 (10.67)	.358 (9.09)	1.213 (30.81)	.666 (16.92) INSIDE	.494 (12.55)	.329 (8.36) INSIDE	.984 (24.99)
15	56-714-001 56-714-003 56-714-005 56-714-006	A C E F	SOCKET	.942 (23.93)	.740 (18.80)	1.085 (27.56)	.420 (10.67)	.375 (9.53)	1.541 (39.14)	.968 (24.59) OUTSIDE	.494 (12.55)	.308 (7.82) OUTSIDE	1.312 (33.32)
	56-712-001 56-712-003 56-712-005 56-712-007	A C E F	PIN	.942 (23.93)	.740 (18.80)	1.085 (27.56)	.420 (10.67)	.358 (9.09)	1.541 (39.14)	.994 (25.25) INSIDE	.494 (12.55)	.329 (8.36) INSIDE	1.312 (33.32)
25	56-724-001 56-724-003 56-724-005 56-724-008	A C E F	SOCKET	1.490 (37.85)	.740 (18.80)	1.625 (41.28)	.420 (10.67)	.375 (9.53)	2.088 (53.04)	1.508 (38.30) OUTSIDE	.494 (12.55)	.308 (7.82) OUTSIDE	1.852 (47.04)
	56-722-001 56-722-003 56-722-005 56-722-008	A C E F	PIN	1.490 (37.85)	.740 (18.80)	1.625 (41.28)	.420 (10.67)	.358 (9.09)	2.088 (53.04)	1.534 (38.96) INSIDE	.494 (12.55)	.329 (8.36) INSIDE	1.852 (47.04)
37	56-734-001 56-734-003 56-734-005 56-734-006	A C E F	SOCKET	2.142 (54.41)	.740 (18.80)	2.273 (57.73)	.420 (10.67)	.375 (9.53)	2.729 (69.32)	2.156 (54.76) OUTSIDE	.494 (12.55)	.308 (8.36) OUTSIDE	2.500 (63.50)
	56-732-001 56-732-003 56-732-005 56-732-006	A C E F	PIN	2.142 (54.41)	.740 (18.80)	2.273 (57.73)	.420 (10.67)	.358 (9.09)	2.729 (69.32)	2.182 (55.42) INSIDE	494 (12.55)	.329 (8.36) INSIDE	2.500 (63.50)
50*	56-744-001 56-744-003 56-744-005 56-744-006	A C E F	SOCKET	2.038 (51.77)	.850 (21.84)	2.170 (55.12)	.527 (13.39)	.375 (9.53)	2.635 (66.93)	2.062 (52.37) OUTSIDE	.605 (15.37)	.420 (10.67) OUTSIDE	2.406 (61.11)
	56-742-001 56-742-003 56-742-005 56-742-006	A C E F	PIN	2.038 (51.77)	.850 (21.84)	2.170 (55.12)	.527 (13.39)	.358 (9.09)	2.635 (66.93)	2.079 (52.81) INSIDE	.605 (15.37)	.436 (11.07) INSIDE	2.406 (61.11)

See page 4 for performance characteristics of filter types.

*Shell size 50 has three rows of terminations, shell sizes 9 through 37 have two rows of terminations.

For Panel Cutouts see page 8.

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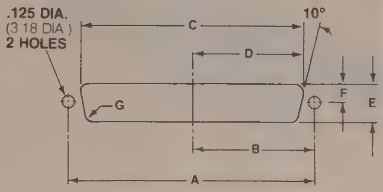
EMI FILTERED D SUBMINIATURE CONNECTORS

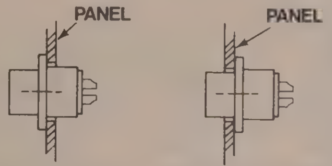
MOUNTING CONSIDERATIONS

PANEL CUTOUTS

Shell Size	Mounting Method*	A ±.005(0,13)	B ±.005(0,13)	C ±.005(0,13)	D ±.005(0,13)	E ±.005(0,13)	F ±.005(0,13)	G ±.002(0,05)
9	Front Mounting	984(24.99)	492(12,49)	.777(19,74)	.388(9,87)	.440(11,18)	.220(5,59)	.150(3,81)
	Rear Mounting	984(24.99)	.492(12,49)	660(16.76)	.330(8,38)	.360(9,14)	.180(4,57)	.110(2,79)
15	Front Mounting	1 312(33 32)	656(16.66)	1.105(28,07)	.552(14,03)	.440(11,18)	220(5,59)	.150(3,81)
	Rear Mounting	1 312(33.32)	656(16,66)	988(25,10)	.494(12,55)	.360(9,14)	.180(4,57)	.110(2,79)
25	Front Mounting	1.852(47,04)	.926(23,52)	1.645(41,78)	.822(20,89)	.440(11,18)	.220(5,59)	.150(3,81)
	Rear Mounting	1.852(47,04)	.926(23,52)	1.528(38,81)	.764(19,41)	.360(9,14)	.180(4,57)	.110(2,79)
37	Front Mounting	2.500(63,50)	1.250(31,75)	2,293(58,24)	1.146(29,12)	.440(11,18)	.220(5,59)	.150(3,81)
	Rear Mounting	2.500(63,50)	1.250(31,75)	2.176(55,27)	1.088(27,63)	.360(9,14)	.180(4,57)	.110(2,79)
50	Front Mounting	2.406(61,11)	1.203(30,55)	2.190(55,63)	1.095(27,81)	.550(13,97)	.275(6,98)	.150(3,81)
	Rear Mounting	2.406(61,11)	1.203(30,55)	2.082(52,88)	1.042(26,47)	.470(11,94)	.235(5,97)	.110(2,79)

*When Rear Mounting Pin (Plug) Connector use Front Mounting Panel Cutout

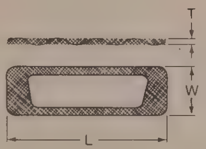




FRONT MOUNTING REAR MOUNTING

KNITTED WIRE GASKETS . . . FOR COMPLETE EMI PROTECTION

Shell Size	Mounting Configuration	L Max	W Max	T Max Free State	Spectrum Control Part No
9	FRONT PIN FRONT SOCKET	1 213(30 81)	600(15 24)	030(0 76.	572519 00100 34
	REAR PIN	1 213(30 81)	600(15 24)	030(0 76)	572519 00105 34
	REAR SOCKET	1 213 (30 81)	600(15 24)	030(0 76)	572519 00110-34
15	FRONT PIN FRONT SOCKET	1 541(38 46)	600(15 24)	030(0 76)	572519 00101 34
	REAR PIN	1 541(38 46)	600(15 24)	030(0 76)	572519 00106 34
	REAR SOCKET	1 541(38 46)	600(15 24)	030(0 76)	572519-00111 34
25	FRONT · PIN FRONT SOCKET	2 088(53 04)	600(15 24)	030(0 76)	572519 00102 34
	REAR PIN	2 088(53 04)	600(15 24)	030(0 76)	572519 00107 34
	REAR SOCKET	2 088(53 04)	600(15 24)	030(0 76)	572519 00112 34
37	FRONT PIN FRONT SOCKET	2 729(69 32)	600(15 24)	030(0 76)	572519 00103 34
	REAR PIN	2 729(69 32)	600(15 24)	030(0 76)	572519 00108 34
	REAR SOCKET	2 729(69 32)	600(15 24)	030(0 76,	572519 00113 34
50	FRONT PIN FRONT SOCKET	2 635(66 93	710(18 03	030(0 76)	572519 00104 34
	REAR PIN	2 635(66 93)	710(18 03)	030(0 76)	572519 00109 34
	REAR SOCKET	2 635(66 93)	710(18 03)	030(0 76)	572519 00114 34



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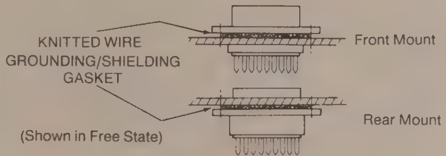
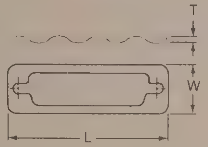
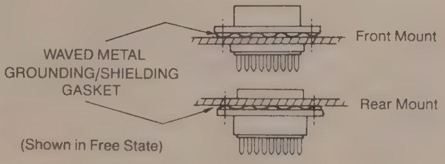


(Shown in Free State)

WAVED METAL GASKETS . . . FOR COMPLETE EMI PROTECTION

Shell Size	Mounting Configuration	L	W	T Free State	T Compressed	Spectrum Contro Part No
9	FRONT PIN FRONT SOCKET REAR PIN	1 213(30 81)	600(15 24)	030(0 76)	005(0 13)	572019 00100 70
	REAR SOCKET	1 213(30 81)	600(15 24)	030(0 76)	005(0 13)	572019 00105 70
15	FRONT PIN FRONT SOCKET REAR PIN	1 541(38 46)	600(15 24)	030(0 76)	005(0 13)	572019 00101 70
	REAR SOCKET	1 541(38 46)	600(15 24)	030(0 76)	005(0 13)	572019 00106 70
25	FRONT PIN FRONT SOCKET REAR PIN	2 088(53 04)	600(15 24)	030(0 76)	005(0 13)	572019 00102 70
	REAR SOCKET	2 088(53 04)	600(15 24)	030(0 76)	005(0 13,	572019 00107 70
37	FRONT PIN FRONT SOCKET REAR PIN	2 729(69 32)	600(15 24)	030(0 76.	005(0 13)	572019 00103 70
	REAR SOCKET	2 729(69 32)	600(15 24)	030(0 76)	005(0 13)	572019 00108 70
50	FRONT PIN FRONT SOCKET REAR PIN	2 635(66 93)	710(18 03)	030(0 76)	005(0 13)	572019 00104 70
	REAR SOCKET	2 635(66 93)	710(18 03)	030(0 76)	005(0 13)	[illegible] 00109 [illegible]





(Shown in Free State)

Proper mounting of any EMI filter — including the EMI filtered D Subminiature — is critical to the achievement of electromagnetic compatibility. The mounting surface for grounding the connector must be free from paint or any other insulating material. The sketches above indicate the use of one of Spectrum's EMI gaskets to fill any tolerance gaps and adjust for irregularities in the flatness of the mounting surface.

Spectrum Control fabricates a full line of gasket and shielding materials for EMI purposes, as well as environmental needs. Indicate front or rear mounting by part number described above.

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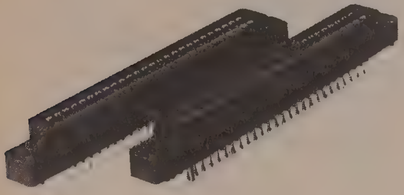
Sullins ELECTRONICS CORP. / PRINTED CIRCUIT CONNECTORS

EZ SERIES—LOW PROFILE DIP SOLDER/ EYELET



FEATURES

- Insulation Resistance: 5,000 Megohms
- Solvent Resistance: Perchloroethylene Freon 113, Freon 11, Trichloroethylene
- Rated Voltage (At sea level): 600 VDC, 800 VDC, 1800 VDC, for contact centers of .100, .125, .156, respectively
- Current Rating: 3 amperes
- Voltage Drop: 30 MV at rated current
- Contact Resistance: 10 milliohms maximum
- Operating Temperature: −65°C to +125°C For Standard Valox with Phosphor Bronze
- Board Insertion Force: 16 ozs maximum per contact pair using .062 steel test blade
- Board Withdrawal Force: 1 oz minimum per contact pair using .062 steel test blade
- Accommodates .062 PC board
- Bifurcated full bellows contacts

MATERIALS

- Insulator: Glass filled thermoplastic polyester (Blue Valox*) or polyphenylene sulfide (green Ryton*)
- Contacts: Copper alloy contacts with gold over nickel plating on contact surface; tin/lead or gold over nickel on the tail

* (Trademarks: General Electric Valox, Philips 66 Ryton)

POLARIZATION KEYS

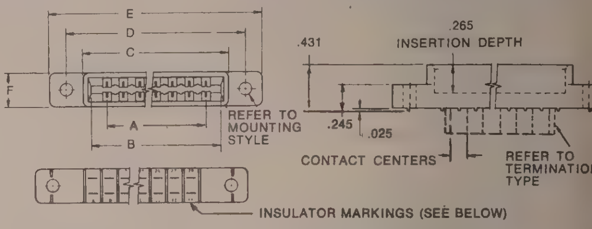
- P/N PLA-K1 for .100 centers between contact key
- P/N PLA-K1 for .125 centers between contact key
- P/N PLM-K1 for .156 centers between contact k
- P/N PLM-K2 for .156 centers in position key

DIMENSIONS

	Part Number†	No. of Contacts	Contact ID TYPE	A	B	C	D	E	F	G
.100 CONTACT CENTERS	EZC05D	5/10	1	0.400	0.600	0.775	1.075	1.375	.330	.100
	EZC06D _ _	6/12	1	0.500	0.700	0.875	1.175	1.475	.330	.100
	EZC08D _ _	8/16	1	0.700	0.900	1.075	1.375	1.675	.330	.100
	EZC10D _ _	10/20	1	0.900	1.100	1.275	1.575	1.875	.330	.100
	EZC12D _ _‡	12/24	1	1.100	1.300	1.475	1.775	2.075	.330	.100
	EZC13D _ _	13/26	1	1.200	1.400	1.575	1.875	2.175	.330	.100
	EZC15D _ _	15/30	1	1.400	1.600	1.775	2.075	2.375	.330	.100
	EZC18D _ _	18/36	1	1.700	1.900	2.075	2.375	2.675	.330	.100
	EZC19D _ _	19/38	1	1.800	2.000	2.175	2.475	2.775	.330	.100
	EZC20D _ _	20/40	1	1.900	2.100	2.275	2.575	2.875	.330	.100
	EZC22D _ _	22/44	1	2.100	2.300	2.475	2.775	3.075	.330	.100
	EZC25D _ _	25/50	1	2.400	2.600	2.775	3.075	3.375	.330	.100
	EZC26D _ _	26/52	1	2.500	2.700	2.875	3.175	3.475	.330	.100
	EZC28D _ _	28/56	1	2.700	2.900	3.075	3.375	3.675	.330	.100
	EZC30D _ _	30/60	1	2.900	3.100	3.275	3.575	3.875	.330	.100
	EZC31D _ _	31/62	1	3.000	3.200	3.375	3.675	3.975	.330	.100
	EZC35D _ _	35/70	1	3.400	3.600	3.775	4.075	4.375	.400	.100
	EZC36D _ _	36/72	1	3.500	3.700	3.875	4.175	4.475	.400	.100
	EZC40D _ _	40/80	1	3.900	4.100	4.275	4.575	4.875	.400	.100
	EZC43D _ _	43/86	1	4.200	4.400	4.575	4.875	5.175	.400	.100
	EZC44D _ _	44/88	1	4.300	4.500	4.675	4.975	5.275	.400	.100
	EZC49D _ _‡	49/98	1	4.800	5.000	5.175	5.475	5.775	.400	.100
	EZC50D _ _	50/100	1	4.900	5.100	5.275	5.575	5.875	.400	.100
	EZC60D _ _	60/120	1	5.900	6.100	6.275	6.575	6.875	.400	.100
.125 CONTACT CENTERS	EZA06D _ _	6/12	2	0.625	0.875	1.035	1.295	1.575	.330	.125
	EZA10D _ _	10/20	2	1.125	1.375	1.535	1.795	2.075	.330	.125
	EZA14D _ _‡	14/28	2	1.625	1.875	2.035	2.295	2.575	.330	.125
	EZA15D _ _	15/30	2	1.750	2.000	2.160	2.420	2.700	.330	.125
	EZA18D _ _	18/36	2	2.125	2.375	2.535	2.795	3.075	.330	.125
	EZA22D _ _	22/44	2	2.625	2.875	3.035	3.295	3.575	.330	.125
	EZA28D _ _	28/56	2	3.375	3.625	3.785	4.045	4.325	.330	.125
	EZA30D _ _	30/60	2	3.625	3.875	4.035	4.295	4.575	.330	.125
	EZA31D _ _	31/62	2	3.750	4.000	4.160	4.420	4.700	.330	.125
	EZA35D _ _	35/70	2	4.250	4.500	4.660	4.920	5.200	.330	.125
	EZA36D _ _	36/72	2	4.375	4.625	4.785	5.045	5.325	.330	.125
	EZA37D _ _‡	37/74	2	4.500	4.750	4.910	5.170	5.450	.330	.125
	EZA40D _ _	40/80	2	4.875	5.125	5.285	5.545	5.825	.370	.125
	EZA43D _ _	43/86	2	5.250	5.500	5.660	5.920	6.200	.370	.125
	EZA44D _ _	44/88	2	5.375	5.625	5.785	6.045	6.325	.370	.125
	EZA49D _ _‡	49/98	2	6.000	6.250	6.410	6.670	6.950	.370	.125
	EZA50D _ _	50/100	2	6.125	6.375	6.535	6.795	7.075	.370	.125
.156 CONTACT CENTERS	EZM06D _ _	6/12	3	0.780	1.100	1.220	1.533	1.783	.325	.156
	EZM08D _ _	8/16	3	1.092	1.412	1.532	1.845	2.095	.325	.156
	EZM10D _ _	10/20	3	1.404	1.724	1.844	2.157	2.407	.325	.156
	EZM11D _ _	11/22	3	1.560	1.880	2.000	2.313	2.563	.325	.156
	EZM12D _ _	12/24	3	1.716	2.036	2.156	2.469	2.719	.325	.156
	EZM15D _ _	15/30	3	2.184	2.504	2.624	2.937	3.187	.325	.156
	EZM18D _ _	18/36	3	2.652	2.972	3.092	3.405	3.655	.325	.156
	EZM22D _ _	22/44	3	3.276	3.596	3.716	4.029	4.280	.325	.156
	EZM24D _ _	24/48	3	3.588	3.908	4.028	4.341	4.591	.325	.156
	EZM25D _ _	25/50	3	3.744	4.064	4.184	4.497	4.747	.325	.156
	EZM28D _ _	28/56	4	4.212	4.532	4.652	4.964	5.215	.438	.156
	EZM36D _ _	36/72	4	5.460	5.780	5.906	6.219	6.463	.438	.156
	EZM43D _ _	43/86	4	6.552	6.872	7.000	7.302	7.555	.500	.156

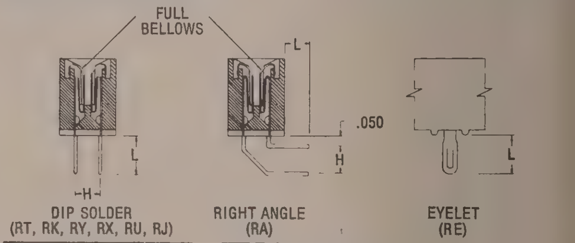
† For complete part number, add termination type and mounting style from PART NUMBER CODING (e.g.: EZC22DRTH).

‡ Consult Factory for availability.



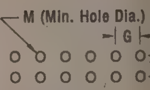
CONTACT ID TYPE	INSULATOR MARKINGS LETTERS G, I, 0 & Q NOT USED
1	B 1 2 .... 23 24 .... 45 46 .... B A 1 2 .... 23 24 .... 45 46 .... A
2	1 2 .... 23 24 .... 45 46 .... A B .... a b .... AA BB ....
3	1 2 .... 23 24 .... 45 46 .... A B .... AA BB .... a b ....
4	1 2 .... 23 24 .... 45 46 .... A B .... A B .... a b ....

TERMINATION TYPE



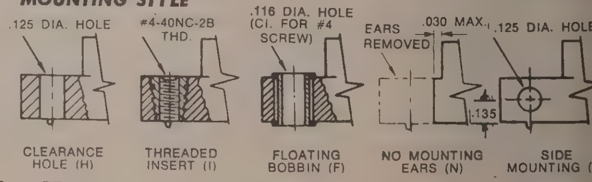
.100 & .125 Centers			
CODE	H	L	M
RT	.140	.200	.043
RY	.140	.440	.043
RX	.200	.185	.043
RJ	.250	.165	.043
RA	.156	.125	.043
RE	.140	.200	N/A

.156 Centers			
CODE	H	L	M
RT	.140	.137	.051
RK	.140	.225	.051
RY	.140	.422	.051
RX	.200	.137	.051
RU	.200	.225	.051
RA	.156	.125	.051
RE	.140	.225	N/A



PCB LAYOUT

MOUNTING STYLE



PART NUMBER CODING

EXAMPLE: E Z C 22 D RT H

MATERIALS
E = Valox/Phospher Bronze (Standard)
R = Ryton/Phosphor Bronze (Special)
H = Valox/Beryllium Copper (Special)
A = Ryton/Beryllium Copper (Special)

PLATING

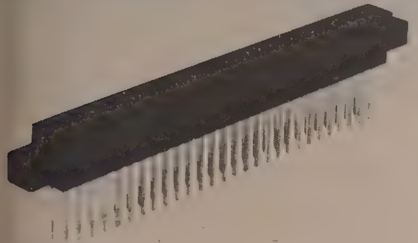
Contact Surface	Termination
Z = .000010 Gold	.000100 Tin/Lead
X = .000030 Gold	.000100 Tin/Lead
G = .000010 Gold	.000005 Gold
Y = .000030 Gold	.000005 Gold

MOUNTING (SEE ABOVE) — H, I, F, N, or S
TERMINATION TYPE (SEE TABLE) RA, RE, RT, RK, RY, RX, RU, or RJ
READOUT — D = Dual
NUMBER OF POSITION — 06 thru 60
CONTACT CENTERS — C = .100, A = .125, M = .15

SULLINS ELECTRONICS CORPORATION / P.O. Box 189, San Marcos, CA 92069 / (619) 744-0125 / TWX 910-322-1472

Sullins ELECTRONICS CORP. / PRINTED CIRCUIT CONNECTORS

EZ SERIES—HIGH PROFILE DIP SOLDER/WIRE WRAP*



FEATURES

- Insulation Resistance: 5,000 Megohms
- Solvent Resistance: Perchloroethylene Freon 113, Freon 11, Trichloroethylene
- Rated Voltage (At set level): 600 VDC, 800 VDC, 1800 VDC, for contact centers of .100, .125, .156, respectively
- Current Rating: 3 amperes

MATERIALS

- Insulator: Glass filled thermoplastic polyester (Blue Valox)
- Contacts: Phosphor Bronze contacts with gold or tin/lead over nickel plating

* Trademark of Gardner Denver

- Voltage Drop: 30 MV at rated current
- Contact Resistance: 10 milliohms maximum
- Operating Temperature: −65°C to +125°C
- Board Insertion Force: 16 ozs maximum per contact pair using .062 steel test blade
- Board Withdrawal Force: 1 oz minimum per contact pair using .062 steel test blade
- Accommodates .062 PC board
- Bifurcated bellows contacts

POLARIZATION KEYS

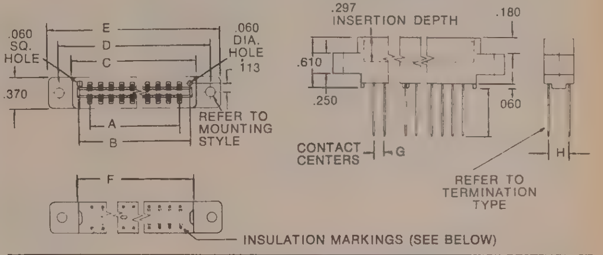
- P/N PLC-K1 (Order separately) for between contact polarization

DIMENSIONS

	Part Number*	No. of Contacts	Contact ID TYPE	A	B	C	D	E	F	G	H
.100 CONTACT CENTERS	EZC 08D	8/16	5	0.700	0.800	0.960	1.275	1.635	0.950	.100	.200
	EZC 10D _ _	10/20	5	0.900	1.000	1.260	1.575	1.835	1.150	.100	.200
	EZC 12D _ _	12/24	5	1.100	1.300	1.460	1.775	2.035	1.350	.100	.200
	EZC 15D _ _	15/30	5	1.400	1.600	1.760	2.075	2.335	1.650	.100	.200
	EZC 17D	17/34	5	1.600	1.700	1.860	2.175	2.535	1.850	.100	.200
	EZC 18D _ _	18/36	5	1.700	1.900	2.060	2.375	2.635	1.950	.100	.200
	EZC 20D _ _	20/40	5	1.900	2.100	2.260	2.575	2.835	2.150	.100	.200
	EZC 22D _ _	22/44	5	2.100	2.300	2.460	2.775	3.035	2.350	.100	.200
	EZC 25D _ _	25/50	5	2.400	2.600	2.760	3.075	3.335	2.650	.100	.200
	EZC 28D _ _	28/56	5	2.700	2.900	3.060	3.375	3.635	2.950	.100	.200
	EZC 30D _ _	30/60	5	2.900	3.100	3.260	3.575	3.835	3.150	.100	.200
	EZC 31D _ _	31/62	5	3.000	3.200	3.360	3.675	3.935	3.250	.100	.200
	EZC 35D _ _	35/70	5	3.400	3.600	3.760	4.075	4.335	3.650	.100	.200
	EZC 36D _ _	36/72	5	3.500	3.700	3.860	4.175	4.435	3.750	.100	.200
	EZC 40D _ _	40/80	5	3.900	4.100	4.260	4.575	4.835	4.150	.100	.200
	EZC 43D _ _	43/86	5	4.200	4.400	4.560	4.875	5.135	4.450	.100	.200
	EZC 44D _ _	44/88	5	4.300	4.500	4.660	4.975	5.235	4.550	.100	.200
	EZC 49D _ _	49/98	5	4.800	5.000	5.160	5.475	5.735	5.050	.100	.200
	EZC 50D _ _	50/100	5	4.900	5.100	5.260	5.575	5.835	5.150	.100	.200
	EZC 55D _ _**	55/110	5	5.400	5.600	5.760	6.075	6.335	5.650	.100	.200
	EZC 60D _ _	60/120	5	5.900	6.100	6.260	6.575	6.835	6.150	.100	.200
	EZC 61D _ _	61/122	5	6.000	6.200	6.360	6.675	6.935	6.250	.100	.200
	EZC 65D _ _	65/130	5	6.400	6.600	6.760	7.075	7.335	6.650	.100	.200
	EZC 70D _ _	70/140	5	6.900	7.100	7.260	7.575	7.835	7.150	.100	.200
.125 CONTACT CENTERS	EZA 06D _ _	6/12	5	0.625	0.875	1.035	1.295	1.555	0.875	.125	.250
	EZA 10D _ _	10/20	5	1.125	1.375	1.535	1.795	2.055	1.375	.125	.250
	EZA 14D _ _**	14/28	5	1.625	1.875	2.035	2.295	2.555	1.875	.125	.250
	EZA 15D _ _	15/30	5	1.750	2.000	2.160	2.420	2.680	2.000	.125	.250
	EZA 18D _ _	18/36	5	2.125	2.375	2.535	2.795	3 055	2.375	.125	.250
	EZA 22D _ _	22/44	5	2.625	2.875	3.035	3.295	3.555	2.875	.125	.250
	EZA 24D _ _**	24/48	5	2.875	3.125	3.285	3.545	3.805	3.125	125	.250
	EZA 28D _ _	28/56	5	3.375	3.625	3.785	4.045	4.305	3.625	.125	.250
	EZA 30D _ _	30/60	5	3.625	3.875	4.035	4.295	4.555	3.875	.125	.250
	EZA 31D _ _	31/62	5	3.750	4.000	4.160	4.420	4.680	4.000	.125	.250
	EZA 32D _ _	32/64	5	3.875	4.125	4.285	4.545	4.805	4.125	.125	.250
	EZA 35D _ _	35/70	5	4.250	4.500	4.660	4.920	5.180	4.500	.125	.250
	EZA 36D _ _	36/72	5	4.375	4.625	4.785	5.045	5.305	4.625	.125	.250
	EZA 40D _ _	40/80	5	4.875	5.125	5.285	5.545	5.805	5.125	.125	.250
	EZA 43D _ _	43/86	5	5.250	5.500	5.660	5.920	6.180	5.500	.125	.250
	EZA 44D _ _	44/88	5	5.375	5.625	5.785	6.045	6.305	5.625	.125	.250
	EZA 49D _ _	49/98	5	6.000	6.250	6.410	6.670	6.930	6.250	.125	.250
	EZA 50D _ _	50/100	5	6.125	6.375	6.535	6.795	7.055	6.375	.125	.250
.156 CONTACT CENTERS	EZM06D _ _	6/12	6	0.780	1.102	1.221	1.534	1.784	1 030	.156	.200
	EZM08D _ _**	8/16	6	1.092	1.414	1.533	1.846	2.096	1.342	.156	.200
	EZM10D _ _	10/20	6	1.404	1.726	1.845	2.158	2.408	1.654	.156	.200
	EZM12D _ _	12/24	6	1.716	2.038	2.157	2.470	2.720	1.966	.156	.200
	EZM15D _ _	15/30	6	2.184	2.506	2.625	2.938	3.188	2.434	.156	.200
	EZM18D _ _	18/36	6	2.652	2.974	3.093	3.406	3.656	2.902	.156	.200
	EZM20D _ _**	20/40	6	2.964	3.286	3.405	3.718	3.968	3.214	.156	.200
	EZM22D _ _	22/44	6	3.276	3.598	3.717	4.030	4.330	3.526	.156	.200
	EZM24D _ _	24/48	6	3.588	3.910	4.029	4.342	4.642	3.838	.156	.200
	EZM25D _ _	25/50	6	3.744	4.066	4.185	4.498	4.748	3.994	.156	.200
	EZM28D _ _	28/56	7	4.212	4.534	4.653	4.966	5.216	4.462	.156	.200
	EZM30D _ _	30/60	6	4.524	4.846	4.965	5.278	5.528	4.774	.156	.200
	EZM31D _ _	31/62	7	4.680	5.002	5.121	5.434	5.684	4.930	.156	.200
	EZM36D _ _	36/72	8	5.460	5.782	5.901	6.214	6.464	5.710	.156	.200
	EZM40D _ _	40/80	8	6.084	6.406	6.525	6.838	7.088	6.334	.156	.200
	EZM43D _ _	43/86	8	6.552	6.874	6.993	7.306	7.556	6.802	.156	.200

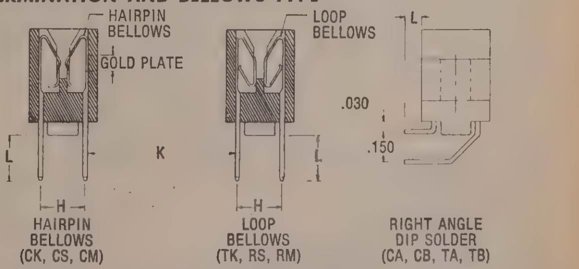
* For complete part number, add termination type and mounting style from PART NUMBER CODING (e.g.: EZA40DRMH).

** Consult factory for availability.



CONTACT ID TYPE	INSULATOR MARKINGS LETTERS G, I, O & Q NOT USED
5	1 3 .... 45 47 .... 89 91 .... 2 4 .... 46 48 .... 90 92 ....
6	1 2 .... 23 24 .... 45 46 .... A B .... $\underline{A}$ $\underline{B}$ .... a b ....
7	1 2 .... 23 24 .... 45 46 .... A B .... $\bar{A}$ $\bar{B}$ .... a b ....
8	A B .... $\underline{A}$ $\underline{B}$ .... a b .... 1 2 .... 23 24 .... 45 46 ....

TERMINATION AND BELLOWS TYPE

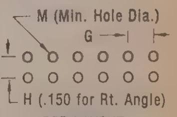


HAIRPIN BELLOWS (CK, CS, CM)

LOOP BELLOWS (TK, RS, RM)

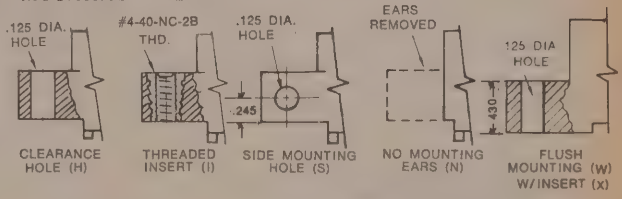
RIGHT ANGLE DIP SOLDER (CA, CB, TA, TB)

HAIRPIN	LOOP	TERMINATION	K	L	M
CK	TK	Dip Solder	.026 Round	.190	.030
CS	RS	Dip Solder	.025 Square	.190	.040
CM	RM	Wire Wrap	.025 Square	.560	.040
CA	TA	Right Angle	.025 Square	.100	.043
CB	TB	Right Angle	.025 Square	.180	.043



PCB LAYOUT

MOUNTING STYLE



PART NUMBER CODING

EXAMPLE: E Z C 22 D CS H

MATERIALS
E = Valox/Phospher Bronze

PLATING

Contact Surface	Termination
Z = .000010 Gold	.000100 Tin/Lead
X = .000030 Gold	.000100 Tin/Lead
G = .000010 Gold	.000005 Gold
Y = .000030 Gold	.000005 Gold

CONTACT CENTERS
C = .100, A = .125, M = .156

MOUNTING (SEE ABOVE)—H, I, S, N, W or X

TERMINATION TYPE (SEE TABLE)

Hairpin Bellows	Loop Bellows
CS = .025 x .025 dip solder	RS = .025 x .025 dip solder
CK = .026 round dip solder	TK = .026 round dip solder
CM = .025 x .025 wire wrap	RM = .025 x .025 wire wrap
CA = right angle dip solder	TA = right angle dip solder
CB = right angle dip solder	TB = right angle dip solder

READOUT — D = Dual

NUMBER OF POSITION — 06 thru 70

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eem

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A

AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire guage

B

BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction code
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C

CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D

D/A digital to analog
DAC digital to analog converter
DC direct curent
DIL dual in-line
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E

EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EPROM electrically programmable ROM
ESR equivalent series resistance

F

FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G

GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H

HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I

IC integrated circuit
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J

JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K

kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L

LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LSI large scale integration
LVDT linear velocity displacement transformer

M

MATV master antenna television
μF microforad
MHz megahertz
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N

NBS National Bureau of Standards
NIM nuclear instrumentation module
NOR not OR

O

OEM original equipment manufacturer
OR a logical operator

P

pF picofarad
PC printed circuit
PCB printed circuit board
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PPI plan position indicator
PROM programmable read only memory
PUT programmable unijunction transistor

Q

QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R

RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detecto
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S

SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic

T

TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylen Copolymer, 250° Teflon
TTL transistor-transistor logic
TTY teletypewriter

U

UHF ultra high frequency (300 MHz to 3 GHz)
UL Underwriters Laboratory
UPS uninterruptible power supply

V

VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz
VLSI very large scale integration
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W

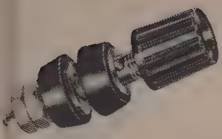
WPS word processing software

Y

YIG yttrium iron garnet

5-way® BINDING POSTS

5 WAYS TO CONNECT ● GOLD-PLATED BRASS PARTS ● RANGE OF COLORS



FLUTED NUT TYPES

Plastic parts of standard (not miniature) size types molded of Lexan polycarbonate resin; brass parts are gold-plated. Rated for 30 amperes, 1000 volts working.

HEX NUT TYPES

Rated for 30 amperes, 1000 volts working. Brass parts gold-plated; plastic parts are of nylon compounded to meet military specifications MIL-P-20693A, Type IV.

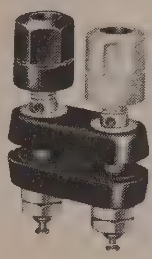
GROUNDING TYPE

For making rapid connections to ground. Made of finely machined brass nickel-plated and polished. Panel grounding collar frozen to shaft has "D" type shoulder for locking in keyed panel hole.

MINIATURE TYPES

Fluted nut design. Rated for 15 amperes, 1000 volts working. Nylon parts meet military specification MIL-P-20693A, Type IV. Limited clearances between insulated and current-carrying parts on BP21 types minimize possibility of accidental contact.

DOUBLE ASSEMBLY TYPES

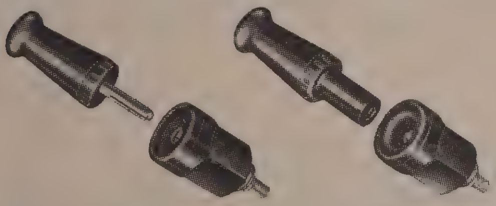


For instrument and equipment panels requiring binding posts mounted on ¾" centers. Rated for a current capacity of 30 amperes and a working voltage of 1000 volts. Brass parts are gold-plated; panel insulators in black only. Self-contained assembly makes mounting more accurate, faster and easier than two individual binding posts and gives maximum strength where connections are frequently made.

STYLE	TYPE
Fluted Nut – Standard	DF31*
Hex Nut – Standard	DF30*
Grounding – All Metal	GP30NC
Fluted Nut – Miniature	DF21*
Fluted Nut – Mini Ltd. Clear.	BP21*
DOUBLE ASSEMBLY TYPE	
Black & Red Hex Nut	DF30-2-BRC

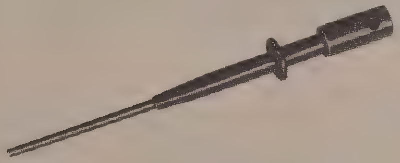
*Indicate color desired: red, white, blue, black, yellow or green.

SUPERCON®
ELECTRICAL CONNECTORS



Nylon plastic parts; gold-plated brass current-carrying parts. Wiring connections to the same plug can be either soldered or solderless. Plug cable-fastening screws permit a wide range of cable sizes. Plug grips are of a simple, two-piece threaded construction for quick assembly. All receptacle plastic parts are molded of the same color to permit more rapid and accurate circuit identification front and back of panel when installed. The 25, 50 and 100 ampere types are listed by Underwriters' Laboratories, Inc. In red, black, white, blue, green or yellow.

5-WAY™
TEST PROBES



For test connections to PC boards and other electronic components. Design allows connections by hooking onto component leads or by plugging into Superior Electric 207146-001-JB terminals or others having 0.080" diameter receptacles. For plug-in, conductor holds firmly to inside of receptacle under spring tension. When used for hook-on, probe clamps to component lead or wire wrapping pin with approximately 16 oz. force. Conductor beryllium copper tempered to spring hardness. Insulating parts durable nylon plastic capable of withstanding 250°F without deforming. Available in red, black, white, blue, green or yellow.

THE SUPERIOR ELECTRIC COMPANY

1000 Middle Street / Bristol, Connecticut 06010 / Telephone: (203) 582-9561

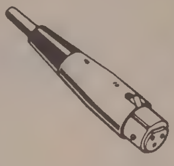
"Q-G" AUDIO CONNECTORS WITH COMPLETE GROUNDING PROVISIONS!

Switchcraft "Quick-Ground" connectors feature a separate "Ground-Terminal" electrically integral with connector shell. Ground continuity between mating plugs automatically accomplished through exclusive "Ground Contactors". Possible loss of insert screw is eliminated by new "Captive-Design" insert screw. Socket and pin assemblies utilize "wedge-action" to insure firm, reliable positioning in connector shell. Inserts are easily removable for wiring & soldering. High impact thermosetting plastic material insures long reliable insert assy. life. Female connectors have latch lock feature to hold connectors firmly together. Plugs and receptacle mechanically keyed for proper mating. "Q-G" (*) Series 3-, 4-, 5-, 6-, and 7-pin/contact connectors offer 4-, 5-, 6-, 7-, & 8-pin contact versatility when "Ground-Terminal" is used. Used interchangeably with Switchcraft QGP connectors (page 41): 3- and 4-contact (Amphenol 91-850 and Excellite 91-450 Series, and Cannon XLR-3, XLR-4): 5-contact (Cannon XLR-5 and Amphenol Excellite 91-450 Series).

Cord plug part no. suffix "L" indicates strain relief accepts cables from .25 in. (6.35 mm) to .328 in. (8.33 mm) dia.; other plugs accept cables up to .25 in. (6.35 mm) dia. (*) Number of insert contacts or pins must be specified to complete part number.

Part number with suffix "B" indicates cord plug with "Black-Velvet" black finish (minimizes glare and permits stable "through-connector" shielding). Suffix "D" indicates type with "FAS-DISCONNECT" detent feature. U.S. Patent 3,219,961; Canadian Patent No. 761,114 (June 13, 1967)

PLUGS


A(*)F

A(*)FB

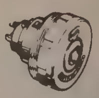
A(*)M

A(*)MB

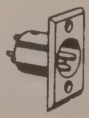
RECEPTACLES

Series B(*)M

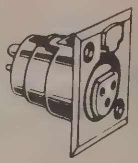
Series B(*)MB


Series B(*)F

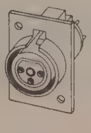
Series B(*)FB

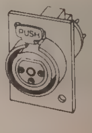

Series D(*)M

Series D(*)MB


Series D(*)F, D(*)FD

Series D(*)FB


Y3FD


Y3FPC

Specifications:

ELECTRICAL
(QG Connectors Only)

Contact Resistance: 50 milliohm max., per pole
Current Rating: 3 pole–15A; 4 pole–10 A, 5 & 6 pole–7.5 A; 7 pole–5 A.
Insulation Resistance: 1,000 megohms, min.
Dielectric Withstanding Voltage: 1,000 V (rms)
Capacitance: 2 Pf between pins and 4 Pf between pins and shell, max. (A3M & A3F)

MECHANICAL
(QG Connectors Only)

Insertion/Withdrawal Forces: 7 lb. max., 5 lb. nominal, insertion; 7 lb. max., 5 lb. nominal, withdrawal.

MATERIAL
QG Connectors

Shell: Die-cast zinc. Satin nickel finish on all shells, except a black, electrically conductive, chrome plate finish on "Black-Velvet" shells.
Insert Insulation: High-impact, molded thermo-setting plastic.
Socket Contacts: Phosphor bronze, silver plated, chromate dipped; bifurcated on 3-contact type.
Pin Contacts: Brass, silver plated, chromate dipped, Resists tarnishing, and provides excellent electrical conductivity.
Latchlock: High-strength die-cast zinc.
Latch Release: Steel, nickel plated.
Latch Detent: Formed stainless steel.
Insert Screw: Stainless steel.
Cable Relief Bushing: Neoprene.
Mounting Nut and Washer: Brass, nickel plated. (Black, electrically conductive chrome plate finish for "Black Velvet" receptacles).
Mounting Wall Plates: Cold-rolled steel, with stainless steel finish.

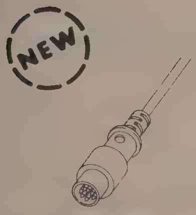
QGP Connectors
Shell: Die-cast zinc, non-reflective Vel-Tone finish.
Insert Insulation: High strength, reinforced thermoset plastic.
Socket Contacts: Phosphor bronze, 50 microinch gold (over 50 microinch nickel) plated.
Pin Contact: Brass, 50 microinch gold (over 50 microinch nickel) plated.
Latchlock: Die-cast zinc, non-reflective nickel finish.
Latch Release: Steel, nickel plated.
Cable Relief Bushing: Flexible gray neoprene.
Barrel: (Female connectors only) Stainless steel.
Mounting Screws: Stainless steel, passivated, non-reflective finish.
Spanner Nut: (QGP-3-28) Die-cast zinc, nickel plated.
Nut: (QGP-3-29) Brass, nickel plated.
Washer: (QGP-3-29) Steel, nickel plated.

SWITCHCRAFT® A Raytheon Company

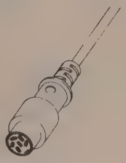
MOLDED CABLES WITH DIN PLUGS

Switchcraft's versatile system of molded cable assemblies and mating receptacles meets the increased demand for modern, miniature connectors for a wide range of electrical/electronic applications. Connectors are DIN circular type and are fully field-proven in electronic applications. Strict requirements of FCC 20780 docket are fully addressed in offering fully shielded links.

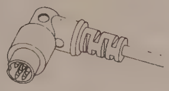
The system comprises male and female plugs, locking and non-locking, with from 3 to 8 pins/contacts. Units are fully molded and protected with a rugged handle and advanced design cable relief. A complete range of mating receptacles is also available.



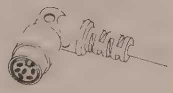
STYLE ST-307



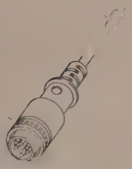
STYLE ST-316



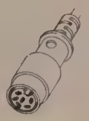
STYLE RA-356



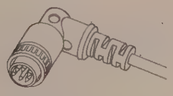
STYLE RA-366



STYLE ST-324



STYLE ST-336



STYLE RA-374

DIN (Deutsch Industrie Norm) plugs are available as part of complete molded cable assemblies. Both male and female plugs can be specified with straight or right angle molded handles, rugged cable reliefs and polarized mating . . . and with a choice of additional valuable features, such as: "Anti-Vibration" lock ring fastening-a 30° twist locks or unlocks mating connectors; "Ground Key Rib" and "Ground Contact" engage during mating for full, through the connector shielding.

Molded cable features include improved strain relief; better match of cable diameter to plug/connector handle; greater protection from wear to cable entry point; less exposed area, better resistance to moisture contamination, dust, dirt, etc.; lower weight/size compared to non-molded assemblies; superior shielding effectiveness on all types; color of molded cables to match or complement equipment color; molded cables are 100% tested for continuity, shorts, appearance, and voltage breakdown (250 or 500 volts).

Part Numbers

		Male (pins) & Female (contacts)						
		3@180°	4@210°	5@180°	5@240°	6@240°	7@270°	8@270°
Description	**Pin/Contact Arrangement**	B	D	F	E	G	H	N
Straight Handle, Male		ST-303	ST-309	ST-305	ST-304	ST-306	ST-307	ST-308
Straight Handle, Female		ST-313	ST-319	ST-315	ST-314	ST-316	ST-317	ST-318
Straight Handle, Male, Lock Ring		ST-323	ST-329	ST-325	ST-324	ST-326	ST-327	ST-328
Straight Handle, Female Lock Flange		ST-333	ST-339	ST-335	ST-334	ST-336	ST-337	ST-338
Right Angle Handle, Male		RA-353	RA-359	RA-355	RA-354	RA-356	RA-357	RA-358
Right Angle Handle, Female		RA-363	RA-369	RA-365	RA-364	RA-366	RA-367	RA-368
Right Angle Handle, Male, Lock Ring		RA-373	RA-379	RA-375	RA-374	RA-376	RA-377	RA-378
Right Angle Handle, Female, Female, Lock Flange		RA-383	RA-389	RA-385	RA-384	RA-386	RA-387	RA-388

SWITCHCRAFT

A Raytheon Company

CIRCULAR DIN CONNECTORS

Designed for low level circuitry, for unlimited use in computer, commercial, industrial, consumer and military applications. Exact replacements for plugs and receptacles, used on most foreign built recorders, radios and dictation equipment. Also used extensively for computer keyboard, I/O and peripheral applications. "Switchcraft/DIN" 2 to 8 contact connectors include male and female plugs and receptacles with bright nickel-plated barrels & plastic snap-on shells. Lock-ring coupling, silver plated contact pins for low contact resistance, contact friction coupling for low mechanical interference noise, exclusive "automatic" grounding and polarization provisions. Full line of receptacles offer thru panel, PC board and surface mounting. Positioning "Ground Key-Rib" or "Ground Contact" — electrically integral with the connector shell — is provided in each plug and receptacle (except those with plastic housing or shells) to ground or shield the connector shell. Right angle PC board mount for common ground use also available.

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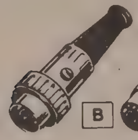
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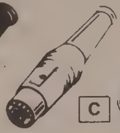
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D

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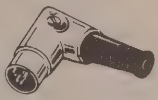
F

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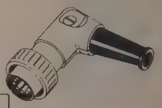
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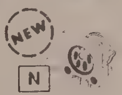
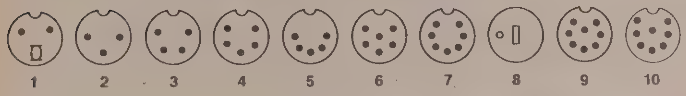

P

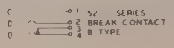
R

S

PIN ARRANGEMENTS



SCHEMATIC CIRCUITS



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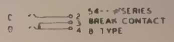

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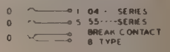

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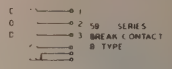

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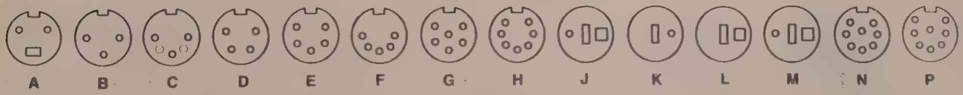
CONTACT ARRANGEMENTS



STRAIGHT CORD PLUGS with 30° Lock Ring

Part No.	Fig.	Description	Pin or Cont. Arr.
03CL2M	A	2 pins, ins. sw. actuator	1
05CL3M	A	3 pins at 180°	2
05CL5M	A	5 pins at 180°	5
09CL4M	A	4 pins at 210°	3
12CL5M	A	5 pins at 240°	4

STRAIGHT CORD PLUG with Shielded Barrel

05GM3M	B	3 pins at 180° Gray	2
05GM5M	B	5 pins at 180° Gray	5
09GM4M	B	4 pins at 210° Gray	3
12GM5M	B	5 pins at 240° Gray	4
12GM6M	B	6 pins at 240° Gray	6
15GM7M	B	7 pins at 270° Gray	7
15GM8M	B	6 pins at 270° Gray	9

STRAIGHT CORD PLUG with Extended Barrel

05BL3M	C	3 pins at 180°	2
05BL5M	C	5 pins at 180°	5
09BL4M	C	4 pins at 210°	3
12BL5M	C	5 pins at 240°	4
12BL6M	C	6 pins at 240°	6
15BL7M	C	7 pins at 270°	7
15BL8M	C	8 pins at 270°	9
20BL8M	C	8 pins at 262°	10

STRAIGHT CORD PLUG with Flush Socket Insert

06AL5F	D	5 contacts at 180°	F
10AL4F	D	4 contacts at 210°	D
13AL5F	D	5 contacts at 240°	E
13AL6F	D	6 contacts at 240°	G
15AL7F	D	7 contacts at 270°	H

RIGHT ANGLE CORD PLUG with 8 Position Barrel

Part No.	Fig.	Description	Pin or Cont. Arr.
05DL3M	E	3 pins at 180°	2
05DL5M	E	5 pins at 180°	5
09DL4M	E	4 pins at 210°	3
12DL5M	E	5 pins at 240°	4
15DL8M	E	8 pins at 270°	9

STRAIGHT CORD PLUG with Lock Flange

06EL5F	F	5 pins at 180°	F
10EL4F	F	4 contacts at 210°	D
13EL5F	F	5 contacts at 240°	E

STRAIGHT CORD PLUG with Snap-Lock Plastic Shell

05LK3M	G	3 pins at 180°	2
05LK5M	G	5 pins at 180°	5
09LK4M	G	4 pins at 210°	3
12LK5M	G	5 pins at 240°	4

RECEPTACLE for Lock-Ring Plugs

55HA2F	K	2 cont., closed. ckt., sw. CKT. #4	A
55HA3F	K	3 contacts at 180°	B
57HA3F	K	3 contacts at 180°	B
57HA5F	K	5 contacts at 180°	F
57HB5F[1]	K	5 contacts at 180°	F
60HA4F	K	4 contacts at 210°	D
61HA5F	K	5 contacts at 240°	E
62HB7F	K	7 contacts at 270°	H
62HB8F	K	8 contacts at 270°	N

[1] Flared solder terminal.

CIRCULAR DIN CONNECTORS (cont'd.)

RIGHT ANGLE CORD PLUG with Ins. Plastic Shell

Part No.	Fig.	Description	Pin or Cont. Arr.
05UK3M	H	3 pins at 180°	2
05UK5M	H	5 pins at 180°	5

RECEPTACLE for Shielded and Extended Barrel Plugs

57GB3F[1]	L	3 contacts at 180°	B
57GB5F	L	5 contacts at 180°	F
57NC5F	R	5 cont.-180° P.C. term.	F
58NC3F[1]	R	3 contacts at 180°	B
59GB3F	P	3 contacts at 180°	B
59GB5F	P	5 cont.-180° closed ckt. sw. CKT. #5	F
60GB4F	P	4 contacts at 210°	D
61GA5F	L	5 contacts at 240°	E
61GB6F	L	6 contacts at 240°	G
61NC5F	R	5 contacts at 240°	E
62GB7F	L	7 contacts at 270°	H
62GB8F	L	8 contacts at 270°	N
61GB5F	L	5 contacts at 240°	E
61NC6F	R	6 contacts at 240°	G
62NC7F	R	7 contacts at 270°	H
62NC8F	R	8 contacts at 270°	N

NOTE: [1] Insert has 2 blank holes—also mates with pin arrangement F (2 circuits not used).

RIGHT ANGLE CORD PLUG with 8 position barrel and 30° Lock Ring

Part No.	Fig.	Description	Pin or Cont. Arr.
05YL5M	J	5 pins at 180°	5
09YL4M	J	4 pins at 210°	3
12YL5M	J	5 pins at 240°	4

RECEPTACLE FOR PANEL MOUNTING with Extended Shell

57KD3M	S	3 contacts at 180°	B
60KD4M	S	4 contacts at 210°	D
57KD5M	S	5 contacts at 180°	F
61KD5M	S	5 contacts at 240°	E

RIGHT ANGLE RECEPTACLE for Printed Circuit Board Mounting

57PC3F[1]	M	3 contacts at 180°	B
57PC5F	M	5 contacts at 180°	F
60PC4F	M	4 contacts at 210°	D
61PC5F	M	5 contacts at 240°	E
61PC6F	M	6 contacts at 240°	G
62PC7F	M	7 contacts at 270°	H
62PC8F	M	8 contacts at 270°	N
70PC8F	M	8 contacts at 262°	P

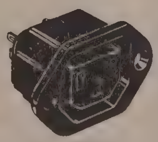
NOTE: [1] Insert has 2 blank holes. Also mates with pin arrangement F (2 circuits not used).

RIGHT ANGLE RECEPTACLE for printed Circuit Board mounting (with metal flange)

57PC3FS	N	3 contacts at 180°	B
57PC5FS	N	5 contacts at 180°	F
60PC4FS	N	4 contacts at 210°	D
61PC5FS	N	5 contacts at 240°	E
61PC6FS	N	6 contacts at 240°	G
62PC7FS	N	7 contacts at 270°	H
62PC8FS	N	8 contacts at 270°	N
70PC8FS	N	8 contacts at 262°	P

EUROPEAN AC RECEPTACLES

EAC-301
UL, CSA, VDE



EAC-305, EAC-306
UL, CSA, VDE
(CERTIFICATE OF COMPLIANCE; EAC-305 only)

EAC-303
UL, CSA, VDE

Receptacles mate with European power plugs. Choose from panel/chassis or PC mount types. U.L. and C.S.A. listed types. Rating 6 A, 250 V AC or 15 A, 250 V AC. No. EAC-301 is VDE approved; No. EAC-305 has VDE Certificate of Compliance.

Part No. EAC-301 — Grounding types, 3 pin male receptacle. 6 A, 250 V AC; U.L. C.S.A., VDE listed. Mates with Switchcraft power cords Nos. P-2392, P-2720, P-2721, P-2722, P-2725, P-2727, P-2728; Belden SPH-386; or equiv. Rear mounts in 1.201 in. (30.51 mm) x .875 in. (22.22 mm) hole or front mounts in 1.08 in. (27.43 mm) x .785 in. (19.94 mm) hole in chassis/panel with 2, #5 screws or .125 in. (3.18 mm) dia. rivets (not supplied). Longer grounding pin allows ground circuit to "make" before power circuit, and "break" after power circuit disconnects. Pins .045 in. (1.14 mm) x .157 in. (3.99 mm) and terminals: silver plated.

Part No. EAC-303 — Grounding type 3-pin male receptacle with right-angle housing and pins for PC board mtg. Ground lug (solder type) also supplied. .136 in. (3.45 mm) dia. housing holes also permit panel/chassis mount. 6 A, 250 V AC rating: U.L. & C.S.A. listed. Same rear mount as No. EAC-301. Pin terminals silver-plated brass. Mates with same cords as Nos. EAC-301.

Part No. EAC-305 — Grounding type, 3-contact female receptacle Rated: 6 A, 250 V AC: U.L. & C.S.A. listed. Front panel/chassis mount in 1.275 in. (32.39 mm) x 1.56 in. (39.62 mm) hole with 2, #5 screws or .125 in. (3.18 mm) rivets (not supplied). Mates with Switchcraft power cords Parts Nos. P-2721, P-2725; Belden SPH-388: or equiv. Contacts/terminals: brass.

No. EAC-306 — Similar to EAC-305, except 15 A, 250 V AC rating U.L. & C.S.A. listed.

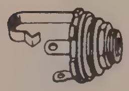
SWITCHCRAFT®

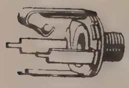
A Raytheon Company

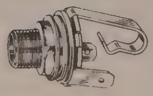
Littel-Jax PHONE JACKS

Quality phone jacks that mate with standard .25 in. (6.35 mm) or .21 in. (5.33 mm) phone plugs. Notched insulating washers mechanically interlock springs and solder lugs. "V" bend in tip spring firmly holds mating plug. Minimum space requirements. Mounts in single .375 in. (9.52 mm) hole, panels up to .156 in. (3.96 mm) thick, except L-11 and L-12A in panels up to .25 in. (6.35 mm) thick. PC-12A; std. .25 in. (6.35 mm) dia. bushing.

Littel-Jax PHONE JACKS with QUICK CONNECT TERMINALS. Littel-Jax jacks, Nos. FA-11 & FAL-11 with quick connect terminals accept AMP FASTON* 205 Series receptacles. Mounts in .375 in. (9.52 mm) dia. holes on 1.375 in. (34.92 mm) centers (min.) Locknut and washer supplied. *Trademark of AMP INC.


C-11


PC-12A


FA-11

TWO CONDUCTOR TYPES

Part No.	Schematic No.	Typical Mating Plug	MIL-Type	Description
11	I	250	—	Open circuit
C-11	I	440,445, 470[1]	MIL Type JJ-034, Part No. M641/6-1	With locating pin (non-turn device)
FA-11	I	250	—	AMP FASTON 205 Series. Quick connect terminals.
FAL-11	I	250	—	.375 in. (9.52 mm) lg. bushing. Quick connect terminals.
L-11	I	250	—	.375 in. (9.52 mm) lg. bushing
S-11	I	S-250	—	.210 in. (5.33 mm) I.D. bushing
12A	III	250	—	Tip shunt
C-12A	III	440, 445, 470[1]	MIL Type JJ-089, Part No. M641/12-1	—
L-12A	III	250	—	.375 in. (9.52 mm) lg. bushing
S-12A	III	S-250	—	.210 in. (5.33 mm) I.D. bushing
PC-12A	III	250	—	P.C. board mtg.
13	V	250	—	Isolated "make" circuit
13A	VI	250	—	Transfer circuit
13E	IX	250	—	Isolated "break" circuit

NOTE: [1] Mating Plugs — PJ-055B, M642/4-1; PJ-055R, M642/4-2; PJ-055M, 642/4-3.

THREE CONDUCTOR TYPES

Part No.	Schematic No.	Typical Mating Plug	MIL-Type	Description
12B	IV	267	—	Double open circuit
C-12B	IV	480 (PJ-068, M642/5-1)	MIL Type JJ-033, Part No. M641/5-1	—
L-12B	IV	267	—	.375 in. (9.52 mm) lg. bushing
S-12B	IV	480 (PJ-068, M642/5-1)	—	.21 in. (5.33 mm) I.D. bushing
13B	VII	267	—	Tip shunt
S-13B	VII	480 (PJ-068, M642/5-1)	—	.21 in. (5.33 mm) I.D. bushing
14B	XII	267	—	Double closed circuit

Tini-Jax MINIATURE PHONE JACKS

41

Miniature 2-cond. phone jacks, approximately 1/3 the size of Littel-Jax jack, otherwise similar in construction. Mounts in .25 in. (6.35 mm) dia. hole; panels up to .125 in. (3.18 mm) thick. No. 43A has unique spring design requiring a pear-shaped tip, such as on Switchcraft Tini-Plug No. 750.

Part No.	Schematic No.	Typical Mating Plug	Cond.
41	I	750	2
42A	III	750	2
43A	Note 1	750	2

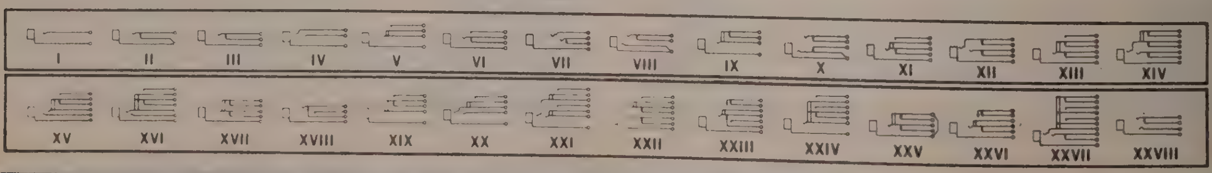
NOTE: [1] Special transfer circuit. When inserted, plug tip contacts "make" tip spring. Further insertion allows tip to short "make" tip spring and tip spring together. Full insertion opens tip short circuit.

Micro-Jax SUBMINIATURE PHONE JACKS

TR-2A

Miniaturized jack has 2-cond. single closed circuit. See Schematic Circuit III. Silver plated, special tempered nickel silver springs. Internally keyed nylon insulation interlocks springs and solder lugs to eliminate shorts. Fits .190 in. (4.83 mm) dia. hole in panels to .094 in. (2.39 mm) thick. Only 1/25th the size of standard phone jacks. Mates with Micro-Plug plug. Series 850, 880.
Switchcraft Part No. TR-2A

SCHEMATICS



Switchcraft, Inc., 5555 N. Elston Ave., Chicago, IL 60630 Tel. (312) 792-2700 TWX 910-221-5199

SWITCHCRAFT®

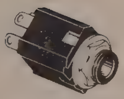
A Raytheon Company

Hi-D Jax ENCLOSED PHONE JACKS

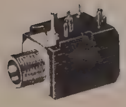
Series 110: Smaller, compact phone jacks mate with std. .25 in. (6.35 mm) phone plugs. Molded body protects integral silver-plated springs. Low contact resistance; low electrical leakage and low capacity between springs. Mounts on .625 in. (15.88 mm) center in single .375 in. (9.52 mm) hole in panels up to .156 in. (3.96 mm) thick, depth behind panel 1.094 in. (27.79 mm). All jacks with "M" prefix designed and adjusted to mate with telephone and MIL-std. plugs. Jacks with PC terms, mount to single, double-sided and multilayer boards up to .094 in. (2.39 mm) thick. Standoff shoulders; mounting hardware supplied.

Series RN-110: Right angle jack, saves mounting space on PC boards for commercial and telephone/MIL applications. Available in 2- and 3-cond. types with or without shunt circuits; all mate with .25 in. (6.35 mm) dia. COMMERCIAL or TELEPHONE/MIL plug finger configurations. Right angle jack permits tip of mating plug to be inserted parallel with PC board. Can be mtd. on PC boards, combined PC board and panel/chassis, or panel/chassis only. Jack bushing mounts through .375 in. (9.52 mm) dia. hole in panels or chassis up to .141 in. (3.58 mm) thick. Mtg. centers .625 in. (15.88 mm) min. Washer & locknut supplied.

SERIES 110



SERIES N-110



SERIES RN-110

TWO CONDUCTOR TYPES

Part No.		Description	Schematic	Typical Mating Plugs
Solder Lugs	PC Terminals			
111	111PC	Open circuit	I	250
N-111	N-111PC	Molded nylon bushing	I	250
NL-111	—	.375 in. (9.52 mm) lg. molded nylon bushing	I	250
112A	112APC	Single closed circuit	III	250
L-112A	L-112APC	.375 in. (9.52 mm) lg. metal bushing	III	250
M-112A	—	Single closed circuit metal bushing	III	420[1]
MN-112A	MN-112APC	Single closed circuit molded nylon bushing	III	420[1]
N-112A	N-112APC	Molded nylon bushing	III	250
NL-112A	—	.375 in. (9.52 mm) lg. molded nylon bushing	III	250
113	113PC	Isolated "make" circuit	V	250
N-113	—	Molded nylon bushing	V	250
113D	113DPC	Transfer circuit (1-C)	VI[2]	250
113E	113EPC	Isolated "break" circuit	IX	250
—	RN-111PC	Single open circuit, right angle	I	250 or 420[1]
—	RN-112APC	Single closed circuit, right angle	III	250 or 420[1]

NOTE: [1] Mating Plugs — PJ-047B, 420, M642/1-1; PJ-047R, 425, M642/2-1.
[2] Two tip springs.

THREE CONDUCTOR TYPES

112B	112BPC	Double open circuit	IV	267
L-112B	—	.375 in. (9.52 mm) lg. bushing	IV	267
M-112B	M-112BPC	.25 in. (6.35 mm) I.D. sleeve. Metal bushing.	IV	482[1]
NL-112B	—	.375 in. (9.52 mm) lg. molded nylon bushing.	IV	267
MN-112B	MN-112BPC	.25 in. (6.35 mm) I.D. sleeve. Molded nylon bushing.	IV	482[1]
N-112B	N-112BPC	Molded nylon bushing.	IV	267
113B	113BPC	Single closed circuit.	VII	267
L-113B	—	.375 in. (9.52 mm) lg. bushing	VII	267
N-113B	N-113BPC	Molded nylon bushing.	VII	267
NL-113B	—	.375 in. (9.52 mm) lg. molded nylon bushing.	VII	267
113F	113FPC	Ring circuit closed.	XXVIII	267
114B	114BPC	Double closed circuit	XII	267
L-114B	L-114BPC	.375 in. (9.52 mm) lg. bushing	XII	267
M-114B	M-114BPC	.25 in. (6.35 mm) I.D. sleeve. Metal bushing.	XII	482
MN-114B	MN-114BPC	.25 in. (6.35 mm I.D. sleeve. Molded nylon bushing.	XII	482
N-114B	N-114BPC	Molded nylon bushing.	XII	267
NL-114B	—	.375 in. (9.52 mm) lg. molded nylon bushing.	XII	267
—	RN-112BPC	Double open circuit.	IV	267 or 482[1]
—	RN-113BPC	Tip closed, ring open	VII	267 or 482[1]
—	RN-113FPC	Tip open, ring closed.	XXVIII	267 or 482[1]
—	RN-114BPC	Double closed circuit.	XII	267 or 482[1]

NOTE: [1] Mating Plugs — PJ-051R, 482, M642/2-2; PJ-051B, 483, M642/2-1.

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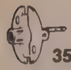
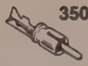
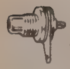
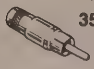
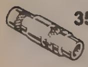
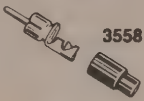


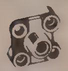


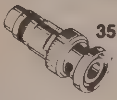












PHONO JACKS AND PLUGS

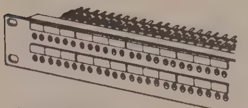
Low cost 2-cond. jacks and plugs for record players, FM-AM tuners, tape recorders, test equipment, etc. 3501MC has .375 in. (9.52 mm) O.D. shell and cable clamp. 3501FP for front panel mount in .25 in. (6.35 mm) hole in panels up to .125 in. (3.18 mm) thick. 3501FR for rear panel mount in .375 in. (9.52 mm) hole in panels up to .203 in. (5.16 mm) thick. 3502 has unique cable clamp with .406 in. (10.31 mm) O.D. shielded removable handle. 3503 extension jack has shielded removable handle .406 in. (10.31 mm) O.D. with cable clamp.

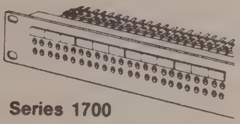
Series 3558 are phono plugs with cable clamp and "snap-on" color-coded plastic handles in red, black and white.

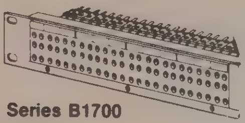
Series 3511, 4 Leaf Clover Jax, molded phono Jack with dual contact surfaces for low shunt resistance. Open and closed circuit types. Mates with all Switchcraft phono plugs.

Part No.	Description
3501F	Phono jack
3501M	Plug, less cable clamp
3501MC	Plug with cable clamp
3501FP	—
3501FR	Phono jack
3502	Plug
3503	Extension Plug
3558-1	Plug, red handle
3558-2	Plug, black handle
3558-5	Plug, white handle
3511	Phono jack, open circuit
3511A	Phono jack, open circuit grounded
3512	Phono jack, closed circuit
3512A	Phono jack, closed circuit grounded
3513	Phono Jack-to-BNC Connector Adapter

SERIES TT "tini-telephone" JACK PANELS


Series 1600


Series 1700


Series B1700

Series 1600 double row panel: 96 "TT-Jax" jacks, aluminum panel & four, molded plastic inserts (24 jacks each).

Series 1700 double row panel: 48 "TT-Twin-Jax" jacks, aluminum panel & two molded plastic inserts (24 twin jacks each).

Series B1700: Similar to Series 1700 exc. mounts 48 "Tri-Jax" jacks on two inserts.

Panels provide up to 104 jacks in area 1.75 in. (44.45 mm) x 19 in. (482.6 mm) or 156 jacks in area 2.625 in. (66.68 mm) x 19 in. (482.6 mm) in standard panels. Black anodized, extruded aluminum construction with extra wide flange for rigidity.

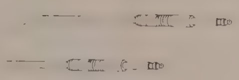
All series have "Kwik-Change" designation strips consisting of clear plastic snap-on cover & reusable plastic marking strip. U.S. Pat. No. 3,597,867.

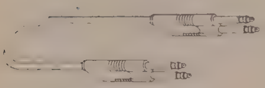
Part No.	Number of Jacks	Panel Inserts
1600	96[1], single	TT-505 (24 holes) (24 Jacks) or TT-506 (blank)
1632A	96, TT-32A	
1634B	96, TT-34B	
1700	48[1], twin	TT-507 (48 holes) (24 Jacks) or TT-508 (blank)
1789	48, TT-89	
B1700	48[1], "Tri-Jax"	TT-511 (72 holes) (24 Jacks)
B1795	48, TT-95 "Tri-Jax"	

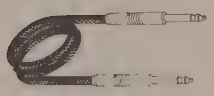
NOTE: [1] Supplied less jacks.

TT-PLUG MINIATURE TELEPHONE PATCH CORDS AND "TT" Twin Plug PATCH CORDS

Series TT-100


Series TT-120


Series TT-160


Series TT-740

Series TT-860

TT-Patch Cord cords mate with "Unijax" jacks; "TT-Jax" jacks, Series TT-30, WTT-30, TT-600; Nos. TT-89 & WTT-89 "TT Twin-Jax" jacks; & Nos. TT-95 & WTT-95 "Tri-Jax" jacks. TT-Patch Cord cords with twin plugs mate with "TT Twin-Jax" jacks and single "TT-Jax" jacks spaced on .312 in. (7.92 mm) centers.

Patch cords are available in 2 styles:

- 2-cond. and 3-cond. single and twin plugs, molded on a shielded, grey plastic jacketed cable.
- 2-cond. and 3-cond. attachable single and twin plugs with a shielded, black woven nylon jacketed patch cond.

Part No.	Length, ft. (m)	Cond.	Description
TT-102	1 (.305)	2	Single cond. shielded cable with 2-cond. phone plug molded at each end. (Single plugs)
TT-104	2 (.610)		
TT-108	5 (1.524)		
TT-121	0.5 (.152)	3	2-cond. shielded cable with 3-cond. phone plugs molded at each end. (Single plugs)
TT-122	1 (.305)		
TT-124	2 (.610)		
TT-126	3 (.914)		
TT-127	4 (1.219)		
TT-128	5 (1.524)		
TT-164	2 (.610)	5	4-cond. shielded cable with 5-cond. twin plug molded (each end). Sleeve circuits common. Tip circuits wired tip-to-tip: ring circuits, ring-to-ring. (Twin plug)
TT-166	3 (.914)		
TT-167	4 (1.219)		
TT-168	5 (1.524)		
TT-742	1 (.305)	3	2-cond. shielded cord with TT-253 phone plug attached at each end. Shield is grounded to sleeve of each plug; 2 cond. are wired tip-to-tip and ring-to-ring. (Single plugs)
TT-744	2 (.610)		
TT-746	3 (.914)		
TT-747	4 (1.219)		
TT-749	6 (1.829)		
TT-869	6 (1.829)	5	4-cond. shielded (5-circuit) cord with a TT-263 twin phone plug attached at each end. Plug sleeves at both ends connected in common through shield. Tips and rings wired to corresponding plug fingers at both ends. (Twin plugs)

Switchcraft, Inc., 5555 N. Elston Ave., Chicago, IL 60630 Tel. (312) 792-2700 TWX 910-221-5199

SWITCHCRAFT A Raytheon Company

"Tini-D Jax" MINIATURE ENCLOSED PHONE JACKS

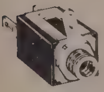
PC-142A

Small, completely enclosed 2-cond. molded phone jack. Phenolic housing protects bifurcated beryllium copper springs from bending during mounting. Mounts on .375 in. (9.52 mm) centers in .25 in. (6.35 mm) dia. hole in panels up to .125 in. (3.18 mm) thick. Depth behind panel .625 in. (15.88 mm).

Part No.	Description	Schematic No.	Typical Mating Plug
142A	Bushing mount	III	750
PC-142A	PC board mount[1]		

NOTE: [1] Threaded bushing for conventional mounting and special spring terminals that "snap-in" PC boards up to .125 in. (3.18 mm) thick.

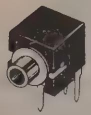
"Micro-D Jax" SUBMINIATURE ENCLOSED PHONE JACK


MDSL-2A

MDSL-2A-RA

MDPC-2A

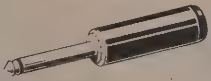
"Super-small," shunted, fully enclosed jack — only .312 in. (7.92 mm) x .344 in. (8.74 mm) x .688 in. (17.48 mm). 1-piece molded body locks all internal parts in place. Mates with Switchcraft Micro-Plug phone plugs. PC terminals have standoff shoulders. Nos. MDSL-2A & MDSL-2A-RA have #10-48 threaded bushing; mounting washer & locknut supplied.

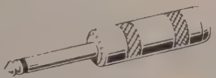

MDPC-2A-RA

Part No.	Schematic No.	Typical Mating Plug	Cond.	Terminals	Mounting In. (mm)
MDSL-2A	III	850, 851	2	Solder lug	Mounts thru .203 (5.16) hole, in panels up to .063 (1.6) thick. Singly or in rows on .350 (8.89) min. centers. Adjacent sleeves touch when mtd. on .315 (8.00) centers.
MDPC-2A	III	850, 851	2	PC	Mounts singly or in rows on .315 (8.00) min. centers or .350 (8.89) min. centers
MDSL-2A-RA	III	850, 851	2	Solder lug	Same as Part No. MDSL-2A except right angle solder lug terms. for min. space. Behind panel clearance .382 (9.70)
MDPC-2A-RA	III	850, 851	2	PC	Same as Part No. MDPC-2A except right angle PC terms. Above PC board clearance .345 (8.76)

Littel-Plug PHONE PLUGS

Phone plugs fit std. .25 in. (6.35 mm) phone jacks. Solder terminal plugs have built-in cable clamp. Shielded metal handles are nickel-plated brass or durable molded plastic: 1.688 in. (42.88 mm) long x .5 in. (12.7 mm) dia. Max. cable dia.: 2.97 in. (7.54 mm).


No. 250


No. 280

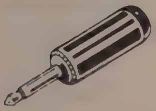
THREE CONDUCTOR

260	Screw terminals, black handle.	12B
S-260	Screw terminals, black handle, .206 in. (5.23 mm) dia. sleeve & tip.	S-12B
267	Combination cable clamp & solder lugs, black handle.	12B
269	Same as 267 except red handle.	12B
290	Screw terminals, shielded handle.	12B
297	Same as 267 except shielded handle.	12B

TWO CONDUCTOR

Part No.	Description	Typical Mating Littel-Jax Jacks
240	Screw terminals, black handle.	11
C-240	Screw terminals with integral cord clamp, black handle.	11
245	Screw terminals, red handle.	11
C-245	Same as C-240 except red handle.	11
250	Solder lugs, black handle.	11
255	Solder lugs, red handle	11
270	Screw terminals, shielded handle.	11
C-270	Same as C-240 except shielded handle.	11
280	Solder lugs, shielded handle.	11
288	Special shielded type. Wide insulator between tip-sleeve; use in 3-cond. jack to perform a 2-cond. function without shorting.	11
S-250	Solder lugs, black handle, .206 in. (5.23 mm) dia. sleeve and tip.	S-11
S-280	Same as S-250 except shielded handle.	S-11

Tini-Plug MINIATURE PHONE PLUGS

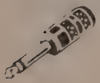


2-cond. phone plugs for use with Tini-Jax jacks. 1/3 size of std. phone plugs. Overall length 1.609 in. (40.87 mm). Handles: plastic or nickel-plated brass. Max. cable dia.: .218 in. (5.54 mm).

Part No.[1]	Part No.[2]	Handle
740	750	Black
745	755	Red
770	780	Shielded

NOTES: [1] Screw terminals. [2] Solder terminals.

Micro-Plug SUBMINIATURE PHONE PLUGS



Subminiature 2-cond. phone plugs, only 1.106 in. (25.81 mm) long; .25 in. (6.35 mm) O.D., .097 in. (2.46 mm) dia. sleeve. Screw-on anodized aluminum handles. Accommodates cables up to .125 in. (3.18 mm) dia. Integral cable clamps mates with Switchcraft TR-2A and MDSL-2A.

Part No.	Description
850	Black Handle
855	Red Handle
880	Natural Handle

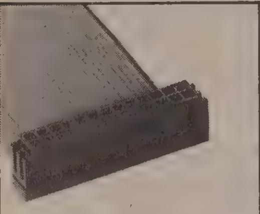
Switchcraft, Inc., 5555 N. Elston Ave., Chicago, IL 60630 Tel. (312) 792-2700 TWX 910-221-5199

SYMBEX

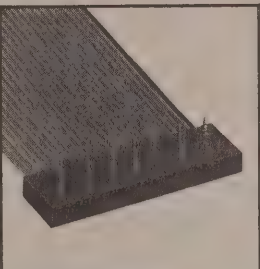
IDC INTERCONNECT SYSTEMS

The only flat cable/connector systems with molded-in quality, reliability and convenience...Cable and contacts are integrally molded into the connector body to form a one-piece interconnect system.

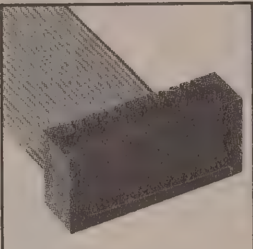
TERMINATIONS



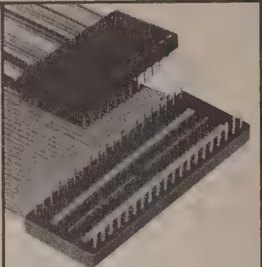
Sockets
hi-profile • low-profile • with tab key • without tab key
sizes-10, 14, 16, 20, 26, 34, 36, 40, 42, 50, 60



PCB/Transition
sizes-10, 20, 26, 34, 40, 50

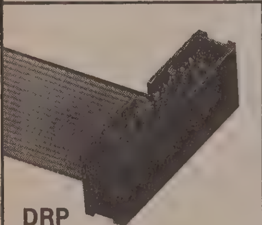


Card-edge
with ears • without ears
sizes-20, 26, 34, 40, 50

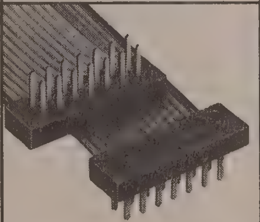


DIP
sizes-14, 16, 24, 40

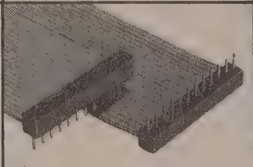
D-Sub Min
male • female
sizes-09, 15, 25, 37



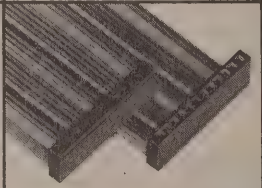
DRP
(Dual Row Plug)
with ears • without ears • with tab keys • without tab keys
sizes-10, 14, 16, 20, 26, 34, 40, 50



DRB
(Dual Row Board)
sizes-10, 14, 16, 20, 24, 26, 34, 36, 40, 42, 50, 60



SRB
(Single Row Board)
sizes-08, 09, 11, 12, 14, 20



SRS
(Single Row Socket)
sizes-02, 05, 07, 08, 10, 11, 12, 14, 16, 20, 24, 32

For FCC compliant D-Sub Min assemblies see Symbex ad page 2·1587

All terminations feature integral strain-relief • Choose gold or nickel-silver contacts • Daisy chains and custom configurations available

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Wisconsin	414-628-4016

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SYMBEX

Ulti•Mate-D™ D-Sub Min Cable Assemblies

for RS-232, RS-449, RS-442A, RS-443A, and other EMC applications.

Symbex designed the Ulti•Mate-D series from scratch, rather than retrofit a dated connector style to comply with recent emission control requirements. The result is a series of EMC-D Assemblies tested to exceed RS-232 and RS-449 standards and FCC Docket 20780, Part 15, Subpart J specifications.

Standard Features:

- All styles available in 9, 15, 25, and 37 position sizes
- All industry standard dimensions
- Male and Female types
- Selective gold or non-gold contacts
- Cable lengths and wiring patterns to your specifications
- High Normal Force retention
- Screw/nut retention systems, optional
- 100% factory tested

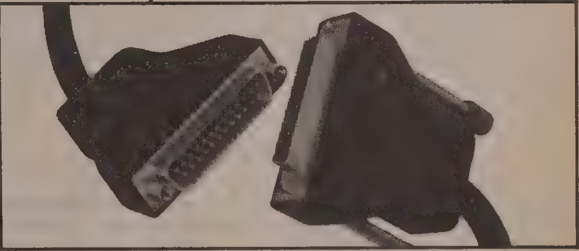
Three Styles:

SPS — Special Purpose Shielded — 60 dB rating exceeds FCC requirements	**GPS** — General Purpose Shielded — 30 dB rating meets RS-232 and RS-449 standards	**GPU** — General Purpose Unshielded for use in non-critical environments
	Connector Specs	
• Metal Shrouds and Backshells • Terminated drain wire (optional) • Terminated cable braid • Unique spring clips	• Metal Shrouds and Backshells • Terminated Drain wire • Unique spring clips	• Plastic Backshells • Metal Shrouds
	Shielding	
Double sided aluminum foil 85% tinned copper braid Tinned copper drain wire (optional)	Double sided aluminum foil Tinned copper drain wire (optional)	No Shielding

Cable Styles/Specs

U.L. Style	**2464**	**2448**
Capacities (pF/ft.)	27	14
Working Voltage	300V	30V
Impedance (OHMS)	50-75	90-120
Temperature Rating	80°C	60°C

Conductors — 24 AWG tinned copper
Jacket — Black, .035″ thickness



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New York	212-594-4090
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TECKNIT® a TWP company

ZEBRA® CONNECTORS FOR LIQUID CRYSTAL DISPLAYS

SERIES 1000/2000

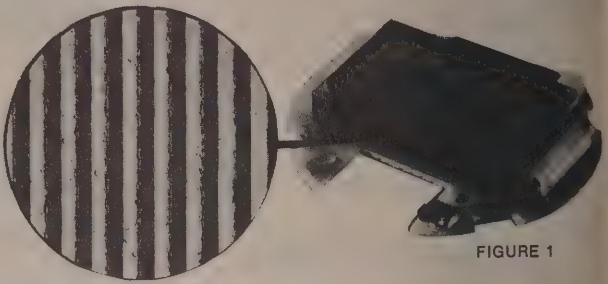


FIGURE 1

SERIES 1000

Series 1000 ZEBRA® Connectors have alternating parallel layers of conductive carbon-filled and non-conductive silicone rubber. They make reliable connections by being deflected between contacting surfaces. Series 1000 ZEBRA Connectors are used for connecting any LCD from small displays for watches to large area displays for instruments. Table A shows the different types of Series 1000 ZEBRA Connectors available.

SERIES 2000

Series 2000 ZEBRA® Connector for connecting liquid crystal displays has alternating parallel layers of carbon filled conductive and opaque white non-conductive rubber. Connection is established by deflecting the Series 2000 ZEBRA Connector between the liquid crystal display and the printed circuit board. The Series 2000 ZEBRA connector is manufactured to specifications and tolerances required for reliable connection to LCD and PC Board contacts. Table E shows the different 2000 Series ZEBRA Connectors available.

DESCRIPTION

	LCD Contact Spacing Center-to-Center*	PITCH: Sum of the Thickness of an Adjacent Conductive and Non-Conductive Layer		Conductive Layer per inch	Individual Conductive and Insulating Layer Thickness		Available Lengths
Series	Minimum	Nominal	Maximum	Minimum	Minimum	Maximum	
1006	0.030 in. 0.75 mm	0.010 in. 0.25 mm	0.014 in. 0.35 mm	100	0.002 in. 0.05 mm	0.008 in. 0.20 mm	8.00 in. 203 mm
1002	0.010 in. 0.25 mm	0.004 in. 0.10 mm	0.006 in. 0.15 mm	240	0.001 in. 0.025 mm	0.004 in. 0.10 mm	1.00 in. 25.4 mm

* This space will assure at least one conductive layer between opposing contacting pads, and at least one insulating layer between adjacent pads.

TABLE A

	LCD Contact Spacing Center-to-Center*	PITCH: Sum of the Thickness of an Adjacent Conductive and Non-Conductive Layer		Conductive Layer per inch	Individual Conductor and Insulating Layer Thickness		Available Lengths
Series	Minimum	Nominal	Maximum	Minimum	Minimum	Maximum	
2002	0.015 in. 0.38 mm	0.005 in. 0.125 mm	0.007 in. 0.175 mm	200	0.001 in. 0.025 mm	0.005 in. 0.125 mm	2.000 in. 25.40 mm
2004	0.020 in. 0.50 mm	0.008 in. 0.20 mm	0.010 in. 0.25 mm	125	0.002 in. 0.05 mm	0.006 in. 0.15 mm	3.000 in. 50.80 mm

TABLE E

Series 1000/2000 Zebra Connectors	Temperature Range		Current Carrying Capacity 0.035″ x 0.035″ pad	Resistance Between Layers
	Minimum	Maximum		
All Series 1000/2000 ZEBRAS	−55°F −50°C	260°F 125°C	0.050 amps	10^{12} ohms

TABLE B

TECKNIT 129 DERMODY STREET / CRANFORD, NJ 07016 / (201) 272-5500

ZEBRA® CONFIGURATIONS

Figure 2 shows the three dimensions of the Series 1000 ZEBRA® Connector. When ordering, the three dimensions should be specified within the limits shown in Table C.

For best overall performance, Series 1000 ZEBRA Connectors must be ordered and used with a ratio of H/W equal to or greater than 1.5 The specifications apply to a ratio of H/W equal to or greater than 1.0. ZEBRA Connector Series 1002 is available up to 1″/25.4mm long; ZEBRA Series 1006 is available up to 8″/203mm long.

SERIES 2000 ZEBRA® CONNECTOR GEOMETRY

Figure 2 also shows the three dimensions of the Series 2000 ZEBRA Connector. When ordering, the three dimensions should be specified within the limits shown in Table F.

For best overall performance Series 2000 ZEBRA Connectors should be ordered and used with a ratio of H/W equal to or greater than 1.5. The specifications apply to a ratio of H/W equal to or greater than 1.0.

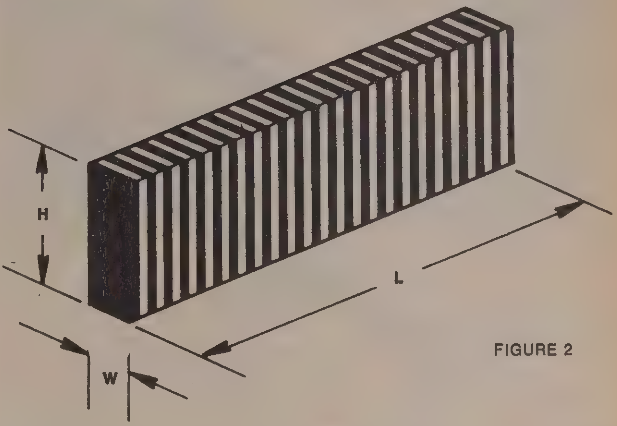


FIGURE 2

The Series 2002 ZEBRA Connector is used for high density connections that require 200 conductive layers per inch (up to 2″ long).

The Series 2004 ZEBRA Connector is used for all connections that require 125 conductive layers per inch (up to 3″ long).

SERIES 1000

Configuration	Inches		Millimeters	
LENGTH = L	Min. .250 to 1.000 — ±0.007 1.001 to 2.000 — ±0.015 2.001 to 3.000 — ±0.020 3.001 to 4.000 — ±0.025 4.001 to 6.000 — ±0.030 6.001 to 8.000 — ±0.035		6.35 to 25.40 — ±0.18 25.43 to 50.80 — ±0.38 50.81 to 76.20 — ±0.51 76.21 to 101.60 — ±0.64 101.61 to 154.40 — ±0.76 154.42 to 203.20 — ±0.89	
WIDTH = W	L = 0.250 to 4.000	L = 4.001 to 8.000	L = 6.35 to 101.60	L = 101.61 to 203.20
	0.010 to 0.070 — ±0.003 0.071 to 0.110 — ±0.004 Over 0.110 consult factory	0.020 to 0.070 — ±0.005 0.071 to 0.110 — ±0.006 Over 0.110 consult factory	0.510 to 1.780 — ±0.080 1.790 to 2.800 — ±0.010 Over 2.800 consult factory	0.510 to 1.780 — ±0.187 1.790 to 2.800 — ±0.152 Over 2.800 consult factory
HEIGHT = H	0.050 to 0.200 — ±0.005 0.201 to 0.250 — ±0.006 0.251 to 0.300 — ±0.007 Over 0.300 consult factory		1.27 to 5.08 — ±0.13 5.09 to 6.35 — ±0.15 6.39 to 7.62 — ±0.18 Over 7.62 consult factory	

TABLE C

SERIES 2000

Dimensions	Tolerances — Inches	Tolerances — Millimeters
LENGTH = L	0.250 to 1.000 — ±0.007 1.001 to 2.000 — ±0.015 2.001 to 3.000 — ±0.020	6.35 to 25.40 — ±0.18 25.43 to 50.80 — ±0.38 50.80 to 76.20 — ±0.508
WIDTH = W	0.020 to 0.070 — ±0.003 0.071 to 0.110 — ± 0.004 0.111 to 0.150 — ±0.005 Over 0.150 consult factory	0.51 to 1.78 — ±0.08 1.79 to 2.80 — ±0.10 2.81 to 3.81 — ±0.13 Over 3.81 consult factory
HEIGHT = H	0.050 to 0.200 — ±0.005 0.201 to 0.250 — ±0.006 0.251 to 0.300 — ±0.007 Over 0.300 consult factory	1.27 to 5.08 — ±0.13 5.09 to 6.35 — ±0.15 6.36 to 7.62 — ±0.18 Over 7.62 consult factory

For sizes not included within the above size ranges, consult factory.
TABLE F

TECKNIT® *a TWP company*

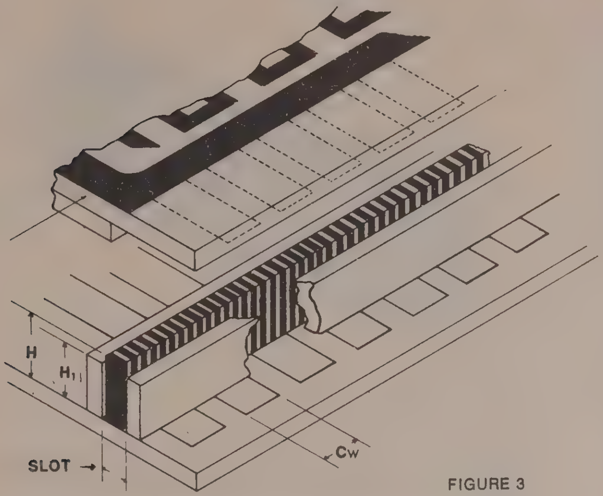


FIGURE 3

METRIC:

$R = \frac{30 \times h}{C_W \times W}$ where H, C_W and W are in cm

For $C_W = 0.035''/0.089\text{cm}$

$R = \frac{30 \times 0.152}{0.089 \times 0.0762} = 672$ ohms

FORCE DEFLECTION

Series 2000 ZEBRA® Connectors should be deflected 5% to 25% of H. To calculate F - Force for deflection, use the following formula:

F = 9 DWL = lbs. (Metric F = 0.56 DWL = kgs)

Where: $D = \frac{H-H_1}{H} \times 100\%$ (Deflection in percent)

H = Height of ZEBRA Connector in inches/cm
H_1 = Deflected height of ZEBRA Connector in inches/cm
L = Length of ZEBRA in inches/cm
W = Width of ZEBRA in inches/cm

Example:
For typical digital watch LCD, the ZEBRA Connector would have the following configurations:

H = 0.060″/0.152cm
W = 0.030/0.0762cm
L = 0.550″/1.397cm
For D = 10%
F = 9DWL
F = 9(10) (0.030) (0.550) = 1.49 lbs.
Also F = 0.63 x 10 x 0.0782 x 1.397 = 0.67 kgs

SERIES 1000 / ZEBRA INSULATING BARRIER

Description	Insulating Barrier
Color (one only)	Yellow Green Blue Red Orange White (standard)
Hardness, Durometer A	30
Dielectric Strength volts/mil.	500
Resistance, ohms	10^{12}
Insulating Barrier Width (B) in.*	0.002 ±0.001
(B) mm	0.050 ±0.025

* The tolerance of W_1 will be equal to the sum of the tolerances of W (see Tables C and B)

TABLE D

EXAMPLE:

For typical digital watch LCD, the ZEBRA® Connector would have the following configurations:

H = 0.060″/0.152cm
W = 0.030″/0.0762cm
L = 0.550″/1.397cm
For D = 10%
F = 8DWL = lbs.
F = 8(10) (0.030) (0.550) = 1.32 lbs.
F = 0.56 x 10 x 0.0762cm x 1.397cm = 0.596 kgs

NOMINAL RESISTANCE CALCULATION

To calculate the resistance of the Series 1000 ZEBRA® Connector use the following formula:

$R = \frac{12 \times H}{C_W \times W}$ = ohms

Where: C_W = Contact pad width in inches
H = ZEBRA height in inches
W = ZEBRA width in inches

INSULATING BARRIER

Series 1000 ZEBRA Connectors are available with insulating barriers on one or two sides. Properties of insulating barriers are shown in Table D.

Series 2000 ZEBRA Connectors are available with insulating barriers on one or two sides. Properties of insulating barriers are shown in Table G.

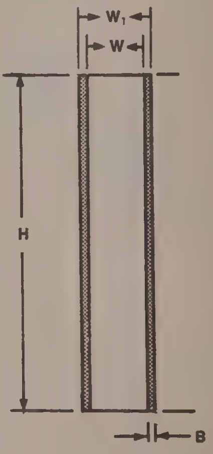


FIGURE 4

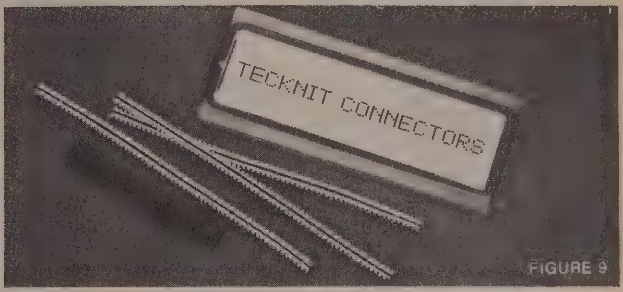
SERIES 2000 / ZEBRA INSULATING BARRIER

Description	Insulating Barrier
Color (one only)	Yellow Green Blue Red Orange White (standard)
Hardness, Durometer A	30
Dielectric Strength volts/mil.	500
Resistance, ohms	10^{12}
Insulating Barrier Width (B) in.*	0.002 ±0.001
(B) mm	0.050 ±0.025

* The tolerance of W_1 will be equal to the sum of the tolerances of W +B for single sided and W +2 x B for double sided.

TABLE G

TECKNIT® *a TWP company*



SELF-SUPPORTING CONNECTOR

The Self-Supporting Ribbed ZEBRA® Connector is a standard 1006 ZEBRA connector element supported by a soft, non-conductive silicone rubber on two sides. The silicone rubber creates a larger width that eliminates need for a holder, and yet the force required for deflection is very low. Only 1.0 to 2.0 lbs. force per linear inch is required for proper contact.

The Self-Supporting Ribbed ZEBRA Connector has 0.020"/ 0.508mm wide ZEBRA Connector element and is available in three different width to accommodate LCD's with glass lip overhang of 0.060"/1.52mm minimum.

For best overall performance the Self-Supporting Ribbed ZEBRA Connector should be used with a ratio of H/W equal to 1.25 or less.

It is used to connect LCD's to printed circuit boards and eliminates bowing of the printed circuit board due to the low force required to make contact.

Connecting Element	1006 ZEBRA
LCD Contact Spacing, Center-to-Center, in./mm minimum	0.030/0.762
Nominal Resistance, ohms	8000 H ohms

TABLE H

STANDARD SELF-SUPPORTING ZEBRA SIZES

1006		Ribbed 060	Ribbed 085	Ribbed 100	Ribbed 140	Tolerance
HEIGHT (Standard)	Inches mm	0.050 to 0.200 1.27 to 5.08	0.050 to 0.200 1.27 to 5.08	0.050 to 0.200 1.27 to 5.08	0.050 to 0.200 1.27 to 5.08	±0.005" ±0.127"
WIDTH (Standard)	Inches mm	0.060 ±0.005 1.524 ±0.127	0.085 ±0.006 2.16 ± 0.152	0.100 ±0.006 2.54 ±0.152	0.140 ±0.008 3.55 ±0.203	
LENGTH (Standard)	Inches mm	1.00 to 2.5 25.4 to 63.5	1.00 to 2.5 25.4 to 63.5	1.00 to 2.5 25.4 to 63.5	1.00 to 2.5 25.4 to 63.5	±0.015" ±0.381"
	Inches mm	2.6 to 6.0 66.04 to 152.4	2.6 to 6.0 66.04 to 152.4	2.6 to 6.0 66.04 to 152.4	2.6 to 5.0 66.04 to 127	±0.025" ±0.635"

Contact factory for special tolerances or custom sizes to 8.0 in./203mm not listed. This connector will allow one conductive layer between opposing contacts of 0.030"/0.762mm minimum center-to-center.

TABLE I

ZEBRA® CONNECTORS FOR DOT MATRIX LCD

Many LCD dot matrix displays have contact pads on the underside of the front plane facing the PC board and on top of the back plane facing away from the PC board. Connection to the front plane is made by sandwiching the self-supporting ZEBRA® Connector between the display and PC board. The ZEBRA STEP is used to connect the leads on the back plane, at level 1, with the PC board, at level 2, See Figure 14.

Dot matrix LCD's have been used successfully in electronic instruments and electronic toys and games. (For design information consult TECKNIT® Design Guide DG01-0001.)

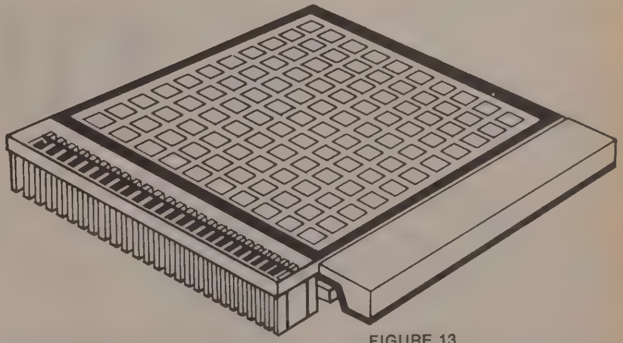


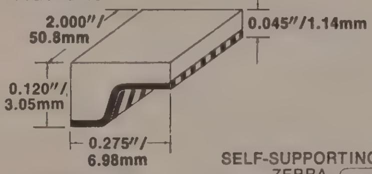
FIGURE 13

ZEBRA STEP CONFIGURATION

The ZEBRA STEP is made from a Series 1006 ZEBRA Connector, consisting of alternating parallel layers of conductive and non-conductive silicone rubber. It is formed into a step configuration and backed with an insulating pad of silicone rubber.

The ZEBRA STEP connector is available in standard size to accommodate a 2"/50.8mm x 2"/50.8mm dot matrix LCD. It is used with center-to-center contact pad spacing of 0.030"/ 0.762mm. For non-standard sizes, which are also available, please contact the TECKNIT Sales Department.

FIGURE 15



ZEBRA STEP
SERIES 1006
PART NUMBER
02-70005

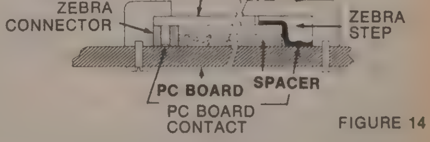


FIGURE 14

TECKNIT 129 DERMODY STREET / CRANFORD, NJ 07016 / (201) 272-5500

EEM PRODUCT SELECTION GUIDES

There are 33 Guides in this edition of EEM. See page 2 (1A•2, 1B•2, 2•2, 3•2) of each volume to locate the Product Selection Guides that pertain to your needs.

SHORT FORM CATALOG

- **Ansley® IDC Cable & Connectors**
- **Ansley® IC Sockets**
- **Flexstrip® Jumpers & Flexpac™ Assemblies**

For more than 20 years, Thomas & Betts Corporation has been developing interconnection products to meet your most complex challenges: computers and peripherals, test and instrumentation, broadcast and telecommunications, consumer electronics, automotive, military/aerospace, and industrial control applications.

And we've pioneered such innovative concepts as the mass-terminated 50-position "D" connector..."soft-tear" ground plane cable...stacked DIP and VLSI sockets...and our high-flex family of Flexstrip® jumpers and Flexpac™ cable-connector assemblies. All designed to realize the dual goal of today's electronic explorers: lower installed cost, and higher density packaging with greater reliability.

Check the following pages for solutions to your interconnection needs. Then contact Customer Service, Thomas & Betts Corporation, Electronics Group, 920 Route 202, Raritan, N.J. 08869, (201) 469-4000; or call your local authorized Distributor.

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PCB Male Headers......... 2•1597
Card Edge .... 2•1599
Male Connectors............ 2•1600
Ribbon Connectors .... 2•1600
"D" Connectors .... 2•1602
DIP Socket Connectors .... 2•1604
DIP Plugs.................. 2•1605
Flat Cable.................. 2•1606
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Where Interconnection Meets Imagination

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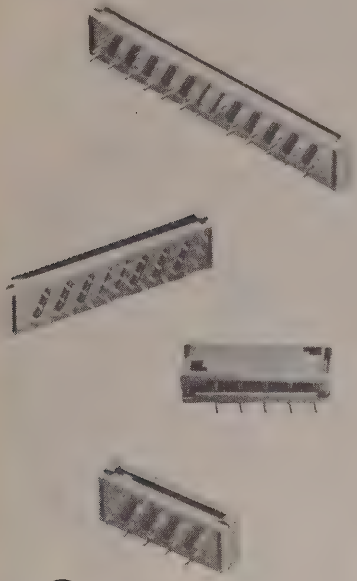
ANSLEY® CONNECTORS

ANSLEY® STANDARD PCB SOLDER TRANSITION CONNECTORS



DESCRIPTION/ APPLICATION

Ansley® PCB Solder Transition Connectors provide fast, permanent termination of flat cable to printed circuit boards. The PCB connector can be soldered either after crimping to the cable, or on the board (flow soldered) prior to crimping the cable.

Tail Lengths		
For 1.57 (.062) Thick PCB's	For 3.17 (.125) Thick PCB's	No. of Pos.
2.54 (.100)	3.96 (.156)	
Cat. No.	Cat. No.	
609-1003	609-1043	10
609-1403	609-1443	14
609-1603	609-1643	16
609-2003	609-2043	20
609-2603	609-2643	26
609-3403	609-3443	34
609-4003	609-4043	40
609-4403	609-4443	44
609-5003	609-5043	50
609-5603	609-5643	56
609-6003	609-6043	60

DESIGN CHARACTERISTICS

- 11 contact sizes - 10-60 positions
- Available in solder tail lengths for 1.57mm (.062″) or 3.18mm (.125″) board thicknesses
- One-piece connector design with mechanical side latches
- PCB connectors are soldered for permanent flat cable termination to printed circuit board
- Ridges in connector top align with Ansley® flat cable

DIMENSIONS ARE SHOWN IN MM (INCHES)

ANSLEY® SLIMLINE PCB SOLDER TRANSITION CONNECTORS

DESCRIPTION/ APPLICATION

Narrower in width than Standard Solder Transition Connectors, Ansley® Slimline PCB Solder Transition Connectors provide fast, permanent termination of flat cable to printed circuit boards. The PCB Connector can be soldered either after crimping to the cable, or on the board (flow soldered) prior to crimping to the cable.

Tail Lengths		
For 1.57 (.062) Thick PCB's	For 3.17 (.125) Thick PCB's	No. of Pos.
2.54 (.100)	3.96 (.156)	
Cat. No.	Cat. No.	
609-0653	609-0663	06
609-1053	609-1063	10
609-1453	609-1463	14
609-1653	609-1663	16
609-2053	609-2063	20
609-2453	609-2463	24
609-2653	609-2663	26
609-3453	609-3463	34
609-3653	609-3663	36
609-4053	609-4063	40
609-5053	609-5063	50
609-6053	609-6063	60
609-6453	609-6463	64

DESIGN CHARACTERISTICS

- 13 contact sizes - 6-64 positions
- Available in solder tail lengths for 1.57mm (.062″) or 3.18mm (.125″) board thicknesses
- Narrower in width than standard Ansley® PCB Solder Transition Connectors; designed to fit into a standard 2.54mm x 2.54mm (.100 x .100) male header grid pattern
- Ridges in connector top align with Ansley® flat cable
- PCB connectors are soldered for permanent flat cable transition from printed circuit boards.

DIMENSIONS ARE SHOWN IN MM (INCHES)

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T&B Electronics Group

ANSLEY® CONNECTORS

ANSLEY® FEMALE SOCKET TRANSITION CONNECTORS, STANDARD

DESCRIPTION/ APPLICATION

The Ansley® Female Socket Transition Connector is designed to mate with a wide variety of Ansley Male Headers in PC board applications which require repeated connection and disconnection. The connectors provide fast, high-integrity mass termination of all types of Ansley flat cable, simplifying and improving the quality of electronic interconnection.

FEED THRU COVER TYPE

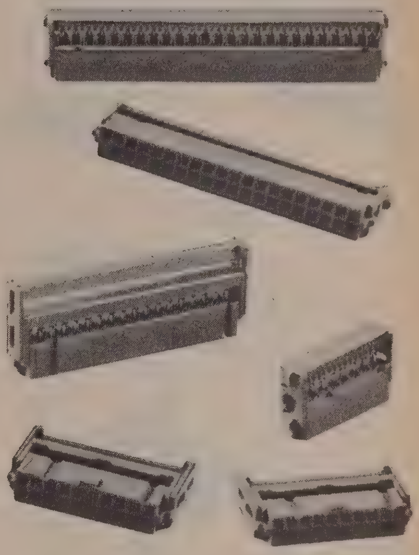
Catalog Number				
Socket Conn.	Socket Conn. with Strain Relief	Polarized Socket Conn.	Polarized Socket Conn. with Strain Relief	No. of Pos.
609-0600M	609-0601M	609-0630	609-0641	06
609-1000M	609-1001M	609-1030	609-1041	10
609-1400M	609-1401M	609-1430	609-1441	14
609-1600M	609-1601M	609-1630	609-1641	16
609-2000M	609-2001M	609-2030	609-2041	20
609-2400M	609-2401M	609-2430	609-2441	24
609-2600M	609-2601M	609-2630	609-2641	26
609-3400M	609-3401M	609-3430	609-3441	34
609-3600M	609-3601M	609-3630	609-3641	36
609-4000M	609-4001M	609-4030	609-4041	40
609-4400M	609-4401M	609-4430	609-4441	44
609-5000M	609-5001M	609-5030	609-5041	50
609-5600M	609-5601M	609-5630	609-5641	56
609-6000M	609-6001M	609-6030	609-6041	60
609-6400M	609-6401M	609-6430	609-6441	64

DESIGN CHARACTERISTICS

- Polarization keyways standard, polarization tabs optional
- Snap-on strain reliefs (optional)
- Positive cable stop design (optional) 10-60 positions
- 30 microinches (minimum) gold plating in contact mating areas
- Fifteen contact sizes - 6-64 positions
- One-piece connector design with mechanical side latches
- Ridges in connector top align with Ansley® flat cable

POSITIVE CABLE STOP TYPE

Catalog Number				
Socket Conn.	Socket Conn. with Strain Relief	Polarized Socket Conn.	Polarized Socket Conn. with Strain Relief	No. of Pos.
609-1000CE	609-1001CE	609-1030CE	609-1041CE	10
609-1600CE	609-1601CE	609-1630CE	609-1641CE	16
609-2000CE	609-2001CE	609-2030CE	609-2041CE	20
609-2600CE	609-2601CE	609-2630CE	609-2641CE	26
609-3400CE	609-3401CE	609-3430CE	609-3441CE	34
609-4000CE	609-4001CE	609-4030CE	609-4041CE	40
609-5000CE	609-5001CE	609-5030CE	609-5041CE	50
609-6000CE	609-6001CE	609-6030CE	609-6041CE	60



ANSLEY® FEMALE SOCKET TRANSITION CONNECTORS, MIL-C-83503/7 QUALIFIED

DESCRIPTION/ APPLICATION

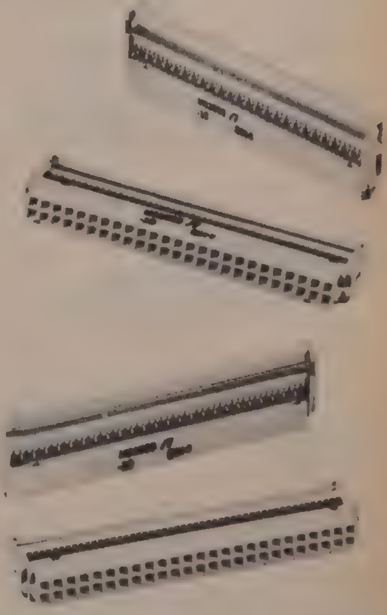
The MIL-approved Female Socket Transition Connector is designed to mate with Ansley® MIL-approved Male Headers in PC board applications which require repeated connection and disconnection. The connectors provide fast, high-integrity mass termination of all types of Ansley® flat cable, simplifying and improving the quality of electronic interconnection.

MIL-C-83503/7-
SEE DASH NO.

Dash No.	Catalog Number	No. of Pos.
01	700-1001M	10
02	700-1401M	14
03	700-1601M	16
04	700-2001M	20
05	700-2401M	24
06	700-2601M	26
08	700-3401M	34
09	700-4001M	40
10	700-5001M	50
11	700-6001M	60
12	700-6401M	64

DESIGN CHARACTERISTICS

- Polarization keyways
- Snap-on strain reliefs
- 50 microinches (minimum) gold plating in contact mating area
- Permanent part number identification stamped on each connector
- MIL-specified packaging and labeling
- Eleven contact sizes - 10-64 positions
- One-piece connector design with mechanical side latches
- Ridges in connector top align with Ansley® flat cable



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ANSLEY® CONNECTORS

ANSLEY® FEMALE SOCKET TRANSITION CONNECTOR HARDWARE

DESCRIPTION/ APPLICATION

Ansley® Female Socket Transition Connector Hardware is used for installing Ansley® Female Socket Transition Connectors in mating applications with Ansley® Male Headers. This family of products includes strain reliefs, extractor handles, polarizing plugs and retainer clips.

EXTRACTOR HANDLE

Catalog Number	No. of Pos.
609-1631SP	16
609-2031SP	20
609-2631SP	26
609-3431SP	34
609-4031SP	40
609-5031SP	50
609-6031SP	60

STRAIN RELIEF

Catalog Number	No. of Pos.
609-0631	06
609-1031	10
609-1431	14
609-1631	16
609-2031	20
609-2431	24
609-2631	26
609-3431	34
609-3631	36
609-4031	40
609-4431	44
609-5031	50
609-5631	56
609-6031	60
609-6431	64

HEAVY DUTY STRAIN RELIEF

Catalog Number	No. of Pos.
609-1031HD	10
609-1431HD	14
609-1631HD	16
609-2031HD	20
609-2631HD	26
609-3431HD	34
609-4031HD	40
609-5031HD	50
609-6031HD	60

DIMENSIONS ARE SHOWN IN $\frac{\text{MM}}{\text{(INCHES)}}$

DESIGN CHARACTERISTICS

- Strain reliefs available for all Ansley® Female Socket Transition Connector sizes - 6-64 positions
- Strain relief provides protection for cable termination; recommended for applications requiring repeated insertion and extraction cycles
- Extractor handles available for 16-64 positions only
- Extractor handle provides strain relief for the cable during disconnect cycles; recommended in applications where the female connector is hidden from view
- Polarizing plug provides alternate means of polarization; it is inserted into the appropriate connector contact cavity at the required position, and the corresponding pin on the mating header is clipped off
- Retainer clips are designed to prevent accidental connector removal or separation during handling or vibration

POLARIZING KEY

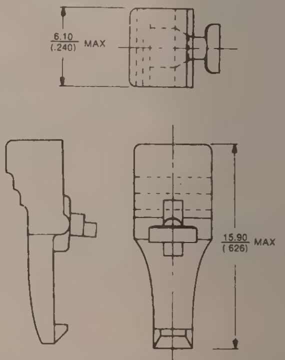
609-0000

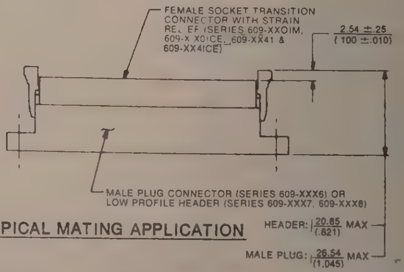
FOR POLARIZING CONNECTORS BY BLOCKING CONTACT ENTRY

RETAINER CLIP

609-0008

FOR USE WITH FEMALE SOCKET TRANSITION CONNECTION STRAIN RELIEFS


6.10 (.240) MAX
15.90 (.626) MAX


FEMALE SOCKET TRANSITION CONNECTOR WITH STRAIN RELIEF (SERIES 609-XXOIM, 609-X X0ICE, 609-XX41 & 609-XX4ICE)
2.54 ±.25 (.100 ±.010)
MALE PLUG CONNECTOR (SERIES 609-XXX6) OR LOW PROFILE HEADER (SERIES 609-XXX7, 609-XXX8)
HEADER: 20.85 (.821) MAX
MALE PLUG: 26.54 (1.045) MAX

TYPICAL MATING APPLICATION

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THOMAS & BETTS CORPORATION, ELECTRONICS GROUP
920 ROUTE 202, RARITAN, NJ 08869 (201) 469-4000

WHERE INTERCONNECTION MEETS IMAGINATION
SEE PAGE 2•1612 FOR AUTHORIZED DISTRIBUTORS

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ANSLEY® CONNECTORS

ANSLEY® PCB MALE HEADERS, LOW PROFILE

DESCRIPTION/ APPLICATION

The Ansley® Low Profile PCB Male Header is designed to provide stability, reliability, convenience and positive polarization when mated with an Ansley® Female Socket Transition Connector, in PC board applications which require repeated connection and disconnection. Optional mounting provision secures header to PC board or panel.

DIMENSIONS ARE SHOWN IN $\frac{\text{MM}}{\text{(INCHES)}}$

RIGHT ANGLE CONTACTS
NO MOUNTING PROVISION

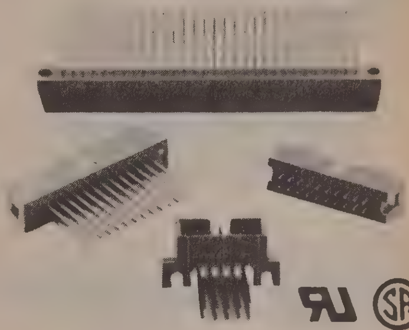
Catalog Number			No. of Pos.
Tail Length			
2.59 (.102)	4.19 (.165)	15.49 (.610)	
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	For Wrap Post Tails	
609-0607	609-0617	609-0647	06
609-1007	609-1017	609-1047	10
609-1407	609-1417	609-1447	14
609-1607	609-1617	609-1647	16
609-2007	609-2017	609-2047	20
609-2407	609-2417	609-2447	24
609-2607	609-2689	609-2647	26
609-3407	609-3417	609-3447	34
609-3607	609-3617	609-3647	36
609-4007	609-4017	609-4047	40
609-4407	609-4417	609-4447	44
609-5007	609-5017	609-5047	50
609-5607	609-5617	609-5647	56
609-6007	609-6017	609-6047	60
609-6407	609-6417	609-6447	64

DESIGN CHARACTERISTICS

- Center polarization slot mates with center polarization tab on Ansley® Female Socket Transition Connectors
- 30 microinches (minimum) gold plating in contact mating area
- Fully-shrouded (four-walled) header, for maximum protection of .635mm (.025") square mating pins
- Ansley® low-profile headers are also available in ejector/retainer versions. Add suffix "E" for headers with ears to accommodate female socket without strain relief; add suffix "ES" for header with ears to accommodate female socket with strain reliefs.

STRAIGHT CONTACTS
NO MOUNTING PROVISION

Catalog Number			No. of Pos.
Tail Length			
2.59 (.102)	4.19 (.165)	15.49 (.610)	
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	For Wrap Post Tails	
609-0627	609-0637	609-0657	06
609-1027	609-1037	609-1057	10
609-1427	609-1437	609-1457	14
609-1627	609-1637	609-1657	16
609-2027	609-2037	609-2057	20
609-2427	609-2437	609-2457	24
609-2627	609-2637	609-2657	26
609-3427	609-3437	609-3457	34
609-3627	609-3637	609-3657	36
609-4027	609-4037	609-4057	40
609-4427	609-4437	609-4457	44
609-5027	609-5037	609-5057	50
609-5627	609-5637	609-5657	56
609-6027	609-6037	609-6057	60
609-6427	609-6437	609-6457	64



RIGHT ANGLE CONTACT
WITH MOUNTING PROVISION/WIRE POST

Catalog. Number	No. of Pos.
609-0648	06
609-1048	10
609-1448	14
609-1648	16
609-2048	20
609-2448	24
609-2648	26
609-3448	34
609-3648	36
609-4048	40
609-4448	44
609-5048	50
609-5648	56
609-6048	60
609-6448	64

STRAIGHT CONTACT
WITH MOUNTING PROVISION/WIRE POST

Catalog Number	No. of Pos.
609-0658	06
609-1058	10
609-1458	14
609-1658	16
609-2058	20
609-2458	24
609-2658	26
609-3458	34
609-3658	36
609-4058	40
609-4458	44
609-5058	50
609-5658	56
609-6058	60
609-6458	64

ANSLEY® PCB MALE HEADERS WITH LOCK & EJECT OPTION

DESCRIPTION/ APPLICATION

The Ansley® PCB Male Header is designed to provide stability, reliability, convenience and positive polarization when mated with an Ansley® Female Socket Transition Connector, in PC board applications which require repeated connection and disconnection. Optional retainer-ejector ears easily disengage the header and female socket, eliminating stress in the cable contact termination area and solder joint area during a disconnect cycle.

RIGHT ANGLE CONTACTS

Catalog Number*			No. of Pos.
Tail Length			
2.59 (.102)	4.19 (.165)	15.49 (.610)	
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	For Wrap Post Tails	
609-1004	609-1014	609-1044	10
609-1404	609-1414	609-1444	14
609-1604	609-1614	609-1644	16
609-2004	609-2014	609-2044	20
609-2604	609-2614	609-2644	26
609-3404	609-3414	609-3444	34
609-4004	609-4014	609-4044	40
609-5004	609-5014	609-5044	50
609-6004	609-6014	609-6044	60
609-6404	609-6414	609-6444	64

DESIGN CHARACTERISTICS

- Center polarization slot mates with center polarization tab on Ansley® Female Socket Transition Connectors
- 30 microinches (minimum) gold plating in contact mating area
- Ten contact sizes - 10-64 positions
- Fully-shrouded (four-walled) header, for maximum protection of .635mm (.025") square mating pins

DIMENSIONS ARE SHOWN IN $\frac{\text{MM}}{\text{(INCHES)}}$

STRAIGHT CONTACTS

Catalog Number*			No. of Pos.
Tail Length			
2.59 (.102)	4.19 (.165)	15.49 (.610)	
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	For Wrap Post Tails	
609-1024	609-1034	609-1054	10
609-1424	609-1434	609-1454	14
609-1624	609-1634	609-1654	16
609-2024	609-2034	609-2054	20
609-2624	609-2634	609-2654	26
609-3424	609-3434	609-3454	34
609-4024	609-4034	609-4054	40
609-5024	609-5034	609-5054	50
609-6024	609-6034	609-6054	60
609-6424	609-6434	609-6454	64

* HEADERS WITH RETAINER/EJECTOR EARS MAY BE SPECIFIED. Add suffix "E" for headers with ears to accommodate female socket without strain relief; add suffix "ES" for header with ears to accommodate female socket with strain reliefs. Note: retainer-ejector ears may be ordered separately for customer installation: 609-0004E (short ears); 609-0004ES (long ears).

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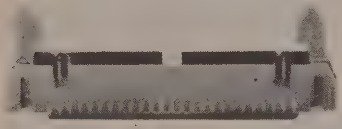
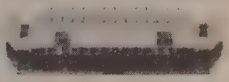
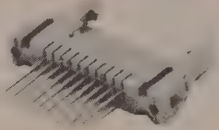
ANSLEY® CONNECTORS

ANSLEY® PCB MALE HEADERS, MIL-COMPATIBLE POLARIZATION, WITH LOCK & EJECT OPTION







DESCRIPTION/ APPLICATION

The Ansley® MIL-Compatible PCB Male Header is designed to provide stability, reliability, convenience and positive polarization when mated with an Ansley® Female Socket Transition Connector, in PC board applications which require repeated connection and disconnection, and MIL-compatible polarization. The retainer-ejector ears easily disengage the header and female socket, eliminating stress in the cable contact termination area and solder joint area during a disconnect cycle.

DESIGN CHARACTERISTICS

- Compatible with all MIL-C-83503 socket and header systems
- 30 microinches (minimum) gold plating in contact mating area
- Ten contact sizes - 10-64 positions
- Fully-shrouded (four-walled) header, for maximum protection of .635mm (.025") square mating pins
- Center polarization slot mates with center polarization tab on Ansley® Female Socket Transition Connectors

DIMENSIONS ARE SHOWN IN MM (INCHES)

RIGHT ANGLE CONTACTS

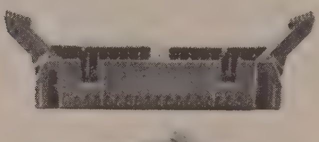
Catalog Number*			No. of Pos.
Tail Length			
2.59 (.102)	4.19 (.165)	15.49 (.610)	
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	For Wrap Post Tails	
612-1004	612-1014	612-1044	10
612-1404	612-1414	612-1444	14
612-1604	612-1614	612-1644	16
612-2004	612-2014	612-2044	20
612-2604	612-2614	612-2644	26
612-3404	612-3414	612-3444	34
612-4004	612-4014	612-4044	40
612-5004	612-5014	612-5044	50
612-6004	612-6014	612-6044	60
612-6404	612-6414	612-6444	64

STRAIGHT CONTACTS

Catalog Number*			No. of Pos.
Tail Length			
2.59 (.102)	4.19 (.165)	15.49 (.610)	
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	For Wrap Post Tails	
612-1024	612-1034	612-1054	10
612-1424	612-1434	612-1454	14
612-1624	612-1634	612-1654	16
612-2024	612-2034	612-2054	20
612-2624	612-2634	612-2654	26
612-3424	612-3434	612-3454	34
612-4024	612-4034	612-4054	40
612-5024	612-5034	612-5054	50
612-6024	612-6034	612-6054	60
612-6424	612-6434	612-6454	64

* HEADERS WITH RETAINER/EJECTOR EARS MAY BE SPECIFIED. Add suffix "E" for headers with ears to accommodate female socket without strain relief; add suffix "ES" for header with ears to accommodate female socket with strain reliefs. Note: retainer-ejector ears may be ordered separately for customer installation: 609-0004E (short ears); 609-0004ES (long ears).

ANSLEY® PCB MALE HEADERS, MIL-C-83503/24/25 QUALIFIED



DESCRIPTION/ APPLICATION

The Ansley® MIL-approved PCB Male Header is designed to provide stability, reliability, convenience and positive polarization when mated with an Ansley® MIL-approved Female Socket Transition Connector, in PC board applications which require repeated connection and disconnection. The retainer-ejector ears easily disengage the header and female socket, eliminating stress in the cable contact termination area and solder joint area during a disconnect cycle.

DESIGN CHARACTERISTICS

- Approved to MIL-C-83503/24 and MIL-C-83503/25
- Permanent, molded-in polarization keys
- Long, retainer-ejector ears to accommodate socket with strain relief
- 50 microinches (minimum) gold plating in contact mating area
- Permanent part number identification stamped on each connector
- MIL-specified packaging and labeling
- Ten contact sizes - 10-64 positions
- Fully-shrouded (four-walled) header, for maximum protection of .635mm (.025") square mating pins

RIGHT ANGLE CONTACTS

MIL-C-83503/24 — (See Dash Number)						No. of Pos.
Tail Length						
$2.59^{+.36}_{-.33}$ / $(.102^{+.014}_{-.013})$		$4.19 \pm .38$ / $(1.65 \pm .015)$		$15.49 \pm .38$ / $(.610 \pm .015)$		
For 1.57 (.062) P.C. Boards		For 3.18 (.125) P.C. Boards		For Wrap Post Tails		
Dash No.	Catalog Number	Dash No.	Catalog Number	Dash No.	Catalog Number	
01	700-1004ES	02	700-1014ES	03	700-1044ES	10
04	700-1404ES	05	700-1414ES	06	700-1444ES	14
07	700-1604ES	08	700-1614ES	09	700-1644ES	16
10	700-2004ES	11	700-2014ES	12	700-2044ES	20
13	700-2604ES	14	700-2614ES	15	700-2644ES	26
16	700-3404ES	17	700-3414ES	18	700-3444ES	34
19	700-4004ES	20	700-4014ES	21	700-4044ES	40
22	700-5004ES	23	700-5014ES	24	700-5044ES	50
25	700-6004ES	26	700-6014ES	27	700-6044ES	60
28	700-6404ES	29	700-6414ES	30	700-6444ES	64

STRAIGHT CONTACTS

MIL-C-83503/25 — (See Dash Number)						No. of Pos.
Tail Length						
$2.59^{+.36}_{-.33}$ / $(.102^{+.014}_{-.013})$		$4.19 \pm .38$ / $(.165 \pm .015)$		$15.49 \pm .38$ / $(.610 \pm .015)$		
For 1.57 (.062) P.C. Boards		For 3.18 (.125) P.C. Boards		For Wrap Post Tails		
Dash No.	Catalog Number	Dash No.	Catalog Number	Dash No.	Catalog Number	
01	700-1024ES	02	700-1034ES	03	700-1054ES	10
04	700-1424ES	05	700-1434ES	06	700-1454ES	14
07	700-1624ES	08	700-1634ES	09	700-1654ES	16
10	700-2024ES	11	700-2034ES	12	700-2054ES	20
13	700-2624ES	14	700-2634ES	15	700-2654ES	26
16	700-3424ES	17	700-3434ES	18	700-3454ES	34
19	700-4024ES	20	700-4034ES	21	700-4054ES	40
22	700-5024ES	23	700-5034ES	24	700-5054ES	50
25	700-6024ES	26	700-6034ES	27	700-6054ES	60
28	700-6424ES	29	700-6434ES	30	700-6454ES	64

DIMENSIONS ARE SHOWN IN MM (INCHES)

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Electronics Group

ANSLEY® CONNECTORS

ANSLEY® VERTICAL EJECTOR HEADERS

DESCRIPTION/ APPLICATION

The Ansley® Vertical Ejector Header connects with standard Female Socket Transition Connectors in PC board applications requiring repeated disconnect/reconnect cycles. While retaining all the advantages of conventional ejector header designs, it maximizes PC board real estate. Unlike conventional designs where the ejector ear swing radius is out at the ends, the swing radius of the Vertical Ejector Headers is up at the side. This permits headers to be butted end to end with no wasted board space.

DESIGN CHARACTERISTICS

- Eleven contact sizes - 10-60 positions
- Right angle and straight solder tail versions, for either 1.57mm (.062″) or 3.18mm (.125″) thick boards
- Available with large or small retainer-ejector ears to accommodate terminated female socket connectors with or without installed strain reliefs, respectively

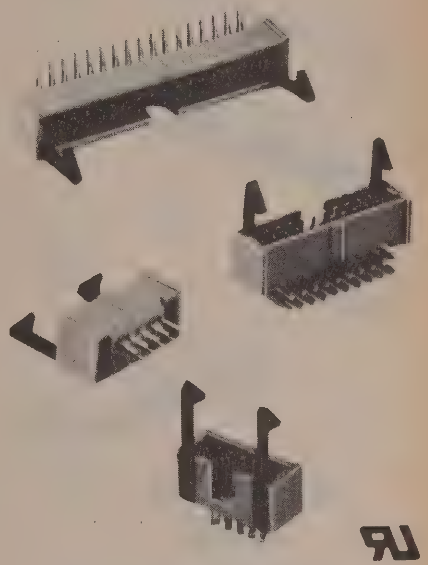
DIMENSIONS ARE SHOWN IN $\frac{\text{MM}}{\text{(INCHES)}}$

RIGHT ANGLE CONTACTS

Catalog Number*		
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	No. of Contacts
500-1007	501-0017	10
500-1407	500-1417	14
500-1607	500-1617	16
500-2007	500-2017	20
500-2607	500-2617	26
500-3407	500-3417	34
500-4007	500-4017	40
500-4407	500-4417	44
500-5007	500-5017	50
500-5607	500-5617	56
500-6007	500-6017	60

STRAIGHT CONTACTS

Catalog Number*		
For 1.57 (.062) P.C. Boards	For 3.18 (.125) P.C. Boards	No. of Contacts
500-1027	500-1037	10
500-1427	500-1437	14
500-1627	500-1637	16
500-2027	500-2037	20
500-2627	500-2637	26
500-3427	500-3437	34
500-4027	500-4037	40
500-4427	500-4437	44
500-5027	500-5037	50
500-5627	500-5637	56
500-6027	500-6037	60



* HEADERS WITH RETAINER/EJECTOR EARS MUST BE SPECIFIED. Add suffix "E" for headers with ears to accommodate female socket without strain relief; add suffix "ES" for header with ears to accommodate female socket with strain relief.

ANSLEY® CARD EDGE CONNECTORS

DESCRIPTION/ APPLICATION

Ansley® Card Edge Connectors are designed to provide a reliable flat cable interface to double-sided printed circuit boards. A variety of mounting options provides for application versatility.

FULL MOUNTING EARS

Catalog Number	No. of Pos.
609-1005M	10
609-1605M	16
609-2005M	20
609-2605M	26
609-3405M	34
609-4005M	40
609-4405M	44
609-5005M	50
609-5605M	56
609-6005M	60

HALF MOUNTING EARS

Catalog Number	No. of Pos.
609-1025M	10
609-1625M	16
609-2025M	20
609-2625M	26
609-3425M	34
609-4025M	40
609-4425M	44
609-5025M	50
609-5625M	56
609-6025M	60

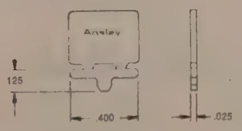
WITHOUT EARS

Catalog Number	No. of Pos.
609-1015M	10
609-1615M	16
609-2015M	20
609-2615M	26
609-3415M	34
609-4015M	40
609-4415M	44
609-5015M	50
609-5615M	56
609-6015M	60

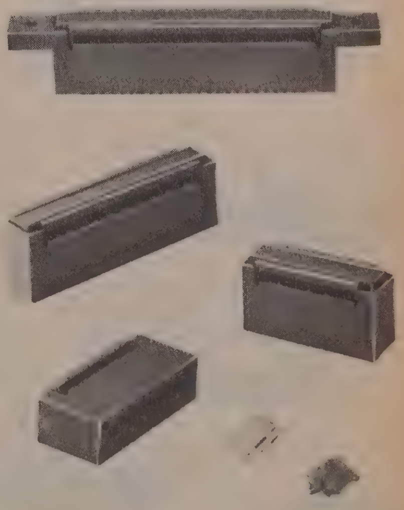
DESIGN CHARACTERISTICS

- Available in three configurations - full mounting ear, half mounting ear and no mounting ears
- 10-60 positions
- Separate key available for polarization requirements
- Bifurcated contact design offers two points of contact for electrical reliability; tolerates PCB pad variations
- One-piece connector design with mechanical side latches
- Ridges in connector top align with Ansley® flat cable

609-0005
POLARIZING KEY
SCALE: NONE



DIMENSIONS ARE SHOWN IN INCHES



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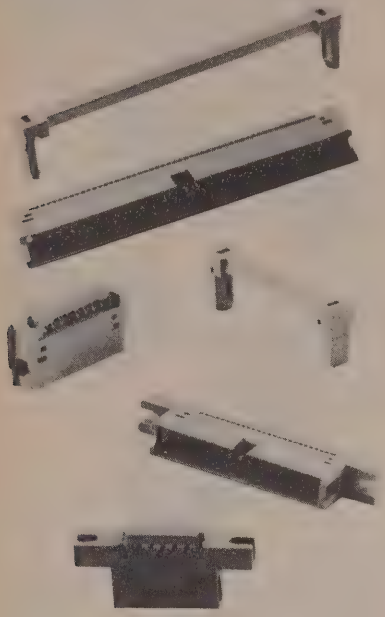
ANSLEY® CONNECTORS

ANSLEY® MALE CONNECTORS



DESCRIPTION/ APPLICATION

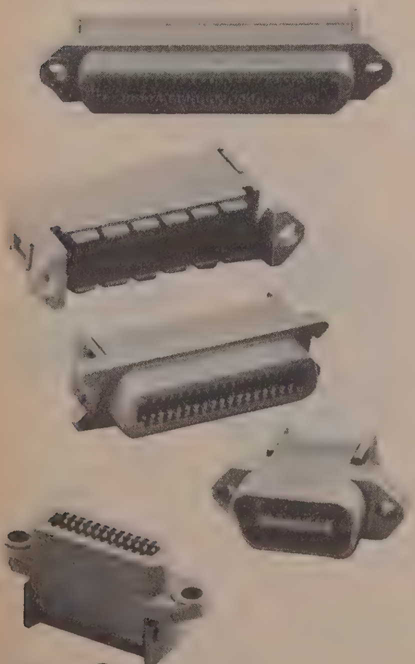
Ansley® Male Connectors are designed to mate with Female Socket Transition Connectors. Used primarily for in-line cable splice and "T" tap applications, they are available with optional mounting ears for I/O applications.

DESIGN CHARACTERISTICS

- Eleven contact sizes - 10-60 positions
- Box shape assures polarization and protects mating pins
- Available without mounting ears for in-line cable splice applications
- Available with mounting ears for I/O applications
- Strain relief available for Male Connector without mounting ears
- One-piece connector design with mechanical side latches
- Ridges in connector top align with Ansley® flat cable

Catalog Number			
Connector Only		Strain Relief Only	No. of Pos.
With Mounting Ears	Without Mounting Ears		
609-1016	609-1006	609-1066	10
609-1416	609-1406	609-1466	14
609-1616	609-1606	609-1666	16
609-2016	609-2006	609-2066	20
609-2616	609-2606	609-2666	26
609-3416	609-3406	609-3466	34
609-4016	609-4006	609-4066	40
609-4416	609-4406	609-4466	44
609-5016	609-5006	609-5066	50
609-5616	609-5606	609-5666	56
609-6016	609-6006	609-6066	60

ANSLEY® RIBBON CONNECTORS



DESCRIPTION/ APPLICATION

Ansley® Ribbon Connectors are designed primarily for I/O applications. They provide maximum installation versatility by maintaining I/O compatability with all industry standard Ribbon Connectors while mass terminating to Ansley® flat cable.

DESIGN CHARACTERISTICS

- Insulation displacing contacts on 1.27mm (.050") centers
- I/O mating ribbon contacts on industry standard 2.16mm (.085") centers
- Compatible with other Ansley® mass termination connectors utilizing 1.27mm (.050") pitch cable
- Backshell strain reliefs available for use with standard ear Ribbon Connectors terminated to Jacketed Flat Cable
- One-piece connector design with mechanical side latches
- Ridges in connector top align with Ansley® flat cable

MALE/STANDARD MOUNTING EARS

Catalog Number	No. of Pos.
609-14M	14
609-24M	24
609-36M	36
609-50M	50

MALE/BAIL MOUNTING EARS

Catalog Number	No. of Pos.
609-14MA	14
609-24MA	24
609-36MA	36
609-50MA	50

FEMALE/ STANDARD MOUNTING EARS

Catalog Number	No. of Pos.
609-14F	14
609-24F	24
609-36F	36
609-50F	50

FEMALE/BAIL MOUNTING EARS

Catalog Number	No. of Pos.
609-14FA	14
609-24FA	24
609-36FA	36
609-50FA	50

RIBBON CONNECTOR BACKSHELL

Catalog Number	No. of Pos.
609-014	14
609-024	24
609-036	36
609-050	50

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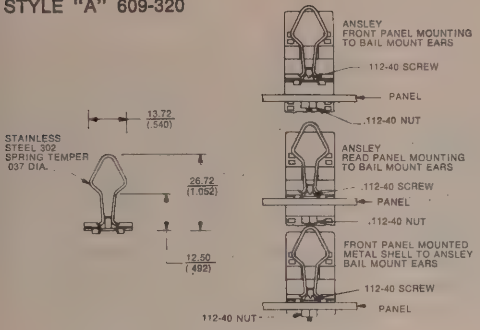
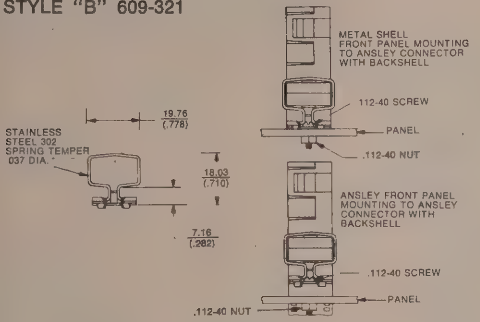
ANSLEY® CONNECTORS

ANSLEY® RIBBON CONNECTOR, HARDWARE

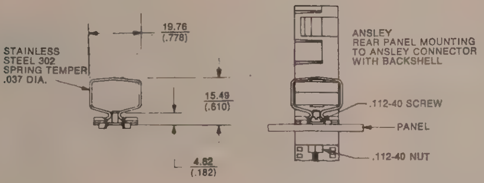
CLIP STYLE "A" 609-320


ANSLEY FRONT PANEL MOUNTING TO BAIL MOUNT EARS
112-40 SCREW
PANEL
.112-40 NUT
13.72 (.540)
STAINLESS STEEL 302 SPRING TEMPER .037 DIA.
26.72 (1.052)
12.50 (.492)
ANSLEY READ PANEL MOUNTING TO BAIL MOUNT EARS
.112-40 SCREW
PANEL
.112-40 NUT
FRONT PANEL MOUNTED METAL SHELL TO ANSLEY BAIL MOUNT EARS
112-40 SCREW
PANEL
112-40 NUT

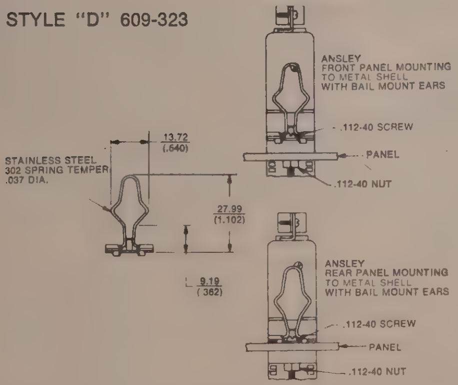
CLIP STYLE "B" 609-321


METAL SHELL FRONT PANEL MOUNTING TO ANSLEY CONNECTOR WITH BACKSHELL
112-40 SCREW
PANEL
.112-40 NUT
19.76 (.778)
STAINLESS STEEL 302 SPRING TEMPER .037 DIA.
18.03 (.710)
7.16 (.282)
ANSLEY FRONT PANEL MOUNTING TO ANSLEY CONNECTOR WITH BACKSHELL
.112-40 SCREW
PANEL
.112-40 NUT

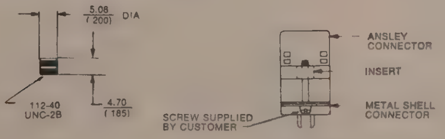
CLIP STYLE "C" 609-322


19.76 (.778)
STAINLESS STEEL 302 SPRING TEMPER .037 DIA.
15.49 (.610)
4.62 (.182)
ANSLEY REAR PANEL MOUNTING TO ANSLEY CONNECTOR WITH BACKSHELL
.112-40 SCREW
PANEL
.112-40 NUT

CLIP STYLE "D" 609-323

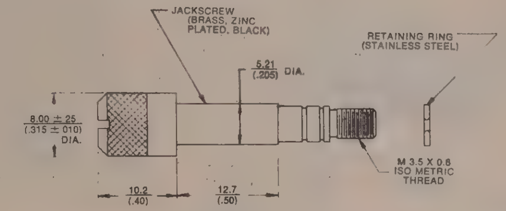

ANSLEY FRONT PANEL MOUNTING TO METAL SHELL WITH BAIL MOUNT EARS
.112-40 SCREW
PANEL
.112-40 NUT
13.72 (.540)
STAINLESS STEEL 302 SPRING TEMPER .037 DIA.
27.99 (1.102)
9.19 (.362)
ANSLEY REAR PANEL MOUNTING TO METAL SHELL WITH BAIL MOUNT EARS
.112-40 SCREW
PANEL
.112-40 NUT

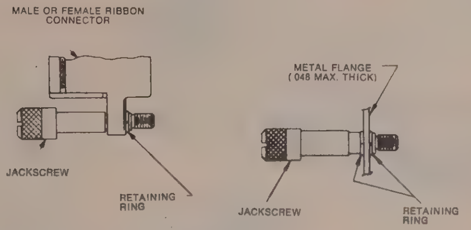
THREADED BUSHING 609-324


5.08 (.200) DIA
112-40 UNC-2B
4.70 (.185)
SCREW SUPPLIED BY CUSTOMER
ANSLEY CONNECTOR
INSERT
METAL SHELL CONNECTOR

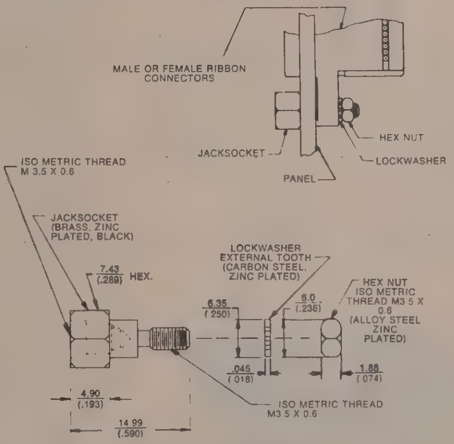
(TYP. MATING APPLICATION, ANSLEY CONNECTOR TO METAL SHELL)

JACKSCREW ASSEMBLY 609-326


JACKSCREW (BRASS, ZINC PLATED, BLACK)
RETAINING RING (STAINLESS STEEL)
5.21 (.205) DIA.
8.00 ± .25 (.315 ± .010) DIA.
M 3.5 X 0.6 ISO METRIC THREAD
10.2 (.40)
12.7 (.50)


MALE OR FEMALE RIBBON CONNECTOR
METAL FLANGE (.048 MAX. THICK)
JACKSCREW
RETAINING RING
JACKSCREW
RETAINING RING

JACKSOCKET ASSEMBLY 609-325


MALE OR FEMALE RIBBON CONNECTORS
HEX NUT
JACKSOCKET
LOCKWASHER
PANEL
ISO METRIC THREAD M 3.5 X 0.6
JACKSOCKET (BRASS, ZINC PLATED, BLACK)
7.43 (.289) HEX.
LOCKWASHER EXTERNAL TOOTH (CARBON STEEL, ZINC PLATED)
6.35 (.250)
6.0 (.236)
HEX NUT ISO METRIC THREAD M3.5 X 0.6 (ALLOY STEEL ZINC PLATED)
.045 (.018)
1.88 (.074)
4.90 (.193)
14.99 (.590)
ISO METRIC THREAD M3.5 X 0.6

Cat. No.	Application	Clip Style
609-320	For mounting to Ansley Ribbon Connectors with Bail Mount Ears	A
609-321	For mounting to Ansley Ribbon Connectors with Backshell Strain Relief (Front Panel Mount)	B
609-322	For mounting to Ansley Ribbon Connectors with Backshell Strain Relief (Rear Panel Mount)	C
609-323	For mounting Ansley Ribbon Connectors to Metal Shell Connectors with Bail Mount Ears	D
609-324	Threaded Bushing for all in line mounting applications	N/A
609-325	Jacksocket Assembly to retain a Ribbon Connector to an IEE 488 Cable Assembly or used with 609-326 to retain two Ribbon Connectors to each other as a mated pair cable splice	N/A
609-326	Jackscrew Assembly to retain a Ribbon Connector to an IEE 488 Cable Assembly or used with 609-325 to retain two Ribbon Connectors to each other as a mated pair cable splice	N/A

DIMENSIONS ARE SHOWN IN $\frac{\text{MM}}{\text{(INCHES)}}$

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THOMAS & BETTS CORPORATION, ELECTRONICS GROUP
920 ROUTE 202, RARITAN, NJ 08869 (201) 469-4000

WHERE INTERCONNECTION MEETS IMAGINATION
SEE PAGE 2•1612 FOR AUTHORIZED DISTRIBUTORS

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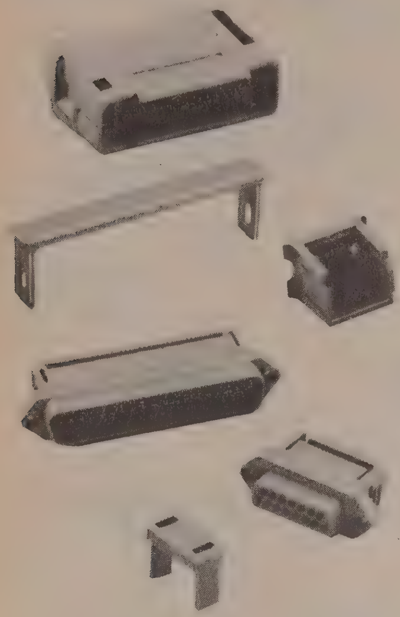
ANSLEY® CONNECTORS

ANSLEY® "D" CONNECTORS, PLASTIC



DESCRIPTION/ APPLICATION

Ansley® Plastic "D" Connectors are used in panel-mounted I/O applications, providing mass termination IDC convenience and integrity while maintaining compatibility with all industry standard "D" connectors. Backshell strain reliefs and a full complement of mounting hardware accessories are available for this series.

PIN CONTACTS

Catalog Number	No. of Pos.
609-9P	9
609-15P	15
609-25P	25
609-37P	37
609-50P	50

SOCKET CONTACTS

Catalog Number	No. of Pos.
609-9S	9
609-15S	15
609-25S	25
609-37S	37
609-50S	50

STANDARD BACKSHELLS

Catalog Number	No. of Pos.
609-09	9
609-015	15
609-025	25
609-037	37
609-050D	50

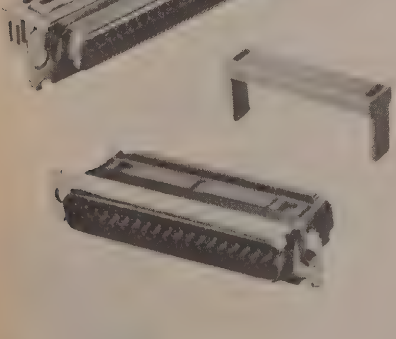
RIGHT ANGLE BACKSHELLS

Catalog Number	No. of Pos.
609-09R	9
609-015R	15
609-025R	25
609-037R	37

DESIGN CHARACTERISTICS

- Available in 9, 15, 25, 37 and 50 position configurations
- Pin connector and socket connector versions
- Backshell strain relief in straight and right angle styles
- SPREAD PITCH™ contact design enables mass termination to 1.27mm (.050") pitch flat cable while maintaining I/O compatibility with 2.77mm (.109") industry standard "D" Connectors
- One-piece connector design with mechanical side latches
- Ridges in connector top align with Ansley® flat cable

ANSLEY® "D" CONNECTORS, METAL SHELL



DESCRIPTION/ APPLICATION

Ansley® Metal Shell "D" Connectors have been designed to aid in electronic system EMI/RFI suppression, as mandated by recent FCC directives. Used in panel-mounted I/O applications, they provide the same mass termination benefits as Ansley® plastic "D" Connectors, and terminate to all types of Ansley® flat cable - including shielded, jacketed shielded and ground plane cable for spurious signal suppression in intercabinet applications. Backshell strain reliefs and a full complement of mounting hardware accessories are available for this series.

PIN CONTACTS

Catalog Number	No. of Pos.
609-9P-M	9
609-9P-M2	9
609-15P-M	15
609-15P-M2	15
609-25P-M	25
609-25P-M2	25
609-37P-M	37
609-37P-M2	37
609-50P-M	50
609-50P-M2	50

Note: M = Zinc Plating; M2 = Tin Plating with assured shell-to-shell continuity

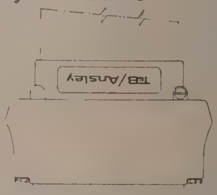
SOCKET CONTACTS

Catalog Number	No. of Pos.
609-9S-M	9
609-9S-M1	9
609-15S-M	15
609-15S-M1	15
609-25S-M	25
609-25S-M1	25
609-37S-M	37
609-37S-M1	37
609-50S-M	50
609-50S-M1	50

Note: M = Zinc Plating; M1 = Tin Plating.

DESIGN CHARACTERISTICS

- Available in 9, 15, 25, 37, and 50 position configurations
- Pin connector and socket connector versions
- Choice of zinc - or tin-plated metal shell
- SPREAD PITCH™ contact design enables mass termination to 1.27mm (.050") pitch flat cable while maintaining I/O compatibility with 2.77mm (.109") industry standard "D" Connectors
- One-piece connector design with mechanical side latches
- Ridges in connector top align with Ansley® flat cable



SHIELDING BACKSHELLS

Catalog Number	No. of Positions	Flange Type	Plating
609-09DM	9	Metal	Tin
609-015DM	15	Metal	Tin
609-025M-1	25	Plastic	Bright Zinc
609-025M-2	25	Metal	Zinc-Chromate
609-025M-3	25	Metal	Tin
609-037-DM	37	Metal	Tin
609-050-DM	50	Metal	Tin

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WHERE INTERCONNECTION MEETS IMAGINATION
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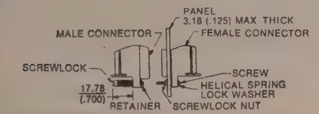
ANSLEY® CONNECTORS

ANSLEY® "D" CONNECTOR, HARDWARE*

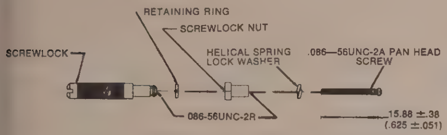
9-37 POSITION

SCREWLOCK ASSEMBLY TO RETAIN TWO "D" CONNECTORS (PLASTIC ONLY) TO EACH OTHER THROUGH A PANEL OR PC BOARD

Cat. No. 609-001: Stainless Steel Passivated
Cat. No. 609-001A: Steel, Zinc Plated
Cat. No. 779-6211: Retaining Ring Installation Tool

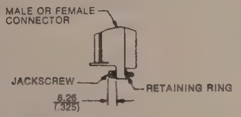

PANEL
3.18 (.125) MAX THICK
MALE CONNECTOR
FEMALE CONNECTOR
SCREWLOCK
SCREW
HELICAL SPRING LOCK WASHER
17.78 (.700)
RETAINER
SCREWLOCK NUT

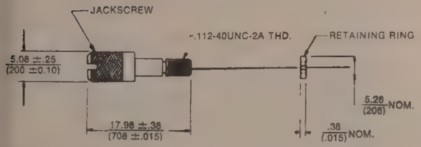
(NOTE: PARTS MAY BE ASSEMBLED ON EITHER CONNECTOR)


RETAINING RING
SCREWLOCK NUT
SCREWLOCK
HELICAL SPRING LOCK WASHER
.086—56UNC-2A PAN HEAD SCREW
086-56UNC-2R
15.88 ±.38 (.625 ±.051)

JACKSCREW ASSEMBLY USED WITH 609-003 TO RETAIN TWO "D" CONNECTORS (PLASTIC ONLY) TO EACH OTHER AS A MATED PAIR CABLE SPLICE

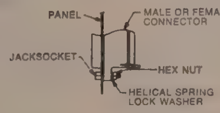
Cat. No. 609-002: Stainless Steel, Passivated
Cat. No. 609-002A: Steel, Zinc Plated
Cat. No. 779-6210: Retaining Ring Installation Tool

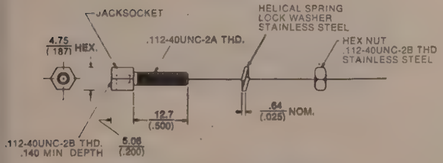

MALE OR FEMALE CONNECTOR
JACKSCREW
RETAINING RING
8.26 (.325)


JACKSCREW
.112-40UNC-2A THD.
RETAINING RING
5.08 ±.25 (.200 ±0.10)
5.26 (.208) NOM.
17.98 ±.38 (.708 ±.015)
.38 (.015) NOM.

JACKSOCKET ASSEMBLY USED WITH 609-002 FOR FRONT PANEL MOUNTING OR 609-004

Cat. No. 609-003: Stainless Steel, Passivated
Cat. No. 609-003A: Steel Zinc Plated


PANEL
MALE OR FEMALE CONNECTOR
JACKSOCKET
HEX NUT
HELICAL SPRING LOCK WASHER

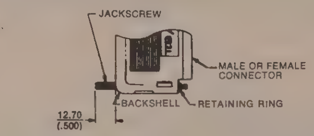

JACKSOCKET
HELICAL SPRING LOCK WASHER STAINLESS STEEL
4.75 (.187) HEX.
.112-40UNC-2A THD.
HEX NUT .112-40UNC-2B THD STAINLESS STEEL
12.7 (.500)
.64 (.025) NOM.
.112-40UNC-2B THD. .140 MIN DEPTH
5.08 (.200)

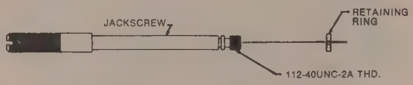
Catalog No.	"A"	Panel Thickness	
609-006	1.27 (.050)		1.57 (.'062)
609-007	2.16 (.065)	2.36 (.093)	3.18 (.125)

DIMENSIONS ARE SHOWN IN $\frac{\text{MM}}{\text{(INCHES)}}$

BACKSHELL JACKSCREW ASSEMBLY (USED WITH BACKSHELL STRAIN RELIEF AND 609-003) TO RETAIN TWO "D" CONNECTORS TO EACH OTHER AS A MATED PAIR CABLE SPLICE

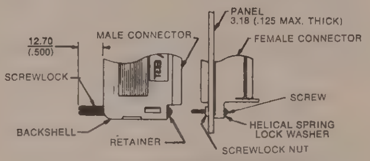
Cat. No. 609-004: Stainless Steel, Passivated
Cat. No. 609-004A: Steel, Zinc Plated
Cat. No. 779-6210: Retaining Ring Installation Tool


JACKSCREW
MALE OR FEMALE CONNECTOR
BACKSHELL
RETAINING RING
12.70 (.500)

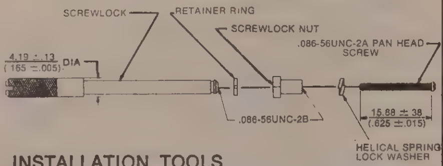

JACKSCREW
RETAINING RING
112-40UNC-2A THD.

BACKSHELL SCREWLOCK ASSEMBLY USED WITH BACKSHELL STRAIN RELIEF TO RETAIN TWO "D" CONNECTORS TO EACH OTHER THROUGH A PANEL OR PC BOARD

Cat. No. 609-005: Stainless Steel, Passivated
Cat. No. 609-005A: Steel, Zinc Plated
Cat. No. 779-6211: Retaining Ring Installation Tool


PANEL
3.18 (.125 MAX. THICK)
12.70 (.500)
MALE CONNECTOR
FEMALE CONNECTOR
SCREWLOCK
SCREW
HELICAL SPRING LOCK WASHER
BACKSHELL
RETAINER
SCREWLOCK NUT

(NOTE: PARTS MAY BE MOUNTED ON EITHER CONNECTOR)

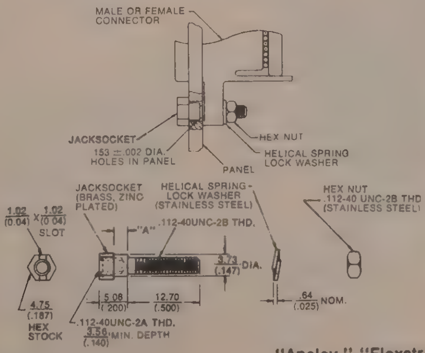

SCREWLOCK
RETAINER RING
SCREWLOCK NUT
.086-56UNC-2A PAN HEAD SCREW
4.19 ±.13 (.165 ±.005) DIA
15.88 ±.38 (.625 ±.015)
.086-56UNC-2B
HELICAL SPRING LOCK WASHER

INSTALLATION TOOLS

779-6210 Retaining Ring Installation Tool to install Jackscrews (609-002, 609-004); 779-6211 Retaining Ring Installation Tool to install Screwlock Assemblies (609-001, 609-005)

REAR PANEL MOUNT JACKSOCKET ASSEMBLY

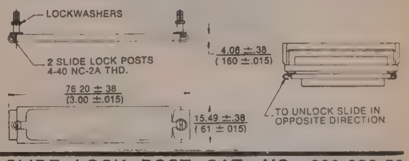
Cat. No. 609-006: For .090" thick Panels
Cat. No. 609-007: For .125" thick Panels


MALE OR FEMALE CONNECTOR
JACKSOCKET
HEX NUT
153 ±.002 DIA. HOLES IN PANEL
HELICAL SPRING LOCK WASHER
PANEL
JACKSOCKET (BRASS, ZINC PLATED)
HELICAL SPRING LOCK WASHER (STAINLESS STEEL)
HEX NUT .112-40 UNC-2B THD (STAINLESS STEEL)
1.02 (0.04) X 1.02 (0.04) SLOT
"A"
.112-40UNC-2B THD.
3.73 (.147) DIA.
5.08 (.200)
12.70 (.500)
.64 (.025) NOM.
4.75 (.187) HEX STOCK
.112-40UNC-2A THD.
3.56 (.140) MIN. DEPTH

50 POSITION

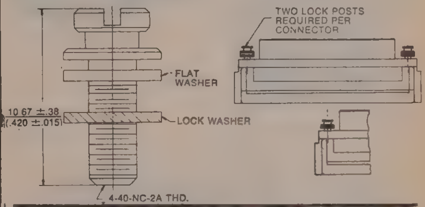
SLIDE LOCK RETAINER CAT. NO. 609-50SL USED TO LOCK A MATED PAIR OF 50-POSITION "D" CONNECTORS

Must be used with Slide Lock Post #609-008-50. Discard lock washers when #609-50SL is used with 609-50S-M(1) or 609-50P-M(2).


LOCKWASHERS
2 SLIDE LOCK POSTS 4-40 NC-2A THD.
4.06 ±.38 (.160 ±.015)
76.20 ±.38 (3.00 ±.015)
15.49 ±.38 (.61 ±.015)
TO UNLOCK SLIDE IN OPPOSITE DIRECTION

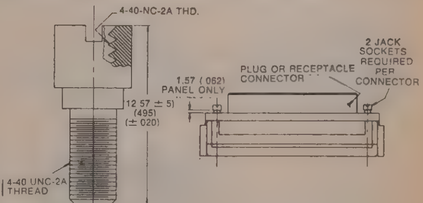
SLIDE LOCK POST CAT. NO. 609-008-50 USED WITH SLIDE LOCK RETAINER ASSEMBLY #609-50-SL

Discard flat washer for $\frac{3}{32}$" panel; retain for $\frac{1}{16}$" panel. Discard lock washer when #609-008-50 is used with 609-50S-M(1) or 609-50P-M(2).


TWO LOCK POSTS REQUIRED PER CONNECTOR
FLAT WASHER
10.67 ±.38 (.420 ±.015)
LOCK WASHER
4-40-NC-2A THD.

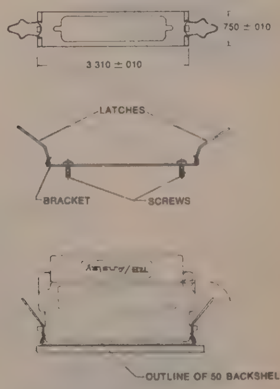
JACKSOCKET CAT. NO. 609-009-50 USED TO LOCK A 50-POSITION "D" CONNECTOR TO A METAL SHELL "D" CONNECTOR WITH JACKSCREWS

Mounting holes in panel are 3.99 ±.05 (.157 ±.002) diameter.


4-40-NC-2A THD.
2 JACK SOCKETS REQUIRED PER CONNECTOR
PLUG OR RECEPTACLE CONNECTOR
1.57 (.062) PANEL ONLY
12.57 ±.5 (.495) (±.020)
4-40 UNC-2A THREAD

BALE LOCK ASSEMBLY CAT. NO. 609-50BL TO LOCK A MATED PAIR OF 50-POSITION "D" CONNECTORS WITH A BACKSHELL

Bracket material: stainless steel, passivated; Latches: stainless steel, spring temper; Screws: zinc-plated.


.750 ±.010
3.310 ±.010
LATCHES
BRACKET
SCREWS
OUTLINE OF 50 BACKSHELL

* Except where noted, hardware is applicable to both plastic and metal shell "D" connectors.

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ANSLEY® CONNECTORS

ANSLEY® DIP SOCKET CONNECTORS & HEADERS

DESCRIPTION/ APPLICATION

The Ansley® DIP Socket Connector Series is designed to provide reliability for pluggable dual in-line packaging. Mating headers and sockets prevent damage to DIP pins during repeated insertion and extraction cycles - the mating pins are completely enclosed in plastic. ,

DESIGN CHARACTERISTICS

- Available in 14 or 16 positions
- Mating Socket Connectors and Headers enclose DIP pins
- Headers include retainer clip
- Compatible with .64mm (.025") square posts on either a 2.54mm x 5.08mm (.100" x .200") or a 2.54mm x 7.62mm (.100" x .300") grid
- One-piece connector design with mechanical side latches
- Ridges in connector top align with Ansley® flat cable

DIP SOCKET CONNECTORS

Catalog Number	Grid Spacing	No. of Contacts
609-F141M2	2.54 x 5.08 (.100 x .200)	14
609-F161M2	2.54 x 5.08 (.100 x .200)	16
609-F141M	2.54 x 7.62 (.100 x .300)	14
609-F161M	2.54 x 7.62 (.100 x .300)	16

DIP SOCKET CONNECTOR HEADERS

Catalog Number	Used For	No. of Positions
609-1478	1.57 (.062) Thk. P.C. Board	14
609-1488	3.18 (.125) Thk. P.C. Board	14
609-1498	Wrap Post Tails (3 Level)	14
609-1678	1.57 (.062) Thk. P.C. Board	16
609-1688	3.18 (.125) Thk. P.C. Board	16
609-1698	Wrap Post Tails (3 Level)	16

DIMENSIONS ARE SHOWN IN MM (INCHES)

ANSLEY® REMOTE DIP SOCKET CONNECTORS

DESCRIPTION/ APPLICATION

Ansley® Remote DIP Socket Connectors expand packaging flexibility, allowing DIP switches, displays, semiconductors and other dual in-line pin devices to be mounted on an exterior panel (or other accessible location) and connected to their corresponding PC board by flat cable.

DESIGN CHARACTERISTICS

- Available in 14 and 16 pin versions with or without mounting ears
- Snap-in shroud for sockets mounted through a 3.125mm (.125") thick panel available
- Shim available for placement between connector and inner panel surface, for a panel of lesser thickness
- Snap-on strain relief clamps available
- One-piece connector housing is designed for DIP packages with .2mm x .4mm (.008" x .016") leads
- One-piece connector design with mechanical side latches
- Ridges in connector top align with Ansley® flat cable

WITH MTG. EARS

Catalog Number	No. of Pos.
609-141DSM	14
609-161DSM	16

WITHOUT MTG. EARS

Catalog Number	No. of Pos.
609-141DS	14
609-161DS	16

SHROUD

Catalog Number	For Use With
609-141B	14 Position
609-161B	16 Position

SHIM

Catalog Number	For Use
609-SM14	With Ears
609-SM16	With Ears
609-S14	Without Ears
609-S16	Without Ears

STRAIN RELIEF

Catalog Number	For Use With
609-141S	14 Position
609-161S	16 Position

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ANSLEY® CONNECTORS

ANSLEY® STANDARD DIP PLUGS

DESCRIPTION/ APPLICATION

Ansley® Standard DIP Plug Connectors are primarily used as a disconnectable interface to DIP sockets.

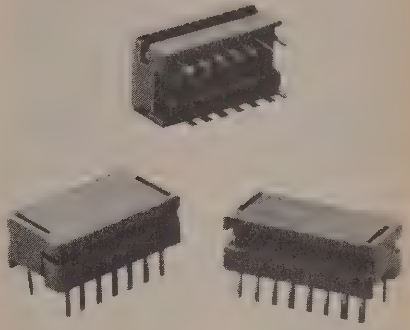
DESIGN CHARACTERISTICS

- Available in 14 and 16 pin versions to mate with DIP sockets for disconnect applications on 2.54mm x 7.62mm (.100" x .300") grids
- Heavy duty contacts optional
- One-piece connector design with mechanical side latches
- Ridges in connector top align with Ansley® flat cable

DIP PLUGS

Catalog Number	No. of Pos.
609-M141	14
609-M161	16

Note: Add suffix "H" for heavy duty contacts



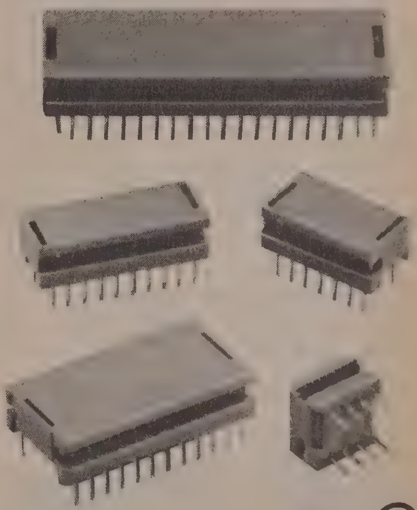
ANSLEY® LOW PROFILE DIP PLUGS

DESCRIPTION/ APPLICATION

Ansley® Low Profile DIP Plug Connectors are primarily used as a disconnectable interface to DIP sockets. Dip plugs with heavy duty contacts are used in disconnect applications with DIP sockets. DIP Plugs with tin plated contacts provide a permanent flat cable transition to printed circuit boards.

DESIGN CHARACTERISTICS

- Low profile design
- Available in 9 contact sizes - 8-48 - in both heavy duty and tin plated versions
- One-piece connector design with mechanical side latches
- Strain relief available for 24 and 40 position configurations
- Ridges in connector top align with Ansley® flat cable



DIP PLUGS

Catalog Number	No. of Pos.
609-H085H	8
609-H085TH	8
609-M145H	14
609-M145TH	14
609-M165H	16
609-165TH	16
609-M185H	18
609-M185TH	18
609-M205H	20

DIP PLUGS

Catalog Number	No. of Pos.
609-M205TH	20
609-M225H	22
609-M225TH	22
609-M245H	24
609-M245TH	24
609-M407H	40
609-M407TH	40
609-M485H	48
609-M485TH	48

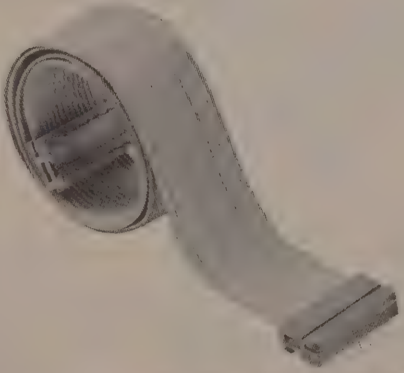
STRAIN RELIEFS

Catalog Number	For Use With
609-M245S	24-position
609-M407S	40-position

Note: Contact Plating: H = Gold over nickel; TH = Tin over nickel

VALUE ADDED ASSEMBLIES

Our factory-authorized distributors do it all: consulting, drawings, prototypes, testing, document control, production, packaging and shipping.



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THOMAS & BETTS CORPORATION, ELECTRONICS GROUP
920 ROUTE 202, RARITAN, NJ 08869 (201) 469-4000

WHERE INTERCONNECTION MEETS IMAGINATION
SEE PAGE 2•1612 FOR AUTHORIZED DISTRIBUTORS

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Electronics Group

ANSLEY® CABLE

ANSLEY® FLAT CABLE

DESCRIPTION

Ansley® flat cable is designed to mass terminate to all types of Ansley® connectors without wire stripping or soldering. The flexible, symmetrical cable is extruded, not laminated, in order to maintain exacting 1.27mm (.050″) pitch tolerances from conductor to conductor. Connectors can be terminated to flat cable in up or down confiurations or 180° from each other.

APPLICATIONS

STANDARD

Primarily designed for intra-cabinet wiring applications.

HIGH FLEX LIFE

For applications requiring upwards of 50 million flex cycles. Ideal for moving printer heads.

COLOR CODED

Designed for easy individual conductor identification in interconnect applications requiring multiple individual terminations.

JACKETED

Suited to external interconnection of electronic equipment; exhibits consistent low crosstalk characteristics required for high speed data processing equipment.

JACKETED SHIELDED

Designed primarily for use with D-connectors, Ribbon connectors and Male connectors. Aids in EMI/RFI suppression per FCC Docket 20780.

GROUND PLANE

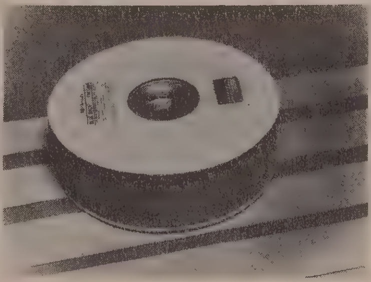
Soft-Tear Design, combined with notching and trimming tools, greatly simplifies removal of insulation and ground plane. No grinding necessary.

ORDERING INFORMATION

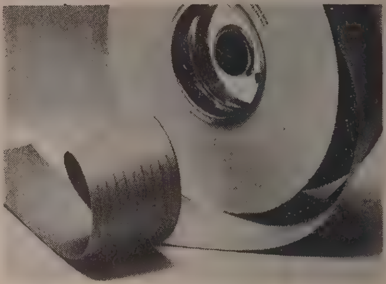
171 — XX

Series Number — 171

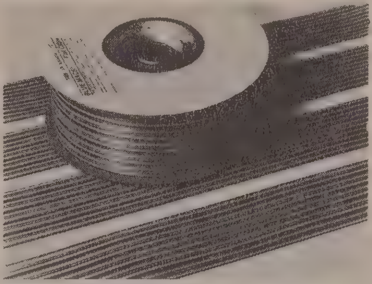
No. of Conductors (see chart) — XX



STANDARD FLAT CABLE
Series 171, 173, 178, 179. 9-64 conductors; see chart.

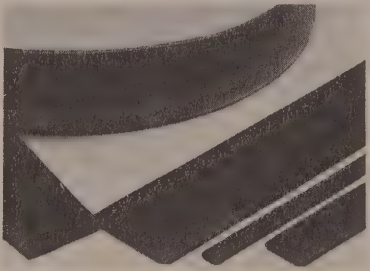


HIGH FLEX LIFE FLAT CABLE
Series 185. 9-50 conductors; see chart.

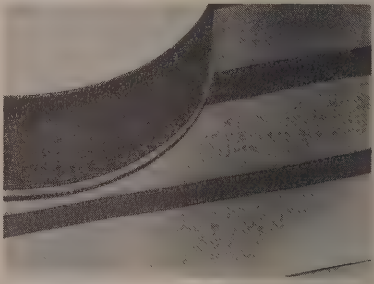


COLOR CODED FLAT CABLE
Series 201, 202. 9-64 conductors; see chart.

JACKETED FLAT CABLE
Series 174, 180, 194. 9-64 conductors; see chart.



JACKETED SHIELDED FLAT CABLE
Series 177, 187. 9-64 conductors; see chart.



SOFT-TEAR GROUND PLANE FLAT CABLE
Series 197. 20-64 conductors; see chart.

Catalog Number							
Series Number	Number of Conductors	Wire Gauge	Insulation	Rating (°C)	Voltage Rating (RMS)	UL Style Number	IDC Connector Compatability
171	9, 10, 14, 15, 16, 20, 24, 25, 26, 34, 36, 37, 40, 44, 50, 56, 60, 64	28AWG Stranded	PVC	105	300	2651	All Ansley® Connectors
173	9, 10, 14, 15, 16, 20, 24, 25, 26, 34, 37, 40, 44, 50, 56, 60	28AWG Solid	PVC	105	300	2651	All Ansley® Connectors except Ribbon
174	Same as 171	28AWG Stranded	Polyethylene w/PVC Jacket	75	90	2604	All Ansley® Connectors
177	Same as 171	28AWG Stranded	PVC	75	300	20036	All Ansley® Connectors
178	14, 24, 36, 50	26AWG Solid	PVC	105	300	2651	Primarily for Ribbon Connectors
179	14, 24, 36, 50	26AWG Stranded	PVC	105	300	2651	Primarily for Ribbon Connectors
180	14, 24, 36, 50	26AWG Stranded	Polyethylene w/PVC Jacket	75	90	2604	Primarily for Ribbon Connectors
185	9, 10, 14, 15, 16, 20, 24, 26, 34, 40, 50	28AWG Stranded	PVC	105	300	2651	All Ansley® Connectors
187	9, 10, 14, 15, 16, 20, 24, 25, 26, 34, 36, 37, 40, 50, 60, 64	28AWG Stranded	PVC	75	300	20036	All Ansley® Connectors
194	20, 25, 26, 34, 37, 40, 50	28AWG Stranded	Polyethylene w/PVC Jacket	75	90	2984	All Ansley® Connectors
197	20, 25, 26, 34, 37, 40, 50, 60, 64	28AWG Stranded	PVC	105	300	20218	All Ansley® Connectors
201	Same as 171	28AWG Stranded	PVC	105	300	20067	All Ansley® Connectors
202	14, 24, 36, 50	26AWG Solid	PVC	105	300	20067	Primarily for Ribbon Connectors

ANSLEY® IDC ASSEMBLY TOOLS

A broad variety of bench presses, hand tools and cable preparation equipment is available from your local authorized distributor. Contact him for full details.

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WHERE INTERCONNECTION MEETS IMAGINATION
SEE PAGE 2•1612 FOR AUTHORIZED DISTRIBUTORS

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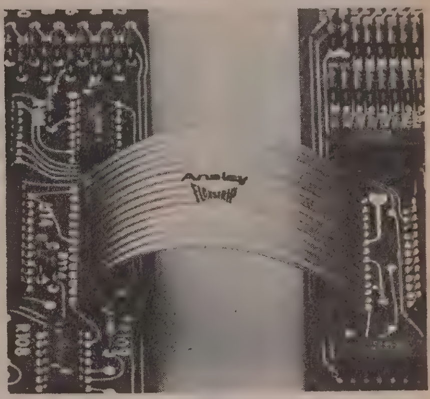
FLEXSTRIP® JUMPERS FLEXPAC™ ASSEMBLIES

FLEXSTRIP® JUMPERS



DESCRIPTION/ APPLICATION

FLEXSTRIP® Jumpers are multiple conductor board-to-board interconnection devices, preplated and ready-to-use — without wire stripping, cutting to length or solder preparation. They provide a convenient, reliable alternative to conventional point-to-point wiring in high density PC board interconnection applications.

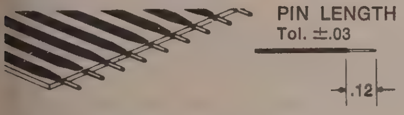
DESIGN CHARACTERISTICS

- Round conductors rolled flat for high flex life
- Round-to-flat "transition zone" permits flexing stress to be distributed evenly throughout flat conductor area
- One-piece construction
- Choice of 4 insulations for high volume commercial use as well as military/aerospace applications
- Uniform pin spacings to accommodate PCB hole patterns
- Available in 4 standard pin configurations, 6 standard pitch dimensions

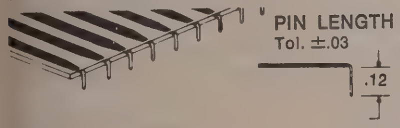
SYSTEM OPTIONS

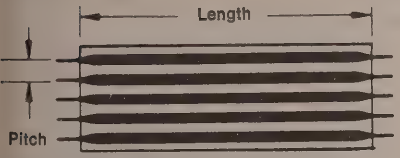
When pluggability is required, use Flexstrip® Header & Socket — a reliable, low-profile 2-piece system for high-vibration applications. Connectorized portion of cable serves as pull-tab/locking device on mating, board-mountable socket. ALSO AVAILABLE: Flexstrip® Sockets, and continuous strips of socket contacts.

STRAIGHT PINS

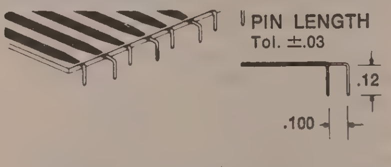


RIGHT ANGLE PINS

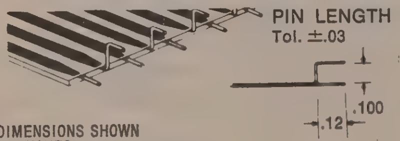




RIGHT ANGLE STAGGERED PINS



STRAIGHT STAGGERED PINS



DIMENSIONS SHOWN IN INCHES

Pin Sizes: .050″ pitch—.012″ dia.
.075″ pitch—.016″ dia.
.100″ pitch—.020″ dia. and over

HOW TO ORDER

FSN - XXA - 20

Product Code

Insulation Material
Nomex-N Kapton-K
Teflon-T Polyester-P

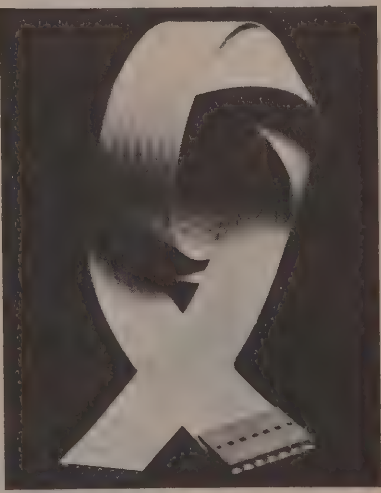
Conductor Pitch
1—.050″ 2—.100″
3—.125″ 4—.150″
5—.200″ 6—.075″

Length
1—1″ 7—7″ 13—13″ 19—19″
2—2″ 8—8″ 14—14″ 20—20″
3—3″ 9—9″ 15—15″ 21—21″
4—4″ 10—10″ 16—16″ 22—22″
5—5″ 11—11″ 17—17″ 23—23″
6—6″ 12—12″ 18—18″ 24—24″

Pin Configuration
A—Straight C—Right Angle Staggered
B—Right Angle D—Straight Staggered

Number of Conductors

FLEXPAC™ SYSTEM FLAT CONDUCTOR CABLE ASSEMBLIES



DESCRIPTION/ APPLICATION

The Flexpac™ System represents a low-profile, high-performance interconnect technology offering versatile solutions for printer/plotter designs, dense PC board stacking, retractile (or "moving") assemblies, and a host of other high-flex applications. Additional system benefits are intermateability with industry-standard MTIDC connectors, and off-the-shelf availability in a wide variety of customized, pre-packaged configurations.

Now you can specify card edge, male and female connectors (single or double row) as well as discrete solder pins terminated to your choice of flat conductor cable, Flexstrip® jumpers (see above), flexible circuits, membrane keyboard/keypad traces — virtually any flat conductor medium. No. of positions: Single row male or female (2-32); double row male or female (4-64); card edge (4-64).

FLEXPAC™ SYSTEM ASSEMBLY ORDERING GUIDE

P or S 27 N 15.5 E F

Product Code: Specify "P" if using Flexpac cable. "S" if using Flexstrip jumper

Number of Conductors

Insulation:
P = Polyester
T = Teflon*
N = Nomex*
K = Kapton*

Assembly length, rounded to nearest tenth of an inch

Right End

Left End

RIGHT END AND LEFT END TERMINATION OPTIONS

A - STRAIGHT Flexstrip Pins, Tin-Plated**
B - RIGHT ANGLE Flexstrip Pins, Tin-Plated**
C - STRAIGHT STAGGERED Flexstrip Pins, Tin-Plated**
D - RIGHT ANGLE STAGGERED Flexstrip Pins, Tin-Plated**
E - FLEXPAC SOLDER PINS
F - SINGLE ROW SOCKET, Tin-Plated Contacts
G - DOUBLE ROW SOCKET, Tin-Plated Contacts
H - SINGLE ROW SOCKET, Gold-Plated Contacts
I - DOUBLE ROW SOCKET, Gold-Plated Contacts
J - SINGLE ROW MALE, Tin-Plated Contacts
K - DOUBLE ROW MALE, Tin-Plated Contacts
L - SINGLE ROW MALE Gold-Plated Contacts
M - DOUBLE ROW MALE, Gold-Plated Contacts
N - CARD EDGE, Without Mounting Ears
P - CARD EDGE, With Mounting Ears

*Trademark of E. I. Dupont de Nemours
**May be selected only when Product Code "S" is used.

"Ansley," "Flexstrip," and "Flexpac" are trademarks of Thomas & Betts

THOMAS & BETTS CORPORATION, ELECTRONICS GROUP
920 ROUTE 202, RARITAN, NJ 08869 (201) 469-4000

WHERE INTERCONNECTION MEETS IMAGINATION
SEE PAGE 2•1612 FOR AUTHORIZED DISTRIBUTORS

T&B

Electronics Group

ANSLEY® VLSI SOCKETS

ANSLEY® PIN GRID ARRAY ZERO-INSERTION-FORCE CONNECTOR

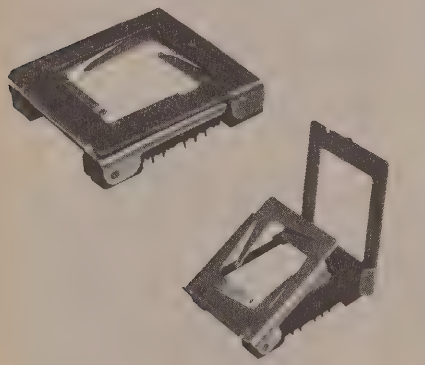
DESCRIPTION/ APPLICATION

The Ansley® Pin Grid Array ZIF Connector is designed to interconnect a wide variety of large terminal count LSI and VLSI semiconductor devices (in pin grid array packages) to printed wiring boards. Applications range from 64 to 400 I/O. Incorporating zero insertion force (ZIF) design, it facilitates insertion and removal of large terminal count devices without board or pin damage, and simplifies field servicing.

DESIGN CHARACTERISTICS

- Eleven array sizes - 10 x 10 through 20 x 20
- Various pin populations available; e.g. 132 pins in a 14 x 14 array
- Mates with .018″ ± .002″ diameter pins on a standard .100″ x .100″ grid
- ZIF design for low insertion/extraction force
- Selectively plated beryllium copper contacts (dual redundant design)
- Contacts individually replaceable without detaching connector
- Cam operated (contacts normally closed with cam in stress free condition)
- Standard screw slot actuator; alternate actuators (e.g. hex socket, lever) available
- Low profile
- Solder tail or surface mount contacts for printed wiring board interface
- Low inductance
- Positive connector orientation keys; package polarization feature optional
- Housing made of glass-filled thermoset material (operating temperature range 0° to 125°C); optional high temperature materials available

ANSLEY® LEADLESS CHIP CARRIER SOCKET



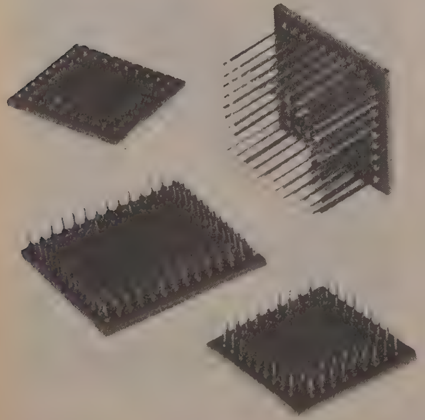
DESCRIPTION/ APPLICATION

This state-of-the-art series of Ansley® Leadless Chip Carrier sockets provides for high-performance interconnection of microprocessors, gate arrays, as well as high-density semiconductor custom logic devices. It has been designed to accept JEDEC-standard leadless Type A packages with .050″ or .025″ centerlines.

DESIGN CHARACTERISTICS

- Initial standard terminal counts: 68 I/O (.050″) and 132 I/O (.025″)
- Solder tail or surface mount contacts for printed wiring board interface
- Latching mechanism require no tools
- Mechanical retention features allow for automatic insertion
- Operation temperature range suitable for commercial and burn-in applications
- Connector may be probed with chip carrier in place
- Minimum .020″ standoff for ease of cleaning and visual inspection
- Low profile design
- Gold-plated beryllium copper contacts
- Contact force: 75 grams, min.
- Insulator body rated U.L. 94 V-O
- Provisions for integral decoupling capacitors

ANSLEY® PIN GRID ARRAY SCREW MACHINE SOCKET



DESCRIPTION/ DESIGN CHARACTERISTICS

- Three standard sizes (10 x 10, 11 x 11 & 14 x 14), seven standard grid patterns (64 - 132 leads) - in both solder and wrap post tail versions; other sizes available
- Low profile - 4.19mm (.165″) max. height off board
- Precision-machined sleeves for smooth entry, high reliability
- 4-beam inner contact
- Accepts 0.46mm (.018″ ± .002″) round pins with low insertion force and optimum normal force - can be used in "sacrificial" interface carrier
- Standard .100″ pin spacing; mountable on every side without grid position loss
- Pin No. 1 polarity identification

Part No. (*)	Fig.	Grid Pattern	Pin Type	No. Leads
PGM-6410-S6G PGM-6410-W1G PGM-6410-W2G PGM-6410-W3G	1	10 x 10	Solder Tail 1 Level Wrap Post 2 Level Wrap Post 3 Level Wrap Post	64
PGM-6810-S6G PGM-6810-W1G PGM-6810-W2G PGM-6810-W3G	2	10 x 10	Solder Tail 1 Level Wrap Post 2 Level Wrap Post 3 Level Wrap Post	68
PGM-6811-S6G PGM-6811-W1G PGM-6811-W2G PGM-6811-W3G	3	11 x 11	Solder Tail 1 Level Wrap Post 2 Level Wrap Post 3 Level Wrap Post	68
PGM-7211-S6G PGM-7211-W1G PGM-7211-W2G PGM-7211-W3G	4		Solder Tail 1 Level Wrap Post 2 Level Wrap Post 3 Level Wrap Post	72
PGM-8411-S6G PGM-8411-W1G PGM-8411-W2G PGM-8411-W3G	5		Solder Tail 1 Level Wrap Post 2 Level Wrap Post 3 Level Wrap Post	84
PGM-10414-S6G PGM-10414-W1G PGM-10414-W2G PGM-10414-W3G	6	14 x 14	Solder Tail 1 Level Wrap Post 2 Level Wrap Post 3 Level Wrap Post	104
PGM-13214-S6G PGM-13214-W1G PGM-13214-W2G PGM-13214-W3G	7		Solder Tail 1 Level Wrap Post 2 Level Wrap Post 3 Level Wrap Post	132

(*) NOTE: Standard "G" Gold Plating, insert "T" for Tin

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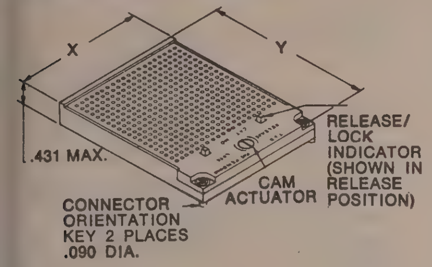
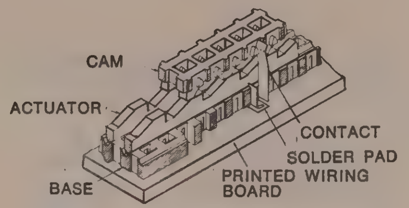
ANSLEY® VLSI SOCKETS

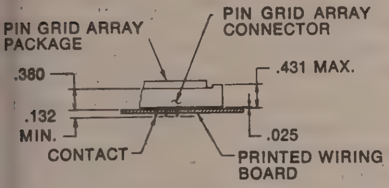
PIN GRID ARRAY CONNECTOR


X
Y
.431 MAX.
RELEASE/ LOCK INDICATOR (SHOWN IN RELEASE POSITION)
CAM ACTUATOR
CONNECTOR ORIENTATION KEY 2 PLACES .090 DIA.

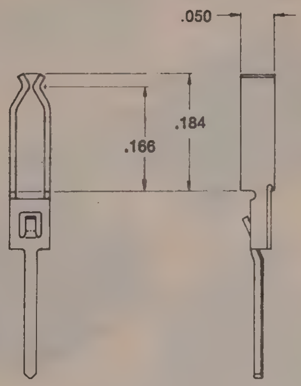

CAM
ACTUATOR
CONTACT
SOLDER PAD
PRINTED WIRING BOARD
BASE

CUTAWAY OF CAMMING MECHANISM

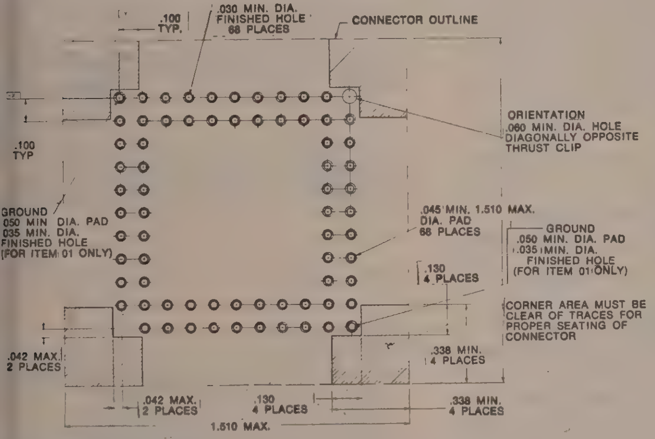
Planned Array Sizes	Maximum Terminal Count	X (Inches)	Y (Inches)
10 x 10	100	1.250	2.000
11 x 11	121	1.350	2.100
12 x 12	144	1.450	2.200
13 x 13	169	1.550	2.300
14 x 14	196	1.650	2.400
15 x 15	225	1.750	2.500
16 x 16	256	1.850	2.600
17 x 17	289	1.950	2.700
18 x 18	324	2.050	2.800
19 x 19	361	2.150	2.900
20 x 20	400	2.250	3.000


PIN GRID ARRAY PACKAGE
PIN GRID ARRAY CONNECTOR
.380
.431 MAX.
.132 MIN.
.025
CONTACT
PRINTED WIRING BOARD

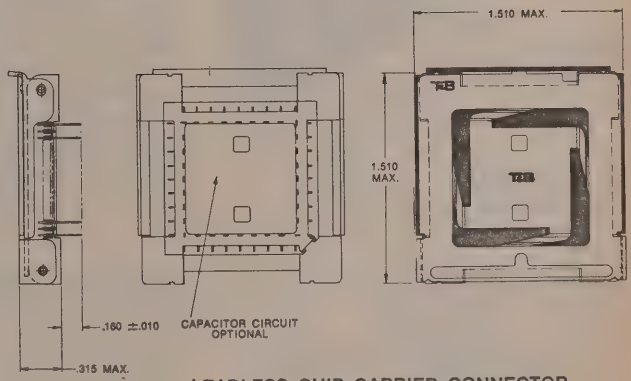
SIDE VIEW



CONTACT CONFIGURATION
DIMENSIONS SHOWN IN INCHES

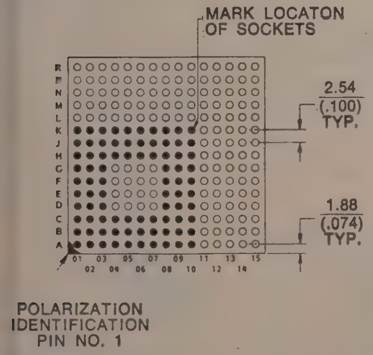

.100 TYP.
.030 MIN. DIA. FINISHED HOLE 68 PLACES
CONNECTOR OUTLINE
ORIENTATION .060 MIN. DIA. HOLE DIAGONALLY OPPOSITE THRUST CLIP
.100 TYP
GROUND .050 MIN DIA. PAD .035 MIN. DIA. FINISHED HOLE (FOR ITEM 01 ONLY)
.045 MIN. 1.510 MAX. DIA. PAD 68 PLACES
GROUND .050 MIN. DIA. PAD .035 MIN. DIA. FINISHED HOLE (FOR ITEM 01 ONLY)
.130 4 PLACES
CORNER AREA MUST BE CLEAR OF TRACES FOR PROPER SEATING OF CONNECTOR
.338 MIN. 4 PLACES
.042 MAX. 2 PLACES
.042 MAX. 2 PLACES
.130 4 PLACES
.338 MIN. 4 PLACES
1.510 MAX.

PAD PATTERN FOR
68 I/O LEADLESS CHIP CARRIER (SOLDER TAIL)


1.510 MAX.
1.510 MAX.
.160 ±.010
.315 MAX.
CAPACITOR CIRCUIT OPTIONAL

LEADLESS CHIP CARRIER CONNECTOR
DIMENSIONS ARE SHOWN IN (INCHES)

CREATE YOUR OWN CUSTOM DESIGN (AVAILABLE IN GRIDS 10 x 10 THRU 15 x 15) CONSULT FACTORY FOR PGM GRID PATTERN DRAWING


MARK LOCATON OF SOCKETS
2.54 (.100) TYP.
1.88 (.074) TYP.
R P N M L K J H G F E D C B A
01 03 05 07 09 11 13 15
02 04 06 08 10 12 14
POLARIZATION IDENTIFICATION PIN NO. 1

DIMENSIONS ARE SHOWN IN (INCHES)/MM

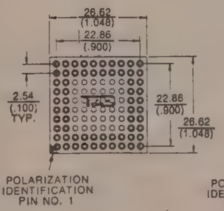

26.62 (1.048)
22.86 (.900)
2.54 (.100) TYP.
22.86 (.900)
26.62 (1.048)
POLARIZATION IDENTIFICATION PIN NO. 1

FIG. 1

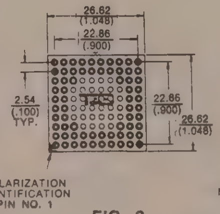

26.62 (1.048)
22.86 (.900)
2.54 (.100) TYP.
22.86 (.900)
26.62 (1.048)
POLARIZATION IDENTIFICATION PIN NO. 1

FIG. 2

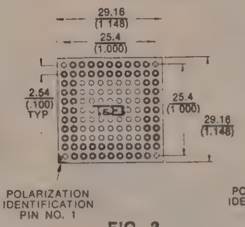

29.16 (1.148)
25.4 (1.000)
2.54 (.100) TYP
25.4 (1.000)
29.16 (1.148)
POLARIZATION IDENTIFICATION PIN NO. 1

FIG. 3

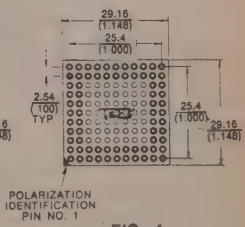

29.16 (1.148)
25.4 (1.000)
2.54 (.100) TYP
25.4 (1.000)
29.16 (1.148)
POLARIZATION IDENTIFICATION PIN NO. 1

FIG. 4

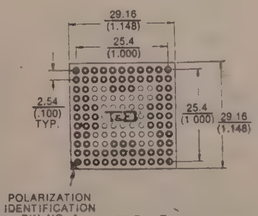

29.16 (1.148)
25.4 (1.000)
2.54 (.100) TYP.
25.4 (1.000)
29.16 (1.148)
POLARIZATION IDENTIFICATION PIN NO. 1

FIG. 5

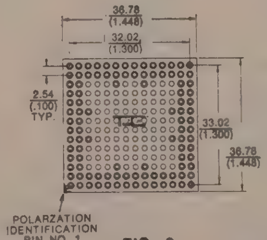

36.78 (1.448)
32.02 (1.300)
2.54 (.100) TYP.
33.02 (1.300)
36.78 (1.448)
POLARZATION IDENTIFICATION PIN NO. 1

FIG. 6

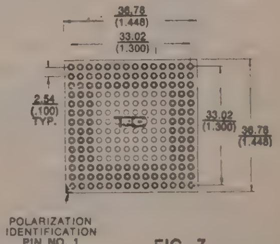

36.78 (1.448)
33.02 (1.300)
2.54 (.100) TYP.
33.02 (1.300)
36.78 (1.448)
POLARIZATION IDENTIFICATION PIN NO. 1

FIG. 7

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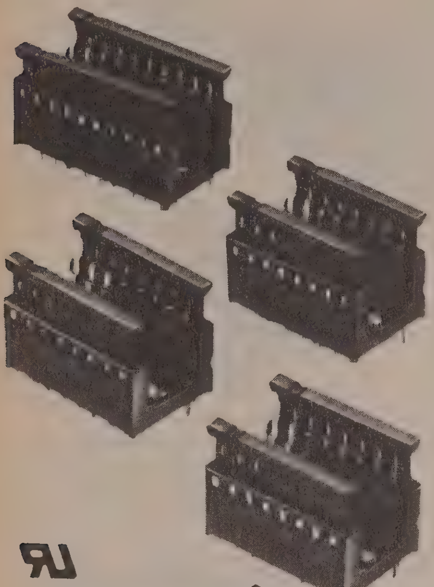
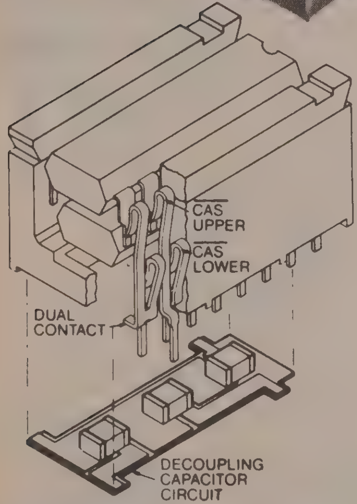
ANSLEY® DIP SOCKETS

ANSLEY® STACKED DIP SOCKETS





- Doubles IC Packaging Density
- 16, 18, 20, 24, 28 Position
- For Memory ICs/Logic & Support Devices
- Integral Decoupling Capacitor Circuits (optional)

The evolution of microcomputer electronics in the last decade has been a paradox: as functional complexity has increased, size has dramatically decreased. Every day, designers are facing the challenge of fitting more circuits and more microprocessor power into smaller and tighter compact electronic devices.

In anwser to the "packaging density" dilemma, T & B introduces an innovative idea: the Stacked DIP Socket. It lets you stack two memory, logic or support devices, one above the other, virtually doubling your IC packaging capacity while leaving more board real estate for other components.

Stacked DIP Sockets are easy to install and easy to load. They offer improved high-integrity electronic performance. And they lower system costs, when compared to mounting an equal number of ICs in individual sockets.

In memory array applications, an integral decoupling capacitor circuit — up to three chip capacitors — can be added to lower power supply noise. The space saving circuit takes up no additional board space, and has approximately half the power-ground loop lead inductance of sockets using discrete decoupling capacitors. This results in a 2 to 1 improvement in noise suppression compared to standard sockets and discrete capacitors.

NOTE: It is suggested that the factory be consulted for specific details regarding the installation and use of Stacked DIP Sockets.

CUSTOM CONFIGURATIONS

Although the choice of Stacked DIP Sockets described here will satisfy most standard design requirements, custom Stacked DIP Sockets can be manufactured to suit special needs in quantity orders. Customization can include special sizes to meet unique board requirements, different pin positions for RAS and CAS or chip enable contacts, data-in and data-out ports, capacitor pin assignments, etc. For custom requirements, please contact factory.

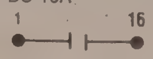
DESIGN FLEXIBILITY

Stacked DIP Sockets are available in a broad choice of configurations to accommodate most common IC packages and design requirements. Sockets are available in 16, 18, 20, 24 and 28 positions, for either parallel memory packages or electrically isolated logic and support devices. The sockets accommodate devices in standard ceramic or plastic packages.

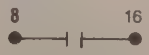
SUPPORTIVE TECHNICAL DATA

Catalog numbers with a "Letter Suffix" indicate sockets with built-in decoupling capacitors to further increase packaging density. Indicated here are the "Pin Assignments" for Stacked DIP Sockets employing such decoupling capacitor circuits (0.1 μf):

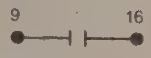
CAT. NO.
PDS-16A



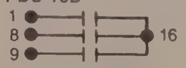
CAT. NO.
PDS-16B



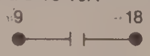
CAT. NO.
PDS-16C



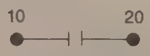
CAT. NO.
PDS-16D



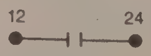
CAT. NO.
PDS-18-10A



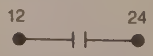
CAT. NO.
PDS-20-11A



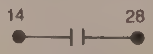
CAT. NO.
PDS-24-18A



CAT. NO.
PDS-24-20A



CAT. NO.
PDS-28-20A



FOR MEMORY DEVICES

Catalog Number	No. of Contacts
PDS-16	16
PDS-16A	16
PDS-16B	16
PDS-16C	16
PDS-16D	16
PDS-18-10	18
PDS-18-10A	18
PDS-20-11	20
PDS-20-11A	20
PDS-24-18	24
PDS-24-18A	24
PDS-24-20	24
PDS-24-20A	24
PDS-28-20	28
PDS-28-20A	28

FOR ELECTRICAL ISOLATION OF LOGIC AND SUPPORT DEVICES

Catalog Number	No. of Contacts
DDS-16	32
DDS-18	36
DDS-20	40
DDS-24	48
DDS-28	56

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ANSLEY® DIP SOCKETS

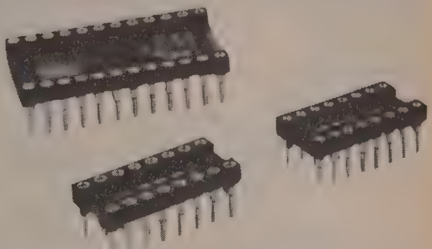
LOW PROFILE DIP SOCKETS WITH DECOUPLING CAPACITORS

- 0.1 μf capacitor chips mounted on Kapton® substrate directly beneath DIP socket
- Accepts .28 mm x .46 mm (.011" x .018") rectangular and .40 mm (.016") to .53 mm (.021") diameter round IC leads, in lengths from 2.54 mm (.100") to 3.94 mm (.155")
- End-to-end and side-to-side stackable on .100" spacing without pin position loss

Catalog No.* (Solder Tail)	No. Leads	Capacitor Circuit	
SM1-14-S6G	14	7	14
SM1-16-S6G	16	8	16
SM1-18-S6G	18	9	18
SM1-20-S6G	20	10	20
SM1-24-S6G	24	12	24
SM1-28-S6G	28	14	28
SM1-40-S6G	40	Consult Factory	

* S6 denotes solder tail.

For 1-, 2- or 3-level wrap post tail, substitute W1, W2 or W3, respectively. Add "G" for gold plating, "T" for tin plating.



LOW PROFILE OPEN FRAME DIP SOCKETS WITH SOLDER TAILS

- Open frame construction, with reinforcing "X" supports in .100" x .600" and .100" x .900" sockets
- End-to-end, and side-to-side stackable on .100" spacing without pin position loss
- Polarity notch for identification and auto-insertion applications

Catalog Number	No. Leads	Catalog Number	No. Leads
SMO-06-S6T	6	SMO-24-S6T	24
SMO-08-S6T	8	SMO-28-S6T	28
SMO-14-S6T	14	SMO-32-S6T	32
SMO-16-S6T	16	SMO-36-S6T	36
SMO-18-S6T	18	SMO-40-S6T	40
SMO-20-S6T	20	SMO-48-S6T	48
SMO-22-S6T	22	SMO-64-S6T	64

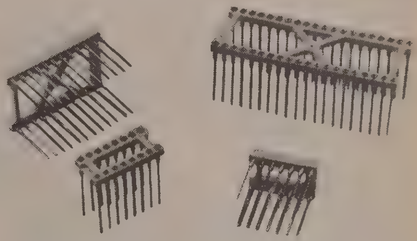
Note: T = tin plating; substitute "G" for gold plating.

LOW PROFILE OPEN FRAME DIP SOCKETS WITH WRAP POST TAILS

- Open frame construction, with reinforcing "X" supports in .100" x .600" and .100" x .900" sockets
- Accepts .28 mm x .46 mm (.011" x .018") rectangular and .40 mm (.016") to .53 mm (.021") diameter round I.C. leads, in lengths from 2.54 mm (.100") to 3.94 mm (.155")
- End-to-end and side-to-side stackable on .100" spacing without pin position loss

Catalog Number	No. Leads	Catalog Number	No. Leads
SMO-06-W3G	6	SMO-24-W3G	24
SMO-08-W3G	8	SMO-28-W3G	28
SMO-14-W3G	14	SMO-32-W3G	32
SMO-16-W3G	16	SMO-36-W3G	36
SMO-18-W3G	18	SMO-40-W3G	40
SMO-20-W3G	20	SMO-48-W3G	48
SMO-22-W3G	22	SMO-64-W3G	64

Note: G = gold plating; substitute "T" for tin plating. W3 = 3-level wrap post; substitute W1 or W2 for 1-level or 2-level wrap post.

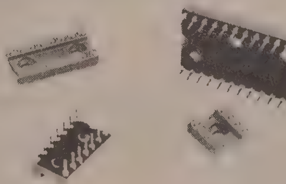


LOW PROFILE CLOSED FRAME DIP SOCKETS WITH SOLDER TAILS

- Accepts .28 mm x .46 mm (.011" x .018") rectangular and .40 mm (.016") to .53 mm (.021") diameter round I.C. leads, in lengths from 2.54 mm (.100") to 3.94 mm (.155")
- End-to-end and side-to-side stackable on .100" spacing without pin position loss

Catalog Number	No. Leads	Catalog Number	No. Leads
CMO-06-S6T	6	CMO-20-S6T	20
CMO-08-S6T	8	CMO-22-S6T	22
CMO-14-S6T	14	CMO-24-S6T	24
CMO-16-S6T	16	CMO-28-S6T	28
CMO-18-S6T	18	CMO-40-S6T	40

Note: T = tin plating; substitute "G" for gold plating.

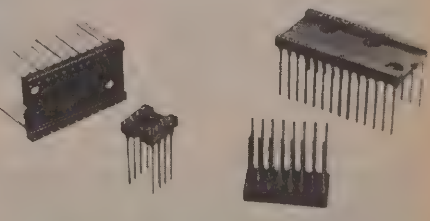


LOW PROFILE CLOSED FRAME DIP SOCKETS WITH WRAP POST TAILS

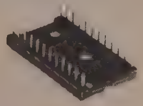
- Extremely low profile frame — 2.92 mm (.115") thick
- Accepts .28 mm x .46 mm (.011" x .018") rectangular and .40 mm (.016") to .53 mm (.021") diameter round I.C. leads, in lengths from 2.54 mm (.100") to 3.94 mm (.155")
- End-to-end and side-to-side stackable on .100" spacing without pin position loss

Catalog Number	No. Leads	Catalog Number	No. Leads
CMO-06-W3G	6	CMO-20-W3G	20
CMO-08-W3G	8	CMO-22-W3G	22
CMO-14-W3G	14	CMO-24-W3G	24
CMO-16-W3G	16	CMO-28-W3G	28
CMO-18-W3G	18	CMO-40-W3G	40

Note: G = gold plating; substitute "T" for tin plating. W3 = 3-level wrap post; substitute W1 or W2 for 1-level or 2-level wrap post.

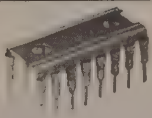


ACCESSORIES



DIP SOCKET ADAPTOR PLUGS available in Round Pin, Slotted Pin and Solder Cup versions; screw-machine contacts. 6-40 positions.

INDIVIDUAL SOLDER TAILS OR WRAP POST TAILS. Precision screw-machine contacts for smooth, reliable IC entry.



DIP SOCKET TERMINAL CARRIERS available in 6-40 positions. Precision screw-machine contacts for smooth, reliable IC entry.

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Make the connection today.

Contact these authorized distributors for Ansley® IDC Cable and Connectors, Ansley® IC Sockets, Flexstrip® Jumpers and Flexpac™ Assemblies.

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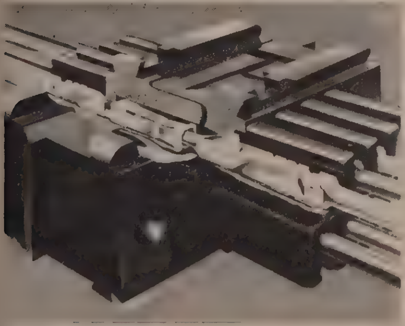
Cinch Super D* Connector System

Exclusive new plastic D-Subminiature connector. Available in 9, 15, 25 and 37 contact sizes. Connectors available with plain mounting holes, with threaded bushings, with latch blocks, and with latch blocks and threaded bushings.

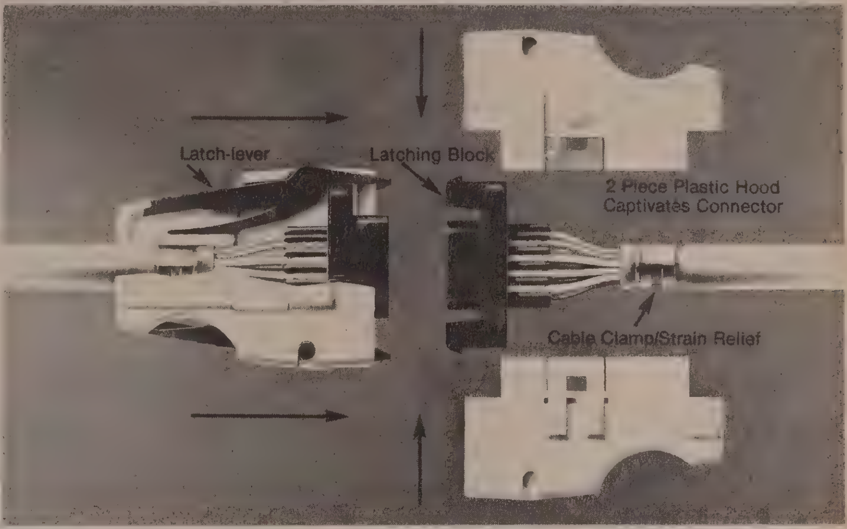
Connectors are captivated in two-piece, snap-on grey hoods. Hoods are available with latches or with filler ends.

Contact material: Copper base alloy.
Contact plating: gold in contact mating area and gold on contact terminating area, with copper underplate.
Termination: Insulation displacement with one of three TRW Cinch terminating tools. Stranded wire 22-26 AWG with .052" diameter max. PVC insulation is displaced and wire is driven into termination to form four positive contacts on each conductor. See tooling section.
Metal stay band/strain relief: .036" (9.14mm) steel.
Polarization: D or keystone shape insures one way mating.
Hoods: Molded phenylene oxide.
Wire strain relief: One required for 9 contact size. Two required for other sizes.
Withstanding voltage rating: 1000 volts RMS AC—sea level. 1400 volts DC.
Current rating: 3 AMPS.
EIA standards: Surpasses EIA STD. RS449 for 9 and 37 contacts interface for DTE and DCE equipment. Also meets RS232 for 25 contact size.
MIL-C-24308: Super D is designed to meet applicable performance requirements of MIL-C-24308.
UL Registered, File No. 18071

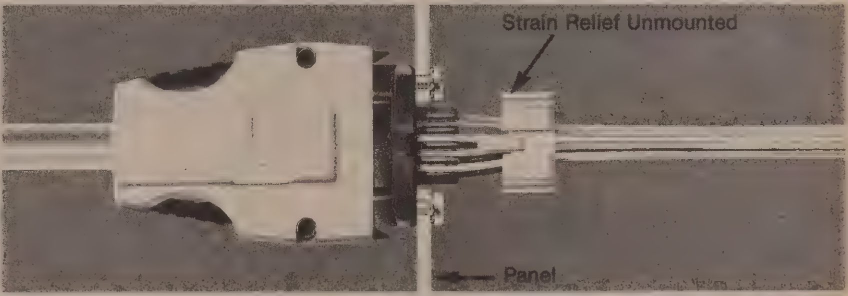


Insulation displacement termination
Fast 4-point insulation displacement termination with TRW Cinch tooling.

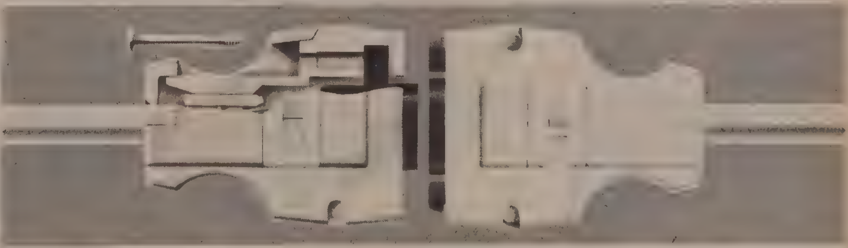
*Trademark of TRW Inc.


Latch-lever
Latching Block
2 Piece Plastic Hood Captivates Connector
Cable Clamp/Strain Relief

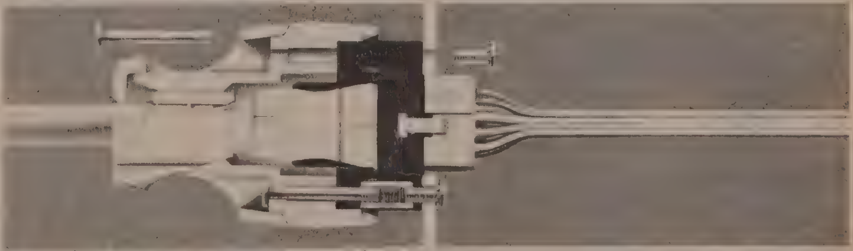
Cable to cable—Latch-N-Lock
Captivate connector without latching blocks in grey hood with latch levers. Captivate connector with latching blocks in a grey hood with filler inserts. Push together to mate. To disconnect, depress latch lever and pull apart.



Cable to panel Latch-N-Lock
Screw mount connector with latch blocks to panel. Snap in strain relief. Captivate connector without latch blocks in grey hood with latch levers. Push together for mating.



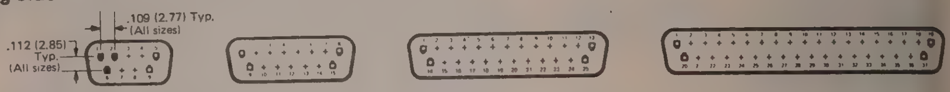
Cable to cable screw lock
Captivate connector without latching blocks in grey filler insert hood with screws. Captivate connector with latching blocks and threaded bushings in grey filler insert hood. Mate connectors and tighten screws.



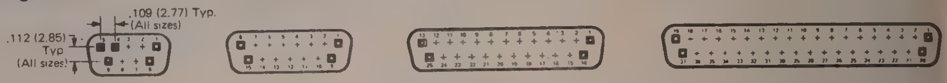
Cable to panel screw mount
Screw mount connector with latch blocks and threaded bushings. Snap-on strain relief. Captivate mating connector without latching blocks in grey filler insert hood with screws. Mate and tighten screws.

Cinch Super D* Connector System

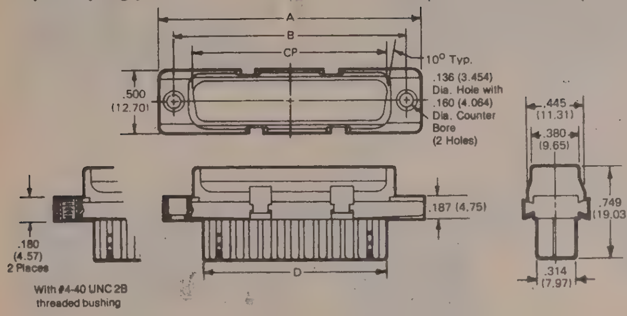
Plug contact arrangement—mating side


.109 (2.77) Typ.
(All sizes)
.112 (2.85)
Typ.
(All sizes)

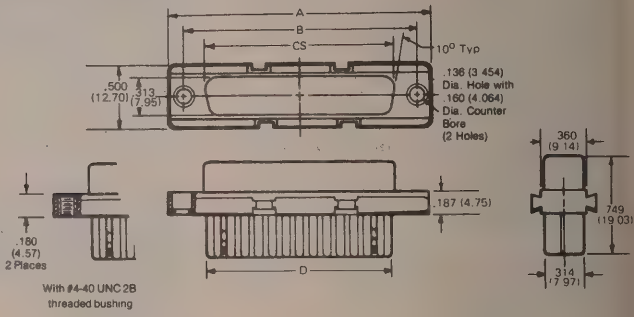
Socket contact arrangement—mating side


.109 (2.77) Typ.
(All sizes)
.112 (2.85)
Typ
(All sizes)

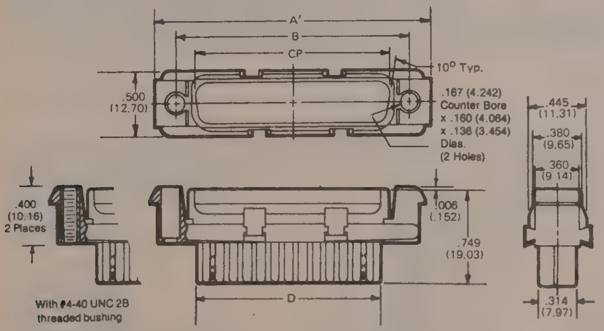
Super D plug plain


A
B
CP
10° Typ.
.136 (3.454) Dia. Hole with .160 (4.064) Dia. Counter Bore (2 Holes)
.500 (12.70)
.445 (11.31)
.380 (9.65)
.749 (19.03)
.314 (7.97)
.187 (4.75)
.180 (4.57) 2 Places
D
With #4-40 UNC 2B threaded bushing

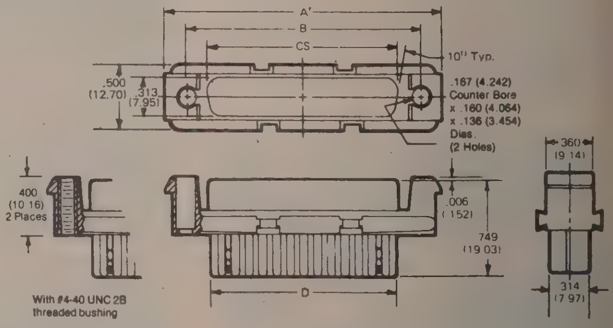
Super D socket plain


A
B
CS
10° Typ
.136 (3.454) Dia. Hole with .160 (4.064) Dia. Counter Bore (2 Holes)
.500 (12.70)
.313 (7.95)
.360 (9.14)
.749 (19.03)
.314 (7.97)
.187 (4.75)
.180 (4.57) 2 Places
D
With #4-40 UNC 2B threaded bushing

Super D plug w/latching blocks

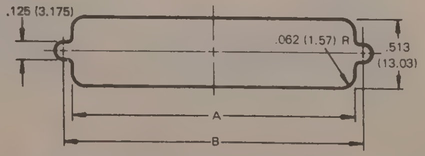

A'
B
CP
10° Typ.
.167 (4.242) Counter Bore x .160 (4.064) x .136 (3.454) Dias. (2 Holes)
.500 (12.70)
.445 (11.31)
.380 (9.65)
.360 (9.14)
.006 (.152)
.749 (19.03)
.314 (7.97)
.400 (10.16) 2 Places
D
With #4-40 UNC 2B threaded bushing

Super D socket w/latching blocks


A'
B
CS
10° Typ.
.167 (4.242) Counter Bore x .160 (4.064) x .136 (3.454) Dias. (2 Holes)
.500 (12.70)
.313 (7.95)
.360 (9.14)
.006 (.152)
.749 (19.03)
.314 (7.97)
.400 (10.16) 2 Places
D
With #4-40 UNC 2B threaded bushing

Size	A		A'		B		CP		CS		D	
	Inches	MM	Inches	MM	Inches	MM	Inches	MM	Inches	MM	Inches	MM
9	1.209	30.71	1.309	33.25	.984	24.99	.668	16.96	.642	16.31	.592	15.04
15	1.536	39.01	1.636	41.55	1.312	33.32	.995	25.28	.970	24.64	.918	23.31
25	2.079	52.81	2.179	55.35	1.852	47.04	1.535	38.99	1.512	38.40	1.462	37.13
37	2.724	69.19	2.824	71.73	2.500	63.50	2.183	55.45	2.158	54.81	2.114	53.70

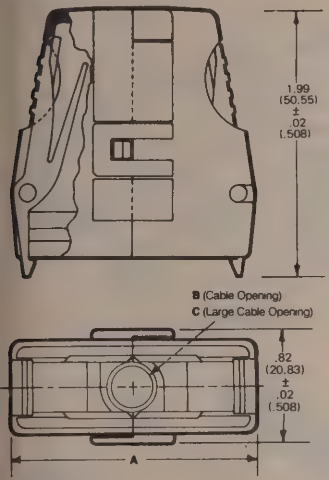
Super D panel cutout


.125 (3.175)
.062 (1.57) R
.513 (13.03)
A
B

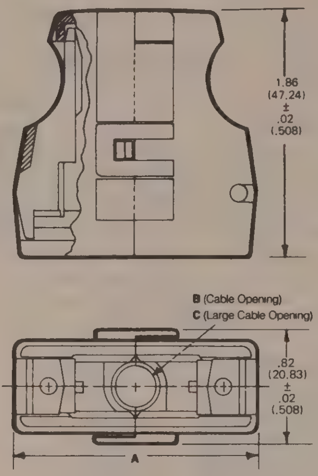
Size	A		B	
	Inches	MM	Inches	MM
9	.900	22.86	.984	24.99
15	1.202	30.53	1.312	33.32
25	1.743	44.27	1.852	47.04
37	2.391	60.73	2.500	63.50

Cinch Super D* Connector System

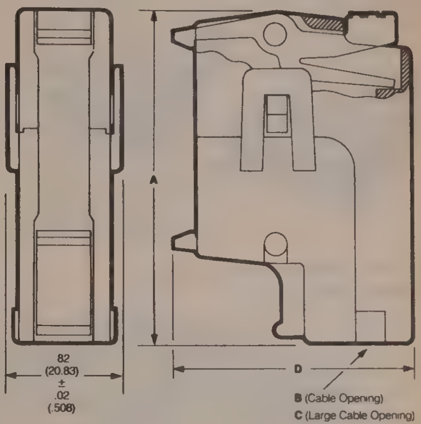
Super D hood w/latches


1.99
(50.55)
±
.02
(.508)
B (Cable Opening)
C (Large Cable Opening)
.82
(20.83)
±
.02
(.508)
A

Super D hood w/filler ends


1.86
(47.24)
±
.02
(.508)
B (Cable Opening)
C (Large Cable Opening)
.82
(20.83)
±
.02
(.508)
A

Right angle Super D hood w/latches


A
82
(20.83)
±
.02
(.508)
D
B (Cable Opening)
C (Large Cable Opening)

Super D Hood Straight

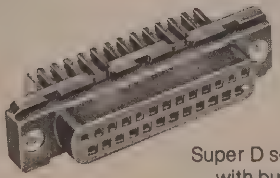
	A ± .02(.508)		B ± .02(.508)		C ± .02(.508)	
Size	In.	MM	In.	MM	In.	MM
9	1.47	37.34	.31	7.87		
15	1.80	45.72	.31	7.87	.41	10.41
25	2.35	59.69	.33	8.40	.47	11.94
37	2.99	75.95	.37	9.40	.50	12.70

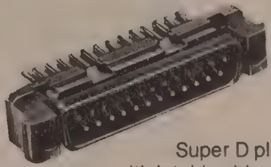
Super D Hood Right Angle

	A ± .02(.508)		B ± .02(.508)		C ± .02(.508)		D ± .02(.508)	
Size	In.	MM	In.	MM	In.	MM	In.	MM
9	1.94	49.21	.31	7.87			1.25	31.75
15	2.25	57.15	.31	7.87	.41	10.41	1.34	34.13
25	2.94	74.61	.33	8.40	.47	11.94	1.50	38.10
37	3.59	91.28	.37	9.40	.50	12.70	1.53	38.89

Super D plastic connectors

Super D plug plain
with mounting hole


Super D socket
with bushing


Super D plug
with latching blocks
with mounting hole

Super D socket
with latching blocks
with bushing

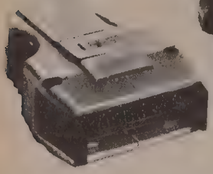
	Distributor Part Number			
	Plain Flange		Flange W/Latching Blocks	
Layout	W/Mounting Hole	W/4-40 Threaded Bushings	W/Mounting Hole	W/4-40 Threaded Bushings
9 Contact Plug Socket	TE-9P TE-9S	TE-9P-TB TE-9S-TB	TE-9P-LB TE-9S-LB	TE-9P-LB-1 TE-9S-LB-1
15 Contact Plug Socket	TA-15P TA-15S	TA-15P-TB TA-15S-TB	TA-15P-LB TA-15S-LB	TA-15P-LB-1 TA-15S-LB-1
25 Contact Plug Socket	TB-25P TB-25S	TB-25P-TB TB-25S-TB	TB-25P-LB TB-25S-LB	TB-25P-LB-1 TB-25S-LB-1
37 Contact Plug Socket	TC-37P TC-37S	TC-37P-TB TC-37S-TB	TC-37P-LB TC-37S-LB	TC-37P-LB-1 TC-37S-LB-1

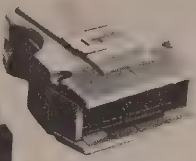
Cinch Super D* Connector System

TRW

Super D Hoods—Grey Plastic Straight Hood

Super D Hood
With Latches



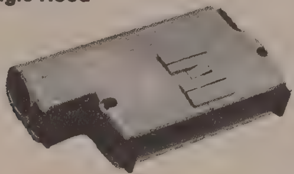


Super D Hood
With Filler Ends

One stay band included for each hood.
For additional stay bands, order separately.

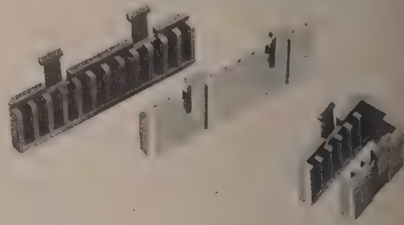
	Distributor Part No.					
	Standard Cable Opening			Large Cable Opening		
Contact Size	with Latches	without Screws	with Two Captive 4-40 Screws	with Latches	without Screws	with Two Captive 4-40 Screws
9	SDH-9GL	SDH-9GF	SDH-9GFCS	—	—	—
15	SDH-15GL	SDH-15GF	SDH-15GFCS	SDH-15GLL	SDH-15GFL	SDH-15GLCS
25	SDH-25GL	SDH-25GF	SDH-25GFCS	SDH-25GLL	SDH-25GFL	SDH-25GLCS
37	SDH-37GL	SDH-37GF	SDH-37GFCS	SDH-37GLL	SDH-37GFL	SDH-37GLCS

Super D Hoods—Grey Plastic Right Angle Hood



	Distributor Part No.	
	Standard Cable Opening	Large Cable Opening
Contact Size	w/latches	w/latches
9	SDH-9RGL	—
15	SDH-15RGL	SDH-15RGLL
25	SDH-25RGL	SDH-25RGLL
37	SDH-37RGL	SDH-37RGLL

Super D (Strain Relief) Wire Covers



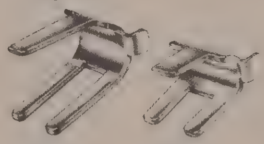
One-piece cover for 9 contact size. Two-piece covers for other sizes. Covers fit both plug and socket.

Layout	Distributor Part No.
9 Contact	SD-WC9
15 Contact	SD-WC15
25 Contact	SC-WC25
37 Contact	SD-WC37

Screws

Screws for screw locking connector assembly.
Two required per hood.

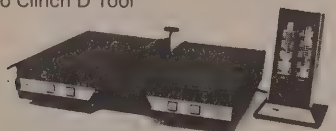
Super D Stay Bands



Size	Distributor Part No.
9	SD-9-15-SB
15	SD-9-15-SB
25	SD-25-37-SB
37	SD-25-37-SB

Super D and Super Shielded D Terminating Equipment

Auto Clinch D Tool



Certi Clinch D Tool

Uni Clinch Hand Insertion Tool

Super D Manual Tool

Auto Clinch D Semi-Automatic Termination Tool
Auto Clinch D is a semi-automatic, pneumatically powered and electrically controlled termination machine that can terminate Cinch Super D 25 contact connectors in less than one minute. It employs selective programmer and a common nest for all four sizes and can be optionally equipped with Remote Visual Color Code display for training operators or for reading special wire sequences. It has provision for omission of wires.
Part No. 999-599-11-11-432

Certi Clinch D Field Termination Tool
***For 24-26 AWG Wire**
Certi Clinch D is designed for mass termination of individual wires, eliminating wire stripping, soldering and crimping. It handles all four connector sizes, is readily portable and requires no set-up time and little operator time. Rugged, all metal construction affords trouble-free long life.
*For 22 AWG consult factory.
Part No. SD-CC for Super D
Part No. SD-CCWN for Super Shielded D
Conversion Nest for SD-CC
Part No. SD-CCN

Uni Clinch D Single Wire Hand Insertion Tool
Designed to insert one 22-26 AWG wire at a time, Uni Clinch D is used as a field repair tool by field service engineers.
Part No. SD-UC.

Super D Manual Stay Band Tool
Designed for applying the steel stay band/strain relief to the cable before termination of wires to the connector, the manual Stay Band tool applies both Stay Band sizes to the full range of cable sizes.
Part No. SD-MSBT

Super D Metal Shell Connectors

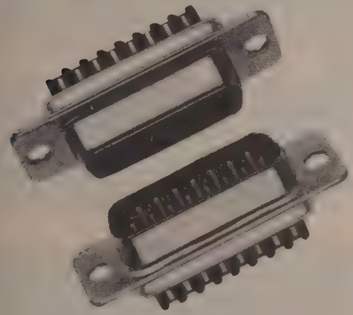
I.D.C. Connector

D-Subminiature connectors in 9, 15, 25 and 37 contact sizes in standard D-sub. metal shell or with bright tin finish on shell. Termination is insulation desplacement for cost saving. Connector uses same black hoods, add-on latching blocks, hood and mounting screws as in the super D adaptor system. It may be used for grounding in applications using shielded cable.

Insulator: Molded glass filled polyester UL 94V-O.
Contact material: Copper base alloy.
Contact plating: Gold on contact mating area and gold on contact terminating area, with copper underplate.
Termination: Insulation displacement with same tools as the Super D Connector system except an additional nest is required. Stranded wire 24-26 AWG with .045″ diameter max. PVC insulation is displaced and wire is driven into termination to form four positive contacts on each conductor.
Withstanding voltage rating: 1000 volts RMS AC—sea level
1400 volts DC
Current rating: 3 AMPS

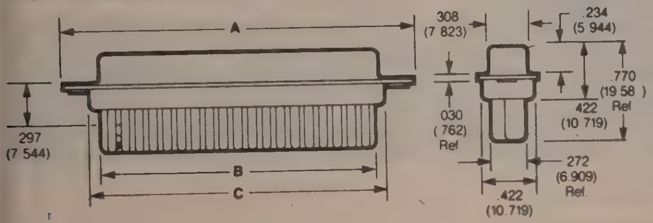
Layout	Distributor Part Number		
	Standard Shell	Bright Tin Finish on Shell W/Indentations Front Shell	Bright Tin Finish On Shell
9 Contact Plug	TE-9P-SH	TES-9PTI	TES-9PT
Socket	TE-9S-SH	—	TES-9ST
15 Contact Plug	TA-15P-SH	TAS-15PTI	TAS-15PT
Socket	TA-15S-SH	—	TAS-15ST
25 Contact Plug	TB-25P-SH	TBS-25PTI	TBS-25PT
Socket	TB-25S-SH	—	TBS-25ST
37 Contact Plug	TC-37P-SH	TCS-37PTI	TCS-37PT
Socket	TC-37S-SH	—	TCS-37ST

Super Solder D Connector

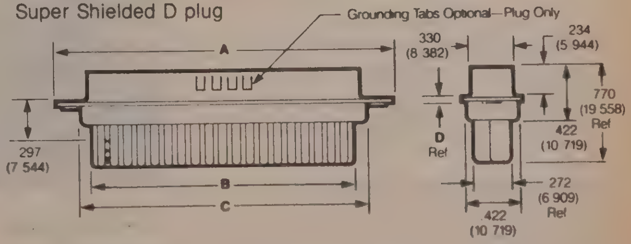


Layout	Distributor Part Number		
	Super Solder D Bright Tin Finish	Super Solder D Yellow Chromate Finish	Super Solder D Tin Front/Zinc Rear
9 Plug	TE-9PTS	TE-9PS	TE-9PTS-1
9 Socket	TE-9STS	TE-9SS	TE-9STS-1
15 Plug	TA-15PTS	TA-15PS	TA-15PTS-1
15 Socket	TA-15STS	TA-15SS	TA-15STS-1
25 Plug	TB-25PTS	TB-25PS	TB-25PTS-1
25 Socket	TB-25STS	TB-25SS	TB-25STS-1
37 Plug	TC-37PTS	TC-37PS	TC-37PTS-1
37 Socket	TC-37STS	TC-37SS	TC-37STS-1

Super Shielded D socket



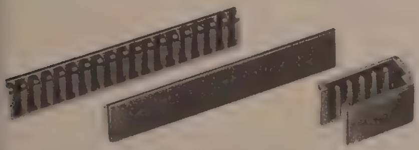
Super Shielded D plug



For additional shell dimensions see D-Subminiature section.

Size	A		B		C		D	
	IN	MM	IN	MM	IN	MM	IN	MM
9	1.213	30.81	.592	15.04	.759	19 28	.030	.76
15	1.541	39.14	.918	23.32	1.083	27.51	.030	.76
25	2.088	53.04	1.462	37.13	1.624	41.28	.039	.99
37	2.729	69.32	2.114	53.70	2.272	57.71	.039	.99

(Strain Relief) Wire Covers



One-piece cover for 9 contact size. Two-piece covers for other sizes. Covers fit both plug and socket.

Layout	Distributor Part Number
9 Contact	SSD-WC9
15 Contact	SSD-WC15
25 Contact	SSD-WC25
37 Contact	SSD-WC37

*Trademark TRW Inc.

Tools See page 2•1616

CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

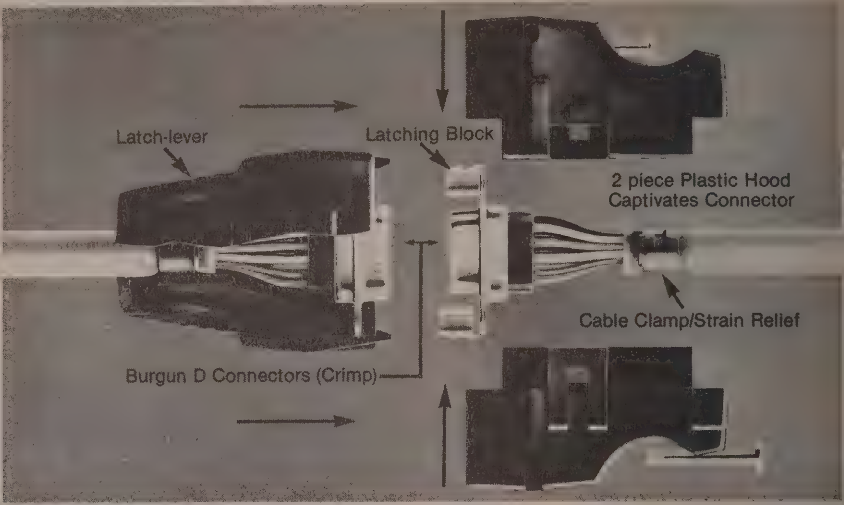
Cinch Super D Adapter System

For D-Subminiature Connectors

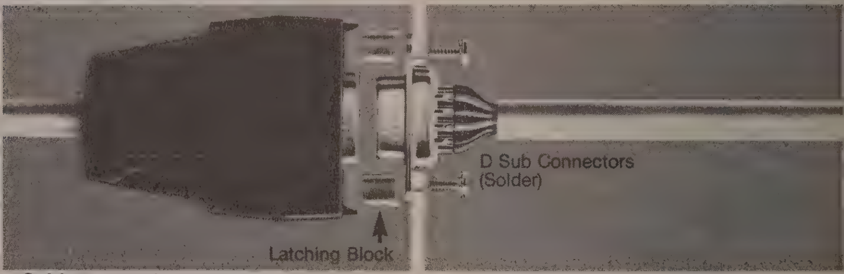
Specially designed black two-piece snap-on plastic hoods, with and without latches, captivate metal shell D-Subminiature connectors. Add-on metal latching blocks are screw mounted on two connector mounting flanges to accept the latch locks.

For cable to panel screw mount, the mating metal shell D-Subminiature connector is captivated in a filler end hood with screws. Screws are screwed into screw lock assembly for semi-permanent locking.

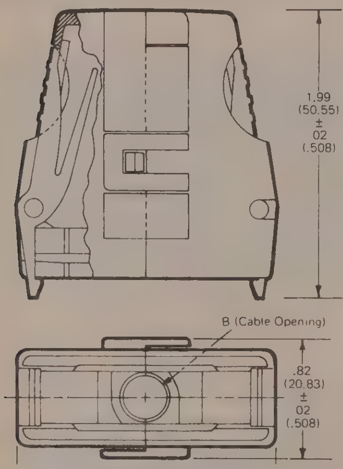
Cable to cable Latch-N-Lock


Latch-lever
Latching Block
2 piece Plastic Hood Captivates Connector
Cable Clamp/Strain Relief
Burgun D Connectors (Crimp)

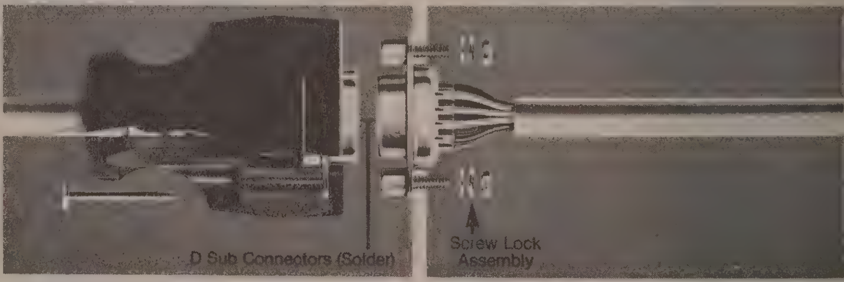
Cable to panel Latch-N-Lock


D Sub Connectors (Solder)
Latching Block

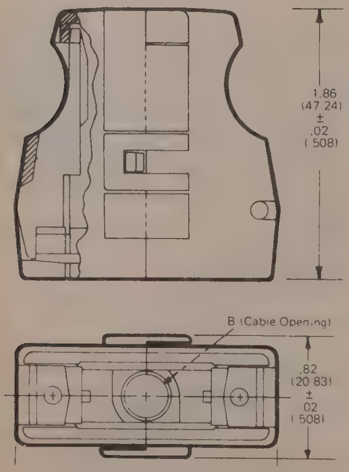
Super D adapter hood w/latches


1.99 (50.55) ± .02 (.508)
B (Cable Opening)
.82 (20.83) ± .02 (.508)

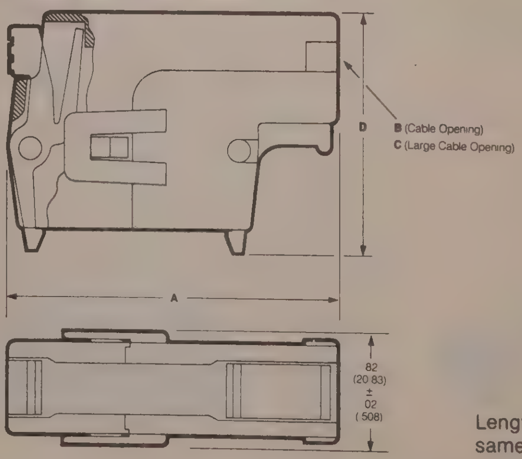
Cable to panel screw mount


D Sub Connectors (Solder)
Screw Lock Assembly

Super D adapter hood w/filler ends


1.86 (47.24) ± .02 (.508)
B (Cable Opening)
.82 (20.83) ± .02 (.508)

Super D right angle adapter hood


D
B (Cable Opening)
C (Large Cable Opening)
A
.82 (20.83) ± .02 (.508)

Length and cable opening dimensions same as for Super D connector system

Cinch Super D Adapter System

For D-Subminiature Connectors

Super D Adapter System— Black Plastic Straight Hood

Super D
Adapter Hood
with Latches

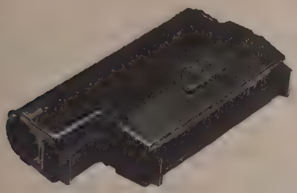
Super D
Adapter Hood
with Filler Ends

One stay band included for each hood.
For additional stay bands, order separately.

For larger than standard cable openings, consult factory.

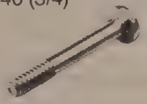
Contact Size	Distributor Part No.					
	Standard Cable Opening			Large Cable Opening		
	w/ Latches	wo/ Screws	w/Two Captive 4-40 Screws	w/ Latches	wo/ Screws	w/Two Captive 4-40 Screws
9	SDH-9BL	SDH-9BF	SDH-9BFCS	—	—	—
15	SDH-15BL	SDH-15BF	SDH-15BFCS	SDH-15BLL	SDH-15BFL	SDH-15BLCS
25	SDH-25BL	SDH-25BF	SDH-25BFCS	SDH-25BLL	SDH-25BFL	SDH-25BLCS
37	SDH-37BL	SDH-37BF	SDH-37BFCS	SDH-37BLL	SDH-37BFL	SDH-37BLCS

Super D Adapter System— Black Plastic Right Angle Hood



Contact Size	Distributor Part No.	
	Standard Cable Opening	Large Cable Opening
	w/Latches	w/Latches
9	SDH-9RBL	—
15	SDH-15RBL	SDH-15RBLL
25	SDH-25RBL	SDH-25RBLL
37	SDH-37RBL	SDH-37RBLL

Screws for Adapter Hood: Two required. Distributor Part No. SD-4-40 (3/4)

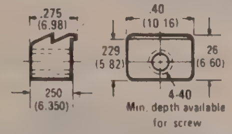


Sems Screws for Adapter System

For .060″ or .080″ Panel

For .125″ Panel

Latching Blocks for Adapter System



Description	Distributor No.
Latching Blocks	SD-LB
Latching Blocks w/ sems screw for .060″ or .080″ panel thickness (two each)	SD-LB-060-080
Latching Blocks w/ sems screw for .125″ panel thickness (two each)	SD-LB-125

Super D Ordering Information

Distributor Part Number Series	Required Components	Connector System				Adapter System			Super Shielded 'D'		
		Cable to Cable		Cable to Panel		Cable to Cable	Cable to Panel		Cable to Cable	Cable to Panel	
		Latch-N-Lock	Screw Lock	Latch-N-Lock	Screw Mount	Latch-N-Lock	Latch-N-Lock	Screw Mount	Latch-N-Lock	Latch-N-Lock	Screw Mount
TX-XXX	Connector w/Mtg. Holes	1	1	1	1						
TX-XXX-TB	Connector w/T. Bushings****										
TX-XXX-LB	Connector w/Latch Blocks	1									
TX-XXX-LB-1	Connector w/Latch Blocks w/T. Bushings		1	1	1						
TX-XX-SH	Super Shielded 'D'								1	1	1
SDH-XXX-GL	Gray Hood w/Latches*	1		1							
SDH-XXX-GF	Gray Hood w/Filler Ends*	1	2		1						
SDH-XXX-BL	Black Hood w/Latches*					1	1		1	1	
SDH-XXX-BF	Black Hood w/Filler Ends*					1		1	1		1
SD-WCXX	Strain Relief/Wire Covers***			2***	2***						
SD-4-40 (3/4)	4-40 Screws for Filler End Hoods		2		2	2		2	2		2
SD-LB	Metal Latching Blocks**					2	2		2	2	
SD-LB-XXXX	Panel Mtg. Sems Screws**			2	2		2			2	

*One Stay Band/Cable Clamp supplied with each hood. Additional Stay Bands available.

**Latching blocks available with and without mounting screws. Mounting screws available for either .060″/.080″ or .125″ panel thickness along with latch blocks.

***For 9 position connector strain relief is one piece, so only one required.

****Connector w/T. Bushings may be used to mount to panel and to mate to a connector without hoods

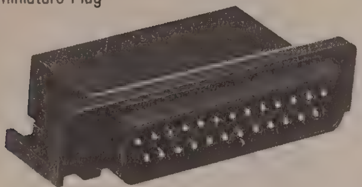
Cinch All Plastic D-Subminiature Connectors

With Straight Or Right Angle P.C. Tails

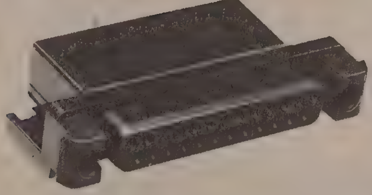
All Plastic D-Subminiature Socket

All Plastic D-Subminiature Plug With Latching Blocks And Threaded Bushing

All Plastic D-Subminiature Plug



All Plastic Socket With Latching-Blocks



Plug or socket connectors mount on a P.C. board and are intermateable with all D-Subminiature connectors, including insulation displacement, solder or crimp termination designs. Available in 9, 15, 25 and 37 contact sizes.

Connectors available:
1) With plain flanges with either plain mounting holes or with 4-40 threaded bushings.
2) With flanges with latching blocks with plain mounting holes or with 4-40 threaded bushings.

The RS 449 integral latch block option on flanges offers the interface for the quick release Super D latching system. Use gray plastic Super D system hoods or black plastic Super D adaptor hoods.

The combination of insulation displacement Super D connectors, hoods and hardware with all plastic D-Subminiature P.C. board connectors provides an extremely cost effective, yet highly reliable interconnect system.

TRW Cinch ruggedized mounting flange has an increase material cross section to minimize flange fracturing or damage. The extra cross section also provides more bearing length for the threaded bushing to inhibit its being over torqued during assembly.

The threaded bushing option in the mounting flange simplifies the connector attachment to the equipment panel or to a P.C. board. Eliminates the need for a separate nut and the handling of a loose part.

Connector contacts are positively retained in the insulator to prevent loosening during wave soldering.

Dual mount flange on straight P.C. connector combines the panel mounting flange function with the P.C. board stand-off to eliminate the need for separate bushings and added assembly costs.

Insulator: Black polyester, UL rated 94V-O.

Contact Material: Copper base alloy.

Contact Plating: Selective gold over nickel. Gold flash on tail. Other plating options available. Consult factory.

Termination: Straight and right angle DIP solder tails for 1/16" P.C. boards. Other tail lengths available. Consult factory.

Polarization: D or keystone shape insures one way mating.

Withstanding Voltage: 1000 volts RMS.

Current Rating: 3 AMPS.

Operating Temperature Range: -55 C to +125C.

All Plastic D-Subminiature Connectors Straight P.C. Tail For 1/16" P.C. Boards

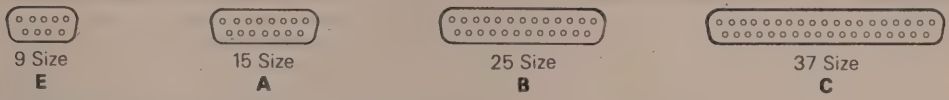
	Distributor Part Number			
	Plain Flange		Flange W/Latching Blocks	
Layout	W/Mounting Hole	W/4-40 Threaded Bushing	W/Mounting Hole	W/4-40 Threaded Bushing
9 Contact Plug	TE-9P-1	TE-9P-2	TE-9P-3	TE-9P-4
Socket	TE-9S-1	TE-9S-2	TE-9S-3	TE-9S-4
15 Contact Plug	TA-15P-1	TA-15P-2	TA-15P-3	TA-15P-4
Socket	TA-15S-1	TA-15S-2	TA-15S-3	TA-15S-4
25 Contact Plug	TB-25P-1	TB-25P-2	TB-25P-3	TB-25P-4
Socket	TB-25S-1	TB-25S-2	TB-25S-3	TB-25S-4
37 Contact Plug	TC-37P-1	TC-37P-2	TC-37P-3	TC-37P-4
Socket	TC-37S-1	TC-37S-2	TC-37S-3	TC-37S-4

All Plastic D-Subminiature Connectors Right Angle P.C. Tail For 1/16" P.C. Boards

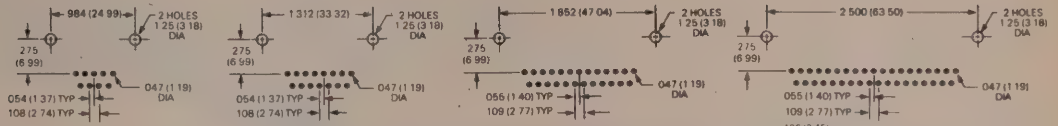
	Distributor Part Number			
	Plain Flange		Flange W/Latching Blocks	
Layout	W/Mounting Hole	W/4-40 Threaded Bushing	W/Mounting Hole	W/4-40 Threaded Bushing
9 Contact Plug	TE-9P-5	TE-9P-6	TE-9P-7	TE-9P-8
Socket	TE-9S-5	TE-9S-6	TE-9S-7	TE-9S-8
15 Contact Plug	TA-15P-5	TA-15P-6	TA-15P-7	TA-15P-8
Socket	TA-15S-5	TA-15S-6	TA-15S-7	TA-15S-8
25 Contact Plug	TB-25P-5	TB-25P-6	TB-25P-7	TB-25P-8
Socket	TB-25S-5	TB-25S-6	TB-25S-7	TB-25S-8
37 Contact Plug	TC-37P-5	TC-37P-6	TC-37P-7	TC-37P-8
Socket	TC-37S-5	TC-37S-6	TC-37S-7	TC-37S-8

Cinch All Plastic D-Subminiature Connectors (Cont.)

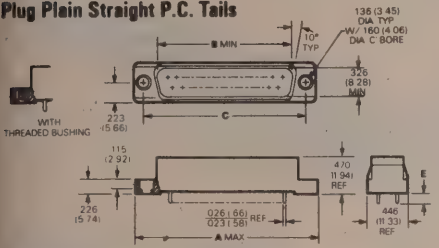
Contact Arrangements


9 Size
E
15 Size
A
25 Size
B
37 Size
C

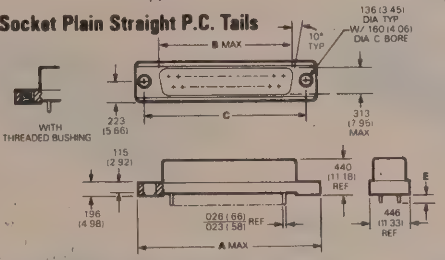
Right Angle PC Board Layouts


984 (24 99)
2 HOLES 1 25 (3 18) DIA
275 (6 99)
054 (1 37) TYP
108 (2 74) TYP
047 (1 19) DIA
1 312 (33 32)
1 852 (47 04)
055 (1 40) TYP
109 (2 77) TYP
2 500 (63 50)

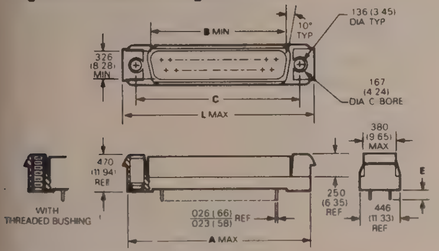
Plug Plain Straight P.C. Tails


B MIN
10° TYP
136 (3 45) DIA TYP W/ 160 (4 06) DIA C BORE
326 (8 28) MIN
223 (5 66)
C
WITH THREADED BUSHING
115 (2 92)
470 (11 94) REF
226 (5 74)
026 (66) 023 (58) REF
A MAX
446 (11 33) REF
E

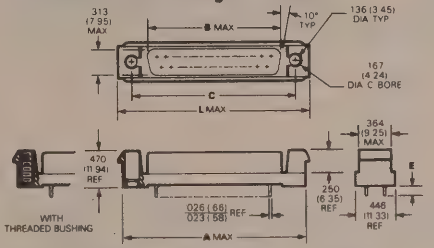
Socket Plain Straight P.C. Tails


B MAX
10° TYP
136 (3 45) DIA TYP W/ 160 (4 06) DIA C BORE
223 (5 66)
C
313 (7 95) MAX
WITH THREADED BUSHING
115 (2 92)
440 (11 18) REF
196 (4 98)
026 (66) 023 (58) REF
A MAX
446 (11 33) REF
E

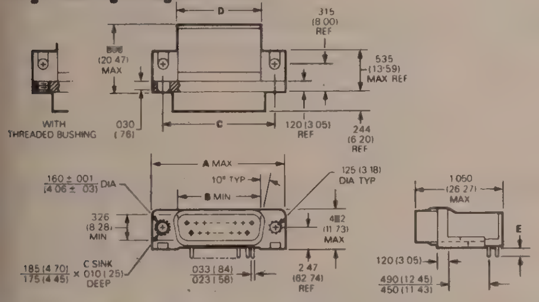
Plug with Latches Straight P.C. Tails


B MIN
10° TYP
136 (3 45) DIA TYP
326 (8 28) MIN
167 (4 24) DIA C BORE
C
L MAX
470 (11 94) REF
380 (9 65) MAX
250 (6 35) REF
WITH THREADED BUSHING
026 (66) 023 (58) REF
A MAX
446 (11 33) REF
E

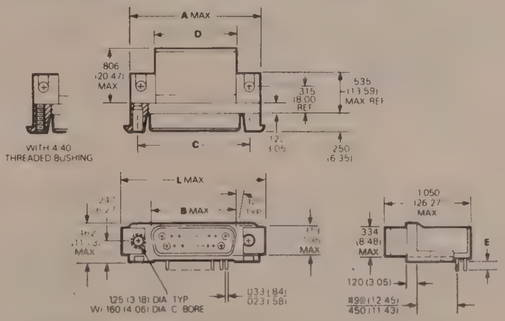
Socket with Latches Straight P.C. Tails


313 (7 95) MAX
B MAX
10° TYP
136 (3 45) DIA TYP
167 (4 24) DIA C BORE
C
L MAX
364 (9 25) MAX
470 (11 94) REF
250 (6 35) REF
WITH THREADED BUSHING
026 (66) 023 (58) REF
A MAX
446 (11 33) REF
E

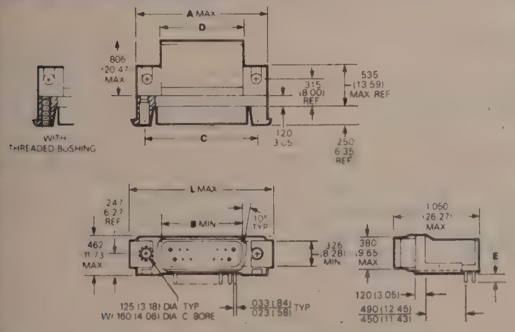
Plug Plain Right Angle P.C. Tails


D
315 (8 00) REF
806 (20 47) MAX
535 (13 59) MAX REF
WITH THREADED BUSHING
030 (76)
C
120 (3 05) REF
244 (6 20) REF
A MAX
10° TYP
125 (3 18) DIA TYP
160 ± 001 (4 06 ± 03) DIA
B MIN
326 (8 28) MIN
482 (11 73) MAX
185 (4 70) 175 (4 45) × C SINK 010 (25) DEEP
033 (84) 023 (58)
247 (62 74) REF
1 050 (26 27) MAX
E
120 (3 05)
490 (12 45) 450 (11 43)

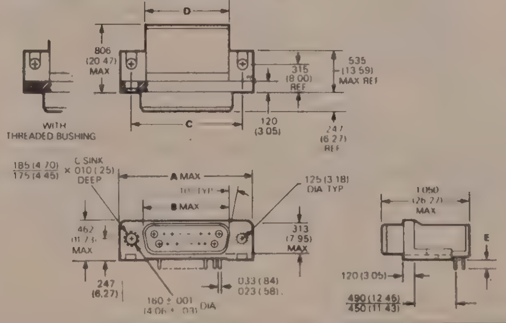
Socket with Latches Right Angle P.C. Tails


A MAX
D
806 (20 47) MAX
535 (13 59) MAX REF
315 (8 00) REF
WITH 4 40 THREADED BUSHING
C
250 (6 35)
L MAX
B MAX
125 (3 18) DIA TYP W/ 160 (4 06) DIA C BORE
033 (84) 023 (58)
1 050 (26 27) MAX
334 (8 48) MAX
E
120 (3 05)
490 (12 45) 450 (11 43)

Plug with Latches Right Angle P.C. Tails


A MAX
D
806 (20 47) MAX
535 (13 59) MAX REF
315 (8 00) REF
WITH THREADED BUSHING
C
250 (6 35) REF
L MAX
247 (6 27) REF
B MIN
10° TYP
462 (11 73) MAX
326 (8 28) MIN
380 (9 65) MAX
125 (3 18) DIA TYP W/ 160 (4 06) DIA C BORE
033 (84) 023 (58) TYP
1 050 (26 27) MAX
E
120 (3 05)
490 (12 45) 450 (11 43)

Socket Plain Right Angle P.C. Tails


D
806 (20 47) MAX
535 (13 59) MAX REF
315 (8 00) REF
WITH THREADED BUSHING
C
120 (3 05)
247 (6 27) REF
185 (4 70) 175 (4 45) × C SINK 010 (25) DEEP
A MAX
B MAX
125 (3 18) DIA TYP
462 (11 73) MAX
313 (7 95) MAX
247 (6 27)
160 ± 001 (4 06 ± 03) DIA
033 (84) 023 (58)
1 050 (26 27) MAX
E
120 (3 05)
490 (12 46) 450 (11 43)

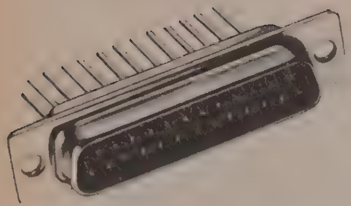
	A Max.		B Min.		B Max.				C		D		E				L Max.	
					Socket,	Straight	Socket,	Rt. Angle					For 1/16″ PCB		For 1/8″ PCB			
Size	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
9	1 218	30 94	.665	16.44	.647	16 43	648	16.46	.984	24 99	615	15 62	.125	3 175	188	4 775	1 324	33 63
15	1 547	39 29	992	25.20	.975	24.77	.976	24.79	1.312	33.32	.942	23 93	.125	3.175	.188	4 775	1.651	41 94
25	2 089	53 06	1.531	38 89	1 517	38 53	1.516	38.51	1 852	47 04	1 490	37 85	.125	3 175	188	4 775	2 194	55 73
37	2 739	69 57	2 179	55 35	2 163	54 94	2 164	54 97	2 500	63 50	2 142	54 41	125	3 175	188	4 775	2 839	72 11

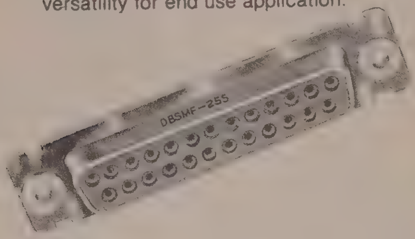
Cinch D-Subminiature Connectors

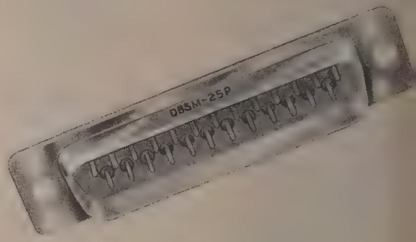
These high density connectors are designed for applications where space and weight are prime considerations. The variety of materials, contact layouts and contact termination options available in the major D-subminiature lines, along with the available accessory hardware, provides versatility for end use application.

All D-subminiature connectors will intermate if insert arrangements correspond.

Connectors are individually packaged in heat-sealed containers to assure extended shelf life.





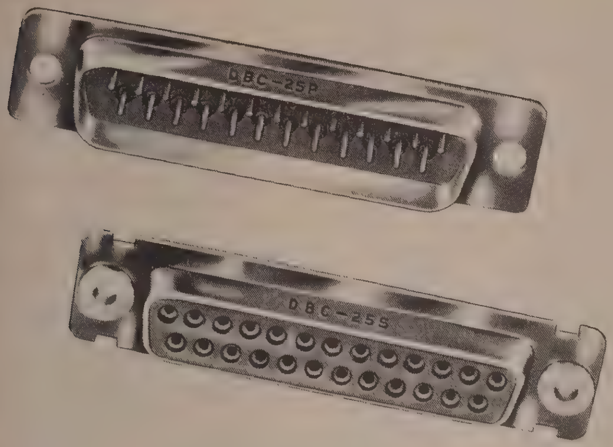


Materials, specifications and ratings

Name Pt. No. Designate	Insulator Material	Operating Temp. Range	Contact Material		Plating	Contact Termination	Maximum Voltage	Maximum Current
			Pin	Socket				
Basic D D*	Two-piece nylon	−65°F to +250°F	Brass	Phosphor Bronze	Gold over Nickel	Non-Removable: 1. Solder Pot 2. .025″ (.635 mm) sq. x .375″ (9.525 mm) Two level wire wrap 3. .040″ (1.016 mm) dia. printed circuit terminal for 1/16″ (1.588 mm) P.C. boards	1250 Volts AC RMS sea level	5 Amps
Basic D Basic D II D*	Two-piece Diallyl Phthalate Per MIL-M-14 Type GDI-30	−65°F to +275°F	Brass	Phosphor Bronze	Gold over Copper	Non-Removable Solder Pot	1250 Volts AC RMS sea level	5 Amps
Series 1 D*M	Monoblock Glass Fibre filled Diallyl Phthalate Per MIL-M-14 Type SDG-F	−65°F to +300°F	Brass	Brass	Gold over Nickel	Non-Removable: 1. Solder pot 2. Right Angle P.C. plug w/.040″ dia. terminal for 1/16 board. 3. Straight P.C. terminal w/.040″ dia. for 1/16″ board.	1250 Volts AC RMS sea level	5 Amps
Series 1 Military M24308	Same as above	−65°F to +300°F	Brass	Brass	Gold over Copper	Solder Pot	1250 Volts AC RMS sea level	5 Amps
Series 1 Combination D*M	Same as above	Same as above	See Catalog CD-12A	See Catalog CD-12A	See Catalog CD-12A	Solder Pot with removable coaxial and/or high voltage contacts	See Catalog C-46	5 Amps
Series 3 D*MA	Monoblock Glass fiber filled Diallyl Phthalate Per MIL-M-14 Type GDI-30-f	−65°F to +300°F	Leaded Copper	Copper alloy	Gold over Nickel	Crimp insert by hand, remove with small tool	1000 Volts AC RMS sea level	5 Amps
Series 3 Military M24308	Same as above	−65°F to +300°F	Same as above	Same as above	Gold over Copper	Same as above	1000 volts AC RMS sea level	5 Amps
Econo D D*C D*U	Two piece Thermoplastic Polyester 94V-0	−65°F to +250°F	Machined: Copper alloy Stamped: cadmium copper	Machined: copper alloy Stamped: cadmium copper	Machined: Gold over Nickel Stamped: Gold over Nickel at contact area with gold flash overall	Crimp, insert and remove with small hand tool. Non-Removable: 1. Right Angle P.C. terminal w/.024″ dia. for up to 3/32″ board. 2. Straight P.C. terminal w/.024″ dia. for up to 3/32″ board.	1000 Volts AC RMS sea level	5 Amps
D*A	Two piece Glass Filled Thermoplastic	−65°F to +250°F	Stamped: Copper Alloy	Stamped: Copper Alloy	Gold over Nickel in contact area with gold flash overall or Gold flash overall	Crimp, Insulation grip	1000 Volts AC RMS sea level	5 Amps
Super Solder D	Diallyl Phthalate	−65°F to +125°F	Phosphor Bronze	Phosphor Bronze	Gold/ Copper	Solder	1100 Volts AC RMS	5 Amps

Cinch D-Subminiature Connectors

Econo D



The TRW Cinch Econo D* subminiature connector is designed for commercial applications where space, weight, and economy are important considerations.

It is especially suited to plug-in module, cable to panel and cable to cable installations, in computers and peripherals, test equipment, communications equipment and a wide range of other applications.

The Econo D Series utilizes rear-release crimp snap-in contacts, that are readily inserted and removed by means of a simple, expandable insertion/extraction tool.

It offers these important features:

- Mates with existing Basic D and Series 1, Series 3 and Econo D connectors.
- Operates at temperatures to 250°F (120°C).
- Size 20 contacts accommodate wire size #18 through #30 AWG stranded wire. (Screw Machine) and, size #20 through #28 AWG stranded wire (Stamped).
- Closed-entry sockets automatically corrects misaligned pins.
- Rated at 5 amperes for #20 wire.
- Available in 9, 15, 25, 37, and 50 contact arrangements.
- Variety of contacts for hand and machine assembly and PC board insertion.

A Complete Line of Hardware and accessories including junction shells, hoods, dust caps and lock assemblies is available and listed in TRW Cinch Catalogs CD-12, and C-46.

For Immediate Delivery from stock, contact your TRW Cinch D-subminiature industrial distributor.

Condensed Data

Standard Materials & Finishes

Shell: Steel, yellow chromate over zinc plate or electroless tin.

Insulator: D*C and D*U molded glass filled polyester UL94V-0.

Contacts:
- Machined — Copper alloy.
- Stamped — Cadmium copper.

Contact Plating:
- Selective Stamped — gold over nickel at contacting area, with gold flash overall.
- Gold Flash Stamped — gold over nickel.
- Machined — gold over nickel.

Rivets and Washers: Stainless steel (float mounting).

Mechanical Features

Coupling: Friction and lock accessories.

Polarization: Keystone-shaped shells.

Contact Type: Crimp snap-in.

Electrical Data

Contact Termination: Crimp.

Wire Size:
- Size 20 Contacts — #20, #22, and #24 AWG stranded wire.
- Size 20-18 Contacts — One #18 or two #22 AWG stranded wires.
- Size 20 Stamped — #20 through #28 AWG stranded wire.

Current Rating: Size 20 Contacts — 5 amps.

Voltage Rating

	Sea Level	20,000 ft.	70,000 ft.	120,000 ft.
Average Flashover:	1500VAC	1000VAC	500VAC	255VAC
Test:	1000VAC	650VAC	325VAC	175VAC

Voltage Drop: Size 20 Contacts — 2.67 millivolts max. per amp when tested in accordance with MIL-STD-202, Method 307.

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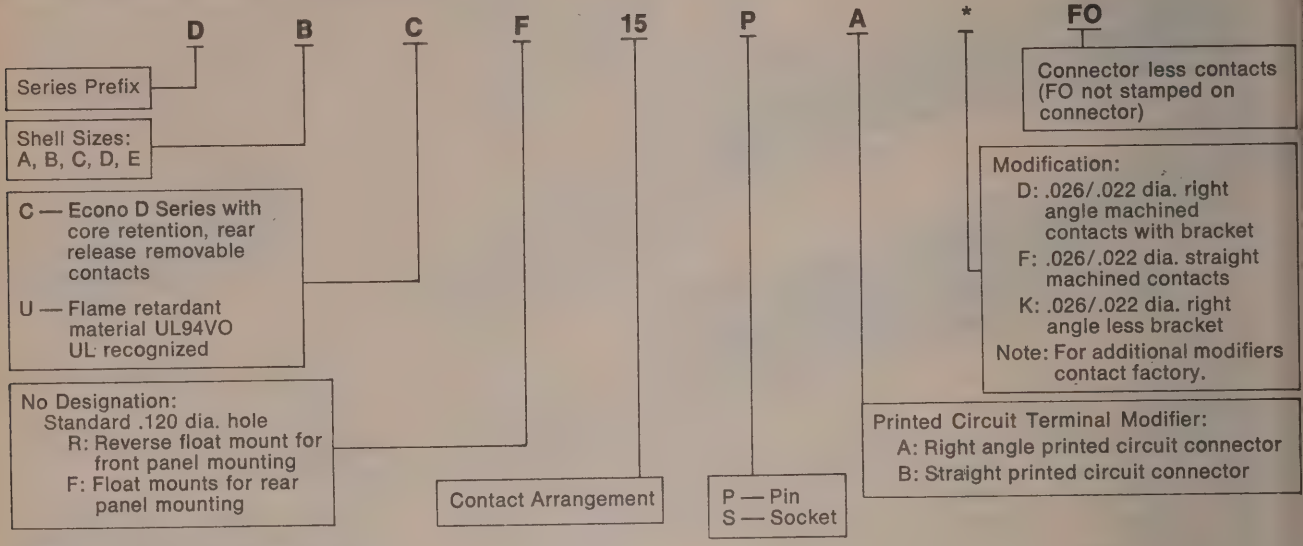
* Trademark TRW Inc.

Cinch D-Subminiature Connectors

Econo D

How to Order Econo D Connectors



D B C F 15 P A * FO

Series Prefix (D)

Shell Sizes: A, B, C, D, E (B)

C — Econo D Series with core retention, rear release removable contacts
U — Flame retardant material UL94VO UL recognized

No Designation: Standard .120 dia. hole
R: Reverse float mount for front panel mounting
F: Float mounts for rear panel mounting

Contact Arrangement (15)

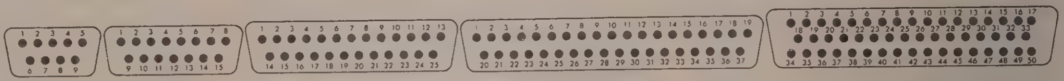
P — Pin
S — Socket

Printed Circuit Terminal Modifier:
A: Right angle printed circuit connector
B: Straight printed circuit connector

Modification:
D: .026/.022 dia. right angle machined contacts with bracket
F: .026/.022 dia. straight machined contacts
K: .026/.022 dia. right angle less bracket
Note: For additional modifiers contact factory.

Connector less contacts (FO not stamped on connector)

Basic Contact Arrangements #20 Contacts Only



Shell Size	E	A	B	C	D
No. of Contacts	9	15	25	37	50
Contact Size	#20	#20	#20	#20	#20

Part Numbers D*C Types

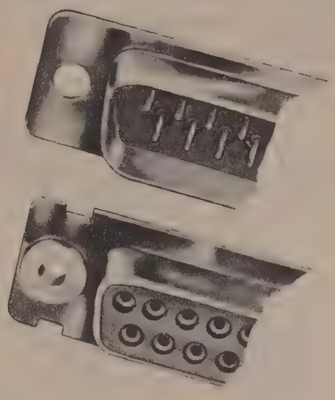
CONNECTORS WITH STANDARD .120 MOUNTING HOLE				CONNECTORS WITH FLOAT MOUNTS			
With Loose Machine Contacts		Less Contacts		With Loose Machine Contacts		Less Contacts	
Description Part No.	Factory Part No.	Description Part No.	Factory Part No.	Description Part No.	Factory Part No.	Description Part No.	Factory Part No.
DEC-9P	234-09-11-102	DEC-9PFO	234-09-11-100	DECF-9P	234-09-11-107	DECF-9PFO	234-09-11-106
DEC-9S	233-09-11-102	DEC-9SFO	233-09-11-100	DECF-9S	233-09-11-107	DECF-9SFO	233-09-11-106
DAC-15P	234-15-11-102	DAC-15PFO	234-15-11-100	DACF-15P	234-15-11-107	DACF-15PFO	234-15-11-106
DAC-15S	233-15-11-102	DAC-15SFO	233-15-11-100	DACF-15S	233-15-11-107	DACF-15SFO	233-15-11-106
DBC-25P	234-25-11-102	DBC-25PFO	234-25-11-100	DBCF-25P	234-25-11-107	DBCF-25PFO	234-25-11-106
DBC-25S	233-25-11-102	DBC-25SFO	233-25-11-100	DBCF-25S	233-25-11-107	DBCF-25SFO	233-25-11-106
DCC-37P	234-37-11-102	DCC-37PFO	234-37-11-100	DCCF-37P	234-37-11-107	DCCF-37PFO	234-37-11-106
DCC-37S	233-37-11-102	DCC-37SFO	233-37-11-100	DCCF-37S	233-37-11-107	DCCF-37SFO	233-37-11-106
DDC-50P	234-50-11-102	DDC-50PFO	234-50-11-100	DDCF-50P	234-50-11-107	DDCF-50PFO	234-50-11-106
DDC-50S	233-50-11-102	DDC-50SFO	233-50-11-100	DDCF-50S	233-50-11-107	DDCF-50SFO	233-50-11-106

Part Numbers D*U UL Recognized Types

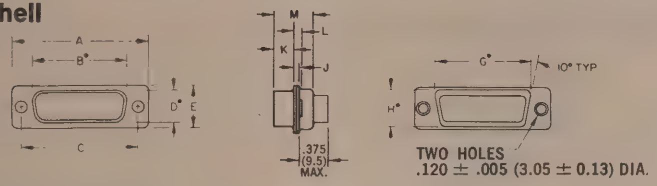
CONNECTORS WITH STANDARD .120 MOUNTING HOLE				CONNECTORS WITH FLOAT MOUNTS			
With Loose Machine Contacts		Less Contacts		With Loose Machine Contacts		Less Contacts	
Description Part No.	Factory Part No.	Description Part No.	Factory Part No.	Description Part No.	Factory Part No.	Description Part No.	Factory Part No.
DEU-9P	234-09-11-122	DEU-9PFO	234-09-11-120	DEUF-9P	234-09-11-127	DEUF-9PFO	234-09-11-126
DEU-9S	233-09-11-122	DEU-9SFO	233-09-11-120	DEUF-9S	233-09-11-127	DEUF-9SFO	233-09-11-126
DAU-15P	234-15-11-122	DAU-15PFO	234-15-11-120	DAUF-15P	234-15-11-127	DAUF-15PFO	234-15-11-126
DAU-15S	233-15-11-122	DAU-15SFO	233-15-11-120	DAUF-15S	233-15-11-127	DAUF-15SFO	233-15-11-126
DBU-25P	234-25-11-122	DEU-25PFO	234-25-11-120	DBUF-25P	234-25-11-127	DBUF-25PFO	234-25-11-126
DBU-25S	233-25-11-122	DEU-25SFO	233-25-11-120	DBUF-25S	233-25-11-127	DBUF-25SFO	233-25-11-126
DCU-37P	234-37-11-122	DCU-37PFO	234-37-11-120	DCUF-37P	234-37-11-127	DCUF-37PFO	234-37-11-126
DCU-37S	233-37-11-122	DCU-37SFO	233-37-11-120	DCUF-37S	233-37-11-127	DCUF-37SFO	233-37-11-126
DDU-50P	234-50-11-122	DDU-50PFO	234-50-11-120	DDUF-50P	234-50-11-127	DDUF-50PFO	234-50-11-126
DDU-50S	233-50-11-122	DDU-50SFO	233-50-11-120	DDUF-50S	233-50-11-127	DDUF-50SFO	233-50-11-126

inch D-Subminiature onnectors

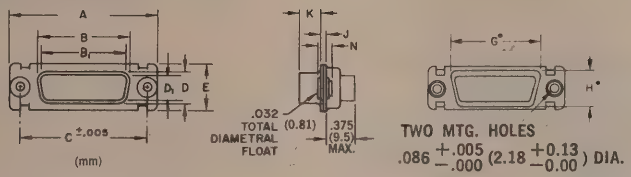
Econo D



tandard Shell



hell with Float Mounts

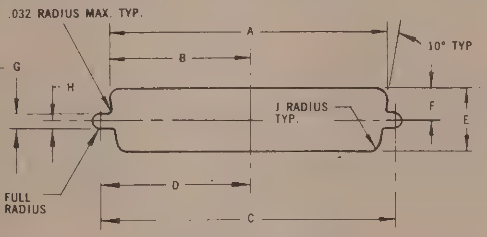


is recommended that only one assembly, either pin or socket, be float mounted. Front panel mounting use reverse float mount.

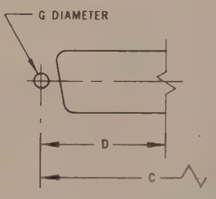
Description Part No.	A ±.015(0.38)	B* ±.010(0.25)	B1 ±.005(0.13)	C ±.005(0.13)	D* ±.010(0.25)	D1 ±.010(0.25)	E ±.015(0.38)
DEC-9P	1.213(30.81)		.666(16.9)	.984(24.99)		.329(8.4)	.494(12.55)
DEC-9S	1.213(30.81)	.640(16.26)		.984(24.99)	.308(7.82)		.494(12.55)
DAC-15P	1.541(39.14)		.994(25.3)	1.312(33.32)		.329(8.4)	.494(12.55)
DAC-15S	1.541(39.14)	.968(24.59)		1.312(33.32)	.308(7.82)		.494(12.55)
DBC-25P	2.088(53.04)		1.534(39.0)	1.852(47.04)		.329(8.4)	.494(12.55)
DBC-25S	2.088(53.04)	1.508(38.30)		1.852(47.04)	.308(7.82)		.494(12.55)
DCC-37P	2.729(69.32)		2.182(55.4)	2.500(63.50)		.329(8.4)	.494(12.55)
DCC-37S	2.729(69.32)	2.156(54.76)		2.500(63.50)	.308(7.82)		.494(12.55)
DDC-50P	2.635(66.93)		2.079(52.8)	2.406(61.11)		.436(11.1)	.605(15.37)
DDC-50S	2.635(66.93)	2.062(52.34)		2.406(61.11)	.420(10.67)		.605(15.37)

Description Part No.	G* ±.010(0.25)	H* ±.010(0.25)	J ±.010(0.25)	K ±.010(0.25)	L ±.010(0.25)	M ±.010(0.25)	N ±.010(0.25)
DEC-9P	.759(19.28)	.422(10.72)	.030(0.76)	.236(5.99)	.045(1.14)	.422(10.72)	.120(3.05)
DEC-9S	.759(19.28)	.422(10.72)	.030(0.76)	.243(6.17)	.045(1.14)	.429(10.92)	.120(3.05)
DAC-15P	1.083(27.51)	.422(10.72)	.030(0.76)	.236(5.99)	.045(1.14)	.422(10.72)	.120(3.05)
DAC-15S	1.083(27.51)	.422(10.72)	.030(0.76)	.243(6.17)	.045(1.14)	.429(10.92)	.120(3.05)
DBC-25P	1.625(41.27)	.422(10.72)	.039(0.99)	.231(5.87)	.060(1.52)	.426(10.82)	.129(3.28)
DBC-25S	1.625(41.27)	.422(10.72)	.030(0.76)	.243(6.17)	.045(1.14)	.429(10.92)	.120(3.05)
DCC-37P	2.272(57.71)	.422(10.72)	.039(0.99)	.231(5.87)	.060(1.52)	.426(10.82)	.129(3.28)
DCC-37S	2.272(57.71)	.422(10.72)	.030(0.76)	.243(6.17)	.045(1.14)	.429(10.92)	.120(3.05)
DDC-50P	2.178(55.32)	.534(13.56)	.039(0.99)	.231(5.87)	.060(1.52)	.426(10.82)	.129(3.28)
DDC-50S	2.178(55.32)	.534(13.56)	.030(0.76)	.243(6.17)	.045(1.14)	.429(10.92)	.120(3.05)

and D are the outside dimensions (for socket side). B_1 and D_1 are the inside dimensions (for pin side). For shell with float mounts, add F after C, e.g., DECF-9P. (Bracketed figures mm).



STANDARD CUTOUT



OPTIONAL CUTOUT
(FOR REAR MOUNTING)

Plug	Mounting Method	A ±.005(0.13)	B ±.005(0.13)	C ±.005(0.13)	D ±.005(0.13)	E ±.005(0.13)	F ±.005(0.13)	G ±.002(0.05)	H ±.002(0.05)	J ±.005(0.13)
A,	Front Mtg.	1.202(30.53)	.601(15.26)	1.312(33.32)	.656(16.66)	.513(13.03)	.257(6.53)	.120(3.05)	.060(1.52)	.083(2.11)
AC	Rear Mtg.	1.134(28.80)	.567(14.40)	1.312(33.32)	.656(16.66)	.449(11.40)	.225(5.72)	.120(3.05)	.060(1.52)	.132(3.35)
AF,	Front Mtg.	1.234(31.34)	.617(15.67)	1.312(33.32)	.656(16.66)	.545(13.84)	.273(6.93)	.088(2.24)	.044(1.12)	.083(2.11)
ACF	Rear Mtg.	1.166(29.62)	.583(14.81)	1.312(33.32)	.656(16.66)	.481(12.22)	.241(6.12)	.088(2.24)	.044(1.12)	.132(3.35)
B,	Front Mtg.	1.743(44.27)	.872(22.15)	1.852(38.61)	.926(23.52)	.513(13.03)	.257(6.53)	.120(3.05)	.060(1.52)	.083(2.11)
BC	Rear Mtg.	1.674(42.52)	.837(21.26)	1.852(38.61)	.926(23.52)	.449(11.40)	.225(5.72)	.120(3.05)	.060(1.52)	.132(3.35)
BF,	Front Mtg.	1.775(45.08)	.888(22.26)	1.852(38.61)	.926(23.52)	.545(13.84)	.273(6.93)	.088(2.24)	.044(1.12)	.083(2.11)
BCF	Rear Mtg.	1.706(43.33)	.853(21.67)	1.852(38.61)	.926(23.52)	.481(12.22)	.241(6.12)	.088(2.24)	.044(1.12)	.132(3.35)
C,	Front Mtg.	2.391(60.73)	1.196(30.38)	2.500(63.50)	1.250(38.10)	.513(13.03)	.257(6.53)	.120(3.05)	.060(1.52)	.083(2.11)
CC	Rear Mtg.	2.326(59.08)	1.163(29.54)	2.500(63.50)	1.250(38.10)	.449(11.40)	.225(5.72)	.120(3.05)	.060(1.52)	.132(3.35)
CF,	Front Mtg.	2.423(61.54)	1.212(30.78)	2.500(63.50)	1.250(38.10)	.545(13.84)	.273(6.93)	.088(2.24)	.044(1.12)	.083(2.11)
CCF	Rear Mtg.	2.354(59.79)	1.177(29.90)	2.500(63.50)	1.250(38.10)	.481(12.22)	.241(6.12)	.088(2.24)	.044(1.12)	.132(3.35)
D,	Front Mtg.	2.297(58.34)	1.149(29.18)	2.406(61.11)	1.203(30.56)	.623(15.82)	.312(7.92)	.120(3.05)	.060(1.52)	.083(2.11)
DC	Rear Mtg.	2.218(56.34)	1.109(28.17)	2.406(61.11)	1.203(30.56)	.555(14.10)	.278(7.06)	.120(3.05)	.060(1.52)	.132(3.35)
DF,	Front Mtg.	2.329(59.16)	1.165(29.59)	2.406(61.11)	1.203(30.56)	.655(16.64)	.328(8.33)	.088(2.24)	.044(1.12)	.083(2.11)
DCF	Rear Mtg.	2.250(57.15)	1.125(28.57)	2.406(61.11)	1.203(30.56)	.587(14.91)	.294(7.47)	.088(2.24)	.044(1.12)	.132(3.35)
E,	Front Mtg.	.874(22.20)	.437(11.10)	.984(24.99)	.492(12.50)	.513(13.03)	.257(6.53)	.120(3.05)	.060(1.52)	.083(2.11)
EC	Rear Mtg.	.806(20.47)	.403(10.24)	.984(24.99)	.492(12.50)	.449(11.40)	.225(5.72)	.120(3.05)	.060(1.52)	.132(3.35)
EF,	Front Mtg.	.906(23.01)	.453(11.51)	.984(24.99)	.492(12.50)	.545(13.84)	.273(6.93)	.088(2.24)	.044(1.12)	.083(2.11)
ECF	Rear Mtg.	.838(21.29)	.419(10.41)	.984(24.99)	.492(12.50)	.481(12.22)	.241(6.12)	.088(2.24)	.044(1.12)	.132(3.35)

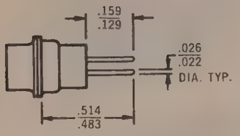
cketed figures mm)

Cinch D-Subminiature Connectors

Printed Circuit

TRW

Straight Printed Circuit Contact Connectors


.159
.129
.026
.022
DIA. TYP.
.514
.483

Supplied as complete assemblies with gold plated machined contacts.

Description Part No.	Factory Part No.
DEC-9PBF	234-09-11-104
DEC-9SBF	233-09-11-104
DAC-15PBF	234-15-11-104
DAC-15SBF	233-15-11-104
DBC-25PBF	234-25-11-104
DBC-25SBF	233-25-11-104
DCC-37PBF	234-37-11-104
DCC-37SBF	233-37-11-104
DDC-50PBF	234-50-11-104
DDC-50SBF	233-50-11-104

UL Recognized Types

Description Part No.	Factory Part No.
DEU-9PBF	234-09-11-124
DEU-9SBF	233-09-11-124
DAU-15PBF	234-15-11-124
DAU-15SBF	233-15-11-124
DBU-25PBF	234-25-11-124
DBU-25SBF	233-25-11-124
DCU-37PBF	234-37-11-124
DCU-37SBF	233-37-11-124
DDU-50PBF	234-50-11-124
DDU-50SBF	233-50-11-124

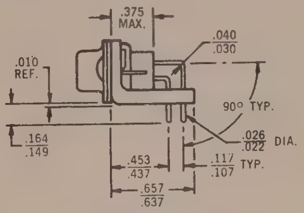
Metric Equivalents for PC Board Connector Layouts

Inches	mm	Inches	mm
.039	0.99	.435	11.09
.054	1.37	.489	12.42
.055	1.40	.544	13.82
.108	2.74	.598	15.19
.109	2.77	.652	16.56
.112	2.84	.707	17.96
.120	3.05	.761	19.33
.162	4.11	.815	20.70
.163	4.14	.870	22.10
.216	5.49	.924	23.47
.218	5.54	.978	24.84
.224	5.69	.984	24.99
.272	6.91	1.312	33.32
.324	8.23	1.852	47.04
.326	8.28	2.406	61.11
.381	9.68	2.500	63.50

Lead Hole Size

Terminal Dia.	Hole Dia.
.040	.055
.030	.045
.024	.039

Right Angle Connectors


.375
MAX.
.040
.030
.010
REF.
90° TYP.
.164
.149
.026
.022
DIA.
.453
.437
.117
.107
TYP.
.657
.637

With Assembled Contacts

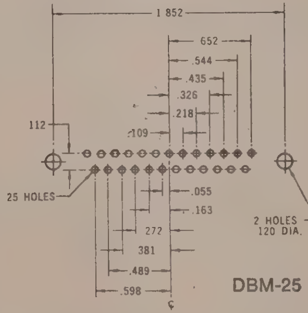
With Molded Bracket		Less Bracket	
Description Part No.	Factory Part No.	Description Part No.	Factory Part No.
DEC-9SAD	233-09-11-101	DEC-9SAK	233-09-11-105
DEC-9PAD	234-09-11-101	DEC-9PAK	234-09-11-105
DAC-15SAD	233-15-11-101	DAC-15SAK	233-15-11-105
DAC-15PAD	234-15-11-101	DAC-15PAK	234-15-11-105
DBC-25SAD	233-25-11-101	DBC-25SAK	233-25-11-105
DBC-25PAD	234-25-11-101	DBC-25PAK	234-25-11-105

With Assembled Contacts — UL Recognized Types

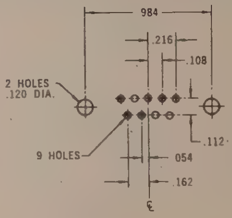
With Molded Bracket		Less Bracket	
Description Part No.	Factory Part No.	Description Part No.	Factory Part No.
DEU-9SAD	233-09-11-121	DEU-9SAK	233-09-11-125
DEU-9PAD	234-09-11-121	DEU-9PAK	234-09-11-125
DAU-15SAD	233-15-11-121	DAU-15SAK	233-15-11-125
DAU-15PAD	234-15-11-121	DAU-15PAK	234-15-11-125
DBU-25SAD	233-25-11-121	DBU-25SAK	233-25-11-125
DBU-25PAD	234-25-11-121	DBU-25PAK	234-25-11-125

Consult factory for availability of other sizes.

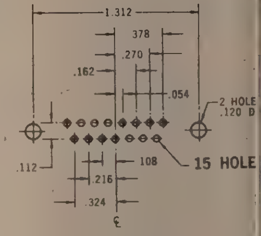
Board Layouts


1 852
652
.544
.435
.326
.218
.109
112
25 HOLES
.055
.163
272
381
.489
.598
2 HOLES
120 DIA.
℄

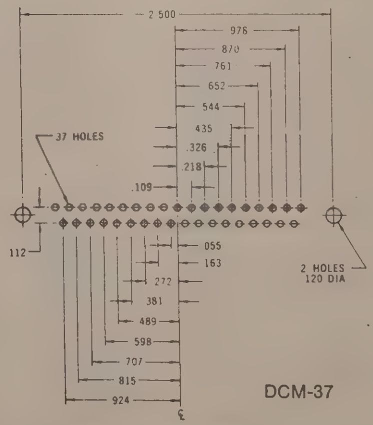
DBM-25


984
.216
.108
2 HOLES
.120 DIA.
9 HOLES
.112
054
.162
℄

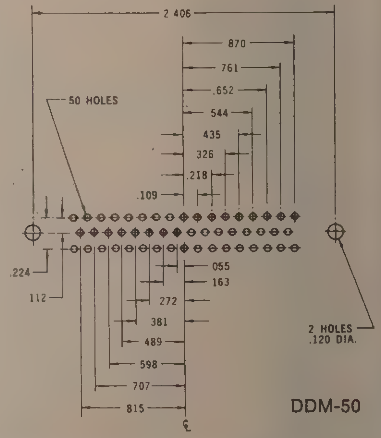
DEM-9


1.312
378
.270
.162
.054
2 HOLE
.120 D
.112
108
15 HOLE
.216
.324
℄

DAM-15


2 500
976
870
761
652
544
435
.326
218
.109
37 HOLES
112
055
163
272
381
489
598
707
815
924
2 HOLES
120 DIA
℄

DCM-37


2 406
870
761
.652
544
435
326
.218
.109
50 HOLES
.224
112
055
163
272
381
489
598
707
815
2 HOLES
.120 DIA.
℄

DDM-50

Cinch D-Subminiature Connectors

Rear Release Contact Retention

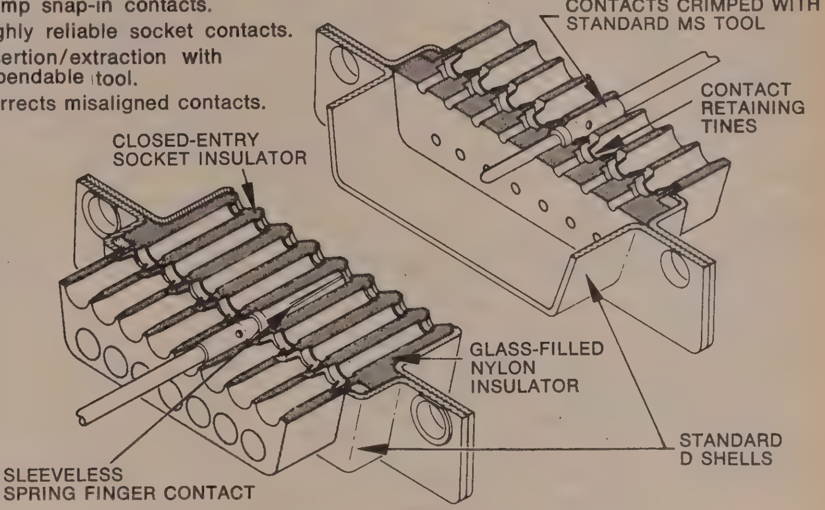
TRW

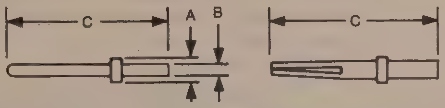
The Econo D connector features a rear insulator with integral, molded contact retaining tines. These plastic tines permit the insertion and extraction of contacts from the rear of the connector with a simple, expendable plastic insertion/extraction tool.

During contact insertion, the retaining tines expand as the contact passes thru. These rugged tines snap into place behind the contact shoulder when the contact is fully inserted. The tool is inserted to expand the tines, allowing easy extraction of the wired contact.

The retention system and the integral contact retaining tines guarantee functional reliability in many environments.

- Mates with existing D types.
- Operates in temperatures to +250°F.
- Crimp snap-in contacts.
- Highly reliable socket contacts.
- Insertion/extraction with expendable tool.
- Corrects misaligned contacts.

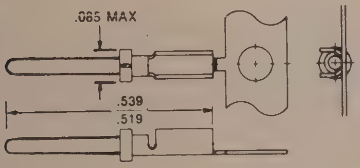

CONTACTS CRIMPED WITH STANDARD MS TOOL
CONTACT RETAINING TINES
CLOSED-ENTRY SOCKET INSULATOR
GLASS-FILLED NYLON INSULATOR
STANDARD D SHELLS
SLEEVELESS SPRING FINGER CONTACT

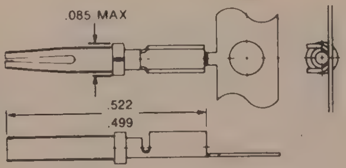


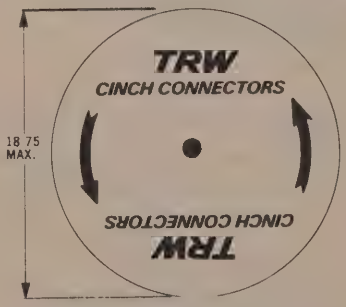
Description	Part No.	Description Part Number	Wire Accommodation	A ±.002(.051)	B ±.002(.051)	C Max.
Pin 20	403-30-15-130-410	030-1952-000*	#20, 22, 24	.067(1.70)	.042(1.07)	.537(13.64)
Pin 20-18	403-30-99-129-410	030-1954-000	#18 or 2- #22	.086(2.18)	.066(1.68)	.874(22.20)
Pin 20-26	403-30-99-126-410	030-1952-002	#26, 28, 30	.067(1.70)	.025(0.64)	.537(13.64)
Socket 20	414-30-14-227-410	030-1953-000*	#20, 22, 24	.067(1.70)	.042(1.07)	.523(13.28)
Socket 20-18	414-30-99-236-410	030-1955-000	#18 or 2- #22	.086(2.18)	.062(1.68)	.852(21.64)
Socket 20-26	414-30-99-233-410	030-1953-002	#26, 28, 30	.067(1.70)	.025(0.64)	.523(13.28)

Stamped Contacts

Stamped contacts are supplied loose for use with hand crimp tools, or on reels for use with the semiautomatic machines, selectively gold plated or with gold plate overall. These contacts will accommodate wire sizes #20 through #28 AWG by adjusting or changing the crimp die set. (For other wire sizes consult factory.)







LOOSE CONTACTS				RIGHT HAND FEED CONTACTS ON REELS				LEFT HAND FEED CONTACTS ON REELS			
Type	Plating	Factory Part No.	Dist. No. Reference	Type (RH)	Plating	Factory Part No.	Dist. No. Reference	Type (LH)	Plating	Factory Part No.	Dist. No. Reference
Pin	Selective	402-30-11-135	030-1960-005*	Pin	Selective	402-30-11-134	BCR-1960-20P*	Pin	Selective	402-30-11-138	D110238-034*
			——	Pin	Flash	402-30-11-174	——	Pin	Flash	402-30-11-171	——
Socket	Selective	412-30-14-355	030-1957-005*	Socket	Selective	425-00-00-157	BCR-1957-20S*	Socket	Selective	425-00-00-158	D110238-035*
Socket	Flash	412-30-14-406	——	Socket	Flash	425-00-00-249	——	Socket	Flash	425-00-00-172	——

* These items available through TRW Cinch distributors.

Cinch D-Subminiature Connectors

Rear Release Contact Retention

TRW

How to Order

Types D*MA, D*M & D Connectors

D B MA M R 15 P A * FO

Series Prefix

Shell Sizes
A, B, C, D, E

No designator — 2 piece nylon
Insulator — solder type
Contacts — Basic D series
M: Monobloc insert — solder type contacts
Series 1 series
MA: Monobloc insert — crimp type contacts
Series 3 series

M: For connectors having .00005 gold plate over .0001 min. copper plate on contacts — omit for standard Series 1 and Series 3 only

No designator — standard .120 diameter hole
E — 4-40 clinch nut for rear panel mounting
F — float mounts for rear panel mounting
R — reverse float mount for front panel mounting

Contact Arrangement, See pages **2•1629**, **2•1637**

P — Pin
S — Socket

Printed Circuit Terminal Modifier — Applicable to the Series 1 series (monobloc, solder type).

A — Right-angle printed circuit connector with .040 diameter terminals; with bracket assembly and accommodates printed circuit boards up to 1⁄16 maximum thickness. (Plug only.)

B — Straight printed circuit connector with .040 diameter terminals; accommodates printed circuit boards up to 3⁄32 maximum thickness.

H — Straight printed circuit connector with .040 diameter terminals; accommodates printed circuit boards up to 1⁄8 maximum thickness.

L — Right-angle printed circuit connector with .030 diameter terminals; with bracket assembly and accommodates printed circuit boards up to 3⁄32 maximum thickness. (Plug only.)

Printed Circuit Terminal Modifier — Applicable to the Basic D series.

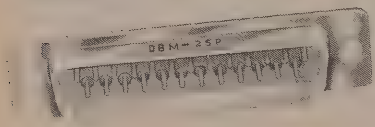
V — Straight printed circuit connector with .040 diameter terminals; accommodates printed circuit boards up to 1⁄16 maximum thickness.

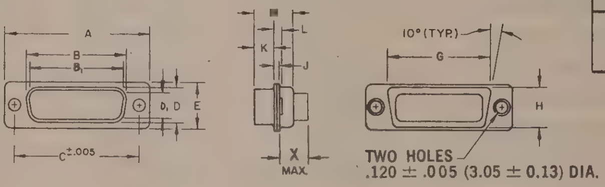
Modification — consult factory

Connector less contacts (FO not stamped on connector)

Standard Dimensions

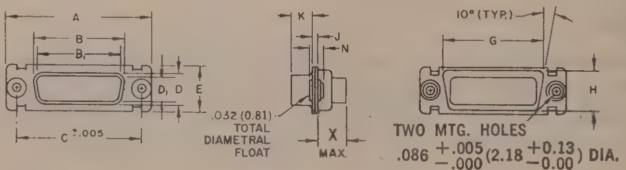
STANDARD SHELL





	Dim. X	mm
Basic D	.312	7.92
Series 1	.390	9.91
Series 3	.375	9.50

SHELL WITH FLOAT MOUNTS



It is recommended that only one assembly, either pin or socket, be float counted. For front panel mounting use reverse float mount.

Shell Size	Connector Type	A ±.015 (0.38)	B* ±.010 (0.25)	B1 ±.005 (0.13)	C ±.005 (0.13)	D* ±.010 (0.25)	D1 ±.010 (0.25)	E ±.015 (0.38)	G* ±.010 (0.25)	H* ±.010 (0.25)	J ±.010 (0.25)	K ±.010 (0.25)	L ±.010 (0.25)	M ±.010 (0.25)	N ±.010 (0.25)
E	9P	1.213 (30.81)		.666 (16.9)	.984 (24.99)		.329 (8.4)	.494 (12.55)	.759 (19.28)	.422 (10.72)	.030 (0.76)	.236 (5.99)	.045 (1.14)	.422 (10.72)	.120 (3.05)
	9S	1.213 (30.81)	.640 (16.26)		.984 (24.99)	.308 (7.82)		.494 (12.55)	.759 (19.28)	.422 (10.72)	.030 (0.76)	.243 (6.17)	.045 (1.14)	.429 (10.92)	.120 (3.05)
A	15P	1.541 (39.14)		.994 (25.3)	1.312 (33.32)		.329 (8.4)	.494 (12.55)	1.083 (27.51)	.422 (10.72)	.030 (0.76)	.236 (5.99)	.045 (1.14)	.422 (10.72)	.120 (3.05)
	15S	1.541 (39.14)	.968 (24.59)		1.312 (33.32)	.308 (7.82)		.494 (12.55)	1.083 (27.51)	.422 (10.72)	.030 (0.76)	.243 (6.17)	.045 (1.14)	.429 (10.92)	.120 (3.05)
B	25P	2.088 (53.04)		1.534 (39.0)	1.852 (47.04)		.329 (8.4)	.494 (12.55)	1.625 (41.27)	.422 (10.72)	.039 (0.99)	.231 (5.87)	.060 (1.52)	.426 (10.82)	.129 (3.28)
	25S	2.088 (53.04)	1.508 (38.30)		1.852 (47.04)	.308 (7.82)		.494 (12.55)	1.625 (41.27)	.422 (10.72)	.030 (0.76)	.243 (6.17)	.045 (1.14)	.429 (10.92)	.120 (3.05)
C	37P	2.729 (69.32)		2.182 (55.4)	2.500 (63.50)		.329 (8.4)	.494 (12.55)	2.272 (57.71)	.422 (10.72)	.039 (0.99)	.231 (5.87)	.060 (1.52)	.426 (10.82)	.129 (3.28)
	37S	2.729 (69.32)	2.156 (54.76)		2.500 (63.50)	.308 (7.82)		.494 (12.55)	2.272 (57.71)	.422 (10.72)	.030 (0.76)	.243 (6.17)	.045 (1.14)	.429 (10.92)	.120 (3.05)
D	50P	2.635 (66.93)		2.079 (52.8)	2.406 (61.11)		.436 (11.1)	.605 (15.37)	2.178 (55.32)	.534 (13.56)	.039 (0.99)	.231 (5.87)	.060 (1.52)	.426 (10.82)	.129 (3.28)
	50S	2.635 (66.93)	2.062 (52.34)		2.406 (61.11)	.420 (10.67)		.605 (15.37)	2.178 (55.32)	.534 (13.56)	.030 (0.76)	.243 (6.17)	.045 (1.14)	.429 (10.92)	.120 (3.05)

B and D are the outside dimensions (for socket side). B_1 and D_1 are the inside dimensions (for pin side). For shell with float mounts, add F after C, e.g., DECF-9P. (Bracketed figures mm)

Cinch D-Subminiature Connectors

Rear Release Contact Retention

TRW

General Ratings and Specifications

VOLTAGE RATINGS

All voltage figures are AC (RMS), 60 Hz, measured at approximately 77°F, 50% RH.

Connectors with Basic Arrangement AWG #20 wire contacts only

Connector Type		Altitude (feet) Sea Level	20,000	50,000	70,000
D*MA	Average Flashover	1500	1000	500	500
	Test	1000	650	325	325
D*M	Average Flashover	1700	1000	650	500
D*	Test	1250	750	475	375

All voltages are measured from contact to contact, and contact to shell, in unmated condition.

Connectors with Combination Arrangements — AWG #20 wire contacts with coaxial, high power, and/or high voltage contacts

All voltages are for plugs and receptacles in both mated and unmated conditions.

Altitude (feet)		Sea Level		20,000		Sea Level		20,000	
Type of Contact		**90°**	**Straight**	**90°**	**Straight**	**90°**	**Straight**	**90°**	**Straight**
Center Conductor to Coaxial Shell	Average Flashover	1200	1500	900	1000	600	700	400	500
	Test	800	1000	600	650	400	475	275	325
High Power Contact and/or Coaxial Shell to Plug Shell	Average Flashover	1500	1500	1000	1000	500	500	500	500
	Test	1000	1000	650	650	325	325	325	325
Coaxial Shell to Nearest Standard Solder Pot Contact	Average Flashover	*	1500	*	1500	*	900	*	650
	Test	*	1000	*	1000	*	600	*	425
HV Contact to Nearest #20 Contact or to Shell	Average Flashover	3800	3800	2300	2300	500	900	650	650
	Test	2800	2800	1700	1700	675	675	475	475

* Not applicable due to variable rotation.

Current Ratings

TRW Cinch vs. Military.

The TRW Cinch rating for #20 contacts in 5 amps, which means 5 amps for all contacts simultaneously. MIL-W-5088 rates #20 contacts at 7.5 amps maximum. The expansion is as follows:

MIL-W-5088B, Paragraph 3-9-2-1-2 specifies:

"Table I current ratings for cables in bundles are based upon 15 or more cables carrying no more than 20% of the total carrying capacity of the bundle."

Table I specifies a current rating of 7.5 amps maximum for single wires in bundles of 15 or more wires. NOTE: Wires and contacts are both considered to be in the category of conductors.

Explanation

If 15 wires (normally rated at 7.5 amps per wire maximum, or at a total bundle current of 112.5 amps) are not to carry more than 20% of the total 112.5 amps, the **average** current rating per wire is 20% of 112.5 amps (total bundle capacity) divided by 15 (number of wires).

Conclusion

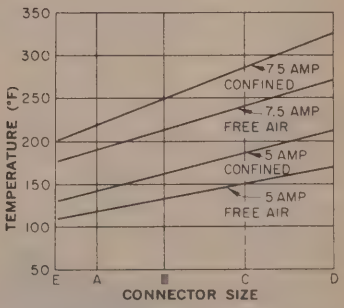
The Military rating of #20 contacts or wires is 1.5 amps average (based on 15 wires per bundle or 15 contacts per connector) vs. a TRW Cinch rating of 5 amps.

NOTES:

1. Free air condition. Connectors not shielded from ambient condition in any manner.
2. Confined condition. Connectors placed in insulated box (1 x 2 x 3.5) during test, with no moving air.
3. Average maximum temperature stabilization: 1 hour or less in all cases.
4. All contacts in each mated pair tested were wired in series with specified current flowing.
5. Ambient condition 77°F, 50% RH.

Material and Plating Specifications

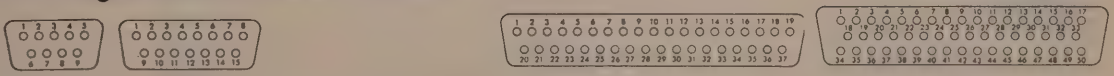
Material	Application	Per Specification
Beryllium Copper	Coax. Recept. Outer Body	QQ-C-530
Brass	Contact	QQ-B-626a, Composition 22, HH
Brass	Shell	QQ-B-613a, Composition 2, soft temper
Diallyl phthalate, glass fibre filled, (short)	Insulator	MIL-M-14F. Type SDGF
Diallyl phthalate, glass fibre filled, (long)	Insulator	MIL-P-19833. Type GDI-30F
Leaded copper	Contact	Anaconda Alloy 1870 or equivalent
Nylon	Insulator	MIL-P-17091B
Phosphor bronze	Contact	ASTM B139. Alloy BE per QQ-B-750
Stainless steel	Float rivet	Per QQ-S-764B
Stainless steel	Float washer	No. 304, per QQ-S-766c
Steel	Shell	QQ-S-636
Teflon	Coaxial Insulator	—
Plating	**Application**	**Per Specification**
Zinc plate	Shell	MIL-C-14550, Class I
Copper	Contact	MIL-G-45204, Type II, Class I
Gold plate	Contact	QQ-S-365a
Silver plate	Contact	MIL-T-10727A
Tin plate	Shell and contact	



Average Maximum Temperature vs. Connector Size for various current ratings of mated pairs of D Subminiature Connectors.

Basic Contact Arrangements (Applicable to all Series)

Face View Pin Insert



	E	A	B	C	D
Shell Size	E	A	B	C	D
No. of Contacts	9	15	25	37	50
Contact Size	#20	#20	#20	#20	#20

Cinch D-Subminiature Connectors

Basic D*

General Information

The TRW Cinch Basic D Plug utilizes a two-piece nylon insulator housed in a variety of five basic shell sizes E, A, B, C, and D. These shell sizes contain 9, 15, 25, 37, and 50 #20 solder pot contacts respectively. Standard contact terminations accommodate up to #20 AWG stranded wire. Current rating is 5 amperes.*

The keystone shape of the shell assures proper polarization. Coupling is by means of friction; locking accessories are available. Also available are shells with float mounts. Connectors with #4-40 or #2-56 clinch nut mounts may be provided.

With standard nylon insulators, operating temperatures range from −65°F to +250°F (the limiting factor being the insulator material). When diallyl phthalate insulator is substituted, the operating temperature range is from −65°F to +275°F.

* Military rating of #20 contacts on wires is 1.5 amps average, and 7.5 amps maximum. See explanation on page 2•1629.

Materials and Finishes

Shells: Steel, cadmium plated with yellow chromate supplementary coating.

Pin Contacts: Brass, gold plated over nickel plate.

Socket Contacts: Phosphor bronze, gold plated over nickel plate.

Insulators: Nylon, two-piece.

Float Mounting Rivets and Washers: Stainless steel.

For listing of applicable specifications, see page 2•1629.

Performance Data

Voltage Rating: See tabulation on page 2•1629 .

Insulation Resistance: Greater than 5,000 megohms, determined in accordance with MIL-STD-202D, Method 302, Condition B.

Contact Resistance: 2.7 milliohms maximum @ 7.5 amps.

Individual Contact Separation Force: 1 to 8 ounces.

Moisture Resistance: Exceeds test requirements of MIL-STD-202D, Method 106.†

Vibration: Exceeds test requirements of MIL-STD-202D, Method 204, Condition B.†

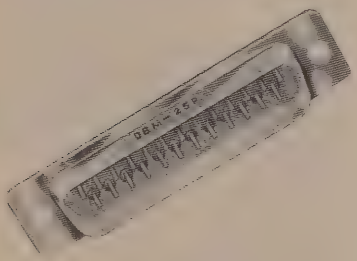
Shock: Exceeds test requirements of MIL-STD-202D, Method 213, Condition G.†

Corrosion Resistance: Exceeds requirements of 48 hr. exposure to salt spray in accordance with MIL-STD-202D, Method 101C, Condition B.†

† As referenced in MIL-C-24308.

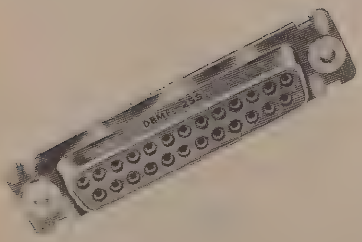
Ordering Information

Standard Mount



Shell Size	Layout	Order No.*	Factory No.
E	9 Contact Plug Socket	DE-9P* DE-9S*	231-09-11-101 230-09-11-101
A	15 Contact Plug Socket	DA-15P* DA-15S*	231-15-11-101 230-15-11-101
B	25 Contact Plug Socket	DB-25P* DB-25S*	231-25-11-101 230-25-11-112
C	37 Contact Plug Socket	DC-37P* DC-37S*	231-37-11-101 230-37-11-101
D	50 Contact Plug Socket	DD-50P* DD-50S*	231-50-11-101 230-50-11-101

Float Mount



Shell Size	Layout	Order No.*	Factory No.
E	9 Contact Plug Socket	DEF-9P* DEF-9S*	231-09-11-306 230-09-11-301
A	15 Contact Plug Socket	DAF-15P* DAF-15S*	231-15-11-301 230-15-11-301
B	25 Contact Plug Socket	DBF-25P* DBF-25S*	231-25-11-301 230-25-11-301
C	37 Contact Plug Socket	DCF-37P* DCF-37S	231-37-11-301 230-37-11-301
D	50 Contact Plug Socket	DDF-50P* DDF-50S*	231-50-11-304 230-50-11-301

* These items available through TRW Cinch distributors.

For Dimensions See Page 2•1628.

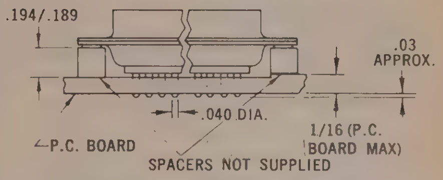
* Trademark TRW Inc.

Cinch D-Subminiature Connectors

Basic D*

Printed Circuit Terminals

Straight terminals for printed circuit boards up to and including 1⁄16″ maximum thickness. Terminals extend 3⁄32″ beyond the rear of the insert. For greater board thickness consult factory.



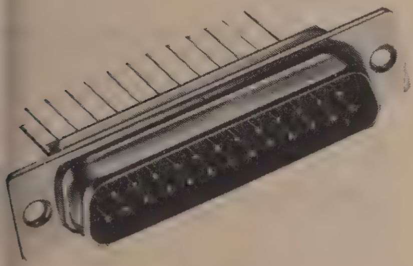
For additional dimensions see table on page 2•1628.

Shell Size	Layout	Order No.*	Factory No.
E	9 Contact Plug Socket	DE-9PV* DE-9SV*	231-09-12-112 230-09-12-115
A	15 Contact Plug Socket	DA-15PV* DA-15SV*	231-15-12-121 230-15-12-131
B	25 Contact Plug Socket	DB-25PV* DB-25SV*	231-25-12-116 230-25-12-105
C	37 Contact Plug Socket	DC-37PV* DC-37SV*	231-37-12-115 230-37-12-114
D	50 Contact Plug Socket	DD-50PV* DD-50SV*	231-50-12-114 230-50-12-113

* These items available through TRW Cinch distributors.

Wire Wrap Terminals

Rack and Panel Connectors with 0.025″ Square Wire Wrap* Tails



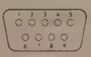
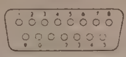
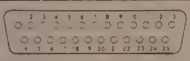
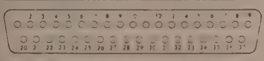
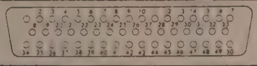
TRW Cinch D-Subminiature Connectors are designed for applications where space and weight considerations are prime considerations. These high contact density connectors are especially well-suited for aircraft, missile and ground support installations. They are designed to meet or exceed most of the requirements of MIL-C-24308.

These wire-wrap versions are available in 9, 15, 25, 37 and 50 contact sizes in both plug and socket types. Three tail lengths are available: 3⁄8″ long to accommodate two wires, 1⁄2″ and 37⁄64″ long to accommodate three wires. Socket contacts and plug pins are copper alloy gold plated over nickel. Insulators are two-piece nylon, and the outer shells are yellow chromate finished, cadmium-plated steel.

These D-Subminiature Connectors will intermate with any other D-Subminiature Connector of the same insert configuration. Mating connectors with standard termination may be adapted for cable attachment by means of accessory junction shells with integral clamps.

Immediate Delivery from TRW Cinch Distributors can be provided on the 3⁄8″ long termination types.

Ordering Information

(#20 contacts only)	Layout	Shell Size	3⁄8″ Tail Length†		37⁄64″ Tail Length	
			Order No.	Factory No.	Order No.	Factory No.
	9 Contact Plug Socket	E	DE-9P-F179 DE-9S-F179	231-09-13-133 230-09-13-132	DE-9P-F179C DE-9S-F179C	231-09-13-134 230-09-13-133
	15 Contact Plug Socket	A	DA-15P-F179 DA-15S-F179	231-15-13-152 230-15-13-142	DA-15P-F179C DA-15S-F179C	231-15-13-153 230-15-13-143
	25 Contact Plug Socket	B	DB-25P-F179 DB-25S-F179	231-25-13-157 230-25-13-149	DB-25P-F179C DB-25S-F179C	231-25-13-161 230-25-13-150
	37 Contact Plug Socket	C	DC-37P-F179 DC-37S-F179	231-37-13-141 230-37-13-131	DC-37P-F179C DC-37S-F179C	231-37-13-142 230-37-13-132
	50 Contact Plug Socket	D	DD-50P-F179 DD-50S-F179	231-50-13-136 230-50-13-124	DD-50P-F179C DD-50S-F179C	231-50-13-137 230-50-13-125

* Trademark Gardner-Denver Corp.

† All 3⁄8″ Tail length D-Subminiature Connectors are available for immediate delivery from local Authorized TRW Cinch Distributors. For 1⁄2″ tail contact factory.

For Dimensions See Page 2•1628.

Cinch D-Subminiature Connectors

Series 1*

TRW

General Information

TRW Cinch D*M Connectors feature solder pot contacts in a monobloc insulator for improved temperature characteristics and increased moisture resistance. Two insulator types are available: (a) combination layouts with coaxial and/or high voltage contacts plus standard AWG wire contacts, and (b) layouts with standard AWG wire contacts only. The five amp* solder pot contacts accommodate wire sizes up to #20 AWG stranded wire. Socket contacts are of the closed entry type. Operating temperatures range from −65°F to +300°F.

Combination layouts are supplied with unfilled coaxial and/or HV contact cavities. Coaxial and HV contacts must be ordered separately, and may be used interchangeably in any of the layouts listed. HV contacts accommodate wire sizes up to #20. In both, coaxial and HV contacts, the center contacts have solder type termination. Braid, on coaxial contacts, may be soldered or crimped to the outer conductor. Both of the above contacts are snap-in, removable type.

Standard coaxial and HV plugs contain female center contacts; receptacles contain male center contacts. Special reversed versions are available. Pin connector assemblies accommodate coaxial and HV plugs only; socket assemblies accommodate receptacles. Connector assemblies and contact inserts are matched and color coded to ease assembly. Pins and plugs are coded red, sockets and receptacles are coded blue. N insertion tool is required. Coaxial and H inserts may be removed with TRW Cinc Tool CET-C6B.

Five basic shell sizes are available Polarization is by means of the keyston cornered shell. Coupling is by friction locking accessories are available. Shell with float mounts are also available.

Printed circuit plugs are listed on page **2•1633**, **2•1634** with other popular modifications. For additional modification and special plugs, consult factory. Accessories such as junction shells are shown on pages **2•1640-2•1642**.

* Military rating of #20 contacts on wires is 1.5 amps average, and 7.5 amps maximum. See explanation o page **2•1629**.

Materials, Finishes and Types

Shells: Steel, zinc plated with yellow chromate supplementary coating.

Insulators: Diallyl phthalate, glass fibre filled, medium green color, monobloc construction.

#20 Contacts (Standard): Pins and sockets: brass, gold plated over nickel.

Coaxial Contacts (Standard):

Outer contact:

Plugs: brass, gold over nickel

Receptacle: Beryllium copper, gold over nickel.

Center female contact: Phosphor bronze, gold over nickel.

Center male contact: Brass, gold over nickel.

Insulator: Teflon

High Voltage Contacts (Standard):

Socket Contact — Phosphor bronze, gold plated over silver plate.

Pin Contact — Brass, gold plated over silver plate.

Insulator — Nylon (temperature range: −65°F to +250°F).

For listing of applicable specifications see page **2•1629**.

Performance Data

VOLTAGE RATING:

Insulation Resistance (Ref. MIL-C-24308): Greater than 5000 megohms in accordance with MIL-STD-202D, Method 302, Condition B.

Contact Resistance (Ref. MIL-C-24308): (#20 contacts) 2.67 milliohms max. exceeds requirements of Para 3.53.

Contact Engagement Force (Ref. MIL-C-24308): .7 to 12 oz. when tested with MS3197 test pin.

Contact Separation Force (Ref. MIL-C-24308). .7 to 8 oz. when tested with MS3197 test pin.

Moisture Resistance (Ref. MIL-C-24308): Exceeds test requirements of MIL-STD-202D, Method 106.

Vibration (Ref. MIL-C-24308): Exceeds test requirements of MIL-STD-202D Method 204, Condition B.

Shock (Ref. MIL-C-24308): Exceeds tes requirements of MIL-STD-202D, Metho 213, Condition G.

Corrosion Resistance (Ref. MIL-C-24308) Exceeds requirements of 48-hour exposure to salt spray in accordance with MIL-STD-202D, Method 101C, Condition B.

High Potential Test Voltage (Ref. MIL-C-24308): MIL-STD-202D, Method 301.

Temperature Cycling (Ref. MIL-C-24308) MIL-STD-202D, Method 102A, Conditio D.

See tabulation on page **2•1629**.

* Trademark TRW Inc.

Cross Reference MIL-C-24308 Military Part No. Versus TRW Cinch Part No.

Series 1 Solder Contact Connectors		Series 1 Solder Contact Connectors With Float Mount		Solder Contact Connectors (Non-Magnetic)		Solder Contact Connectors (Non-Magnetic) With Float Mount	
Military Part No.	Cinch Part No.	Military Part No.	Cinch Part No.	Military Part No.	Cinch Part No.	Military Part No.	Cinch Part No.
Sockets							
M24308/1-1	230-09-09-129	M24308/1-12	230-09-09-322	M24308/5-1	230-09-09-513	M24308/5-12	230-09-09-210
M24308/1-2	230-15-09-129	M24308/1-13	230-15-09-322	M24308/5-2	230-15-09-513	M24308/5-13	230-15-09-210
M24308/1-3	230-25-09-129	M24308/1-14	230-25-09-322	M24308/5-3	230-25-09-513	M24308/5-14	230-25-09-210
M24308/1-4	230-37-09-129	M24308/1-15	230-37-09-322	M24308/5-4	230-37-09-513	M24308/5-15	230-37-09-210
M24308/1-5	230-50-09-129	M24308/1-16	230-50-09-322	M24308/5-5	230-50-09-513	M24308/5-16	230-50-09-210
Plugs							
M24308/3-1	231-09-09-129	M24308/3-12	231-09-09-322	M24308/7-1	231-09-09-513	M24308/7-12	231-09-09-210
M24308/3-2	231-15-09-129	M24308/3-13	231-15-09-322	M24308/7-2	231-15-09-513	M24308/7-13	231-15-09-210
M24308/3-3	231-25-09-129	M24308/3-14	231-25-09-322	M24308/7-3	231-25-09-513	M24308/7-14	231-25-09-210
M24308/3-4	231-37-09-129	M24308/3-15	231-37-09-322	M24308/7-4	231-37-09-513	M24308/7-15	231-37-09-210
M24308/3-5	231-50-09-129	M24308/3-16	231-50-09-322	M24308/7-5	231-50-09-513	M24308/7-16	231-50-09-210

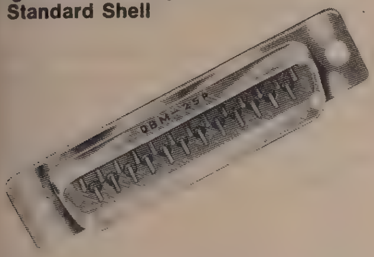
Cinch D-Subminiature Connectors

Series 1*

TRW

Standard Mount

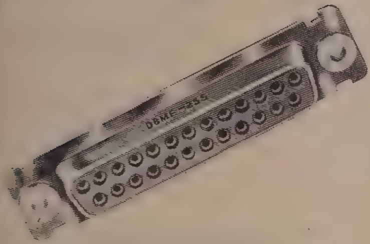
Plug With Basic Layout In Standard Shell



Shell Size	Layout	Standard Connectors		Commercial Equivalents of MIL-C-24308 Connectors	
		Order No.*	Factory No.	Order No.	Factory No.
E	9 Contact Plug Socket	DEM-9P* DEM-9S*	231-09-09-105 230-09-09-107	DEMM-9P DEMM-9S	231-09-09-120 230-09-09-120
A	15 Contact Plug Socket	DAM-15P* DAM-15S*	231-15-09-108 230-15-09-110	DAMM-15P DAMM-15S	231-15-09-127 230-15-09-123
B	25 Contact Plug Socket	DBM-25P* DBM-25S*	231-25-09-109 230-25-09-111	DBMM-25P DBMM-25S	231-25-09-124 230-25-09-125
C	37 Contact Plug Socket	DCM-37P* DCM-37S*	231-37-09-109 230-37-09-109	DCMM-37P DCMM-37S	231-37-09-131 230-37-09-119
D	50 Contact Plug Socket	DDM-50P* DDM-50S*	231-50-09-109 230-50-09-111	DDMM-50P DDMM-50S	231-50-09-132 230-50-09-131

Float Mount

Socket With Basic Layout In Shell With Float Mounts

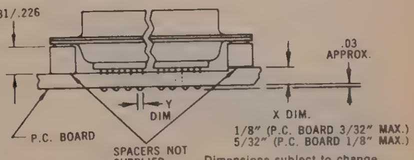


Shell Size	Layout	Standard Connectors		Commercial Equivalents of MIL-C-24308 Connectors	
		Order No.*	Factory No.	Order No.	Factory No.
E	9 Contact Plug Socket	DEMF-9P* DEMF-9S*	231-09-09-301 230-09-09-301	DEMMF-9P DEMMF-9S	231-09-09-305 230-09-09-314
A	15 Contact Plug Socket	DAMF-15P* DAMF-15S*	231-15-09-301 230-15-09-302	DAMMF-15P DAMMF-15S	231-15-09-304 230-15-09-312
B	25 Contact Plug Socket	DBMF-25P* DBMF-25S*	231-25-09-301 230-25-09-301	DBMMF-25P DBMMF-25S	231-25-09-308 230-25-09-312
C	37 Contact Plug Socket	DCMF-37P* DCMF-37S*	231-37-09-301 230-37-09-302	DCMMF-37P DCMMF-37S	231-37-09-307 230-37-09-314
D	50 Contact Plug Socket	DDMF-50P* DDMF-50S*	231-50-09-301 230-50-09-301	DDMMF-50P DDMMF-50S	231-50-09-308 230-50-09-313

* These items available through TRW Cinch distributors.

PC Connectors

Straight PC Contacts



Dimensions subject to change

These compact, high contact density connectors are designed for direct, above board mounting to printed circuit boards up to ⅛″ thick. They provide a highly reliable means for direct inline interconnection of printed circuitry with motherboard mounted sockets.

Part No. Printed Circuit Terminal Modifier	X	Y ±.003
B	3/32	.040
H	⅛	.040

For additional dimensions see table on page 2•1628.

Shell Size	Layout	.040 Dia. 3/32″ Board		.040 Dia. ⅛″ Board	
		Order No.	Factory No.	Order No.	Factory No.
E	9 Contact Plug Socket	DEM-9PB DEM-9SB	231-09-09-117 230-09-09-127	DEM-9PH DEM-9SH	231-09-09-130 230-09-09-128
A	15 Contact Plug Socket	DAM-15PB DAM-15SB	231-15-09-124 230-15-09-118	DAM-15PH DAM-15SH	231-15-09-139 230-15-09-127
B	25 Contact Plug Socket	DBM-25PB DBM-25SB	231-25-09-127 230-25-09-122	DBM-25PH DBM-25SH	231-25-09-125 230-25-09-121
C	37 Contact Plug Socket	DCM-37PB DCM-37SB	231-37-09-118 230-37-09-114	DCM-37PH DCM-37SH	231-37-09-121 230-37-09-120
D	50 Contact Plug Socket	DDM-50PB DDM-50SB	231-50-09-133 230-50-09-119	DDM-50PH DDM-50SH	231-50-09-136 230-50-09-135

For Dimensions See Page 2•1628.

CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

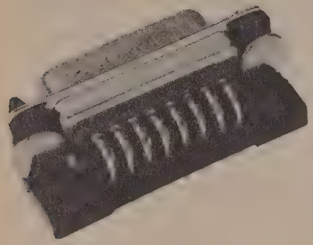
Cinch D-Subminiature Connectors

Series 1*

TRW

PC Connectors

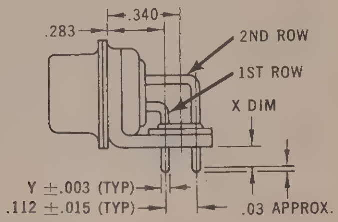
Right Angle PC Contacts



These right-angle plugs are available in 9, 15, 25, and 37 contact configurations. The standard units listed herein are supplied with 0.040″ or 0.030″ nominal diameter pins that extend 0.093″ below the 90° bracket for 1/16″ boards and .135 for 3/32″ boards, other pin diameters and lengths may be obtained on special order.

Design and construction of these connectors meets or exceeds many of the requirement of MIL-C-24308.

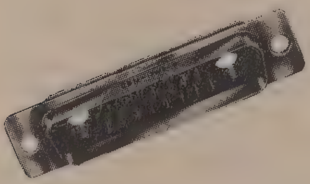
These right-angle D-Subminiature connectors will mate with any other D-Subminiature connector of the same insert configuration. Mating connectors may be adapted for cable attachment by means of accessory junction shells.



Part No. Printed Circuit Terminal Modifier	X	Y ±.003 Typ.
A	.093	.040
L	.135	.030

Shell Size	Layout Plug Contact	.040 Dia. 1/16″ Board	
		Order No.	One Piece Molded Nylon
E	9	DEM-9PA	231-09-09-126
A	15	DAM-15PA	231-15-09-133
B	25	DBM-25PA	231-25-09-137
C	37	DCM-37PA	231-37-09-137

Series 1/Combination Plug & Socket Standard Shell



PLUG WITH COMBINATION LAYOUT IN STANDARD SHELL

Shell Size	Standard Finish on Contacts		Military Finish on Contacts	
	Order No.*	Factory No.	Order No.*	Factory No.
E	DEM-5W1P*	236-05-00-101	DEMM-5W1P	236-05-00-102
	DEM-5W1S*	235-05-00-101	DEMM-5W1S	235-05-00-105
A	DAM-3W3P*	236-03-00-101	DAMM-3W3P	236-03-00-102
	DAM-3W3S*	235-03-00-101	DAMM-3W3S	235-03-00-102
	DAM-7W2P*	236-07-00-101	DAMM-7W2P	236-07-00-104
	DAM-7W2S*	235-07-00-101	DAMM-7W2S	235-07-00-102
	DAM-11W1P*	236-11-00-102	DAMM-11W1P	236-11-00-106
	DAM-11W1S*	235-11-00-101	DAMM-11W1S	235-11-00-103
B	DBM-9W4P*	236-09-00-101	DBMM-9W4P	236-09-00-104
	DBM-9W4S*	235-09-00-101	DBMM-9W4S	235-09-00-106
	DBM-13W3P*	236-13-00-101	DBMM-13W3P	236-13-00-105
	DBM-13W3S*	235-13-00-101	DBMM-13W3S	235-13-00-103
	DBM-17W2P*	236-17-00-101	DBMM-17W2P	236-17-00-110
	DBM-17W2S*	235-17-00-101	DBMM-17W2S	235-17-00-107
	DBM-21W1P*	236-21-00-101	DBMM-21W1P	236-21-00-103
	DBM-21W1S*	235-21-00-101	DBMM-21W1S	235-21-00-103
C	DCM-8W8P	236-08-00-101	DCMM-8W8P	236-08-00-103
	DCM-8W8S	235-08-00-101	DCMM-8W8S	235-08-00-103
	DCM-12W6P*	236-13-00-102	DCMM-13W6P	236-13-00-108
	DCM-13W6S*	235-13-00-102	DCMM-13W6S	235-13-00-109
	DCM-17W5P	236-17-00-102	DCMM-17W5P	236-17-00-116
	DCM-17W5S	235-17-00-102	DCMM-17W5S	235-17-00-112
	DCM-21W4P	236-21-00-107	DCMM-21W4P	236-21-00-102
	DCM-21W4S	235-21-00-105	DCMM-21W4S	235-21-00-102
	DCM-25W3P	236-25-00-101	DCMM-25W3P	236-25-00-106
	DCM-25W3S	235-25-00-101	DCMM-25W3S	235-25-00-105
	DCM-27W2P	236-27-00-101	DCMM-27W2P	236-27-00-102
	DCM-27W2S	235-27-00-101	DCMM-27W2S	235-27-00-102
D	DDM-24W7P	236-24-00-101	DDMM-24W7P	236-24-00-106
	DDM-24W7S	235-24-00-101	DDMM-24W7S	235-24-00-107
	DDM-36W4P	236-36-00-101	DDMM-36W4P	236-36-00-103
	DDM-36W4S	235-36-00-101	DDMM-36W4S	235-36-00-102
	DDM-43W2P	236-43-00-101		
	DDM-43W2S	235-43-00-101		

For Dimensions See Page 2•1628.

* These items available through TRW Cinch distributors.

Cinch D-Subminiature Connectors

Series 1*

TRW

Series 1/Combination Plug & Socket Shell with Float Mounts

SOCKET WITH COMBINATION LAYOUT IN SHELL WITH FLOAT MOUNTS

Shell Size	Standard Finish on Contacts		Military Finish on Contacts	
	Order No.*	Factory No.	Order No.*	Factory No.
E	DEMF-5W1P	236-05-00-301	DEMMF-5W1P	236-05-00-302
	DEMF-5W1S	235-05-00-301	DEMMF-5W1S	235-05-00-304
A	DAMF-3W3P	236-03-00-301	DAMMF-3W3P	236-03-00-302
	DAMF-3W3S*	235-03-00-301	DAMMF-3W3S	235-03-00-305
	DAMF-7W2P	236-07-00-301	DAMMF-7W2P	236-07-00-302
	DAMF-7W2S	235-07-00-301	DAMMF-7W2S	235-07-00-305
	DAMF-11W1P*	236-11-00-301	DAMMF-11W1P	236-11-00-302
	DAMF-11W1S*	235-11-00-301	DAMMF-11W1S	235-11-00-307
B	DBMF-9W4P*	236-09-00-301	DBMMF-9W4P	236-09-00-302
	DBMF-9W4S*	235-09-00-301	DBMMF-9W4S	235-09-00-306
	DBMF-13W3P	236-13-00-301	DBMMF-13W3P	236-13-00-303
	DBMF-13W3S	235-13-00-301	DBMMF-13W3S	235-13-00-307
	DBMF-17W2P*	236-17-00-301	DBMMF-17W2P	236-17-00-303
	DBMF-17W2S*	235-17-00-302	DBMMF-17W2S	235-17-00-314
	DBMF-21W1P	236-21-00-301	DBMMF-21W1P	236-21-00-302
	DBMF-21W1S	235-21-00-301	DBMMF-21W1S	235-21-00-304
C	DCMF-8W8P	236-08-00-301	DCMMF-8W8P	236-08-00-302
	DCMF-8W8S	235-08-00-301	DCMMF-8W8S	235-08-00-302
	DCMF-13W6P	236-13-00-302	DCMMF-13W6P	236-13-00-304
	DCMF-13W6S	235-13-00-302	DCMMF-13W6S	235-13-00-309
	DCMF-17W5P	236-17-00-302	DCMMF-17W5P	236-17-00-304
	DCMF-17W5S	235-17-00-307	DCMMF-17W5S	235-17-00-317
	DCMF-21W4P	236-21-00-303	DCMMF-21W4P	236-21-00-302
	DCMF-21W4S	235-21-00-305	DCMMF-21W4S	235-21-00-306
	DCMF-25W3P	236-25-00-301	DCMMF-25W3P	236-25-00-302
	DCMF-25W3S	235-25-00-301	DCMMF-25W3S	235-25-00-305
	DCMF-27W2P	236-27-00-301	DCMMF-27W2P	236-27-00-304
	DCMF-27W2S	235-27-00-301	DCMMF-27W2S	235-27-00-302
D	DDMF-24W7P	236-24-00-301	DDMMF-24W7P	236-24-00-302
	DDMF-24W7S	235-24-00-302	DDMMF-24W7S	235-24-00-304
	DDMF-36W4P	236-36-00-301	DDMMF-36W4P	236-36-00-302
	DDMF-36W4S	235-36-00-302	DDMMF-36W4S	235-36-00-304

For Dimensions See Page 2•1628.

* These items available through TRW Cinch distributors.

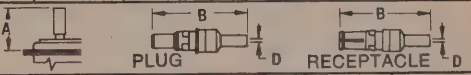
Removable Coaxial, High Voltage, and High Power Contacts

All coaxial and high voltage contacts have solder center contact. For coax ,high voltage, and power contact material, see page **2•1632**.

Coaxial Contact Terminations

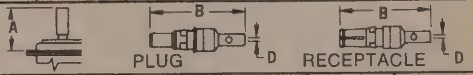
For D*M coaxial crimp tools, consult factory.

Straight Crimp Braid Contacts



	Part Number				Dimensions			RG Cable No.	
	Standard Finish		Military Finish†		A	B	D		
	Order No.	Factory No.	Order No.	Factory No.	Max.	Ref.	±.005	Old	New
Plug	DM53740	167-0133-000	DM53740-17	167-0251-000	.739	.929	.040	196/U	178B/U
Plug	DM53740-1	167-0126-000	DM53740-15	167-0007-000	.739	.929	.067	187/U	179B/U
								188/U	316B/U
Plug	DM53740-3	167-0130-000	DM53740-16	167-0057-000	.847	1.037	.110	195/U	180B/U
Plug	DM53740-5	167-0088-000	DM53740-18	167-0252-000	.847	1.037	.125	58/U	58B/U
Receptacle	DM53742	167-0124-000	DM53742-18	167-0253-000	.739	.929	.040	196/U	178B/U
Receptacle	DM53742-1	167-0118-000	DM53742-16	167-0006-000	.739	.929	.067	187/U	179B/U
								188/U	316B/U
Receptacle	DM53742-3	167-0122-000	DM53742-17	167-0041-000	.847	1.037	.110	195/U	180B/U
Receptacle	DM53742-5	167-0086-000	DM53742-19	167-0254-000	.847	1.037	.125	58/U	58B/U

Straight Solder Braid Contacts



	Part Number				Dimensions			RG Cable No.	
	Standard Finish		Military Finish†		A	B	D		
	Order No.	Factory No.	Order No.	Factory No.	Max.	Ref.	±.005	Old	New
Plug	DM53740-5008*	167-0189-000	DM53740-5105	167-0113-000	.739	.929	.040	196/U	178B/U
Plug	DM53740-5001*	167-0153-000	DM53740-5099	167-0010-000	.739	.929	.067	187/U	179B/U
								188/U	316B/U
Plug	DM53740-5002*	167-0132-000	DM53740-5104	167-0237-000	.847	1.037	.110	195/U	180B/U
Plug	DM53740-5005	167-0150-000	DM53740-5101	167-0207-000	.847	1.037	.125	58/U	58B/U
Receptacle	DM53742-5006	167-0190-000	DM53742-5092	167-0138-000	.739	.929	.040	196/U	178B/U
Receptacle	DM53742-5001*	167-0169-000	DM53742-5089	167-0012-000	.739	.929	.067	187/U	179B/U
								188/U	316B/U
Receptacle	DM53742-5002*	167-0168-000	DM53742-5091	167-0139-000	.847	1.037	.110	195/U	180B/U
Receptacle	DM53742-5004*	167-0172-000	DM53742-5086	167-0137-000	.847	1.037	.125	58/U	58B/U
Plug (Short)	DM53740-5000*	167-0129-000	DM53740-5100	167-0011-000	.670	.860	.040	196/U	178B/U
Receptacle (Short)	DM53742-5000*	167-0121-000	DM53742-5085	167-0023-000	.670	.860	.040	196/U	178B/U

† MIL-C-24308 Finish: .00005 minimum gold plate over .0001 minimum copper plate.

* These items available through TRW Cinch distributors.

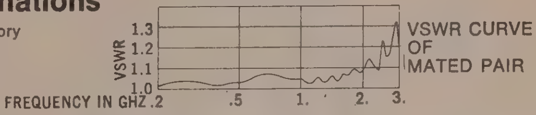
Cinch D-Subminiature Connectors

Series 1*

Coaxial Contact Terminations

For D*M coaxial crimp tools, consult factory

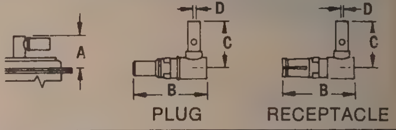
50 OHM MATCHED IMPEDANCE COAX CONTACTS



Description	Part No.
Straight Plug 50 Ohm	167-02-46-000
Straight Receptacle 50 Ohm	167-02-45-000
To be used with UT-85 coax cable	

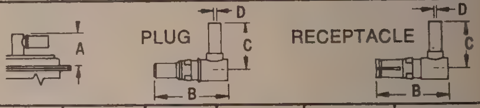
Right Angle Solder Braid Contacts

TRW Cinch can also supply 50 ohm matched impedance coax contacts to be used with UT-85 coax cable



	Part Number				Dimensions				RG Cable No.	
	Standard Finish		Military Finish†		A	B	C	D		
	Order No.	Factory No.	Order No.	Factory No.	Max.	Ref.		±.005	Old	New
Plug	DM53741-5000*	167-0127-000	DM53741-5059	167-0020-000	.530	.734	.492	.040	196/U	178B/U
Plug	DM53741-5001*	167-0128-000	DM53741-5062	167-0074-000	.530	.734	.492	.067	187/U 188/U	179B/U 316B/U
Plug	DM53741-5003	167-0151-000	DM53741-5063	167-0159-000	.530	.734	.601	.110	195/U	180B/U
Plug	DM53741-5004	167-0173-000	DM53741-5060	167-0255-000	.530	.734	.601	.125	58/U	58B/U
Receptacle	DM53743-5000*	167-0119-000	DM53743-5073	167-0013-000	.530	.734	.492	.040	196/U	178B/U
Receptacle	DM53743-5001*	167-0120-000	DM53743-5076	167-0101-000	.530	.734	.492	.067	187/U 188/U	179B/U 316B/U
Receptacle	DM53743-5003	167-0171-000	DM53743-5077	167-0158-000	.530	.734	.601	.110	195/U	180B/U
Receptacle	DM53743-5004	167-0170-000	DM53743-5074	167-0106-000	.530	.734	.601	.125	58/U	58B/U

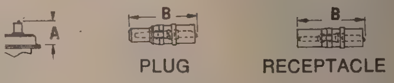
Right Angle Crimp Braid Contacts



	Standard Finish Order No.	Standard Finish Factory No.	Military Finish† Order No.	Military Finish† Factory No.	A Max.	B Ref.	C	D ±.005	RG Cable No. Old	RG Cable No. New
Plug	DM53741	167-0176-000	DM53741-12	167-0256-000	.530	.734	.492	.040	196/U	178B/U
Plug	DM53741-1	167-0152-000	DM53741-11	167-0162-000	.530	.734	.492	.067	187/U 188/U	179B/U 316B/U
Plug	DM53741-3	167-0160-000	DM53741-10	167-0072-000	.530	.734	.601	.110	195/U	180B/U
Plug	DM53741-4	167-0149-000	DM53741-13	167-0257-000	.530	.734	.601	.125	58/U	58B/U
Receptacle	DM53743-2	167-0174-000	DM53743-18	167-0240-000	.530	.734	.492	.040	196/U	178B/U
Receptacle	DM53743-3	167-0166-000	DM53743-16	167-0161-000	.530	.734	.492	.067	187/U 188/U	179B/U 316B/U
Receptacle	DM53743-5	167-0165-000	DM53743-17	167-0055-000	.530	.734	.601	.110	195/U	180B/U
Receptacle	DM53743-6	167-0164-000	DM53743-19	167-0259-000	.530	.734	.601	.125	58/U	58B/U

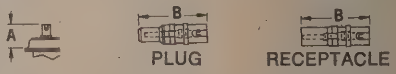
	Part Number				Dimensions			
	Standard Finish		Military Finish†		A	B	Current Rating	
	Order No.	Factory No.	Order No.	Factory No.	Max.	Ref.	(amps)	Wire Size

Straight High Power Contacts



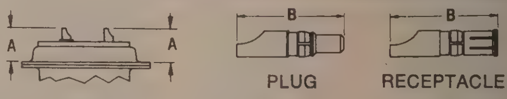
	Standard Finish Order No.	Standard Finish Factory No.	Military Finish† Order No.	Military Finish† Factory No.	A Max.	B Ref.	Current Rating (amps)	Wire Size
Plug	DM51157	167-0002-000	DM51157-8	167-0263-000	.539	.734	—	#20
Receptacle	DM51155	167-0111-000	DM51155-7	167-0221-000	.539	.734	—	#20

Right Angle High Voltage Contacts



	Standard Finish Order No.	Standard Finish Factory No.	Military Finish† Order No.	Military Finish† Factory No.	A Max.	B Ref.	Current Rating (amps)	Wire Size
Plug	DM51157-5000	167-0260-000	DM51157-5005	167-0261-000	.491	.697	—	#20
Receptacle	DM51155-5000	167-0089-000	DM51155-5004	167-0262-000	.491	.697	—	#20

High Power Solder Type Contacts



	Standard Finish Order No.	Standard Finish Factory No.	Military Finish† Order No.	Military Finish† Factory No.	A Max.	B Ref.	Current Rating (amps)	Wire Size
Plug	DM53745-1	167-0144-000	DM53745-28	167-0275-000	.666	.866	40	#8
Plug	DM53745-7	167-0042-000	DM53745-27	167-0167-000	.666	.866	20	#12
Plug	DM53745-8	167-0115-000	DM53745-25	167-0187-000	.666	.866	10	#16
Receptacle	DM53744-1	167-0145-000	DM53744-21	167-0220-000	.666	.856	40	#8
Receptacle	DM53744-6	167-0043-000	DM53744-25	167-0215-000	.666	.856	20	#12
Receptacle	DM53744-7	167-0087-000	DM53744-24	167-0188-000	.666	.856	10	#16

† MIL-C-24308 Finish: .00005 minimum gold plate over .0001 minimum copper plate.

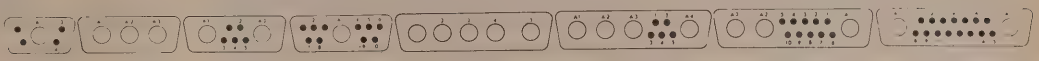
* These items available through TRW Cinch distributors.

Cinch D-Subminiature Connectors Series 1*

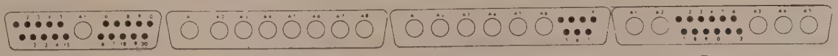
TRW

Combination Arrangements #20 Contacts with Coax, Power and/or High Voltage Contacts

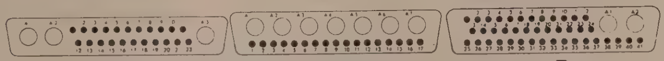
Coax and/or high voltage contacts must be ordered separately.



Shell Size	E	A	A	A	B	B	B	B
Arrangement	5W1	3W3	7W2	11W1	5W5	9W4	13W3	17W2
No. of Contacts	4	0	5	10	0	5	10	15
Contact Size	#20	—	#20	#20	—	#20	#20	#20
Coax or HV Cavities	1	3	2	1	5	4	3	2



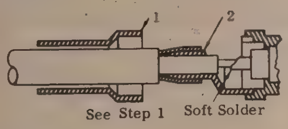
Shell Size	B	C	C	C
Arrangement	21W1	8W8	13W6	17W5
No. of Contacts	20	0	7	12
Contact Size	#20	—	#20	#20
Coax or HV Cavities	1	8	6	5



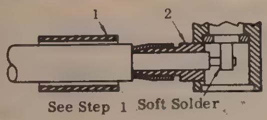
Shell Size	C	D	D
Arrangement	25W3	24W7	43W2
No. of Contacts	22	17	41
Contact Size	#20	#20	#20
Coax or HV Cavities	3	7	2

Coaxial Cable Installation Instructions

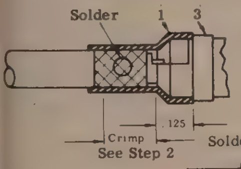
Straight Coaxial

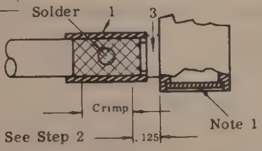


90° Coaxial



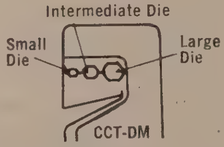
STEP 1. Slide outer ring (1) over cable jacket. Trim cable. Insert cable dielectric and center conductor into inside diameter of inner sleeve (2) solder center conductor to coaxial center contact.





STEP 2. Slide outer ring (1) forward until flush with coaxial shell, (3) confining braid between outer ring and inner sleeve. For solder type coaxials, soft solder outer ring to assembly through cross-drilled solder hole. For crimp type coaxials, crimp with tool indicated being sure to crimp in area defined.

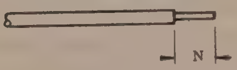
NOTES



CRIMP TOOL JAW

1. Soft solder or stake access cap into shell after cable assembly on 90° type coaxials.
2. Crimp tool description — Cannon CCT-DM (to crimp outer sleeve only).
   - A. Use small die.
   - B. Use intermediate die.
   - C. Use large die.
3. Pin assemblies will accommodate high voltage and coaxial plugs only. Socket assemblies will accommodate high voltage and coaxial receptacles only.

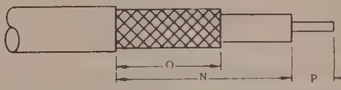
Recommended AWG Wire Dimensions



TRIM AWG WIRE TO THIS DIMENSION FOR INSTALLATION TO #20 CONTACTS

All tolerances ±.010 inch.

Nomenclature	N	Tool No. Note 2
DM-53744-5000	.119 .119	None None
DM-53745-5000	.119 .119	None None
Solder Type #20 Contact	.119	None



TRIM COAXIAL CABLE TO THESE DIMENSIONS FOR INSTALLATION TO D*M COAXIAL CONTACTS

Recommended Coaxial Cable Dimensions

Nomenclature	N	0	P	Tool No. Note 2
DM-53740	5/16	1/4	5/64	A
DM-53740-1	5/16	1/4	5/64	B
DM-53740-3	3/8	5/16	5/64	C
DM-53740-5	3/8	5/16	5/64	C
DM-53741	3/8	15/64	1/16	A
DM-53741-1	3/8	15/64	1/16	B
DM-53741-3	27/64	5/16	3/32	C
DM-53741-4	27/64	5/16	3/32	C
DM-53742	5/16	1/4	5/64	A
DM-53742-1	5/16	1/4	5/64	B
DM-53742-3	3/8	5/16	5/64	C
DM-53742-5	3/8	5/16	5/64	C
DM-53743-2	3/8	15/64	1/16	A
DM-53743-3	3/8	15/64	1/16	B
DM-53743-5	27/64	5/16	3/32	C
DM-53743-6	27/64	5/16	3/32	C
DM-53740-5000	5/16	1/4	5/64	None
DM-53740-5001	5/16	1/4	5/64	None
DM-53740-5002	3/8	5/16	5/64	None
DM-53740-5005	3/8	5/16	5/64	None
DM-53740-5008	5/16	1/4	5/64	None
DM-53741-5000	3/8	15/64	1/16	None
DM-53741-5001	3/8	15/64	1/16	None
DM-53741-5003	27/64	5/16	3/32	None
DM-53741-5004	27/64	5/16	3/32	None
DM-53742-5000	5/16	1/4	5/64	None
DM-53742-5001	5/16	1/4	5/64	None
DM-53741-5002	3/8	5/16	5/64	None
DM-53742-5004	3/8	5/16	5/64	None
DM-53742-5006	5/16	1/4	5/64	None
DM-53743-5000	3/8	15/64	1/16	None
DM-53743-5001	3/8	15/64	1/16	None
DM-53743-5003	27/64	5/16	3/32	None
DM-53743-5004	27/64	5/16	3/32	None

All tolerances ±.010 inch.

Cinch D-Subminiature Connectors

Series 3*

TRW

General Information

The D*MA connector is a D-Subminiature Connector that utilizes the "Little Caesar" rear release contact assembly. This contact assembly allows rear insertion, release and extraction of crimp snap-in contacts. The simplified contact design with no undercuts offers greater bend resistance and a hard, closed entry socket insulator insures positive contact alignment. Crimp terminations accommodate #20, #22 and #24 AWG stranded wire and rated for 5 amps. Series 3 connectors are intermateable and interchangeable with all other D-Subminiature Connectors having compatible contact arrangement. Polarizaztion is by keystone shape of shell; coupling is by friction. Accessories are shown on pages **2•1640, 2•1642.** An extraction tool is supplied with Series 3 connectors. Extra contacts may be ordered for replacement purposes. See page **2•1640** for ordering information.

Materials and Finishes

Shell: Steel, zinc plated with yellow chromate supplementary coating.

Insulator: Diallyl phthalate, glass fibre filled, per MIL-M-14 Type SDGF, dark green monobloc construction.

Contacts: Pin — leaded copper, gold plate over nickel plate, Socket — copper alloy, gold plate over nickel plate with stainless steel sleeves.

Current Rating: (#20 Contacts) 5 amps.

Contact Termination: Crimp, accommodating #20, #22 or #24 AWG stranded wire. The 20-18 contacts accommodate one #18 or two #22 AWG stranded wires.

Contact Type: Snap-in, removable, crimp, with rear release assembly. Contacts not interchangeable with other D Series.

Socket Type: Closed entry.

Float Mounting Rivets & Washers: Stainless steel.

For listing of applicable specifications see page 2•1629.

* Military rating of #20 contacts on wires is 1.5 amps average, and 7.5 amps maximum. See explanation on page 2•1630.

Performance Data

VOLTAGE RATING:

Insulation Resistance (Ref. MIL-C-24308): Greater than 5000 megohms in accordance with MIL-STD-202D, Method 302, Condition B.

Contact Resistance (Exceeds Requirements of MIL-C-24308): (#20 contacts) 20 milliohms max. in accordance with Para 3.5.8.

Contact Engagement Force (Ref. MIL-C-24308): .7 to 12 oz. when tested with MS3197 test pin.

Contact Separation Force (Ref. MIL-C-24308): .7 to 8 oz. when tested with MS3197 test pin.

Moisture Resistance (Ref. MIL-C-24308): Exceeds test requirements of MIL-STD-202D, Method 106.

Vibration (Ref. MIL-C-24308): Meets test requirements of MIL-STD-202D, Method 204, Condition B.

Shock (Ref. MIL-C-24308): Meets test requirements of MIL-STD-202D, Method 213, Condition G.

Corrosion Resistance (Ref. MIL-C-24308): Exceeds requirements of 48-hour exposure to salt spray in accordance with MIL-STD-202D, Method 101A, Condition B.

High Potential Test Voltage (Ref. MIL-C-24308): MIL-STD-202D, Method 301.

Temperature Cycling (Ref. MIL-C-24308): MIL-STD-202D, Method 102A, Condition B. See tabulation on page 2•1629.

Military Part No.	TRW Cinch Part No.
M24308/10-1* Socket	415-30-99-130
M24308/11-1* Pin	403-30-99-106

* These Items available through TRW Cinch distributors.
* Trademark TRW Inc.

Series 3 Crimp Removable Contact Connectors

Military Part No. With Contacts	TRW Cinch Part No. Complete	Military Part No. Less Contacts	TRW Cinch Part No. Less Contacts	Marked
Sockets				
M24308/2-1*	230-01-09-102	M24308/2-281	230-01-09-109	M24308/2-1
M24308/2-2*	230-01-15-102	M24308/2-282	230-01-15-109	M24308/2-2
M24308/2-3*	230-01-25-102	M24308/2-283	230-01-25-109	M24308/2-3
M24308/2-4*	230-01-37-102	M24308/2-284	230-01-37-109	M24308/2-4
M24308/2-5*	230-01-50-102	M24308/2-285	230-01-50-109	M24308/2-5
Plugs				
M24308/4-1*	231-01-09-102	M24308/4-259	231-01-09-109	M24308/4-1
M24308/4-2*	231-01-15-102	M24308/4-260	231-01-15-109	M24308/4-2
M24308/4-3*	231-01-25-102	M24308/4-261	231-01-25-109	M24308/4-3
M24308/4-4*	231-01-37-102	M24308/4-262	231-01-37-109	M24308/4-4
M24308/4-5*	231-01-50-102	M24308/4-263	231-01-50-109	M24308/4-5

Series 3 Crimp Removable Contact Connectors With Float Mount

Military Part No. With Contacts	TRW Cinch Part No. Complete	Military Part No. Less Contacts	TRW Cinch Part No. Less Contacts	Marked
Sockets				
M24308/2-23	230-01-09-307	M24308/2-292	230-01-09-308	M24308/2-23
M24308/2-24	230-01-15-307	M24308/2-293	230-01-15-308	M24308/2-24
M24308/2-25	230-01-25-307	M24308/2-294	230-01-25-308	M24308/2-25
M24308/2-26	230-01-37-307	M24308/2-295	230-01-37-308	M24308/2-26
M24308/2-27	230-01-50-307	M24308/2-296	230-01-50-308	M24308/2-27
		M24308/2-335	230-01-25-309	
		M24308/2-336	230-01-37-309	
Plugs				
M24308/4-302	231-01-09-307	M24308/4-324	231-01-09-308	M24308/4-302
M24308/4-303	231-01-15-307	M24308/4-325	231-01-15-308	M24308/4-303
M24308/4-304	231-01-25-307	M24308/4-326	231-01-25-308	M24308/4-304
M24308/4-305	231-01-37-307	M24308/4-327	231-01-37-308	M24308/4-305
M24308/4-306	231-01-50-307	M24308/4-328	231-01-50-308	M24308/4-306

Series 3 Crimp Removable Contact Connectors (Non-Magnetic)

Military Part No. With Contacts	TRW Cinch Part No. Complete	Military Part No. Less Contacts	TRW Cinch Part No. Less Contacts	Marked
Sockets				
M24308/6-1	230-01-09-500	M24308/6-281	230-01-09-504	M24308/6-1
M24308/6-2	230-01-15-500	M24308/6-282	230-01-15-504	M24308/6-2
M24308/6-3	230-01-25-500	M24308/6-283	230-01-25-504	M24308/6-3
M24308/6-4	230-01-37-500	M24308/6-284	230-01-37-504	M24308/6-4
M24308/6-5	230-01-50-500	M24308/6-285	230-01-50-504	M24308/6-5
Plugs				
M24308/8-1	231-01-09-500	M24308/8-259	231-01-09-504	M24308/8-1
M24308/8-2	231-01-15-500	M24308/8-260	231-01-15-504	M24308/8-2
M24308/8-3	231-01-25-500	M24308/8-261	231-01-25-504	M24308/8-3
M24308/8-4	231-01-37-500	M24308/8-262	231-01-37-504	M24308/8-4
M24308/8-5	231-01-50-500	M24308/8-263	231-01-50-504	M24308/8-5

Cinch D-Subminiature Connectors

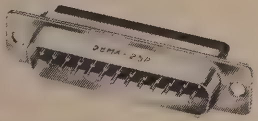
Series 3*

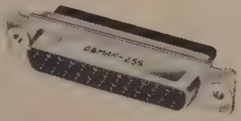
TRW

Series 3 Crimp Removable Contact Connectors (Non-Magnetic) With Float Mount

Military Part No. With Contacts	TRW Cinch Part No. Complete	Military Part No. Less Contacts	TRW Cinch Part No. Less Contacts	Marked
Sockets				
M24308/6-259	230-01-09-200	M24308/6-324	230-01-09-201	M24308/6-259
M24308/6-260	230-01-15-200	M24308/6-325	230-01-15-201	M24308/6-260
M24308/6-261	230-01-25-200	M24308/6-326	230-01-25-201	M24308/6-261
M24308/6-262	230-01-37-200	M24308/6-327	230-01-37-201	M24308/6-262
M24308/6-263	230-01-50-200	M24308/6-328	230-01-50-201	M24308/6-263
Plugs				
M24308/8-302	231-01-09-200	M24308/8-324	231-01-09-201	M24308/8-302
M24308/8-303	231-01-15-200	M24308/8-325	231-01-15-201	M24308/8-303
M24308/8-304	231-01-25-200	M24308/8-326	231-01-25-201	M24308/8-304
M24308/8-305	231-01-37-200	M24308/8-327	231-01-37-201	M24308/8-305
M24308/8-306	231-01-50-200	M24308/8-328	231-01-50-201	M24308/8-306

Ordering Information





Standard Shell

Shell Size	No. of Contacts†		Order No.*	Factory No.	Order No.	Factory No.
E	9	P	DEMA-9P*	231-01-09-100	DEMAM-9P	231-01-09-108
		S	DEMA-9S*	230-01-09-100	DEMAM-9S	230-01-09-108
A	15	P	DAMA-15P*	231-01-15-100	DAMAM-15P	231-01-15-107
		S	DAMA-15S*	230-01-15-100	DAMAM-15S	230-01-15-107
B	25	P	DBMA-25P*	231-01-25-100	DBMAM-25P	231-01-25-108
		S	DBMA-25S*	230-01-25-100	DBMAM-25S	230-01-25-107
C	37	P	DCMA-37P*	231-01-37-100	DCMAM-37P	231-01-37-108
		S	DCMA-37S*	230-01-37-100	DCMAM-37S	230-01-37-108
D	50	P	DDMA-50P*	231-01-50-100	DDMAM-50P	231-01-50-107
		S	DDMA-50S*	230-01-50-100	DDMAM-50S	230-01-50-105

Shell With Float Mounts

Shell Size	No. of Contacts†		Order No.*	Factory No.	Order No.	Factory No.
E	9	P	DEMAF-9P*	231-01-09-300	DEMAMF-9P	231-01-09-305
		S	DEMAF-9S*	230-01-09-300	DEMAMF-9S	230-01-09-305
A	15	P	DAMAF-15P*	231-01-15-300	DAMAMF-15P	231-01-15-305
		S	DAMAF-15S*	230-01-15-300	DAMAMF-15S	230-01-15-305
B	25	P	DBMAF-25P*	231-01-25-300	DBMAMF-25P	231-01-25-304
		S	DBMAF-25S*	230-01-25-300	DBMAMF-25S	230-01-25-304
C	37	P	DCMAF-37P*	231-01-37-300	DCMAMF-37P	231-01-37-302
		S	DCMAF-37S*	230-01-37-300	DCMAMF-37S	230-01-37-305
D	50	P	DDMAF-50P*	231-01-50-300	DDMAMF-50P	231-01-50-302
		S	DDMAF-50S*	230-01-50-300	DDMAMF-50S	230-01-50-304

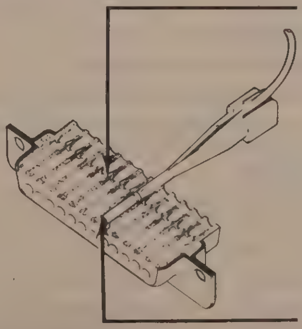
† P, plug, S, socket

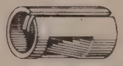
Rear Release Contact Assembly

The rear release contact assembly permits contacts to be inserted by hand and to be released and extracted from the rear of the connector with a simple, expendable plastic tool.

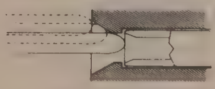
The contact is inserted from the rear of the connector thru a cylindrical clip in the insulator until the indented tines of the clip snap securely behind the contact shoulder. The contact is released as the plastic tool is inserted into the rear of the connector, expanding the tines beyond the contact shoulder and permitting contact extraction. The simplified contact design improves bend resistance through a single holding shoulder with no undercuts.

The contact assembly was selected by the National Aerospace Standards Committee for use in a major industry connector specification for vital programs demanding great operational reliability.

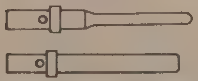




Contact retaining clip.



Hard dielectric, closed-entry socket inserts realigns bent or misaligned pin contacts.



Simple stronger contact without undercuts for greater bend resistance.

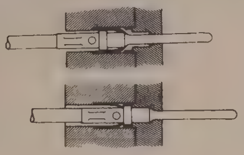
Cinch D-Subminiature Connectors

Series 3*

TRW

Rear Release Contact Assembly CONTINUED

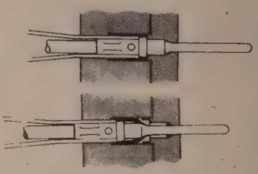
Contact Insertion



Contact partially inserted.

Tines snap behind contact shoulder when contact is fully inserted.

Contact Extraction



Insert extraction tool to fully bottomed condition.

Tines expanded beyond contact shoulder.

Remove contact by pulling on wire. Contact partially removed.

Ordering Information for Additional Contacts

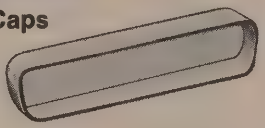
All D*MA connectors are supplied with the proper number of crimp type contacts. Additional contacts may be ordered for replacement purposes as indicated.

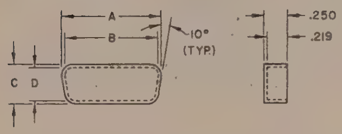
	Contact Part Numbers			
	Pin		Socket	
Contact Size	Order No.	Factory No.	Order No.	Factory No.
20 Standard Finish	330-5291-000*	403-30-99-214	031-1007-000*	415-30-99-119
20-18 Standard Finish	330-5291-001	403-30-99-215	031-1007-001*	415-30-99-118
20 Military Finish	M24308/11-1*	403-30-99-106	M24308/10-1*	415-30-99-130

* These items available through TRW Cinch distributors.

Accessories

Dust Caps

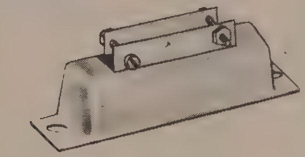


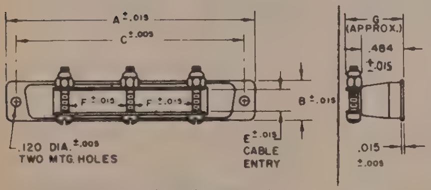


Material: Polypropylene

Order No. by Shell Size	For Use with	Factory No.	A	B	C	D
DE-59-20	DE-9S	474-11-92-303	.694	.627	.362	.295
DE-60-20	DE-9P	474-11-92-304	.749	.682	.412	.345
DA-59-20	DA-15S	474-11-92-305	1.022	.955	.362	.295
DA-60-20	DA-15P	474-11-92-306	1.077	1.010	.412	.345
DB-59-20	DB-25S	474-11-92-301	1.582	1.495	.362	.295
DB-60-20	DB-25P	474-11-92-302	1.635	1.568	.430	.363
DC-59-20	DC-37S	474-11-92-307	2.210	2.143	.362	.295
DC-60-20	DC-37P	474-11-92-308	2.283	2.216	.430	.363
DD-59-20	DD-50S	474-11-92-309	2.116	2.049	.474	.407
DD-60-20	DD-50P	474-11-92-310	2.179	2.112	.536	.469

Junction Shells





For use with D*, D*M and D*MA only

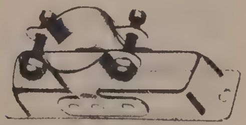
19678 Straight Clamp

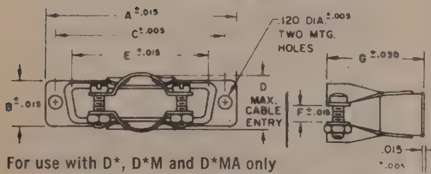
Material: Low carbon steel.

Finish: Zinc plate, yellow chromate.

Corrosion Resistance: Passes 48 hour exposure to salt spray in accordance with MIL-STD-202D, Method 101C, Condition B. All tolerances are ±.010 unless noted otherwise.

Order No.* by Shell Size	Factory No.	No. of Cable Locking Screws Required	A	B	C	E	F	G
DA-16978-1*	239-13-22-004	2	1.531	.500	1.312	.296	.312	.640
DB-19678-2*	239-13-22-003	2	2.078	.500	1.852	.296	.796	.640
DC-19678-3*	239-13-22-002	3	2.718	.500	2.500	.296	.687	.640
DD-19678-4*	239-13-22-001	3	2.625	.609	2.406	.390	.687	.703





For use with D*, D*M and D*MA only

Round Clamp

Material: Low carbon steel.

Finish: Zinc plate, yellow chromate.

Corrosion Resistance: Passes 48 hour exposure to salt spray in accordance with MIL-STD-202D, Method 101C, Condition B.

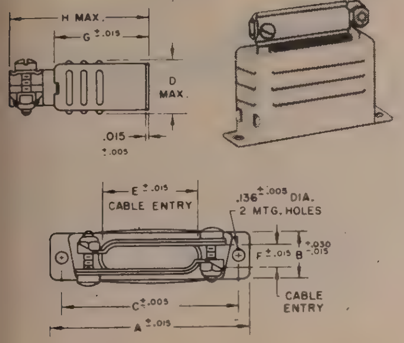
Order No.* by Shell Size	Factory No.	A	B	C	D	E	F	G
DA-20961	239-14-22-017	1.531	.500	1.322	.406	.984	.125	1.031
DB-20962	239-14-22-018	2.078	.500	1.852	.593	1.515	.187	1.062
DC-20963	239-14-22-019	2.718	.500	2.500	.718	2.171	.250	1.062
DD-20964	239-14-22-020	2.625	.609	2.406	.812	2.093	.312	1.062

Cinch D-Subminiature Connectors

Series 3*

TRW

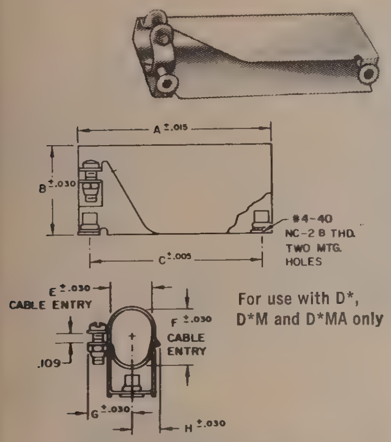
Accessories CONTINUED


H MAX.
G ±.015
D MAX.
.015 ±.005
E ±.015
CABLE ENTRY
.136 ±.005 DIA. 2 MTG. HOLES
F ±.015
B ±.030 -.015
CABLE ENTRY
C ±.005
A ±.015

Deep, Straight Clamp

Material: Low carbon steel.
Finish: Zinc plate, yellow chromate.
Corrosion Resistance: Passes 48 hour exposure to salt spray in accordance with MIL-STD-202D, Method 101C, Condition B.

Order No.* by Shell Size	Factory No.	A	B	C	D	E	F	G	H
DE-24657*	239-14-23-030	1.203	.484	.984	.578	.375	.375	.750	1.219
DA-24658*	239-14-22-068	1.531	.484	1.312	.578	.713	.312	.750	1.250
DB-24659*	239-14-22-066	2.078	.484	1.852	.578	1.000	.312	1.000	1.531
DC-24660*	239-14-22-067	2.718	.484	2.500	.578	1.375	.312	1.000	1.531
DD-24661*	239-14-22-049	2.625	.593	2.406	.687	1.406	.406	1.125	1.656

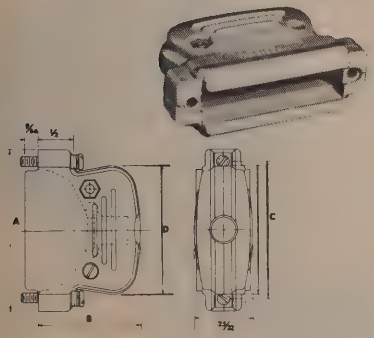

A ±.015
B ±.030
#4-40 NC-2 B THD. TWO MTG. HOLES
C ±.005
E ±.030 CABLE ENTRY
F ±.030 CABLE ENTRY
.109
G ±.030
H ±.030

For use with D*, D*M and D*MA only

19977 Right Angle Clamp

Material: Low carbon steel.
Finish: Zinc plate, yellow chromate.
Corrosion Resistance: Passes 48 hour exposure to salt spray in accordance with MIL-STD-202D, Method 101C. Condition B.

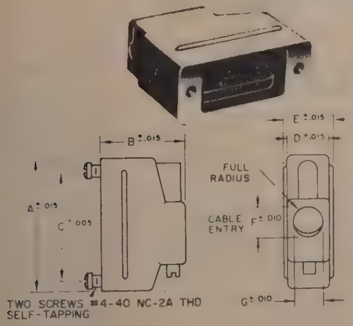
Order No.* by Shell Size	Factory No.	A	B	C	E	F	G	H
DE-19977-5*	239-14-22-021	1.203	.718	.984	.437	.437	.468	.281
DA-19977-1*	239-14-22-013	1.531	.718	1.312	.437	.437	.468	.281
DB-19977-2*	239-14-22-014	2.078	.968	1.852	.437	.625	.468	.281
DC-19977-3*	239-14-22-015	2.718	1.187	2.500	.437	.812	.468	.281
DD-19977-4*	239-14-22-016	2.625	1.250	2.406	.562	.906	.531	.343



All Molded Hood

Material: Impact Phenolic, Black.
Corrosion Resistance: Hardware passes 48 hour exposure to salt spray in accordance with MIL-STD-202D, Method 101C, Condition B.

Order No.* by Shell Size	Factory No.	A	B	C	D
DA-51225-1*	239-13-99-069	1 41/64	1 19/64	1.312	1 7/32
DB-51226-1*	239-13-99-070	2 13/64	1 13/32	1.852	1 51/64


B ±.015
A ±.015
C ±.005
FULL RADIUS
CABLE ENTRY
F ±.010
E ±.015
D ±.015
G ±.010
TWO SCREWS #4-40 NC-2A THD SELF-TAPPING

Plastic Straight

Material: Polyester.
Corrosion Resistance: Hardware passes 48 hour exposure to salt spray in accordance with MIL-STD-202D, Method 101C, Condition B.

Order No.* by Shell Size	Factory No.	A	B	C	D	E	F	G
DE-51218-1*	239-13-99-101	1.218	1.000	.984	.500	.562	.281	.281
DA-51210-1*	239-13-99-124	1.546	1.000	1.312	.500	.562	.360	.360
DB-51212-1*	239-13-99-135	2.093	1.250	1.852	.500	.562	.493	.360

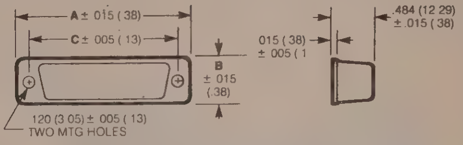
* These items available through TRW Cinch distributors.

Cinch D-Subminiature Connectors

Series 3*

TRW

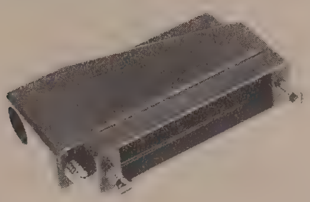
Switching Shells

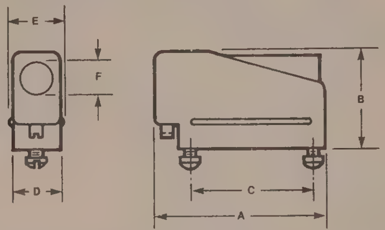

A ± .015 (.38)
C ± .005 (.13)
B ± .015 (.38)
.120 (3.05) ± .005 (.13) TWO MTG HOLES
.015 (.38) ± .005 (.1
.484 (12.29) ± .015 (.38)

Material: Low Carbon Steel
Finish: Zinc Plate With Yellow Chromate Coating

Dist. No. By Shell Size	A		B		C	
	In.	MM	In	MM	In.	MM
DA-19678-6	1.531	38.89	.500	12.70	1.312	33.32
DB-19678-7	2.078	52.78	.500	12.70	1.852	47.04
DC-19678-8	2.718	69.04	.500	12.70	2.500	63.50
DD-19678-9	2.625	66.68	.609	15.47	2.406	61.11

90° Plastic junction shell





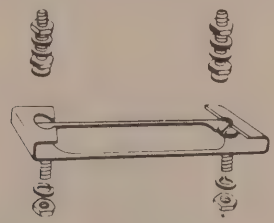
Clamp and shell; Zytel
Screws; Nickel plated steel
Distributor Part No. DB-51213-1

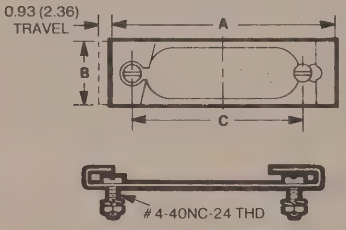
	A		B		C		D		E		F	
Dist. No.	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
DB-51213-1	2.368	60.147	1.250	31.750	1.852	47.041	.500	12.700	.562	14.275	.360	9.144

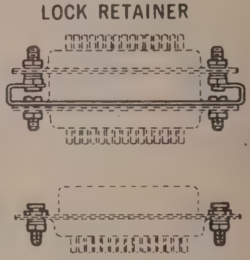
Lock Assemblies

Sliding lock assemblies

Lock post—part number D53018 order two for each lock retainer



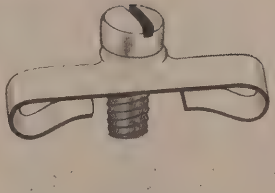

0.93 (2.36) TRAVEL
A
B
C
#4-40NC-24 THD

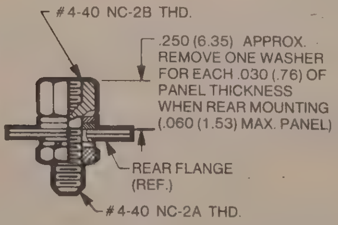

LOCK RETAINER

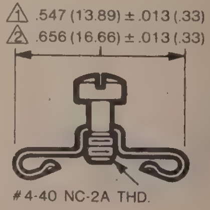
Dist. No. by Shell Size	A		B		C	
	In.	MM	In.	MM	In.	MM
DE-51224-1	1.392	35.35	.500	12.70	.984	24.99
DA-51220-1	1.720	43.69	.500	12.70	1.312	33.27
DB-51221-1	2.260	57.40	.500	12.70	1.852	47.04
DC-51222-1	2.908	73.86	.500	12.70	2.500	63.50
DD-51223-1	2.814	71.48	.609	15.47	2.406	62.48

Screw lock assemblies

Female


Male


#4-40 NC-2B THD.
.250 (6.35) APPROX. REMOVE ONE WASHER FOR EACH .030 (.76) OF PANEL THICKNESS WHEN REAR MOUNTING (.060 (1.53) MAX. PANEL)
REAR FLANGE (REF.)
#4-40 NC-2A THD.


△1 .547 (13.89) ± .013 (.33)
△2 .656 (16.66) ± .013 (.33)
#4-40 NC-2A THD.

△1 For shell sizes DE, DA, DB and DC.

△2 For shell size DD.

Notes: Two screw lock assemblies are required per connector. An 8 inch/pound (female and 4 inch/pound (male) maximum torque during assembly is recommended on steel screw lock assemblies.

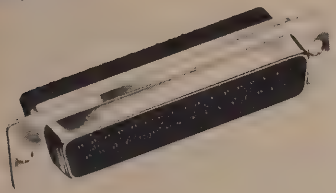
Dist. No. By Shell Size	Type	Usage
D-20419	Male	DA, DE Pin or Socket; DB, DC Socket
D-20419-16	Male	DA, DE Pin or Socket; DB, DC Socket both with Junction Shell
D-20419-21	Male	DB, DC Pin with Junction Shell
D-20420	Male	DD Socket
D-20420-12	Male	DD Socket with Junction Shell
D-20420-15	Male	DD Pin with Junction Shell
D-20418-2	Female	DE, DA, DB, DC, DD Pin or Socket with or without Junction Shell

CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

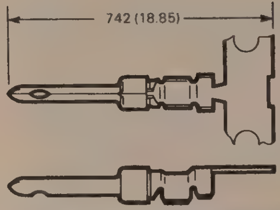
Cinch D-Subminiature Connectors (Cont.)

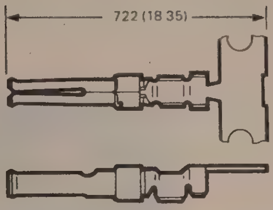
Econo D

Econo D* A



Insulation-Grip Cinch Econo D* — Subminiature connectors feature crimp-type insulation-grip contacts providing increased holding power. Evenly distributed crimp pressure provides consistent termination integrity. More reliable than conventional rear-release crimp snap-in contacts.





	AWG 20-26				AWG 28-30			
	AU Flash		AU Plate		AU Flash		AU Plate	
	10,000 Per Reel	300 Per Reel	10,000 Per Reel	300 Per Reel	10,000 Per Reel	300 Per Reel	10,000 Per Reel	300 Per Reel
Plug	DGM-10-1	DGM-3-1	DGM-10-2	DGM-3-2	DGM-10-3	DGM-3-3	DGM-10-4	DGM-3-4
Socket	DGF-10-1	DGF-3-1	DGF-10-2	DGF-3-2	DGF-10-3	DGF-3-3	DGF-10-4	DGF-3-4

		Dist. Part No.		
Layout	Size	D* A Less Contacts	Tinned Shells Without Contacts	Tinned Shells With Indents Without Contacts
9 Contact Plug Socket	E E	DEA-9-PFO DEA-9-SFO	DEA-9PT-FO DEA-9ST-FO	DEA-9PTI-FO
15 Contact Plug Socket	A A	DAA-15-PFO DAA-15-SFO	DAA-15PT-FO DAA-15ST-FO	DAA-15PTI-FO
25 Contact Plug Socket	B B	DBA-25-PFO DBA-25-SFO	DBA-25PT-FO DBA-25ST-FO	DBA-25PTI-FO
37 Contact Plug Socket	C C	DCA-37-PFO DCA-37-SFO	DCA-37PT-FO DCA-37ST-FO	DCA-37PTI-FO
50 Contact Plug Socket	D D	DDA-50-PFO DDA-50-SFO	DDA-50PT-FO DDA-50ST-FO	DDA-50PTI-FO

Crimping Tools

Semi-Automatic Stripper and Crimping Tool
Lightweight design. Quiet operation. Single and stranded wire can be processed with PVC or PTFE coverings from AWG 30 to AWG 20.

Distributor Part No. GFC-20-30

Manual Crimping Tool
Two types of transport for connector chains are available with crimping ranges of AWG 20-30 for B crimpings.

Form B AWG 20-26 GHC-B

Form B AWG 28-30 GHC-B1

Stripper—Crimper—Spare Parts

Part Number	Description
SP-67	Set of 4 Fuses
SP-68	Carrier Cutting Blade (Upper)
SP-69	Feeder Pawl
SP-70	Screw for Feeder Pawl
SP-71	Locking Pawl
SP-72	Guide Bar
SP-73	Fender Plate
SP-74	Wire Funnel

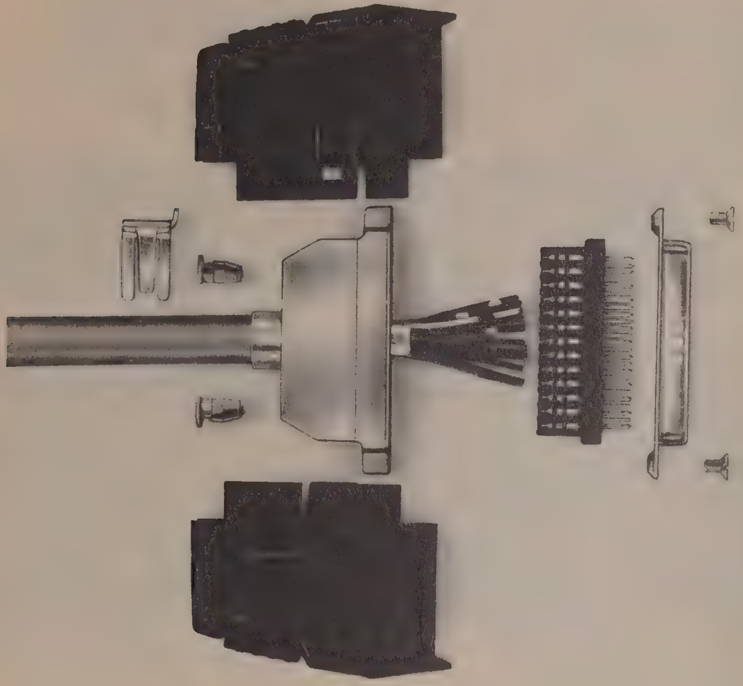
Part Number	Description
SP-75	Set of Springs
SP-76	Activator Ram
SP-77	Air Compressor
SP-78	Electronic Control Board
SP-79	Relay Board
SP-80	Motor/Gear Drive
SP-81	Brushes for Motor (Pair)
SP-82	Start Sensor

Part Number	Description
SP-83	Stop Sensor
SP-84	Reed Contact
SP-85	Magnet Stick
SP-86	Set of 9 switches and indicators
SP-87	Indicator Bulbs
SP-88	Cycle Counter
SP-89	Front Guard

Shielded Super D* Connector System

TRW

for Fast Reliable RFI/EMI Shielding



Features

- Full 360° RFI/EMI shielding, with one-piece seamless die-cast shell
- Solderless insulation displacement contact (IDC) termination for 26-28 AWG solid or stranded wire
- Fast field termination using TRW Certi-Clinch SSD* Tool
- Terminates either braided shield or metal-coated mylar shielded cables
- Mating shells equipped with grounding detents, for ground continuity between mated connectors
- Plastic Super D hoods for positive strain relief and elimination of shock hazard
- Available with Super D Latch-N-Lock System or with 4-40 jack screws
- Meets FCC Part 15, Class B requirements

Description

The TRW Shielded Super D Connector offers all of the time- and labor-saving features of the Super D Connector System, plus the added benefit of RFI/EMI shielding. Shielding is provided by a 360° seamless die-cast hood. This is theoretically the best method of RFI/EMI shielding, since there are no seams or breaks in the shield to permit leakage.

The Shielded Super D Connector consists of a metal-shelled Super D Connector, a seamless die-cast shielding hood, necessary collets and plastic Super D hood assembly.

The Shielded Super D Connector has solderless insulation displacement contacts (IDC) for fast reliable termination without pre-stripping or cutting and is available in 25-contact size straight plug or socket, with top opening for cable. Consult factory for availability of other sizes and styles.

Termination is accomplished using the TRW Auto-Clinch D* tool for high-volume applications or the Certi-Clinch SSD tool for field applications. A Uni-Clinch D* tool is also available for field repair or retrofit applications.

The plastic hood assembly is the same as that used in the Super D Connector System. The two-piece all-plastic construction allows fast self-latching captivation of the terminated shielded connector and also eliminates shock hazards.

The hoods are available with the exclusive Super D Latch-N-Lock System providing fast audible mating of the connector and quick release disconnect or with 4-40 jack screws for applications requiring protection against accidental removal of the connector.

The TRW Shielded Super D Connector is designed to meet all of the applicable requirements of FCC Docket No. 20780, Part 15, Sub Part J, for Class B devices.

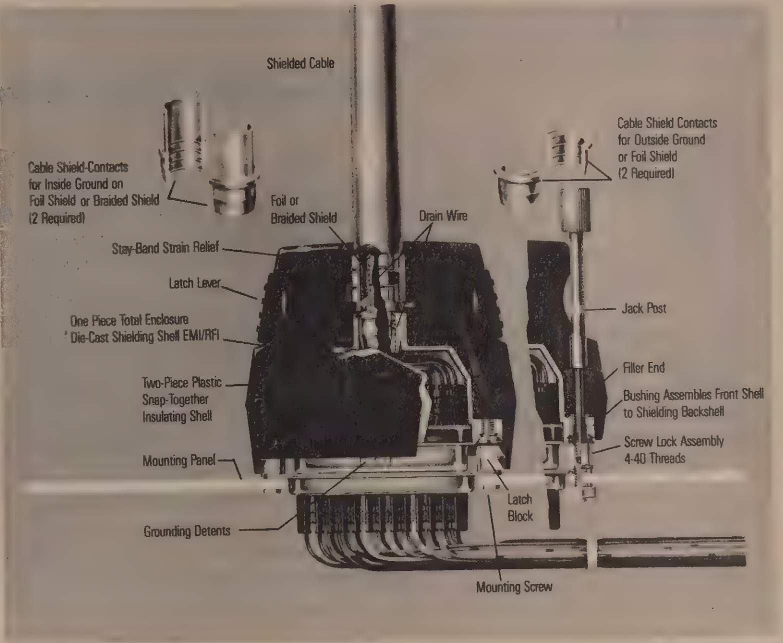
*Trademark of TRW Inc

Shielded Super D* Connector System

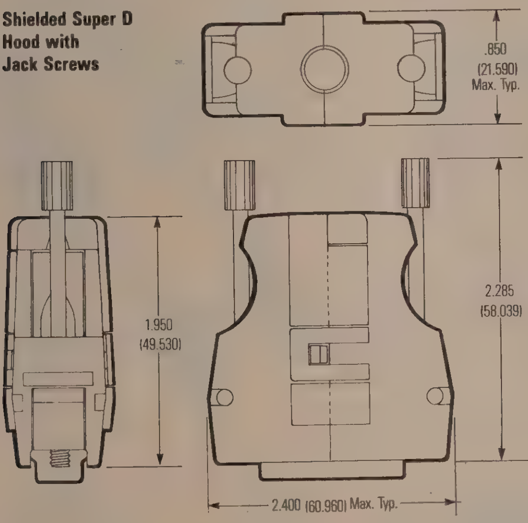
TRW

Specifications

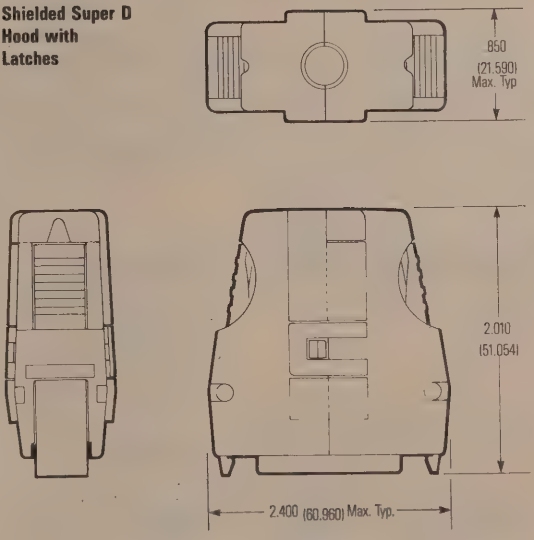
- Insulator Material: Molded glass-filled polyester
- Contact Material/Finish: Contacts are copper base alloy; standard finish is gold over copper
- Shield Material: Seamless die-cast metal
- Hood Material: Molded modified phenylene oxide
- Metal Stay Band/Strain Relief: 0.036″ (0.914mm) steel
- Termination: Solderless insulation displacement type; wire insulation is displaced when wire is driven into termination to form four positive contacts on each conductor
- Polarization: Keystone shape, preventing ''wrong way'' mating
- Panel Mounting: Terminating connectors which pass through panel opening from rear and mount with screws to front of panel
- FCC Requirements: Meets all applicable requirements of FCC Docket No. 20780, Part 15, Sub Part J for Class B devices

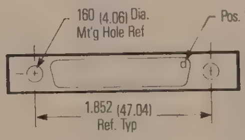

Shielded Cable
Cable Shield-Contacts for Inside Ground on Foil Shield or Braided Shield (2 Required)
Foil or Braided Shield
Drain Wire
Cable Shield Contacts for Outside Ground or Foil Shield (2 Required)
Stay-Band Strain Relief
Latch Lever
One Piece Total Enclosure Die-Cast Shielding Shell EMI/RFI
Jack Post
Two-Piece Plastic Snap-Together Insulating Shell
Filler End
Bushing Assembles Front Shell to Shielding Backshell
Screw Lock Assembly 4-40 Threads
Mounting Panel
Latch Block
Grounding Detents
Mounting Screw

Shielded Super D Hood with Jack Screws


.850 (21.590) Max. Typ.
1.950 (49.530)
2.285 (58.039)
2.400 (60.960) Max. Typ.

Shielded Super D Hood with Latches


.850 (21.590) Max. Typ
2.010 (51.054)
2.400 (60.960) Max. Typ.


160 (4.06) Dia. Mt'g Hole Ref
Pos. No. 1 Ref
1.852 (47.04) Ref. Typ

Ordering Information

Shielded Super D with latches		Shielded Super D with jack screws	
Plug Part No.	**Socket Part No.**	**Plug Part No.**	**Socket Part No.**
232-03-25-046	232-04-25-046	232-03-25-048	232-04-25-048

Consult factory for other sizes and styles.

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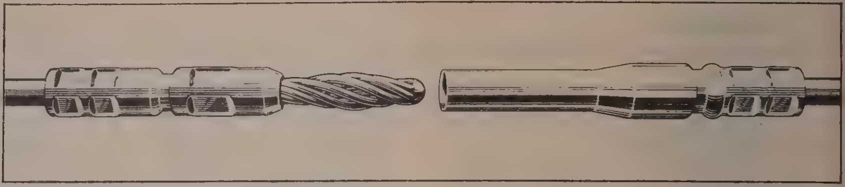
Cinch Dura-Con Connectors

The Dura-Con* Connector System



Here are the connectors designed to give rugged, durable high performance. Dura-Con is the ideal connector for applications where weight and space must be kept at a minimum while maintaining maximum reliability. Miniaturized airborne electronics and data processing equipment where shorter signal paths are needed represent typical applications for this unique connector.

The heart of the Dura-Con system is the Dura-Con contact, a contact that provides electrical continuity under extremes of shock and vibration.

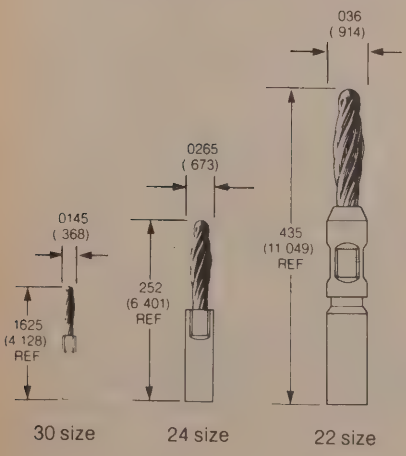
This is accomplished by making the pin the spring member. Available in three sizes, the TRW Cinch Dura-Con is made from a precision miniature spring cable with a welded tip. The expanded cable provides seven spring members peripherally around the pin so that no matter what radial forces are applied, contact is maintained with the mating socket wall. Furthermore, this flexible spring can be bent many times without evidencing any metal fatique. By protecting this pin in a recessed tolerance cavity, reliable mating is assured. Thus, despite its small size, Dura-Con provides superior performance.

The Dura-Con Connector is available in six tough highly adaptable styles for your systems. When critical shock, vibration, and RF interference requirements for military and commercial applications must be met, specify metal shell microminiature or Double-D subminiature Dura-Con connectors.

Dura-Con also comes in proven plastic microminiature, microedge metal shell, strip, and terminal block connectors.

The Dura-Con Double Density connector is available off-the-shelf for customer termination. Special configurations and custom assemblies can be ordered from the factory.

Contact Technical Information



Mechanical

Contacts		Number Per Sq. In.	Engaging Force Per Contact	Separation Force Per Contact	Crimp Wire Sizes
Centers	Size				
.025	30	1521	2 Oz. Max.	1/5 Oz. Min.	30 to 34 Ga.
.050	24	420	6 Oz. Max.	1/2 Oz. Min.	24 to 30 Ga.
.075 .100	22	169 Max.	8 Oz. Max.	1-1/2 Oz. Min.	22 to 26 Ga.

Electrical

Contact Size	Current Rating	Contact Resistance Milliohms		Breakdown Voltage Averages		Insulation Resistance Minimum Mated & Unmated
		Nominal	Max.	Sea Level	70,000 Ft.	
30	1 ampere	2.5	4	300V. RMS	100V. RMS	5000 Megohms
24	3 ampere	4	8	400V. RMS	300V. RMS	5000 Megohms
22	5 ampere	5	9	1200V. RMS	500V. RMS	5000 Megohms

Environmental

Contact Size	Temperature Range	Vibration & Shock	Durability	Salt Spray
30	-65° to +300°F	No discontinuity detected (equipment sensitivity 1 micro second) during 10 to 2000 cps. .06 double amplitude or 50g; 20 shocks 500g.	500 cycles	No damage or unacceptable increase in contact resistance after mated sample subjected to 48 hours of salt spray per MIL-STD-202 Method 101 Condition B.
24	-65° to +300°F		500 cycles	
22	-65° to +300°F		500 cycles	

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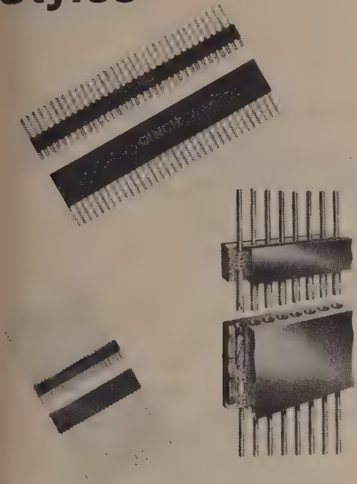
* Trademark TRW Inc.

Cinch Dura-Con Connectors

TRW

Specify from six standard Cinch Dura-Con Connector Styles

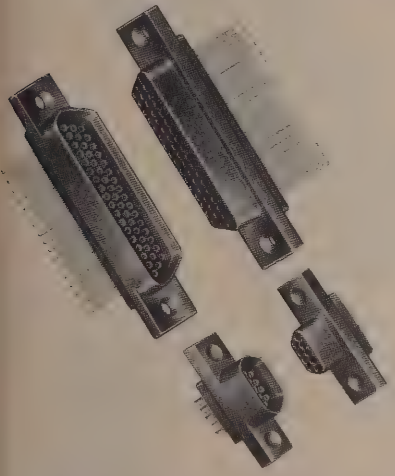


TRW Cinch Dura-Con Strip Connectors

. . . offer application flexibility for high density contacts in minimum profile package.

- Many configurations and combinations of wire terminations possible.
- 22 gauge thru 34 gauge wire combinations.
- .025″, .050″, .075″ or .100″ centers.
- Up to 60 contact positions.
- Can be assembled to P.C. boards or card mounting frames.
- Glass filled thermoplastic insulators.
- Available for right angle P.C. applications (Consult Factory).

See pages 6-7, Cinch Dura-Con Connectors Catalog No. C-50 for complete specifications.



Cinch Plastic Shell D-Microminiature Connectors

. . . for general use applications where weight reduction is important.

- Tough polyester thermoplastic shells, 94 V-O.
- High performance.
- Lightweight space savers for miniaturized electronics.
- Corrosion resistant.
- 7 arrangements: 9, 15, 21, 25, 31, 37, 51 in 24 GA. size contacts.
- Current Rating: 3 amps max.
- Meets MIL-C-83513 requirements.
- Provides shorter signal paths in EDP equipment.

For all the facts about Cinch Plastic Shell Dura-Con Micro-Miniature Connectors, See pages 8-11, Cinch Catalog No. C-50.

Cinch Metal Shell D Microminiature Environmental Connectors

. . . designed to meet stringent requirements in aircraft, data processing equipment, spacecraft and other critical applications.

- Lightweight; high contact density.
- Rugged, reliable contacts.
- Shock and vibration resistant.
- Rugged aluminum alloy shell.
- 8 sizes: 9, 15, 21, 25, 31, 37, 51, 100 contacts.
- 24 size contacts on .050″ center.
- Special power arrangements/custom terminations available.
- Provides EMI/RFI shielding.
- Meets MIL-C-83513 requirements.

Complete Metal-Shell Dura-Con D-Subminiature Connector Specifications are in Cinch Catalog C-50, pages 12-15.

* Trademark TRW Inc.

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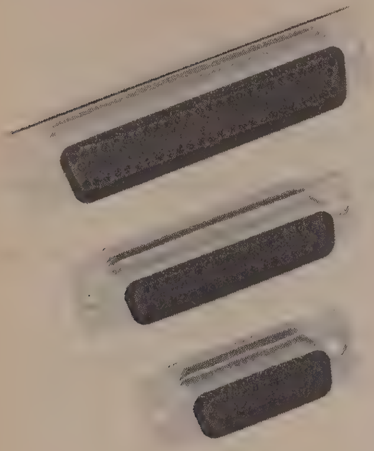
Cinch Dura-Con Connectors



Cinch Dura-Con Double-D Subminiature Connectors

. . . provides twice the number of contacts in a D-Subminiature shell for computer, aircraft, instrumentation, calculators, electronic audio equipment.

- Lightweight.
- High contact density.
- Rugged, reliable contacts.
- 22 gauge snap-in contacts permit customer assembly and easy contact replacement.
- Shock and vibration resistant steel shells; "D" (keystone) shape assures polarization.
- 5 sizes: 19, 31, 52, 79, 100 contacts.
- Current Rating: 5 amps max.
- Can be modified to meet your specific requirements or applications.

See pages 16-20, Cinch Catalog No. C-50, for complete Double-D Connector performance characteristics.

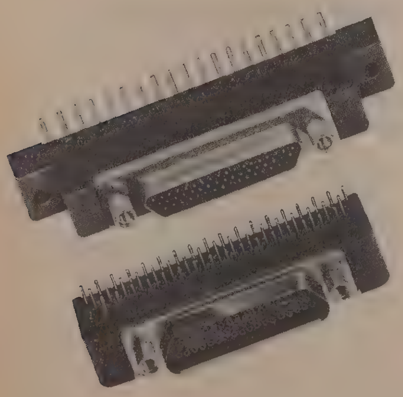
TRW CINCH CONNECTORS
TRW CINCH CONNECTORS
TRW CINCH CONNECTORS

Cinch 128 and 184 Contact Microedge Metal Shell Connectors

. . . rugged, reliable high density connectors with 128 or 184 Twist-Pin contacts.

- High reliability.
- Space/weight savers for aircraft, space, computer, controls applications.
- High contact density.
- Aluminum shell.
- Shock and vibration resistant.
- 2 sizes: 128 and 184 contacts.
- Meets MIL-C-55302 requirements.
- 90° variations available for multi-layer boards.
- Current Rating: 3 amps max.
- Can be modified to meet your specific requirements or applications.

Cinch Microedge Metal Shell Connectors are fully described in Cinch Catalog No. C-50, pages 21-24.



Cinch Terminal Block Dura-Con Connectors

. . . PC series connectors for use with flat cable, flex circuitry, printed circuit and multi-layer boards.

- 3 styles: straight termination, 90° termination, 90° narrow profile.
- Standard aluminum shell.
- Uniquely offers ease of soldering and mounting with all hardware or standard metal shell series.
- 8 sizes: 9, 15, 21, 25, 31, 37, 51, 100 contacts.
- Can be modified to your specific requirements or applications.
- Current Rating: 3 amps max.

Check Cinch Catalog No. C-50, pages 25-28, for PC Terminal Block Connector Specifications.

Cinch Dura-Con Connectors

TRW

Custom Harnessing Application Capability

Standard Cinch Dura-Con connectors satisfy a wide variety of applications. There are over 50,000 possible combinations of shapes, sizes, metal/plastic bodies, hardware, PC tails, solder cups, etc.

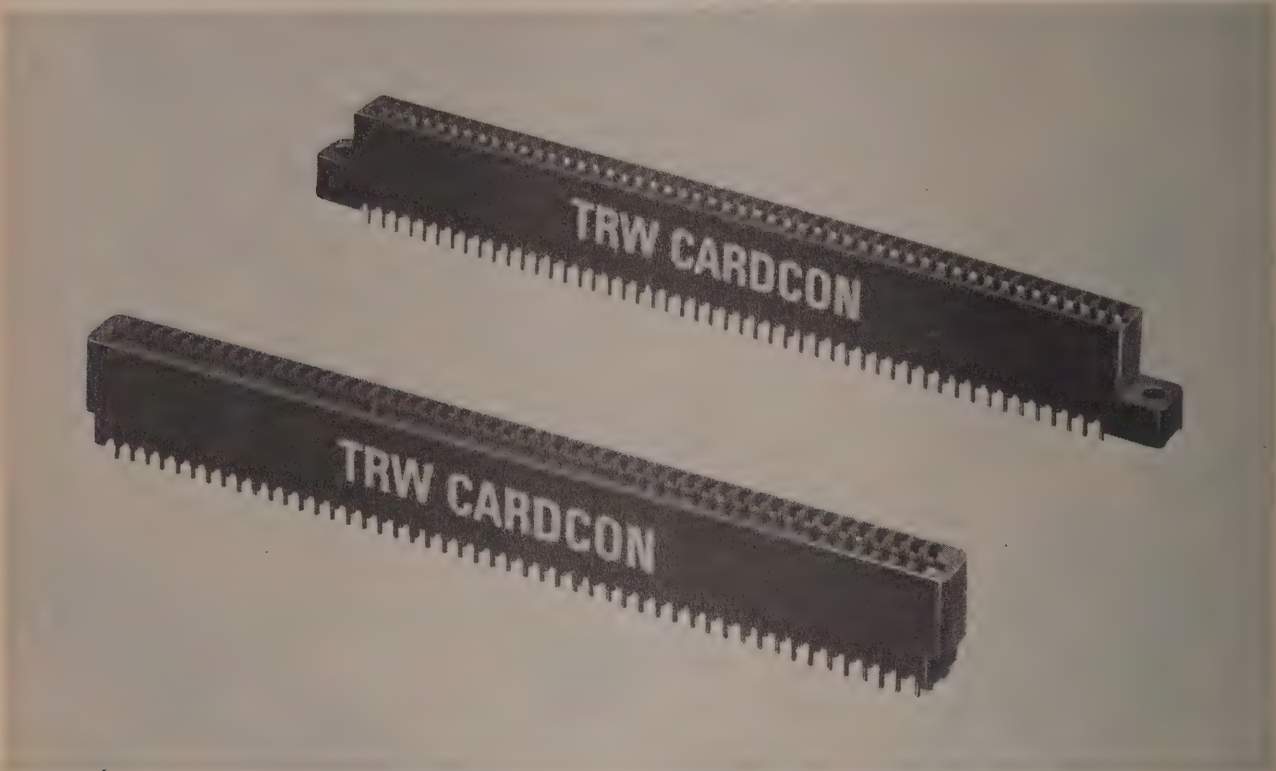
When special application requirements arise, the TRW Connector Division Design Group and research facilities are ready to go to work. Whether your specific needs entail new variations of simple end-to-end connector assemblies or more complex and intricate harness assemblies, Cinch engineers are ready to provide the application know-how to customize Dura-Con for your requirements.

For complete information regarding the total capabilities of the Dura-Con connector series, or for engineering assistance, contact your nearest TRW sales office or the address listed below.

Cardcon* Edge Connectors

.100″ (2.54) Center Spacing for 1/16″ (1.588) Boards

TRW



CARDCON Connectors with .100″ (2.54) center spacing for 1/16″ (1.588) boards

Dip Solder Tails

.200 Row Centers
Double Readout
(Contact factory for added PC board retention feature**)

- Bifurcated semi-bellows contacts for added contact reliability.
- 18 Dual Contact Sizes — 12/24, 15/30, 18/36, 20/40, 22/44, 25/50, 28/56, 30/60, 31/62, 36/72, 37/74, 40/80, 43/86, 44/88, 49/98, 50/100, 52/104, 60/120, 70/140.
- Ideal for applications involving vibration or board irregularities.
- Available less mounting ears, or with .128 mounting holes or 4-40 threaded holes.
- Accepts 1/16″ thick p.c. boards.
- Meets applicable performance criteria of MIL-C-21097. (Contact factory)

** The TRW Cinch board retention feature holds the connector firmly on the board during the wave soldering operation.

Prevents the connector from rising above the board and eliminates the need for mounting flanges and mounting hardware. Plated-thru holes are not damaged if the connector is removed.

Materials

Insulator Material: 94V-0 rated glass filled polyester. Color — Blue.

Contact Material/Plating: Contacts are available in alloy 260 spring brass or phosphor bronze. Standard finish gold over nickel in contacting area. Gold flash on tails. Copper overall underplate. Contact factory for other contact material and plating options.

Polarizing Key Materials: Two types of polarizing keys are available, and must be ordered separately: P/N 474-11-76-229 (for between-contact polarization) is made of glassy epoxy; P/N 474-11-70-960 (for in-contact polarization) is made of Valox 420-SEO.

Environmental Specifications

Shock: Per MIL-STD-202E method 213B, condition "C."

Temperature Cycling: 5 continuous cycles (−65°C to +125°C) per MIL-STD-202E method 107D, condition "B."

Vibration: Per MIL-STD-202E method 204C, condition "B."

Humidity: Per MIL-STD-202E, method 103, condition "B."

Electrical Specifications

650 at sea level.
275 at 3.4 Hg — 50,000 ft.
275 at 1.3 Hg — 70,000 ft.

Current Rating: 3.0 Amperes.

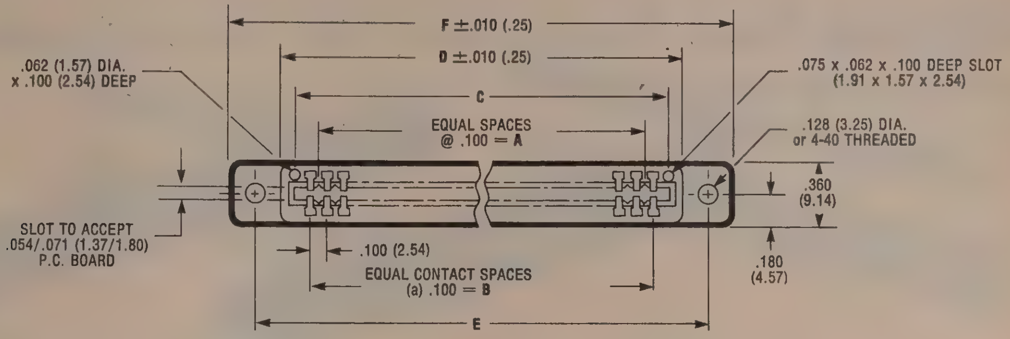
Contact Resistance at Rated Current: 0.010 Ohms Max.

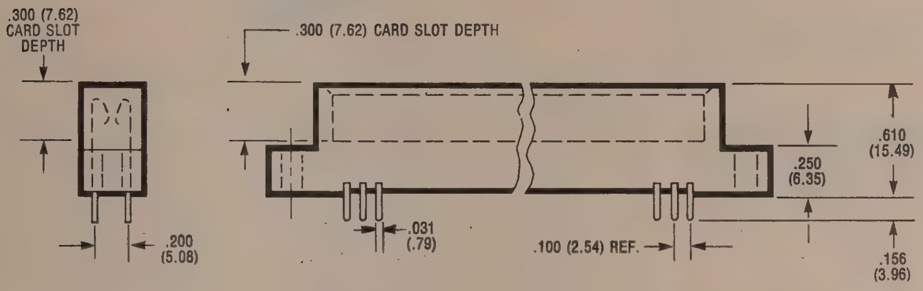
Insulation Resistance: 1000 Megohms Min.

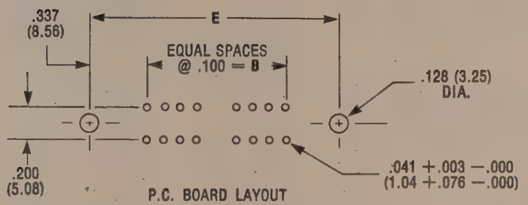
Cardcon* Edge Connectors

.100″ (2.54) Center Spacing for 1/16″ (1.588) Boards

Dimensions:


F ±.010 (.25)
D ±.010 (.25)
C
EQUAL SPACES @ .100 = A
.062 (1.57) DIA. x .100 (2.54) DEEP
.075 x .062 x .100 DEEP SLOT (1.91 x 1.57 x 2.54)
.128 (3.25) DIA. or 4-40 THREADED
.360 (9.14)
SLOT TO ACCEPT .054/.071 (1.37/1.80) P.C. BOARD
.100 (2.54)
EQUAL CONTACT SPACES (a) .100 = B
.180 (4.57)
E


.300 (7.62) CARD SLOT DEPTH
.300 (7.62) CARD SLOT DEPTH
.200 (5.08)
.031 (.79)
.100 (2.54) REF.
.250 (6.35)
.610 (15.49)
.156 (3.96)


.337 (8.56)
E
EQUAL SPACES @ .100 = B
.128 (3.25) DIA.
.200 (5.08)
.041 +.003 —.000 (1.04 +.076 —.000)

P.C. BOARD LAYOUT

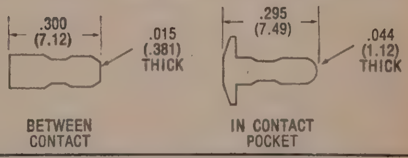
TRW 5470
TABLE B

No. of Contacts	A		B		C		D		E		F	
	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
12/24	1.000	25.40	1.100	27.94	1.300	33.02	1.460	37.08	1.775	45.09	2.035	51.69
15/30	1.300	33.02	1.400	35.56	1.600	40.64	1.760	44.704	2.075	52.71	2.335	59.31
18/36	1.600	40.64	1.700	43.18	1.900	48.26	2.060	52.32	2.375	60.33	2.635	66.93
20/40	1.800	45.72	1.900	48.26	2.100	53.34	2.260	57.40	2.575	65.41	2.835	72.01
22/44	2.000	50.80	2.100	53.34	2.300	58.42	2.460	62.48	2.775	70.49	3.035	77.09
25/50	2.300	58.42	2.400	60.96	2.600	66.04	2.760	70.10	3.075	78.11	3.335	84.71
28/56	2.600	66.04	2.700	68.58	2.900	73.66	3.060	77.72	3.375	85.73	3.635	92.33
30/60	2.800	71.12	2.900	73.66	3.100	78.74	3.260	82.80	3.575	90.81	3.835	97.41
31/62	2.900	73.66	3.000	76.20	3.200	81.28	3.360	85.34	3.675	93.35	3.935	99.95
36/72	3.400	86.36	3.500	88.90	3.700	93.99	3.860	98.04	4.175	106.05	4.434	112.65
37/74	3.500	88.90	3.600	91.44	3.800	96.52	3.960	100.58	4.275	108.59	4.535	115.19
40/80	3.800	96.52	3.900	99.06	4.100	104.14	4.260	108.20	4.575	116.21	4.835	122.81
43/86	4.100	104.14	4.200	106.68	4.400	111.76	4.560	115.82	4.875	123.83	5.135	130.43
44/88	4.200	106.68	4.300	109.22	4.500	114.30	4.660	118.36	4.975	126.37	5.235	132.97
49/98	4.700	119.38	4.800	121.92	5.000	127.00	5.160	131.06	5.475	139.07	5.735	145.67
50/100	4.800	121.92	4.900	124.46	5.100	129.54	5.260	133.60	5.575	141.61	5.835	148.21
52/104	5.000	127.00	5.100	129.54	5.300	134.62	5.460	138.68	5.775	146.68	6.035	153.30
60/120	5.800	147.32	5.900	149.86	6.100	154.94	6.260	159.00	6.575	167.01	6.835	173.61
70/140	6.800	172.72	6.900	175.26	7.100	180.34	7.260	184.40	7.575	192.41	7.835	199.01

Polarizing Keys

Between contact type: Factory Part No 474-11-76-229.

In contact type: Factory Part No. 474-11-70-960.


.300 (7.12)
.015 (.381) THICK
BETWEEN CONTACT
.295 (7.49)
.044 (1.12) THICK
IN CONTACT POCKET

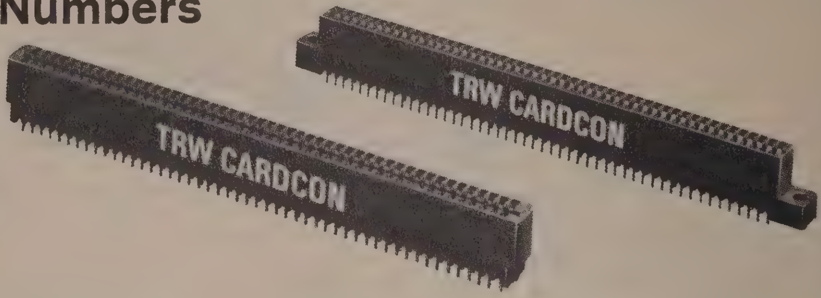
CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

Cardcon*
Edge Connectors

.100″ (2.54) Center Spacing
for 1/16″ (1.588) Boards

TRW

CARDCON Edge Connectors .100″ (2.54) center spacing Factory Part Numbers



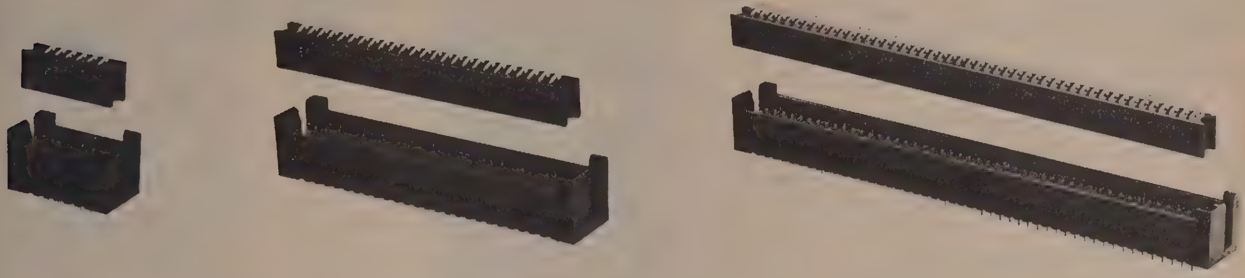
Alloy 260 Spring Brass Contacts, .156″ (3.96) Long Dip Solder Tails

No. of Contacts	Less Mounting Ears	.128 Mounting Holes	4-40 Threaded Holes
12/24	252-12-50-004	252-12-50-003	252-12-50-008
15/30	252-15-50-004	252-15-50-003	252-15-50-008
18/36	252-18-50-004	252-18-50-003	252-18-50-008
20/40	252-20-50-004	252-20-50-003	252-20-50-008
22/24	252-22-50-004	252-22-50-003	252-22-50-008
25/50	252-25-50-004	252-25-50-003	252-25-50-008
28/56	252-28-50-004	252-28-50-003	252-28-50-008
30/60	252-30-50-004	252-30-50-003	252-30-50-008
31/62	252-31-50-004	252-31-50-003	252-31-50-008
36/72	252-36-50-004	252-36-50-003	252-36-50-008
37/74	252-37-50-004	252-37-50-003	252-37-50-008
40/80	252-40-50-004	252-40-50-003	252-40-50-008
43/86	252-43-50-004	252-43-50-003	252-43-50-008
44/88	252-44-50-004	252-44-50-003	252-44-50-008
49/98	252-49-50-004	252-49-50-003	252-49-50-008
50/100	252-50-50-004	252-50-50-003	252-50-50-008
52/104	252-52-50-004	252-52-50-003	252-52-50-008
60/120	252-60-50-004	252-60-50-003	252-60-50-008
70/140	252-70-50-004	252-70-50-003	252-70-50-008

Phospor Bronze Contacts, .156″ (3.96) Long Dip Solder Tails

No. of Contacts	Less Mounting Ears	.128 Mounting Holes	4-40 Threaded Holes
12/24	252-12-50-007	252-12-50-006	252-12-50-009
15/30	252-15-50-007	252-15-50-006	252-15-50-009
18/36	252-18-50-007	252-18-50-006	252-18-50-009
20/40	252-20-50-007	252-20-50-006	252-20-50-009
22/44	252-22-50-000	252-22-50-006	252-22-50-009
25/50	252-25-50-007	252-25-50-006	252-25-50-009
28/56	252-28-50-007	252-28-50-006	252-28-50-009
30/60	252-30-50-007	252-30-50-006	252-30-50-009
31/62	252-31-50-007	252-31-50-006	252-31-50-009
36/72	252-36-50-007	252-36-50-006	252-36-50-009
37/74	252-37-50-007	252-37-50-006	252-37-50-009
40/80	252-40-50-007	252-40-50-006	252-40-50-009
43/86	252-43-50-007	252-43-50-006	252-43-50-009
44/88	252-44-50-007	252-44-50-006	252-44-50-009
49/98	252-49-50-007	252-49-50-006	252-49-50-009
50/100	252-50-50-007	252-50-50-006	252-50-50-009
52/104	252-52-50-007	252-52-50-006	252-52-50-009
60/120	252-60-50-007	252-60-50-006	252-60-50-009
70/140	252-70-50-007	252-70-50-006	252-70-50-009

Cinch Two Piece PC Board Connector System



- 4 Tyne Box Socket Contact* provides 4 discrete points of contact per pin

TRW has designed, and now has in production, a high reliability two-piece PC board connector system. Primarily for applications involving today's sophisticated instrumentation, this system meets the performance criteria of MIL-C-55302. Gold has been eliminated from non-functioning surfaces for significant cost savings without sacrificing performance quality. Insertion force is a maximum of 4 ounces, and withdrawal force is 0.75 ounces minimum.

Here is the ideal replacement system for traditional mother/daughter connectors. It is a more dependable, less costly method of interconnecting PC boards with electronic equipment applications.

Features

- 4 Tyne Box Socket Contacts*
- .025 in square post plug contacts
- Pin tails available in straight or 90° Solder Type, compliant pin
- 10 to 200 contact sizes
- Double readout, .100 inch x .100 inch centers
- Meets performance criteria of MIL-C-55302
- Insertion force of 4 ounces maximum per contact
- Withdrawal force of 0.75 ounces minimum per contact

Materials

Insulator Material: Glass filled thermoplastic UL-94V-0 rated

Color: Black

Contact Material/Plating:
Pin: Phosphor Bronze
Socket: Phosphor Bronze

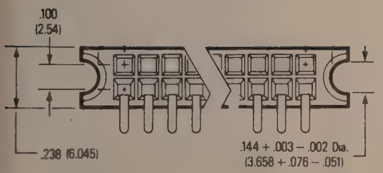
Plating: Standard, gold over nickel in contact area—Tails, gold flash or tin lead. Custom plating available, consult factory.

Electrical Specifications

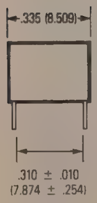
Current rating per contact: 3A

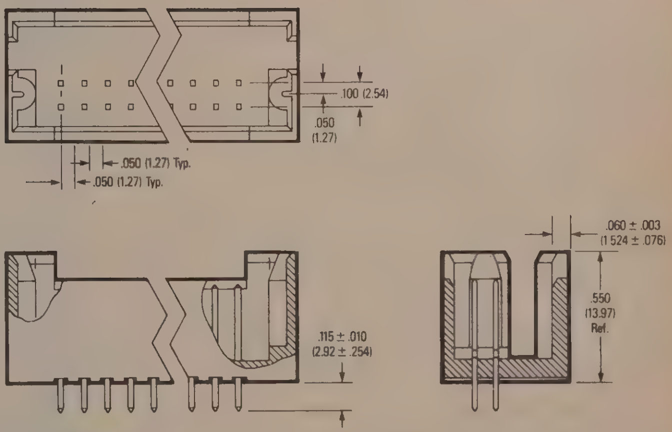
Contact resistance: 12mΩ max at 100MV

Dielectric withstanding voltage:
750 Vrms at sea level
300 Vrms at 50,000 feet



Socket





Plug—Straight

*Patent Pending

Cinch Two Piece PC Board Connector System (Cont.)

TRW

PC Board Connectors .145 Tail

Number of Contacts	Plug Number	Socket Number
10	PC10P-1	PC10S-1
12	PC12P-1	PC12S-1
14	PC14P-1	PC14S-1
16	PC16P-1	PC16S-1
18	PC18P-1	PC18S-1
20	PC20P-1	PC20S-1
22	PC22P-1	PC22S-1
24	PC24P-1	PC24S-1
26	PC26P-1	PC26S-1
28	PC28P-1	PC28S-1
30	PC30P-1	PC30S-1
32	PC32P-1	PC32S-1
34	PC34P-1	PC34S-1
36	PC36P-1	PC36S-1
38	PC38P-1	PC38S-1
40	PC40P-1	PC40S-1
42	PC42P-1	PC42S-1
44	PC44P-1	PC44S-1
46	PC46P-1	PC46S-1
48	PC48P-1	PC48S-1
50	PC50P-1	PC50S-1
52	PC52P-1	PC52S-1
54	PC54P-1	PC54S-1
56	PC56P-1	PC56S-1
58	PC58P-1	PC58S-1
60	PC60P-1	PC60S-1
62	PC62P-1	PC62S-1
64	PC64P-1	PC64S-1
66	PC66P-1	PC66S-1

Number of Contacts	Plug Number	Socket Number
68	PC68P-1	PC68S-1
70	PC70P-1	PC70S-1
72	PC72P-1	PC72S-1
74	PC74P-1	PC74S-1
76	PC76P-1	PC76S-1
78	PC78P-1	PC78S-1
80	PC80P-1	PC80S-1
82	PC82P-1	PC82S-1
84	PC84P-1	PC84S-1
86	PC86P-1	PC86S-1
88	PC88P-1	PC88S-1
90	PC90P-1	PC90S-1
92	PC92P-1	PC92S-1
94	PC94P-1	PC94S-1
96	PC96P-1	PC96S-1
98	PC98P-1	PC98S-1
100	PC100P-1	PC100S-1
102	PC102P-1	PC102S-1
104	PC104P-1	PC104S-1
106	PC106P-1	PC106S-1
108	PC108P-1	PC108S-1
110	PC110P-1	PC110S-1
112	PC112P-1	PC112S-1
114	PC114P-1	PC114S-1
116	PC116P-1	PC116S-1
118	PC118P-1	PC118S-1
120	PC120P-1	PC120S-1
140	PC140P-1	PC140S-1
200	PC200P-1	PC200S-1

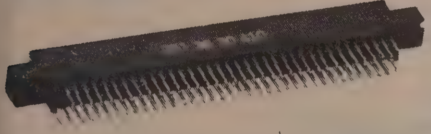
PC Board Connectors .115 Tail

Number of Contacts	Plug Number	Socket Number
10	PC10P	PC10S
12	PC12P	PC12S
14	PC14P	PC14S
16	PC16P	PC16S
18	PC18P	PC18S
20	PC20P	PC20S
22	PC22P	PC22S
24	PC24P	PC24S
26	PC26P	PC26S
28	PC28P	PC28S
30	PC30P	PC30S
32	PC32P	PC32S
34	PC34P	PC34S
36	PC36P	PC36S
38	PC38P	PC38S
40	PC40P	PC40S
42	PC42P	PC42S
44	PC44P	PC44S
46	PC46P	PC46S
48	PC48P	PC48S
50	PC50P	PC50S
52	PC52P	PC52S
54	PC54P	PC54S
56	PC56P	PC56S
58	PC58P	PC58S
60	PC60P	PC60S
62	PC62P	PC62S
64	PC64P	PC64S
66	PC66P	PC66S

Number of Contacts	Plug Number	Socket Number
68	PC68P	PC68S
70	PC70P	PC70S
72	PC72P	PC72S
74	PC74P	PC74S
76	PC76P	PC76S
78	PC78P	PC78S
80	PC80P	PC80S
82	PC82P	PC82S
84	PC84P	PC84S
86	PC86P	PC86S
88	PC88P	PC88S
90	PC90P	PC90S
92	PC92P	PC92S
94	PC94P	PC94S
96	PC96P	PC96S
98	PC98P	PC98S
100	PC100P	PC100S
102	PC102P	PC102S
104	PC104P	PC104S
106	PC106P	PC106S
108	PC108P	PC108S
110	PC110P	PC110S
112	PC112P	PC112S
114	PC114P	PC114S
116	PC116P	PC116S
118	PC118P	PC118S
120	PC120P	PC120S
140	PC140P	PC140S
200	PC200P	PC200S

Cinch PC Board Connectors

With Terminals On .100″ (2.54) Center Spacing



Features and Specifications

Current Rating: 5 amperes.

Rated Voltage (Sea Level): 600 VDC.

Insulation Resistance: 5000 megohms min.

Contact Resistance: 10 milliohms max.

Terminal Styles: Dip Solder, Wire Wrap or Solder Tab.

Total Insertion Force: A maximum of one lb. times the number of contact pairs when measured with a .070 in. thick steel blade in accordance with MIL-C-21097.

Individual Separation Force: A minimum of one oz. per pair of contacts when measured with a .054 in. thick blade in accordance with MIL-C-21097.

Insulator Material: Diallyl phthalate, type SDG-F per MIL-M-14 Color Green.

Polarizing Key Material: Nylon.

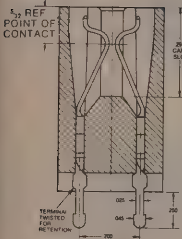
Card Guide Material: Polypropylene, Color Green.

Contact Material: Alloy 688 high tensile brass.

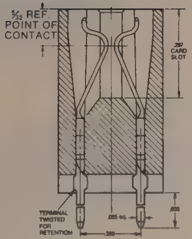
Contact Plating Material: gold over nickel on contacting area gold on remainder of contact.

Dimensional Data

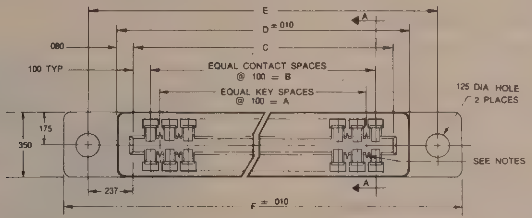
"RECOGNIZED UNDER THE COMPONENT PROGRAM OF UNDERWRITERS' LABORATORIES, INC."


5/32 REF
POINT OF CONTACT
.297 CARD SLOT
TERMINAL TWISTED FOR RETENTION
.025
.045
.250
.200

SOLDER TAB

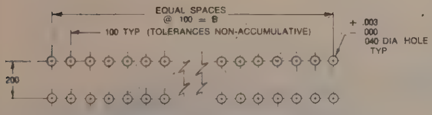

5/32 REF.
POINT OF CONTACT
.297 CARD SLOT
TERMINAL TWISTED FOR RETENTION
.025 sq.
.600
.200

WIRE WRAP

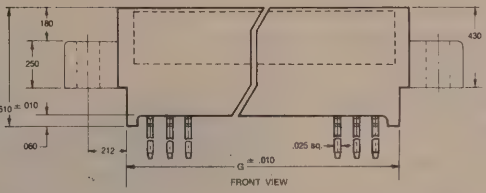

E
D ± .010
C
.080
.100 TYP
EQUAL CONTACT SPACES @ .100 = B
EQUAL KEY SPACES @ .100 = A
.125 DIA HOLE 2 PLACES
.175
.350
SEE NOTES
A
.237
F ± .010

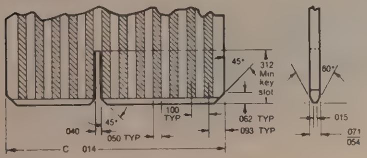
TOP VIEW

NOTE: POLARIZING KEY SLOTS LOCATED SYMMETICALLY BETWEEN CONTACT POSITIONS.

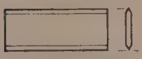

EQUAL SPACES @ .100 = B
.100 TYP (TOLERANCES NON-ACCUMULATIVE)
+ .003
− .000
.040 DIA HOLE TYP
.200

RECOMMENDED PRINTED CIRCUIT BOARD MOUNTING HOLE LAYOUT


.180
.250
.610 ± .010
.060
.212
.430
.025 sq.
G ± .010
FRONT VIEW


45°
.312 Min key slot
.100 TYP
45°
.040
.050 TYP
.062 TYP
.093 TYP
C .014
60°
.015
.071
.054

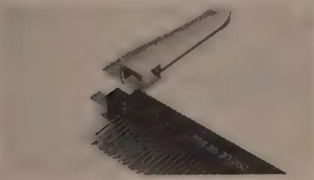
RECOMMENDED PC BOARD



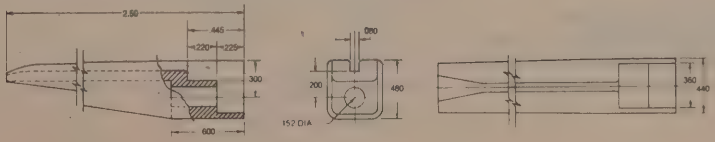
POLARIZING
KEY PART NO
474-11-76-229

No. of Contacts	Part Number	Dimensions A	B	C	D	E	F	G
SOLDER TAB								
15/30	251-15-30-410	1.300	1.400	1.600	1.760	2.075	2.335	1.650
22/44	251-22-30-410	2.000	2.100	2.300	2.460	2.775	3.035	2.350
36/72	251-36-30-410	3.400	3.500	3.700	3.860	4.175	4.435	3.750
40/80	251-40-30-410	3.800	3.900	4.100	4.260	4.575	4.835	4.150
43/86	251-43-30-410	4.100	4.200	4.400	4.560	4.875	5.135	4.450
50/100	251-50-30-410	4.800	4.900	5.100	5.260	5.575	5.835	5.150
WIRE WRAP								
15/30	253-15-30-260	1.300	1.400	1.600	1.760	2.075	2.335	1.650
22/44	253-22-30-260	2.000	2.100	2.300	2.460	2.775	3.035	2.350
36/72	253-36-30-260	3.400	3.500	3.700	3.860	4.175	4.435	3.750
40/80	253-40-30-260	3.800	3.900	4.100	4.260	4.575	4.835	4.150
43/86	253-43-30-260	4.100	4.200	4.400	4.560	4.875	5.135	4.450
50/100	253-50-30-260	4.800	4.900	5.100	5.260	5.575	5.835	5.150

Card Guide Post No. 474-11-90-259



Card Guides No. 474-11-90-259 can be ordered separately and can be assembled with any 251- or 253- connector with clearance mounting holes. Available through Cinch distributors; specify No. 50-GP-1.


2.50
.445
.220
.225
.300
.600
.080
.200
.480
.152 DIA
.360
.440

Cardcon* Edge Connectors

.156″ (3.962) Center Spacing For 1/16″ (1.588) Boards

CARDCON* Connectors with 0.156″ (3.962) center spacing for 1/16″ (1.588) boards

Solder Eyelet
.200 Row Centers
  Single Readout
  Double Readout
Dip Solder Tails
.140 Row Centers
.200 Row Centers
  Single Readout
  Double Readout
.200 Row Centers with unique tails for p.c. board retention**

- Bifurcated semi-bellows contacts for added contact reliability.
- Ideal for applications involving vibration or board irregularities.
- 6, 10, 12, 15, 18, 22, 24 and 25-contact sizes.
- Available less mounting ears, or with .128 mounting hole, .142 mounting hole, 4-40 threaded hole or floating bushing.
- Accepts single or double sided, 1/16″ thick p.c. boards.
- Meets applicable performance criteria of MIL-C-21097. (Contact factory)

UL RECOGNIZED

TRW CARDCON
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TRW CARDCON
TRW CARDCON
TRW CARDCON

**The TRW Cinch board retention feature holds the connector firmly on the board during the wave soldering operation. Prevents the connector from rising above the board and eliminates the need for mounting flanges and mounting hardware. Plated-thru holes are not damaged if the connector is removed.

Materials

Insulator Material:
94V-O rated glass filled polyester. Color – Blue.

Contact Material/Plating:
Contacts are available in alloy 260 spring brass or phosphor bronze. Standard finish gold in contacting area. Gold flash on tail. Copper under gold. Contact factory for other contact material and plating options.

Polarizing Key Materials:
Two types of polarizing keys are available, and must be ordered separately: P/N 456-07-35-003 (for between-contact polarization) is made of glass epoxy; P/N 474-11-70-787 (for in-contact polarization) is made of Valox 420-SEO.

Environmental Specifications

Shock:
Per MIL-STD-202E method 213B, condition "C".

Temperature Cycling:
5 continuous cycles (-65°C to 125°C) per MIL-STD-202E method 107D, condition "B."

Vibration:
Per MIL-STD-202E method 204C, condition "B."

Humidity:
Per MIL-STD-202E, method 103, condition "B."

Electrical Specifications

(AC RMS) (Adjacent terminals)
1800 at sea level
675 at 3.4Hg—50,000 ft.
450 at 1.3Hg—70,000 ft.

Current Rating:
5.0 Amperes

Contact Resistance at Rated Current:
0.006 OHMs Max.

Insulation Resistance:
5,000 Megohms Min.

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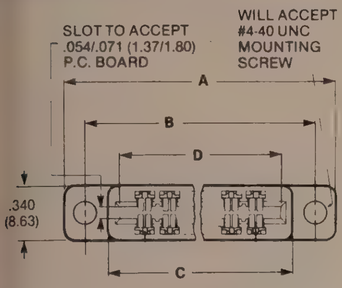
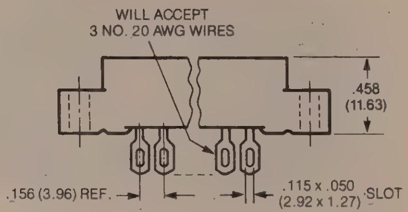
*Trademark TRW Inc

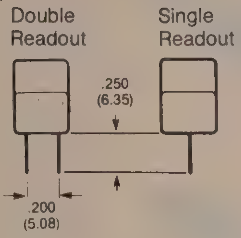
Cardcon* Edge Connectors

.156″ (3.962) Center Spacing For 1/16″ (1.588) Boards

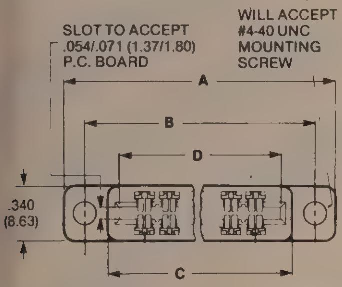
Solder Eyelet

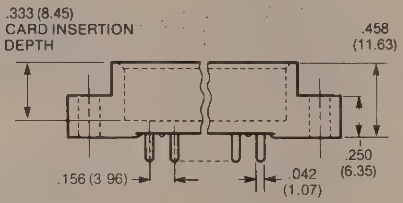

SLOT TO ACCEPT
.054/.071 (1.37/1.80)
P.C. BOARD
WILL ACCEPT
#4-40 UNC
MOUNTING
SCREW
A
B
D
.340
(8.63)
C

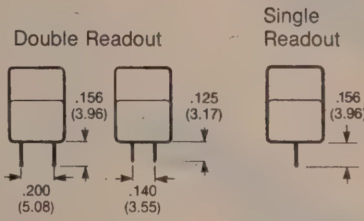

WILL ACCEPT
3 NO. 20 AWG WIRES
.458
(11.63)
.156 (3.96) REF.
.115 x .050
(2.92 x 1.27) SLOT


Double
Readout
Single
Readout
.250
(6.35)
.200
(5.08)

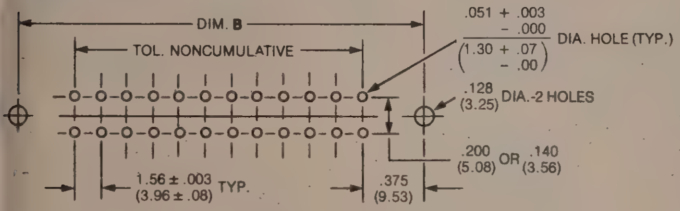
Dip Solder


SLOT TO ACCEPT
.054/.071 (1.37/1.80)
P.C. BOARD
WILL ACCEPT
#4-40 UNC
MOUNTING
SCREW
A
B
D
.340
(8.63)
C

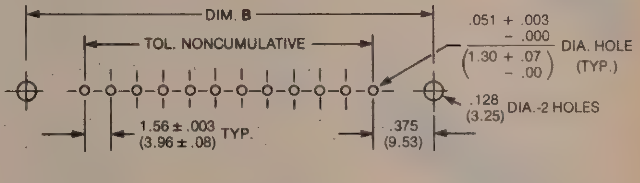

.333 (8.45)
CARD INSERTION
DEPTH
.458
(11.63)
.250
(6.35)
.156 (3.96)
.042
(1.07)


Double Readout
Single
Readout
.156
(3.96)
.125
(3.17)
.156
(3.96)
.200
(5.08)
.140
(3.55)

Dip Solder-P.C. Board Layouts

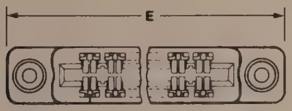

DIM. B
TOL. NONCUMULATIVE
.051 + .003
− .000
(1.30 + .07
− .00)
DIA. HOLE (TYP.)
.128
(3.25)
DIA.-2 HOLES
.200
(5.08)
OR
.140
(3.56)
1.56 ± .003
(3.96 ± .08)
TYP.
.375
(9.53)

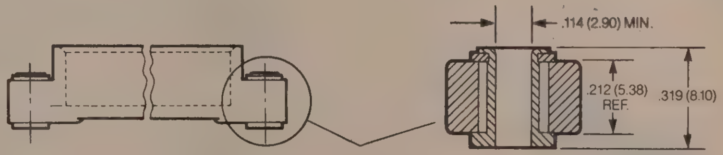
Double readout


DIM. B
TOL. NONCUMULATIVE
.051 + .003
− .000
(1.30 + .07
− .00)
DIA. HOLE
(TYP.)
.128
(3.25)
DIA.-2 HOLES
1.56 ± .003
(3.96 ± .08)
TYP.
.375
(9.53)

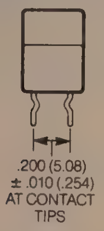
Single readout

Float Mount




.114 (2.90) MIN.
.212 (5.38)
REF.
.319 (8.10)

Board Retention P.C. Tails

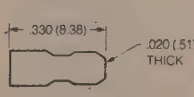

.200 (5.08)
± .010 (.254)
AT CONTACT
TIPS

Cont. Pos.	A In.	A MM	B In.	B MM	C In.	C MM	D In.	D MM	E In.	E MM
06	1.785	45.33	1.531	38.88	1.239	31.47	1.100	27.94	1.937	49.20
10	2.410	61.21	2.156	54.76	1.864	47.34	1.724	43.79	2.562	65.07
12	2.723	69.16	2.469	62.71	2.177	55.29	2.036	51.71	2.875	73.03
15	3.191	81.05	2.937	74.60	2.645	67.18	2.504	63.60	3.343	84.91
18	3.660	92.96	3.406	86.51	3.114	79.09	2.972	75.48	3.812	96.82
22	4.285	108.83	4.031	102.38	3.739	94.97	3.596	91.33	4.437	112.70
24	4.598	116.79	4.344	110.31	4.052	102.92	3.911	99.33	4.750	120.65
25	4.754	120.75	4.500	114.30	4.208	106.88	4.067	103.30	4.906	124.61

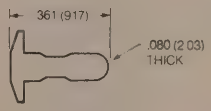
Polarizing Keys

Between contact type,
Factory Part No. 474 11 70 787
Distributor Part No. 50-PK-2

In contact type,
Factory Part No. 456 07 35 003
Distributor Part No. 50-PK-4


.330 (8.38)
.020 (.51)
THICK

Between contact


.361 (9.17)
.080 (2.03)
THICK

In contact

Card Guide

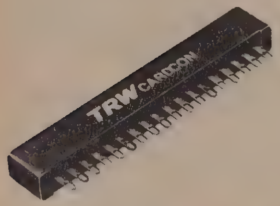
Part No. 474-11-90-300. Order separately.
Part is blue to match Cardcon.

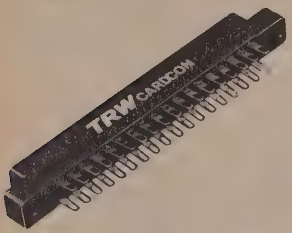
CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

Cardcon* Edge Connectors

.156″ (3.962) Center Spacing For 1/16″ (1.588) Boards

TRW





TRW CARDCON

TRW CARDCON

TRW CARDCON

No. of Cont. Pos.	Less Mounting Ears		.128 Mounting Hole		.142 Mtg. Hole	4-40 Mtg. Hole	Float Mount
	Factory Part No.	Dist. Part No.	Factory Part No.	Dist. Part No.	Factory Part No.	Factory Part No.	Factory Part No.
Solder eyelet, single readout							
6	250 06 50 301	50-6SN-8	250 06 50 300	50-6SN-7	250 06 50 303	250 06 50 304	250 06 50 302
10	250 10 50 301	50-10SN-8	250 10 50 300	50-10SN-7	250 10 50 303	250 10 50 304	250 10 50 302
12	250 12 50 301	50-12SN-8	250 12 50 300	50-12SN-7	250 12 50 303	250 12 50 304	250 12 50 302
15	250 15 50 301	50-15SN-8	250 15 50 300	50-15SN-7	250 15 50 303	250 15 50 304	250 15 50 302
18	250 18 50 301	50-18SN-8	250 18 50 300	50-18SN-7	250 18 50 303	250 18 50 304	250 18 50 302
22	250 22 50 301	50-22SN-8	250 22 50 300	50-22SN-7	250 22 50 303	250 22 50 304	250 22 50 302
24	250 24 50 301	50-24SN-8	250 24 50 300	50-24SN-7	250 24 50 303	250 24 50 304	250 24 50 302
25	250 25 50 301	50-25SN-8	250 25 50 300	50-25SN-7	250 25 50 303	250 25 50 304	250 25 50 302
Solder eyelet, double readout, .200 (5.08) row spacing							
6	251 06 50 171	50-12SN-10	251 06 50 170	50-12SN-9	251 06 50 173	251 06 50 174	251 06 50 172
10	251 10 50 171	50-20SN-10	251 10 50 170	50-20SN-9	251 10 50 173	251 10 50 174	251 10 50 172
12	251 12 50 171	50-24SN-10	251 12 50 170	50-24SN-9	251 12 50 173	251 12 50 174	251 12 50 172
15	251 15 50 171	50-30SN-10	251 15 50 170	50-30SN-9	251 15 50 173	251 15 50 174	251 15 50 172
18	251 18 50 171	50-36SN-10	251 18 50 170	50-36SN-9	251 18 50 173	251 18 50 174	251 18 50 172
22	251 22 50 171	50-44SN-10	251 22 50 170	50-44SN-9	251 22 50 173	251 22 50 174	251 22 50 172
24	251 24 50 171	50-48SN-10	251 24 50 170	50-48SN-9	251 24 50 173	251 24 50 174	251 24 50 172
25	251 25 50 171	50-50SN-10	251 25 50 170	50-50SN-9	251 25 50 173	251 25 50 174	251 25 50 172
Dip solder tails, single readout, .156 (3.96) long							
6	252 06 50 371	50-6SN-6	252 06 50 370	50-6SN-5	252 06 50 110	252 06 50 114	252 06 50 106
10	252 10 50 371	50-10SN-6	252 10 50 370	50-10SN-5	252 10 50 110	252 10 50 114	252 10 50 106
12	252 12 50 371	50-12SN-6	252 12 50 370	50-12SN-5	252 12 50 110	252 12 50 114	252 12 50 106
15	252 15 50 371	50-15SN-6	252 15 50 370	50-15SN-5	252 15 50 110	252 15 50 114	252 15 50 106
18	252 18 50 371	50-18SN-6	252 18 50 370	50-18SN-5	252 18 50 110	252 18 50 114	252 18 50 106
22	252 22 50 371	50-22SN-6	252 22 50 370	50-22SN-5	252 22 50 110	252 22 50 114	252 22 50 106
24	252 24 50 371	50-24SN-6	252 24 50 370	50-24SN-5	252 24 50 110	252 24 50 114	252 24 50 106
25	252 25 50 371	50-25SN-6	252 25 50 370	50-25SN-5	252 25 50 110	252 25 50 114	252 25 50 106
Dip solder tails, double readout, .200 (5.08) row spacing, .156 (3.96) long							
6	252 06 50 101	50-12SN-3	252 06 50 100	50-12SN-1	252 06 50 107	252 06 50 111	252 06 50 103
10	252 10 50 101	50-20SN-3	252 10 50 100	50-20SN-1	252 10 50 107	252 10 50 111	252 10 50 103
12	252 12 50 101	50-24SN-3	252 12 50 100	50-24SN-1	252 12 50 107	252 12 50 111	252 12 50 103
15	252 15 50 101	50-30SN-3	252 15 50 100	50-30SN-1	252 15 50 107	252 15 50 111	252 15 50 103
18	252 18 50 101	50-36SN-3	252 18 50 100	50-36SN-1	252 18 50 107	252 18 50 111	252 18 50 103
22	252 22 50 101	50-44SN-3	252 22 50 100	50-44SN-1	252 22 50 107	252 22 50 111	252 22 50 103
24	252 24 50 101	50-48SN-3	252 24 50 100	50-48SN-1	252 24 50 107	252 24 50 111	252 24 50 103
25	252 25 50 101	50-50SN-3	252 25 50 100	50-50SN-1	252 25 50 107	252 25 50 111	252 25 50 103
Dip solder tails, double readout, .140 (3.56) row spacing, .125 (3.18) long							
6	252 06 50 201	50-12SN-4	252 06 50 200	50-12SN-2	252 06 50 108	252 06 50 112	252 06 50 104
10	252 10 50 201	50-20SN-4	252 10 50 200	50-20SN-2	252 10 50 108	252 10 50 112	252 10 50 104
12	252 12 50 201	50-24SN-4	252 12 50 200	50-24SN-2	252 12 50 108	252 12 50 112	252 12 50 104
15	252 15 50 201	50-30SN-4	252 15 50 200	50-30SN-2	252 15 50 108	252 15 50 112	252 15 50 104
18	252 18 50 201	50-36SN-4	252 18 50 200	50-36SN-2	252 18 50 108	252 18 50 112	252 18 50 104
22	252 22 50 201	50-44SN-4	252 22 50 200	50-44SN-2	252 22 50 108	252 22 50 112	252 22 50 104
24	252 24 50 201	50-48SN-4	252 24 50 200	50-48SN-2	252 24 50 108	252 24 50 112	252 24 50 104
25	252 25 50 201	50-50SN-4	252 25 50 200	50-50SN-2	252 25 50 108	252 25 50 112	252 25 50 104

P.C. tails w/unique board retention feature
.200 (5.08) row spacing .156 (3.96) long
For .140 (3.56) spacing consult factory.

TRW CARDCON

No. of Cont. Pos.	Less Mounting Ears		.128 Mounting Hole	
	Factory Part No.	Dist. Part No.	Factory Part No.	Dist. Part No.
6	252 06 50 122	50 12SN 3R	252 06 50 102	50 12SN 1R
10	252 10 50 122	50 20SN 3R	252 10 50 102	50 20SN 1R
12	252 12 50 122	50 24SN 3R	252 12 50 102	50 24SN 1R
15	252 15 50 122	50 30SN 3R	252 15 50 102	50 30SN 1R
18	252 18 50 122	50 36SN 3R	252 18 50 102	50 36SN 1R
22	252 22 50 122	50 44SN 3R	252 22 50 102	50 44SN 1R
24	252 24 50 122	50 48SN 3R	252 24 50 102	50 48SN 1R
25	252 25 50 122	50 50SN 3R	252 25 50 102	50 50SN 1R

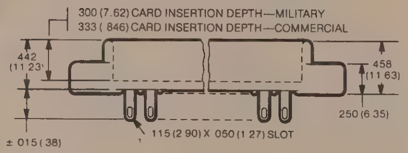
Cinch Commerical And Military Edge Connectors

.156″ (3.962) Center Spacing For 1/16″ (1.588) Boards

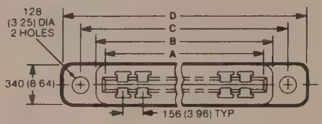
Double and Single Readout

Insulator: Glass fiber filled diallyl phthalate per MIL-M-14 Type SGD-F.
Contact style: Bifurcated bellows.
Contact material:
1) Commercial type: Phosphor bronze.
2) Military type: Beryllium copper.
Contact plating:
1) Commercial type: Stripe plated with gold in contact area and gold on tails with copper underplate. No plating on edges.
2) Military type: gold over copper.
Termination: Solder eyelet terminals with .200″ (5.08 mm) between row spacing on double readout. Dip solder tails with either .140″ (3.56 mm) or .200″ (5.08 mm) between row spacing on double readout.

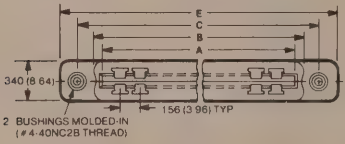
Test voltage: 1800 volts RMS AC at sea level. Rated current: 5 amps.
Polarizing keys: Between contact type Part no. 50-PK-2 or in contact type Part no. 50-PK-1. Order separately.
Card guide: Part no. 50-GP-1. Order separately.
UL recognized


300 (7.62) CARD INSERTION DEPTH—MILITARY
333 (846) CARD INSERTION DEPTH—COMMERCIAL
442 (11 23)
458 (11 63)
250 (6 35)
± 015 (38)
115 (2 90) X 050 (1 27) SLOT

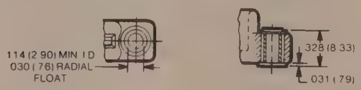
With plain mounting holes


128 (3 25) DIA 2 HOLES
D
C
B
A
340 (8 64)
156 (3 96) TYP

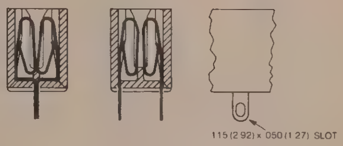
With molded-in bushings (Military)


E
C
B
A
340 (8 64)
2 BUSHINGS MOLDED-IN (#4-40NC2B THREAD)
156 (3 96) TYP

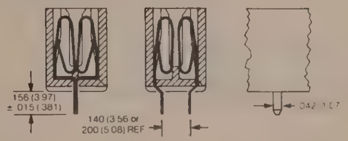
With floating bushings (Military)


114 (2 90) MIN I D
030 (76) RADIAL FLOAT
328 (8 33)
031 (79)

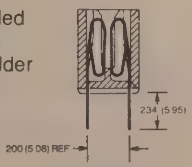
Solder Eyelet


115 (2 92) x 050 (1 27) SLOT

Dip Solder


156 (3 97) ± 015 (381)
140 (3 56 or 200 (5 08) REF
042

Extended Length Dip Solder

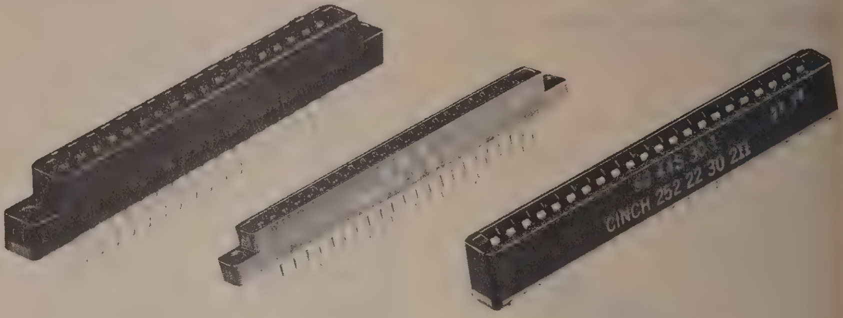

234 (5 95)
200 (5 08) REF

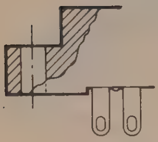
No. of Contact Positions	Dimensions									
	A		B		C		D		E	
	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
6	1.100	27.94	1.239	31.47	1.531	38.89	1.785	45.34	1.937	49.19
10	1.724	43.79	1.864	47.35	2.156	54.76	2.410	61.21	2.562	65.07
12	2.036	51.71	2.177	55.30	2.469	62.71	2.723	69.16	2.875	73.03
15	2.504	63.60	2.645	67.18	2.937	74.60	3.191	81.05	3.343	84.91
18	2.972	75.49	3.114	79.10	3.406	86.51	3.660	92.95	3.812	96.82
22	3.596	91.34	3.739	94.97	4.031	102.39	4.285	108.84	4.437	112.70
25	4.067	103.30	4.208	106.88	4.500	114.30	4.754	120.75	4.906	124.61

Cinch Commerical And Military Edge Connectors

.156″ (3.962) Center Spacing For 1/16″ (1.588) Boards

Commercial Double and Single Readout

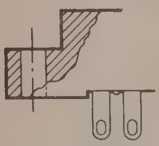




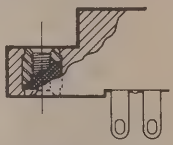
Plain Mounting Hole

Contact Positions	Distributor Part Numbers							
	Single Readout			Double Readout				
	Solder Eyelet	DIP Solder .156″ long	DIP Solder .234″ long	Solder Eyelet	DIP Solder .125″ long		DIP Solder .156″ long	DIP Solder .234″ long
					.140″ Between Rows		.200″ Between Rows	.200″ Between Rows
	Mounting Hole	Mounting Hole	Mounting Hole	Mounting Hole	Mounting Hole	W.O. Mounting Ears	Mounting Hole	Mounting Hole
6	50-6A-20	50-6B-10	50-6S-10	50-12A-30	50-12S-30-2	50-12S-30-1	50-12B-10	50-12S-20
10	50-10A-20	50-10B-10	50-10S-10	50-20A-30	50-20S-30-2	50-20S-30-1	50-20B-10	50-20S-20
12	50-12A-20		50-12S-10	50-24A-30	50-24S-30-2	50-24S-30-1	50-24B-10	50-24S-20
15	50-15A-20	50-15B-10	50-15S-10	50-30A-30	50-30S-30-2	50-30S-30-1	50-30B-10	50-30S-20
18	50-18A-20	50-18B-10	50-18S-10	50-36A-30	50-36S-30-2	50-36S-30-1	50-36B-10	50-36S-20
22	50-22A-20	50-22B-10	50-22S-10	50-44A-30	50-44S-30-2	50-44S-30-1	50-44B-10	50-44S-20
25	50-25A-20	50-25B-10	50-25S-10	50-50A-30	50-50S-30-2	50-50S-30-1	50-50B-10	50-50S-20

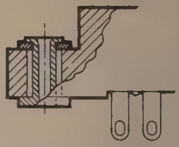
MIL-C-21097 Military Double and Single Readout



Plain Mounting Hole



Molded-in Bushing



Floating Bushing

Military type per MIL-C-21097 with conventional solder terminals

Single Readout

Contact Positions	Plain Mounting Hole		Molded-in Bushing		Floating Bushing	
	Dist. No.	Military No.	Dist. No.	Military No.	Dist. No.	Military No.
6	50-6A-20M-1	M21097/21-001	50-6A-20-MB-1	M21097/21-004	50-6A-20-MFB-1	M21097/21-007
10	50-10A-20M-1	M21097/21-037	50-10A-20-MB-1	M21097/21-040	50-10A-20-MFB-1	M21097/21-043
15	50-15A-20M-1	M21097/21-073	50-15A-20-MB-1	M21097/21-076	50-15A-20-MFB-1	M21097/21-079
18	50-18A-20M-1	M21097/21-109	50-18A-20-MB-1	M21097/21-112	50-18A-20-MFB-1	M21097/21-115
22	50-22A-20M-1	M21097/21-145	50-22A-20-MB-1	M21097/21-148	50-22A-20-MFB-1	M21097/21-151

Double Readout, .200 (5.08 mm) spacing between rows

Contact Positions	Plain Mounting Hole		Molded-in Bushing		Floating Bushing	
	Dist. No.	Military No.	Dist. No.	Military No.	Dist. No.	Military No.
6	50-12A-30M-1	M21097/21-019	50-12A-30-MB-1	M21097/21-022	50-12A-30-MFB-1	M21097/21-025
10	50-20A-30M-1	M21097/21-055	50-20A-30-MB-1	M21097/21-058	50-20A-30-MFB-1	M21097/21-061
15	50-30A-30M-1	M21097/21-091	50-30A-30-MB-1	M21097/21-094	50-30A-30-MFB-1	M21097/21-097
18	50-36A-30M-1	M21097/21-127	50-36A-30-MB-1	M21097/21-130	50-36A-30-MFB-1	M21097/21-133
22	50-44A-30M-1	M21097/21-163	50-44A-30-MB-1	M21097/21-166	50-44A-30-MFB-1	M21097/21-169

Military type per MIL-C-21097 w/dip solder term. Plain mounting hole

Double readout, .200 (5.08 mm) spacing between rows.

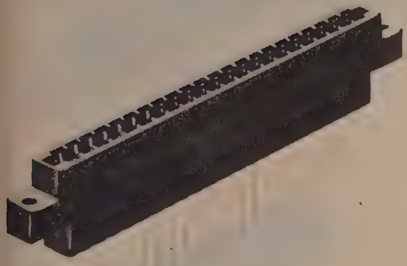
Contact Positions	Distributor No.	Mil. Part No.
6	50-12B-10M-1	M21097/21-028
10	50-20B-10M-1	M21097/21-064
15	50-30B-10M-1	M21097/21-100
18	50-36B-10M-1	M21097/21-136
22	50-44B-10M-1	M21097/21-172

Cinch Wire Wrap Edge Connectors

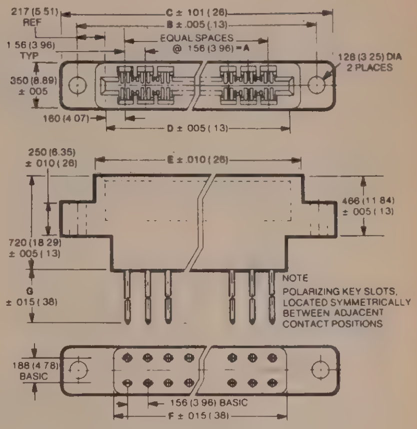
.156″ (3.962) Center Spacing For 1/16″ (1.588) Boards

TRW

.031″ (.787mm) x .062″ (1.57mm) Wire Wrap Tail Double Readout



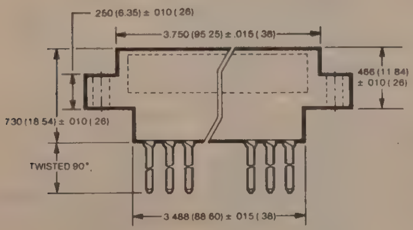
Insulator: General purpose phenolic, black.
Contact style: Bifurcated cantilevered.
Contact material: Copper alloy #688.
Contact plating: gold over copper in contacting area, and gold on remainder of contact. (22 position connectors have an additional plate of gold over nickel on the contacting area.)
Termination: .031″ (.787 mm) x .062″ (1.57 mm) wire wrap tail, available with three tail lengths. .188″ (4.78 mm) between row spacing. 22 contact positon connector also available with terminals twisted 90° below insulator. See 50-44X-10 series below.
Electrical ratings: 990 volts AC RMS at sea level. 3 amps.
Polarizing key: Between contact type. Part no. 50-PK-3. Order separately.
Card guide: Part no. 50-GP-1. Order separately.
UL recognized

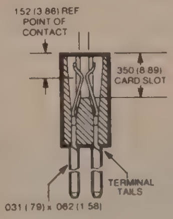

217 (5 51) REF
C ± 101 (26)
B ± .005 (.13)
EQUAL SPACES @ 156 (3 96) = A
1 56 (3 96) TYP
128 (3 25) DIA 2 PLACES
350 (8.89) ± 005
160 (4 07)
D ± 005 (13)
250 (6.35) ± 010 (26)
E ± .010 (26)
466 (11 84) ± 005 (13)
720 (18 29) ± 005 (13)
G ± 015 (38)
NOTE
POLARIZING KEY SLOTS, LOCATED SYMMETRICALLY BETWEEN ADJACENT CONTACT POSITIONS
188 (4 78) BASIC
156 (3 96) BASIC
F ± 015 (38)

Contact Positions	Distributor Part No.	Dimensions													
		A		B		C		D		E		F		G	
		In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
10	50-20E10-1	1.404	35.66	2.158	54.81	2.408	61.16	1.724	43.79	1.878	47.70	1.616	41.05	.550	13.97
10	50-20F10-1	1.404	35.66	2.158	54.81	2.408	61.16	1.724	43.79	1.878	47.70	1.616	41.05	.755	19.18
10	50-20G10-1	1.404	35.66	2.158	54.81	2.408	61.16	1.724	43.79	1.878	47.70	1.616	41.05	1.051	26.70
15	50-30E10-1	2.184	55.47	2.938	74.63	3.188	80.98	2.504	63.60	2.658	67.51	2.396	60.86	.550	13.97
15	50-30F10-1	2.184	55.47	2.938	74.63	3.188	80.98	2.504	63.60	2.658	67.51	2.396	60.86	.755	19.18
15	50-30G10-1	2.184	55.47	2.938	74.63	3.188	80.98	2.504	63.60	2.658	67.51	2.396	60.86	1.051	26.70
18	50-36E10-1	2.652	67.36	3.406	86.51	3.656	92.86	2.972	75.49	3.126	79.40	2.864	72.75	.550	13.97
18	50-36F10-1	2.652	67.36	3.406	86.51	3.656	92.86	2.972	75.49	3.126	79.40	2.864	72.75	.755	19.18
18	50-36G10-1	2.652	67.36	3.406	86.51	3.656	92.86	2.972	75.49	3.126	79.40	2.864	72.75	1.051	26.70
22	50-44E10-1	3.276	83.21	4.030	102.36	4.280	108.71	3.596	91.34	3.750	95.25	3.488	88.60	.550	13.97
22	50-44F10-1	3.276	83.21	4.030	102.36	4.280	108.71	3.596	91.34	3.750	95.25	3.488	88.60	.755	19.18
22	50-44G10-1	3.276	83.21	4.030	102.36	4.280	108.71	3.596	91.34	3.750	95.25	3.488	88.60	1.051	26.70
25	50-50E10-1	3.744	95.10	4.498	114.25	4.748	120.60	4.064	103.23	4.218	107.14	3.956	100.48	.550	13.97
25	50-50F10-1	3.744	95.10	4.498	114.25	4.748	120.60	4.064	103.23	4.218	107.14	3.956	100.48	.755	19.18
25	50-50G10-1	3.744	95.10	4.498	114.25	4.748	120.60	4.064	103.23	4.218	107.14	3.956	100.48	1.051	26.70
30	50-60E10-1	4.524	114.91	5.278	134.06	5.528	140.41	4.844	123.04	4.988	126.70	4.736	120.29	.550	13.97
30	50-60F10-1	4.524	114.91	5.278	134.06	5.528	140.41	4.844	123.04	4.988	126.70	4.736	120.29	.755	19.18
30	50-60G10-1	4.524	114.91	5.278	134.06	5.528	140.41	4.844	123.04	4.988	126.70	4.736	120.29	1.051	26.70

With tail twisted below insulator
50-44X-10 Series
.00001″ copper overall and .000030 gold over .00005 nickel in contact area .00001 gold on balance of contact

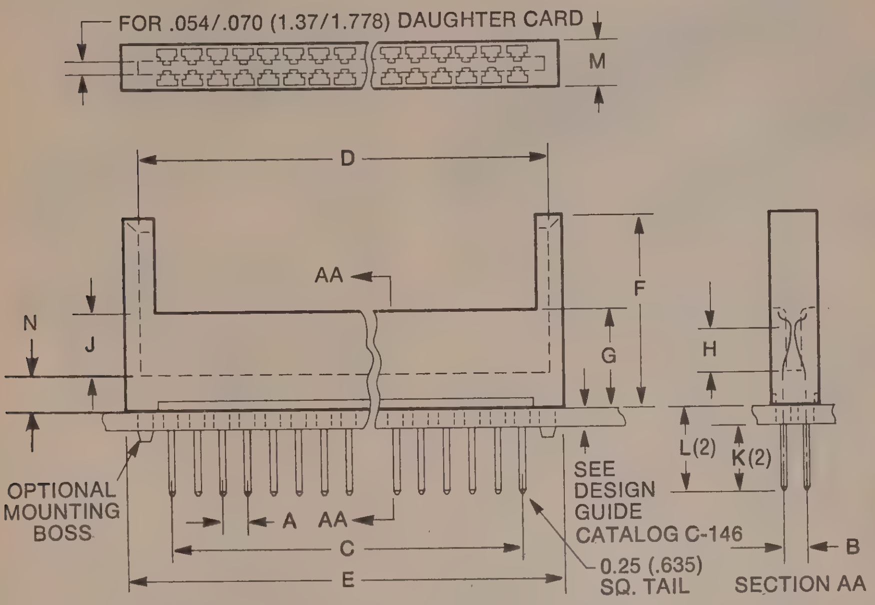
Type	Terminal Length		Dist. Part No.
	In.	MM	
E	0.550	13.97	50-44E-10
F	0.755	19.18	50-44F-10
G	1.051	26.70	50-44G-10


250 (6.35) ± 010 (26)
3.750 (95 25) ± .015 (38)
466 (11 84) ± 010 (26)
730 (18 54) ± 010 (26)
TWISTED 90°.
3 488 (88 60) ± 015 (38)


152 (3 86) REF POINT OF CONTACT
350 (8 89) CARD SLOT
TERMINAL TAILS
031 (79) x 062 (1 58)

Cinch Back Panel Connectors-Press Fit

TRW



With Card Guide

Without Card Guide

P.C. Back Plane Connector Dimensions

Connector Type	Grid Size A Basic In.	Grid Size A Basic MM	Grid Size B Basic In.	Grid Size B Basic MM	C	D ±.005" (.127mm) In.	D MM	E ±.010" (.254mm) In.	E MM	F ±.010" (.254mm) In.	F MM	G ±.010" (.254mm) In.	G MM
SOLID													
PA	.100	2.540	.100	2.540	A Multiplied by (Number of Positions - 1)	C +.200	C +5.080	C +.420	C +10.668	.850/1.75	21.590/44.45	.560	14.224
PB	.100	2.540	.200	5.080		C +.200	C +5.080	C +.420	C +10.668	.850/1.75	21.590/44.45	.560	14.224
PC(1)	.125	3.175	.125	3.175		C +.230	C +5.842	C +.470	C +11.938	.850/1.75	21.590/44.45	.560	14.224
PF	.125	3.175	.125	3.175		C +.240	C +6.096	C +.470	C +11.938	.850/1.75	21.590/44.45	.560	14.224
PG	.125	3.175	.250	6.350		C +.250	C +6.096	C +.470	C +11.938	.850/1.75	21.590/44.45	.560	14.224
PJ	.156	3.963	.200	5.080		C +.312	C +7.924	C +.432	C +13.512	.850/1.75	21.590/44.45	.560	14.224

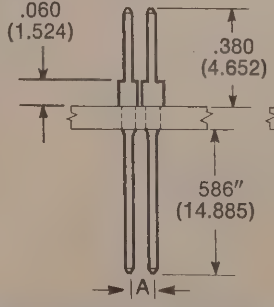
Connector Type	H ±.025" (.381mm) In.	H MM	J ±.005" (.127mm) In.	J MM	K ±.020" (.508mm) In.	K MM	L ±.005" (.127mm) In.	L MM	M ±.010" (.254mm) In.	M MM	N ±.005" (.127mm) In.	N MM
SOLID												
PA	.150/.215	5.461	.365/.430	9.271/10.922	.586	14.859	.711	18.059	.380	9.652	.195/.130	4.95/3.30
PB	.150/.215	5.461	.365/.430	9.271/10.922	.586	14.859	.711	18.059	.380	9.652	.195/.130	4.95/3.30
PF	.150/.215	5.461	.365/.430	9.271/10.922	.586	14.859	.711	18.059	.380	9.652	.195/.130	4.95/3.30
PG	.150/.215	5.461	.365/.430	9.271/10.922	.586	14.859	.711	18.059	.380	9.652	.195/.130	4.95/3.30
PH	.150/.215	5.461	.365/.430	9.271/10.922	.586	14.859	.711	18.059	.380	9.652	.195/.130	4.95/3.30
PJ	.150/.215	5.461	.365/.430	9.271/10.922	.586	14.859	.711	18.059	.380	9.652	.195/.130	4.95/3.30

Insulator — Glass Filled Polyester (94 V-0)
Contact — Phosphor Bronze Comp A (C51000)

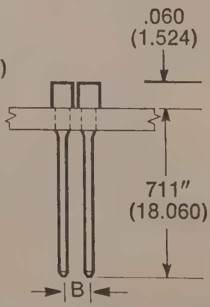
(1) For .047 (1.194) daughter board

(2) Also available in zero, one, and two wrap lengths. Three wrap length shown

Feed Thru Terminals

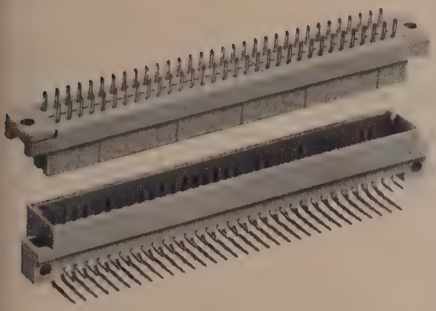


Tie Point Terminals



A In.	A MM	B In.	B MM
.100	2.540	.100	2.540
		.125	3.175
		.150	3.810
		.156	3.963

DIN High Density Connectors



Style B:

Available in standard configuration of 64 contacts. High density spacing is .100". Contacts are right angle or straight and designed for wire wrap, crimp, or solder termination.

Style C:

The DIN Connector is a high density connector available with straight or 90° contacts in standard configurations of 64 and 96 pins. DIN was designed to fit your special requirements. Contact spacing is .100".

Style D

Available in 16, 32, and 48 contact sizes. 2-pin terminations for wire wrap, solder hook or snap-on connectors. Good for industrial applications.

Style E

3-pin termination style in 16, 32, and 48 contact sizes. Snap-on, solder hook or wire wrap terminations.

Style H

Designed for power supply applications. This heavy current (20A) connector with 11 poles, mounts directly to PC boards. Meets fixing and mounting requirements for DIN 41612 form C.

Style R:

Inverse DIN is available in straight or 90° contacts in standard configurations of 64 and 96 pins with complaint pin headers.

DIN Connectors Style "B"

No. of Contacts	Dist. Part No.			
	R.A.P.C. Mount	Wire Wrap	Dip Solder .157" Long	Solder Tabs
32 Plug	42-1-32-2			
32 Socket			42-2-32-2	
64 Plug	42-1-64-2			
64 Socket		42-2-64-3	42-2-64-5	42-2-64-6

DIN Connectors Style "C"

No. of Contacts	Dist. Part No.					
	R.A.P.C.* Mount	Wire Wrap	Dip Solder .100" Long	Dip Solder .157" Long	Solder Tabs	I.D.C.
32 Plug	43-1-32-2					
32 Socket						
48 Plug	43-1-48-2					
48 Socket				43-2-48-5		
64 Plug	43-1-64-2					
64 Socket		43-2-64-3	43-2-64-4	43-2-64-5	43-2-64-6	43-2-64-7
96 Plug	43-1-96-2					
96 Socket		43-2-96-3	43-2-96-4	43-2-96-5		

DIN Connectors Style "D"

No. of Contacts	Dist. Part No.		
	R.A.P.C. Mount*	Wire Wrap	Dip Solder .157" Long
32 Plug	44-1-32-2		
32 Socket		44-2-32-3	44-2-32-5

DIN Connectors Style "E"

No. of Contacts	Dist. Part No.	
	R.A.C.P. Mount*	Dip Solder .157" Long
48 Plug	45-1-48-2	
48 Socket	45-2-48-2	45-2-48-5

DIN Connectors Style "H"

No. of Contacts	Dist. Part No.	
	R.A.P.C. Mount*	Dip Solder .100" Long
11 Plug	46-1-11-2	
11 Socket		46-2-11-4

DIN Connectors Style "R"

No. of Contacts	Dist. Part No.			
	R.A.P.C.* Mount	Wire Wrap	Dip Solder .157" Long	Compliant Wire Wrap
64 Plug		47-1-64-3	47-1-64-5	
64 Socket	47-2-64-2			
96 Plug		47-1-96-3	47-1-96-5	47-1-96-5
96 Socket	47-2-96-2			

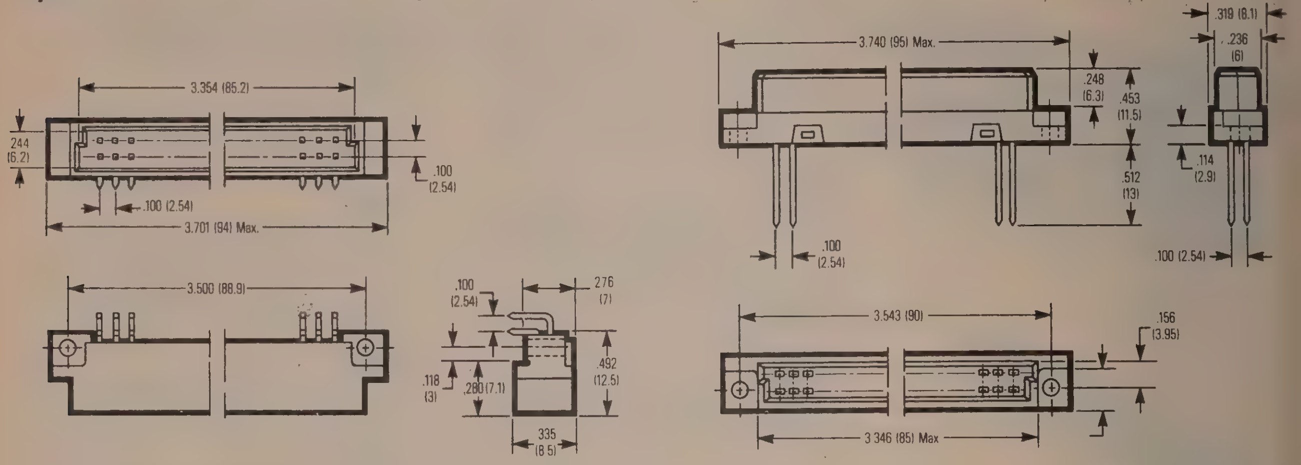
*Right Angle Printed Circuit

CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

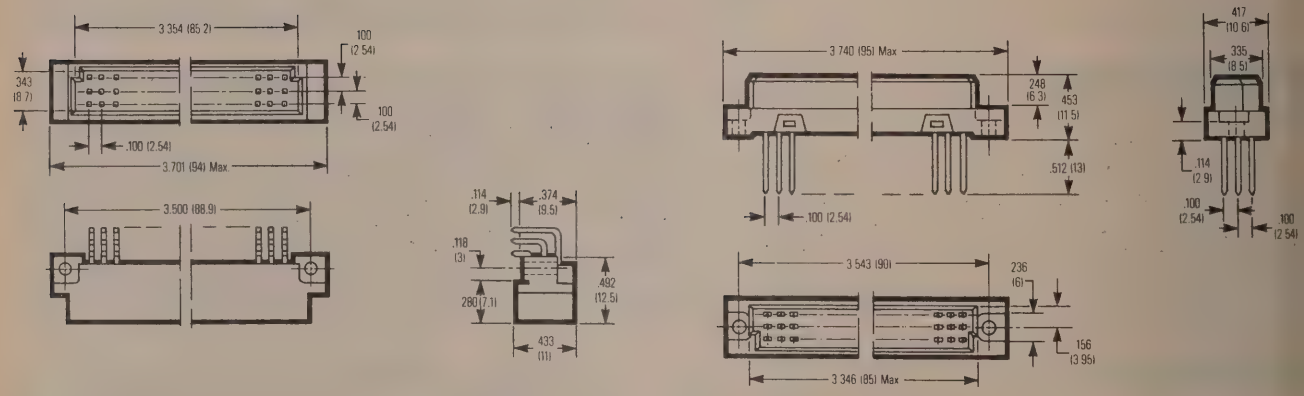
DIN High Density Connectors

TRW

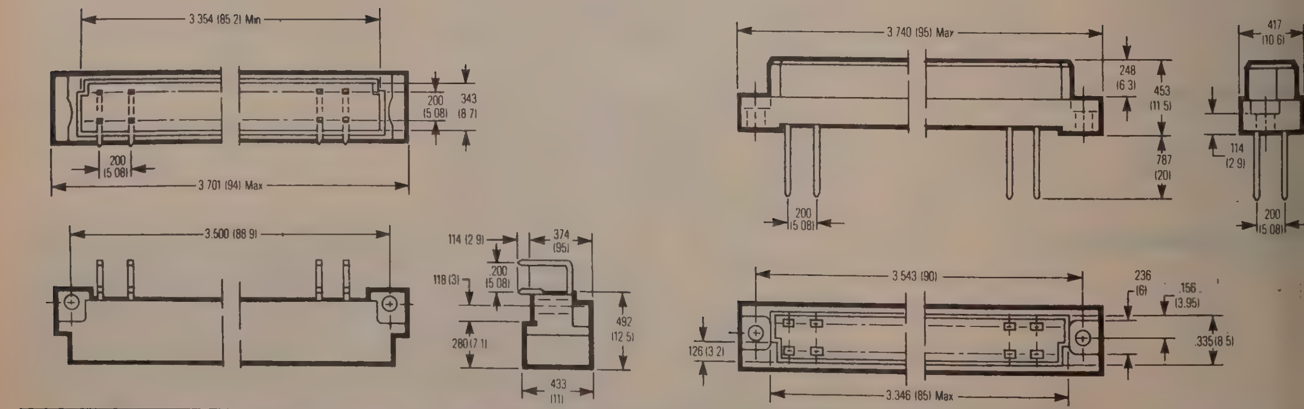
Style B


3.354 (85.2)
.244 (6.2)
.100 (2.54)
.100 (2.54)
3.701 (94) Max.
3.500 (88.9)
.100 (2.54)
.276 (7)
.118 (3)
.280 (7.1)
.492 (12.5)
.335 (8.5)
3.740 (95) Max.
.248 (6.3)
.453 (11.5)
.512 (13)
.100 (2.54)
.319 (8.1)
.236 (6)
.114 (2.9)
.100 (2.54)
3.543 (90)
.156 (3.95)
3.346 (85) Max

Style C


3.354 (85.2)
.100 (2.54)
.343 (8.7)
.100 (2.54)
.100 (2.54)
3.701 (94) Max.
3.500 (88.9)
.114 (2.9)
.374 (9.5)
.118 (3)
.280 (7.1)
.492 (12.5)
.433 (11)
3.740 (95) Max
.248 (6.3)
.453 (11.5)
.512 (13)
.100 (2.54)
.417 (10.6)
.335 (8.5)
.114 (2.9)
.100 (2.54)
.100 (2.54)
3.543 (90)
.236 (6)
.156 (3.95)
3.346 (85) Max

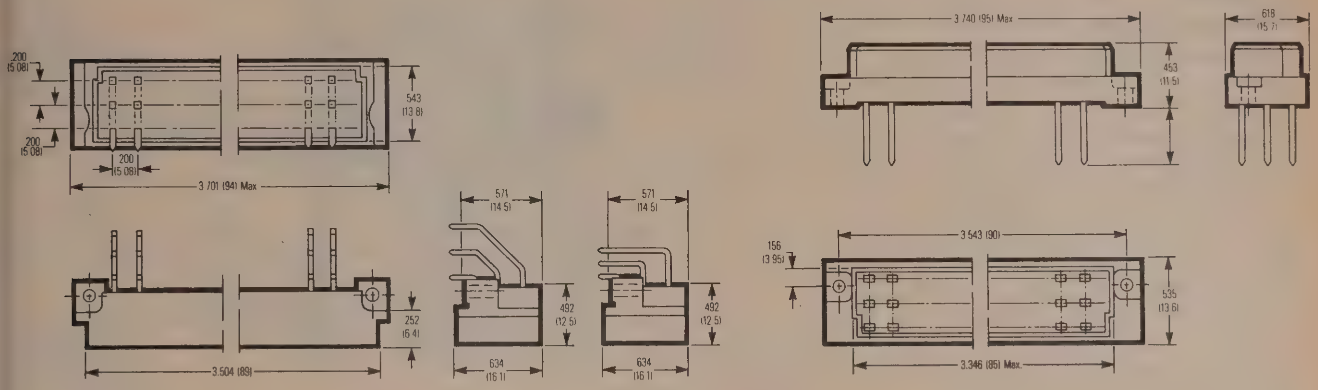
Style D


3.354 (85.2) Min
.200 (5.08)
.343 (8.7)
.200 (5.08)
3.701 (94) Max
3.500 (88.9)
.114 (2.9)
.374 (9.5)
.118 (3)
.200 (5.08)
.280 (7.1)
.492 (12.5)
.433 (11)
3.740 (95) Max
.248 (6.3)
.453 (11.5)
.787 (20)
.200 (5.08)
.417 (10.6)
.114 (2.9)
.200 (5.08)
3.543 (90)
.236 (6)
.156 (3.95)
.126 (3.2)
.335 (8.5)
3.346 (85) Max

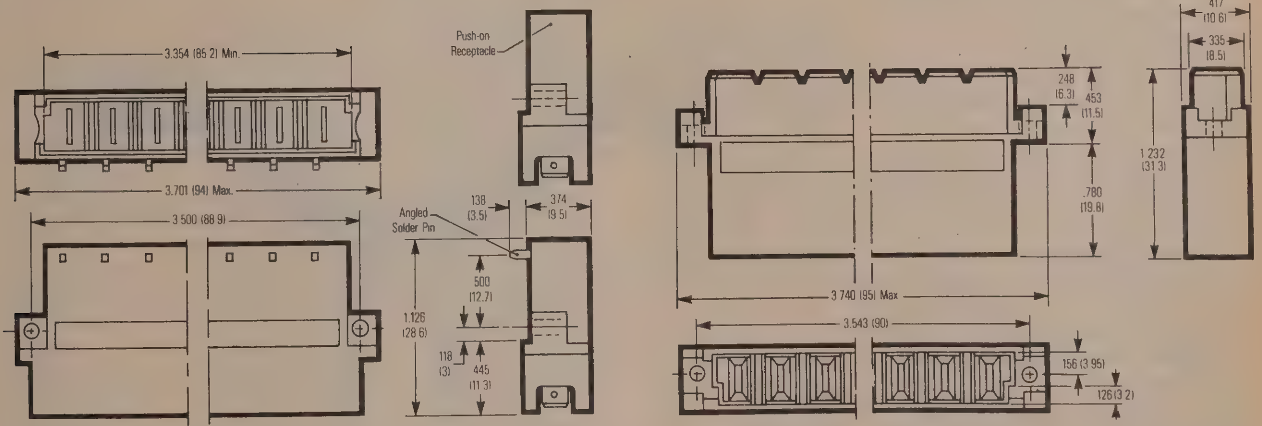
Cinch Superfast Flat Cable Connector System

TRW

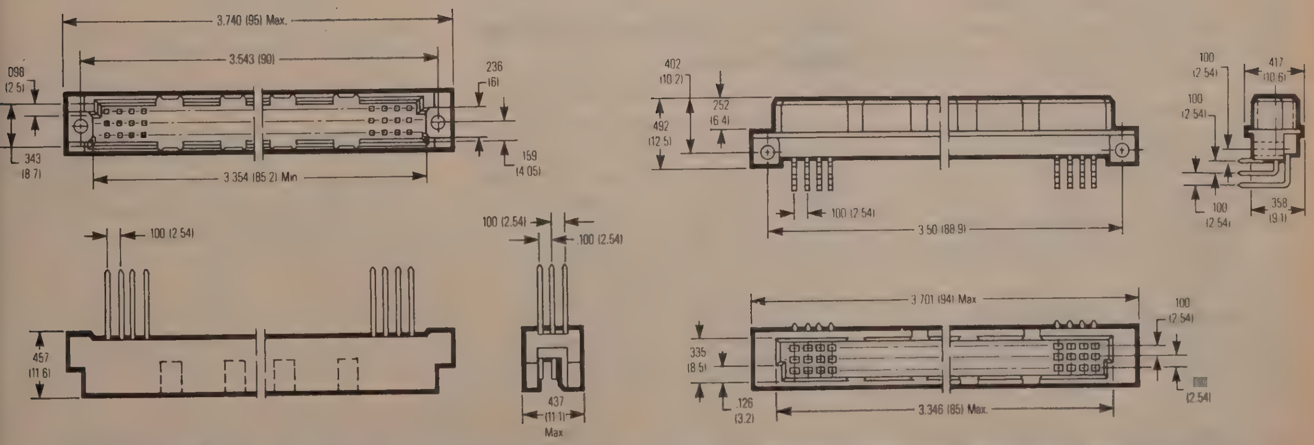
Style E


.200 (5.08)
.200 (5.08)
.200 (5.08)
.543 (13.8)
3.701 (94) Max
.252 (6.4)
3.504 (89)
.571 (14.5)
.492 (12.5)
.634 (16.1)
.571 (14.5)
.492 (12.5)
.634 (16.1)
3.740 (95) Max
.453 (11.5)
.618 (15.7)
.156 (3.95)
3.543 (90)
.535 (13.6)
3.346 (85) Max.

Style H


3.354 (85.2) Min.
3.701 (94) Max.
3.500 (88.9)
Push-on Receptacle
Angled Solder Pin
.138 (3.5)
.374 (9.5)
.500 (12.7)
1.126 (28.6)
.118 (3)
.445 (11.3)
.248 (6.3)
.453 (11.5)
.780 (19.8)
3.740 (95) Max
3.543 (90)
.156 (3.95)
.126 (3.2)
.417 (10.6)
.335 (8.5)
1.232 (31.3)

Style R


3.740 (95) Max.
3.543 (90)
.098 (2.5)
.236 (6)
.343 (8.7)
.159 (4.05)
3.354 (85.2) Min
.100 (2.54)
.457 (11.6)
.100 (2.54)
.100 (2.54)
.437 (11.1) Max
.402 (10.2)
.252 (6.4)
.492 (12.5)
.100 (2.54)
3.50 (88.9)
.100 (2.54)
.417 (10.6)
.100 (2.54)
.100 (2.54)
.358 (9.1)
3.701 (94) Max
.100 (2.54)
.335 (8.5)
.126 (3.2)
3.346 (85) Max.
(2.54)

CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

Cinch Superfast* Flat Cable Connector System

The TRW Cinch Superfast Flat Cable Connector System

Here is the flat cable mass termination interconnect system specifically designed to combine low cost with compact size and reliability. It features the exclusive TRW Cinch one-step insulation displacement termination system, (Fig. A) which accepts 28 AWG stranded or 30 AWG solid ribbon cable with .050 center spacing. Basic to the system are the nine standard termination sizes of 10, 14, 16, 20, 26, 34, 40, 50, and 60 contacts.

Headers, available in nine sizes, mechanically and electrically interconnect the sockets to printed circuit boards. Pin headers are available in straight or right angle configurations, three or four wall versions, with or without ejector latches, and in a low profile version.

Socket Connectors with very compact .100″ x .100″ grids, permit a narrow board spacing of only .250″ between connectors. Wire strain is controlled by a unique, one-piece strain relief design. An exceptional feature is contact probability, which permits contact testing without disturbing connector function. The cover/strain relief is pre-assembled as an intrical part of the connector assembly. As shown here, (Fig. B) the cover/strain relief is placed in position with one simple, snap-action operation.

Edge Connectors in this system are available in eight sizes. They also are available with or without mounting ears. A unique cover design provides a preload on the contacts which prevents relaxation.

DIP Plugs for this system come in seven sizes. They can be permanently soldered to the PC board, or used to plug into standard sockets.

PCB Connectors are available in nine sizes, which provide a wide range of design flexibility in flat cable applications.

Flat Cable is available in 100 foot spools of 28 AWG stranded or 30 AWG solid wire.

D-Subminiature Connectors are available in four sizes with conductive tin-plated or yellow chromate metal body shells.

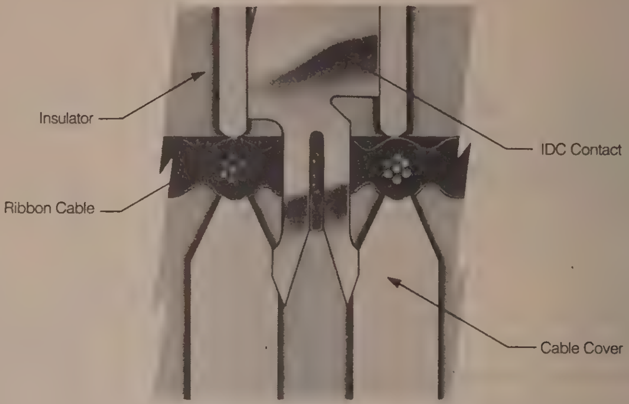
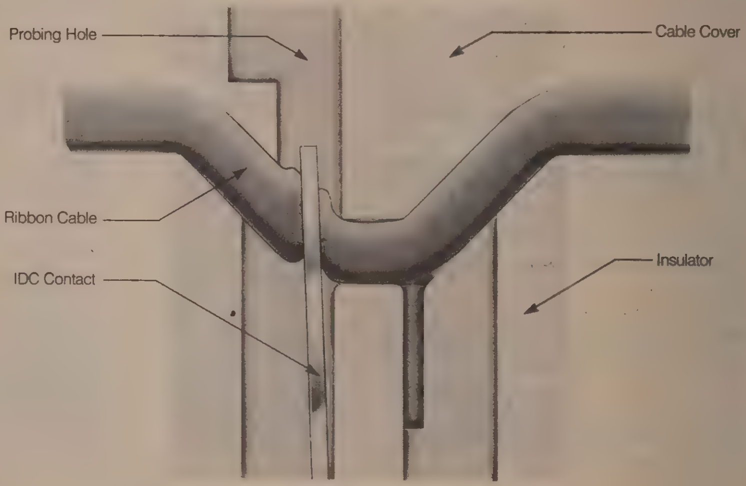


Fig. A—TRW Cinch Insulation Displacement Contact (IDC) system reduces assembly time, increases reliability. Unique "U" shaped design of IDC contact establishes stable interface between contact and cable.



TRW Cinch Insulation Displacement Contact System

The TRW Cinch IDC System eliminates the necessity of individually stripping, positioning, and terminating wires. The flat cable used in this system provides predictable transmission characteristics and greatly reduces the chances of wiring errors. The compactness of both cable and connectors means greater weight and space savings.

Because a long-term and stable interface is needed between contact and cable, TRW Cinch has developed a unique "U" shaped design for the contact. In conjunction with the cover, this provides continual pressure on the cable and prevents relaxation at the interface points. The Superfast Connector System also has a probing hole so that contacts can be tested without interfering with connector function.

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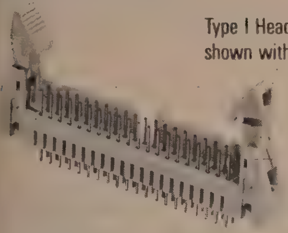
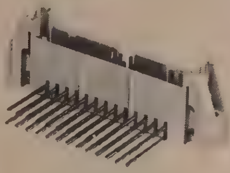
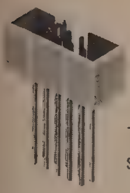
* Trademark TRW Inc.

Cinch Superfast Flat Cable Connector System

Header Assembly


Type I Header, shown with Latches


Type II Header, shown with Right Angle tails


Type III Header—Low Profile, shown with wire-wrap tails

- Intermate with other competitive systems
- Wide variety of optional configurations, wire wrap and solder tail, straight and right angle
- 9 sizes: 10, 14, 16, 20, 26, 34, 40, 50 and 60
- Controlled press fit between pins and insulator
- One-piece snap-in ejector latch (short or long) provides positive overbite interface to socket
- Positive and audible mating

Performance Data

Electrical

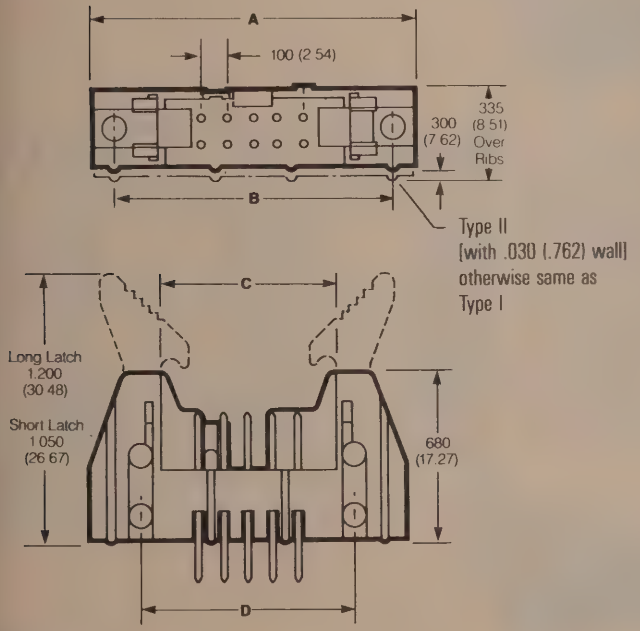
- Current rating: 1 amp per contact
- Withstanding voltage: 500 VRMS (at sea level)
- Insulation resistance: >1 x 10^9 OHMS at 500 VDC

Environmental

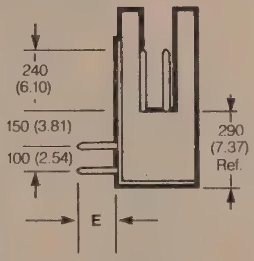
- Temperature rating: −55°C to +105°C

Mechanical

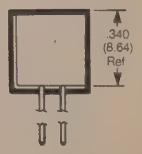
- Durability: 500 mating cycles
- Color: standard grey
- Plating: Gold over nickel.
- Contact material: phosphor bronze
- Insulation material: glass filled polyester, UL-94V-O rated


A
100 (2 54)
335 (8 51) Over Ribs
300 (7 62)
B
Type II [with .030 (.762) wall] otherwise same as Type I
C
Long Latch 1.200 (30 48)
Short Latch 1 050 (26 67)
680 (17.27)
D

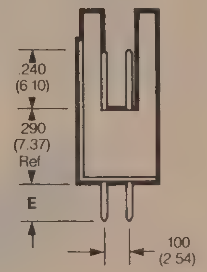
Type II Right Angle


240 (6.10)
150 (3.81)
100 (2.54)
290 (7.37) Ref.
E

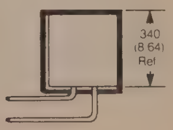
Type III Low Profile Right Angle



Type II


.240 (6 10)
290 (7.37) Ref
E
100 (2 54)

Type III Low Profile



Dimensions

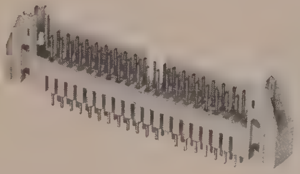
Number of Contacts	A		B		C		D		E
	In.	MM	In.	MM	In.	MM	In.	MM	
10	1 260	32.00	1 100	27.94	.700	17.78	.860	21.84	Wire Wrap .610 ± .015 (15.49 ± .381) Solder .155 ± .010 (3.94 ± .254) .092 ± .010 (2.34 ± .254)
14	1.460	37.08	1.300	33.02	.900	22.86	1.060	26.92	
16	1 560	39 62	1.400	35.56	1.000	25.40	1.160	29.46	
20	1 760	44.70	1.600	40.64	1.200	30.48	1.360	34.54	
26	2.060	52 32	1.900	48.26	1.500	38.10	1.660	42.16	
34	2 460	62 48	2.300	58.42	1.900	48.26	2.060	52.32	
40	2 760	70 10	2 600	66.04	2.200	55.88	2.360	59.94	
50	3.260	82 80	3 100	78.74	2.700	68.58	2.860	72.64	
60	3.760	95 50	3 600	91.44	3.200	81.28	3.360	84.34	

CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

Cinch Superfast Flat Cable Connector System

Male Headers—Type I—Three Sided

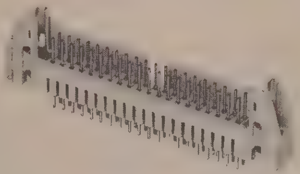
Straight P.C. Tails
.092″ (2.34 mm) Tail Length
for .062″ (1.575 mm) PCB



Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
10	295-51-10-304	H10-304-5	295-51-10-204	H10-204-5	295-51-10-104	H10-104-5
14	295-51-14-304	H14-304-5	295-51-14-204	H14-204-5	295-51-14-104	H14-104-5
16	295-51-16-304	H16-304-5	295-51-16-204	H16-204-5	295-51-16-104	H16-104-5
20	295-51-20-304	H20-304-5	295-51-20-204	H20-204-5	295-51-20-104	H20-104-5
26	295-51-26-304	H26-304-5	295-51-26-204	H26-204-5	295-51-26-104	H26-104-5
34	295-51-34-304	H34-304-5	295-51-34-204	H34-204-5	295-51-34-104	H34-104-5
40	295-51-40-304	H40-304-5	295-51-40-204	H40-204-5	295-51-40-104	H40-104-5
50	295-51-50-304	H50-304-5	295-51-50-204	H50-204-5	295-51-50-104	H50-104-5
60	295-51-60-304	H60-304-5	295-51-60-204	H60-204-5	295-51-60-104	H60-104-5

*Ejector latches may be purchased separately. Two (2) required per header connector.

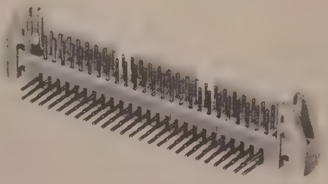
Straight P.C. Tails
.155″ (3.94 mm) Tail Length
for .125″ (3.175 mm) PCB



Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
10	295-51-10-305	H10-305-5	295-51-10-205	H10-205-5	295-51-10-105	H10-105-5
14	295-51-14-305	H14-305-5	295-51-14-205	H14-205-5	295-51-14-105	H14-105-5
16	295-51-16-305	H16-305-5	295-51-16-205	H16-205-5	295-51-16-105	H16-105-5
20	295-51-20-305	H20-305-5	295-51-20-205	H20-205-5	295-51-20-105	H20-105-5
26	295-51-26-305	H26-305-5	295-51-26-205	H26-205-5	295-51-26-105	H26-105-5
34	295-51-34-305	H34-305-5	295-51-34-205	H34-205-5	295-51-34-105	H34-105-5
40	295-51-40-305	H40-305-5	295-51-40-205	H40-205-5	295-51-40-105	H40-105-5
50	295-51-50-305	H50-305-5	295-51-50-205	H50-205-5	295-51-50-105	H50-105-5
60	295-51-60-305	H60-305-5	295-51-60-205	H60-205-5	295-51-60-105	H60-105-5

*Ejector latches may be purchased separately. Two (2) required per header connector.

Right Angle P.C. Tails
.092″ (2.34 mm) Tail Length
for .062″ (1.575 mm) PCB



Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
10	295-51-10-301	H10-301-5	295-51-10-201	H10-201-5	295-51-10-101	H10-101-5
14	295-51-14-301	H14-301-5	295-51-14-201	H14-201-5	295-51-14-101	H14-101-5
16	295-51-16-301	H16-301-5	295-51-16-201	H16-201-5	295-51-16-101	H16-101-5
20	295-51-20-301	H20-301-5	295-51-20-201	H20-201-5	295-51-20-101	H20-101-5
26	295-51-26-301	H26-301-5	295-51-26-201	H26-201-5	295-51-26-101	H26-101-5
34	295-51-34-301	H34-301-5	295-51-34-201	H34-201-5	295-51-34-101	H34-101-5
40	295-51-40-301	H40-301-5	295-51-40-201	H40-201-5	295-51-40-101	H40-101-5
50	295-51-50-301	H50-301-5	295-51-50-201	H50-201-5	295-51-50-101	H50-101-5
60	295-51-60-301	H60-301-5	295-51-60-201	H60-201-5	295-51-60-101	H60-101-5

*Ejector latches may be purchased separately. Two (2) required per header connector.

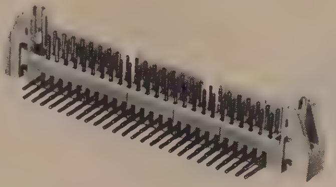
CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

Cinch Superfast Flat Cable Connector System

TRW

Male Headers—Type I—Three Sided (cont.)

Right Angle P.C. Tails
.155″ (3.94 mm) Tail Length
for .125″ (3.175 mm) PCB



Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
10	295-51-10-302	H10-302-5	295-51-10-202	H10-202-5	295-51-10-102	H10-102-5
14	295-51-14-302	H14-302-5	295-51-14-202	H14-202-5	295-51-14-102	H14-102-5
16	295-51-16-302	H16-302-5	295-51-16-202	H16-202-5	295-51-16-102	H16-102-5
20	295-51-20-302	H20-302-5	295-51-20-202	H20-202-5	295-51-20-102	H20-102-5
26	295-51-26-302	H26-302-5	295-51-26-202	H26-202-5	295-51-26-102	H26-102-5
34	295-51-34-302	H34-302-5	295-51-34-202	H34-202-5	295-51-34-102	H34-102-5
40	295-51-40-302	H40-302-5	295-51-40-202	H40-202-5	295-51-40-102	H40-102-5
50	295-51-50-302	H50-302-5	295-51-50-202	H50-202-5	295-51-50-102	H50-102-5
60	295-51-60-302	H60-302-5	295-51-60-202	H60-202-5	295-51-60-102	H60-102-5

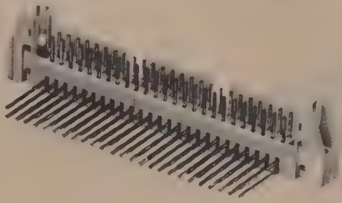
*Ejector latches may be purchased separately. Two (2) required per header connector

**Straight with .025″ (.635 mm)
Square x .610″ (15.49 mm) Long
Wire Wrap Tails**

Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
10	295-51-10-306	H10-306-5	295-51-10-206	H10-206-5	295-51 10-106	H10-106-5
14	295-51-14-306	H14-306-5	295-51-14-206	H14-206-5	295-51-14-106	H14-106-5
16	295-51-16-306	H16-306-5	295-51-16-206	H16-206-5	295-51-16-106	H16-106-5
20	295-51-20-306	H20-306-5	295-51-20-206	H20-206-5	295-51-20-106	H20-106-5
26	295-51-26-306	H26-306-5	295-51-26-206	H26 206-5	295-51-26-106	H26-106-5
34	295-51-34-306	H34-306-5	295-51-34-206	H34-206-5	295-51-34-106	H34-106-5
40	295-51-40-306	H40-306-5	295-51-40-206	H40-206-5	295-51-40-106	H40-106-5
50	295-51-50-306	H50-306-5	295-51-50-206	H50-206-5	295-51-50-106	H50-106-5
60	295-51-60-306	H60-306-5	295-51-60-206	H60-206-5	295-51-60-106	H60-106-5

*Ejector latches may be purchased separately. Two (2) required per header connector.

**Right Angle with .025″ (.635 mm)
Square x .610″ (15.49 mm) Long
Wire Wrap Tails**



Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
10	295-51-10-303	H10-303-5	295-51-10-203	H10-203-5	295-51-10-103	H10-103-5
14	295-51-14-303	H14-303-5	295-51-14-203	H14-203-5	295-51-14-103	H14-103-5
16	295-51-16-303	H16-303-5	295-51-16-203	H16-203-5	295-51-16-103	H16-103-5
20	295-51-20-303	H20-303-5	295-51-20-203	H20-203-5	295-51-20-103	H20-103-5
26	295-51-26-303	H26-303-5	295-51-26-203	H26-203-5	295-51-26-103	H26-103-5
34	295-51-34-303	H34-303-5	295-51-34-203	H34-203-5	295-51-34-103	H34-103-5
40	295-51-40-303	H40-303-5	295-51-40-203	H40-203-5	295-51-40-103	H40-103-5
50	295-51-50-303	H50-303-5	295-51-50-203	H50-203-5	295-51-50-103	H50-103-5
60	295-51-60-303	H60-303-5	295-51-60-203	H60-203-5	295-51-60-103	H60-103-5

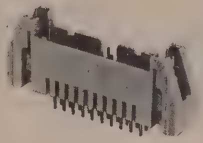
*Ejector latches may be purchased separately Two (2) required per header connector.

Cinch Superfast Flat Cable Connector System

TRW

Male Headers—Type II—Four Sided

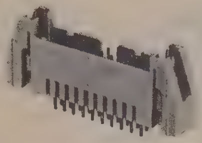
Straight P.C. Tails
.092″ (2.34 mm) Tail Length
for .062″ (1.575 mm) PCB



Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
10	295-51-10-604	H10-604-5	295-51-10-504	H10-504-5	295-51-10-404	H10-404-5
14	295-51-14-604	H14-604-5	295-51-14-504	H14-504-5	295-51-14-404	H14-404-5
16	295-51-16-604	H16-604-5	295-51-16-504	H16-504-5	295-51-16-404	H16-404-5
20	295-51-20-604	H20-604-5	295-51-20-504	H20-504-5	295-51-20-404	H20-404-5
26	295-51-26-604	H26-604-5	295-51-26-504	H26-504-5	295-51-26-404	H26-404-5
34	295-51-34-604	H34-604-5	295-51-34-504	H34-504-5	295-51-34-404	H34-404-5
40	295-51-40-604	H40-604-5	295-51-40-504	H40-504-5	295-51-40-404	H40-404-5
50	295-51-50-604	H50-604-5	295-51-50-504	H50-504-5	295-51-50-404	H50-404-5
60	295-51-60-604	H60-604-5	295-51-60-504	H60-504-5	295-51-60-404	H60-404-5

*Ejector latches may be purchased separately. Two (2) required per header connector.

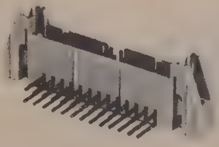
Straight P.C. Tails
.155″ (3.94 mm) Tail Length
for .125″ (3.175 mm) PCB



Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
10	295-51-10-605	H10-605-5	295-51-10-505	H10-505-5	295-51-10-405	H10-405-5
14	295-51-14-605	H14-605 5	295-51-14-505	H14-505-5	295-51-14-405	H14-405-5
16	295-51-16-605	H16-605-5	295-51-16-505	H16-505-5	295-51-16-405	H16-405-5
20	295-51-20-605	H20-605-5	295-51-20-505	H20-505-5	295-51-20-405	H20-405-5
26	295-51-26-605	H26-605-5	295-51-26-505	H26-505-5	295-51-26-405	H26-405-5
34	295-51-34-605	H34-605-5	295-51-34-505	H34-505-5	295-51-34-405	H34-405-5
40	295-51-40-605	H40-605-5	295-51-40-505	H40-505-5	295-51-40-405	H40-405-5
50	295-51-50-605	H50-605-5	295-51-50-505	H50-505-5	295-51-50-405	H50-405-5
60	295-51-60-605	H60-605-5	295-51-60-505	H60-505-5	295-51-60-405	H60-405-5

*Ejector latches may be purchased separately. Two (2) required per header connector.

Right Angle P.C. Tails
.092″ (2.34 mm) Tail Length
for .062″ (1.575 mm) PCB



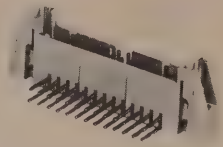
Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
10	295-51-10-601	H10-601-5	295-51-10-501	H10-501-5	295-51-10-401	H10-401-5
14	295-51-14-601	H14-601-5	295-51-14-501	H14-501-5	295-51-14-401	H14-401-5
16	295-51-16-601	H16-601-5	295-51-16-501	H16-501-5	295-51-16-401	H16-401-5
20	295-51-20-601	H20-601-5	295-51-20-501	H20-501-5	295-51-20-401	H20-401-5
26	295-51-26-601	H26-601-5	295-51-26-501	H26-501-5	295-51-26-401	H26-401-5
34	295-51-34-601	H34-601-5	295-51-34-501	H34-501-5	295-51-34-401	H34-401-5
40	295-51-40-601	H40-601-5	295-51-40-501	H40-501-5	295-51-40-401	H40-401-5
50	295-51-50-601	H50-601-5	295-51-50-501	H50-501-5	295-51-50-401	H50-401-5
60	295-51-60-601	H60-601-5	295-51-60-501	H60 501-5	295-51-60-401	H60-401-5

*Ejector latches may be purchased separately. Two (2) required per header connector

Cinch Superfast Flat Cable Connector System

Male Headers—Type II—Four Sided (cont.)

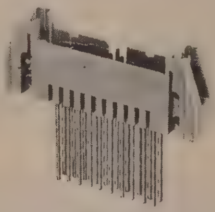
Right Angle P.C. Tails
.155″ (3.94 mm) Tail Length
for .125″ (3.175 mm) PCB



Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
10	295-51-10-602	H10-602-5	295-51-10-502	H10-502-5	295-51-10-402	H10-402-5
14	295-51-14-602	H14-602-5	295-51-14-502	H14-502-5	295-51-14-402	H14 402-5
16	295-51-16-602	H16-602-5	295-51-16-502	H16-502-5	295-51-16 402	H16 402-5
20	295-51-20-602	H20-602-5	295 51-20-502	H20-502-5	295-51-20-402	H20-402-5
26	295-51-26-602	H26-602-5	295-51-26-502	H26-502-5	295-51-26-402	H26-402-5
34	295-51-34-602	H34-602-5	295-51-34-502	H34-502-5	295-51-34-402	H34-402-5
40	295-51-40-602	H40-602 5	295-51-40-502	H40-502 5	295-51-40-402	H40-402-5
50	295-51-50-602	H50-602-5	295 51-50-502	H50-502-5	295-51 50-402	H50-402-5
60	295-51-60-602	H60-602-5	295-51-60-502	H60-502-5	295-51-60-402	H60-402-5

*Ejector latches may be purchased separately. Two (2) required per header connector.

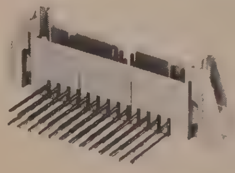
Straight with .025″ (.635 mm) Square x .610″ (15.49 mm) Long Wire Wrap Tails



Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
10	295-51-10-606	H10-606-5	295-51-10-506	H10-506-5	295-51-10 406	H10-406 5
14	295-51-14-606	H14-606-5	295-51-14-506	H14-506-5	295-51-14-406	H14-406-5
16	295-51-16-606	H16-606-5	295-51-16-506	H16-506-5	295-51-16-406	H16-406 5
20	295-51-20-606	H20-606-5	295-51-20-506	H20-506-5	295-51-20-406	H20-406-5
26	295-51-26-606	H26-606-5	295-51-26 506	H26-506-5	295-51 26-406	H26-406-5
34	295-51-34-606	H34-606-5	295-51-34-506	H34-506-5	295-51-34-406	H34-406-5
40	295-51-40-606	H40-606-5	295-51-40-506	H40-506-5	295-51-40-406	H40-406-5
50	295-51-50-606	H50-606-5	295-51-50-506	H50-506-5	295-51-50-406	H50-406-5
60	295-51-60-606	H60-606-5	295-51-60-506	H60-406-5	295-51-60-406	H60-406-5

*Ejector latches may be purchased separately. Two (2) required per header connector

Right Angle with .025″ (.635 mm) Square x .610″ (15.49 mm) Long Wire Wrap Tails



Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	W/Short Ejector Latch		W/Long Ejector Latch		W/O Ejector Latch*	
10	295-51-10-603	H10-603-5	295-51-10-503	H10-503-5	295-51-10-403	H10-403-5
14	295-51-14-603	H14 603 5	295-51 14-503	H14 503-5	295 51 14-403	H14 403 5
16	295-51-16-603	H16-603-5	295-51-16-503	H16-503-5	295-51-16-403	H16-403-5
20	295-51-20 603	H20 603 5	295 51-20-503	H20 503-5	295 51 20 403	H20 403-5
26	295-51-26-603	H26-603-5	295-51-26-503	H26-503-5	295-51-26-403	H26-403-5
34	295-51-34-603	H34-603-5	295-51-34-503	H34-503-5	295-51-34-403	H34-403-5
40	295-51-40-603	H40-603-5	295-51-40-503	H40-503-5	295-51-40-403	H40-403-5
50	295-51-50-603	H50-603-5	295-51-50-503	H50-503-5	295-51-50-403	H50-403-5
60	295-51-60-603	H60 603-5	295-51-60 503	H60 503 5	295 51 60-403	H60 403 5

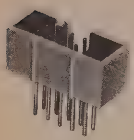
*Ejector latches may be purchased separately. Two (2) required per header connector

Cinch Superfast Flat Cable Connector System

TRW

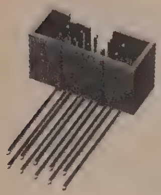
Male Headers—Type III—Four Sided—Low Profile

Straight P.C. Tails



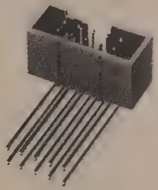
Contacts Number of	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	.092″ (2.34 mm) tail length		.155″ (3.94 mm) tail length	
10	295-51-10-704	H10-704-5	295-51-10-705	H10-705-5
14	295-51-14-704	H14-704-5	295-51-14-705	H14-705-5
16	295-51-16-704	H16-704-5	295-51-16-705	H16-705-5
20	295-51-20-704	H20-704-5	295-51-20-705	H20-705-5
26	295-51-26-704	H26-704-5	295-51-26-705	H26-705-5
34	295-51-34-704	H34-704-5	295-51-34-705	H34-705-5
40	295-51-40-704	H40-704-5	295-51-40-705	H40-705-5
50	295-51-50-704	H50-704-5	295-51-50-705	H50-705-5
60	295-51-60-704	H60-704-5	295-51-60-705	H60-705-5

Right Angle P.C. Tails



Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	.092″ (2.34 mm) tail length		.155″ (3.94 mm) tail length	
10	295-51-10-701	H10-701-5	295-51-10-702	H10-702-5
14	295-51-14-701	H14-701-5	295-51-14-702	H14-702-5
16	295-51-16-701	H16-701-5	295-51-16-702	H16-702-5
20	295-51-20-701	H20-701-5	295-51-20-702	H20-702-5
26	295-51-26-701	H26-701-5	295-51-26-702	H26-702-5
34	295-51-34-701	H34-701-5	295-51-34-702	H34-702-5
40	295-51-40-701	H40-701-5	295-51-40-702	H40-702-5
50	295-51-50-701	H50-701-5	295-51-50-702	H50-702-5
60	295-51-60-701	H60-701-5	295-51-60-702	H60-702-5

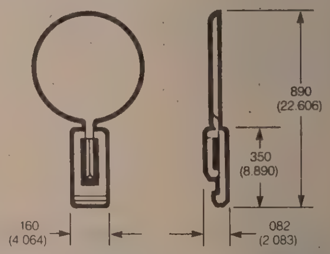
Straight and Right Angle with .025″ (.635 mm) Square x .610″ (15.49 mm) Long Wire Wrap Tails



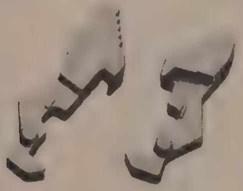
Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	Straight		Right Angle	
10	295-51-10-706	H10-706-5	295-51-10-703	H10-703-5
14	295-51-14-706	H14-706-5	295-51-14-703	H14-703-5
16	295-51-16-706	H16-706-5	295-51-16-703	H16-703-5
20	295-51-20-706	H20-706-5	295-51-20-703	H20-703-5
26	295-51-26-706	H26-706-5	295-51-26-703	H26-703-5
34	295-51-34-706	H34-706-5	295-51-34-703	H34-703-5
40	295-51-40-706	H40-706-5	295-51-40-703	H40-703-5
50	295-51-50-706	H50-706-5	295-51-50-703	H50-703-5
60	295-51-60-706	H60-706-5	295-51-60-703	H60-703-5

Polarizing Key

The polarizing key permits fast, foolproof keying of header and socket. It assures proper alignment of headers to prevent equipment damage and pin or signal loss.
100 pieces per package.
Part No. 474-11-88-886
Dist. Part No. FCPK-886



Ejector Latches



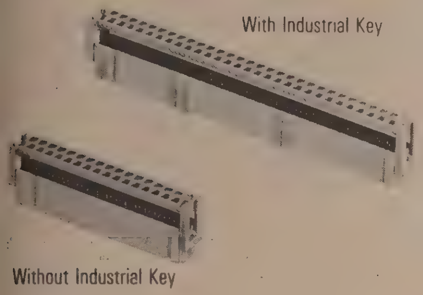
For use with Type I and Type II only.

Type	Part No.	Dist. Part No.
Long Ejector Latch	474-11-88-885	LL-885
Short Ejector Latch	474-11-88-884	SL-884

Cinch Superfast Flat Cable Connector System

TRW

Socket Connector Assembly



- Intermate with other competitive systems
- Pre-assembly with secure cable alignment
- Integral, one-piece strain relief
- Unique cover design provides preload on contacts to prevent relaxation
- 9 sizes: 10, 14, 16, 20, 26, 34, 40, 50 and 60

Performance Data

Electrical

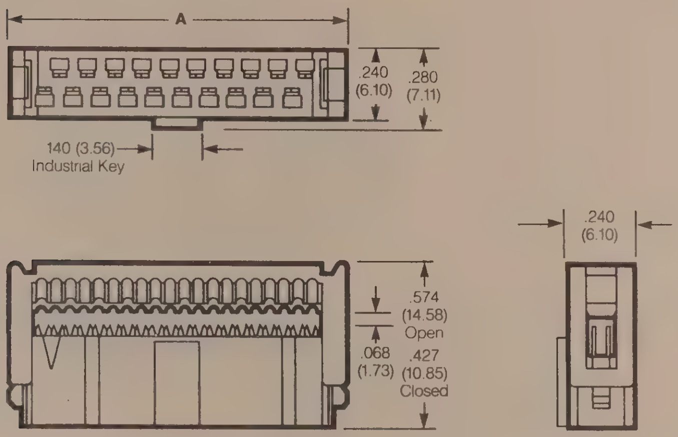
- Current rating: 1 amp per contact
- Insulation resistance: >1 x 10^9 OHMS at 500 VDC
- Withstanding voltage: 500 VRMS (at sea level)

Environmental

- Temperature rating: −55°C to +105°C

Mechanical

- Insulation material: glass filled polyester, UL-94V-O rated
- Contact material: Beryllium copper
- Contact plating: Gold over nickel.
- Wire accommodation: 28 AWG stranded, 30 AWG solid
- Color: Grey



Dimensions

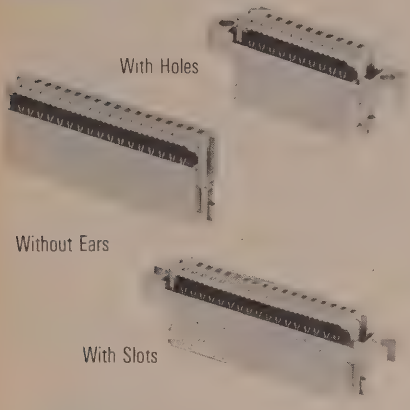
Number of Contacts	A	
	In.	MM
10	.680	17 27
14	.880	22 35
16	980	24 89
20	1 180	29 97
26	1.480	37 59
34	1.880	47 75
40	2 180	55 37
50	2 680	68 07
60	3.180	80 77

Ordering Information

Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	With Industrial Key		W/O Industrial Key	
10	295-02-10-102	FCS-10-102	295-02-10-202	FCS-10-202
14	295-02-14-102	FCS-14-102	295-02-14-202	FCS-14-202
16	295-02-16-102	FCS-16-102	295-02-16-202	FCS-16-202
20	295-02-20-102	FCS-20-102	295-02-20-202	FCS-20-202
26	295-02-26-102	FCS-26-102	295-02-26-202	FCS-26-202
34	295-02-34-102	FCS-34-102	295-02-34-202	FCS-34-202
40	295-02-40-102	FCS-40-102	295-02-40-202	FCS-40-202
50	295-02-50-102	FCS-50-102	295-02-50-202	FCS-50-202
60	295-02-60-102	FCS-60-102	295-02-60-202	FCS-60-202

Cinch Superfast Flat Cable Connector System

Edge Connector Assembly



- Pre-assembly with secure cable alignment
- Integral one-piece strain relief
- Optional with or without mounting ears
- Mounting ears have holes or slots
- Accepts .062″ (1.575mm) PCB
- Card slot depth .297″ (7.544mm)

Performance Data

Electrical

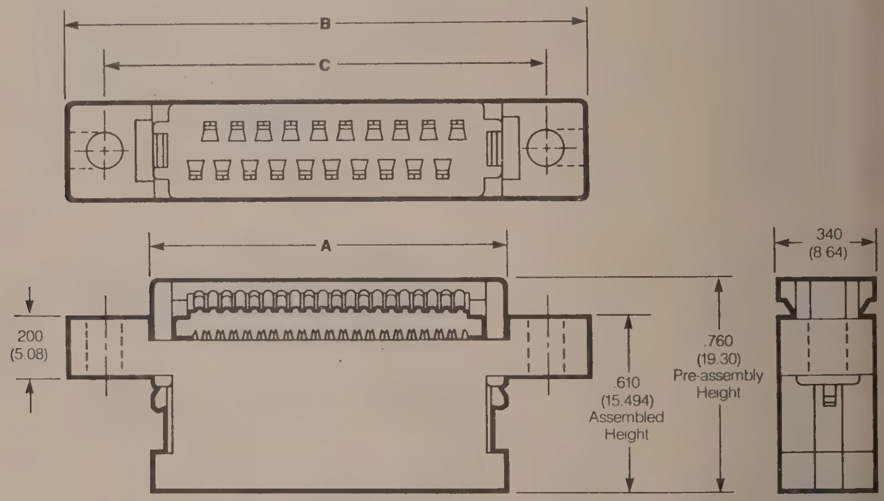
- Current rating: 1 amp per contact
- Withstanding voltage: 500 VRMS (at sea level)
- Insulation resistance: >1 x 10^9 OHMS at 500 VDC

Environmental

- Temperature rating: -55°C to +105°C

Mechanical

- Insulation material: glass filled polyester, UL-94V-O rated
- Contact material: Beryllium copper
- Contact plating: Gold over nickel.
- Color: Grey
- Contact spacing: mating .100 centers, IDC .050 centers
- Wire accommodation: 28 AWG stranded, 30 AWG solid



Dimensions

Number of Contacts	A		B		C	
	In.	MM	In.	MM	In.	MM
10	.768	19.51	1.335	33.91	1 075	27.31
16	1.068	27.13	1.635	41.53	1.375	34.93
20	1.268	32.21	1.835	46.61	1.575	40.01
26	1.568	39.83	2.135	54.23	1 875	47 63
34	1.968	49.99	2.535	64.39	2.275	57 79
40	2.268	57.61	2.835	72.01	2.575	65 41
50	2.768	70.31	3.335	84.71	3 075	78 11
60	3.268	83.0	3.835	97.41	3.575	90 81

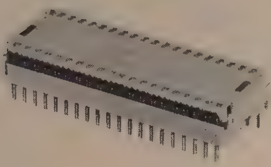
Ordering Information

Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	With Holes		W/O Ears		With Slots	
10	295-05-10-101	FCE10-101	295-05-10-102	FCE10-102	295-05-10-103	FCE10-103
16	295-05-16-101	FCE16-101	295-05-16-102	FCE16-102	295-05-16-103	FCE16-103
20	295 05 20 101	FCE20 101	295 05 20 102	FCE20 102	295 05 20-103	FCE20-103
26	295-05-26-101	FCE26-101	295-05-26-102	FCE26-102	295-05-26-103	FCE26-103
34	295-05-34-101	FCE34-101	295-05-34-102	FCE34-102	295-05-34-103	FCE34 103
40	295 05 40 101	FCE40 101	295 05 40 102	FCE40 102	295-05 40-103	FCE40 103
50	295-05-50-101	FCE50-101	295-05-50-102	FCE50-102	295-05-50-103	FCE50-103
60	295-05-60-101	FCE60-101	295-05-60-102	FCE60-102	295-05-60-103	FCE60-103

inch Superfast Flat Cable onnector System

TRW

IP Connector ssembly



- Can be permanently soldered to PC boards.
- Can be plugged into standard I.C. Sockets.
- Same mass-termination insulation displacement concept as socket connectors.
- Seven sizes: 8, 14, 16, 18, 22, 24 and 40.

Performance Data

Electrical

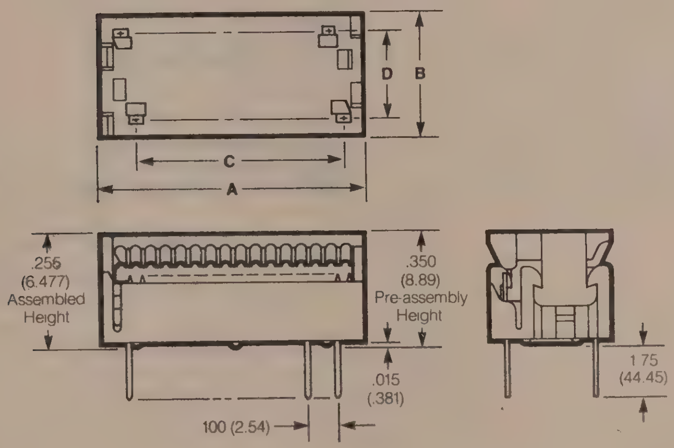
- Withstanding voltage: 500 VRMS (at sea level)
- Current rating: 1 amp per contact

Environmental

- Temperature rating: −55°C to +105°C

Mechanical

- Insulation material: glass filled polyester, UL-94V-O rated
- Contact material: Beryllium copper
- Contact plating: 30 µinch gold over nickel or tin-plated.
- Termination: soldered to P.C. board or plugs into standard I.C. socket
- Color: Grey



Dimensions

Number of Contacts	A In.	A MM	B In.	B MM	C In.	C MM	D In.	D MM
8	.475	12.07	.400	10.16	.300	7.62	300	7 62
14	.775	19.69	.400	10.16	.600	15.29	.300	7.62
16	.875	22.23	.400	10.16	.700	17.78	.300	7.62
18	.975	24.77	.400	10.16	.800	20.32	.300	7.62
22	1.175	29.85	.500	12.70	1.000	25.40	400	10 16
24	1.275	32.39	.700	17.78	1.100	27.99	.600	15 24
40	2.075	52.71	.700	17.78	1.900	48.26	.600	15 24

Ordering Information

Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.
	Gold Plated		Tin-Plated	
8	295-03-08-101	FCD-8	295-13-08-101	FCD-8-1
14	295-03-14-101	FCD-14	295-13-14-101	FCD-14-1
16	295-03-16-101	FCD-16	295-13-16-101	FCD-16-1
18	295-03-18-101	FCD-18	295-13-18-101	FCD-18-1
22	295-03-22-101	FCD-22	295-13-22-101	FCD-22-1
24	295-03-24-101	FCD-24	295-13-24-101	FCD 24 1
40	295-03-40-101	FCD-40	295-13-40-101	FCD-40-1

CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

Cinch Superfast Flat Cable Connector System

Printed Circuit Board Connector (PCB)

- Pre-assembly with secure cable alignment.
- 9 sizes: 10, 14, 16, 20, 26, 34, 40, 50 and 60.
- Integral one-piece strain relief.

Performance Data

Electrical

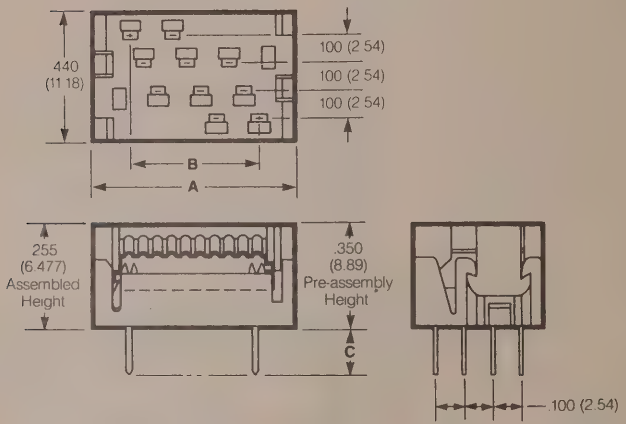
- Withstanding voltage: 500 VRMS (at sea level)
- Current rating: 1 amp per contact
- Insulation resistance: >1 x 10^9 OHMS at 500 VDC

Environmental

- Temperature rating: −55°C to +105°C

Mechanical

- Insulation material: glass filled polyester, UL-94V-O rated
- Contact material: Beryllium copper
- Contact plating: Gold over nickel or tin-plated.
- Termination: soldered to P.C. board.
- Color: Grey



Dimensions

Number of Contacts	A		B		C ±.010 (.254)	
	In.	MM	In.	MM	In.	MM
10	.700	17.78	.450	11.63		
14	.800	20.32	.550	13.97		
16	1.000	25.4	.750	19.05		
20	1.200	30.48	.950	24.13	.100	2.54
26	1.500	38.10	1.250	31.75	.156	3 96
34	1.900	48.26	1.260	32.00		
40	2.200	55.88	1.950	49.53		
50	2.700	68.58	2.450	62.23		
60	3.200	81.28	2.950	74.93		

Ordering Information

Number of Contacts	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist. Part No.	Part No.	Dist Part No.
	Gold Plated				Tin-Plated			
	.100″ (2.54 mm) tail length		.156″ (3.96 mm) tail length		.100″ (2.54 mm) tail length		.156″ (3.96 mm) tail length	
10	295 04 10 101	PCB10 101	295 04 10 102	PCB10 102	295 14 10 101	PCB10 101 1	295 14 10 102	PCB10 102 1
14	295-04-14-101	PCB14-101	295-04-14-102	PCB14-102	295-14-14-101	PCB14-101-1	295-14-14-102	PCB14-102-1
16	295 04 16 101	PCB16 101	295 04 16 102	PCB16 102	295 14-16 101	PCB16 101 1	295-14 16-102	PCB16 102 1
20	295 04 20 101	PCB20 101	295 04 20 102	PCB20 102	295-14-20 101	PCB20 101 1	295 14 20-102	PCB20 102 1
26	295 04 26 101	PCB26 101	295 04 26 102	PCB26-102	295 14 26 101	PCB26 101 1	295 14 26-102	PCB26 102 1
34	295-04-34-101	PCB34-101	295-04-34-102	PCB34-102	295-14-34-101	PCB34-101-1	295-14-34-102	PCB34-102-1
40	295 04 40 101	PCB40 101	295 04 40 102	PCB40 102	295 14 40 101	PCB40 101 1	295 14 40 102	PCB40 102 1
50	295 04 50 101	PCB50 101	295 04 50 102	PCB50 102	295 14 50 101	PCB50 101 1	295 14 50 102	PCB50 102 1
60	295-04-60-101	PCB60-101	295-04-60-102	PCB60-102	295-14-60-101	PCB60-101-1	295-14-60-102	PCB60-102-1

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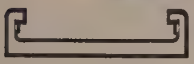
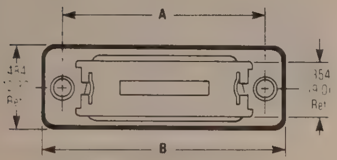
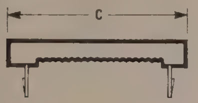
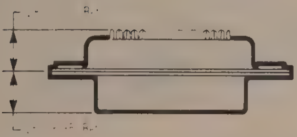
Flat Cable D-Subminiature Connectors









Flat Cable D-Sub connectors, available in four sizes to provide electrical shielding. They feature durable metal body shells, minimum front-to-back depth and positive snap-lock cable restraints. Compatible with 0.050″ standard pitch conductors and standard D-sub plan forms; interchangeable in most standard applications.

Position Size	A Ref.		B Ref.		C Ref.	
	In.	MM	In.	MM	In.	MM
9 Plug	.984	24.99	1.203	30.56	.799	20.30
9 Socket	.984	24.99	1.203	30.56	.799	20.30
15 Plug	1.312	33.32	1.531	38.89	1.126	28.60
15 Socket	1.312	33.32	1.531	38.89	1.126	28.60
25 Plug	1.852	47.04	2.078	52.78	1.669	42.40
25 Socket	1.852	47.04	2.078	52.78	1.669	42.40
37 Plug	2.500	63.50	2.719	69.06	2.315	58.80
37 Socket	2.500	63.50	2.719	69.06	2.315	58.80

Ordering Information

Number of Contacts	Tin Plated		Yellow Chromate	
	Part No.	Dist. Part No.	Part No.	Dist. Part No.
9 Plug	295-06-09-003	FC-9PT	295-06-09-001	FC-9P
Socket	295-06-09-004	FC-9ST	295-06-09-002	FC-9S
15 Plug	295-06-15-003	FC-15PT	295-06-15-001	FC-15P
Socket	295-06-15-004	FC-15ST	295-06-15-002	FC-15S
25 Plug	295-06-25-003	FC-25PT	295-06-25-001	FC-25P
Socket	295-06-25-004	FC-25ST	295-06-25-002	FC-25S
37 Plug	295-06-37-003	FC-37PT	295-06-37-001	FC-37P
Socket	295-06-37-004	FC-37ST	295-06-37-002	FC-37S

Strain Reliefs

Number of Contacts	Part No.	Dist. Part No.
9	474-11-88-427	FCSR-9
15	474-11-88-428	FCSR-15
25	474-11-88-429	FCSR-25
37	474-11-88-430	FSCR-37

Termination Tools

The rugged, easy to use TRW Cinch bench press is designed for large volume installation of insulation displacing connectors to round conductor cables on .050″ centers. A complete series of interchangeable base plates is available to install the entire range of TRW Cinch Superfast connectors.

	Part No.	Dist. Part No.
Bench Press	599-11-11-242	FC-BP-242
Socket Plate	599-11-11-241	FC-SP-241
Edge Plate	599-11-11-243	FC-EP-243
DIP Plate	599-11-11-244	FC-DP-244
PCB Plate	599-11-11-245	FC-PCB-245
D-Sub Plate	599-11-11-474	FC-DSP-474

Cable Termination Service.

Connector Division will provide customer specified cable assemblies upon request. Please consult factory.

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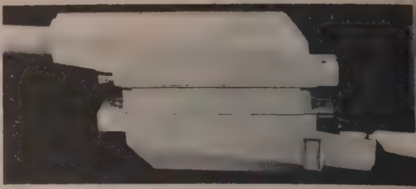
Cinch Superibbon Connector System

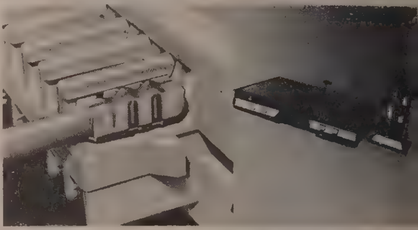
TRW

The Compatible System



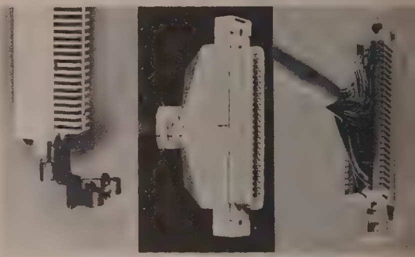
Designed to significantly lower termination and installation costs, Superibbon connectors are intermateable and compatible with most Ribbon type connectors now in use. Molded of self-extinguishing glass-filled Polyester, they are available in Solderless, Solder-tail, Wire-wrap and PC Board types; and in five standard sizes: 14, 24, 36, 50 and 64 wires. The Superibbon six-color circuit-coding system, designed to match contemporary interiors, is unique in the industry.

Instant Contact/Termination



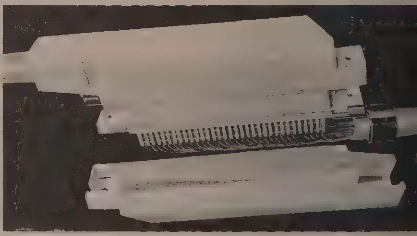
Factory loaded with market-proven, 4-point contact/terminals used in all TRW Cinch solderless ribbon connectors, Superibbon will terminate round, solid (24-26 AWG) or stranded (26-27 AWG) wire and hold it securely with effective wire strain-relief built into the contact/terminal. A 50-wire Superibbon can be terminated in less than 1½ minutes with TRW Cinch Auto-Clinch or in less than five minutes with TRW Cinch Certi-Clinch. Multiple replacement of individual wires can be accomplished with TRW Cinch hand tools without affecting performance.

Three Types of Strain-Relief



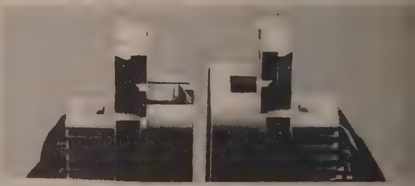
Cable-to-cable Superibbon connectors for end-entry termination have metal strain-relief/cable clamps securely attached to the connector body, freeing the cable entirely from the hood. Top-entry connectors have strain-relief/cable-clamp built into the two piece hood assembly molded with attached filler tab for insertion into clamping neck. Both cable-clamp types accommodate a wide range of cable diameters. Panel mounted connectors, without hoods, have accessory molded plastic strain-relief inserts which bear upon each wire at the four contact points of termination.

Plastic Hoods Snap into Place



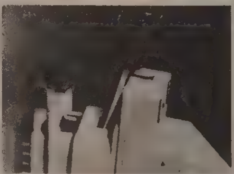
Made in top entry and end entry configurations, Superibbon connectors satisfy numerous special installation conditions as well as most normal applications. End entry hoods are one piece and separate from the cable clamp. Top entry hoods are two piece construction and upon snap-together assembly, after termination, provide a very positive and secure cable clamp. Both types of hoods accommodate a wide variety of cable diameters. Hoods are easily removed with screw-driver for top entry and TRW Cinch Versa-Clinch hand tool for end entry.

Insta-Latch Mating, Without Hardware



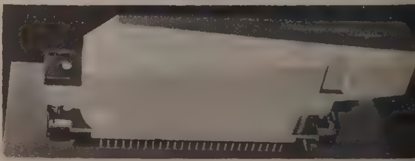
The receptacle is equipped with patented spring-clips at each end that engage windows in the plug. When the plug and receptacle are pressed together, an audible "click" tells you the connectors are fully mated and secured. There is no need for additional locking hardware, though locking screws and threaded mounting holes are available for special applications.

Rapid Unmating of Connectors



Any pointed object, such as a ball-point pen or a small screwdriver can be inserted into the window at either end of the mated connectors to depress the clip. The plug and receptacle are then disengaged by slight hand pressure. The semi-hidden location of the clip window reduces the possibility of tampering or inadvertent disconnection.

Quick Panel-Mounting with Clips



Preformed mounting-clips, inserted into each end of the pre-punched panel opening provides instantaneous snap-in mounting of connectors. No nuts, bolts or tapped holes are required and difficult back-of-panel manipulations are eliminated. No special tools are needed for connector mounting or removal.

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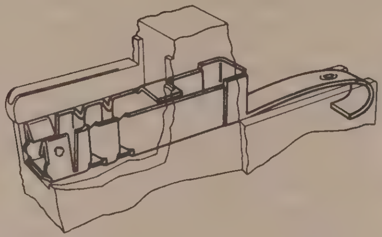
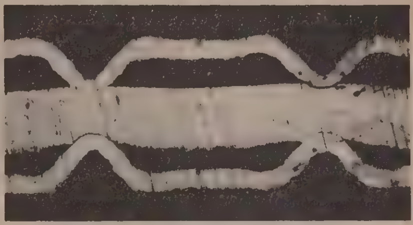
Cinch Superibbon Connector System

Electrical Characteristics

TRW





Superibbon's Field-Proven Contact

Terminal contacts of TRW Cinch Superibbon and Ribbon connectors are stamped and formed of copper alloy with a gold finish per MIL-G-45204 type II over copper per MIL-C-14550. Selectively gold plated in contact mating area and in contact terminating area.

The field-proven insulation-displacement contact design illustrated above creates four positive, gas-tight connections on each conductor. Each contact has built-in wire strain-relief, preventing inadvertent removal of wires. The strain-relief/retention device prevents strain on the four electrical contact joints when the wire is moved.

Wire insulation, both standard PVC and irradiated PVC, is pierced sufficiently to facilitate a positive electrical connection at four points, thus, the contact is formed with four indents designed to, first, peel the insulation off the wire, then to deform the conductor as the wire is driven deep into the contact channel, trapped by two opening spring flanges and prevented from backing out, creating four positive, gas-tight connections on each conductor.

Superibbon Test Program

Comprehensive testing on the Superibbon Connector system has been performed, both fully assembled and in part. A variety of Mechanical, Environmental and Electrical tests upon the whole Superibbon Connector, as well as on the Terminated Contacts, have been completed. For complete information on the broad Superibbon Testing Program, please contact TRW Cinch at the factory.

Mechanical Requirements

- **Mating/Unmating Force**

No. of Contacts	Max. Mating Force With Latches in Lbs.	Min. Unmating Force Without Latches in Lbs.
14	12	2
24	17	4
36	23	6
50	32	7
64	37	8

- **Wire Grip Strength**

Wire Size	Min. Force in Lbs.
24 AWG Solid	7
26 AWG Solid	5
26 AWG Stranded	5

Electrical Requirements

- **Dielectric Withstanding Voltage per EIA Standard RS 364, TP 20.**

Altitude	Test Voltage
Sea Level	1200V. AC RMS 1700V. DC
70,000 ft.	300V. AC RMS 420V. DC

Altitude	Rated Voltage
Sea Level	500V. AC RMS 700V. DC
70,000 ft.	125V. AC RMS 200V. DC

- **Insulation Resistance per EIA Standard RS 364, TP 21.**

Initial	5000 Megohms Min.
After Moisture	1000 Megohms Min.

Contact Current Rating
5 Amperes

- **Contact Resistance per EIA Standard RS 364, TP 6.**
- **Low Level Contact Resistance per EIA Standard RS 364, TP 23.**

Millivolt Drop
30 Millivolts (6 Milliohms) Max.

- **Termination Resistance Change during Life Conditioning per TRW Cinch Test Plan.**

Wire Size	Resistance Change (Milliohms)
26 AWG Solid	0.5
24 AWG Solid	0.5
26 AWG Stranded	2.0

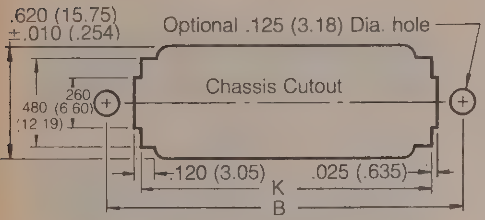
Environmental

- **Vibration per EIA Standard RS 364, TP 28, Condition A.**
- **Shock per EIA Standard RS 364, TP 7, Condition A (50 g. peak).**
- **Thermal Shock per EIA Standard RS 364, TP 32, Condition B.**
- **Moisture Resistance per EIA Standard RS 364, TP 31, Test Condition B with following details and exceptions:**
  - **a. Step 7b — not required.**
  - **b. No drip loops in the wires.**
- **Impact Test per EIA Standard RS 364, TP 42.**

Cinch Superibbon Connector System

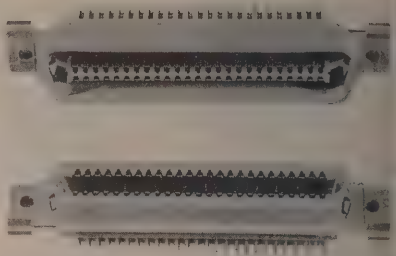
Design Characteristics

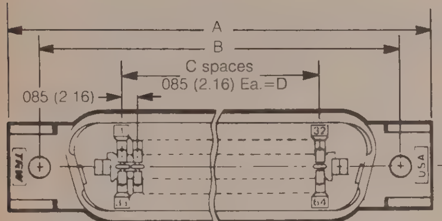
TRW

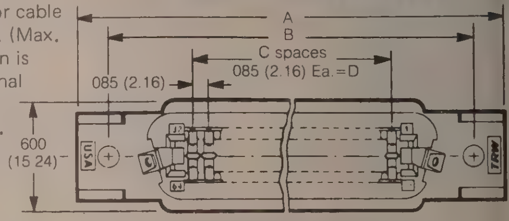

.620 (15.75)
±.010 (.254)
Optional .125 (3.18) Dia. hole
Chassis Cutout
260
480 (6 60)
12 19)
120 (3.05)
.025 (.635)
K
B

Superibbon Basic Plug & Receptacle

Superibbon connectors are molded of standard Buff Gold color, self extinguishing, glass-filled polyester for high impact and dielectric strength. Designed with keystone polarized mating faces, Superibbon (Basic plug and receptacle) are offered pre-loaded with contacts on .085" centers in dual position and with contact commoning capability. Available in 14, 24, 36, 50 and 64 positions, Superibbon terminates unstripped 24-26 AWG round solid wire and 26-27 AWG stranded wire, multiconductor cable and some ribbon and molded cable. (Max. diameter of wire and PVC insulation is .040"). Consult factory for additional sizes. Contacts can be reused. Rib design assures accurate termination. Superibbon's unique, patented Insta-Latch mates with a positive audible "click" when plug and receptacle are pressed together.

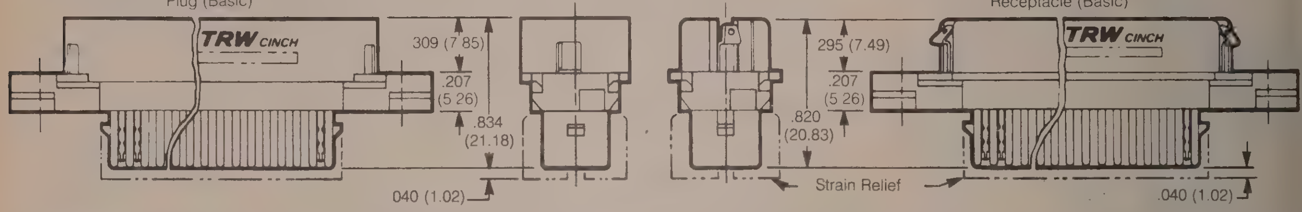



A
B
C spaces
085 (2.16) Ea.=D
085 (2 16)
32
TRW
USA


A
B
C spaces
085 (2.16) Ea.=D
085 (2.16)
600
(15 24)
USA
TRW

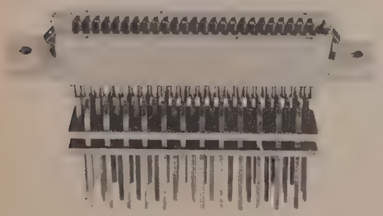
Plug (Basic)

Receptacle (Basic)

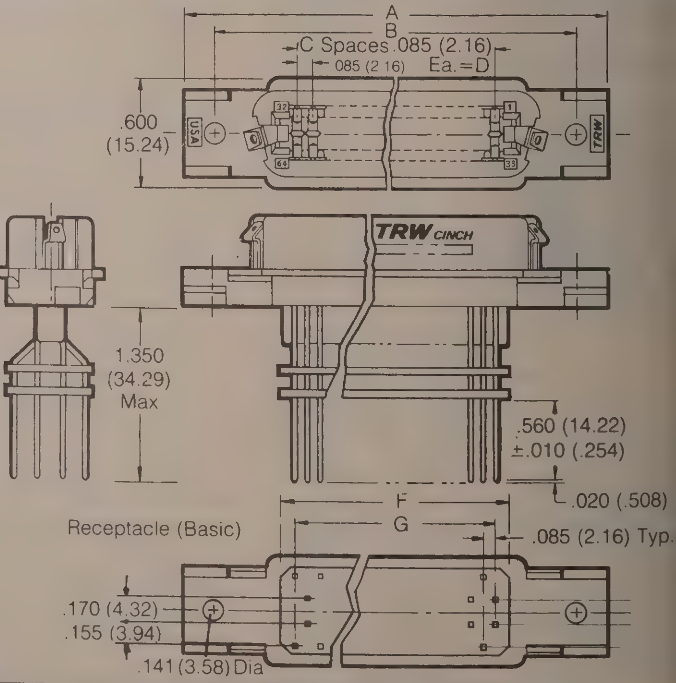

TRW CINCH
309 (7 85)
.207
(5 26)
.834
(21.18)
040 (1.02)
295 (7.49)
.207
(5 26)
.820
(20.83)
Strain Relief
TRW CINCH
.040 (1.02)

Connector Size	A		B		C	D		F		G		K	
	Inches	MM	Inches	MM		Inches	MM	Inches	MM	Inches	MM	Inches	MM
14	1.745	44.32	1.417	35.99	6	.510	12.95	.710	18.03	.510	12.95	1.060	26.92
24	2.170	55.12	1.842	46.79	11	.935	23.75	1.135	28.83	.935	23.75	1.485	37.72
36	2.680	68.07	2.352	59.74	17	1.445	36.70	1.645	41.78	1.445	36.70	1.995	50.67
50	3.275	83.19	2.947	74.85	24	2.040	51.82	2.240	56.89	2.040	51.82	2.590	65.79
64	3.875	98.43	3.542	89.97	31	2.635	66.93	2.835	72.01	2.635	66.93	3.185	80.90

Wire-Wrap Connectors



Superibbon Wire-Wrap connectors for panel mounting are molded of diallyl phthalate in Basic Receptacle only, with either .025" or .045" square Cupro Nickel Alloy 725 tails spaced on .085" centers. Connectors are mountable to panels thru standard Superibbon Cutout, using standard mounting clips. Wire-Wrap Receptacle is available in 14, 24, 36, 50 and 64 contact sizes.

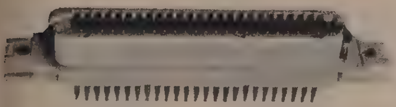

A
B
C Spaces .085 (2.16)
085 (2 16) Ea.=D
.600
(15.24)
USA
32
64
33
TRW
TRW CINCH
1.350
(34.29)
Max
.560 (14.22)
±.010 (.254)
.020 (.508)
F
G
Receptacle (Basic)
.085 (2.16) Typ.
.170 (4.32)
.155 (3.94)
.141 (3.58) Dia

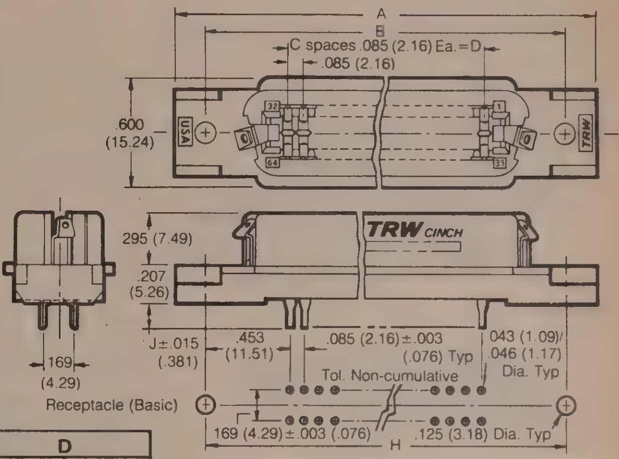
Cinch Superibbon Connector System

Design Characteristics

TRW

Printed Circuit Board Connectors



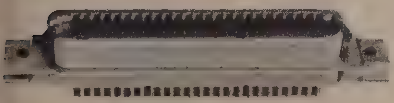

A
B
C spaces .085 (2.16) Ea.=D
.085 (2.16)
.600 (15.24)
USA
TRW
32
64
1
33
295 (7.49)
.207 (5.26)
TRW CINCH
J±.015 (.381)
.453 (11.51)
.085 (2.16)±.003 (.076) Typ
Tol. Non-cumulative
043 (1.09)/ .046 (1.17) Dia. Typ
169 (4.29)
Receptacle (Basic)
169 (4.29)±.003 (.076)
.125 (3.18) Dia. Typ
H

Superibbon Basic receptacle for Printed Circuit Board mounting with Dip Soldering tails is molded of diallyl phthalate with tail lengths for three different Board thicknesses as indicated in the table. Connector is available in 14, 24, 36, 50 and 64 contact sizes.
Also available in Valox; consult factory.

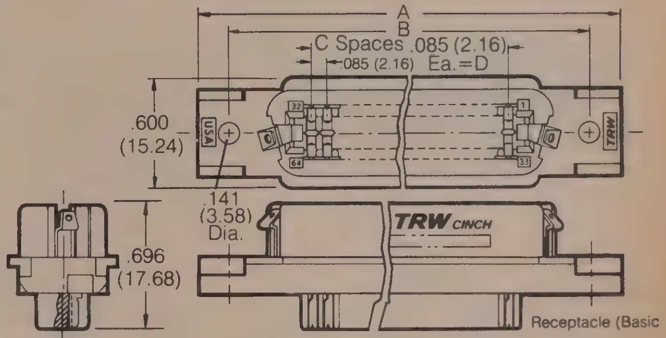
Connector Size	A		B		C	D	
	Inches	MM	Inches	MM		Inches	MM
14	1.745	44.32	1.417	35.99	6	.510	12.95
24	2.170	55.12	1.842	46.79	11	.935	23.75
36	2.680	68.07	2.352	59.74	17	1.445	36.70
50	3.275	83.19	2.947	74.85	24	2.040	51.82
64	3.875	98.43	3.542	89.97	31	2.635	66.93

Type	P.C. Board Thickness	J
1	.063 (1.60)	.103 (2.62)
2	.094 (2.39)	.138 (3.51)
3	.125 (3.18)	.183 (4.65)

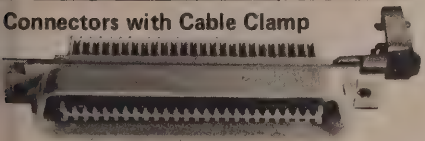
Solder Tail Receptacle



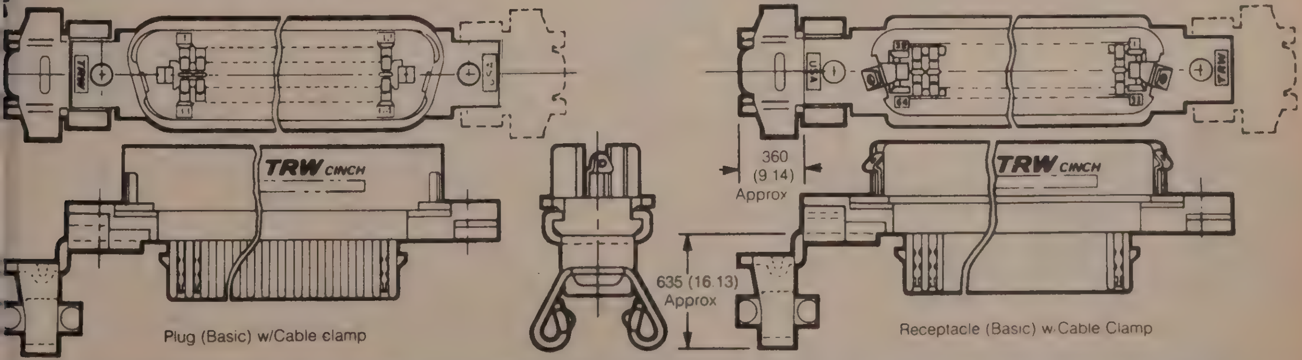
Superibbon Basic receptacle, molded of diallyl phthalate, is available with the field-proven Solder Tail Ribbon Contact for Rack and Panel Mounting. Top Entry Color Hoods are available in 14, 24, 36, 50 and 64 contact sizes. A, B, C and D dimensions are the same as those in the table above.


A
B
C Spaces .085 (2.16) Ea.=D
085 (2.16)
.600 (15.24)
USA
TRW
32
64
1
33
.141 (3.58) Dia.
.696 (17.68)
TRW CINCH
Receptacle (Basic

Connectors with Cable Clamp



Superibbon heavy gauge (.049") fully annealed low-carbon steel Cable Clamp is available, factory mounted, on either end of the basic connector (on the square end only of the tapered model) as desired for Cable-to Cable or Cable-to-Panel installation. The Cable Clamp is normally mounted to the standard end of the Plug and the Receptacle. The standard end of the Plug is at No. 1 position, while the standard end of the Receptacle is at the end with the highest contact number. The Superibbon Cable Clamp is specially designed to securely clamp and reliably hold a broad variety of cable sizes.

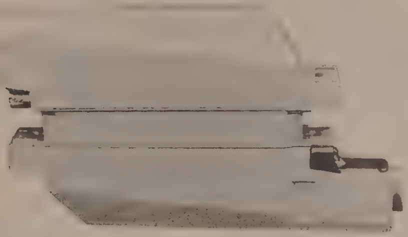

TRW
USA
TRW CINCH
360 (9.14) Approx
635 (16.13) Approx
64
Plug (Basic) w/Cable clamp
Receptacle (Basic) w/Cable Clamp

Cinch Superibbon Connector System

Design Characteristics

TRW

Plug & Receptacle with End Entry Hood

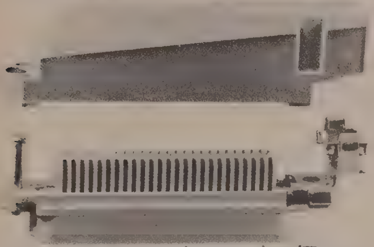


Beautifully styled protective Hoods, molded of Resin rated UL 94V-0, encase the Basic Connector with Cable Clamp. The simplified Hood hooks over the Connector end opposite the Cable Clamp, then with finger pressure downward on the top of the Hood, directly above the Cable Clamp the Hood snaps securely onto the Connector. Superibbon Hoods are easily removed with a screwdriver or TRW Cinch Versa-Clinch hand tool.

Hoods

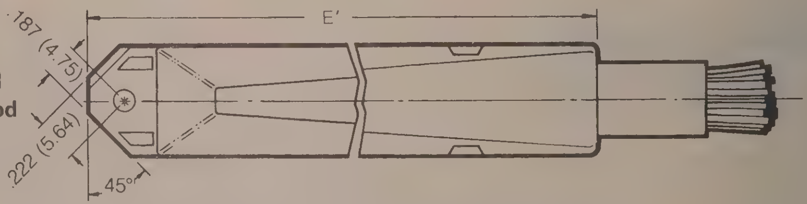
Contacts	Square End E		Tapered End E'		H	
	Inches	MM	Inches	MM	Inches	MM
14	2.102	53.39			.717	18.21
24	2.527	64.19			.717	18.21
36	3.037	77.14			.967	24.56
50	3.677	93.40	3.632	92.25	.967	24.56
64	4.511	114.58			.967	24.56

Tapered End Connector w/Cable Clamp & Hood

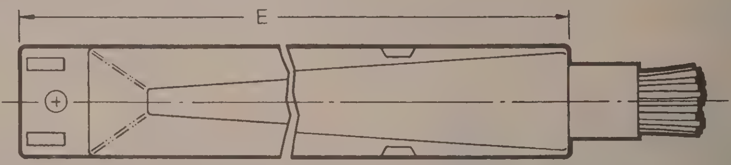


To satisfy certain critical space requirements in telephone applications, a special connector in slightly shorter overall length with one end tapered is offered in 50 position only. This connector is available as a slate gray assembly only, without latch, with cable clamp and tapered end hood and with captive mounting screw. For other variations of this connector consult factory.

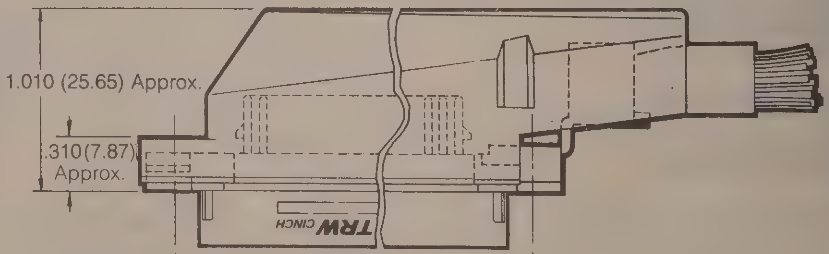
Plug & Receptacle (Special) w/Tapered Ends w/Cable Clamp & End Entry Hood

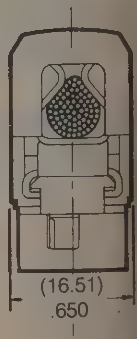


Plug & Receptacle (Basic) Square End w/Cable Clamp & End Entry Hood

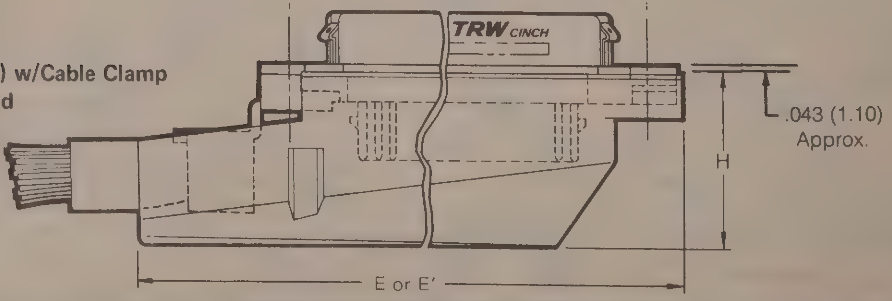


Plug (Basic) w/Cable Clamp & End Entry Hood





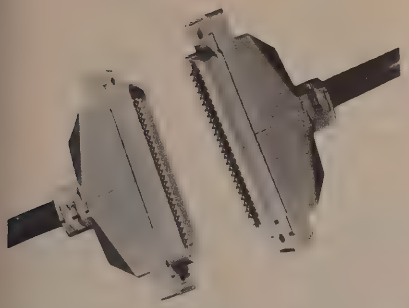
Receptacle (Basic) w/Cable Clamp & End Entry Hood



Cinch Superibbon Connector System

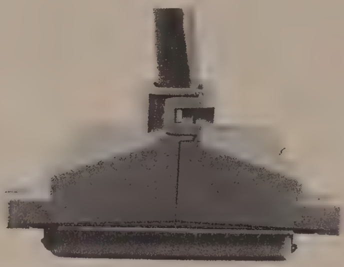
Design Characteristics

TRW

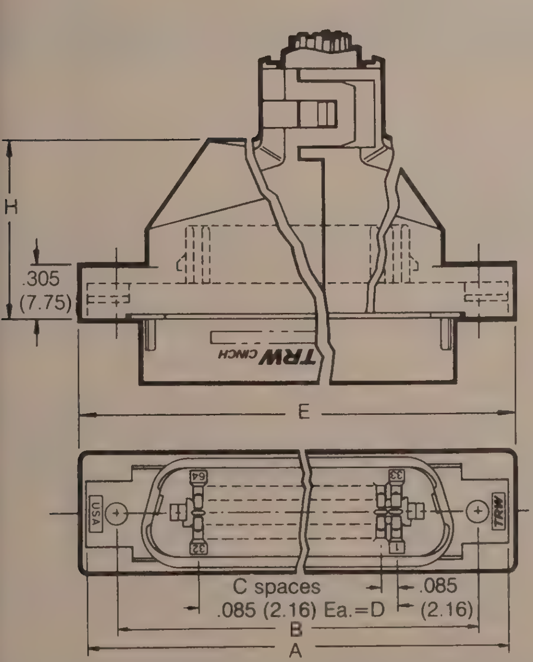


Basic Plug & Receptacle w/2 piece Top Entry Hood

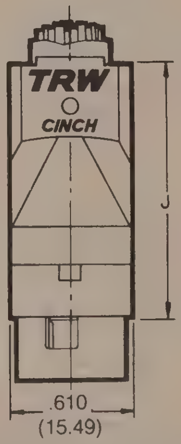
The Two-Piece Hood assembly for enclosing Basic Superibbon Connectors terminated for Top Entry, incorporates specially designed secure closing latches and built-in Cable Clamp using attached removable tabs for adjustment to a broad range of cable sizes. The table below indicates the correct tab combinations to use for effectively clamping different cable sizes. The table and drawings below indicate dimensions for all contact sizes including 14, 24, 36, 50 and 64. Top Entry Hoods are available in the same six colors: standard Buff Gold, Blue, Orange, Green, Brown and Slate as the End Entry Hoods.

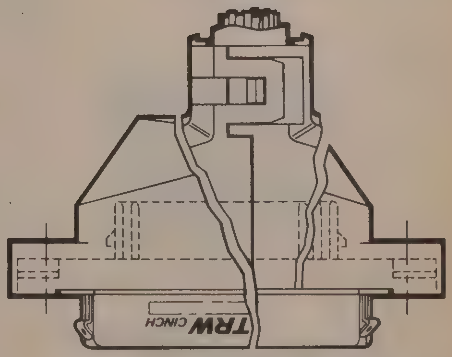


Contacts	A		B		C	D		E		H		J	
	Inches	MM	Inches	MM		Inches	MM	Inches	MM	Inches	MM	Inches	MM
14	1.745	44.32	1.417	35.99	6	.510	12.95	1.831	46.51	.850	21.59	1.255	31.88
24	2.170	55.12	1.842	46.79	11	.935	23.75	2.256	57.30	.850	21.59	1.255	31.88
36	2.680	68.07	2.352	59.74	17	1.445	36.70	2.766	70.26	.912	23.16	1.317	33.45
50	3.275	83.19	2.947	74.85	24	2.040	51.82	3.360	85.34	1.007	25.58	1.412	35.86
64	3.875	98.43	3.542	89.97	31	2.635	66.93	3.956	100.48	1.007	25.58	1.412	35.86



Plug (Basic) w/Top entry hood





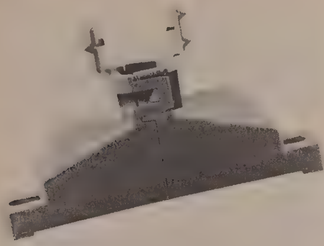
Receptacle (Basic) w/Top entry hood

Approximate Cable Clamp Range

Tabs	Cable O. D.			
	In.	MM	In.	MM
None	.450	11.43 –	.500	12.70
Double Rib	.400	10.16 –	.450	11.43
Single Rib	.350	8.89 –	.400	10.16
Both Tabs	.300	7.62 –	.350	8.89

Cinch Superibbon Connector System

Accessories

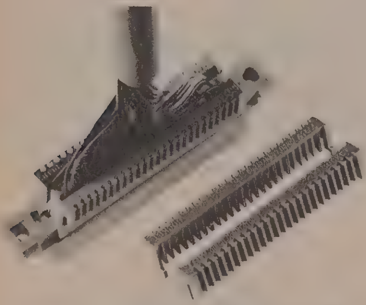


Color Hoods for Circuit Identification

Superibbon's specially designed and color coordinated color Hoods provide a positive circuit identification system of sufficient breadth to color-code the most complex wiring systems. Available in six colors, Blue, Orange, Green, Brown, Slate and standard Buff Gold, they are made in configurations for both End Entry (one piece) and Top Entry (two piece assembly). Installed, they make circuit tracing simple and easy.

End Entry Color Hoods	14 Contacts	24 Contacts	36 Contacts	50 Contacts	64 Contacts
Buff Gold	474-11-88-530	474-11-88-531	474-11-88-532	474-11-88-533	474-11-88-534
Blue	474-11-88-546	474-11-88-551	474-11-88-556	474-11-88-561	474-11-88-566
Orange	474-11-88-547	474-11-88-552	474-11-88-557	474-11-88-562	474-11-88-567
Green	474-11-88-548	474-11-88-553	474-11-88-558	474-11-88-563	474-11-88-568
Brown	474-11-88-549	474-11-88-554	474-11-88-559	474-11-88-564	474-11-88-569
Slate	474-11-88-550	474-11-88-555	474-11-88-560	474-11-88-565	474-11-88-570

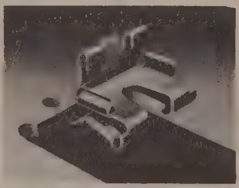
Top Entry Color Hoods	14 Contacts	24 Contacts	36 Contacts	50 Contacts	64 Contacts
Buff Gold	318-07-00-001	318-07-00-002	318-07-00-003	318-07-00-004	318-07-00-005
Blue	318-07-00-006	318-07-00-007	318-07-00-008	318-07-00-009	318-07-00-010
Orange	318-07-00-011	318-07-00-012	318-07-00-013	318-07-00-014	318-07-00-015
Green	318-07-00-016	318-07-00-017	318-07-00-018	318-07-00-019	318-07-00-020
Brown	318-07-00-021	318-07-00-022	318-07-00-023	318-07-00-024	318-07-00-025
Slate	318-07-00-026	318-07-00-027	318-07-00-028	318-07-00-029	318-07-00-030



Wire Restraint for Panel Mounted Superibbon

Two-piece molded phenylene oxide Wire Restraint is available for use on panel mounting applications, tap-ins, cable-runs and other conditions where extra security is desired at the point of termination. Molded in gray color to identify them against the basic Buff Gold of Superibbon connectors, they are made in two types, one for plug and the other for receptacle mounting and snap into place over the terminal side of Superibbon.

Wire Restraints (2 req.)	14 Contacts	24 Contacts	36 Contacts	50 Contacts	64 Contacts
Plug	474-11-88-540	474-11-88-541	474-11-88-542	474-11-88-543	474-11-88-544
Receptacle	474-11-88-535	474-11-88-536	474-11-88-537	474-11-88-538	474-11-88-539



Panel Mounting Clips for quick mounting to Chassis

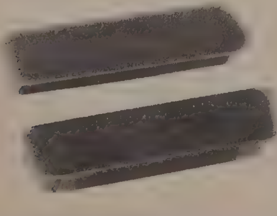
Simple Spring Clips snap into each end of punched hole in panel for quick mounting of Superibbon connectors. No nuts, bolts or tapped holes are required and difficult back-of-panel manipulation is eliminated. No special tools are needed for connector mounting or removal.

Chassis Mounting Clip (2 req.)		
.062" Chassis—422-12-22-215	.093" Chassis—422-12-22-216	.125" Chassis—422-12-22-217

Mounting Screws

Screws with standard pan head and nickel plated finish, for mounting Superibbon securely to panels, chassis or other connectors are available in four sizes listed in the table below.

Locking Screw	
4-40 UNC-2A x 17/32" — 462-12-22-074	4-40 UNC-2A x 5/8" — 462-12-22-001
4-40 UNC-2A x 3/4" — 462-12-22-075	4-40 UNC-2A x 7/8" — 462-12-22-073



Molded Dust Covers

Molded polyethylene Dust Covers (red for plug and blue for receptacle) are available to protect the mating sides of Superibbon connectors from dust, dirt and other contamination either in storage or in use.

Dust Cover	14 Contacts	24 Contacts	36 Contacts	50 Contacts	64 Contacts
Plug	474-11-91-631	474-11-91-632	474-11-91-633	474-11-91-634	474-11-91-635
Receptacle	474-11-91-706	474-11-91-707	474-11-91-708	474-11-91-709	474-11-91-710

Cinch Superibbon Connector System

Part Number

Superibbon Connectors for Solderless Termination of Solid Wire

Type	Cable Clamp	Hood	14 Contacts	24 Contacts	36 Contacts	50 Contacts	64 Contacts
P			224-01-14-000	224-01-24-000	224-01-36-000	224-01-50-000	224-01-64-000
R			224-02-14-000	224-02-24-000	224-02-36-000	224-02-50-000	224-02-64-000
P	S		224-03-14-000	224-03-24-000	224-03-36-000	224-03-50-000	224-03-64-000
P	O		224-03-14-001	224-03-24-001	224-03-36-001	224-03-50-001	224-03-64-001
R	S		224-04-14-000	224-04-24-000	224-04-36-000	224-04-50-000	224-04-64-000
R	O		224-04-14-001	224-04-24-001	224-04-36-001	224-04-50-001	224-04-64-001
P	S	EE	224-05-14-000	224-05-24-000	224-05-36-000	224-05-50-000	224-05-64-000
P*	S	EE				224-05-50-001	
R	S	EE	224-06-14-000	224-06-24-000	224-06-36-000	224-06-50-000	224-06-64-000
R*	S	EE				224-06-50-001	
P		TE	224-07-14-000	224-07-24-000	224-07-36-000	224-07-50-000	224-07-64-000
R		TE	224-08-14-000	224-08-24-000	224-08-36-000	224-08-50-000	224-08-64-000

Connector with Threaded Mounting Hole

Type	Cable Clamp	Hood	14 Contacts	24 Contacts	36 Contacts	50 Contacts	64 Contacts
P			224-11-14-000	224-11-24-000	224-11-36-000	224-11-50-000	224-11-64-000
R			224-12-14-000	224-12-24-000	224-12-36-000	224-12-50-000	224-12-64-000
P	S		224-13-14-000	224-13-24-000	224-13-36-000	224-13-50-000	224-13-64-000
P	O		224-13-14-001	224-13-24-001	224-13-36-001	224-13-50-001	224-13-64-001
R	S		224-14-14-000	224-14-24-000	224-14-36-000	224-14-50-000	224-14-64-000
R	O		224-14-14-001	224-14-24-001	224-14-36-001	224-14-50-001	224-14-64-001
P	S	EE	224-15-14-000	224-15-24-000	224-15-36-000	224-15-50-000	224-15-64-000
P*	S	EE				224-15-50-001	
R	S	EE	224-16-14-000	224-16-24-000	224-16-36-000	224-16-50-000	224-16-64-000
R*	S	EE				224-16-50-001	
P		TE	224-17-14-000	224-17-24-000	224-17-36-000	224-17-50-000	224-17-64-000
R		TE	224-18-14-000	224-18-24-000	224-18-36-000	224-18-50-000	224-18-64-000

Superibbon Connectors for Solderless Termination of Stranded Wire

Type	Cable Clamp	Hood	14 Contacts	24 Contacts	36 Contacts	50 Contacts	64 Contacts
P			224-21-14-000	224-21-24-000	224-21-36-000	224-21-50-000	224-21-64-000
R			224-22-14-000	224-22-24-000	224-22-36-000	224-22-50-000	224-22-64-000
P	S		224-23-14-000	224-23-24-000	224-23-36-000	224-23-50-000	224-23-64-000
P	O		224-23-14-001	224-23-24-001	224-23-36-001	224-23-50-001	224-23-64-001
R	S		224-24-14-000	224-24-24-000	224-24-36-000	224-24-50-000	224-24-64-000
R	O		224-24-14-001	224-24-24-001	224-24-36-001	224-24-50-001	224-24-64-001
P	S	EE	224-25-14-000	224-25-24-000	224-25-36-000	224-25-50-000	224-25-64-000
R	S	EE	224-26-14-000	224-26-24-000	224-26-36-000	224-26-50-000	224-26-64-000
P		TE	224-27-14-000	224-27-24-000	224-27-36-000	224-27-50-000	224-27-64-000
R		TE	224-28-14-000	224-28-24-000	224-28-36-000	224-28-50-000	224-28-64-000

Connector with Threaded Mounting Hole

Type	Cable Clamp	Hood	14 Contacts	24 Contacts	36 Contacts	50 Contacts	64 Contacts
P			224-31-14-000	224-31-24-000	224-31-36-000	224-31-50-000	224-31-64-000
R			224-32-14-000	224-32-24-000	224-32-36-000	224-32-50-000	224-32-64-000
P	S		224-33-14-000	224-33-24-000	224-33-36-000	224-33-50-000	224-33-64-000
P	O		224-33-14-001	224-33-24-001	224-33-36-001	224-33-50-001	224-33-64-001
R	S		224-34-14-000	224-34-24-000	224-34-36-000	224-34-50-000	224-34-64-000
R	O		224-34-14-001	224-34-24-001	224-34-36-001	224-34-50-001	224-34-64-001
P	S	EE	224-35-14-000	224-35-24-000	224-35-36-000	224-35-50-000	224-35-64-000
R	S	EE	224-36-14-000	224-36-24-000	224-36-36-000	224-36-50-000	224-36-64-000
P		TE	224-37-14-000	224-37-24-000	224-37-36-000	224-37-50-000	224-37-64-000
R		TE	224-38-14-000	224-38-24-000	224-38-36-000	224-38-50-000	224-38-64-000

Superibbon Connectors for Solder Termination of Solid and Stranded Wire

Type	Cable Clamp	Hood	14 Contacts	24 Contacts	36 Contacts	50 Contacts	64 Contacts
R			224-41-14-000	224-41-24-000	224-41-36-000	224-41-50-000	224-41-64-000
R		TE	224-45-14-000	224-45-24-000	224-45-36-000	224-45-50-000	224-45-64-000

Connector with Threaded Mounting Hole

Type	Cable Clamp	Hood	14 Contacts	24 Contacts	36 Contacts	50 Contacts	64 Contacts
R			224-42-14-000	224-42-24-000	224-42-36-000	224-42-50-000	224-42-64-000
R		TE	224-46-14-000	224-46-24-000	224-46-36-000	224-46-50-000	224-46-64-000

Superibbon Connectors for Printed Circuit Board Termination

Plugs consult factory.

Type	14 Contacts	24 Contacts	36 Contacts	50 Contacts	64 Contacts
R for 1/16" Board	224-51-14-000	224-51-24-000	224-51-36-000	224-51-50-000	224-51-64-000
R for 3/32" Board	224-53-14-000	224-53-24-000	224-53-36-000	224-53-50-000	224-53-64-000
R for 1/8" Board	224-57-14-000	224-57-24-000	224-57-36-000	224-57-50-000	224-57-64-000

Superibbon Connectors for Wire Wrap Termination

Type	14 Contacts	24 Contacts	36 Contacts	50 Contacts	64 Contacts
R — .025" Sq. Wire Wrap	224-55-14-000	224-55-24-000	224-55-36-000	224-55-50-000	224-55-64-000
R — .045" Sq. Wire Wrap	224-56-14-000	224-56-24-000	224-56-36-000	224-56-50-000	224-56-64-000

P - Plug R - Receptacle
S - Mounted Standard End O - Mounted Opposite End
Note: Standard end of plug is at No. 1 position. Standard end of receptacle is at end with highest contact number.

* Slate Gray w/Tapered End w/Captive Mounting Screw
EE - End Entry Hood TE - Top Entry Hood w/built in Cable Clamp
Note: To order accessory Color Hoods see page 2•1684

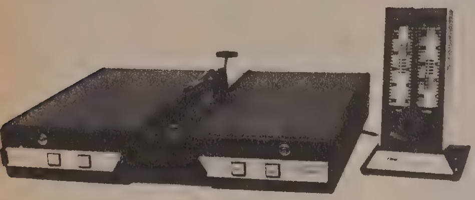
CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

Cinch Superibbon And Ribbon Connectors

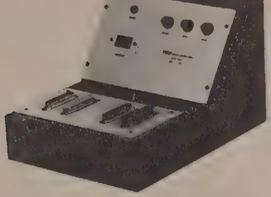
Termination Equipment

TRW

Auto-Clinch w/Color Code Display



Auto-Test



Auto-Clinch Nests for Superibbon Connectors

Size	End Entry Part No.	Top Entry Part No.
14	999-598-98-99-850	999-598-98-99-568
24	999-598-98-99-851	999-598-98-99-569
36	999-598-98-99-852	999-598-98-99-797
50	999-598-98-99-853	999-598-98-99-798
64	999-598-98-99-570	999-598-98-99-799

TRW Cinch Auto-Clinch Model 200S Termination Tool and Options

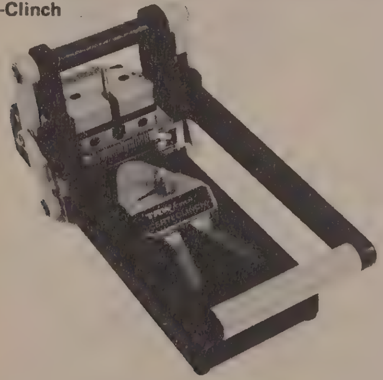
Auto-Clinch is a semi-automatic, pneumatically powered and electrically controlled Connector Termination Machine that can terminate TRW Cinch Solderless Ribbon and Superibbon 25-pair connectors in approximately 1½ min. With accessory nests it will terminate 14, 24, 36, 50 and 64 contact connectors with relative speed.

A conversion kit will allow the Auto-Clinch to terminate connectors of the Ribbon type made by other manufacturers. Auto-Clinch may be optionally equipped with Remote Visual Color Code Display for training operators or for reading special wire sequences. A second option is a Selective Programmer which will allow the operator to set the machine to automatically skip contact positions not to be terminated. A third optional accessory called Auto-Test, automatically tests terminated 25-pair cable assemblies. It tests the quality of the termination by checking for continuity, shorts and 700 Volt DC Hi-Pots. A fourth optional accessory will automatically close End Entry Superibbon Cable Clamp during the normal sequence of machine operation. A fifth option will terminate the 25-pair Superibbon Connector in Top Entry Mode. Auto-Clinch cannot be equipped simultaneously with both Cable Clamp Closer and Top Entry Adapter. Auto-Clinch requires 60 p.s.i.g. Air Supply, 110 Volt, 60 Cycle, Single Phase, 5 Amp. Electrical Supply. Auto-Clinch weighs 120 lbs. and measures 25½" wide x 20" deep x 9" overall height. Weight and dimensions may vary with options.

Machine	Part Number
Basic Machine	999-599-11-11-371
Basic Machine Set for Discrete Wire	999-599-11-11-417
Options	**Part Number**
Discrete Wire Conversion Kit (Converts 599-11-11-371 to 599-11-11-417)	999-599-11-11-418
Cable Clamp Closer	999-599-11-11-374
Power Assist for Cable Clamp Closer	999-599-11-11-405
Auto-Tester	999-599-11-11-395
Remote Display	999-598-98-99-482
Selective Programmer	999-598-98-99-495
Conversion Kit	999-598-98-99-511
Top Entry Adapter*	999-598-98-99-525

*In ordering Top Entry Adapter, be sure to order nests in required sizes.

Certi-Clinch



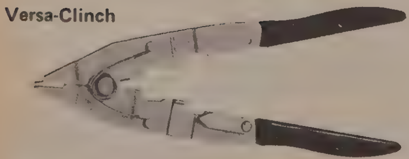
TRW Cinch Certi-Clinch Portable Field Termination Tool

Certi-Clinch is a portable, manually operated field termination tool which terminates 50-contact TRW Cinch Solderless Ribbon and Superibbon Connectors in less than 5 min. Designed for field assembly and low production installations, it is readily portable, weighing only 10.5 lbs. and requires no set-up time. The universal Certi-Clinch models will terminate up to 64 contacts made by TRW Cinch and other manufacturers. Certi-Clinch is compact in its protective simulated leather carrying case and measures only 6" wide × 13" long × 6½" high overall.

Model No.	Part No.	A	B	C	D	E	F	G	H
25B	999-599-11-11-330	X					X	X	
25B	999-599-11-11-332	X				X		X	
25A	999-599-11-11-333		X				X	X	
25A	999-599-11-11-334		X			X		X	
32B	999-599-11-11-335			X			X	X	
32B	999-599-11-11-336			X		X		X	
32A	999-599-11-11-337				X		X	X	
32A	999-599-11-11-338				X	X		X	
Conversion Kit	999-599-11-11-342	Model 25 to Model 32						X	
Conversion Kit	999-599-11-11-343	Model 25 to 32A Uni. Nest						X	
	999-599-11-11-360		X				X		X
	999-599-11-11-359		X			X			X
	999-598-98-99-645	25 Pair Insertion Blade Only							X

A=Standard Nest 25 Pair; B=Universal Nest 25 Pair; C=Standard Nest 32 Pair; D=Universal Nest 32 Pair; E=With Case; F=Less Case; G=Solid Wire; H=Stranded Wire.

Versa-Clinch



Plier Repair Tool

Description	TRW Cinch Part No.
Versa-Clinch Term. Tool	999-599-11-11-361
Repair Tool (Ribbon & Superibbon)	999-599-11-11-345
Repair Tool (Universal-Cinch & others)	999-599-11-11-358

TRW Cinch Versa-Clinch Multi-Function Termination Tool

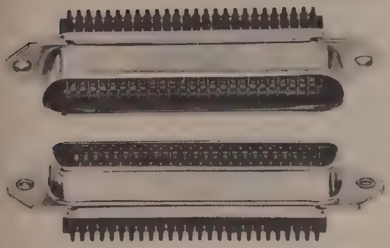
Versa-Clinch is a truly versatile hand operated tool used to perform four basic functions in application to TRW Cinch Ribbon and Superibbon Connectors. Versa-Clinch can be used to: 1. Cut off and terminate one wire to TRW Cinch Solderless Ribbon, Superibbon and some connectors manufactured by others. 2. Unlatch the Superibbon End Entry Hood for removal. 3. Open and Close Superibbon Metal Cable Clamp. 4. Unlock mated Superibbon connectors, Versa-Clinch is used to cut, patch, remove, repair, open, close, latch, unlatch, tap and terminate.

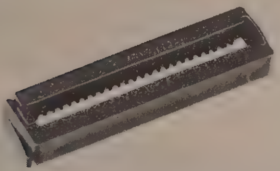
TRW Cinch Plier Type Termination Repair Tool

TRW Cinch hand operated plier type termination repair tool is a valuable device for the field service engineer. The Repair Tool is designed to cut wires and terminate one wire at a time to replace any damage termination in the field. The Tool is made of heat treated carbon steel with tips of heat treated and hardened high carbon steel. It is finished in black oxide with red vinyl dip handles. Two models of the repair tool are available.

Solderless Cinch Ribbon Connector System

TRW





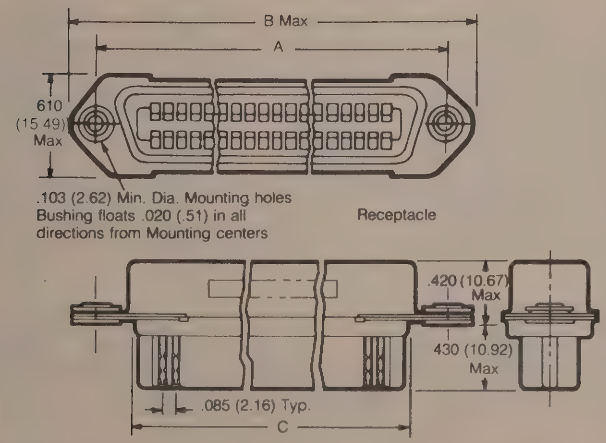
Accessory Wire Restraint for 50-position only. Part Number: 474-11-70-484

TRW Cinch Solderless Ribbon Connector—Plug & Receptacle

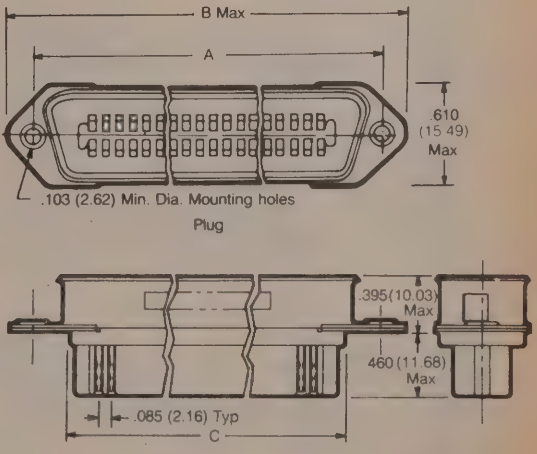
This Connector has the same electrical characteristics as Superibbon plus providing for shielding/grounding by the metal shell enclosing the mating contacts. It has the same fine quality as both Superibbon and the Solder Type Connectors and is intermateable with both as well as other manufacturers' Ribbon Connectors. Both TRW Cinch Solderless Ribbon and TRW Cinch Solder Ribbon 50-position plugs have windows in the metal shell to accept the exclusive mating latch of the Superibbon receptacle. TRW Cinch Solderless Ribbon Series can be terminated with automatic, semi-automatic and field hand tools. Each contact provides four gas-tight connections for both 24 and 26 gauge solid wire (.040" max. insulation dia.). Available in 14, 24, 36 and 50 contacts, Solderless Ribbon Connectors are terminated at speeds far in excees of soldering techniques. They have built-in wire restraint in each contact to prevent any inadvertent removal of wires; however, contacts can be reused without physical damage or electrical degradation. Smooth, easy mating/unmating action plus the double-sided, self-cleaning flexing action of both mated contact members provide added reliability. Shell polarization and float mounted receptacle assure proper alignment. Insulation material is 30% glass-filled polyester. Plug and receptacle contacts are of Copper Alloy with a finish of Gold per MIL-G-45204 Type II over copper flash. Shells are steel with a finish of zinc with clear chromate.

Product	Contacts	Plug Part No.	Receptacle Part No.
Connector w/Deep Hood	50	222-33-50-091	222-43-50-069
Connector w/Shallow Hood	50	222-33-50-092	222-43-50-070

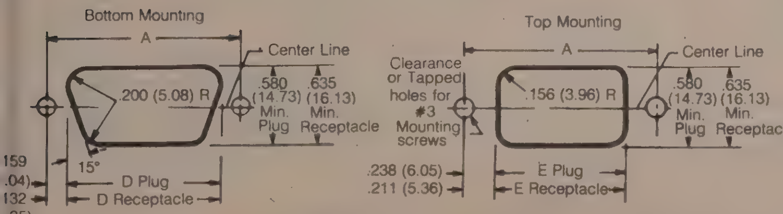
Size & Type	Solderless Part No.	A		B		C		D Min.		E Min.	
		Inches	MM	Inches	MM	Inches	MM	Inches	MM	Inches	MM
14 Plug	223-10-14-001	1.417	35.99	1.750	44.45	.910	23.11	1.098	27.89	.940	23.88
14 Receptacle	223-11-14-001	1.417	35.99	1.750	44.45	.910	23.11	1.153	29.29	.995	25.27
24 Plug	223-10-24-001	1.842	46.79	2.175	55.25	1.335	33.91	1.523	38.68	1.365	34.67
24 Receptacle	223-11-24-001	1.842	46.79	2.175	55.25	1.335	33.91	1.578	40.08	1.420	36.07
36 Plug	223-10-36-001	2.352	59.74	2.685	68.20	1.845	46.86	2.033	51.64	1.875	47.63
36 Receptacle	223-11-36-001	2.352	59.74	2.685	68.20	1.845	46.86	2.088	53.04	1.930	49.02
50 Plug	223-10-50-001	2.947	74.85	3.270	83.06	2.440	61.98	2.628	66.75	2.472	62.79
50 Receptacle	223-11-50-001	2.947	74.85	3.270	83.06	2.440	61.98	2.683	68.15	2.525	64.14


B Max
A
610
(15.49)
Max
.103 (2.62) Min. Dia. Mounting holes
Bushing floats .020 (.51) in all
directions from Mounting centers
.420 (10.67)
Max
430 (10.92)
Max
.085 (2.16) Typ.
C

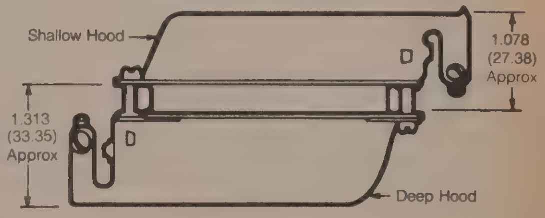
Receptacle


B Max
A
.610
(15.49)
Max
.103 (2.62) Min. Dia. Mounting holes
.395(10.03)
Max
460 (11.68)
Max
.085 (2.16) Typ
C

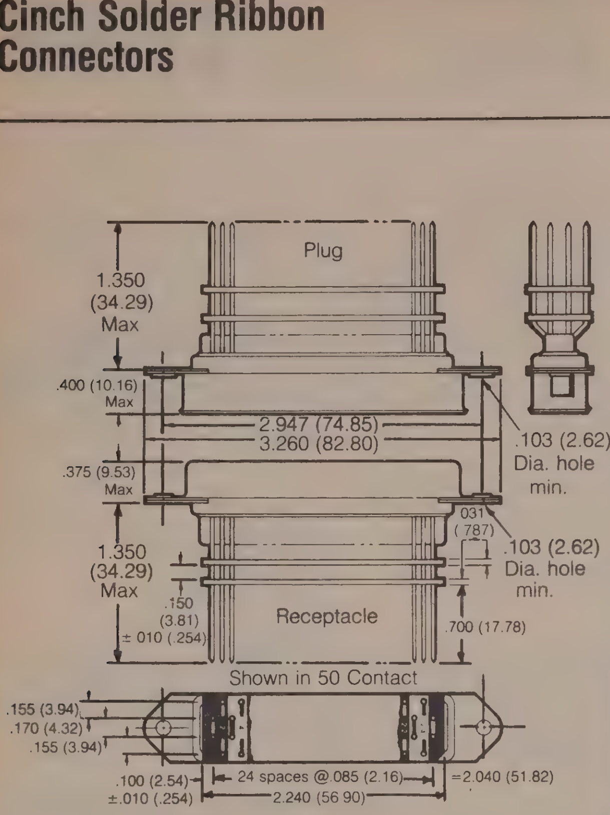
Plug


Bottom Mounting
A
Center Line
.200 (5.08) R
.580 (14.73) Min. Plug
.635 (16.13) Min. Receptacle
159
.04)
132
35)
15°
D Plug
D Receptacle
Top Mounting
A
Center Line
Clearance or Tapped holes for #3 Mounting screws
.156 (3.96) R
.580 (14.73) Min. Plug
.635 (16.13) Min. Receptacle
.238 (6.05)
.211 (5.36)
E Plug
E Receptacle

Mounting layouts


Shallow Hood
D
1.078
(27.38)
Approx
1.313
(33.35)
Approx
D
Deep Hood

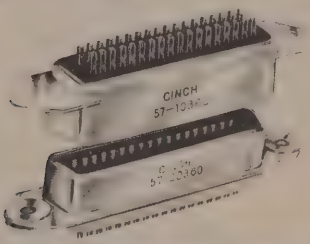
Cinch Solder Ribbon Connectors


Plug
1.350
(34.29)
Max
.400 (10.16)
Max
2.947 (74.85)
3.260 (82.80)
.103 (2.62)
Dia. hole
min.
.375 (9.53)
Max
.031
(.787)
.103 (2.62)
Dia. hole
min.
1.350
(34.29)
Max
.150
(3.81)
± .010 (.254)
Receptacle
.700 (17.78)
Shown in 50 Contact
.155 (3.94)
.170 (4.32)
.155 (3.94)
.100 (2.54)
±.010 (.254)
24 spaces @.085 (2.16)
=2.040 (51.82)
2.240 (56.90)

TRW Cinch Solder Ribbon Connector — Plug & Receptacle

TRW Cinch Solder Ribbon Connectors for Wire Wrap Termination and Panel Mounting are made in Plug and Receptacle with either .025″ or .045″ square Cupro Nickel Alloy 725 tails spaced on .085″ centers. 50-Position plug shell has window for latching to Superibbon. Connectors listed below are only a few of the many available from TRW Connector Division with a variety of mounting hardware. For more information concerning your specific mounting needs for these Universal Wire Wrap Adapters, please consult the factory.

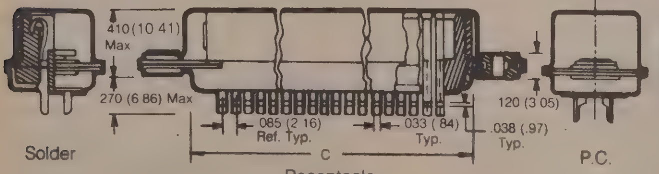
Size	Plug (.025″ sq.) Part No.	Plug (.045″ sq.) Part No.	Receptacle (.025″ sq.) Part No.	Receptacle (.045″ sq.) Part No.
14	222-12-14-092	222-12-14-094	222-22-14-182	222-22-14-181
24	222-12-24-092	222-12-24-094	222-22-24-182	222-22-24-181
36	222-12-36-092	222-12-36-094	222-22-36-182	222-22-36-181
50	222-12-50-092	222-12-50-094	222-22-50-182	222-22-50-181


CINCH
57-103
57-30360

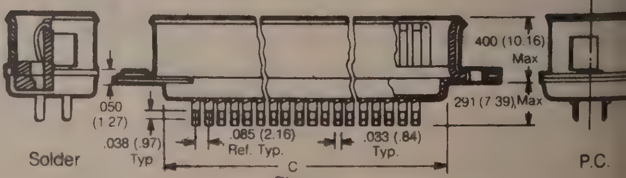
TRW Cinch Solder Ribbon Connector—Plug & Receptacle

Miniaturized Rack and Panel Connectors, utilizing Ribbon contact feature, are intermateable with both Superibbon and TRW Cinch Solderless Ribbon as well as other Ribbon Connectors. Solder Ribbon 50-position Plug has window for accepting patented Superibbon latch in mating with it. Insulation material is diallyl phthalate, type MDG per MIL-M-14F. Other characteristics are the same as Solderless Ribbon connectors shown on previous page.

Size & Type	Solder Part No.	P.C. Part No.	A		B		C		D Min.		E Min.	
			Inches	MM	Inches	MM	Inches	MM	Inches	MM	Inches	MM
14 Plug	222-12-14-004	222-12-14-063	1.417	35.99	1.750	44.45	.910	23.11	1.098	27.89	.940	23.88
14 Receptacle	222-22-14-004	222-22-14-083	1.417	35.99	1.750	44.45	.910	23.11	1.153	29.29	.995	25.27
24 Plug	222-12-24-003	222-12-24-064	1.842	46.79	2.175	55.25	1.335	33.91	1.523	38.68	1.365	34.67
24 Receptacle	222-22-24-003	222-22-24-084	1.842	46.79	2.175	55.25	1.335	33.91	1.578	40.08	1.420	36.07
36 Plug	222-12-36-002	222-12-36-065	2.352	59.74	2.685	68.20	1.845	46.86	2.033	51.64	1.875	47.63
36 Receptacle	222-22-36-002	222-22-36-085	2.352	59.74	2.685	68.20	1.845	46.86	2.088	53.04	1.930	49.02
50 Plug	222-11-50-014	222-31-50-074	2.947	74.85	3.270	83.06	2.440	61.98	2.628	66.75	2.472	62.79
50 Receptacle	222-22-50-008	222-22-50-069	2.947	74.85	3.270	83.06	2.440	61.98	2.683	68.15	2.525	64.14

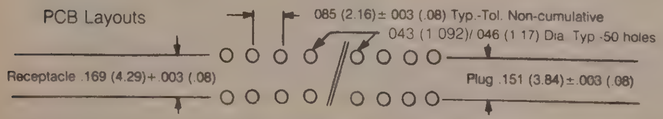

.410 (10.41)
Max
.270 (6.86) Max
.085 (2.16)
Ref. Typ.
.033 (.84)
Typ.
.120 (3.05)
.038 (.97)
Typ.
Solder
C
P.C.

Receptacle


.050
(1.27)
.038 (.97)
Typ
.085 (2.16)
Ref. Typ.
.033 (.84)
Typ.
.400 (10.16)
Max
.291 (7.39) Max
Solder
C
P.C.

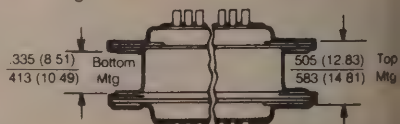
Plug

PCB Layouts


.085 (2.16) ± .003 (.08) Typ.-Tol. Non-cumulative
.043 (1.092)/.046 (1.17) Dia. Typ.-50 holes
Receptacle .169 (4.29) ± .003 (.08)
Plug .151 (3.84) ± .003 (.08)

PC Type for .063 (1.60) board thickness for other thicknesses please consult factory

Mating Plug &
Receptacle

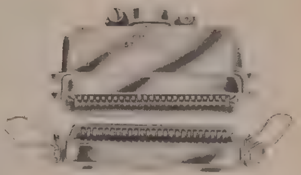

.335 (8.51)
.413 (10.49)
Bottom
Mtg
.505 (12.83)
.583 (14.81)
Top
Mtg

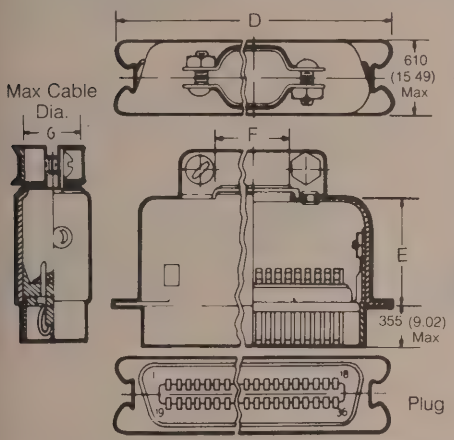
Cinch Solder Ribbon Connectors

TRW

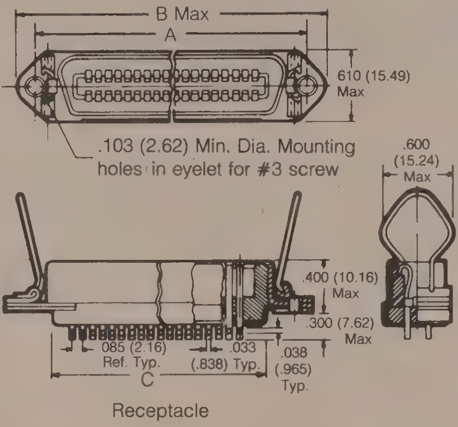
TRW Cinch Solder Ribbon Connector—Plug & Receptacle

Miniaturized connectors for Cable-to-Chassis installation, with same basic features as those shown on the previous page except no window for Superibbon latch in 50-position plug shell. Plug is equipped with hood and cable clamp while receptacle has sturdy spring-type latches which are guided and held by cutouts in plug hood flanges. Insulator body is molded of diallyl phthalate, type MDG per MIL-M-14 F. 14, 24, 36 and 50-contact sizes are available.

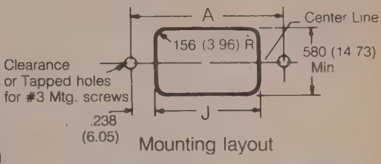



D
610
(15 49)
Max
Max Cable Dia.
G
F
E
355 (9.02) Max
1
18
19
36

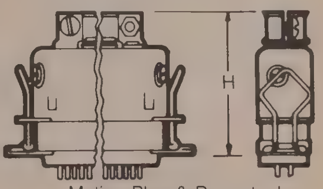
Plug


B Max
A
610 (15.49) Max
.103 (2.62) Min. Dia. Mounting holes in eyelet for #3 screw
.400 (10.16) Max
.300 (7.62) Max
085 (2.16) Ref. Typ.
.033 (.838) Typ.
.038 (.965) Typ.
C
.600 (15.24) Max

Receptacle


A
Center Line
156 (3 96) R
580 (14 73) Min
Clearance or Tapped holes for #3 Mtg. screws
J
.238 (6.05)

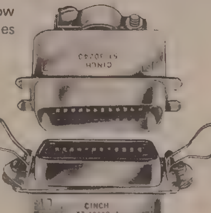
Mounting layout



Mating Plug & Receptacle

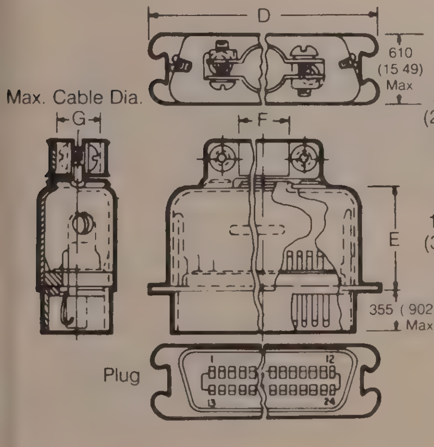
Size & Type	Cable-to-Chassis Part No.	Cable-to-Cable Part No.†	A		B		C		D		E		F		G		H		J Min.	
			In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
14 P w/hood	222-32-14-006	222-32-14-006							1.495	37.97	.843	21.41	.306	7.77	.422	10.72	1.668	42.37		
14 R w/latches	222-42-14-006	222-51-14-001*	1.417	35.99	1.750	44.45	.910	23.11					.306	7.77	.422	10.72			.940	23.88
24 P w/hood	222-32-24-005	222-32-24-005							1.920	48.77	.825	20.96	.473	12.01	.473	12.01	1.668	42.37		
24 R w/latches	222-42-24-005	222-51-24-002*	1.842	46.79	2.175	55.25	1.335	33.91					.473	12.01	.473	12 01			1.365	34.67
36 P w/hood	222-32-36-004	222-32-36-004							2.431	61.75	.905	22.99	.640	16.26	.473	12.01	1.730	43.94		
36 R w/latches	222-42-36-004	222-51 36-003*	2.352	59.74	2.685	68.20	1.845	46.86					.640	16.26	.473	12.01			1.875	47.63
50 P w/hood	222-32-50-001	222-32-50-001							3.025	76.84	.995	25.27	.766	19.46	.473	12.01	1.825	46.36		
50 R w/latches	222-42-50-001	222-51-50-004*	2.947	74.85	3.270	83.06	2.440	61.98					.766	19.46	.473	12.01			2.472	62.79

P - Plug; R - Receptacle †Part numbers shown in Table have clear chromate finish. If finish of yellow chromate is desired, consult factory. *Receptacle w/hood & latches. These cable-to-cable receptacles are available for large volume requirements only; consult factory for details.

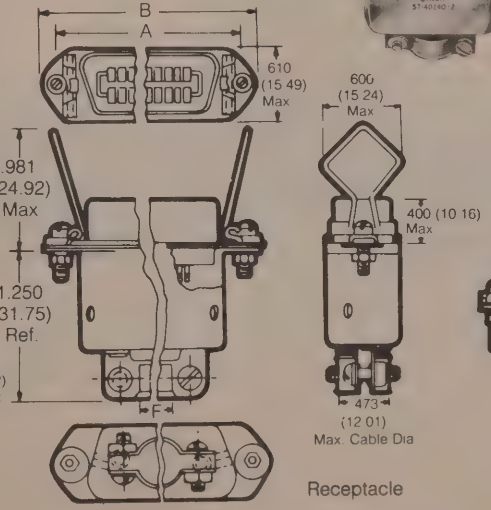

CINCH
57-40240-2

TRW Cinch Solder Ribbon Connector—Plug & Receptacle

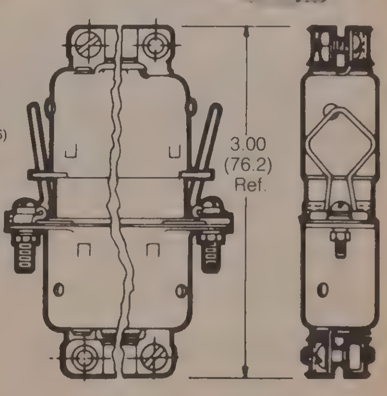
Same miniaturized connectors as shown above, except both plug and receptacle are equipped with hood and cable clamp for Cable-to-Cable installation. Receptacle also has spring-type latches which are held by cutouts in plug hood flanges. Insulator material is diallyl phthalate, type MDG per MIL-M-14F. Plug and receptacle contacts are Copper Alloy with a finish of gold per MIL-G-45204 type II over copper per MIL-C-14550.
Shells are steel with a finish of zinc.
14, 24, 36 and 50 contact sizes are available.


D
610
(15 49)
Max
Max. Cable Dia.
G
F
E
355 (902)
Max
1
12
13
24

Plug


B
A
610
(15 49)
Max
.981
(24.92)
Max
1.250
(31.75)
Ref.
F
600
(15 24)
Max
400 (10 16)
Max
473
(12 01)
Max. Cable Dia

Receptacle



Mated Plug & Receptacle

Cinch Solder Ribbon Connectors

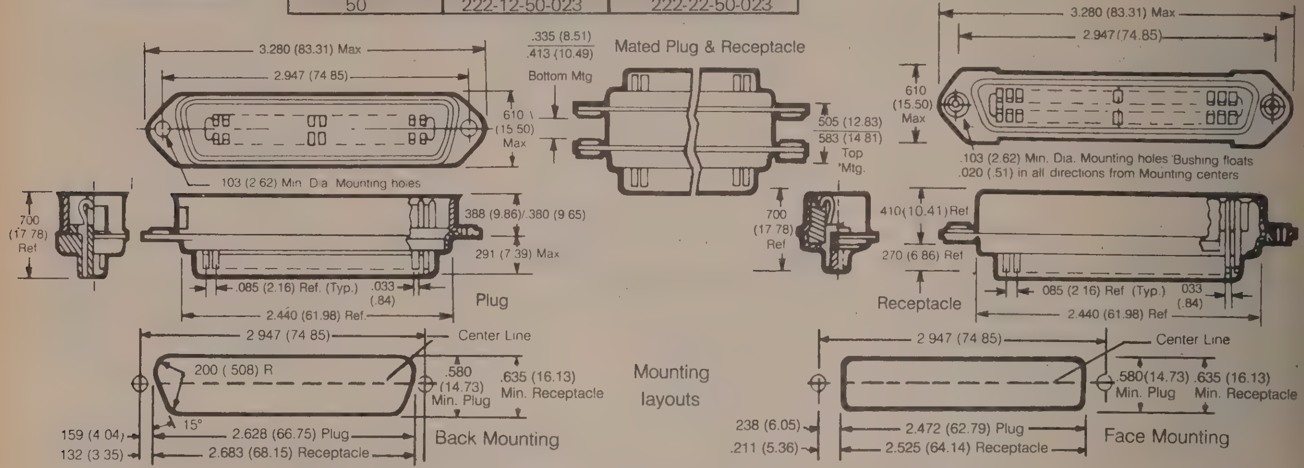
High Barrier

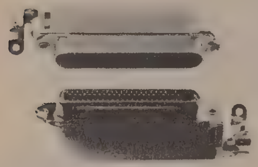
TRW

TRW Cinch Solder Ribbon High Barrier Connector—Plug & Receptacle

Same as 50-contact rack and panel connector shown on page 11, except for a special "high barrier" (additional insulator material) interposed between opposite rows of contacts. It has window in plug shell for latching to Superibbon. Insulator body is molded of diallyl phthalate, type MDG per MIL-M-14F. Plug and receptacle contacts are of Copper Alloy with a finish of gold per MIL-G-45204 type II over copper per MIL-C-14550. Shells are Steel with a finish of zinc with clear chromate. Polyethylene dust covers are also available.

No. of Contacts	Plug Part No.	Receptacle Part No.
50	222-12-50-023	222-22-50-023

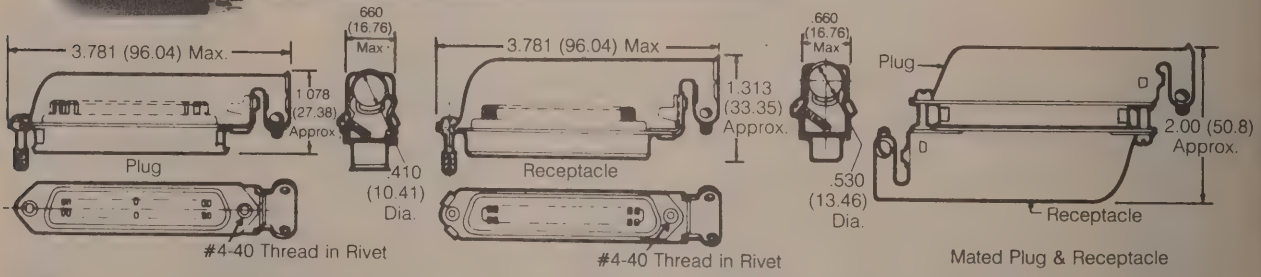

3.280 (83.31) Max
2.947 (74 85)
610 (15 50) Max
103 (2 62) Min Dia Mounting holes
700 (17 78) Ref
388 (9.86)/.380 (9 65)
291 (7 39) Max
.085 (2.16) Ref. (Typ.)
.033 (.84)
2.440 (61.98) Ref.
Plug
.335 (8.51)
.413 (10.49)
Bottom Mtg
Mated Plug & Receptacle
505 (12.83)
583 (14 81)
Top Mtg.
3.280 (83.31) Max
2.947 (74.85)
610 (15.50) Max
.103 (2.62) Min. Dia. Mounting holes Bushing floats .020 (.51) in all directions from Mounting centers
700 (17 78) Ref
410 (10.41) Ref
270 (6 86) Ref
085 (2 16) Ref (Typ.)
033 (.84)
2.440 (61.98) Ref
Receptacle
2 947 (74 85)
Center Line
200 (508) R
.580 (14.73) Min. Plug
.635 (16.13) Min. Receptacle
15°
159 (4 04)
132 (3 35)
2.628 (66.75) Plug
2.683 (68.15) Receptacle
Back Mounting
Mounting layouts
2 947 (74 85)
Center Line
.580 (14.73) Min. Plug
.635 (16.13) Min. Receptacle
238 (6.05)
.211 (5.36)
2.472 (62.79) Plug
2.525 (64.14) Receptacle
Face Mounting



TRW Cinch Solder Ribbon High Barrier Connector—Plug & Receptacle

Same as 50-contact rack and panel connector shown above with plug shell window, except for special hood and hardware for cable-to-cable applications. Plug and receptacle have same special "high barrier" of insulator material interposed between opposite rows of contacts.

No. of Contacts	Plug Part No.	Receptacle Part No.
50	222-32-50-096	222-42-50-018


3.781 (96.04) Max.
1.078 (27.38) Approx
Plug
660 (16.76) Max
.410 (10.41) Dia.
#4-40 Thread in Rivet
3.781 (96.04) Max
1.313 (33.35) Approx.
Receptacle
.660 (16.76) Max
.530 (13.46) Dia.
#4-40 Thread in Rivet
Plug
2.00 (50.8) Approx.
Receptacle
Mated Plug & Receptacle

Solderless Ribbon Connectors P. 2224		Solder Ribbon Rack & Panel P. 2225		P.C. Type Connectors P. 2225		Solder Ribbon Cable-to-Chassis P. 2226	
TRW Cinch	Industry	TRW Cinch	Industry	TRW Cinch	Industry	TRW Cinch	Industry
223-10-14-001	77-12140	222-12-14-004	57-10140	222-12-14-063	57-10140-4	222-32-14-006	57-30140
223-11-14-001	77-22140	222-22-14-004	57-20140	222-22-14-083	57-20140-8	222-42-14-006	57-40140
223-10-24-001	77-12240	222-12-24-003	57-10240	222-12-24-064	57-10240-3	222-32-24-005	57-30240
223-11-24-001	77-22240	222-22-24-003	57-20240	222-22-24-084	57-20240-8	222-42-24-005	57-40240
223-10-36-001	77-12360	222-12-36-002	57-10360	222-12-36-065	57-10360-13	222-32-36-004	57-30360
223-11-36-001	77-22360	222-22-36-002	57-20360	222-22-36-085	57-20360-9	222-42-36-004	57-40360
223-10-50-001	77-12500	222-11-50-014	57-10500	222-31-50-074	57-10500-27	222-32-50-001	57-30500
223-11-50-001	77-22500	222-22-50-008	57-20500	222-22-50-069	57-20500-31	222-42-50-001	57-40500

Solder Ribbon Cable-to-Cable P. 2226	
TRW Cinch	Industry
222-51-14-001	57-40140-2
222-51-24-002	57-40240-3
222-51-36-003	57-40360-2
222-51-50-004	57-40500-2

High Barrier Rack & Panel P. 2227	
TRW Cinch	Industry
222-12-50-023	57-10500-6
222-22-50-023	57-20500-6

High Barrier Cable-to-Cable P. 2227	
TRW Cinch	Industry
222-32-50-096	57-10500-7
222-42-40-018	57-20500-7

Part Number Conversion Table—TRW Cinch/Industry

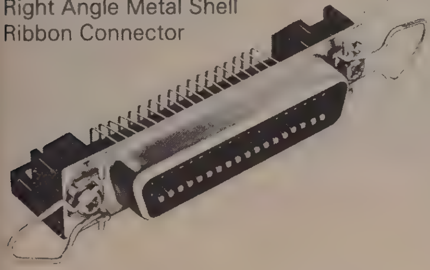
Cinch Ribbon Connectors

P.C. Right Angle Plastic And Metal Shells

TRW

Right Angle Plastic Shell Ribbon Connector

Right Angle Metal Shell Ribbon Connector



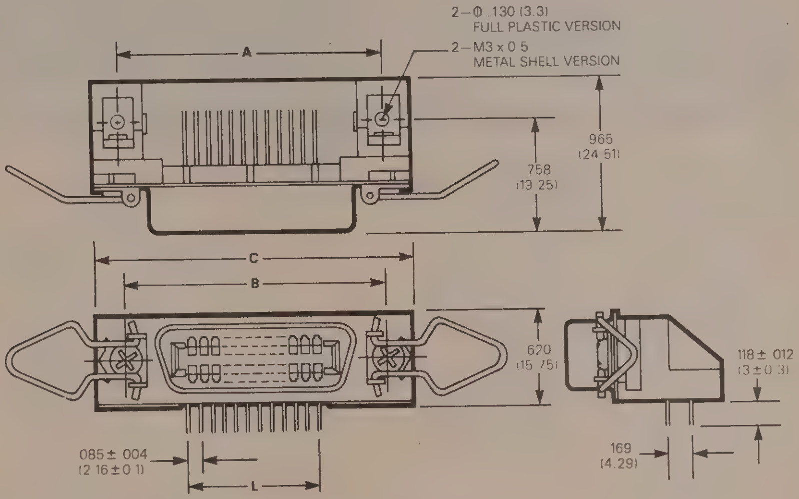
Intermatable and interchangeable with solder type ribbon connectors now in use.

Compatable with existing Cinch Ribbon hardware.

Bail latch for secure locking.

Metal shell to meet FCC regulations.

Number of Contacts: 24, 36, (50)
Rated Voltage: AC 500V (r.m.s.)
Rated Current: DC 5A
Withstanding Voltage: AC 1000V (r.m.s.)
Insulation Resistance: 1000 MΩ min. (bei ~ 500V)
Contact Resistance: 10 MΩ max. (bei ~ 5A)
Insulator: PBTP UL-94V-O
Contact Material: Spring copper alloy
Contact Finish: Selectively gold plated



Dimensions

	L		A		B		C	
Size	**In.**	**MM**	**In.**	**MM**	**In.**	**MM**	**In.**	**MM**
24	.935	23.76	1.842	46.79	1.842	46.79	2 175	55.25
36	1.446	36.72	2.352	59.74	2.352	59.74	2.685	68 21
50	2.040	51.82	2.947	74.85	2 947	74.47	3.280	83 32

No. of Contacts	Distributor Part No.							
	Plastic Shell				Metal Shell*			
	w/latch		w/o latch		w/latch		w/o latch	
	Gold	Solder	Gold	Solder	Gold	Solder	Gold	Solder
24	57-MR24-1	57-MR24-3	57-MR24-5	57-MR24-7	57-MR24-2	57-MR24-4	57-MR24-6	57-MR24-8
36	57-MR36-1	57-MR36-3	57-MR36-5	57-MR36-7	57-MR36-2	57-MR36-4	57-MR36-6	57-MR36-8
50	57-MR50-1	57-MR50-3	57-MR50-5	57-MR50-7	57-MR50-2	57-MR50-4	57-MR50-6	57-MR50-8

*Threaded 4-40 bushing for grounding

CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

Cinch Compliant Super Ribbon Connectors For PC Board Applications

TRW

Combines no-solder press fit cost savings with ribbon contact reliability!

- Pre-loaded contacts require no end-user soldering
- No special tooling needed
- Available in both plug and socket styles in 14, 24, 36, 50, and 64 contact sizes
- 3 different socket connector latch designs to choose from
- Mount on PC boards from .062″ to .125″ thick

Insta-Latch Mating (without hardware)

The receptacle is equipped with patented spring-clips that make an audible "click" telling you the connectors are fully mated. Locking screws and threaded mounting holes are available for special applications.

Rapid Unmating of Connectors

Any pointed object, can be used on the mated connectors to depress the clip. The plug and receptacle are then disengaged by slight hand pressure.

TRW Cinch Compliant Press Fit Superibbon Connectors are provided with pre-loaded ribbon contacts captivated in the insulator body. Individual contacts can be replaced using a special tool without removing the connector from the PC board.

The connectors can be mounted on PC boards ranging from .062″ to .125″ thick. The compliant C section provides electrical interface to the plated-through hole for a length of .065″.

Performance Data

Electrical

- Dielectric Withstanding Voltage per EIA Standard RS 364, TP 20.

Altitude	Test Voltage
Sea Level	1200V AC RMS 1700V DC
70,000 ft.	300V AC RMS 420V DC

Altitude	Rated Voltage
Sea Level	500V AC RMS 700V DC
70,000 ft.	125V AC RMS 200V DC

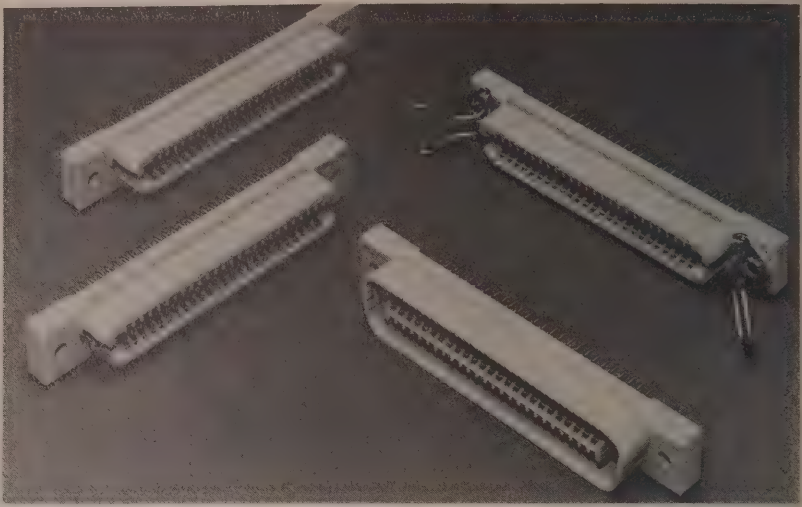
- Insulation Resistance per EIA Standard RS 364, TP 21.

Initial	5000 Megohms Min.
After Moisture	1000 Megohms Min.

Contact Current Rating
5 Amperes

- Contact Resistance per EIA Standard RS 364, TP 6.
- Low Level Contact Resistance per EIA Standard RS 364, TP 23.

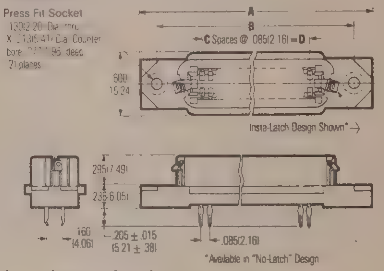
Millivolt Drop
30 Millivolts (6 Milliohms) Max.



(A) Insta-Latch mating features patented spring clips that make an audible "click" to signal that plug and receptacle are fully mated and secure. No additional hardware required. (B) "No Latch" mating offers a precision, reliable connection without locking. (C) Spring Bail Latch uses two spring bail wire clips to lock the two halves together.

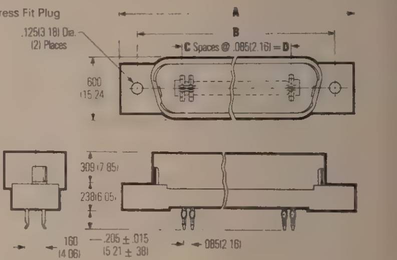
Dimensions

Press Fit Socket



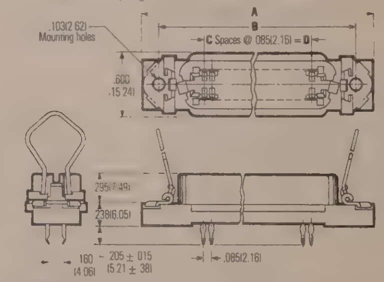
.130(2.20) Dia thru
X .213(5.41) Dia Counter
bore .077(1.96) deep
(2) places
A
B
C Spaces @ .085(2.16) = D
.600
(15.24)
Insta-Latch Design Shown*
.295(7.49)
.238(6.05)
.160
(4.06)
.205 ± .015
(5.21 ± .38)
.085(2.16)
*Available in "No-Latch" Design

Press Fit Plug



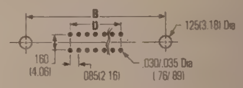
.125(3.18) Dia.
(2) Places
A
B
C Spaces @ .085(2.16) = D
.600
(15.24)
.309(7.85)
.238(6.05)
.160
(4.06)
.205 ± .015
(5.21 ± .38)
.085(2.16)

Press Fit Socket with Spring Bail Latches



.103(2.62)
Mounting holes
A
B
C Spaces @ .085(2.16) = D
.600
(15.24)
.295(7.49)
.238(6.05)
.160
(4.06)
.205 ± .015
(5.21 ± .38)
.085(2.16)

PCB Hole Layout



B
D
.125(3.18) Dia
.160
(4.06)
.085(2.16)
.030/.035 Dia
(.76/.89)

Dimensions

No. of Contacts	A		B		C	D	
	in.	mm	in.	mm		in.	mm
14	1.745	44.32	1.417	35.99	6	.510	12.95
24	2.170	55.12	1.842	46.79	11	.935	23.75
36	2.680	68.07	2.352	59.74	17	1.445	36.70
50	3.275	83.19	2.947	74.85	24	2.040	51.82
64	3.875	98.43	3.542	89.97	31	2.635	66.93

Ordering Information

No. of Contacts	Plug	Receptacles		
		No Latch (B)	Insta-Latch (A)	Spring Bail Locks(C)
14	224-60-14-002	224-57-14-007	224-57-14-008	224-57-14-009
24	224-60-24-002	224-57-24-007	224-57-24-008	224-57-24-009
36	224-60-36-002	224-57-36-007	224-57-36-008	224-57-36-009
50	224-60-50-002	224-57-50-007	224-57-50-008	224-57-50-009
64	224-60-64-002	224-57-64-007	224-57-64-008	224-57-64-009

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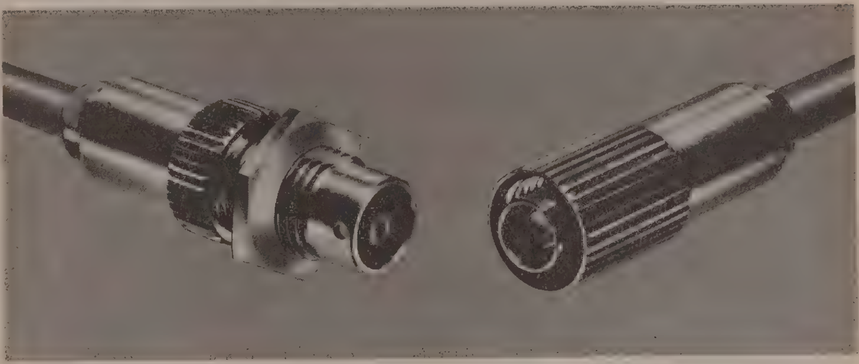
TRW

Optalign* Metal Shell Fiber Optic Connectors

Model MM (Multi Mode) and Model SM (Single Mode)

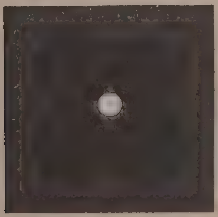


Directly applicable to computers, telecommunications, cable television, medical, instrumentation and military requirements, TRW Connectors for single fiber cable are state-of-the-art advances in reliable coupling of very fine fibers.

Optalign Metal Shell Fiber Optic Connectors can be manufactured to suit your cable and fiber requirements.

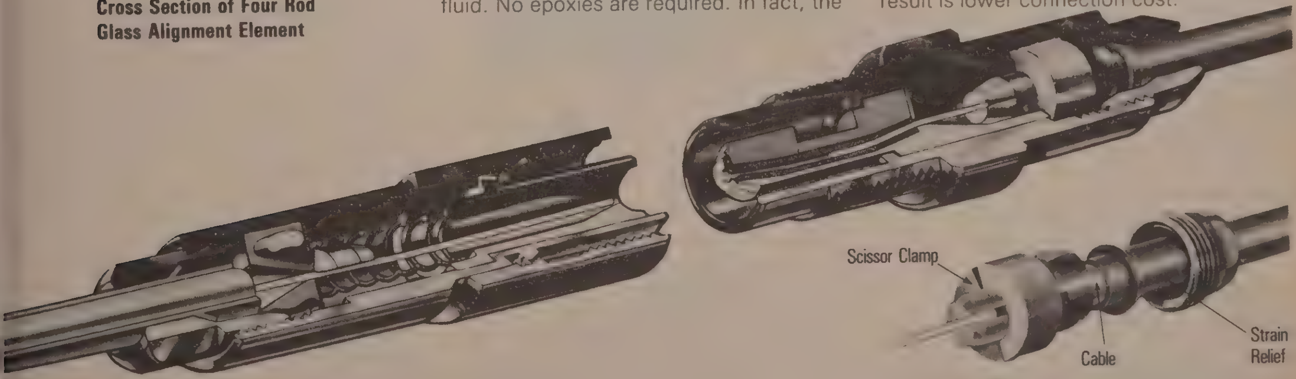
- Precise, stable, repeatable, rapid connections made by hand with insertion loss of 0.5 db or less.
- Scribe-cleaved fiber requires no epoxies or polishing of ends.
- Only two tools required: fiber jacket/fiber preparation tool and fiber scribe and cleave tool.
- Zero gap compressive—fiber mating assured even under vibration and shock (Mil. Std. 202 test).
- Fibers fully protected by sliding piston and deep recess when unmated.
- Internal scissor clamp secures both fiber and strength member and accommodates a range of fiber cable constructions.
- Unique four rod glass alignment element guides mating fibers into precise alignment under compression.
- Glass alignment element is stable, inert, strong, clean and compatible with both silica and plastic fibers.
- Relative low cost for performance.
- Compact: Both plug and receptacle each measure .625″ (15,9 mm) diam. x 1.5″ (38,1 mm) long.
- Cable to cable or cable to panel mounting. Panel mounted receptacle extends .810 (21 mm) behind panel.
- Strain relief to fit most cables.

*Trademark TRW Inc



Cross Section of Four Rod Glass Alignment Element

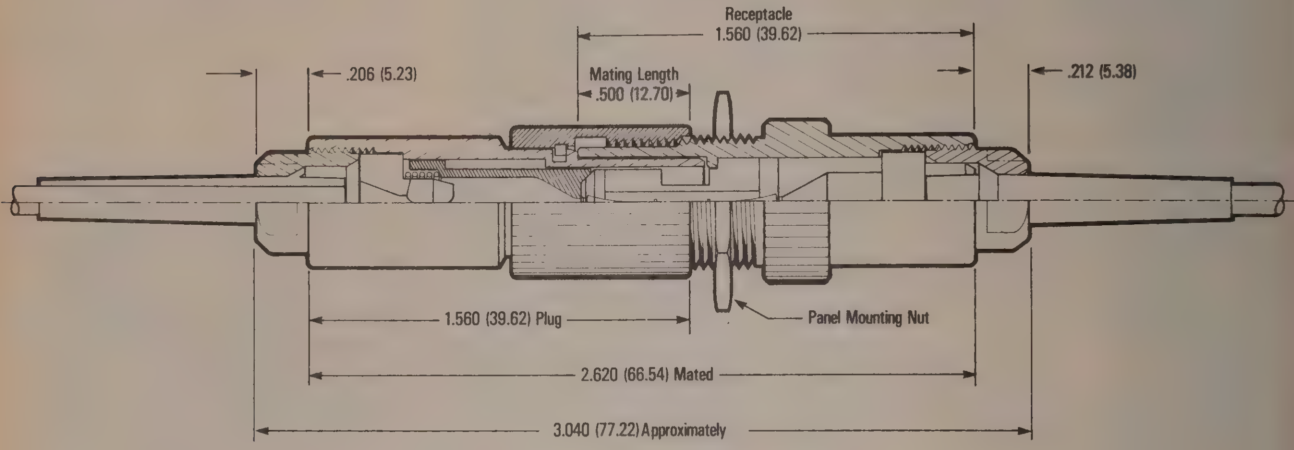
The unique fiber alignment element invented by TRW employs an all-glass four rod array. This element, integrally fused and slightly curved, is fitted into a plastic slug. The bore of this multi-rod array in its curved state permits entering fibers to meet deep within and common to one of the Vee shaped interstices. The inherent self-aligning characteristics permit close lateral and angular matching enhanced by self retained index matching fluid. No epoxies are required. In fact, the fibers are loaded in compression and self limit. This feature yields excellent shock and vibration immunity. An important feature of the all-glass array is its inherent cleanliness, chemical inertness, protective enclosure and ability to accept fiber diameters which might be at opposite tolerance limits. Most importantly the glass array does not in any way demand precision tolerances and dimensions of its connector envelope to achieve low losses. A result is lower connection cost.

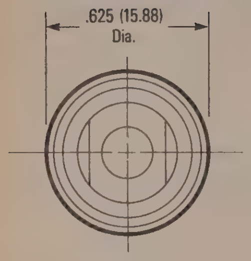


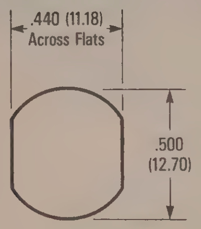
Optalign Metal Shell Fiber Optic Connector

TRW

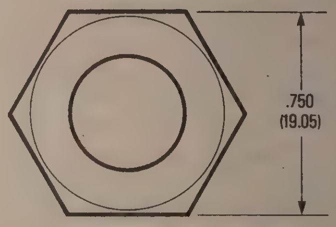
Dimensions:


Receptacle
1.560 (39.62)
.206 (5.23)
Mating Length
.500 (12.70)
.212 (5.38)
1.560 (39.62) Plug
Panel Mounting Nut
2.620 (66.54) Mated
3.040 (77.22) Approximately


.625 (15.88)
Dia.


.440 (11.18)
Across Flats
.500
(12.70)

Suggested Panel Opening



Panel Mounting Nut

Materials and Finishes:

Outer Shell: Aluminum—machined and anodized.
Internal Scissor Clamp: Molded Plastic.
Fiber Alignment Element: Four-glass-rod array, fused and slightly curved, and fitted to plastic slug.
Strain Relief: Molded rubber.
Preliminary Operational Data:
Mechanical Coupling: Threaded ring.
Zero Gap Compressive: Fiber mating assured, even under vibration and shock (mil. std. 202 test).
Insertion Loss: Single Mode: Less than 1.0 db. Multi Mode: 0.2 db typical.
Behind Panel Distance: .810″ (21 mm) for mounted receptacle.

Model MM (Multi Mode)
Plug Part No. 296-62-01-001
Receptacle Part No. 296-62-02-001

Model SM (Single Mode)
Plug Part No. 296-63-01-001
Receptacle Part No. 296-63-02-001

Accessories:

1. Fiber Clamp Alignment Guide: Part No. 599-11-11-410 (Order one for use in positioning fiber to clamp per instruction sheet - is reusable and will service any number of connector halves.)
2. Cable Stripping Tool: Part No. 599-11-11-409 for stripping Siecor cable.
3. Strength Member Trim Scissors: Part No. 599-11-11-407.
4. Fiber Scribe and Cleave Tool: Part No. 599-11-11-408 (Provides proper tension, length and square, optical face to Silica fibers.)

For further information on how the Optalign Metal Shell Connector-System can benefit you, contact:

Carl J. Durkow
Fiber Optic Products Manager
215.922.8900

Optasplice* Optical Fiber Splice Kits

TRW

TRW Optasplice* Optical Fiber Splice Kits

Everything needed for making fast low-cost, low-loss, optical fiber splices in the field.

- Precision fiber alignment.
- Typical insertion losses are less than 0.3dB for multi mode and less than 0.8dB for single mode fiber.
- Rapid, easy assembly; 3 min. excluding cure time.
- Strain relief on fiber buffer can be easily sealed.
- Designed for use in hazardous or high vibration areas.
- Requires no expensive equipment.
- Compact low profile package.
- Stainless steel sleeve mechanically crimped for structural integrity.

Optasplice

Each kit contains ten (10) Optasplice Splice Modules featuring the unique TRW Optaguide* Glass Alignment Guide which permits fast, accurate, low-loss splices of single or multi-mode optical fiber. The fiber junction in the alignment guide is bonded with a UV curable adhesive and protected by a mechanically crimped stainless steel sleeve. The splice can be installed in the field in less than three minutes, plus UV curing time using the tools provided.

Modules are available for 70μm, 125μm, 140μm diameter fibers.

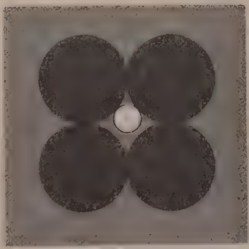
Three kit models are available: Model SK-3 (shown above) contains 10 Optasplice modules, splice assembly tool, crimp tool, tweezers, 30X hand-held microscope, UV curable optical index matching adhesive, Optascribe* fiber cleaving tool and portable UV light source.

Optasplice Kit Model SK-2 contains the same components less the UV light source; Model SK-1 comes without UV light source or the Optascribe fiber cleaving tool. Refill splice modules are available for most commonly used optical fiber sizes. See back page for more details and specifications on the Optasplice Kits and Splice Modules.

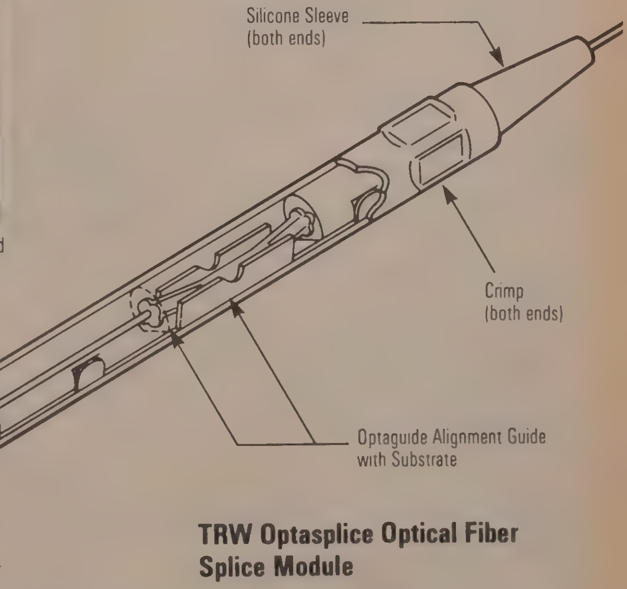
Optasplice Low-Loss Splice Modules

Optasplice Splice Modules use the unique Optaguide fiber alignment element patented by TRW. This element is a four-rod, glass array, integrally fused with slight bends at both ends. The bore of this multi-rod array with its bent geometry permits entering fibers to meet in the center of the alignment element and common to one of the vee-shaped interstices. This inherent self-aligning characteristic permits close lateral and angular matching, and provides excellent shock and vibration immunity.

The glass guides are mounted to a copper alloy substrate for structural support. Silicone strain reliefs are provided to protect the optical fiber from mechanical stress. A stainless steel sleeve is crimped on the silicone sleeves to provide protection and mechanical support for the completed splice module. The result is a fast, simple field installable splice at significantly lower connection cost.



Cross Section of Optaguide Four-rod Glass Alignment Element.


Silicone Sleeve (both ends)
Crimp (both ends)
Stainless Steel Housing
Optaguide Alignment Guide with Substrate
Buffered Fiber

TRW Optasplice Optical Fiber Splice Module

Optasplice* Optical Fiber Splice Kits

TRW

Model SK1 (P/N 296-31-XX-XXX)**

Basic Splice Kit includes:

- Ten (10) individually packaged Optasplice splice modules.
- Splice assembly tool.
- 30X inspection microscope.
- Crimp tool.
- Tweezers.
- UV optical adhesive.
- Compact, portable, carrying case; 13"(330.2mm)L × 9"(228.6mm)W × 3"(76.2mm)H.
- Weight 2.9 lbs.
- Case material; high-impact molded ABS plastic.
- Specify fiber diameter and strain relief to handle buffer jacket diameters of Optasplice modules.

Model SK2 (P/N 296-32-XX-XXX)**

Same as Model SK1 with the addition of:

- Low cost, Optascribe fiber cleaving tool.
- Same carrying case as Model SK1.
- Weight 3.5 lbs.
- Specify fiber diameters and strain relief of Optasplice modules.

Model SK3 (P/N 296-33-XX-XXX)**

Same as Model SK1 with the addition of:

- Low cost, Optascribe cleaving tool.
- Portable, rechargeable UV light source.
- Compact, portable carrying case; 15"(381.0mm)L × 13"(330.2mm)W × 3"(76.2mm)H.
- Weight 5.6 lbs.
- Specify fiber diameter and strain relief of Optasplice modules.

**The last five digits refer to fiber and strain relief diameters. (Use same size designation as indicated in "How To Order" information below.)

Optasplice Splice Module Specifications

Mechanical:
Fiber diameters: 70μm, 125μm, 140μm.
Sleeve dimensions: 2.125"(53.795mm) long × 0.125"(3.175mm) dia.

Materials:
Outer sleeve—stainless steel.
Strain relief—molded silicone rubber.
Optaguide fiber alignment element—four-rod, glass array, mounted on a reinforced copper substrate.

Insertion Loss:
Multi mode fiber: less than 0.3dB typical.
Single mode fiber: less than 0.8dB typical.

Temperature range:
−55°C to +85°C.

How To Order Optasplice Kit Module Refills

296-40-XX-XXX

Fiber Diameter
125=125 μm
140=140 μm
070= 70 μm

Strain Relief
01=.022"(0.558mm)
02=.038"(0.965mm)

Splice Module Refills

*Trademark TRW Inc.

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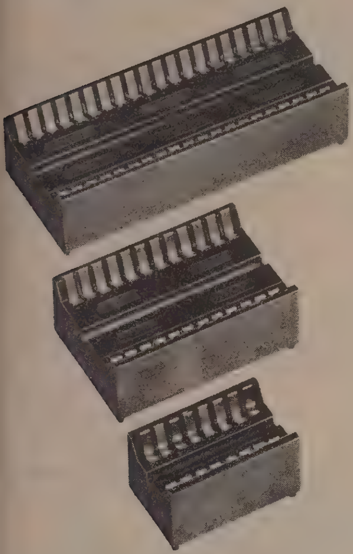
Cinch I.C. Sockets

Burn-In-Sockets



Cinch burn-in-sockets guarantee high reliability in static and dynamic burn-in applications with constant or varying temperatures.

The unique contact design with a large target area for easy insertion and an additional stainless steel tension spring guarantee high reliability and constant contact force. The features of the socket eliminate solder or flux wicking problems.

- for components in DIL package
- temperature resistant up to +200°C
- center slot for easy unloading
- large target area for easy insertion
- contacts of corrosion proof alloy, gold plated
- suitable as high quality test socket

Electrical Specifications

Contact resistance: 10 megohm
Current rating: 1 amp
Voltage rating: 125 volts
Test voltage: 500 volts
Insulation resistance: 5 G ohm
Contact capacity: 2 pF

Environmental And Mechanical Specifications

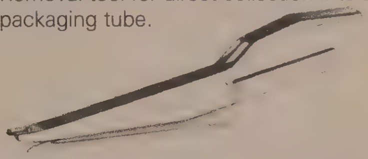
Plug in cycles: 1000
Contact pressure: 0.5 N
Insertion force per contact: 1.0 N
Extraction force per contact: 0.2 N
Temperature limits: −55 to +220°C
Inflammability: UL-94 V O
Number of contacts: 16, 18, 20, 24, 28, 40

Order Information

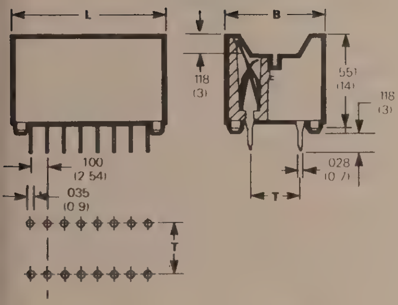
No. of contacts	Part No.
16	GBI-16
18	GBI-18
20	GBI-20
24	GBI-24
28	GBI-28
40	GBI-40

Special Removal Tool

Removal tool for direct collection into DIP packaging tube.



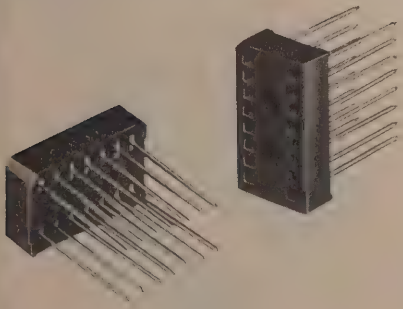
No. of contacts	Part No.
16-20	GBIT-1
24-40	GBIT-2



Dimensions:

Contacts	L		B		T	
	In.	MM	In.	MM	In.	MM
16	.880	22.35	.551	14.00	.300	7.62
18	.980	24.89	.551	14.00	.300	7.62
20	1.080	27.43	.551	14.00	.300	7.62
24	1.280	32.51	.851	21.62	.600	15.24
28	1.480	37.59	.851	21.62	.600	15.24
40	2.080	52.83	.851	21.62	.600	15.24

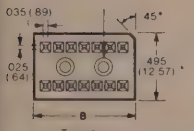
Precision Sockets—Wire Wrap Tails



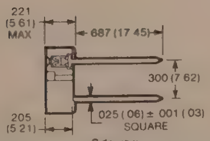
Insulator: 15% glass filled polyester, UL-94 V-O
Contact style: Double beam, face grip.
Contact material: Brass alloy 688.
Contact plating:
1) Electrolytic tin .00020″ over copper flash.
2) .000020″ gold.

Termination: .025″ (.635 mm) square wrap post tail x .687″ (17.45 mm) long.
Current rating: One amp.
Centers: .100″ (2.54 mm)
Entry: Closed

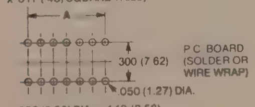
No. of Contacts	Insulator Color	Contact Plating	Distributor Part No.
14	Black	Electro-Tin	14-W-DIP
14	White	Electro-Tin	14-W-DIP-1
14	Black	Gold	14-W-DIP-2
14	White	Gold	14-W-DIP-3
16	Black	Electro-Tin	16-W-DIP
16	White	Electro-Tin	16-W-DIP-1
16	Black	Gold	16-W-DIP-2
16	White	Gold	16-W-DIP-3



Top view



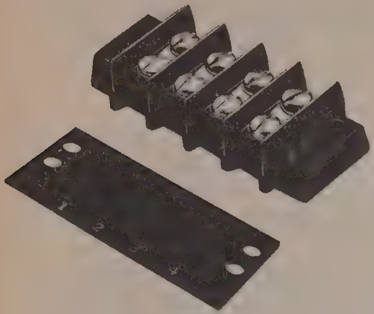
Side view



Contacts	Dimensions			
	A		B	
	In.	MM	In.	MM
14	.600	15 24	.770	19 55
16	.700	17.78	.870	22.10

"Jones" Barrier Terminal Blocks And Accessories

TRW



Interposing barriers between each terminal position yields substantially higher electrical ratings and provides an additional safeguard against shorting from frayed wires.

The wide size range of "Jones" barrier terminal blocks, the several termination options and the available accessories permit flexibility of end use application.

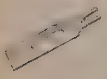
Marker strips identify terminal positions on barrier terminal blocks and insulate exposed portions of terminals from a conductive mounting surface. Marker strips for Series 140 thru 164 are 1/32 inch thick flame retardent material and mount under the terminal strip.
One-eighth inch white numerals standard.

Electrical Specifications					Mechanical Specifications and Useful Information										
Series	Max. Volts RMS w/o Marker Strip	Max. Volts RMS with Marker Strip	Max. Current Amps	Max. Watts Per Terminal	Wire Size Max. (Solid)	Center to Center Spacing		Binder Head Screw Size	Barrier	Marker Mounting	Marker Strip Part Numbers	Fanning Strip Part Numbers	Std. No. of Terminals	Standard Terminals	Standard Optional Terminals Order Separately
						In.	MM								
140 ***	1100	2000	15	3750	#16	.375	9.53	5/40x3/16″	Regular	Bottom	140 140Y	160, 160A 160B, 160BA	1-25	B.H. Screw, 3/4 W and Y	W** ***
141 ***	1100	2400	20	5000	#14	.438	11.11	6/32x1/4″	Regular	Bottom	141 141Y	161, 161A	1-20	B.H. Screw, 3/4 W and Y	W & Quick Clamp ***
142 ***	1600	2600	30	7500	#10	.563	14.29	8/32x5/16″	Regular	Bottom	142 142Y	162A, 162	1-17	B.H. Screw, 3/4 W and Y	W & Quick Clamp ***
150	1700	2600	40	12500	#10	.688	17.46	10/32x5/16″	Regular	Bottom	150 150Y	None	1-10	B.H. Screw, and Y	W
151	1800	3400	50	17500	# 8	.875	22.23	12/32x3/8″	Regular	Bottom	151	None	1-8	B.H. Screw	W
152	2100	3800	70	54000	# 6	1.125	28.58	1/4x1/2″	Regular	Bottom	152	None	1-6	B.H. Screw	W
164	1100	2000	15	3750	#14	.375	9.53	6/32x1/4″	Regular	Bottom	140 140Y	160A, 160 160B, 160BA	1-21	B.H. Screw, 3/4 W and Y	W***
171	1000	*	10	625	#18	.250	6.35	2/56x1/16″	Regular	*	*	None	2-8	B.H. Screw,	
172	1000	2000	10	625	#18	.250	6.35	2/56x3/16″	Regular	Bottom	Special	None	1-14	B.H. Screw, W, 3/4W and Y	
173	1000	*	15	625	#16	.375	9.53	4/40x5/16″	Regular	*	*	None	2-10	Sems Screw	
174	1000	*	15	625	#16	.375	9.53	4/40x5/16″	Regular	*	*	None	2-10	B.H. Screw	
540	2300	2300	15	3750	#16	.375	9.53	5/40x3/16″	High	Top	540	160, 160A, 160B, 160BA	2-31	B.H. Screw	W***
541	2800	2800	20	5000	#14	.438	11.11	6/32x1/4″	High	Top	541	161A, 161	2-30	B.H. Screw	W & Quick Clamp***
542	4000	4000	30	7500	#10	.563	14.29	8/32x5/16″	High	Top	542	162A, 162	2-26	B.H. Screw	W & Quick Clamp***

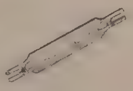
*No marker strip available.

**Wrap post available as a special

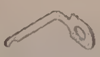
***Sems screws available as a special



"3/4W"



"W"



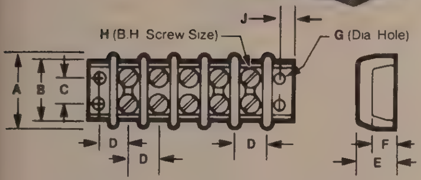
"Y"

Insulator: Monoblock, general purpose black phenolic.
Operating temperature range: -55°F to +300°F.
Eyelets: Nickel plated brass.
Binder head screws: Steel with .0002″ nickel over copper flash. Undercut head firmly grips wire. Binder head screws are referred to as standard screws.
Solder terminals: Brass, electrotinned. "3/4 W" terminals for solder connection of wires to one side of the barrier terminal block. "W" terminals for solder connection to both sides. "Y" terminals for solder connection of wires underneath the barrier terminal block.

"Jones" Barrier Terminal Blocks And Accessories

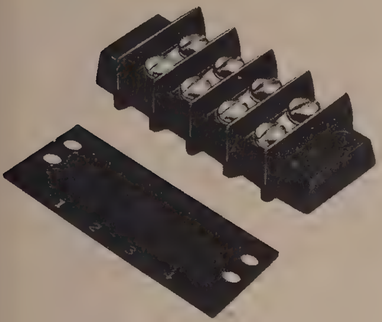
TRW

Series 140/141/142/164



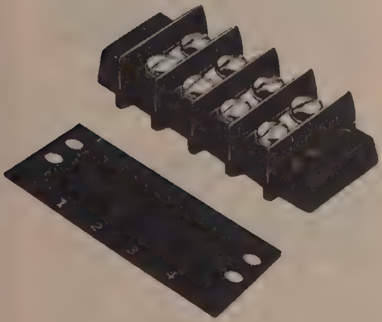
	140		141		142		164	
	In.	MM	In.	MM	In.	MM	In.	MM
A	.875	22.23	1.125	28.58	1.312	33.34	.875	22.23
B	.688	17.46	.875	22.23	1.062	26.99	.688	17.46
C	.313	7.94	.422	10.72	.500	12.70	.313	7.94
D	.375	9.53	.438	11.11	.563	14.29	.375	9.53
E	.406	10.32	.500	12.70	.625	15.88	.406	10.32
F	.250	6.35	.313	7.94	.375	9.53	.250	6.35
G	.160	4.06	.175/.185	4.45/4.70	.209	5.31	.171/.175	4.34/4.45
H	5/40		6/32		8/32		6/32	
J	.141	3.57	.156	3.97	.203	5.16	.141	3.57

140 series accommodates up to #16 solid wire—UL recognized



No. of Terminals	Standard Screws	3/4W	Marker Strip	Y	Marker Strip
1	1-140	1-140-3/4W	—	1-140-Y	—
2	2-140	2-140-3/4W	MS-2-140	2-140-Y	MS-2-140-Y
3	3-140	3-140-3/4W	MS-3-140	3-140-Y	MS-3-140-Y
4	4-140	4-140-3/4W	MS-4-140	4-140-Y	MS-4-140-Y
5	5-140	5-140-3/4W	MS-5-140	5-140-Y	MS-5-140-Y
6	6-140	6-140-3/4W	MS-6-140	6-140-Y	MS-6-140-Y
7	7-140	7-140-3/4W	MS-7-140	7-140-Y	MS-7-140-Y
8	8-140	8-140-3/4W	MS-8-140	8-140-Y	MS-8-140-Y
9	9-140	9-140-3/4W	MS-9-140	9-140-Y	MS-9-140-Y
10	10-140	10-140-3/4W	MS-10-140	10-140-Y	MS-10-140-Y
11	11-140	11-140-3/4W	MS-11-140	11-140-Y	MS-11-140-Y
12	12-140	12-140-3/4W	MS-12-140	12-140-Y	MS-12-140-Y
13	13-140	13-140-3/4W	MS-13-140	13-140-Y	MS-13-140-Y
14	14-140	14-140-3/4W	MS-14-140	14-140-Y	MS-14-140-Y
15	15-140	15-140-3/4W	MS-15-140	15-140-Y	MS-15-140-Y
16	16-140	16-140-3/4W	MS-16-140	16-140-Y	MS-16-140-Y
17	17-140	17-140-3/4W	MS-17-140	17-140-Y	MS-17-140-Y
18	18-140	18-140-3/4W	MS-18-140	18-140-Y	MS-18-140-Y
19	19-140	19-140-3/4W	MS-19-140	19-140-Y	MS-19-140-Y
20	20-140	20-140-3/4W	MS-20-140	20-140-Y	MS-20-140-Y
21	21-140	21-140-3/4W	MS-21-140	21-140-Y	MS-21-140-Y
22	22-140	22-140-3/4W	MS-22-140	22-140-Y	MS-22-140-Y
23	23-140	23-140-3/4W	MS-23-140	23-140-Y	MS-23-140-Y
24	24-140	24-140-3/4W	MS-24-140	24-140-Y	MS-24-140-Y
25	25-140	25-140-3/4W	MS-25-140	25-140-Y	MS-25-140-Y

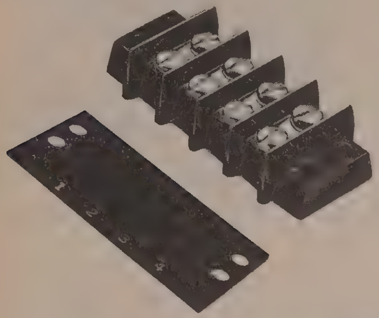
141 series accommodates up to #14 solid wire—UL recognized



No. of Terminals	Standard Screws	3/4W	Marker Strip	Y	Marker Strip
1	1-141	1-141-3/4W	—	1-141-Y	—
2	2-141	2-141-3/4W	MS-2-141	2-141-Y	MS-2-141-Y
3	3-141	3-141-3/4W	MS-3-141	3-141-Y	MS-3-141-Y
4	4-141	4-141-3/4W	MS-4-141	4-141-Y	MS-4-141-Y
5	5-141	5-141-3/4W	MS-5-141	5-141-Y	MS-5-141-Y
6	6-141	6-141-3/4W	MS-6-141	6-141-Y	MS-6-141-Y
7	7-141	7-141-3/4W	MS-7-141	7-141-Y	MS-7-141-Y
8	8-141	8-141-3/4W	MS-8-141	8-141-Y	MS-8-141-Y
9	9-141	9-141-3/4W	MS-9-141	9-141-Y	MS-9-141-Y
10	10-141	10-141-3/4W	MS-10-141	10-141-Y	MS-10-141-Y
11	11-141	11-141-3/4W	MS-11-141	11-141-Y	MS-11-141-Y
12	12-141	12-141-3/4W	MS-12-141	12-141-Y	MS-12-141-Y
13	13-141	13-141-3/4W	MS-13-141	13-141-Y	MS-13-141-Y
14	14-141	14-141-3/4W	MS-14-141	14-141-Y	MS-14-141-Y
15	15-141	15-141-3/4W	MS-15-141	15-141-Y	MS-15-141-Y
16	16-141	16-141-3/4W	MS-16-141	16-141-Y	MS-16-141-Y
17	17-141	17-141-3/4W	MS-17-141	17-141-Y	MS-17-141-Y
18	18-141	18-141-3/4W	MS-18-141	18-141-Y	MS-18-141-Y
19	19-141	19-141-3/4W	MS-19-141	19-141-Y	MS-19-141-Y
20	20-141	20-141-3/4W	MS-20-141	20-141-Y	MS-20-141-Y

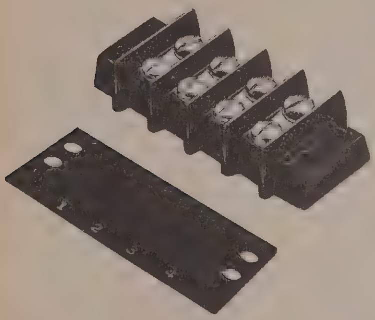
"Jones" Barrier Terminal Blocks And Accessories

142 series accommodates up to #10 solid wire—UL recognized



No. of Terminals	Standard Screws	3/4W	Marker Strip	Y	Marker Strip
1	1-142	1-142-3/4W	—	1-142-Y	—
2	2-142	2-142-3/4W	MS-2-142	2-142-Y	MS-2-142-Y
3	3-142	3-142-3/4W	MS-3-142	3-142-Y	MS-3-142-Y
4	4-142	4-142-3/4W	MS-4-142	4-142-Y	MS-4-142-Y
5	5-142	5-142-3/4W	MS-5-142	5-142-Y	MS-5-142-Y
6	6-142	6-142-3/4W	MS-6-142	6-142-Y	MS-6-142-Y
7	7-142	7-142-3/4W	MS-7-142	7-142-Y	MS-7-142-Y
8	8-142	8-142-3/4W	MS-8-142	8-142-Y	MS-8-142-Y
9	9-142	9-142-3/4W	MS-9-142	9-142-Y	MS-9-142-Y
10	10-142	10-142-3/4W	MS-10-142	10-142-Y	MS-10-142-Y
11	11-142	11-142-3/4W	MS-11-142	11-142-Y	MS-11-142-Y
12	12-142	12-142-3/4W	MS-12-142	12-142-Y	MS-12-142-Y
13	13-142	13-142-3/4W	MS-13-142	13-142-Y	MS-13-142-Y
14	14-142	14-142-3/4W	MS-14-142	14-142-Y	MS-14-142-Y
15	15-142	15-142-3/4W	MS-15-142	15-142-Y	MS-15-142-Y
16	16-142	16-142-3/4W	MS-16-142	16-142-Y	MS-16-142-Y
17	17-142	17-142-3/4W	MS-17-142	17-142-Y	MS-17-142-Y

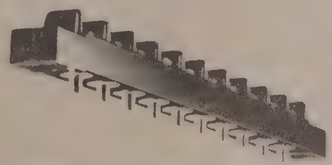
164 series accommodates up to #14 solid wire—UL recognized

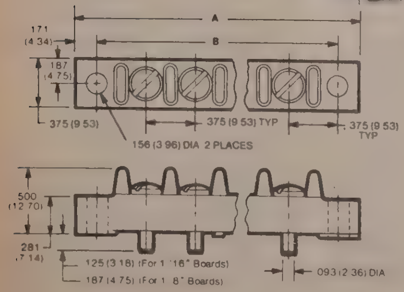


No. of Terminals	Standard Screws	3/4W	Marker Strip	Y	Marker Strip
1	1-164	1-164-3/4W	—	1-164-Y	—
2	2-164	2-164-3/4W	MS-2-140	2-164-Y	MS-2-140-Y
3	3-164	3-164-3/4W	MS-3-140	3-164-Y	MS-3-140-Y
4	4-164	4-164-3/4W	MS-4-140	4-164-Y	MS-4-140-Y
5	5-164	5-164-3/4W	MS-5-140	5-164-Y	MS-5-140-Y
6	6-164	6-164-3/4W	MS-6-140	6-164-Y	MS-6-140-Y
7	7-164	7-164-3/4W	MS-7-140	7-164-Y	MS-7-140-Y
8	8-164	8-164-3/4W	MS-8-140	8-164-Y	MS-8-140-Y
9	9-164	9-164-3/4W	MS-9-140	9-164-Y	MS-9-140-Y
10	10-164	10-164-3/4W	MS-10-140	10-164-Y	MS-10-140-Y
11	11-164	11-164-3/4W	MS-11-140	11-164-Y	MS-11-140-Y
12	12-164	12-164-3/4W	MS-12-140	12-164-Y	MS-12-140-Y
13	13-164	13-164-3/4W	MS-13-140	13-164-Y	MS-13-140-Y
14	14-164	14-164-3/4W	MS-14-140	14-164-Y	MS-14-140-Y
15	15-164	15-164-3/4W	MS-15-140	15-164-Y	MS-15-140-Y
16	16-164	16-164-3/4W	MS-16-140	16-164-Y	MS-16-140-Y
17	17-164	17-164-3/4W	MS-17-140	17-164-Y	MS-17-140-Y
18	18-164	18-164-3/4W	MS-18-140	18-164-Y	MS-18-140-Y
19	19-164	19-164-3/4W	MS-19-140	19-164-Y	MS-19-140-Y
20	20-164	20-164-3/4W	MS-20-140	20-164-Y	MS-20-140-Y
21	21-164	21-164-3/4W	MS-21-140	21-164-Y	MS-21-140-Y

Printed Circuit Barrier Terminal Blocks UL Recognized

These barrier terminal blocks have molded-in terminals that cannot break loose when terminal screw (#5/40 Binder Head) is tightened. They are designed for flow solder termination to the P.C. board conductor paths.





No. of Terminals	For 1/16" P.C. Boards*	For 1/8" P.C. Boards*	Dimensions A In.	Dimensions A MM	Dimensions B In.	Dimensions B MM
2	2-176-2	2-176-3	1.469	37.31	1.125	28.58
3	3-176-2	3-176-3	1.844	46.84	1.500	38.10
4	4-176-2	4-176-3	2.219	56.36	1.875	47.63
5	5-176-2	5-176-3	2.594	65.89	2.250	57.15
6	6-176-2	6-176-3	2.969	75.41	2.625	66.68
7	7-176-2	7-176-3	3.344	84.94	3.000	76.20
8	8-176-2	8-176-3	3.719	94.46	3.375	85.73
9	9-176-2	9-176-3	4.094	103.99	3.750	95.25
10	10-176-2	10-176-3	4.469	113.51	4.125	104.78

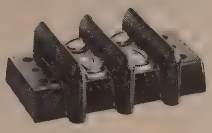
*Add A to part number for no mounting ears.

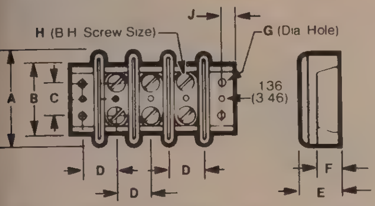
"Jones" Barrier Terminal Blocks And Accessories

Series 150/151/152

U.L. recognized

Max. Wire Size (Solid)
150 Series, #10
151 Series, #8
152 Series, #6




J
H (B H Screw Size)
G (Dia Hole)
A
B
C
136
(3 46)
D
D
D
F
E

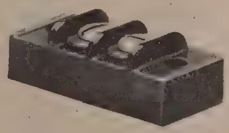
Dimensions

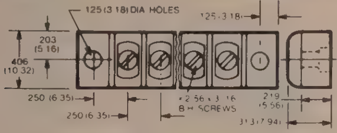
	150		151		152	
	In.	MM	In.	MM	In.	MM
A	1.813	46.04	2.000	50.80	2.500	63.50
B	1.312	33.34	1.500	38.10	1.813	46.04
C	.625	15.88	.750	19.05	.875	22.23
D	.688	17.46	.875	22.23	1.125	28.58
E	.750	19.05	.938	23.81	1.125	28.58
F	.438	11.11	.500	12.70	.625	15.88
G	.160	4.06	.180	4.57	.209	5.31
H	10/32 x 5/16		12/32 x 3/8		¼/28 x 1/2	
J	.219	5.56	.266	6.75	.313	7.94

No. of Terminals	150 Series				151 Series		152 Series	
	Standard Screws	Marker Strip	Y	Marker Strip	Standard Screws	Marker Strip	Standard Screws	Marker Strip
1	1-150	—	1-150-Y	—	1-151	—	1-152	—
2	2-150	MS-2-150	2-150-Y	MS-2-150-Y	2-151	MS-2-151	2-152	MS-2-152
3	3-150	MS-3-150	3-150-Y	MS-3-150-Y	3-151	MS-3-151	3-152	MS-3-152
4	4-150	MS-4-150	4-150-Y	MS-4-150-Y	4-151	MS-4-151	4-152	MS-4-152
5	5-150	MS-5-150	5-150-Y	MS-5-150-Y	5-151	MS-5-151	5-152	MS-5-152
6	6-150	MS-6-150	6-150-Y	MS-6-150-Y	6-151	MS-6-151	6-152	MS-6-152
7	7-150	MS-7-150	7-150-Y	MS-7-150-Y	7-151	MS-7-151		
8	8-150	MS-8-150	8-150-Y	MS-8-150-Y	8-151	MS-8-151		
9	9-150	MS-9-150	9-150-Y	MS-9-150-Y				
10	10-150	MS-10-150	10-150-Y	MS-10-150-Y				

Series 171 UL Recognized

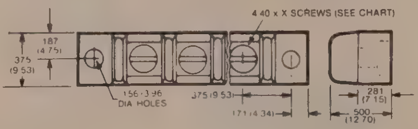
Max. Wire Size (Solid)
171 Series, #18
173 Series, #16
174 Series, #16




125 (3 18) DIA HOLES
125 (3 18)
203
(5 16)
406
(10 32)
250 (6 35)
250 (6 35)
#2 56 x 3 16
B H SCREWS
219
(5 56)
313 (7 94)

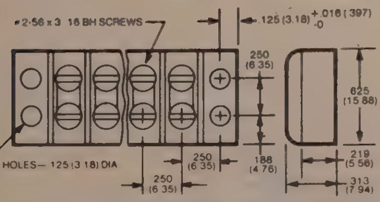
No. of Terminals	171 Series	173 Series With Sems Screw 4-40 x 5/16	174 Series Standard Screw 4-40 x 1/4
2	2-171	2-173	2-174
3	3-171	3-173	3-174
4	4-171	4-173	4-174
5	5-171	5-173	5-174
6	6-171	6-173	6-174
7	7-171	7-173	7-174
8	8-171	8-173	8-174
9	—	9-173	9-174
10	—	10-173	10-174

Series 173-174 UL Recognized


4 40 x X SCREWS (SEE CHART)
187
(4 75)
375
(9 53)
156 (3 96
DIA HOLES
375 (9 53)
171 (4 34)
281
(7 15)
500
(12 70)

Series 172 UL Recognized

Accommodates up to #18 solid wire

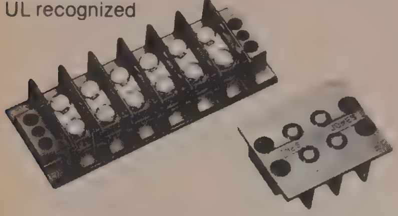

#2-56 x 3 16 BH SCREWS
.125 (3.18) +.016 (397) -0
250
(6 35)
625
(15 88)
4 HOLES— 125 (3 18) DIA
250
(6 35)
250
(6 35)
188
(4 76)
219
(5 56)
313
(7 94)

No. of Terminals	Std.	W	¾W	Y
1	—	—	—	—
2	2-172	2-172-W	2-172-¾W	2-172-Y
3	3-172	3-172-W	3-172-¾W	3-172-Y
4	4-172	4-172-W	4-172-¾W	4-172-Y
5	5-172	5-172-W	5-172-¾W	5-172-Y
6	6-172	6-172-W	6-172-¾W	6-172-Y
7	7-172	7-172-W	7-172-¾W	7-172-Y
8	8-172	8-172-W	8-172-¾W	8-172-Y
9	9-172	9-172-W	9-172-¾W	9-172-Y
10	10-172	10-172-W	10-172-¾W	10-172-Y
11	11-172	11-172-W	11-172-¾W	11-172-Y
12	12-172	12-172-W	12-172-¾W	12-172-Y
13	13-172	13-172-W	13-172-¾W	13-172-Y
14	14-172	14-172-W	14-172-¾W	14-172-Y

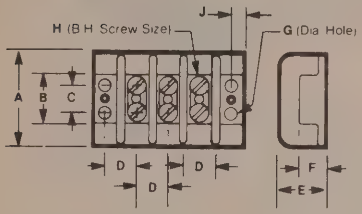
"Jones" Barrier Terminal Blocks And Accessories

Series 540/541/542

UL recognized



The 500 Series Jones barrier terminal blocks have high barriers and are designed for applications where electrical and mechanical performance requirements are especially critical. Bottoms are closed so insulating strips are not required. Knockouts are molded into the base so Y terminals can be accommodated if desired. A top-mounted marker strip can be furnished.



Series Dimensions

	540		541		542	
	In.	MM	In.	MM	In.	MM
A	1.125	28.58	1.375	34.93	1.625	41.28
B	.594	15.08	.750	19.05	.875	22.23
C	.313	7.94	.422	10.72	.500	12.70
D	.375	9.53	.438	11.11	.563	14.29
E	.609	15.48	.688	17.46	.875	22.23
F	.328	8.33	.375	9.53	.500	12.70
G	.160	4.06	.175/.185	4.45/4.70	.209	5.31
H	5/40x3/16		6/32x1/4		8/32x5/16	
J	.141	3.57	.156	3.97	.203	5.16

540 series accommodates up to #16 solid wire. UL recognized

Creepage distance: .500 (12.70 mm).
Max. voltage: 2300 volts r.m.s.
Max. current: 15 amps

No. Of Terminals	Standard Screws	Marker Strip
2	2-540	MSX-2-540
3	3-540	MSX-3-540
4	4-540	MSX-4-540
5	5-540	MSX-5-540
6	6-540	MSX-6-540
7	7-540	MSX-7-540
8	8-540	MSX-8-540
9	9-540	MSX-9-540
10	10-540	MSX-10-540
11	11-540	MSX-11-540
12	12-540	MSX-12-540
13	13-540	MSX-13-540
14	14-540	MSX-14-540
15	15-540	MSX-15-540
16	16-540	MSX-16-540
17	17-540	MSX-17-540
18	18-540	MSX-18-540
19	19-540	MSX-19-540
20	20-540	MSX-20-540
21	21-540	MSX-21-540
22	22-540	MSX-22-540
23	23-540	MSX-23-540
24	24-540	MSX-24-540
25	25-540	MSX-25-540
26	26-540	MSX-26-540
27	27-540	MSX-27-540
28	28-540	MSX-28-540
29	29-540	MSX-29-540
30	30-540	MSX-30-540
31	31-540	MSX-31-540

541 series accommodates up to #14 solid wire. UL recognized

Creepage distance: .625 (12.88).
Max. voltage: 2800 volts r.m.s.
Max. current: 20 amps.

No. Of Terminals	Standard Screws	Marker Strip
2	2-541	MSX-2-541
3	3-541	MSX-3-541
4	4-541	MSX-4-541
5	5-541	MSX-5-541
6	6-541	MSX-6-541
7	7-541	MSX-7-541
8	8-541	MSX-8-541
9	9-541	MSX-9-541
10	10-541	MSX-10-541
11	11-541	MSX-11-541
12	12-541	MSX-12-541
13	13-541	MSX-13-541
14	14-541	MSX-14-541
15	15-541	MSX-15-541
16	16-541	MSX-16-541
17	17-541	MSX-17-541
18	18-541	MSX-18-541
19	19-541	MSX-19-541
20	20-541	MSX-20-541
21	21-541	MSX-21-541
22	22-541	MSX-22-541
23	23-541	MSX-23-541
24	24-541	MSX-24-541
25	25-541	MSX-25-541
26	26-541	MSX-26-541
27	27-541	MSX-27-541
28	28-541	MSX-28-541
29	29-541	MSX-29-541
30	30-541	MSX-30-541
31		

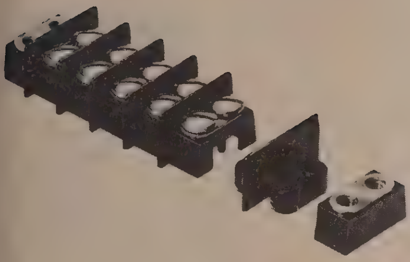
542 series accommodates up to #10 solid wire. UL recognized

Creepage distance: .250 (6.35).
Max. voltage: 4000 volts r.m.s.
Max. current: 30 amps.

No. Of Terminals	Standard Screws	Marker Strip
2	2-542	MSX-2-542
3	3-542	MSX-3-542
4	4-542	MSX-4-542
5	5-542	MSX-5-542
6	6-542	MSX-6-542
7	7-542	MSX-7-542
8	8-542	MSX-8-542
9	9-542	MSX-9-542
10	10-542	MSX-10-542
11	11-542	MSX-11-542
12	12-542	MSX-12-542
13	13-542	MSX-13-542
14	14-542	MSX-14-542
15	15-542	MSX-15-542
16	16-542	MSX-16-542
17	17-542	MSX-17-542
18	18-542	MSX-18-542
19	19-542	MSX-19-542
20	20-542	MSX-20-542
21	21-542	MSX-21-542
22	22-542	MSX-22-542
23	23-542	MSX-23-542
24	24-542	MSX-24-542
25	25-542	MSX-25-542
26	26-542	MSX-26-542
27		
28		
29		
30		
31		

Cinch Modular Barrier Blocks

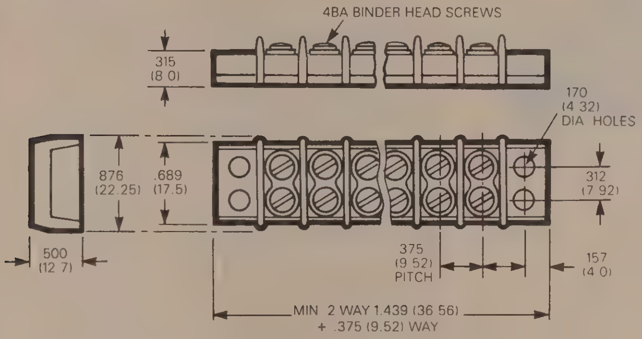
TRW



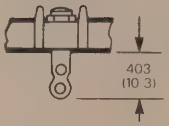
Easy-to-assemble Cinch modular barrier block concept lets you snap together terminations to provide permanent circuit configurations. Simply fit two or three modules together. Add barrier junction and end caps. Position between jaws of hand pliers and apply pressure for a permanent installation. Rugged, flame retardant barrier blocks are interchangeable with Cinch standard series and can be used with standard accessories.

Insulation: Black glass filled polyester
Rating: 15 amps—750v D.C. or A.C. peak
Operating Temperature Range: -55°C to +100°C
Terminal Plates: Nickel plated brass
Terminal Tags: Solder coated brass
Screws: No. 4 BA, binder head, nickel plated brass

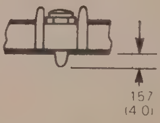
Dimensions



Drop Through Solder Terminals

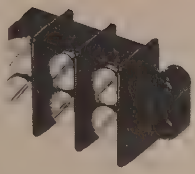


Dip Solder Terminals



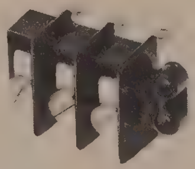
Screw Terminals
MBB 038—2-way

MBB 041—3-way



Solder Eyelet Terminals
MBB 039—2-way

MBB 042—3-way



Dip Solder Terminals
MBB 040—2-way

MBB 043—3-way

End Caps
MBB 045—Plain

MBB 046—Threaded Bushings

Barrier Junction
MBB 044

Screw
MBB 4BA

Hand Tool
Order Part No.: MBB 030D

"Jones" Barrier Terminal Blocks And Accessories

Fanning Strips

Fanning Strips

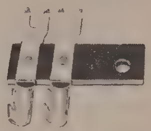
Fanning strips facilitate cable or harness wiring and minimize the possibility of subsequent wiring errors. Both straight and angle type fanning strips are available. Terminals are made of .032 (.81 mm) brass cadmium-plated. XP black phenolic mounts are .078″ (1.98 mm) thick, .500″ (12.70 mm) wide furnished with a hole in either the right or left side, for securing the cable with lacing twine. A cable clamp is recommended for larger sizes.

161 SERIES FANNING STRIP WITH CABLE CLAMP AND 141 SERIES BARRIER TERMINAL BLOCK

Straight Type

160 series

Fits 140 series barrier blocks
3/8″ terminal centers



No. of Terminals	C.C. Hole on Left	C.C. Hole on Right
2	2-160-L	2-160-R
3	3-160-L	3-160-R
4	4-160-L	4-160-R
5	5-160-L	5-160-R
6	6-160-L	6-160-R
7	7-160-L	7-160-R
8	8-160-L	8-160-R
9	9-160-L	9-160-R
10	10-160-L	10-160-R
11	11-160-L	11-160-R
12	12-160-L	12-160-R
13	13-160-L	13-160-R
14	14-160-L	14-160-R
15	15-160-L	15-160-R
16	16-160-L	16-160-R
17	17-160-L	17-160-R
18	18-160-L	18-160-R
19	19-160-L	19-160-R
20	20-160-L	20-160-R
21	21-160-L	21-160-R

Straight Type

160B series

Fits 140 series barrier blocks
3/8″ terminal centers

No. of Terminals	C.C. Hole on Left	C.C. Hole on Right
2	2-160B-L	2-160B-R
3	3-160B-L	3-160B-R
4	4-160B-L	4-160B-R
5	5-160B-L	5-160B-R
6	6-160B-L	6-160B-R
7	7-160B-L	7-160B-R
8	8-160B-L	8-160B-R
9	9-160B-L	9-160B-R
10	10-160B-L	10-160B-R
11	11-160B-L	11-160B-R
12	12-160B-L	12-160B-R
13	13-160B-L	13-160B-R
14	14-160B-L	14-160B-R
15	15-160B-L	15-160B-R
16	16-160B-L	16-160B-R
17	17-160B-L	17-160B-R
18	18-160B-L	18-160B-R
19	19-160B-L	19-160B-R
20	20-160B-L	20-160B-R
21	21-160B-L	21-160B-R

Straight type

161 series

Fits 141 series barrier blocks
7/16″ terminal centers

No. of Terminals	C.C. Hole on Left	C.C. Hole on Right
2	2-161-L	2-161-R
3	3-161-L	3-161-R
4	4-161-L	4-161-R
5	5-161-L	5-161-R
6	6-161-L	6-161-R
7	7-161-L	7-161-R
8	8-161-L	8-161-R
9	9-161-L	9-161-R
10	10-161-L	10-161-R
11	11-161-L	11-161-R
12	12-161-L	12-161-R
13	13-161-L	13-161-R
14	14-161-L	14-161-R
15	15-161-L	15-161-R
16	16-161-L	16-161-R
17	17-161-L	17-161-R
18	18-161-L	18-161-R
19	19-161-L	19-161-R
20	20-161-L	20-161-R

Straight type

162 series

Fits 142 series barrier blocks
9/16″ terminal centers

No. of Terminals	C.C. Hole on Left	C.C. Hole on Right
2	2-162-L	2-162-R
3	3-162-L	3-162-R
4	4-162-L	4-162-R
5	5-162-L	5-162-R
6	6-162-L	6-162-R
7	7-162-L	7-162-R
8	8-162-L	8-162-R
9	9-162-L	9-162-R
10	10-162-L	10-162-R
11	11-162-L	11-162-R
12	12-162-L	12-162-R
13	13-162-L	13-162-R
14	14-162-L	14-162-R
15	15-162-L	15-162-R
16	16-162-L	16-162-R
17	17-162-L	17-162-R

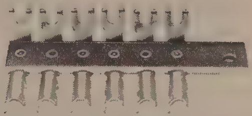
"Jones" Barrier Terminal Blocks And Accessories

Fanning Strips

Angle type

160A series

Fits 140 series barrier blocks
3/8" terminal centers



No. of Terminals	C.C. Hole on Left	C.C. Hole on Right
2	2-160-AL	2-160-AR
3	3-160-AL	3-160-AR
4	4-160-AL	4-160-AR
5	5-160-AL	5-160-AR
6	6-160-AL	6-160-AR
7	7-160-AL	7-160-AR
8	8-160-AL	8-160-AR
9	9-160-AL	9-160-AR
10	10-160-AL	10-160-AR
11	11-160-AL	11-160-AR
12	12-160-AL	12-160-AR
13	13-160-AL	13-160-AR
14	14-160-AL	14-160-AR
15	15-160-AL	15-160-AR
16	16-160-AL	16-160-AR
17	17-160-AL	17-160-AR
18	18-160-AL	18-160-AR
19	19-160-AL	19-160-AR
20	20-160-AL	20-160-AR
21	21-160-AL	21-160-AR

Angle type

160BA series

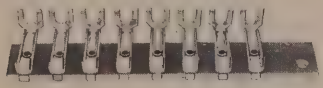
Fits 140 series barrier blocks
3/8" terminal centers

No. of Terminals	C.C. Hole on Left	C.C. Hole on Right
2	2-160B-AL	2-160B-AR
3	3-160B-AL	3-160B-AR
4	4-160B-AL	4-160B-AR
5	5-160B-AL	5-160B-AR
6	6-160B-AL	6-160B-AR
7	7-160B-AL	7-160B-AR
8	8-160B-AL	8-160B-AR
9	9-160B-AL	9-160B-AR
10	10-160B-AL	10-160B-AR
11	11-160B-AL	11-160B-AR
12	12-160B-AL	12-160B-AR
13	13-160B-AL	13-160B-AR
14	14-160B-AL	14-160B-AR
15	15-160B-AL	15-160B-AR
16	16-160B-AL	16-160B-AR
17	17-160B-AL	17-160B-AR
18	18-160B-AL	18-160B-AR
19	19-160B-AL	19-160B-AR
20	20-160B-AL	20-160B-AR
21	21-160B-AL	21-160B-AR

Angle type

161A series

Fits 141 series barrier blocks
7/16" terminal centers



No. of Terminals	C.C. Hole on Left	C.C. Hole on Right
2	2-161-AL	2-161-AR
3	3-161-AL	3-161-AR
4	4-161-AL	4-161-AR
5	5-161-AL	5-161-AR
6	6-161-AL	6-161-AR
7	7-161-AL	7-161-AR
8	8-161-AL	8-161-AR
9	9-161-AL	9-161-AR
10	10-161-AL	10-161-AR
11	11-161-AL	11-161-AR
12	12-161-AL	12-161-AR
13	13-161-AL	13-161-AR
14	14-161-AL	14-161-AR
15	15-161-AL	15-161-AR
16	16-161-AL	16-161-AR
17	17-161-AL	17-161-AR
18	18-161-AL	18-161-AR
19	19-161-AL	19-161-AR
20	20-161-AL	20-161-AR

Angle type

162A series

Fits 142 series barrier blocks
9/16" terminal centers

No. of Terminals	C.C. Hole on Left	C.C. Hole on Right
2	2-162-AL	2-162-AR
3	3-162-AL	3-162-AR
4	4-162-AL	4-162-AR
5	5-162-AL	5-162-AR
6	6-162-AL	6-162-AR
7	7-162-AL	7-162-AR
8	8-162-AL	8-162-AR
9	9-162-AL	9-162-AR
10	10-162-AL	10-162-AR
11	11-162-AL	11-162-AR
12	12-162-AL	12-162-AR
13	13-162-AL	13-162-AR
14	14-162-AL	14-162-AR
15	15-162-AL	15-162-AR
16	16-162-AL	16-162-AR
17	17-162-AL	17-162-AR

"Jones" Barrier Terminal Blocks And Accessories

Solder terminals: "W", "¾ W" & "Y"

"W"

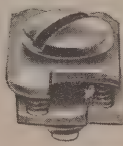
"3/4 W"

"Y"

Optional terminals for use with 140, 141 and 142 series barrier blocks as indicated in the chart below. "W" terminals are also available for use with 150, 151 and 152 series barrier blocks. Part numbers for ordering separate terminals are listed in the chart. For 164 series order solder terminals same as 140 series.

	Dist. Part No.		
	W-Type	¾W-Type	Y-Type
For 140 series	W-140	¾W-140	Y-140
For 141 series	W-141	¾W-141	Y-141
For 142 series	W-142	¾W-142	Y-142
For 150 series	W-150	–	–
For 151 series	W-151	–	–
For 152 series	W-152	–	–

Quick-Clamp* terminals



Simplifies engaging of wires to barrier blocks. Wire is inserted into flared opening and screw is tightened. Screws are nickel-plated brass, binder head type. Terminals are electro-tinned brass. Set includes two mating clamps and one screw.

Barrier Block Series	Dist. Part No.	Wire Gauge Accommodated	Screw Size
141, 541	QC-1	12 thru 22	6-32x5/16"
142, 542	QC-2	10 thru 16	8-32x3/8"

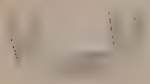
*Patent pending

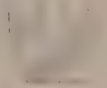
Jumpers

140J-1

141J-1

141-J, 95-B


142J-1


142J-2

540-J
541-J
542-J

For making connection between adjacent terminals. Part No. 142J-1 connects two alternate terminals. All jumpers are brass with a nickel plated finish.

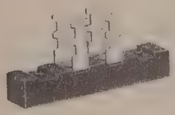
Barrier Block Series	Dist. Part No.
141	141-J
142	95-B
140	140J-1
141	141J-1
142, 542	142J-1
142, 542	142J-2
540	540-J
541	541-J
542	542-J

Screw-type

Terminals are cadmium-plated brass on .438 (11.11 mm) centers. Mounting holes are .136 (3.46 mm) dia. Screws are cadmium plated-brass, captivated. Insulator .063 (1.59 mm) XPC chocolate UL 94 HB.

Part No.	No. of Terminals	Mounting Centers	
		In.	MM
17-1	1	.875	22.23
17-2	2	1.312	33.34
17-3	3	1.750	44.45
17-4	4	2.188	55.58
17-5	5	2.625	66.68
17-6	6	3.063	77.80
17-7	7	3.500	88.90
17-8	8	3.938	100.03
17-9	9	4.375	111.13
17-10	10	4.813	122.25

No. 170



Terminals are .031 (.79 mm) brass, pre-tinned on .375 (9.53 mm) centers. Insulator GP black phenolic. Mounting hole size .128" (3.25 mm).

Part No.	No. of Terminals	Mounting Centers	
		In.	MM
1-170	1	.750	19.05
2-170	2	1.125	28.58
3-170	3	1.500	38.10
4-170	4	1.875	47.63
5-170	5	2.250	57.15
6-170	6	2.625	66.68
7-170	7	3.000	76.20
8-170	8	3.375	85.72
9-170	9	3.750	95.25
10-170	10	4.125	104.78

No. 2000

Terminals are pre-tinned brass .019 (483 mm) on .313 (7.94 mm) centers. Insulator .063 (1.59 mm) XPC chocolate UL 94 HB. .140" (3.56 mm) diameter mounting holes. Steel brackets.

Part No.	No. of Terminals	Mounting Centers	
		In.	MM
2002	1	1.000	25.40
2003	3	1.312	33.34
2004	4	1.625	41.28
2005	5	1.938	49.23
2006	6	2.250	57.15
2007	7	2.563	65.10
2008	8	2.875	73.03
2009	9	3.188	80.98
2010	10	3.500	88.90
2011	11	3.813	96.85
2012	12	4.125	104.78
2013	13	4.438	112.73

"Jones" Plugs And Sockets

300 Series

TRW

General Description: A rugged, economical and highly reliable rack and panel type connector for cable connection and for inter-connecting power and/or signal carrying circuits of from two to as many as 33 wires. Available in four basic series: 300, 400, 2400 and 500, each series differing in mechanical and electrical characteristics.
Insulator: Molded monoblock, general purpose black phenolic.

Contact style: Plug has projecting flat blades. 300, 400 and 500 series sockets have recessed twin bellows. 2400 series socket has recessed bifurcated twin bellows.
Contact material: Plug—cadmium-plated brass. Socket—cadmium-plated phosphor bronze.
Hoods: The 300 series black plastic contemporary styled hoods are made of G.E. Noryl-N190. They are light weight, yet rugged, and provide protection from electric shock hazard. No dielectric liner is required. The 400, 2400 and 500 series hoods are formed metal, painted to a black wrinkle finish. There is a dielectric liner in the hood to prevent shorting.
Cable clamps: Zinc and clear irridite-plated steel. Used for strain relief.
Polarization: All "Jones" plugs and sockets are polarized to prevent wrong-way insertion.
Intermateability: The 400 and 2400 series are intermateable.
Operating temperature: Up to 105° centigrade.

300 series

(UL recognized)

For CSA approved part numbers—consult factory.

Designed for light and medium duty. Plug prongs are $5/32''$ (3.97 mm) wide and $3/64''$ (1.19 mm) thick. Monoblock construction with contacts "locked in" to withstand wiring stress. Solder lug terminals have .093" x .062" wiring holes. The two contact "Jones" connectors are round. All others are rectangular.

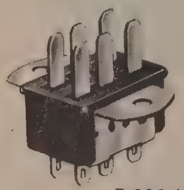
Electrical specifications

All connector ratings are based on a continuously mated condition.

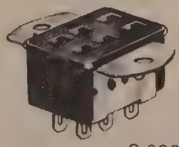
Rated voltage: 730 volts rms
Contact resistance: .016 ohms max.
Rated current: Under most normal operating conditions where not all contacts are carrying substantially full rated current, maximum current per contact is 10 amperes. Under those conditions whereby all contacts are carrying "rated" current simultaneously, the current is as follows:

2-12 contacts . . . 7.5 amperes
15-33 contacts . . . 4.5 amperes

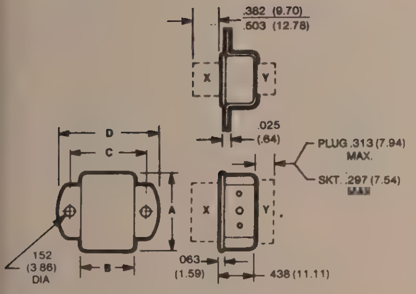
Type AB with angle brackets



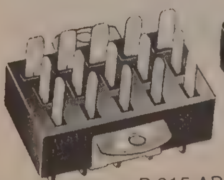
P-306-AB



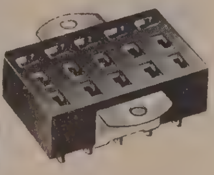
S-306-AB



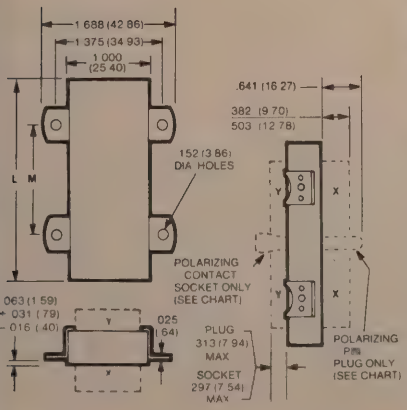
No. of Contacts	Plug Part No.	Socket Part No.	A		B		C		D	
			In.	MM	In.	MM	In.	MM	In.	MM
2	P-302-AB	S-302-AB	.656	16.67	—	—	.969	24.61	1.219	30.96
3	P-303-AB	S-303-AB	1.000	25.40	.438	11.11	.750	19.05	1 062	26 99
4	P-304-AB	S-304-AB	.750	19.05	.688	17.46	1.000	25.40	1 312	33 34
6	P-306-AB	S-306-AB	1.000	25.40	.688	17.46	1.000	25.40	1 312	33 34
8	P-308-AB	S-308-AB	1.250	31.75	.688	17.46	1.000	25.40	1 312	33 34
10	P-310-AB	S-310-AB	1.562	39.69	.688	17.46	1.000	25.40	1 312	33.34
12	P-312-AB	S-312-AB	1.250	31.75	.938	23.81	1.250	31.75	1 562	39.69



P-315-AB



S-315-AB



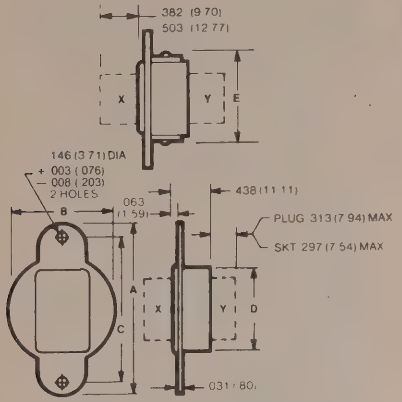
No. of Contacts	Plug Part No.	Socket Part No.	L		M		Polarizing Pin
			In.	MM	In.	MM	
15	P-315-AB	S-315-AB	1.625	41.28	See note		NO
18	P-318-AB	S-318-AB	1.938	49.23	1.250	31.75	NO
21	P-321-AB	S-321-AB	2.250	57.15	.938	23.81	NO
24	P-324-AB	S-324-AB	2.563	65.10	1.250	31.75	14
27	P-327-AB	S-327-AB	2.875	73.03	1.562	39.69	14
30	P-330-AB	S-330-AB	3.188	80.98	1.875	47.63	14
33	P-333-AB	S-333-AB	3.500	88.90	2.188	55.58	17

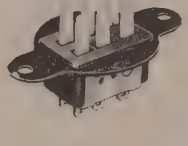
Note: P-315-AB and S-315-AB require only two mounting brackets, mounted on center of connector.

"Jones" Plugs And Sockets

300 Series

Type FP with flush plate


382 (9 70)
503 (12 77)
X
Y
E
146 (3 71) DIA
+ 003 (076)
— 008 (203)
2 HOLES
B
063
(1 59)
438 (11 11)
PLUG 313 (7 94) MAX
SKT 297 (7 54) MAX
A
C
X
Y
D
031 (80)


P-306-FP

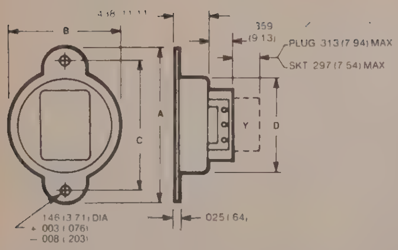
S-306-FP

No. of Contacts	Plug Part No.	Socket Part No.	Dimension									
			A		B		C		D		E (Max)	
			In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
2	P-302-FP	S-302-FP	2.063	52.40	1.250	31.75	1.750	44.45	—	—	.719	18 26
3	P-303-FP	S-303-FP	2.063	52.40	1.250	31.75	1.750	44.45	.938	23.81	.500	12.70
4	P-304-FP	S-304-FP	2.063	52.40	1.250	31.75	1.750	44.45	.688	17.46	.750	19.05
6	P-306-FP	S-306-FP	2.063	52.40	1.250	31.75	1.750	44.45	.938	23.81	.750	19.05
8	P-308-FP	S-308-FP	2.563	65.10	1.750	44.45	2.250	57.15	1.188	30.16	.750	19.05
10	P-310-FP	S-310-FP	2.563	65.10	1.750	44.45	2.250	57.15	1.500	38.10	.750	19.05
12	P-312-FP	S-312-FP	2.563	65.10	1.750	44.45	2.250	57.15	1.188	30.16	1.000	25.40

Type RP with recessed plate

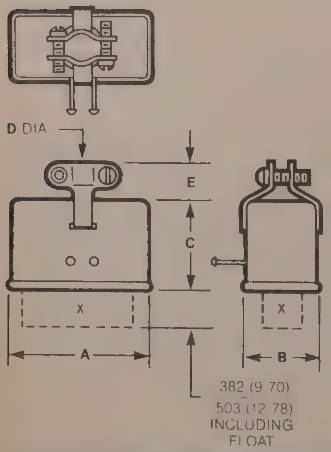
P-306-RP

S-306-RP


438 (11 11)
B
359
(9 13)
PLUG 313 (7 94) MAX
SKT 297 (7 54) MAX
A
C
Y
D
146 (3 71) DIA
+ 003 (076)
— 008 (203)
025 (64)

No. of Contacts	Plug Part No.	Socket Part No.	Dimension							
			A		B		C		D (Max)	
			In.	MM	In.	MM	In.	MM	In.	MM
2	P-302-RP	S-302-RP	2.063	52.40	1.500	38.10	1.750	44.45	1.350	34.29
3	P-303-RP	S-303-RP	2.063	52.40	1.500	38 10	1.750	44.45	1.350	34.29
4	P-304-RP	S-304-RP	2.063	52.40	1.500	38.10	1.750	44.45	1.350	34.29
6	P-306-RP	S-306-RP	2.063	52.40	1.500	38.10	1.750	44.45	1.350	34.29
8	P-308-RP	S-308-RP	2.563	65.10	2.000	50.80	2.250	57.15	1.850	46.99
10	P-310-RP	S-310-RP	2.563	65.10	2.000	50.80	2.250	57.15	1.850	46.99
12	P-312-RP	S-312-RP	2.563	65.10	2.000	50.80	2.250	57.15	1.850	46.99

Type CCT with cable clamp in top—plastic


D DIA
E
C
X
A
X
B
382 (9 70)
503 (12 78)
INCLUDING
FLOAT

P-306-CCT

S-306-CCT

No. of Contacts	Plug Part No.	Socket Part No.	Dimension									
			A ± .016		B ± .016		C ± .031		Cable Opening D		E ± 1/32	
			In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
*2	P-302-CCT	S-302-CCT	.691 Dia.	17.55	—	—	.953	24.21	.375	9.53	.359	9.12
3	P-303-CCT	S-303-CCT	1.034	26.26	.472	11.99	.953	24.21	.313	7.95	.359	9.12
4	P-304-CCT	S-304-CCT	.786	19.96	.724	18.39	.953	24.21	.375	9.53	.469	11.91
6	P-306-CCT	S-306-CCT	1.036	26.31	.724	18.39	1.078	27.38	.438	11.13	.484	12.29
8	P-308-CCT	S-308-CCT	1.286	32.66	.724	18.39	1.078	27.38	.500	12.70	.484	12.29
10	P-310-CCT	S-310-CCT	1.592	40.44	.720	18.29	1.203	30.56	.500	12.70	.500	12.70
12	P-312-CCT	S-312-CCT	1.286	32.66	.974	24.74	1.203	30.56	.563	14.30	.469	11.91

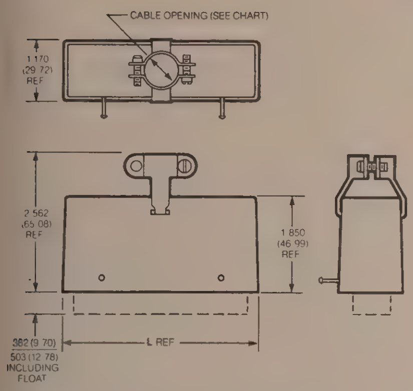
*P-302-CCT & S-302-CCT are round; not rectangular.

"Jones" Plugs And Sockets

300 Series

TRW

Type CCT with cable clamp in top—plastic

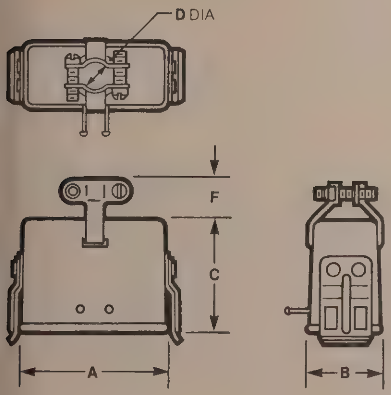


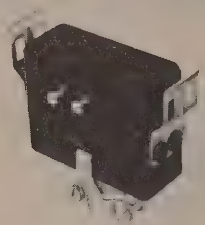
P-315-CCT

S-315-CCT

No. of Contacts	Plug Part No.	Socket Part No.	L		Cable Opening		Polarizing Pin
			In.	MM	In.	MM	
15	P-315-CCT	S-315-CCT	1.795	45.59	.563	14.30	NO
18	P-318-CCT	S-318-CCT	2.107	53.52	.563	14.30	NO
21	P-321-CCT	S-321-CCT	2.420	61.47	.625	15.88	NO
24	P-324-CCT	S-324-CCT	2.732	69.39	.625	15.88	14
27	P-327-CCT	S-327-CCT	3.045	77.34	.625	15.88	14
30	P-330-CCT	S-330-CCT	3.357	85.27	.750	19.05	14
33	P-333-CCT	S-333-CCT	3.670	93.22	.750	19.05	17

Type CCT-K with cable clamp in top of cap and with keepers—plastic



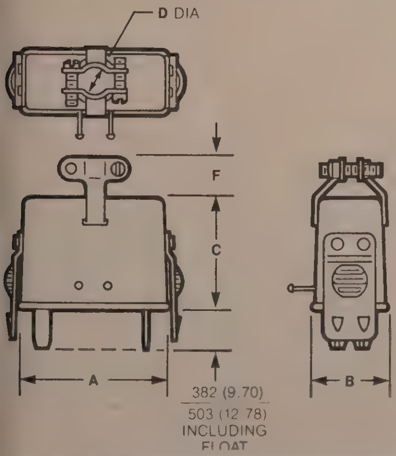

S-310-CCT-K

No. of Contacts	Socket Part No.	Dimension									
		A ± .016		B ± .016		C ± .031		F		Cable "D" Opening	
		In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
*2	S-302-CCT-K	.691 Dia.	17.55	—	—	.953	24.21	.359	9.12	.375	9.53
3	S-303-CCT-K	1.034	26.26	.472	11.99	.953	24.21	.359	9.12	.313	7.94
4	S-304-CCT-K	.786	19.96	.724	18.39	.953	24.21	.469	11.91	.375	9.53
6	S-306-CCT-K	1.036	26.31	.724	18.39	1.078	27.38	.484	12.29	.438	11.13
8	S-308-CCT-K	1.286	32.66	.724	18.39	1.078	27.38	.484	12.29	.500	12.70
10	S-310-CCT-K	1.592	40.44	.720	18.29	1.203	30.56	.500	12.70	.500	12.70
12	S-312-CCT-K	1.286	32.66	.974	24.74	1.203	30.56	.469	11.91	.563	14.30

*P-302-CCT-K & S-302-CCT-K are round; not rectangular.

Type CCT-L with cable clamp in top of cap and with locks—plastic

Locks with CCT-K or locks directly to panel in conjunction with AB mounted plug or socket. See panel cut-out section.



P-310-CCT-L

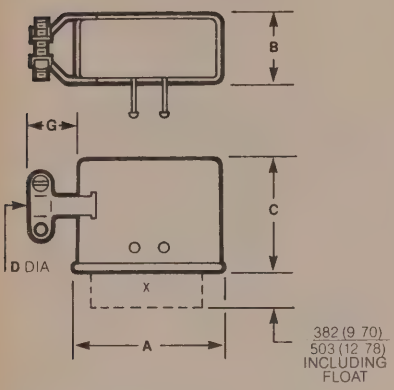
No. of Contacts	Plug Part No.	Dimension									
		A ± .016		B ± .016		C ± .031		F		Cable "D" Opening	
		In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
*2	P-302-CCT-L	.691 Dia.	17.55	—	—	.953	24.21	.359	9.12	.375	9.53
3	P-303-CCT-L	1.034	26.26	.472	11.99	.953	24.21	.359	9.12	.313	7.94
4	P-304-CCT-L	.786	19.96	.724	18.39	.953	24.21	.469	11.91	.375	9.53
6	P-306-CCT-L	1.036	26.31	.724	18.39	1.078	27.38	.484	12.29	.438	11.13
8	P-308-CCT-L	1.286	32.66	.724	18.39	1.078	27.38	.484	12.29	.500	12.70
10	P-310-CCT-L	1.592	40.44	.720	18.29	1.203	30.56	.500	12.70	.500	12.70
12	P-312-CCT-L	1.286	32.66	.974	24.74	1.203	30.56	.469	11.91	.563	14.30

*P-302-CCT-L & S-302-CCT-L are round; not rectangular.

“Jones” Plugs And Sockets

300 Series

Type CCE with cable clamp in end—plastic


B
G
C
D DIA
X
A
382 (9 70)
503 (12 78)
INCLUDING
FLOAT

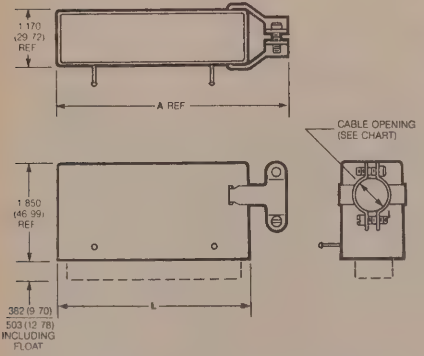
P-306-CCE

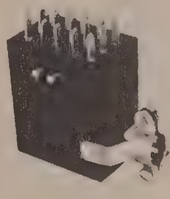
S-306-CCE

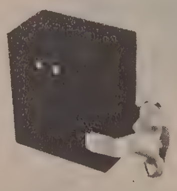
No. of Contacts	Plug Part No.	Socket Part No.	Dimension									
			A ± .016		B ± .016		C ± .031		G		Cable D Opening	
			In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
*2	P-302-CCE	S-302-CCE	.691 Dia.	17.55	—	—	.953	24.21	.313	7.95	.313	7.95
3	P-303-CCE	S-303-CCE	1.034	26.26	.472	11.99	.953	24.21	.344	8.74	.250	6.35
4	P-304-CCE	S-304-CCE	.786	19.96	.724	18.39	.953	24.21	.453	11.51	.375	9.53
6	P-306-CCE	S-306-CCE	1.036	26.31	.724	18.39	1.078	27.38	.469	11.91	.438	11.13
8	P-308-CCE	S-308-CCE	1.286	32.66	.724	18.39	1.078	27.38	.453	11.51	.500	12.70
10	P-310-CCE	S-310-CCE	1.592	40.44	.720	18.29	1.203	30.56	.359	9.12	.500	12.70
12	P-312-CCE	S-312-CCE	1.286	32.66	.974	24.74	1.203	30.56	.422	10.72	.563	14.30

*P-302-CCE & S-302-CCE are round, not rectangular.

Type CCE with cable clamp in end—plastic


1 170
(29 72)
REF
A REF
CABLE OPENING
(SEE CHART)
1 850
(46 99)
REF
L
382 (9 70)
503 (12 78)
INCLUDING
FLOAT


P-315-CCE

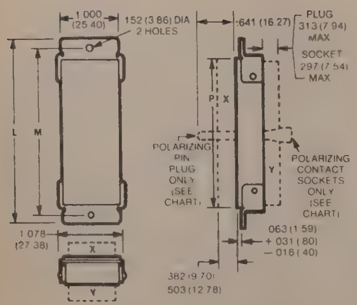

S-315-CCE

No. of Contacts	Plug Part No.	Socket Part No.	A		L		Cable Opening		Polarizing Pin
			In.	MM	In.	MM	In.	MM	
15	P-315-CCE	S-315-CCE	2.514	63.85	1.795	45.59	.563	14.30	NO
18	P-318-CCE	S-318-CCE	2.826	71.78	2.107	53.52	.563	14.30	NO
21	P-321-CCE	S-321-CCE	3.139	79.73	2.420	61.47	.625	15.88	NO
24	P-324-CCE	S-324-CCE	3.451	87.66	2.732	69.39	.625	15.88	14
27	P-327-CCE	S-327-CCE	3.764	95.61	3.045	77.34	.625	15.88	14
30	P-330-CCE	S-330-CCE	4.076	103.53	3.357	85.27	.750	19.05	14
33	P-333-CCE	S-333-CCE	4.389	111.48	3.670	93.22	.750	19.05	17

Type EB with end brackets

P-315-EB

S-315-EB


1 000
(25 40)
152 (3 86) DIA
2 HOLES
641 (16.27)
PLUG
313 (7 94)
MAX
SOCKET
297 (7 54)
MAX
L
M
P
X
POLARIZING
PIN
PLUG
ONLY
(SEE
CHART)
Y
POLARIZING
CONTACT
SOCKETS
ONLY
(SEE
CHART)
1 078
(27 38)
X
Y
063 (1 59)
+ 031 (80)
− 016 (40)
382 (9 70)
503 (12 78)

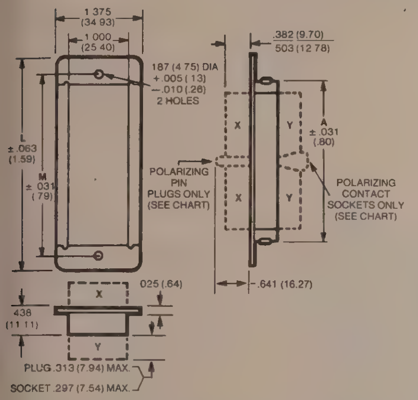
No. of Contacts	Plug Part No.	Socket Part No.	L		M		P		Polarizing Pin†
			± .031 (.79 mm)		± .031 (.79 mm)		± .063 (1.59 mm)		
			In.	MM	In.	MM	In.	MM	
15	P-315-EB	S-315-EB	2.313	58.75	2.000	50.80	1.625	41.28	NO
18	P-318-EB	S-318-EB	2.625	66.68	2.313	58.75	1.938	49.23	NO
21	P-321-EB	S-321-EB	2.938	74.63	2.625	66.68	2.250	57.15	NO
24	P-324-EB	S-324-EB	3.250	82.55	2.938	74.63	2.563	65.10	14
27	P-327-EB	S-327-EB	3.563	90.50	3.250	82.55	2.875	73.03	14
30	P-330-EB	S-330-EB	3.875	98.43	3.563	90.50	3.188	80.98	14
33	P-333-EB	S-333-EB	4.188	106.38	3.875	98.43	3.500	88.90	17

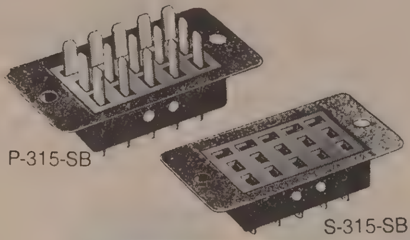
"Jones" Plugs And Sockets

300 Series

TRW

Type SB with shallow brackets for flush mounting

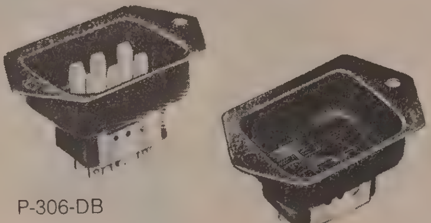

1 375 (34 93)
1 000 (25 40)
187 (4 75) DIA
+.005 (.13)
−.010 (.26)
2 HOLES
.382 (9.70)
503 (12 78)
L ±.063 (1.59)
M ±.031 (.79)
X
Y
A ±.031 (.80)
POLARIZING PIN PLUGS ONLY (SEE CHART)
POLARIZING CONTACT SOCKETS ONLY (SEE CHART)
025 (.64)
.641 (16.27)
438 (11 11)
PLUG .313 (7.94) MAX
SOCKET .297 (7.54) MAX


P-315-SB

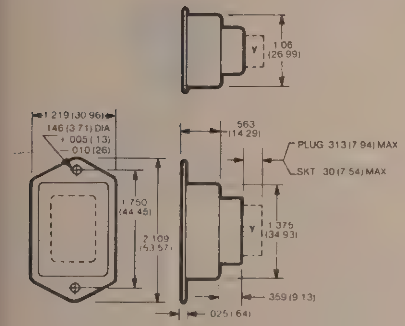
S-315-SB

No. of Contacts	Plug Part No.	Socket Part No.	A ± .031 (.79 mm) In.	A ± .031 (.79 mm) MM	M ± .031 (.79 mm) In.	M ± .031 (.79 mm) MM	L ± .063 (1.59 mm) In.	L ± .063 (1.59 mm) MM	Polarizing Pin†
15	P-315-SB	S-315-SB	1.688	42.86	2.125	53.98	2.547	64.69	NO
18	P-318-SB	S-318-SB	2.000	50.80	2.438	61.93	2.859	72.62	NO
21	P-321-SB	S-321-SB	2.313	58.75	2.750	69.85	3.172	80.57	NO
24	P-324-SB	S-324-SB	2.625	66.68	2.063	52.40	3.484	88.49	14
27	P-327-SB	S-327-SB	2.938	74.63	3.375	85.73	3.797	96.44	14
30	P-330-SB	S-330-SB	3.250	82.55	3.688	93.68	4.109	104.38	14
33	P-333-SB	S-333-SB	3.563	90.50	4.000	101.60	4.422	112.32	17

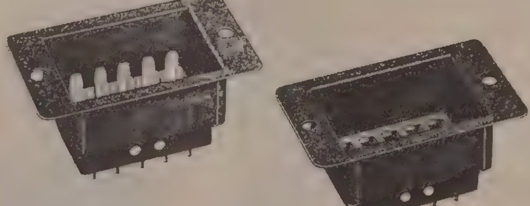
Type DB with deep bracket for recessed mounting


P-306-DB

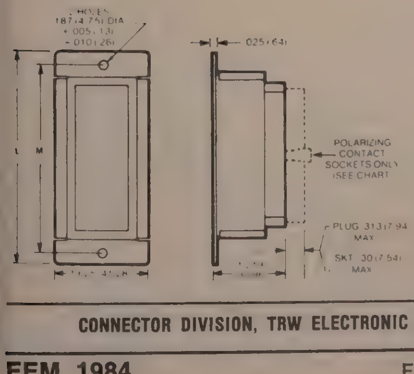
S-306-DB


1 06 (26 99)
Y
1 219 (30 96)
146 (3 71) DIA
+ 005 (13)
− 010 (26)
563 (14 29)
PLUG 313 (7 94) MAX
SKT 30 (7 54) MAX
1 750 (44 45)
2 109 (53 57)
1 375 (34 93)
359 (9 13)
025 (64)

No. of Contacts	Plug Part Nos.	Socket Part Nos.	TYPE DB With Deep Bracket for Recessed Mounting
2	P302-DB	S-302-DB	See Dimensions On Diagram
3	P303-DB	S-303-DB	
4	P304-DB	S-304-DB	
6	P306-DB	S-306-DB	
8	P308-DB	S-308-DB	
12	P312-DB	S-312-DB	


P-315-DB

S-315-DB


2 HOLES
187 (4 75) DIA
+ 005 (13)
− 010 (26)
025 (64)
L
M
POLARIZING CONTACT SOCKETS ONLY (SEE CHART)
PLUG 313 (7 94) MAX
SKT 30 (7 54) MAX

No. of Contacts	Plug Part Nos.	Socket Part Nos.	Dimensions L ± .063 (1.159 mm) In.	Dimensions L ± .063 (1.159 mm) MM	Dimensions M ± .031 (.79 mm) In.	Dimensions M ± .031 (.79 mm) MM	Polarizing Contact Pins
15	P-315-DB	S-315-DB	2.813	71.44	2.375	60.33	NO
18	P-318-DB	S-318-DB	3.125	79 38	2.688	68 28	NO
21	P-321-DB	S-321-DB	3.437	87 31	3 000	76 20	NO
24	P-324-DB	S-324-DB	3.750	95 25	3.313	84.15	14
27	P-327-DB	S-327-DB	4.063	103.19	3 625	92 08	14
30	P-330-DB	S-330-DB	4.375	111.13	3 938	100.03	14
33	P-333-DB	S-333-DB	4.688	119.06	4 250	107.95	17

"Jones" Plugs And Sockets

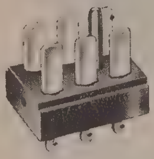
400 Series

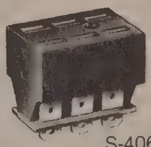
400 series

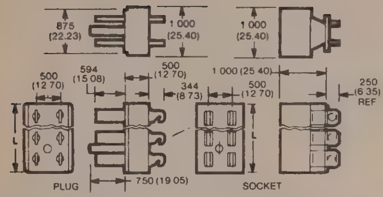
Designed for medium duty. Plug prongs are .250″ (6.35mm) wide x .055″ (1.40 mm) thick. Plug terminals have solder lugs. Socket terminals have solder eyelets. Intermates with 2400 series.

Electrical specifications
All connector ratings are based on a continuously mated condition.
Series 400: Rated voltage: 1100, **Contact resistance** (Average) .001 ohm, **Rated current:** 15 amps.

Type LAB less angle brackets

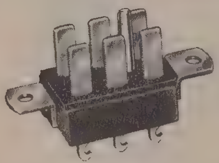

P-406-LAB

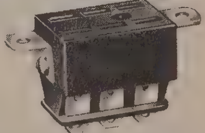

S-406-LAB


875 (22.23)
1 000 (25.40)
1 000 (25.40)
500 (12 70)
594 (15 08)
500 (12 70)
344 (8 73)
1 000 (25 40)
500 (12 70)
250 (6 35) REF
L
L
750 (19 05)
PLUG
SOCKET

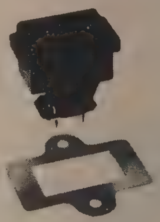
No. of Contacts	Plug Part No.	Socket Part No.	Dimensions L In.	Dimensions L MM
2	P-402-LAB	S-402-LAB	.563	14.29
4	P-404-LAB	S-404-LAB	1.000	25.40
6	P-406-LAB	S-406-LAB	1.438	36.53
8	P-408-LAB	S-408-LAB	1.875	47.63
10	P-410-LAB	S-410-LAB	2.313	58.75
12	P-412-LAB	S-412-LAB	2.750	69.85

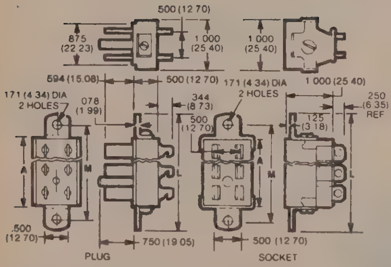
Type AB with angle brackets


P-406-AB


S-406-AB

Note: for S-402-AB a special bracket is supplied. The socket fits into this bracket which is attached to panel.


S-402-AB
(No. 46 Bracket)

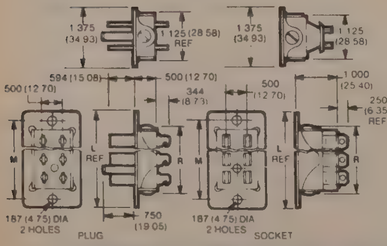

500 (12 70)
875 (22 23)
1 000 (25 40)
1 000 (25 40)
594 (15.08)
500 (12 70)
171 (4 34) DIA 2 HOLES
1 000 (25 40)
171 (4 34) DIA 2 HOLES
078 (1 99)
344 (8 73)
500 (12 70)
125 (3 18)
250 (6 35) REF
A
M
L
A
M
L
.500 (12 70)
750 (19 05)
500 (12 70)
PLUG
SOCKET

No. of Contacts	Plug Part No.	Socket Part No.	Dimensions A In.	Dimensions A MM	Dimensions M In.	Dimensions M MM	Dimensions L In.	Dimensions L MM
2	P-402-AB	S-402-AB	.563	14.29	1.188	30.16	1.594	40.49
4	P-404-AB	S-404-AB	1.000	25.40	1.625	41.28	2.032	51.61
6	P-406-AB	S-406-AB	1.438	36.51	2.063	52.40	2.469	62.71
8	P-408-AB	S-408-AB	1.875	47.63	2.500	63.50	2.906	73.81
10	P-410-AB	S-410-AB	2.313	58.75	2.938	74.63	3.344	84.94
12	P-412-AB	S-412-AB	2.750	69.85	3.375	85.73	3.781	96.04

Type SB with shallow bracket for flush mounting

P-406-SB

S-406-SB


1 375 (34 93)
1 125 (28 58) REF
1 375 (34 93)
1 125 (28 58)
594 (15 08)
500 (12 70)
500 (12 70)
344 (8 73)
500 (12 70)
1 000 (25 40)
250 (6 35) REF
M
L REF
R
M
L REF
R
187 (4 75) DIA 2 HOLES
750 (19 05)
187 (4 75) DIA 2 HOLES
PLUG
SOCKET

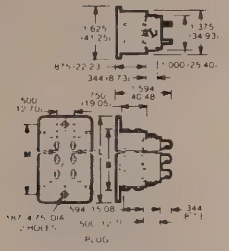
No. of Contacts	Plug Part No.	Socket Part No.	Dimensions L In.	Dimensions L MM	Dimensions M In.	Dimensions M MM	Dimensions R (Max.) In.	Dimensions R (Max.) MM
2	P-402-SB	S-402-SB	1.500	38.10	1.062	26.99	1.766	19.45
4	P-404-SB	S-404-SB	1.937	49.21	1.500	38.10	1.234	31.34
6	P-406-SB	S-406-SB	2.375	60.33	1.938	49.23	1.672	42.47
8	P-408-SB	S-408-SB	2.813	71.45	2.375	60.33	2.109	53.57
10	P-410-SB	S-410-SB	3.250	82.55	2.813	71.45	2.547	64.69
12	P-412-SB	S-412-SB	3.688	93.68	3.250	82.55	2.984	75.80

“Jones” Plugs And Sockets

400 Series

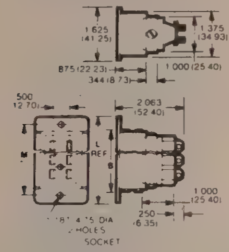
TRW

Type DB with deep bracket for recessed mounting


1.625 (41.25)
1.375 (34.93)
.875 (22.23)
1.000 (25.40)
.344 (8.73)
.750 (19.05)
1.594 (40.48)
.500 (12.70)
M
L
B
.594 (15.08)
.187 (4.75) DIA 2 HOLES
.500 (12.7)
.344 (8.73)
PLUG

P-406-DB

S-406-DB

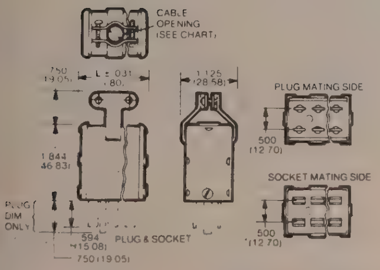

1.625 (41.25)
1.375 (34.93)
.875 (22.23)
1.000 (25.40)
.344 (8.73)
.500 (12.70)
2.063 (52.40)
M
L REF
B
1.000 (25.40)
.250 (6.35)
.187 (4.75) DIA 2 HOLES
SOCKET

No. of Contacts	Plug Part No.	Socket Part No.	Dimensions					
			B		L		M	
			In.	MM	In.	MM	In.	MM
2	P-402-DB	S-402-DB	.922	23.42	1.750	44.45	1.313	33.35
4	P-404-DB	S-404-DB	1.359	34.53	2.188	55.58	1.750	44.45
6	P-406-DB	S-406-DB	1.797	45.64	2.625	57.53	2.188	55.58
8	P-408-DB	S-408-DB	2.234	56.74	3.063	77.79	2.625	66.68
10	P-410-DB	S-410-DB	2.672	67.87	3.500	88.90	3.063	77.80
12	P-412-DB	S-412-DB	3.109	78.97	3.938	100.03	3.500	88.90

Type CCT with cable clamp in top

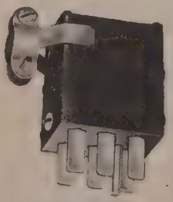
P-406-CCT

S-406-CCT

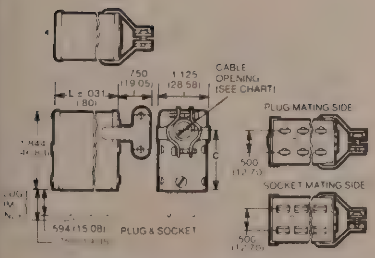

CABLE OPENING (SEE CHART)
.750 (19.05)
L ± .031 (.80)
1.125 (28.58)
PLUG MATING SIDE
1.844 (46.83)
.500 (12.70)
SOCKET MATING SIDE
PLUG DIM ONLY
.594 (15.08)
PLUG & SOCKET
.750 (19.05)
.500 (12.70)

No. of Contacts	Plug Part No.	Socket Part No.	Dimensions			
			L		Cable Opening	
			In.	MM	In.	MM
2	P-402-CCT	S-402-CCT	.625	15.88	.313	7.94
4	P-404-CCT	S-404-CCT	1.062	26.99	.438	11.11
6	P-406-CCT	S-406-CCT	1.500	38.10	.438	11.11
8	P-408-CCT	S-408-CCT	1.937	49.21	.563	14.29
10	P-410-CCT	S-410-CCT	2.375	60.33	.563	14.29
12	P-412-CCT	S-412-CCT	2.813	71.45	.625	15.88

Type CCE with cable clamp in end


P-406-CCE

S-406-CCE


L ± .031 (.80)
.750 (19.05)
1.125 (28.58)
CABLE OPENING (SEE CHART)
PLUG MATING SIDE
.500 (12.70)
C
SOCKET MATING SIDE
.594 (15.08)
PLUG & SOCKET
.500 (12.70)

No. of Contacts	Plug Part No.	Socket Part No.	Dimensions					
			L		C		Cable Openings	
			In.	MM	In.	MM	In.	MM
2	P-402-CCE	S-402-CCE	.625	15.88	1.375	34.93	.375	9.53
4	P-404-CCE	S-404-CCE	1.062	26.99	1.375	34.93	.438	11.11
6	P-406-CCE	S-406-CCE	1.500	38.10	1.375	34.93	.438	11.11
8	P-408-CCE	S-408-CCE	1.937	49.21	1.344	34.13	.563	14.29
10	P-410-CCE	S-410-CCE	2.375	60.33	1.344	34.13	.563	14.29
12	P-412-CCE	S-412-CCE	2.813	71.45	1.312	33.34	.625	15.88

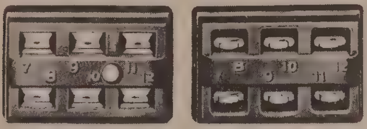
CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 1501 MORSE AVENUE, ELK GROVE VILLAGE, IL 60007-5782 • (312) 981-6000

"Jones" Plugs And Sockets

2400 Series

2400 series

UL recognized



Designed for medium duty. The bifurcated bellows socket contact provides four individual flexing surfaces for maximum contact with the blade. Plug prongs are .250" (6.35 mm) wide x .055" (1.40 mm) thick. Plug terminals are solder lug. Socket terminals are solder eyelet. Intermateable with 400 series.

Series 2400 plugs and sockets have recessed pockets with barriers around the contacts, both on the mating side and the solder connecting side. A shoulder extends around the face (mating) side of both plug and socket presenting a finished appearance when mounted in bracket or cap. Angle brackets can be ordered as specials for the 2400 series.

Electrical specifications

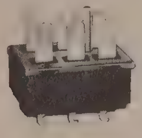
All connector ratings are based on a continuously mated condition.

Series 2400—Rated voltage 1700; contact resistance (average): 001 ohm; rated current: *10 amps.

*Standard commercial service.

Type LAB

Less Angle Brackets Drilled for 6-32 self-tapping screw



P-2406-LAB

S-2406-LAB

Type DB

With Deep Bracket for Recessed Mounting

P-2406-DB

S-2406-DB

Type CCE

With Cable Clamp in End

P-2406-CCE

S-2406-CCE

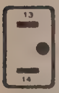
Dimensions for 2400 series

Except for the additional dielectric material in the barrier, as explained above, dimensions for the 2400 series are the same as for the 400 series. We have not included dimensional data for the 2400 series. It is available from Catalog C-1. Polarizing position data and mounting specifications are the same for both 400 and 2400 series. These are shown below.

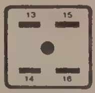
No. of Contacts	Type LAB Part Nos.	Type SB Part Nos.	Type DB Part Nos.	Type CCT Part Nos.	Type CCE Part Nos.
2	P-2402-LAB S-2402-LAB	P-2402-SB S-2402-SB	P-2402-DB S-2402-DB	P-2402-CCT S-2402-CCT	P-2402-CCE S-2402-CCE
4	P-2404-LAB S-2404-LAB	P-2404-SB S-2404-SB	P-2404-DB S-2404-DB	P-2404-CCT S-2404-CCT	P-2404-CCE S-2404-CCE
6	P-2406-LAB S-2406-LAB	P-2406-SB S-2406-SB	P-2406-DB S-2406-DB	P-2406-CCT S-2406-CCT	P-2406-CCE S-2406-CCE
8	P-2408-LAB S-2408-LAB	P-2408-SB S-2408-SB	P-2408-DB S-2408-DB	P-2408-CCT S-2408-CCT	P-2408-CCE S-2408-CCE
10	P-2410-LAB S-2410-LAB	P-2410-SB S-2410-SB	P-2410-DB S-2410-DB	P-2410-CCT S-2410-CCT	P-2410-CCE S-2410-CCE
12	P-2412-LAB S-2412-LAB	P-2412-SB S-2412-SB	P-2412-DB S-2412-DB	P-2412-CCT S-2412-CCT	P-2412-CCE S-2412-CCE

Polarizing position data and mounting specifications for 400 and 2400 series

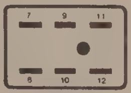
Polarizing position data



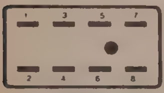
402
2402



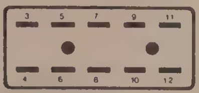
404
2404



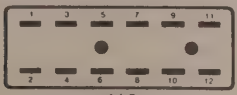
406
2406



408
2408

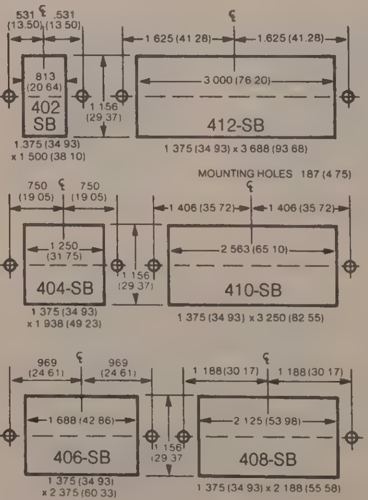

3 5 7 9 11
4 6 8 10 12

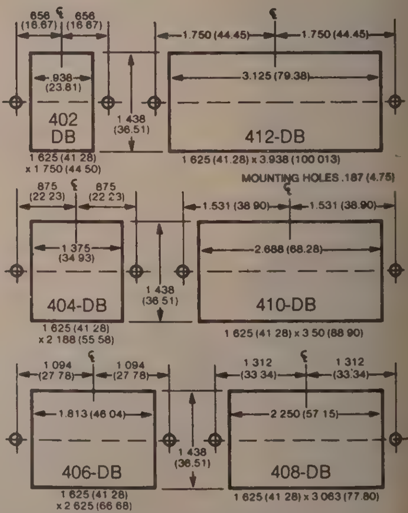
410
2410


1 3 5 7 9 11
2 4 6 8 10 12

412
2412

Mounting specifications


531 (13.50)
.531 (13 50)
813 (20 64)
402 SB
1 156 (29 37)
1.375 (34 93) x 1 500 (38 10)
1 625 (41 28)
1.625 (41.28)
3 000 (76 20)
412-SB
1 375 (34 93) x 3 688 (93 68)
MOUNTING HOLES 187 (4 75)
750 (19 05)
750 (19 05)
1 250 (31 75)
404-SB
1 156 (29 37)
1 375 (34 93) x 1 938 (49 23)
1 406 (35 72)
1 406 (35 72)
2 563 (65 10)
410-SB
1 375 (34 93) x 3 250 (82 55)
969 (24 61)
969 (24 61)
1 688 (42 86)
406-SB
1 156 (29 37
1 375 (34 93) x 2 375 (60 33)
1 188 (30 17)
1 188 (30 17)
2 125 (53 98)
408-SB
1 375 (34 93) x 2 188 (55 58)


656 (16.67)
656 (16 67)
.938 (23.81)
402 DB
1 438 (36.51)
1 625 (41 28) x 1 750 (44 50)
1.750 (44.45)
1.750 (44.45)
3.125 (79.38)
412-DB
1 625 (41.28) x 3.938 (100 013)
MOUNTING HOLES .187 (4.75)
875 (22 23)
875 (22 23)
1 375 (34 93)
404-DB
1 438 (36 51)
1 625 (41 28) x 2 188 (55 58)
1.531 (38 90)
1.531 (38.90)
2.688 (68.28)
410-DB
1 625 (41 28) x 3 50 (88 90)
1 094 (27 78)
1 094 (27 78)
1.813 (46 04)
406-DB
1 438 (36.51)
1 625 (41 28) x 2 625 (66 68)
1 312 (33 34)
1 312 (33.34)
2 250 (57 15)
408-DB
1 625 (41 28) x 3 063 (77.80)

"Jones" Plugs And Sockets

500 Series

TRW

500 series

Designed for heavy duty applications. Plug prongs are .313 (7.94 mm) wide by .094 (2.38 mm) thick. Plug and socket have screw terminals.

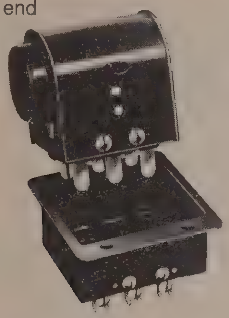
Electrical specifications
Rated voltage: 3000 vols rms
Rated current: 25 amperes per contact

Type CE

for cable clamp in end

P-506-CE

S-506-DB

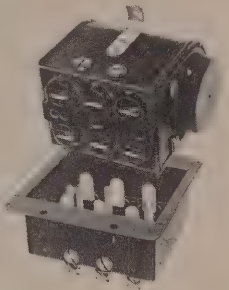


Type DB

with deep bracket for recessed mounting

S-506-CE

P-506-DB

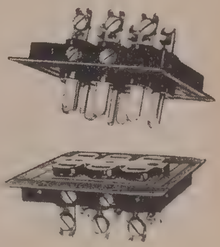


Type SB

with shallow bracket for flush mounting

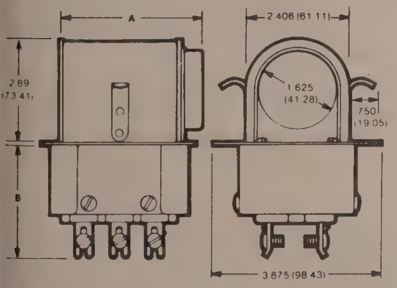
P-506-SB

S-506-SB



No. of Contacts	Part Numbers			Dimensions											
				A		B									
						Plug				Socket					
						SB		DB		SB		DB			
	Type DB Part Nos.	Type CE Part Nos.	Type SB Part Nos.	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM		
2	P-502-DB	P-502-CE	P-502-SB	1.688	42.86	1.438	36.51	2.438	61.93	—	—	—	—		
2	S-502-DB	S-502-CE	S-502-SB	1.688	42.86	—	—	—	—	1.563	39.70	2.625	66.78		
4	P-504-DB	P-504-CE	P-504-SB	2.500	63.50	1.438	36.51	2.438	61.93	—	—	—	—		
4	S-504-DB	S-504-CE	S-504-SB	2.500	63.50	—	—	—	—	1.563	39.70	2.625	66.78		
6	P-506-DB	P-506-CE	P-506-SB	3.313	84.15	1.438	36.51	2.438	61.93	—	—	—	—		
6	S-506-DB	S-506-CE	S-506-SB	3.313	84.15	—	—	—	—	1.563	39.70	2.625	66.78		
8	P-508-DB	P-508-CE	P-508-SB	4.125	104.78	1.438	36.51	2.438	61.93	—	—	—	—		
8	S-508-DB	S-508-CE	S-508-SB	4.937	125.40	—	—	—	—	1.563	39.70	2.625	66.78		
10	P-510-DB	P-510-CE	P-510-SB	4.937	125.40	1.438	36.51	2.438	61.93	—	—	—	—		
10	S-510-DB	S-510-CE	S-510-SB	4.313	109.55	—	—	—	—	1.563	39.70	2.625	66.78		
12	P-512-DB	P-512-CE	P-512-SB	5.750	146.05	1.438	36.51	2.438	61.93	—	—	—	—		
12	S-512-DB	S-512-CE	S-512-SB	5.750	146.05	—	—	—	—	1.563	39.70	2.625	66.78		

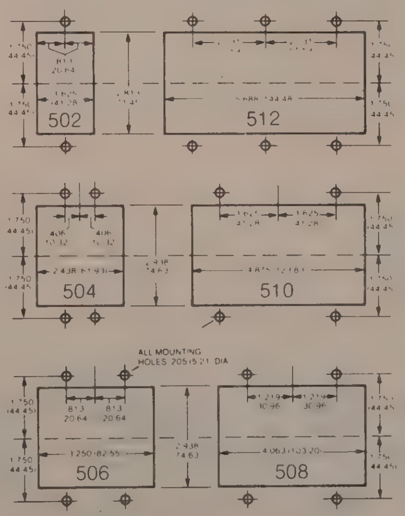
Dimensions



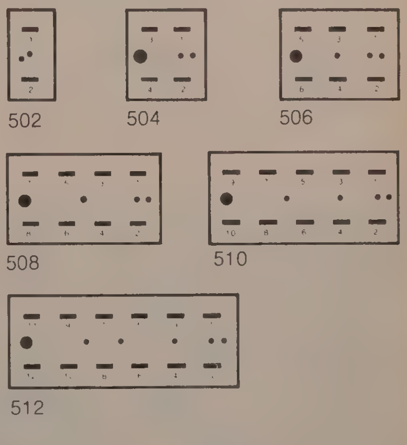
NOTE: Hoods are provided with a removable end cover that can be modified to provide cable access. After end cover is removed (unlock slotted head screws), a hole can be punched or cut for proper cable size and a standard BX, Romex or other suitable clamp can be installed to provide strain relief. Clamps are not provided with connectors.

Mounting specifications

For deep or shallow brackets



Polarizing position data



Vibra-Lok IV*
Mil-C 38999 Series IV Connectors

General Description

Vibra-Lok IV Connectors

Vibra-Lok IV coupling is a new, patented innovation. It provides a rugged, fool-proof, quick-disconnect operation in a miniature electrical connector. The Vibra-Lok mechanism distributes the coupling load over solid metal lands, while internal drive threads provide the mechanical advantage required to engage contacts and interfacial seals.

Positive Mate

Vibra-Lok IV connectors cannot be coupled (or partially coupled) until key/keyway alignment has been achieved—keys drop into keyways with a positive "feel" before coupling can begin. 90° coupling ring rotation brings the plug to the fully mated position. Three full-mate indicators are provided:

- A red band at the rear of the plug disappears.
- A detent mechanism provides an audible click and a distinct tactile indication of locking.
- An indicator line on the receptacle aligns with the main keyway indicator on the coupling ring, for positive visual inspection.

Increased Mechanical Performance

The Vibra-Lok IV connector meets requirements for shock, vibration, and heavy rear accessory loads which exceed those specified for most thread-coupled devices.

Increased Shielding Effectiveness

Excellent EMI/EMP shielding is provided by grounding fingers which operate on an uninterrupted cylindrical surface, and by careful selection of conductive finishes. Grounding occurs prior to contact engagement.

Sealing

Interfacial seals are fully compressed in the mated condition, preventing water intrusion. A dynamic O-ring provides a redundant peripheral seal, without reducing the effectiveness of the interface seal.

System Compatibility

Common features of the MIL-C-38999 family have been retained.

- Size and weight are similar to Series I.
- Common mounting cut-outs are used.
- Standard insert arrangements and wire sealing ranges are provided. Contacts, crimp tools, insertion/removal tools, sealing plugs and assembly techniques are standard for all MIL-C-38999 connectors.

Specifications

High Impact Shock

Mated connectors, wired with MIL-C-915/60 or /63 cable and equipped with straight environmentally sealed backshells, withstand high impact shock per MIL-S-901.

Vibration With Rear Accessory Loads

Mated connectors, with weights attached to simulate heavy rear accessories, withstand the following vibration levels:

- Sine vibration per MIL-STD-202, Method 204, Condition G.
- Random vibration per MIL-STD-202, Method 214, Condition II, Letter J.

Shielding Effectiveness (CNG6, Class F Only)

- EMI leakage attenuation greater than 90 dB at 100 MHz and greater than 65 dB through 10 GHz.
- Dynamic EMP protection greater than 90 dB from 1 to 100 MHz while subjected to 3G²/Hz random vibration.
- Shell-to-shell conductivity—1.0 millivolts maximum. (Class F and N).

Grounding Before Contact Engagement (CNG6 Only)

Grounding fingers engage .050 in. minimum prior to engagement of contacts, pro-

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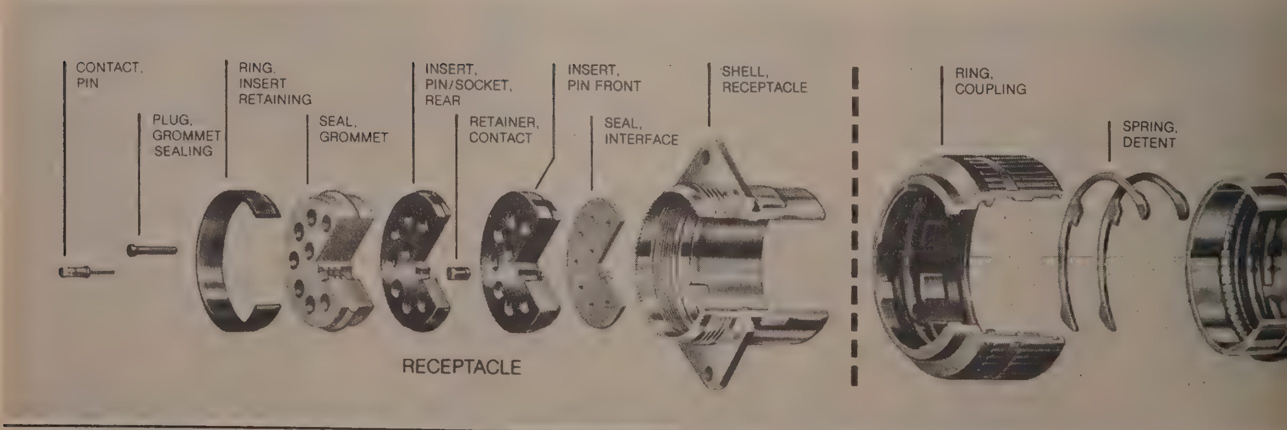
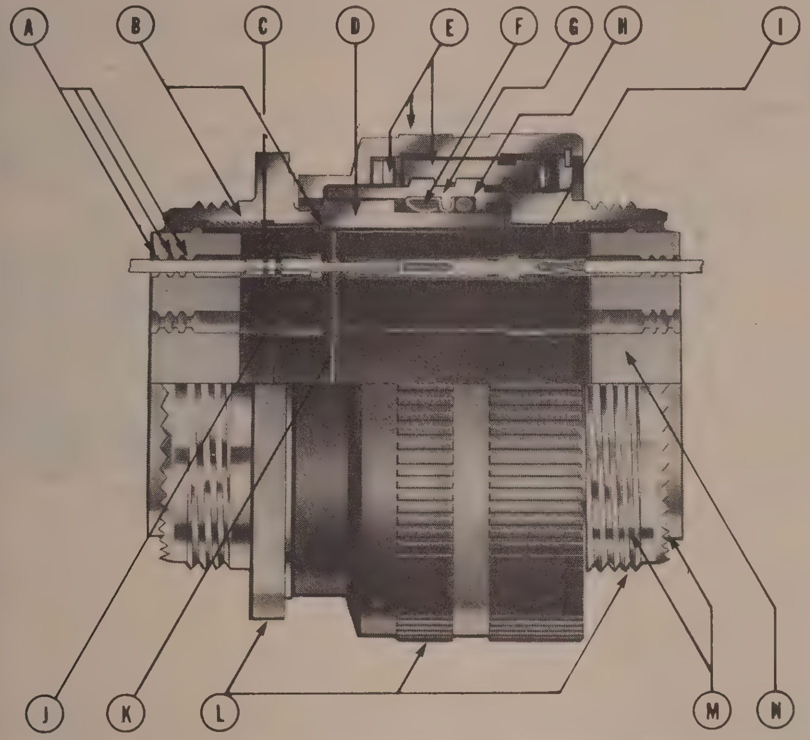
*Trademark of TRW Inc.



Vibra-Lok IV*
Mil-C 38999 Series IV Connectors

TRW


A
B
C
D
E
F
G
H
I
J
K
L
M
N

Design Features

- **A.** Wire Sealing Risers
- **B.** Positive Location Captivated Insert (Mechanical Lock)
- **C.** Pin Contact, MIL-C-39029
- **D.** 5 Polarity Pin-to-Pin Mating Protection
- **E.** ¼ Turn Positive Lock Breech Coupling and Uncoupling
- **F.** 1.0 Millivolts Maximum Shell to Shell Conductivity. (Class F and N)
- **G.** 100 to 10000 MHz EMI Shielding—Provides Grounding Before Contact Engagement
- **H.** Dynamic "O" Ring Seal
- **I.** Socket Contact, MIL-C-39029
- **J.** Positive Lock Rear Release Contact Clips (Metal)
- **K.** Resilient Face Seal
- **L.** Corrosion Resistant Shell Class C & W—500 Hours Class F,Y N—48 Hours
- **M.** Positive Lock Rear Accessory Features
- **N.** Fluid Resistant Grommet Method 1016, MIL-STD-1344

viding full radiation hazard and HERO protection.

Temperature Range
Class C, F, Y and N: —65°C (—85°F) to +200°C (+392°F)
Class W: —65°C (—85°F) to +175°C (+347°F)

Corrosion Resistance
Class C and W withstand 500 hour salt spray.
Class F, Y and N withstand 48 hour salt spray.

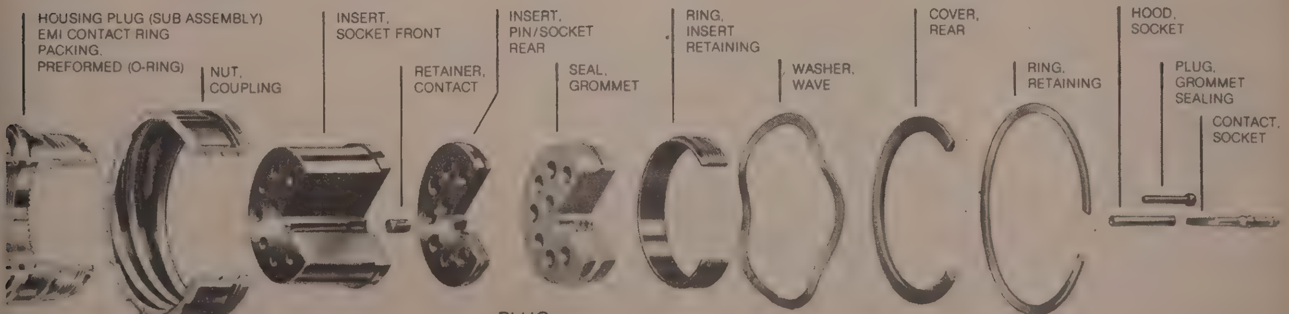
Fluid Resistance
Connectors withstand specified immersions in MIL-L-7808, MIL-L-23699, MIL-H-5606, Chevron M2-V, Coolanol 25, Gasoline, Ethylene Glycol, Freon TMC, and other solvents and cleaning agents.

Rear Accessory Threads
Metric rear accessory threads provide increased strength and accept standard rear hardware. An uninterrupted cylindrical surface is provided for environmentally sealed accessories.

Scoop-Proof Design
Pin contacts are recessed to prevent damage due to scooping by the mating connector shell.

Pin-to-Pin Mating Protection
Plug and receptacle cannot mate when both contain the same contact type. This prevents the failures possible with many other connectors which permit pin to mate with pins, resulting in either lack of continuity, or short circuits and severe mechanical damage.

Coupling Durability
Meets specifications requirements of 500 cycles. Vibra-Lok IV is rated for over 750 cycles of mate/unmate cycles.


HOUSING PLUG (SUB ASSEMBLY)
EMI CONTACT RING
PACKING,
PREFORMED (O-RING)
NUT,
COUPLING
INSERT,
SOCKET FRONT
RETAINER,
CONTACT
INSERT,
PIN/SOCKET
REAR
SEAL,
GROMMET
RING,
INSERT
RETAINING
WASHER,
WAVE
COVER,
REAR
RING,
RETAINING
HOOD,
SOCKET
PLUG,
GROMMET
SEALING
CONTACT,
SOCKET

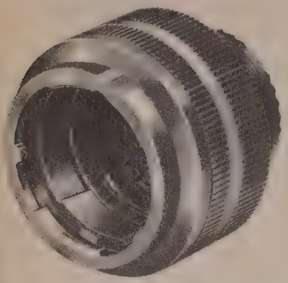
PLUG

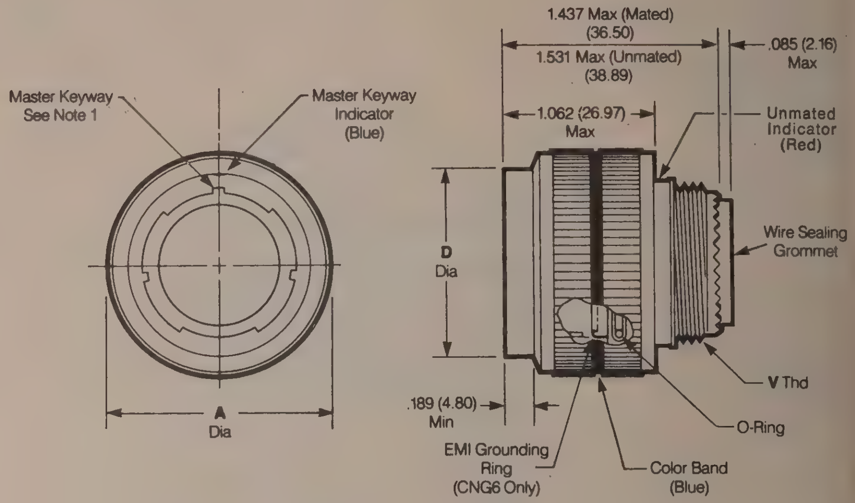
Vibra-Lok IV*
Mil-C 38999 Series IV Connectors

Straight Plug
Crimp

CN06CXX-XXXX
CN06WXX-XXXX
D38999/47

CNG6FXX-XXXX
CNG6WXX-XXXX
D38999/46




Master Keyway
See Note 1
Master Keyway
Indicator
(Blue)
A
Dia
1.437 Max (Mated)
(36.50)
1.531 Max (Unmated)
(38.89)
.085 (2.16)
Max
1.062 (26.97)
Max
Unmated
Indicator
(Red)
Wire Sealing
Grommet
D
Dia
V Thd
O-Ring
.189 (4.80)
Min
EMI Grounding
Ring
(CNG6 Only)
Color Band
(Blue)

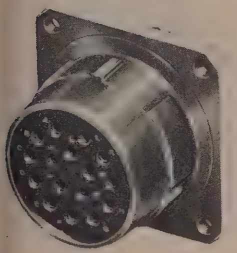
Notes:
1. Key/Keyway position N shown. For alternate polarization see page **2•1724**.
2. Complete Part Number, page **2•1724**.

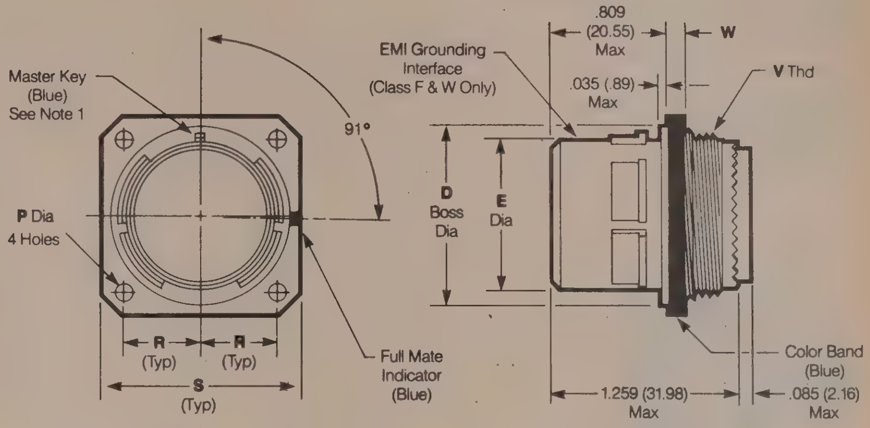
Shell Size	A Dia. Max.		D Dia. Max.		V Thd. Metric
	In.	MM	In.	MM	
11	1.054	26.77	.775	19.69	M15x1.0-6g-0.1R
13	1.226	31.14	.901	22.89	M18x1.0-6g-0.1R
15	1.351	34.32	1.039	26.39	M22x1.0-6g-0.1R
17	1.476	37.49	1.149	29.18	M25x1.0-6g-0.1R
19	1.586	40.28	1.275	32.39	M28x1.0-6g-0.1R
21	1.711	43.46	1.401	35.59	M31x1.0-6g-0.1R
23	1.836	46.63	1.527	38.79	M34x1.0-6g-0.1R
25	1.964	48.61	1.649	41.88	M37x1.0-6g-0.1R

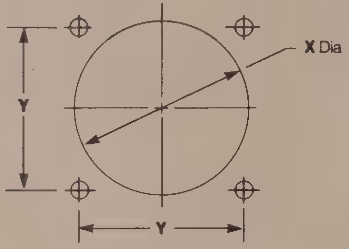
Vibra-Lok IV*
Mil-C 38999 Series IV Connectors

Wall Mounting Receptacle Crimp

CN00CXX-XXXX
CN00FXX-XXXX
CN00WXX-XXXX
D38999/40




Master Key
(Blue)
See Note 1
P Dia
4 Holes
91°
R (Typ)
R (Typ)
S (Typ)
Full Mate Indicator (Blue)
EMI Grounding Interface (Class F & W Only)
D Boss Dia
E Dia
.809 (20.55) Max
W
.035 (.89) Max
V Thd
Color Band (Blue)
1.259 (31.98) Max
.085 (2.16) Max



Notes:
1. Key/Keyway position N shown. For alternate polarization see page 2•1724.
2. Complete Part Number, page 2•1724.

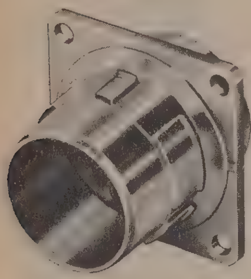
Shell Size	D Boss Dia. Max.		E Dia. Max.		P Dia. Min.		R Bsc.		S Max.	
	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
11	.793	20.14	.509	12.93	.122	3.10	.406	10.31	1.051	26.70
13	.919	23.34	.634	16.10			.453	11.51	1.145	29.08
15	1.044	26.52	.759	19.28			.4845	12.31	1.240	31.50
17	1.170	29.72	.885	22.48			.531	13.49	1.334	33.88
19	1.294	32.87	1.009	25.63			.578	14.68	1.460	37.08
21	1.419	36.04	1.134	28.80			.625	15.88	1.582	40.18
23	1.544	39.22	1.259	31.98	.142	3.61	.6875	17.46	1.708	43.38
25	1.669	42.39	1.384	35.15			.750	19.05	1.834	46.58

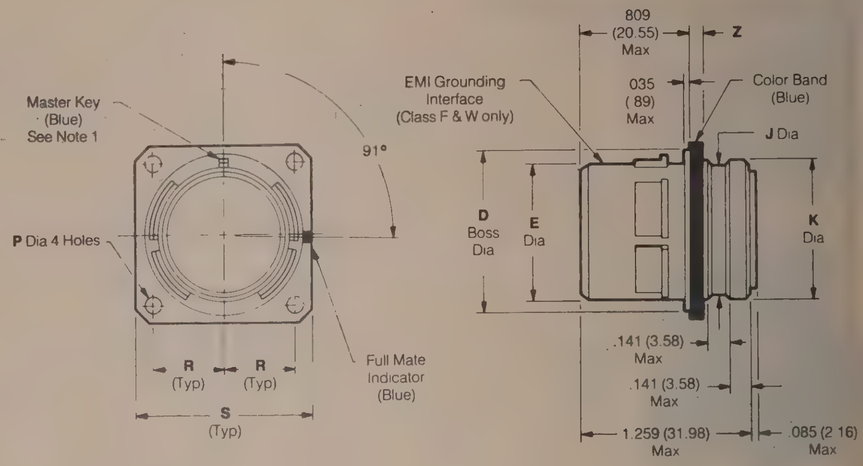
Shell Size	V Thd. Metric	W Max.		X Dia. Basic		Y Bsc.	
		In.	MM	In.	MM	In.	MM
11	M15x1.0-6g-0.1R	.102	2.59	.806	20.47	.812	20.62
13	M18x1.0-6g-0.1R			.932	23.67	.906	23.01
15	M22x1.0-6g-0.1R			1.057	26.85	.969	24.61
17	M25x1.0-6g-0.1R			1.183	30.05	1.062	26.97
19	M28x1.0-6g-0.1R			1.307	33.20	1.156	29.36
21	M31x1.0-6g-0.1R	.133	3.38	1.432	36.37	1.250	31.75
23	M34x1.0-6g-0.1R			1.557	39.55	1.375	34.93
25	M37x1.0-6g-0.1R			1.682	42.72	1.500	38.10

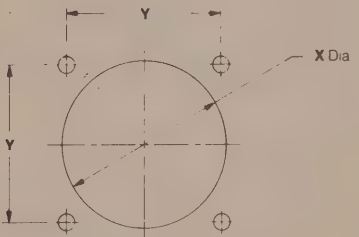
Vibra-Lok IV*
Mil-C 38999 Series IV Connectors

Box Mounting Receptacle Crimp

CN02CXX-XXXX
CN02FXX-XXXX
CN02WXX-XXXX
D38999/42




Master Key
(Blue)
See Note 1
91°
P Dia 4 Holes
Full Mate
Indicator
(Blue)
R
(Typ)
R
(Typ)
S
(Typ)
809
(20.55)
Max
Z
EMI Grounding
Interface
(Class F & W only)
035
(.89)
Max
Color Band
(Blue)
J Dia
D
Boss
Dia
E
Dia
K
Dia
.141 (3.58)
Max
.141 (3.58)
Max
1.259 (31.98)
Max
.085 (2.16)
Max



Panel Cut-Out (Reference)
.125 Max. Panel Thickness
Front or Rear Mounting

Notes:
1. Key/Keyway position N shown. For alternate polarization see page 2•1724.
2. Complete Part Number, page 2•1724.

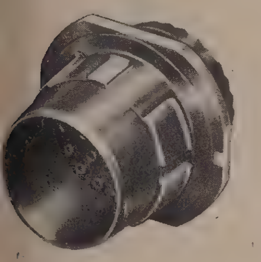
Shell Size	D Boss Dia. Max.		E Dia. Max.		J Dia. Max.		K Dia. Max.		P Dia. Min.		R Bsc.	
	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
11	.793	20.14	.509	12.93	.535	13.59	.578	14.68	.122	3.10	.406	10.31
13	.919	23.34	.634	16.10	.649	16.48	.692	17.58			.453	11.51
15	1.044	26.52	.759	19.28	.771	19.58	.818	20.78			.4845	12.31
17	1.170	29.72	.885	22.48	.897	22.78	.944	23.98			.531	13.49
19	1.294	32.87	1.009	25.63	1.003	25.48	1.051	26.70			.578	14.68
21	1.419	36.04	1.134	28.80	1.129	28.68	1.173	29.79			.626	15.88
23	1.544	39.22	1.259	31.90	1.255	31.88	1.299	32.99	.142	3.61	.6875	17.46
25	1.669	42.39	1.384	35.15	1.377	34.98	1.425	36.20			.750	19.05

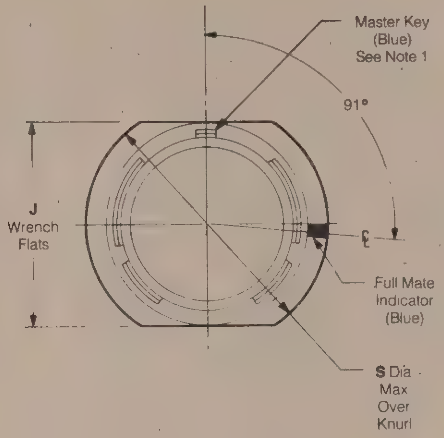
Shell Size	S Max.		X Dia. Bsc.		Y Bsc.		Z Max. Ref.	
	In.	MM	In.	MM	In.	MM	In.	MM
11	1.051	26.70	.806	20.47	.812	20.62	.102	2.59
13	1.145	29.08	.932	23.67	.906	23.01		
15	1.240	31.50	1.057	26.85	.969	24.61		
17	1.334	33.88	1.183	30.05	1.062	26.97		
19	1.460	37.08	1.307	33.20	1.156	29.36		
21	1.582	40.18	1.432	36.37	1.250	31.75	.133	3.38
23	1.708	43.38	1.557	39.55	1.375	34.93		
25	1.834	46.58	1.682	42.72	1.500	38.10		

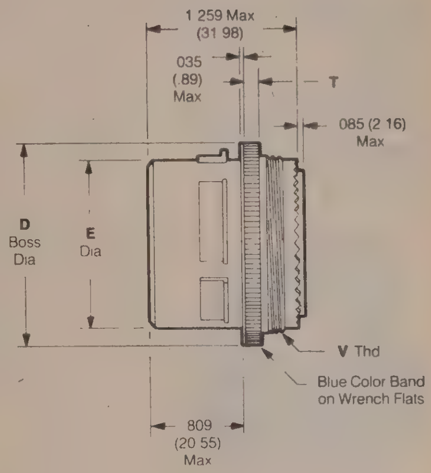
Vibra-Lok IV*
Mil-C 38999 Series IV Connectors

In-Line Receptacle
Crimp

CN03CXX-XXXX
CN03FXX-XXXX
CN03WXX-XXXX
D38999/49




Master Key
(Blue)
See Note 1
91°
J
Wrench
Flats
℄
Full Mate
Indicator
(Blue)
S Dia
Max
Over
Knurl


1 259 Max
(31 98)
035
(.89)
Max
T
085 (2 16)
Max
D
Boss
Dia
E
Dia
V Thd
Blue Color Band
on Wrench Flats
809
(20 55)
Max

Notes:

1. Key/Keyway position N shown. For alternate polarization see page **2**•1724.
2. Complete Part Number, page **2**•1724.

Shell Size	D Boss Dia. Max.		E Dia. Max.		J Max.		S Dia. Max.	
	In.	MM	In.	MM	In.	MM	In.	MM
11	.793	20.14	.509	12.93	.793	20.14	1.054	26.27
13	.919	23.34	.634	16.19	.919	23.34	1.226	31.14
15	1.044	26.52	.759	19.28	1.044	26.52	1.351	34.32
17	1.170	29.72	.885	22.48	1.170	29.72	1.476	37.49
19	1.294	32.87	1.009	25.63	1.294	32.87	1.586	40.28
21	1.419	36.04	1.134	28.80	1.419	36.04	1.711	43.46
23	1.544	39.22	1.259	31.98	1.544	39.22	1.836	46.63
25	1.669	42.39	1.384	35.15	1.669	42.39	1.964	49.89

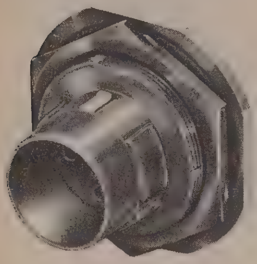
Shell Size	T Max.		V Thread Metric
	In.	MM	
11	.102	2.59	M15x1.0-6g-0.1R
13			M18x1.0-6g-0.1R
15			M22x1.0-6g-0.1R
17			M25x1.0-6g-0.1R
19			M28x1.0-6g-0.1R
21	.133	3.38	M31x1.0-6g-0.1R
23			M34x1.0-6g-0.1R
25			M37x1.0-6g-0.1R

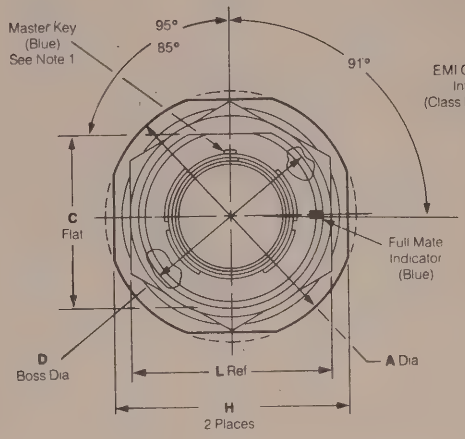
Vibra-Lok IV*
Mil-C 38999 Series IV Connectors

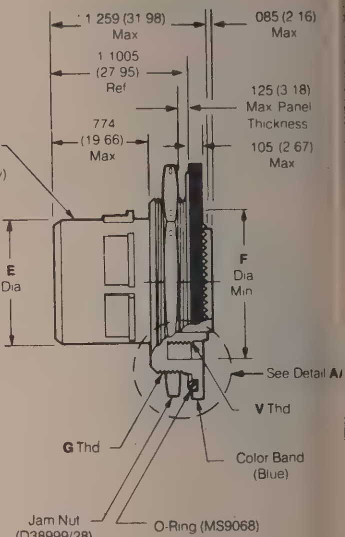
TRW

Jam Nut Receptacle
Crimp

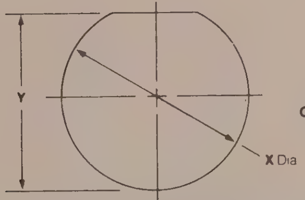
CN07CXX-XXXX
CN07FXX-XXXX
CN07WXX-XXXX
D38999/44



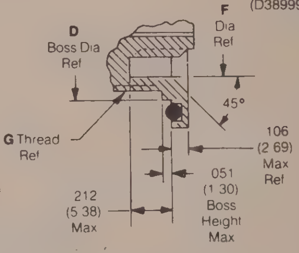

Master Key
(Blue)
See Note 1
95°
85°
91°
C
Flat
Full Mate
Indicator
(Blue)
D
Boss Dia
L Ref
A Dia
H
2 Places


1 259 (31 98)
Max
085 (2 16)
Max
1 1005
(27 95)
Ref
125 (3 18)
Max Panel
Thickness
774
(19 66)
Max
105 (2 67)
Max
EMI Grounding
Interface
(Class F & W Only)
E
Dia
F
Dia
Min
See Detail A
V Thd
G Thd
Color Band
(Blue)
Jam Nut
(D38999/28)
O-Ring (MS9068)

Notes:
1. Key/Keyway position N shown. For alternate polarization see page 2•1724.
2. Complete Part Number, page 2•1724.



Panel Cut-Out (Ref.)


D
Boss Dia
Ref
F
Dia
Ref
45°
G Thread
Ref
106
(2 69)
Max
Ref
051
(1 30)
Boss
Height
Max
212
(5 38)
Max

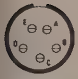
Detail **AA**

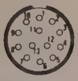
Shell Size	A Dia. Max.		C Flat Max.		D Dia. Max.		E Dia. Max.		F Dia. Min.		G Thd. Metric	H Flat Max.	
	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM		In.	MM
11	1.520	38.61	.942	23.93	1.000	25.40	.509	12.93	.794	20.17	M25x1.0-6g-0.1R	1.394	35.41
13	1.642	41.71	1.066	27.08	1.125	28.76	.634	16.10	.918	23.32	M28x1.0-6g-0.1R	1.520	38.61
15	1.768	44.91	1.191	30.25	1.250	31.75	.759	19.28	1.036	26.31	M31x1.0-6g-0.1R	1.642	41.71
17	1.957	49.71	1.321	33.55	1.375	34.93	.885	22.48	1.172	29.77	M34x1.0-6g-0.1R	1.799	45.69
19	2.035	51.69	1.441	36.60	1.500	38.10	1.009	25.68	1.286	32.66	M38x1.0-6g-0.1R	1.909	48.49
21	2.157	54.79	1.566	39.78	1.625	41.28	1.134	28.80	1.412	35.86	M41x1.0-6g-0.1R	2.035	51.69
23	2.283	57.99	1.691	42.95	1.750	44.45	1.259	31.90	1.536	39.01	M44x1.0-6g-0.1R	2.757	55.04
25	2.409	61.19	1.816	46.13	1.875	47.63	1.384	35.15	1.662	42.21	M47x1.0-6g-0.1R	2.283	57.39

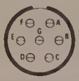
Shell Size	L Ref.		V Thd. Metric	X Dia. Bsc.		Y Bsc.		Recommended Packing (O Ring)
	In.	MM		In.	MM	In.	MM	
11	1.260	32.0	M15x1.0-6g-0.1R	1.017	25.83	.955	24.25	MS9068-24
13	1.417	36.0	M18x1.0-6g-0.1R	1.144	29.06	1.084	27.53	MS9068-26
15	1.614	41.0	M22x1.0-6g-0.1R	1.269	32.23	1.208	30.68	MS9068-28
17	1.614	41.0	M25x1.0-6g-0.1R	1.394	35.41	1.333	33.86	MS9068-29
19	1.811	46.0	M28x1.0-6g-0.1R	1.517	38.53	1.459	37.06	MS9068-30
21	1.968	50.0	M31x1.0-6g-0.1R	1.644	41.76	1.576	40.03	MS9068-31
23	1.968	50.0	M34x1.0-6g-0.1R	1.769	44.93	1.701	43.21	MS9068-32
25	2.165	55.0	M37x1.0-6g-0.1R	1.894	48.10	1.826	46.38	MS9068-33

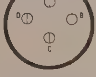
Vibra-Lok IV*
Mil-C 38999 Series IV Connectors

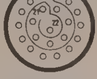
Inserts Available (Front Face of Pin Insert Shown)

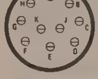

5#20 Contacts
Insert 11-5

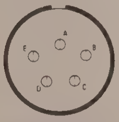

13#22D Contacts
Insert 11-35

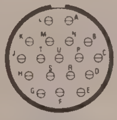

7#20 Contacts
Insert 11-99

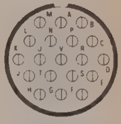

4#16 Contacts
Insert 13-4

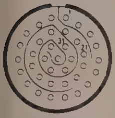

22#22D Contact
Insert 13-35

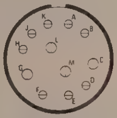

10#20 Contacts
Insert 13-98

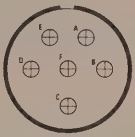

5#16 Contacts
Insert 15-5

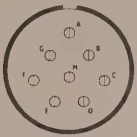

18#20 Contacts
Insert 15-18

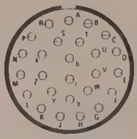

19#20 Contacts
Insert 15-19

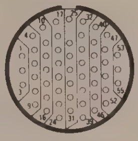

37#22D Contacts
Insert 15-35

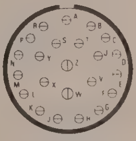

8#20 Contacts
4#16 Contacts
Insert 15-97

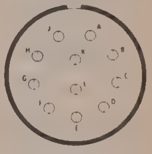

6#12 Contacts
Insert 17-6

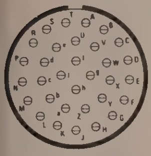

8#16 Contacts
Insert 17-8

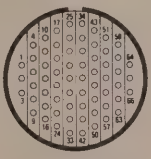

26#20 Contacts
Insert 17-26

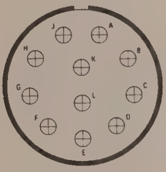

55#22D Contacts
Insert 17-35

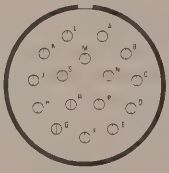

2#16 Contacts
21#20 Contacts
Insert 17-99

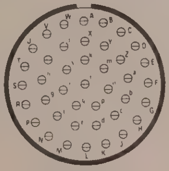

11#16 Contacts
Insert 19-11

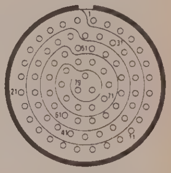

32#20 Contacts
Insert 19-32


66#22D Contacts
Insert 19-35


11#12 Contacts
Insert 21-11

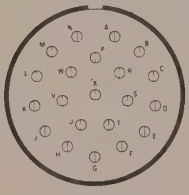

16#16 Contacts
Insert 21-16

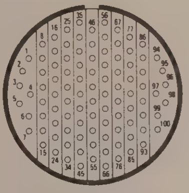

41#20 Contacts
Insert 21-41

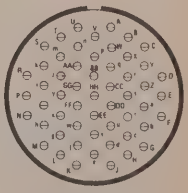

79#22D Contacts
Insert 21-35

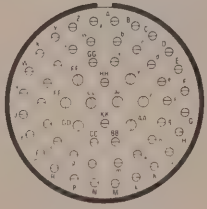
Vibra-Lok IV Shell Sizes Contact Arrangements

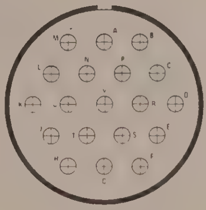
CN	Service Rating	Total Contacts	Contact Size			
			220	20	16	12
11-5	I	5		5		
11-35	M	13	13			
11-99	I	7		7		
13-4	I	4			4	
13-35	M	22	22			
13-98	I	10		10		
15-5	II	5			5	
15-18	I	18		18		
15-19	I	19		19		
15-35	M	37	37			
15-97	I	12		8	4	
17-6	I	6				6
17-8	II	8			8	
17-26	I	26		26		
17-35	M	55	55			
17-99	I	23		21	2	
19-11	II	11			11	
19-32	I	32		32		
19-35	M	66	66			
21-11	I	11				11
21-16	II	16			16	
21-41	I	41		41		
21-35	M	79	79			
23-21	II	21			21	
23-55	I	55		55		
23-35	M	100	100			
25-4	I	56		48	8	
25-19	I	19				19
25-24	I	24			12	12
25-29	I	29			29	
25-35	M	128	128			
25-61	I	61		61		

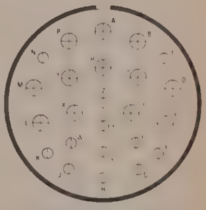

21#16 Contacts
Insert 23-21

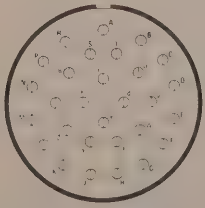

100#22D Contacts
Insert 23-35

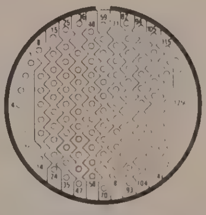

55#20 Contacts
Insert 23-55

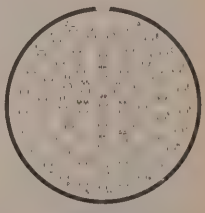

48#20 Contacts
8#16 Contacts
Insert 25-4


19#12 Contacts
Insert 25-19


12#16 Contacts
12#12 Contacts
Insert 25-24


29#16 Contacts
Insert 25-29


128#22D Contacts
Insert 25-35


61#20 Contacts
Insert 25-61

Legend ○ 22D ⊖ 20 ⦶ 16 ⊕ 12

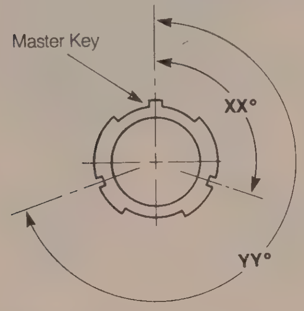
Vibra-Lok IV*
Mil-C 38999 Series IV Connectors

TRW

Material/Finish Data

Component	Machined or Extruded Aluminum			Stainless Steel	
	Class C	Class F	Class W	Class Y	Class N
Receptacle Shell	Anodize per Mil-A-8625	Nickel per Mil-C-26074 Class 3 or 4	CAD/OD per QQ-P-416	Passivate per QQ-P-35	Nickel per QQ-N-290 Class 2
Plug Inner Shell	Anodize per Mil-A-8625	Nickel per Mil-C-26074 Class 3 or 4	CAD/OD per QQ-P-416		
Plug Coupling Ring	Anodize per Mil-A-8625	Anodize per Mil-A-8625	CAD/OD per QQ-P-416		
Accessories	Anodize per Mil-A-8625	Nickel per Mil-C-26074 Class 3 or 4	CAD/OD per QQ-P-416		

Vibra-Lok IV Polarization



Face of Receptacle Shown
Angle for the plug is opposite.

A plug with a given polarization letter will mate with a receptacle with the same polarization letter and opposite type of contacts. Inserts are not rotated. Shells with the same type contacts will not mate.

Key and Keyway Position	XX°	YY°
N	110°	250°
A	100°	260°
B	90°	270°
C	80°	280°
D	70°	290°

Consult Factory for Additional Polarization Positions.

How To Order Examples

CN02F25-35PN-000 = D38999/42FJ35PN
Receptacle, Aluminum, Box Mount, Conductive Nickel Plate, Shell Size 25 with 128 Crimp Style Pin Contacts (Size 22D), "N" Polarization, packaged without cable supports.

CNH7N19-11PB-000 = D38999/43NF11PB
Receptacle, Stainless Steel, Jam-Nut Mount, Conductive Nickel Plate Shell Size 19 with 11 Hermetic Solder Cup Pins (Size 16), "B" Polarization, packaged without cable supports.

How To Order

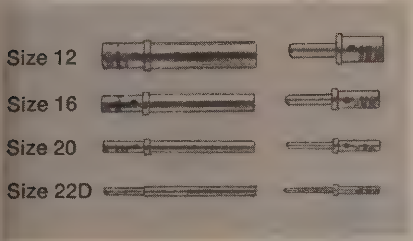
	Vibra-Lok IV Part Number		Mil-Std. Part Number	
Specification Prefix	CN		D38999	
Shell Type	Alum.	Stain. Stl.	Alum.	Stain. Stl.
Receptacle, Wall Mount, Crimp Contacts	00	—	/40	—
Receptacle, Box Mount, Hermetic, Solder Contacts	—	H2	—	/41
Receptacle, Box Mount, Crimp Contacts	02	—	/42	—
Receptacle, Jam-Nut Mount, Hermetic Solder Contacts	—	H7	—	/43
Receptacle, Jam-Nut Mount, Crimp Contacts	07	—	/44	—
Receptacle, Solder Mount, Hermetic Solder Contacts	—	H1	—	/45
Plug, EMI Ground, Crimp Contacts	G6	—	/46	—
Plug, Non-EMI, Crimp Contacts	06	—	/47	—
Receptacle, Weld Mount, Hermetic Solder Contacts	—	H4	—	/48
Receptacle, In-Line, Crimp Contacts	03	—	/49	—
Dummy Receptacle—Stowage	DR	—	—	—
Protective Cover—Plug	PC	—	—	—
Protective Cover—Receptacle	RC	—	—	—
Class (Finish)				
Environmental, Non-Conductive 500 hr Salt Spray, Anodize	C	—	C	—
Environmental, Conductive (EMI/EMP) 48 hr Salt Spray, Nickel, Class 3 or 4	F	—	F	—
Environmental, Conductive 500 hr Salt Spray, Cad/O.D.	W	—	W	—
Hermetic 48 hr Salt Spray, Passivate	—	Y	—	Y
Hermetic, Conductive 48 hr Salt Spray, Nickel, Class 2	—	N	—	N
Shell Size & Contact Arrangement See Page 2•1723 for Shell Size,(Insert & Contact Arrangement Diagram.	11-5, 11-35, 11-99		B5, B35, B99	
	13-4, 13-35, 13-98		C4, C35, C98	
	15-5, 15-18, 15-35		D5, D18 D35	
	15-97		D97	
	17-6, 17-8, 17-26		E6, E8, E26	
	17-35		E35	
	19-11, 19-32, 19-35		F11, F32, F35	
	21-11, 21-16, 21-41		G11 G16, G41	
	21-35		G35	
	23-21, 23-55, 23-35		H21 H55, H35	
	25-4, 25-19, 25-24		J4, J19, J24	
	25-29, 25-35, 25-61		J29, J35, J61	
Contact Styles				
Crimp Pin or Hermetic Solder Cup Pin	P		P	
Crimp Socket	S		S	
Hermetic Eyelet Pin (#16 and #20 only)	X		X	
Shell Polarization See VIBRA-LOK IV polarization diagram for five standard configurations. For additional polarization positions, consult factory.	N A B C D		N A B C D	
Packaging-Modification Code Connector furnished without contacts and insertion/removal tools. Code not stamped on connector. Consult factory for other packaging and modification codes.	001		—	

Vibra-Lok IV* Mil-C 38999 Series IV Connectors

TRW

Contacts

Shown actual size



Contact Ratings

Contact Size	Maximum Current, Amperes	
	Hermetic Contacts	Crimp Contacts
22D	3.0	5.0
20	5.0	7.5
16	10.0	13.0
12	17.0	23.0

NOTE: These contact current ratings may be used for continuous duty in connectors where the connector mounting provides sufficient heat dissipation to limit temperature rise to 25°C.

Service Ratings, VRMS, 60 Hz

Service Rating	Continuous	Maximum
M	520	1300
I	720	1800
II	920	2300

Contacts, Sealing Plugs and Assembly Tools

Contact Size	TRW Nuline Contacts Part Number	Installing and Removal Tool	Crimping Tools					
			Option 1		Option 2		Option 3	
			Basic Tool	Positioner	Basic Tool	Positioner	Basic Tool	Positioner
Pin								
22D	CN0971-0220	MIL-I-81969/14-22D	M22520/2-01	M22520/2-09	M22520/7-01	M22520/7-07	M22520/7-01	M22520/7-08
20	CN0971-0200	MIL-I-81969/14-20	M22520/1-01	M22520/1-04	M22520/2-01	M22520/2-10		
16	CN0971-0160	MIL-I-81969/14-16	M22520/1-01	M22520/1-04	M22520/7-01	M22520/7-04		
12	CN0971-0120	MIL-I-81969/14-12	M22520/1-01	M22520/1-04				
Socket								
22D	CN0972-0220	MIL-I-81969/14-22D	M22520/2-01	M22520/2-07	M22520/7-01	M22520/7-05	M22520/7-01	M22520/7-08
20	CN0972-0200	MIL-I-81969/14-20	M22520/1-01	M22520/1-04	M22520/2-01	M22520/2-10		
16	CN0972-0160	MIL-I-81969/14-16	M22520/1-01	M22520/1-04	M22520/7-01	M22520/7-04		
12	CN0972-0120	MIL-I-81969/14-12	M22520/1-01	M22520/1-04				

Grommet Sealing Plugs

Contact Cavity Size	Grommet Sealing Plug
22D	MS27488-22
20	MS27488-20
16	MS27488-16
12	MS27488-12

Cross Reference Table

TRW Nuline Part Number	Military Part Number	Supersedes Military P/N
CN0971-0120	M39029/58-365	MS27493-12
CN0971-0160	M39029/58-364	MS27493-16
CN0971-0200	M39029/58-363	MS27493-20
CN0971-0220	M39029/58-360	MS27493-22D
CN0972-0120	M39029/56-353	MS27490-12
CN0972-0100	M39029/56-352	MS27490-16
CN0972-0200	M39029/56-351	MS27490-20
CN0972-0220	M39029/56-348	MS27490-22

Crimping Contacts to Wire

Strip the wire as specified in table below. Select crimp tool and positioner for the contact to be crimped. Adjust the crimp tool to the setting indicated on the positioner. Place the contact in the tool, insert the wire and crimp.

Contact Size	Pin Contact	Bin Code*	Socket Contact	Bin Code*	Wire Sizes
22D	M39029/58-360	360	M39029/56-348	348	22-24-26-28
20	M39029/58-363	363	M39029/56-351	351	20-22-24
16	M39029/58-364	364	M39029/56-352	352	16-18-20
12	M39029/58-365	365	M39029/56-353	353	12-14

Contact Size	Insulation Strip Length (inches)	Insertion/ Removal Tool	Crimping Tools	Sealing Plugs
22D	.160-.190	MIL-I-81969/14-22D	MS22520/2 or /7	MS27488-22
20	.230-.260	MIL-I-81969/14-20	MS22520/1, /2 or /7	MS27488-20
16	.230-.260	MIL-I-81969/14-16	MS22520/1 or /7	MS27488-16
12	.230-.260	MIL-I-81969/14-12	MS22520/1	MS27488-12

*Color code marked on contact crimp barrel

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C-48 Series Connectors
Mil-C 26500

TRW

More Contacts in Less Space
When it becomes necessary to provide connections for a large number of circuits in a limited space, a NULINE C 48 Series High Environmental Circular Connector is your best choice. TRW offers a wide selection of these miniature connectors that meet and exceed the requirements of MIL-C-26500. They are available in a variety of constructions, including those which can be potted. Most connectors feature MIL-C-39029 Crim-Lok contacts. Many others are available also with coaxial or shielded contacts.

Significant Advance in State-Of-The-Art
On the ground or in space, wherever there is a requirement for superior environmental protection, high reliability and minimum weight and bulk, TRW NULINE Connectors are the answer. To produce this series requires the satisfaction of many exacting requirements on reliability, logistics and present and anticipated environmental conditions. To meet these requirements, it was necessary to develop advanced design concepts, formulate materials for specific connector usage and work out new production techniques. The resulting connectors exceed the stringent requirements of MIL-C-26500 (USAF) for performance and reliability.

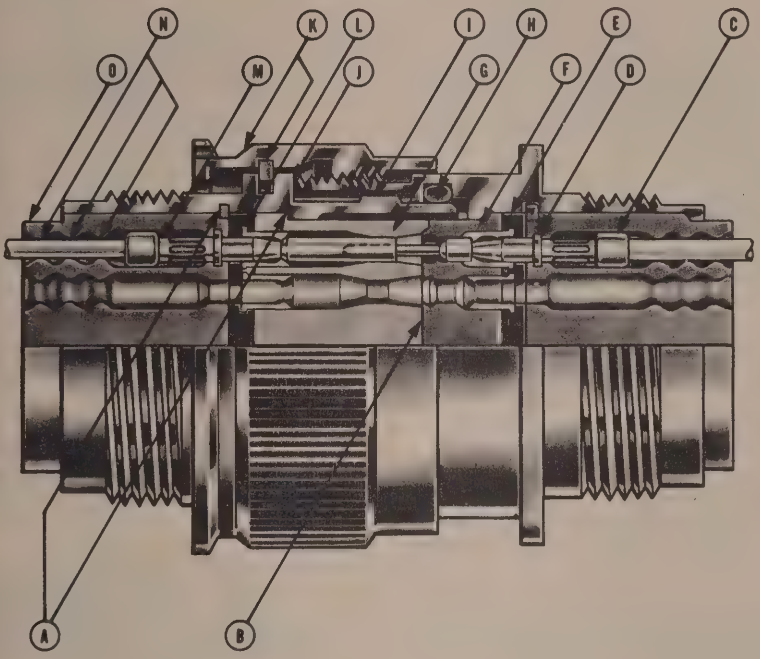
Full Performance In Extreme Environments
Advance materials technology and complete environmental sealing enable these remarkable connectors to:

- Operate continuously at 200°C (392°F)
- Take short exposures at up to 800°C (1472°F)
- Withstand thermal shock cycling from -55°C (-67°F) to 260°C (500°F)
- Support 1500 V RMS from sea level to 350,000 Ft.
- Maintain environmental and electrical integrity during and after 0 to 2000 CPS vibration, 15 G's during exposure to 200°C (392°F) and -55°C (-67°F)
- Resist corrosion, ozone, sand and dust.

Wide Variety of Configurations
Detailed information on configurations available, shell sizes, dimensions and data on how to order are given on pages **2•1732** - **2•1733**.

C-48 Series Connectors
Mil-C 26500

Design Features



- **A.** Positive Location Captivated Insert (Mechanical Interlock)
- **B.** Insert Static Face Seal
- **C.** Pin Contact, MIL-C-39029
- **D.** Contact Pressuring Seal
- **E.** Anti-Deflection Disc
- **F.** Resilient Pin Insert
- **G.** Insert Rim Seal
- **H.** Dynamic "O" Ring Shell Seal
- **I.** Five Key Shell Polarization
- **J.** Metal to Metal Shoulder
- **K.** Bayonet or Threaded Coupling, Permanent Captivation
- **L.** Contact Retention Clip
- **M.** Socket Contact, MIL-C-39029
- **N.** Wire Sealing Risers
- **O.** Grommet

Complete Environmental Sealing

NULINE C 48 Series Connectors are fully sealed against extreme environmental conditions. Silicone rubber dielectric provides resiliance and unsurpassed resistance to tear, compression set, fluids and high temperatures.

When the connectors are mated, insert faces compress to form a resilient dielectric seal around each individual contact. A continuous barrier on the periphery of the socket insert mates with a recess around the pin insert to form an additional compression seal. A dynamic "O" ring seal between mated shells constitutes still another barrier to dirt and moisture, and protects the integrity of the face seals. Together with monoblock construction, this puts void-free, continuous dielectric around each contact through the entire connector length.

Monoblock construction, with bonded interfaces between the dielectric components (insert, anti-deflection disc, and grommet) eliminates air voids and protects connectors from degrading moisture and altitude conditions. A pressurizing seal around each contact at the major O.D. prevents the passage of air or moisture through the contact hole, and triple sealing riser design at each wire hole in the grommet seals each individual wire.

Light Weight and High Contact Density

Connector shells are machined from bar stock aluminum to minimize stresses with a high strength-to-weight ratio. The insert arrangement is designed for the maximum number of contacts within the area available.

Crim-Lok Contacts

Crim-Lok contacts (front release, rear insertable) provide for easy servicing of connector circuits without disassembling the connector from its mounting, or disturbing adjacent contacts. MIL-C-39029 contacts are crimped quickly, consistently, and reliably with either hand or power tools. They have high electrical conductivity, present a smooth configuration, and completely protect electrical contact pressure-members from environmental and handling damage. The contacts come in sizes, 20, 16, 12 and shielded coaxial, with gold-over-nickel plating. (Other platings such as rhodium-over-silver are available; write factory for details.)

C-48 Series Connectors Mil-C 26500

TRW

Test Description	Test Requirement	Test Result
Maintenance Aging	Connectors shall be coupled and uncoupled 10 times. Minimum of 10 contacts removed and reinserted 10 times. Connectors shall meet requirement of all succeeding tests.	There was no observable damage. Connectors met or exceeded requirements of all succeeding tests.
Contact Retention	Axial loads (20 lbs.—size 20; 25 lbs.—size 16; 30 lbs.—size 12) shall be applied to the front and rear of individual contacts in unmated connectors. The rate of application shall be approximately 1 pound per second. Axial displacement shall be 0.012 inch maximum when the pressure is applied from the front side.	Maintains load after 10 cycles. Axial displacement is within requirements.
Dielectric Withstanding Voltage Altitude and Sea Level	Mated connectors shall be subjected to 1000 volts rms at altitudes up to 110,000 feet and 1500 volts rms at sea level. Unmated connectors shall be subjected to 250 volts rms at altitudes up to 110,000 feet and 1500 volts rms at sea level. There shall be no evidence of breakdown or flashover.	There was no evidence of breakdown or flashover.
Thermal Shock	Mated connectors shall be exposed for 30 minutes to each temperature from -55° to +260°C. Transfers between temperatures begin at -55°C and are made within two minutes. There shall be no damage detrimental to connector operation.	After five cycles, there was no evidence of cracking, fracture, or other damage detrimental to connector operation.
Vibration	Completely wired and mated connectors shall be mounted on an appropriate fixture on a vibration table. All contacts shall be wired in series. Current level shall be 100 milliamperes. There shall be no continuity interruption longer than 1 microsecond, contact chatter, or physical damage to the connectors.	There was no intermittency or evidence of physical damage to the connector.
Durability	Connectors shall be mated and unmated 200 times (NULINE C-48 Series, threaded), or 500 times (NULINE C-48 Series, bayonet), without producing physical or electrical defects detrimental to operation. They shall meet requirements of Dielectric Withstanding Voltage test.	There was no damage detrimental to connector operation. Dielectric Withstanding Voltage test was passed.
Corrosion	Unmated connectors shall be exposed to a salt spray for 48 hours without exposing base metal.	There was no exposure of base metal. Connectors mated satisfactorily three times.
Air Leakage	30 psi shall be separately applied against rear grommet and insert face of connector exposed to 25°C and 55°C temperatures. There shall be no measurable air leakage.	There was no measurable air leakage.
Ozone Exposure	Unmated connectors shall be exposed at room temperature to air containing a minimum ozone concentration of 0.01 to 0.015 percent by volume. There shall be no evidence of deterioration.	No damage occurred to connector dielectric.
Insulation Resistance	As measured between five pairs of adjacent contacts and three contacts closest to the shell and the shell itself, insulation resistance shall be 5000 megohms minimum, measured after Maintenance Aging.	Insulation resistance was in excess of 5000 megohms.
Altitude Immersion	Mated connectors shall support 1500 V RMS submerged in salt water for 30 minutes while pressure is alternated between sea level and 75,000 feet altitude equivalents.	There was no flashover or breakdown. Insulation resistance requirement was checked and met or exceeded..
Temperature Life	Connectors shall carry specified current for 1000 hours.	Connectors carried specified current for 1000 hours.
Moisture Resistance	Per MIL-STD-202, method 106. Connectors shall maintain insulation resistance of 1000 megohms minimum.	Insulation resistance was greater than 1000 megohms.
Fluid Immersion	Unmated connectors shall be immersed in fluid (MIL-H-5606 hydraulic fluid or MIL-L-9236 lubrication oil) for 20 hours. They shall couple properly and support 1500 volts ac (rms.)	Immersed connectors mated and unmated properly and withstood 1500 volts ac (rms) applied with no flashover or leakage breakdown.

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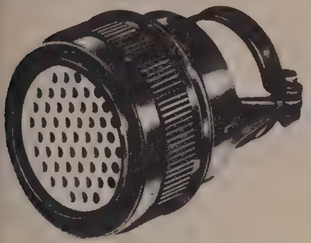
C-48 Series Connectors
Mil-C 26500

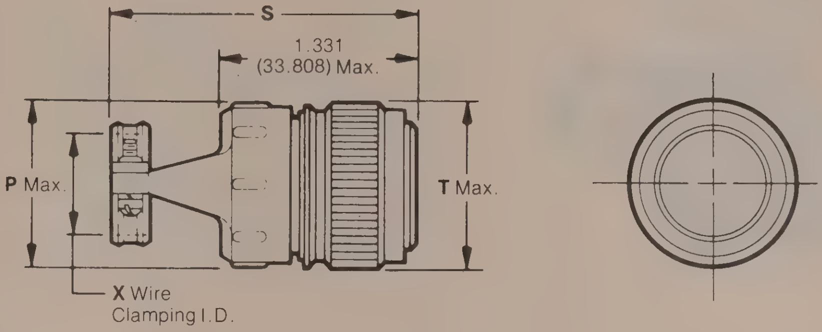
TRW

Shell Styles

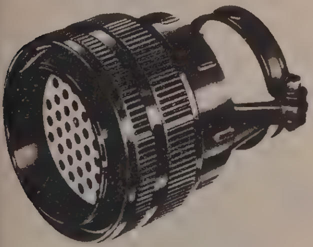
Dimensions

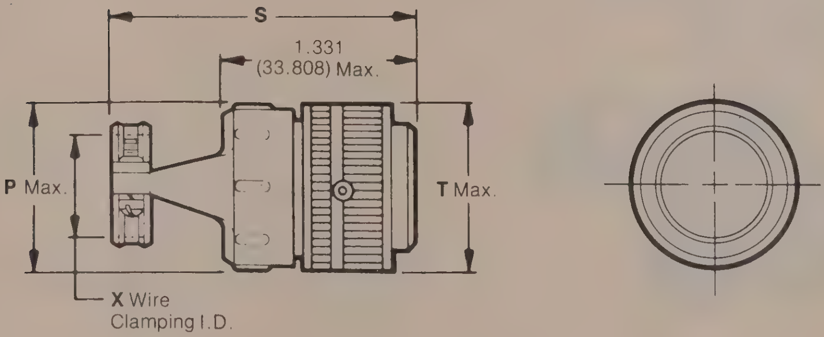
Threaded Plug
C48-06RXX-XXX
MS24266RXXT-XXX





Bayonet Plug
C48-16RXX-XXX
MS24266RXXB-XXX



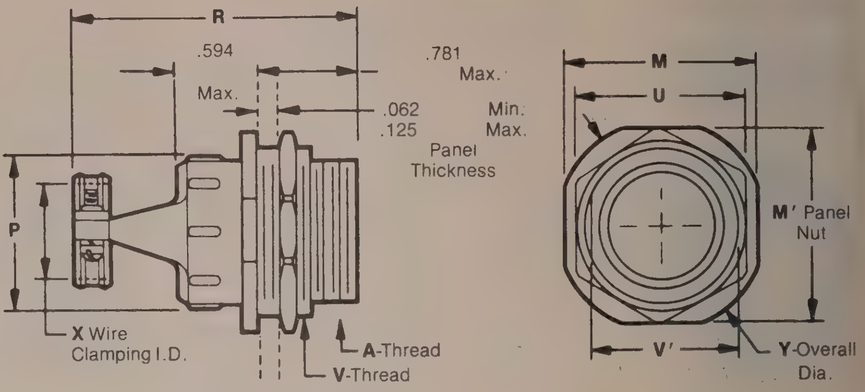


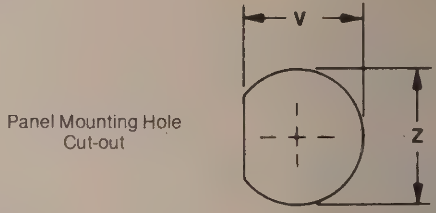
Shell Size	P Max*		T Max.*				X ± .015 (.381)		S Max.	
			Threaded		Bayonet					
	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
8	.582	14.783	.708	17.983	.766	19.457	.180	4.572	1.832	46.533
10	.731	18.568	.836	21.234	.906	23.013	.270	6.858	1.832	46.533
12	.919	23.343	1.025	26.035	1.078	27.381	.400	10.160	1.832	46.533
14	.981	24.918	1.125	28.575	1.141	28.982	.460	11.684	2.067	52.502
16	1.106	28.093	1.250	31.750	1.266	32.157	.610	15.494	2.067	52.502
18	1.231	31.268	1.375	34.925	1.375	34.925	.690	17.526	2.067	52.502
20	1.356	34.443	1.510	38.354	1.510	38.354	.830	21.082	2.067	52.502
22	1.481	37.618	1.625	41.275	1.625	41.275	.940	23.876	2.067	52.502
24	1.606	40.793	1.760	44.704	1.760	44.704	1.040	26.416	2.067	52.502

C-48 Series Connectors
Mil-C 26500

Single Hole Mount Threaded Receptacle

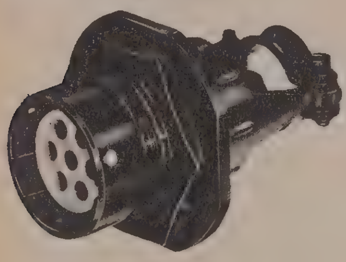
C48-03RXX-XXX
MS24265RXXT-XXX

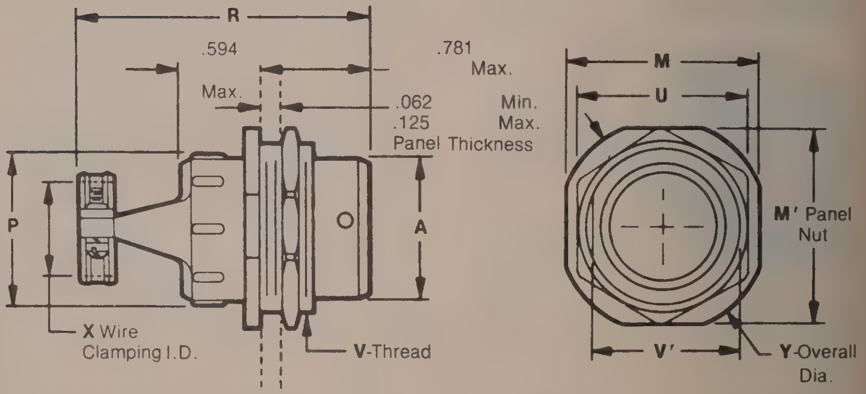

R
.594
Max.
.781
Max.
.062 Min.
.125 Max.
Panel Thickness
P
X Wire Clamping I.D.
A-Thread
V-Thread
M
U
M' Panel Nut
V'
Y-Overall Dia.


V
Panel Mounting Hole Cut-out
Z

Single Hole Mount Bayonet Receptacle

C48-13RXX-XXX
MS24265RXXB-XXX




R
.594
Max.
.781
Max.
.062 Min.
.125 Max.
Panel Thickness
P
A
X Wire Clamping I.D.
V-Thread
M
U
M' Panel Nut
V'
Y-Overall Dia.

Shell Size	A Th'd	A +.000 (.000) -.005 (.127)		M Max.		M' Max.		P Max.*		U Max.		V Th'd	V' ±.003 (.076)		V" ±.005 (.127)		X ±.015 (.381)		Y Max.		Z ±.005 (.127)		R Max.	
		In.	MM	In.	MM	In.	MM	In.	MM	In.	MM		In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
8	9/16-24	536		.984		.938		.582		.828		5/8-20	.593		.605		.180		1.068		.635		1.890	
10	1 1/16-24	659		1 109		1.082		.731		.953		3/4-20	718		.730		.270		1.192		.760		1.890	
12	7/8-20	.829		1.296		1.299		.919		1.140		1 5/16-20	905		.917		.400		1.380		.947		1.890	
14	1 5/16-20	.898		1.396		1 371		.981		1.250		1-20	.968		.980		.460		1.505		1.010		2.125	
16	1 1/16-18	1 025		1.521		1 515		1 106		1.329		1 1/8-20	1.093		1.105		.610		1.630		1.135		2.125	
18	1 3/16-18	1 131		1 646		1 660		1.231		1 455		1 1/4-20	1.217		1.225		.690		1.740		1.260		2.125	
20	1 5/16-18	1 256		1 771		1 770		1.356		1.642		1 3/8-18	1.342		1.350		.830		1.860		1.385		2.125	
22	1 7/16-18	1 381		1.959		1.948		1 481		1 705		1 1/2-20	1.467		1.475		.940		2.040		1.510		2.125	
24	1 9/16-18	1.506		2.084		2.084		1.606		1.892		1 5/8-18	1.592		1.600		1.040		2.160		1.635		2.125	

Recommended Minimum Torque for Jam Nut

Shell Size	8	10	12	14	16	18	20	22	24
Torque (inch/lbs.)	28	36	56	64.5	69	81	102	122.5	144

C-48 Series Connectors Mil-C 26500

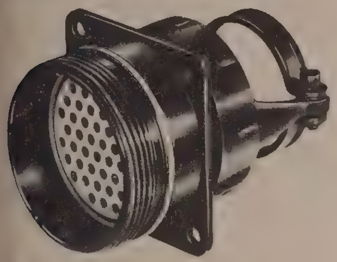
TRW

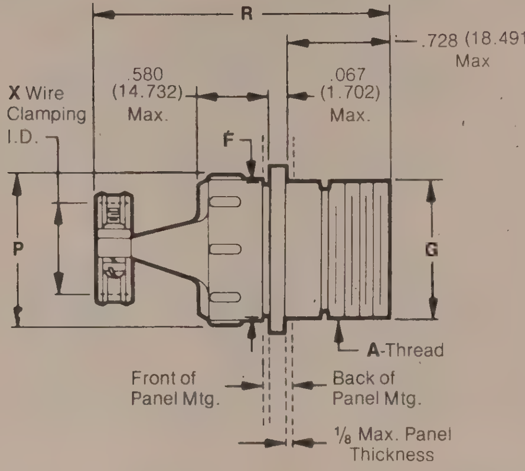
Shell Styles

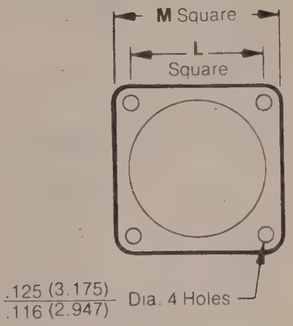
Dimensions

Square Flange Threaded Receptacle

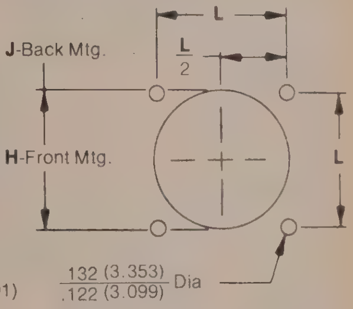
C48-00RXX-XXX
MS2426RXXT-XXX




R
.728 (18.491) Max
X Wire Clamping I.D.
.580 (14.732) Max.
.067 (1.702) Max.
F
P
G
A-Thread
Front of Panel Mtg.
Back of Panel Mtg.
⅛ Max. Panel Thickness

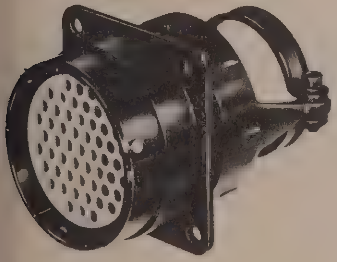

M Square
L Square
.125 (3.175)
.116 (2.947)
Dia. 4 Holes

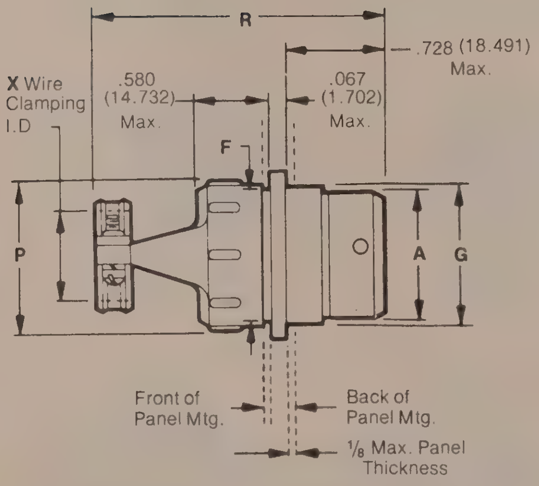
Panel Mounting Hole Cut-out

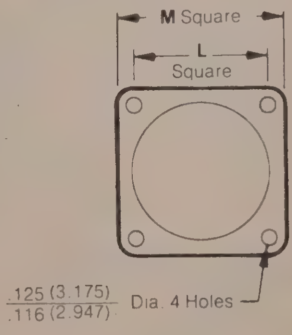

L
L/2
J-Back Mtg.
H-Front Mtg.
L
132 (3.353)
.122 (3.099)
Dia

Square flange Bayonet Receptacle

C48-10RXX-XXX
MS24264RXXB-XXX




R
.728 (18.491) Max.
X Wire Clamping I.D
.580 (14.732) Max.
.067 (1.702) Max.
F
P
A
G
Front of Panel Mtg.
Back of Panel Mtg.
⅛ Max. Panel Thickness


M Square
L Square
.125 (3.175)
.116 (2.947)
Dia. 4 Holes

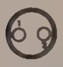
Shell Size	A Th'd	A + .000 (.000) -.005 (.127)		F. Max.		G Max.		H Min.		J Min.		L ± .005 (.127)		M ± .005 (.127)		P. Max.*		X ± .015 (.381)		R. Max.	
		In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM	In.	MM
8	9/16-24	.536	13.615	.437	11.100	.561	14.250	.447	11.354	.620	15.748	.594	15.088	812	20.625	.582	14.783	180	4 572	1.890	48 006
10	1 1/16-24	.659	16.739	.562	14.275	.696	17.679	.572	14.529	.748	18.999	.719	18.263	.937	23.800	731	18 568	.270	6.858	1.890	48 006
12	7/8-20	.829	21.057	.750	19.050	.875	22.225	.760	19.304	.913	23.190	.812	20.625	1.031	26.188	.919	23.343	.400	10.160	1.890	48 006
14	1 5/16-20	.898	22.809	.812	20.625	.935	23.749	.822	20.879	.980	24.892	.906	23.013	1.125	28.575	.981	24.918	.460	11.684	2.125	53 975
16	1 1/16-18	1.025	26.035	.938	23.825	1.062	26.975	.948	24.079	1.107	28 119	.969	24.613	1.250	31.750	1 106	28.093	.610	15.494	2.125	53 975
18	1 3/16-18	1.131	28.728	1.062	26.975	1.187	30.150	1.072	27.229	1.209	30.709	1.062	26.975	1 343	34.112	1.231	31 268	.690	17 526	2 125	53 975
20	1 5/16-18	1.256	31 903	1.182	30.023	1.312	33.325	1.192	30.277	1.337	33 960	1.156	29.363	1.437	36 500	1.356	34.443	.830	21 082	2.125	53.975
22	1 7/16-18	1.381	35.078	1.312	33.325	1.437	36.500	1.322	33 579	1.452	36 881	1.250	31 750	1 562	39 675	1 481	37 618	.940	23 876	2 125	53 975
24	1 9/16-18	1.506	38.253	1.432	36.373	1.562	39.675	1.442	36.627	1.577	40.056	1.375	34.925	1.703	43 256	1.606	40.794	1.040	26.416	2 125	53 975

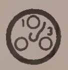
C-48 Series Connectors
Mil-C 26500

TRW

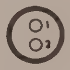
Inserts Available (showing front face of socket inserts)

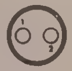
Shell Size—8 MS-27561

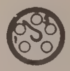

2#20 contacts
Insert 8-2


3#20 contacts
Insert 8-3

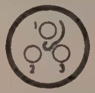
Shell Size—10 MS-24260

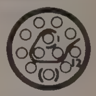

2#20 contacts
Insert 10-2


2#16 contacts
Insert 10-20

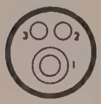

5#20 contacts
Insert 10-5

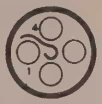
Shell Size—12 MS-24260

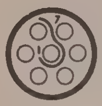

3#16 contacts
Insert 12-3

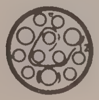

12#20 contacts
Insert 12-12

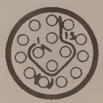
Shell Size—14 MS-24260


2#16 contacts
1#2 shielded contact
Insert 14-3

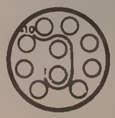

4#12 contacts
Insert 14-4†

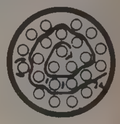

7#16 contacts
Insert 14-7


9#20 contacts
3#16 contacts
Insert 14-12

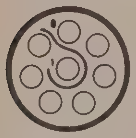

15#20 contacts
Insert 14-15

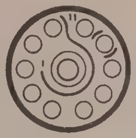
Shell Size—16 MS-24261

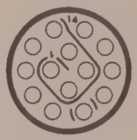

10#16 contacts
Insert 16-10

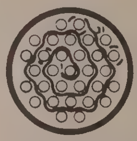

24#20 contacts
Insert 16-24

Shell Size—18 MS-24262

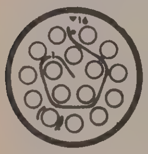

8#12 contacts
Insert 18-8†

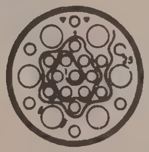

10#16 contacts
1#2 shielded contact
Insert 18-11

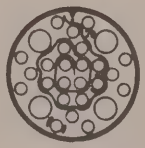

14#16 contacts
Insert 18-14

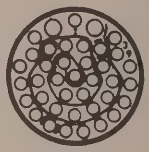

31#20 contacts
Insert 18-31

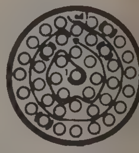
Shell Size—20 MS-27561


16#16 contacts
Insert 20-16

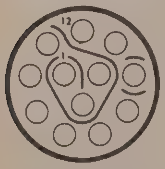

19#20 contacts
6#12 contacts
Insert 20-25†

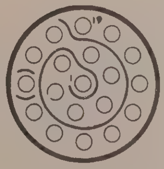

24#20 contacts
4#12 contacts
Insert 20-28†

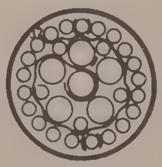

37#20 contacts
2#16 contacts
Insert 20-39

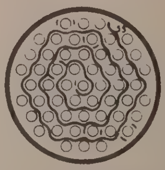

41#20 contacts
Insert 20-41

Shell Size—22 MS-24263

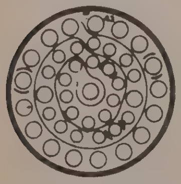

12#12 contacts
Insert 22-12†

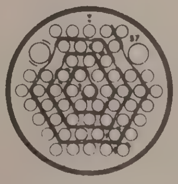

19#16 contacts
Insert 22-19

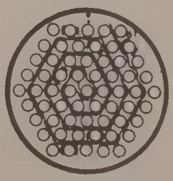

26#20 contacts
6#12 contacts
Insert 22-32†


55#20 contacts
Insert 22-55

Shell Size—24 MS-27561


23#20 contacts
20#16 contacts
Insert 24-43


2#12 contacts
55#20 contacts
Insert 24-57†


61#20 contacts
Insert 24-61

†#1 shielded contact is interchangeable with #12 power contact

C-48 Series Connectors
Mil-C 26500

TRW

Ordering Information

TRW Cinch NULINE Numbers

To get the specific C48 Series connector you want, put together the part number as per the following typical example. (Remember, of course, that only the inserts shown on page **2•1732** are available.)

C48-06R22-55P6-(102)

SERIES DESIGNATION
C48—

COUPLING TYPE
0—Threaded
1—Bayonet

SHELL STYLE
0—Square Flange Receptacle
3—Single Hole Mounting Receptacle
6—Straight Plug

ENVIRONMENTAL CLASS
R—Meets MIL-C-26500 (USAF)

SHELL SIZE
8, 10, 12, 14, 16, 18, 20, 22, 24

NUMBER OF CONTACTS
2, 3, 4, 5, 7, 8, 10, 11, 12, 14, 15, 16, 19, 24, 25, 28, 31, 32, 39, 41, 43, 55, 57, or 61

CONTACT STYLE
P—Pin
S—Socket

Alternate Shell Positions as per table
(Omit for normal position)

DEVIATIONS
(100) Connector for Potting
(102) Connector Less Cable Support
(105) Connector Less Contacts
(106) Connector Less Contacts & Less Cable Support

If cable support and contacts are desired, omit all deviations

See Table of available inserts on page 2•1732

Military Standard Part Numbers

You can use MS* as well as NULINE C48 Series part numbers in ordering C48 Series connectors. The MS part numbers for MIL-C-26500 connectors are worked out on the basis shown in the table below. Whether you order by the MS or the C48 Series number, all qualified connectors are shipped with the MS marking unless specified otherwise.

*MS part numbers are normally supplied less cable support. If cable support is desired, it must be specified.

MS24266R22T55P6

MS SHELL DRAWING
MS24264—Square Flange Receptacle
MS24265—Single Hole Mounting Receptacle ¶
MS24266—Straight Plug

ENVIRONMENTAL CLASS
R—Meets MIL-C-26500 (USAF)

SHELL SIZE
8, 10, 12, 14, 16, 18, 20, 22 or 24

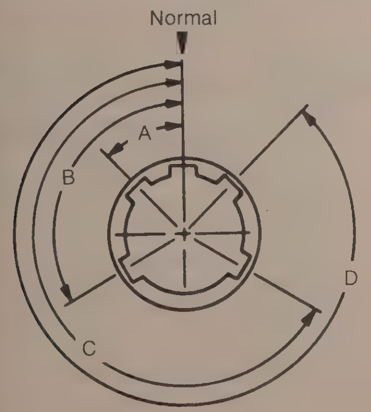
COUPLING TYPE
T—Threaded
B—Bayonet

NUMBER OF CONTACTS
2, 3, 4, 5, 7, 8, 10, 11, 12, 14, 15, 16, 19, 24, 25, 28, 31, 32, 39, 41, 43, 55, 57, or 61

CONTACT STYLE
P—Pin
S—Socket

Alternate Shell Positions
N, 6, 7, 8, 9, 10
as per table

Alternate Shell Positions



Front face of receptacle shown
Note: Alternate positions 6 through 10 incorporate special shell polarizing key and keyways. All inserts remain in the normal position.

Position	For Connectors Size 8 and 10				For Connectors Size 12, 14, 16, 18, 20, 22, and 24			
	A	B	C	D	A	B	C	D
Normal	105°	140°	215°	265°	105°	140°	215°	265°
6	102°	132°	248°	320°	18°	149°	192°	259°
7	80°	118°	230°	312°	92°	152°	222°	342°
8	35°	140°	205°	275°	84°	152°	204°	334°
9	64°	155°	234°	304°	24°	135°	199°	240°
10*	25°	115°	220°	270°	98°	152°	268°	338°

*Not Available in Size 8 Connector

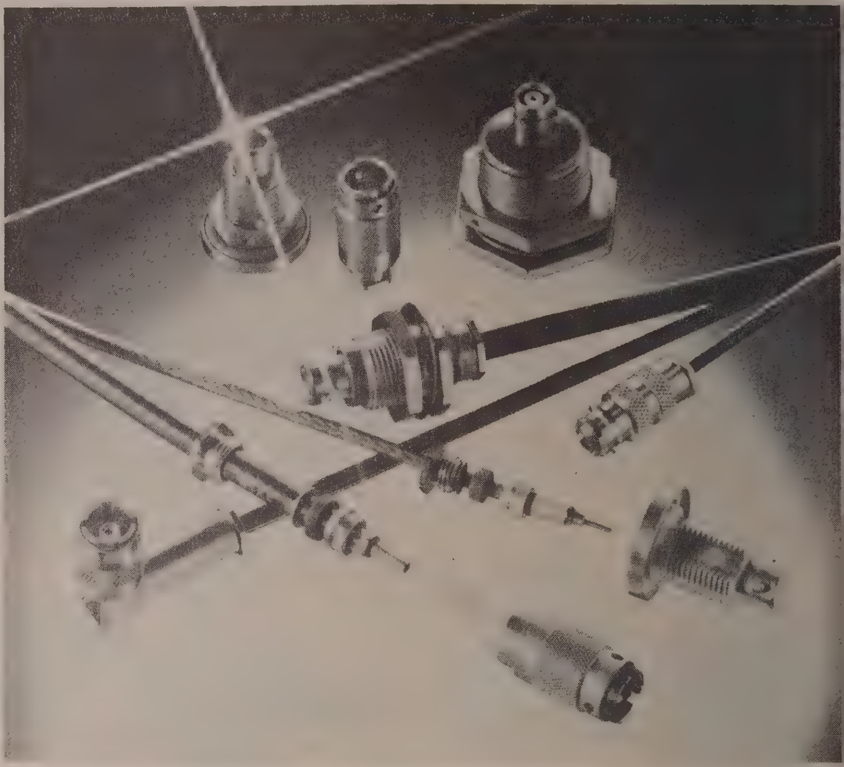
1200 Series Nu-Lok Connectors

TRW

Eliminate the weak link in your measurement systems with QP2 approved Nu-Lok 1200 Series coaxial connectors

Studies show 90 percent of electromechanical system malfunctions stem from the interconnecting cable/connectors. Now you can eliminate this weak link by specifying Nuline 1200 Series Nu-Lok connectors. Nu-Lok connectors deliver repeatable integrity of connections, assuring consistently accurate readings in your system. Plus, Nu-Lok connectors include:

- Environment resistance.
- Corrosion resistance (i.e., against hydro carbon fuels, lubricants, sea water, etc.).
- Built to MIL-C-25516 requirements.
- Solder pot or crimp contact designs.
- Accommodate conductor sizes 18 AWG or smaller, either coaxial or unshielded single conductor types.
- Crimp design provides termination for cable braid.
- Bulkhead-mounted types available in conventional pressure-sealed construction of true hermetic seal design with fused glass-to-metal seals.
- Easy installation/maintenance with common tools.
- Center contacts are double-plated gold over nickel and "captive," providing electrical continuity completely independent of cable stability.
- Socket contacts chamfered to facilitate insertion/separation with minimal damage.
- Impedance match — insensitive at frequencies up to 1 GHz.



Specify 1200 Series Nu-Lok Connectors*

- Cable Connectors/Gold Plated
  - Jacks, Straight
  - Plugs, isolated shield
  - Plugs, Straight and Right Angle
  - Tee Adapters, Plug to Jacks, Jack to Jacks
  - Cable Splice (Shielded Cable)
- Bulkhead Mounted Connectors
  - Feedthru, Cable to Jack, Threaded Mounting
  - Feedthru, Jack to Jack, Threaded Mounting
  - Feedthru, Jack to Tee Jacks, Threaded Mounting
  - Feedthru, Jack to Jack, Solder Mounting
  - Feedthru, Jack to Lug, Solder Mounting
  - Feedthru, cable to cable junction, threaded mounting (Shielded Cable, Isolated Ground)
  - Junction Box, common or isolated ground
- Protective Receptacle Covers (gold plated)
  - Protective Jack with/without metal chain
  - Protective Plug, standard with/without metal/nylon chain

Performance Characteristics

The high performance characteristics of the Nuline 1200 Series Nu-Lok connectors include:

- Withstand 1500 volts RMS without evidence of breakdown or leakage in excess of 0.3 ma, either mated or unmated at sea level. 750 volts RMS in altitude tests.
- Center contacts in hermetic connectors do not exceed 0.4 mv drop @ 10 ma.
- No detrimental effects on physical/electrical performance from endurance cycling.
- Maintain electrical continuity under 30-lb. cable retention load with no detrimental effects.
- Connectors maintain electrical seal integrity and remain fully operational following shock and vibration tests. Circuit continuity remains intact with no interruption greater than 10 micro-seconds.
- Maintain electrical integrity after salt spray test per MIL-STD 1344.
- Perform to rated criteria during thermal shock, high temperature, fluid immersion, altitude humidity and ozone tests.

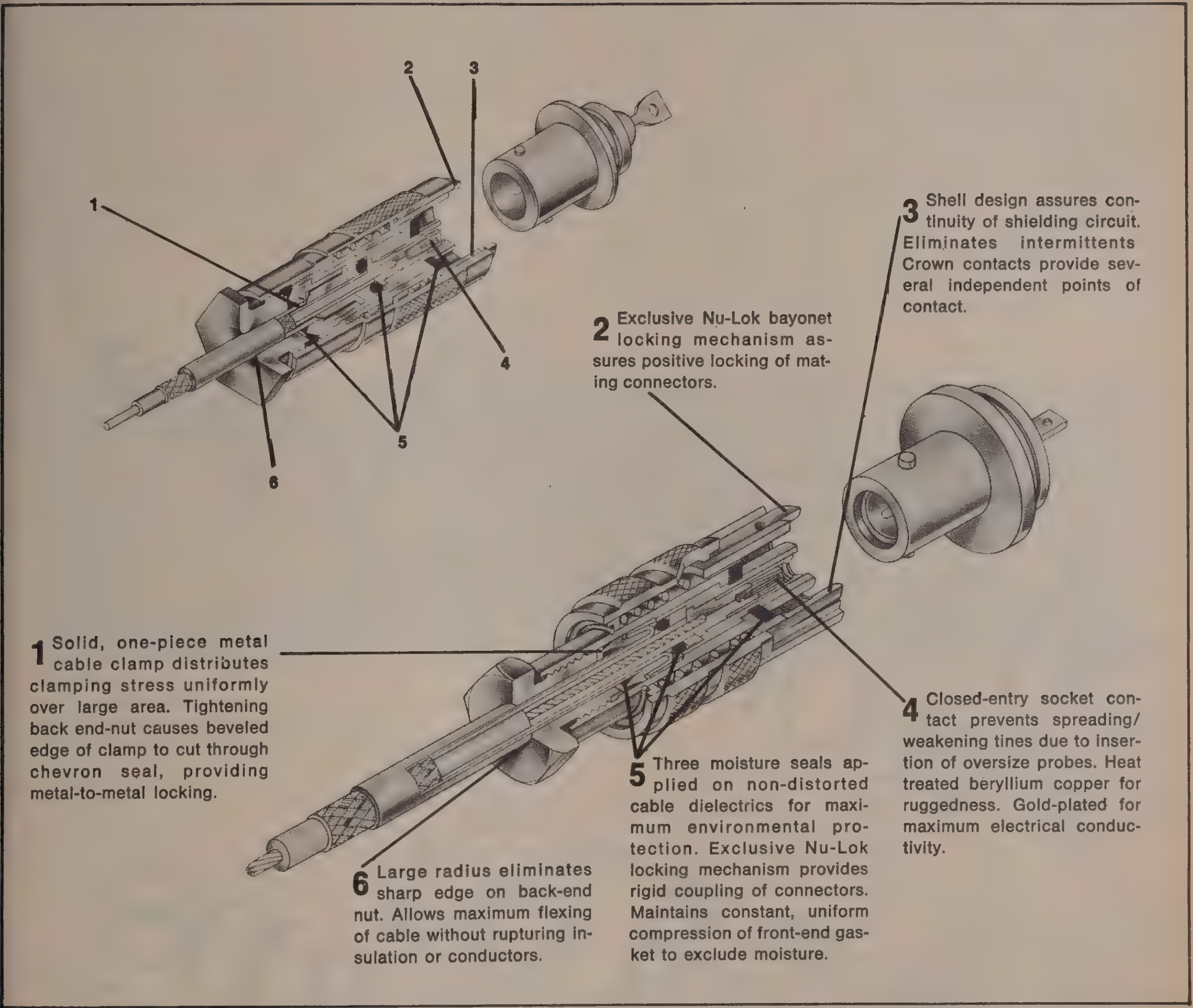
For complete test performance and specification data, consult Catalog Number CN-1.

CYLINDRICAL CONNECTOR DIVISION, TRW ELECTRONIC COMPONENTS GROUP, 8821 SCIENCE CENTER DRIVE, MINNEAPOLIS, MN 55428 • (612) 537-1010

1200 Series Nu-Lok Connectors

MIL-C-25516

TRW



3 Shell design assures continuity of shielding circuit. Eliminates intermittents Crown contacts provide several independent points of contact.

2 Exclusive Nu-Lok bayonet locking mechanism assures positive locking of mating connectors.

1 Solid, one-piece metal cable clamp distributes clamping stress uniformly over large area. Tightening back end-nut causes beveled edge of clamp to cut through chevron seal, providing metal-to-metal locking.

4 Closed-entry socket contact prevents spreading/weakening tines due to insertion of oversize probes. Heat treated beryllium copper for ruggedness. Gold-plated for maximum electrical conductivity.

5 Three moisture seals applied on non-distorted cable dielectrics for maximum environmental protection. Exclusive Nu-Lok locking mechanism provides rigid coupling of connectors. Maintains constant, uniform compression of front-end gasket to exclude moisture.

6 Large radius eliminates sharp edge on back-end nut. Allows maximum flexing of cable without rupturing insulation or conductors.

Proven integrity and reliability in critical low/high impedance circuits

Crimp Type
Solder Type

Nuline 1200 Series Nu-Lok Connectors are especially suited for use in both capacitance and radiation-monitoring fluid measurement systems because they help deliver constant, critically accurate readings. These connectors are completely unaffected by a wide range of fluids, from petroleum products to liquefied gases. Plus, they are designed to withstand high vibration levels and adverse environments.

Nu-Lok 1200 Series Connectors have applications in:

- RF circuits.
- Capacitance/pulse type circuits.
- High G environmental conditions.
- Rocket propulsion systems.
- Fuel measuring systems for aircraft.

And there's more. In fact, while standard designs anticipate most connector requirements, the Nu-Lok 1200 Series can be varied and specially adapted in plating, dimensions and configurations to meet any unique application needs. For complete information and/or technical assistance to solve your system interconnection problems, contact the Cylindrical Connector Division.

NEED MORE INFORMATION?

USE ONE OF THE NEW

EEMEDIATE ACTION CARDS

INSIDE THE BACK COVER OF VOLUMES 1A, 1B & 2

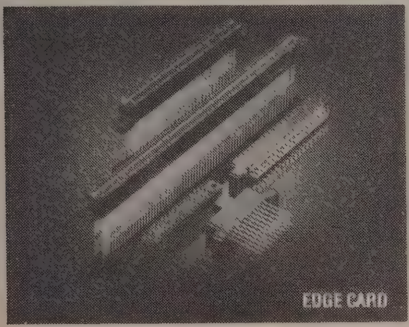
VIKING PC CONNECTORS

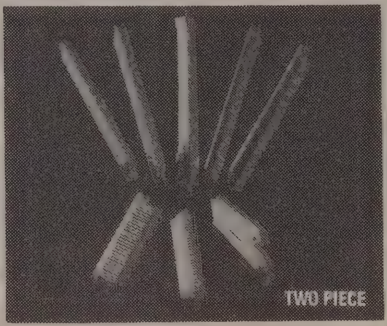
Viking Connectors Co. offers a high quality, versatile and affordable line of PC Connectors.

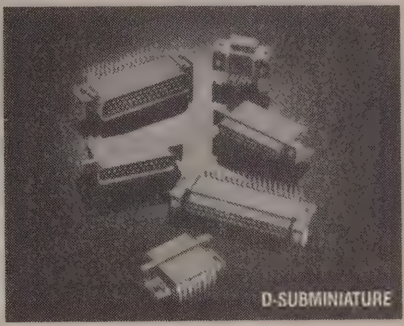
The standard products, shown here, can be modified to meet a variety of needs.

The one-piece PC Connector gives high reliability at low cost and is available with either bifurcated, semi-bellows or bellows contacts in selective or full gold plating with various insulator options.

Viking recently expanded their product line with an all plastic Right Angle D-Subminiature and the VSBX Series two-piece PC Connector system. The VSBX Connector system was initially developed by Viking as a unique solution to a need for a low cost method of stacking two PC boards. Now the product line has been expanded and is suitable for both parallel as well as perpendicular applications. Both the D-Subminiature and the VSBX Connectors are ideal for computer, peripheral, telecommunications, instrumentation and industrial control usage.







EDGE CARD

CONTACT CENTERS	TYPE	CONTACT POSITIONS
.050	Micro Miniature, Dip Solder, Short Dip Solder.	6/12 thru 66/132
.100 x .150	Dip Solder, (Short, Medium, Right-Angle), Pierced.	6/12 thru 50/100
.100 x .200	Wire Wrap*, Flow Solder; .025 (.63 mm) Sq.; .026 (.66 mm) Dia.	15/30 thru 70/140
.125 x .145	Dip Solder (Short, Medium), Pierced.	6/12 thru 50/100
.125	Dip Solder, Pierced. (Single read-out.)	28
.125 x .250	Wire Wrap*, Flow Solder; .025 (.63 mm) Sq.; .026 (.66 mm) Dia.	6/12 thru 50/100
.150 x .200	Dip Solder, Right-Angle Dip Solder, Pierced.	56/112, 105/210
.150 x .200	Wire Wrap*, .045 (1.14 mm) Sq.	6/12 thru 50/100
.156	Dip Solder, (Short, Medium, Right-Angle), Pierced. (Single read-out.)	6/12 thru 36/72
.156 x .145	Dip Solder, (Short, Medium), Pierced.	6/12 thru 43/86
.156 x .200	Wire Wrap*, Flow Solder; .025 (.63 mm) Sq.; .026 (.66 mm) Dia.	18/36 thru 43/86
.156 x .200	Wire Wrap*, .062 x .031 (1.57 mm x 0.78 mm).	6/12 thru 50/100

TWO PIECE

CONTACT CENTERS	TYPE	CONTACT POSITIONS
.100 x .100	Dip Solder, Sq. Wire Wrap*.	18/36, 22/44 bridge. (VSBX I)
.100 x .100	Dip Solder, Right-Angle Dip Solder, Wire Wrap*	22/44, 28/56, 50/100 (VSBX II)
.100 x .100	Wire Wrap*.	64 or 82 (ODIN)
.100 x .100	Wire Wrap*.	120 (NORDIC)
.100 x .100	Wire Wrap*, Right-Angle Dip Solder.	32/64/96 (EURO-DIN)

D-SUBMINIATURE

	TYPE	CONTACT POSITIONS
	All Plastic, Right-Angle PC Mount D-Subminiature.	9, 15, 25, 37, 50 (both plug & receptacle)

*A registered trademark of the Gardner-Denver Company.

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CRITON VIKING

Criton Technologies
Electronics and
Defense Group

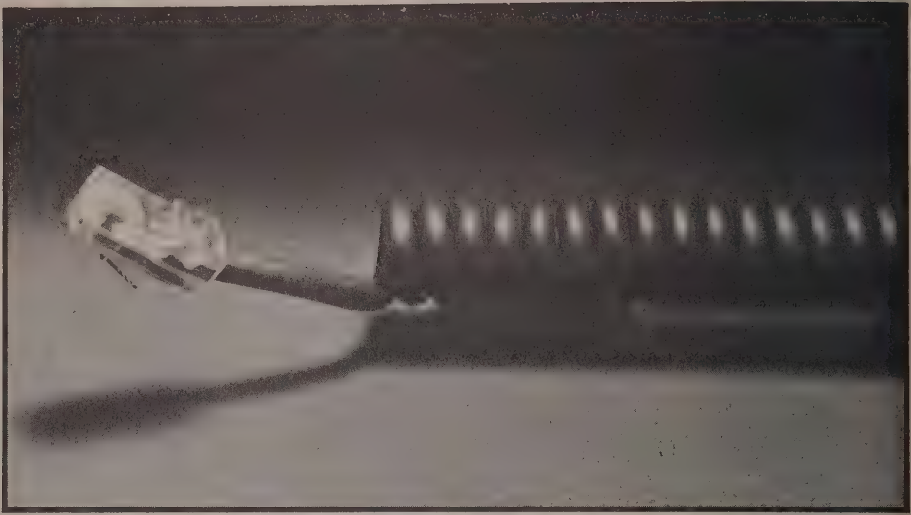
Viking Connectors, Co.
21001 Nordhoff Street
P.O. Box 2379
Chatsworth, CA 91311
(818) 341-4330
TWX: 910-494-2094

Viking Connectors (UK) Ltd.
Barton Industrial Estate
Faldo Road, Barton-le-Clay
Bedfordshire MK45 4RS, England
Phone: Luton (0582) 882345
Telex: 825377 Viking G

VIRGINIA PLASTICS

P.O. BOX 4577
ROANOKE, VIRGINIA 24015-0577
PHONE 703-985-3811
TWX 710-870-0440

THE COMPLETE COMPUTER INTERCONNECTION SYSTEM



ENGINEERING DATA:

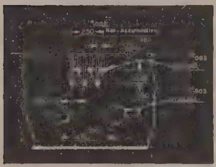
HOUSING: HIGH TEMPERATURE THERMOPLASTIC
FLAMMABILITY RATING: 94V-0

COLOR: BLACK

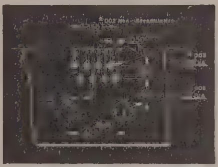
CONTACTS: BERYLLIUM COPPER ALLOY
PLATING: AUPX4 GOLD ALLOY
(CONTACT AREA)
TIN PLATED SOLDER POSTS
50µ NICKEL BARRIER

PRINTED CIRCUIT BOARD LAYOUT:

6 POSITION



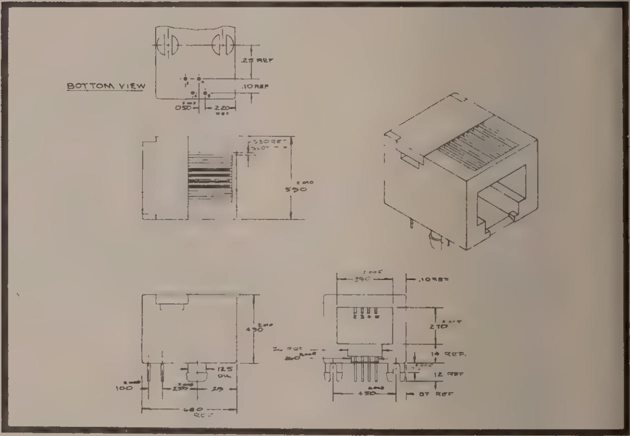
8 POSITION

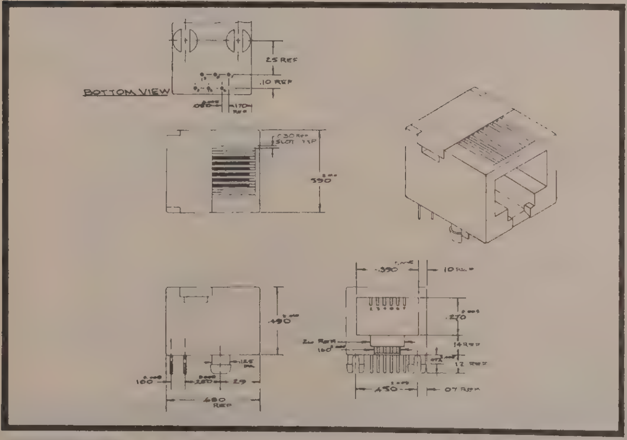


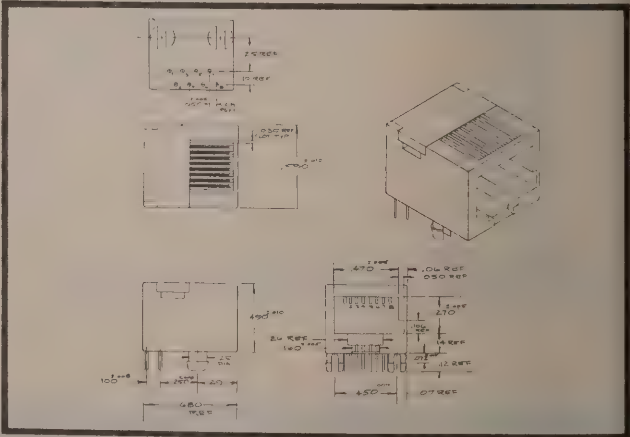
NOTES:
① IF PC BOARD IS LAID OUT FOR EIGHT POSITION CONNECTOR, THEN THE 4 AND 6 POSITION CONNECTORS CAN BE SUBSTITUTED WITHOUT ANY ADDITIONAL TOOLING OR RETOOLING.
② PC BOARD HOLE PATTERN IS SHOWN FROM BOTTOM VIEW.
③ DESIGNED TO SNAP LOCK TO PCB BOARDS OF .062 THICKNESS

ORDERING DATA:

BODY TYPE	CONTACTS	ORDERING CODE
6 POSITION	4	100.000.229
6 POSITION	6	100.000.186
8 POSITION	8	100.000.184


BOTTOM VIEW
.25 REF
.10 REF
.050
.220 REF
.550
.390
.10 REF
.490
.270
14 REF
12 REF
.125 DIA
.100
.250
.29
.450
.07 REF
.680 REF

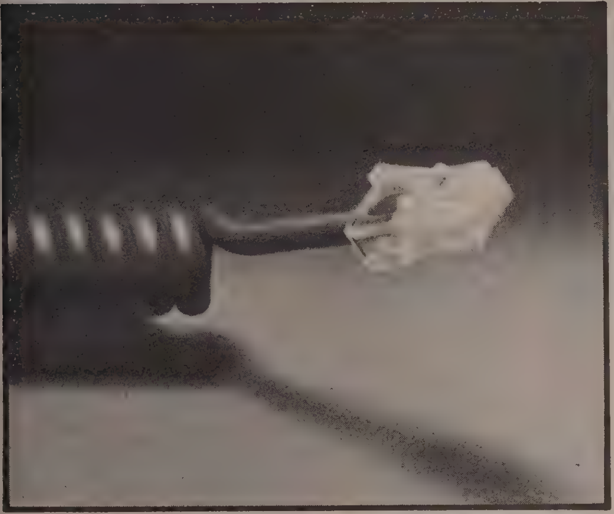

BOTTOM VIEW
.25 REF
.10 REF
.080
.170 REF
.030 REF SLOT TYP
.550
.390
.10 REF
.490
.270
14 REF
12 REF
.125 DIA
.100
.250
.29
.450
.07 REF
.680 REF


.25 REF
.10 REF
.030 SLOT TYP
.550
.470
.06 REF
.050 REF
.490
.270
14 REF
.12 REF
.125 DIA
.100
.250
.29
.450
.07 REF
.680 REF

MODCOM-C®

SHIELDED CORD SETS

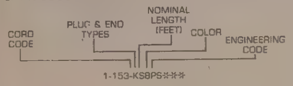
PCB CONNECTORS



ORDERING PROCEDURE FOR CORD SETS

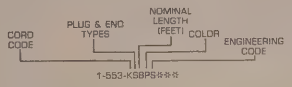
(1) SPECIFY CORD TYPE AND END TERMINATIONS.
(2) CALLOUT LENGTH AND OUTER JACK COLOR.
(3) SPECIFY STRAIN RELIEFS REQUIRED IF ANY
(4) STATE CONDUCTOR TYPE AND SPECIFY WIRING SEQUENCE FROM TERMINATION TO TERMINATION

TO ORDER STANDARD CORDS:
AN 8 FOOT FOUR CONDUCTOR CABLE WITH AN EIGHT POSITION KEYED PLUG ON ONE END AND A SIX POSITION LINE PLUG ON THE OTHER END IN SATIN COCOA BROWN.



1-153-KS8PS***

TO ORDER COILED CORDS:
THE SECOND DIGIT OF THE STYLE CODE INDICATES A COILED CORD. IF IT IS A 5, CALL OUT OVER ALL LENGTHS OF BOTH PIGTAILS



1-553-KS8PS***

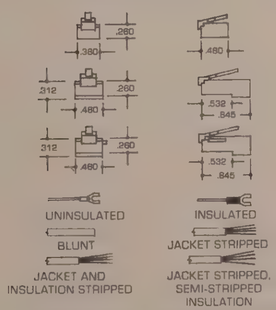
COLORS

NAME	SILVER PEARL (ONLY PVC)	SATIN IVORY	BLACK (ONLY PVC)	SATIN BLACK	SATIN COCOA BROWN
ORDERING CODE	**Z**	**AS**	**D**	**DS**	**PS**

OUTER JACKETS:

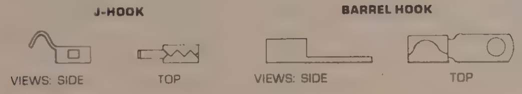
PVC or CPRE 75

END TERMINATIONS

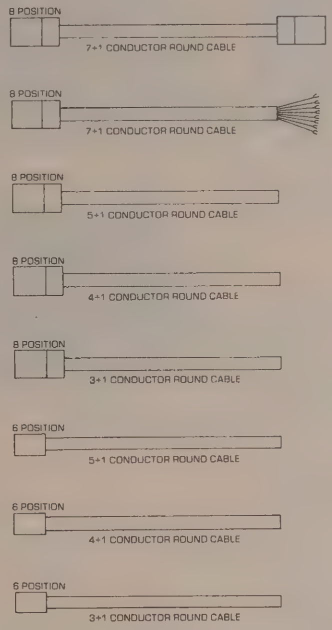


DESCRIPTION	CODE	PICTORIAL (IN INCHES)
SIX POSITION LINE	S	.260 .380 .480
EIGHT POSITION UNKEYED	U	.312 .260 .480 .532 .845
EIGHT POSITION KEYED	K	.312 .260 .480 .532 .845
SPADE TERMINAL	T	UNINSULATED INSULATED
BLUNT CUT	B	BLUNT JACKET STRIPPED JACKET AND INSULATION STRIPPED JACKET STRIPPED, SEMI-STRIPPED INSULATION
SPECIAL TERMINALS	A	CONTACT FACTORY WITH REQUIREMENTS

STRAIN RELIEFS

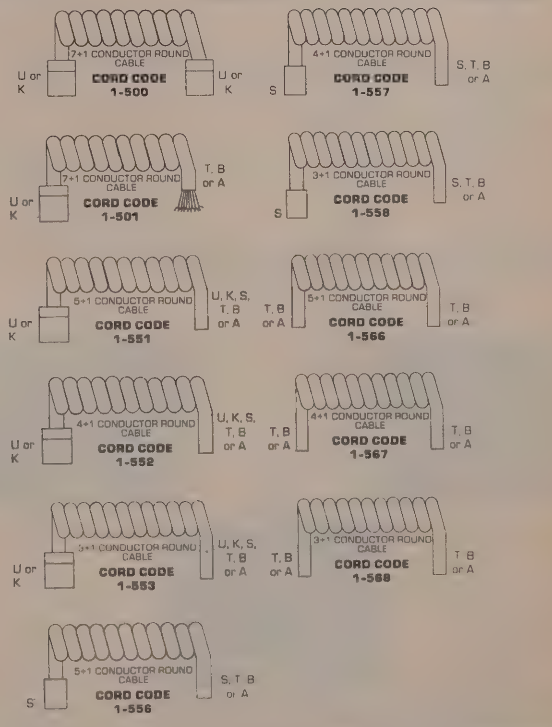


STRAIGHT CORDSETS:



END TERMINATION		END TERMINATION	CORD CODE
U or K	8 POSITION 7+1 CONDUCTOR ROUND CABLE	U or K	1-100
U or K	8 POSITION 7+1 CONDUCTOR ROUND CABLE	T or B, A	1-101
U or K	8 POSITION 5+1 CONDUCTOR ROUND CABLE	U, K, S, T, B or A	1-151
U or K	8 POSITION 4+1 CONDUCTOR ROUND CABLE	U, K, S, T, B or A	1-152
U or K	8 POSITION 3+1 CONDUCTOR ROUND CABLE	U, K, S, T, B or A	1-153
S	6 POSITION 5+1 CONDUCTOR ROUND CABLE	S, T, B or A	1-156
S	6 POSITION 4+1 CONDUCTOR ROUND CABLE	S, T, B or A	1-157
S	6 POSITION 3+1 CONDUCTOR ROUND CABLE	S, T, B or A	1-158

COILED CORDSETS:



END TERMINATION		END TERMINATION
U or K	7+1 CONDUCTOR ROUND CABLE **CORD CODE 1-500**	U or K
S	4+1 CONDUCTOR ROUND CABLE **CORD CODE 1-557**	S, T, B or A
U or K	7+1 CONDUCTOR ROUND CABLE **CORD CODE 1-501**	T, B or A
S	3+1 CONDUCTOR ROUND CABLE **CORD CODE 1-558**	S, T, B or A
U or K	5+1 CONDUCTOR ROUND CABLE **CORD CODE 1-551**	U, K, S, T, B or A
T, B or A	5+1 CONDUCTOR ROUND CABLE **CORD CODE 1-566**	T, B or A
U or K	4+1 CONDUCTOR ROUND CABLE **CORD CODE 1-552**	U, K, S, T, B or A
T, B or A	4+1 CONDUCTOR ROUND CABLE **CORD CODE 1-567**	T, B or A
U or K	3+1 CONDUCTOR ROUND CABLE **CORD CODE 1-553**	U, K, S, T, B or A
T, B or A	3+1 CONDUCTOR ROUND CABLE **CORD CODE 1-568**	T, B or A
S	5+1 CONDUCTOR ROUND CABLE **CORD CODE 1-556**	S, T, B or A

MODCOM-C PCB CONNECTORS

VIRGINIA PLASTICS

P.O. BOX 4577
ROANOKE, VIRGINIA 24015-0577
PHONE 703-985-3811
TWX 710-870-0440

ENGINEERING DATA:

HOUSING: HIGH TEMPERATURE THERMOPLASTIC
FLAMMABILITY RATING: 94V-0

HOUSING COLORS:	**ORDERING CODE**
• OFF-WHITE	L
• BLACK	D

CONTACTS: PHOSPHOR BRONZE ALLOY

PLATING:	**ORDERING CODE**
• AUPX4 GOLD ALLOY OVER 50μ NICKEL BARRIER	0
• AUPX4 GOLD ALLOY (CONTACT AREA)/TIN PLATED SOLDER POSTS OVER 50μ NICKEL BARRIER	3
• 50μ GOLD (CONTACT AREA)/TIN PLATED SOLDER POSTS OVER 50μ NICKEL BARRIER	5
• 100 TIN PLATE OVER 50μ NICKEL BARRIER	9

ORDERING PROCEDURE:

SPECIFY BASE UNIT THEN COLOR CODE AND PLATING CODE

FOR EXAMPLE
6 POSITION HOUSING
CONTACTS POSITIONS
2, 3, 4, 5

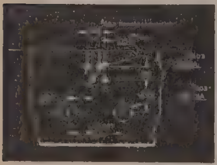
MCJ64-A1✲✲

COLOR CODE (L, D)

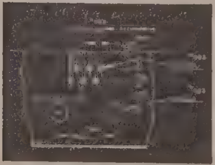
PLATING CODE (0, 3, 5, 9)

PRINTED CIRCUIT BOARD LAYOUT:

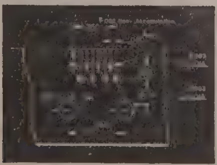
4 POSITION
SERIES A



6 POSITION
SERIES A



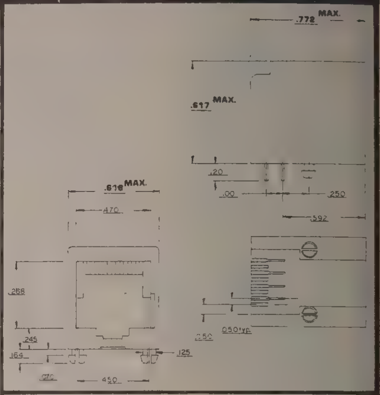
8 POSITION
KEYED SERIES A
UNKEYED SERIES D



NOTES: ① IF PC BOARD IS LAID OUT FOR EIGHT POSITION CONNECTOR, THEN THE 4 AND 6 POSITION CONNECTORS CAN BE SUBSTITUTED WITHOUT ANY ADDITIONAL TOOLING OR RETOOLING.
② PC BOARD HOLE PATTERN IS SHOWN FROM BOTTOM VIEW.
③ DESIGNED TO SNAP LOCK TO PCB BOARDS OF .062 THICKNESS

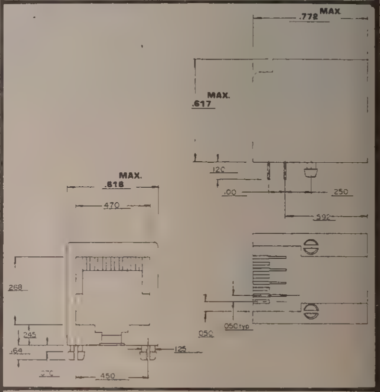
8 POSITION KEYED — SERIES A

ORDERING CODE	CONTACT PIN POSITIONS
MCJ88-A1✲✲	1, 2, 3, 4, 5, 6, 7, 8
MCJ86-A1✲✲	3, 4, 5, 6, 7 8
MCJ86-A2✲✲	1, 3, 4, 5, 6, 8
MCJ86-A3✲✲	2, 3, 4, 5, 6, 7
MCJ86-A4✲✲	1, 2, 4, 5, 7, 8
MCJ86-A5✲✲	1, 2, 3, 6, 7, 8
MCJ84-A1✲✲	3, 4, 5, 6
MCJ84-A2✲✲	1, 4 5 8
MCJ84-A3✲✲	4, 5, 7, 8
MCJ84-A4✲✲	1, 2, 3, 6
MCJ84-A5✲✲	2, 3, 6, 7
MCJ82-A1✲✲	4, 5
MCJ82-A1✲✲	3, 6


.772 MAX.
.617 MAX.
.616 MAX.
.470
.120
.100
.250
.592
.268
.245
.164
.125
.050
.050 typ.
.270
.450

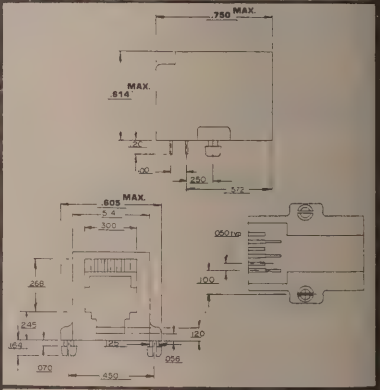
8 POSITION UNKEYED — SERIES D

ORDERING CODE	CONTACT PIN POSITIONS
MCJ88-D1✲✲	1, 2, 3, 4, 5, 6, 7, 8
MCJ86-D1✲✲	3, 4, 5, 6, 7, 8
MCJ86-D2✲✲	1, 3, 4, 5, 6, 8
MCJ86-D3✲✲	2, 3, 4, 5, 6, 7
MCJ86-D4✲✲	1, 2, 4, 5, 7, 8
MCJ86-D5✲✲	1, 2, 3, 6, 7, 8
MCJ84-D1✲✲	3, 4, 5, 6
MCJ84-D2✲✲	1, 4, 5, 8
MCJ84-D3✲✲	4, 5, 7, 8
MCJ84-D4✲✲	1, 2, 3, 6
MCJ84-D5✲✲	2, 3, 6, 7
MCJ82-D1✲✲	4, 5
MCJ82-D2✲✲	3, 6


.778 MAX
.617 MAX.
.616 MAX.
.470
.120
.100
.250
.592
.268
.245
.164
.125
.050
.050 typ.
.270
.450

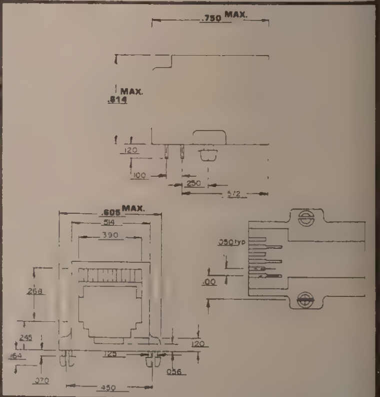
4 POSITION — SERIES A

ORDERING CODE	CONTACT PIN POSITIONS
MCJ44-A1✲✲	1, 2, 3, 4
MCJ42-A1✲✲	2, 3
MCJ42-A2✲✲	1, 3
MCJ42-A3✲✲	1, 4
MCJ41-A1✲✲	3
MCJ41-A2✲✲	4


.750 MAX.
.614 MAX.
.120
.100
.250
.572
.605 MAX.
.514
.300
.050 typ.
.100
.268
.245
.164
.125
.120
.056
.070
.450

6 POSITION — SERIES A

ORDERING CODE	CONTACT PIN POSITIONS
MCJ66-A1✲✲	1, 2, 3, 4, 5, 6
MCJ65-A1✲✲	1, 2, 3, 4, 5
MCJ65-A2✲✲	2, 3, 4, 5, 6
MCJ64-A1✲✲	2, 3, 4, 5
MCJ64-A2✲✲	1, 3, 4, 6
MCJ64-A3✲✲	1, 2, 5, 6
MCJ64-A4✲✲	3, 4, 5, 6
MCJ64-A5✲✲	1, 2, 3, 4
MCJ63-A1✲✲	2, 3, 4
MCJ62-A1✲✲	3, 4
MCJ62-A2✲✲	1, 6
MCJ62-A3✲✲	2, 5
MCJ61-A1✲✲	3
MCJ61-A2✲✲	4


.750 MAX.
.614 MAX.
.120
.100
.250
.572
.605 MAX.
.514
.390
.050 typ.
.100
.268
.245
.164
.125
.120
.056
.270
.450

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES

TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 84/85 EDITION OF EEM

Abbreviations/Acronyms	**1A**•1137, **1B**•1035, **2**•1014, **3**•1014
ASCII Code	**3**•1103
Batteries, Product Selection Guide	**3**•1399
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide	**2**•1003
Capacitors, Basic Formulas	**1A**•1093
Capacitors, Miniglossary	**1A**•1069
Capacitors, Product Selection Guide	**1A**•1003
Circuit Boards (Printed), Product Selection Guide	**2**•1089
Coils, Chokes, & Inductors, Product Selection Guide	**1A**•1219
Connectors, Miniglossary	**2**•1264
Connectors, Terminals, & Sockets, Product Selection Guide	**2**•1097
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide	**1A**•1309
Delay Lines, Product Selection Guide	**1A**•1445
Discrete Semiconductors, Product Selection Guide	**1A**•2087
Displays, Readouts, Lamps, & Lights, Product Selection Guide	**1B**•1021
EBCDIC Code	**3**•1153
Encapsulation, Miniglossary	**2**•1082
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide	**2**•1801
Filters, Product Selection Guide	**1A**•1577
Instruments, Graphic Recording, Product Selection Guide	**3**•1381
Instruments, Panel Meters, Product Selection Guide	**3**•1321
Instruments, Test & Measuring, Product Selection Guide	**3**•1182
Interconnection Systems, Product Selection Guide	**2**•1873
Keyboards & Keypads, Product Selection Guide	**1B**•1759
Microwave Components, Product Selection Guide	**1A**•1685
Military Qualified Products Lists	**1B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide	**1B**•1121
Opto Semiconductors, Miniglossary	**1B**•1218
Oscilloscopes, Product Selection Guide	**3**•1361
Panel Hardware, Product Selection Guide	**2**•1757
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide	**1A**•2017
Power Supplies, Miniglossary	**3**•1455
Power Supplies, AC, Product Selection Guide	**3**•1815
Power Supplies, DC, Product Selection Guide	**3**•1439
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide	**1B**•1255
Relay Contact Forms	**1B**•1317
Relays, Electromechanical, Miniglossary	**1•B**1292
Relays, Product Selection Guide	**1B**•1289
Resistor Color Codes	**1A**•1791
Resistors, Product Selection Guide	**1A**•1789
Servo Components, Miniglossary	**3**•1935
Solenoids, Product Selection Guide	**1B**•1481
Switches, Product Selection Guide	**1B**•1499
Thyristors/High Power Diodes, Miniglossary	**1A**•1652
Transducers & Encoders, Product Selection Guide	**1B**•1827
Transformers, Product Selection Guide	**1A**•2115
Wire & Cable, Product Selection Guide	**2**•1935

WALL-ABLE MANUFACTURING CORPORATION

1800 NORTH CLYBOURN AVENUE • CHICAGO, ILLINOIS 60614 • (312) 440-1000

For over 30 years, Wall-Able has been an innovator in the design and manufacture of low-cost connectors. Our ability to provide extraordinarily fast response to major OEM special requirements has earned us a reputation we've grown with. If you have requirements for custom components and critical deadlines, use our years of experience and know-how to economically fill your needs.

We're proud of our diverse selection of quality connectors, both standard and special designs. Listed on these pages are a variety of available Wall-Able products which may help you in your connector requirements. Try us to solve your next connector problem.

F Style Connectors

J75-59-7

J75-59-0

J75-59-6

J75-59-13

J75-59

J75-59-3

J75-59-4

J75-59-5

Widely used in CATV-STV and related applications, Wall-Able's connectors feature custom contact designs and solid reliability. Our F to phono adaptors offer flexibility for many cost-effective connection combinations. The double isolation adaptor J75-59-5 incorporates the ⅟₁₆″ minimum spacing required by UL in TV antenna applications.

Wall-Able provides high-quality cost-effective F style connectors, which are always state of the art.

Phono Jacks

J75-1021

J75-1001

J75-1183-1

J75-2183

J75-1007

J75-2190

Still the industry's most economical 2-conductor connectors, Wall-Able's variety of phono jacks is second to none. Panel mount, solder, and printed circuit styles, with or without solder stopping shoulders, are available with your choice of a variety of center conductor contacts. Jacks with special grooved shells to mate with our PSL spring plugs are also available for extra reliability.

Phono Spring Plugs (PSL Series)

126F-3-15

126F-6-15

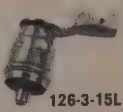
176F-6-18

410-167-6

225F-6-15

333-15

333-22-1


126-3-15L

Wall-Able's patented spring lock plugs offer the ultimate in phono connector reliability. Virtually indestructible in use, the mechanical and electrical advantages of this product have been proven by every major OEM. Available with a variety of wire entry sizes and center pin lengths.

Phono Jacks — Saddle Style

J75-2111S

J75-2118

J75-2028-1

WA-549

J75-1163S

J75-2029S

J75-1177S

J75-2077S

Wall-Able's large assortment of phono jacks can all be supplied ready for PC or solder assembly with a variety of tooled saddles. Specially assembled to avoid saddle-jack intermittency, these components offer cost-effective assembly methods.

Phono Plugs — Tulip Style

P75-2231

P75-1004

P75-1002

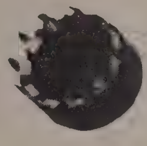
Wall-Able offers a variety of phono plugs for low-cost applications, utilizing low loss XXXP-FR insulators and standard pin lengths from ⅜″ to ¹¹⁄₁₆″. Right angle or straight cable strain relief variations are also available.

WALL-ABLE MANUFACTURING CORPORATION

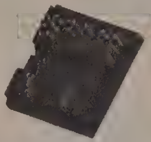
1800 NORTH CLYBOURN AVENUE • CHICAGO, ILLINOIS 60614 • (312) 440-1000

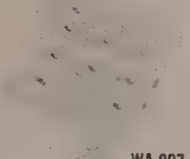
Relay Sockets

WA-928


WA-922

WA-937


WA-961

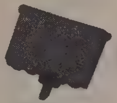

WA-907

WA-909

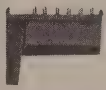
General-purpose KU, Miniature KH, 8 & 11 pin round, and telephone type relay sockets are all available as standard products. Efficient multi-cavity molds, highest quality, UL-approved, flame retardant molding compounds and close tolerance spring brass and phospher bronze contacts assure long-life reliability.

Contacts/Contact Housings

WA-815-8


WA-816

WA-927


WA-954

WA-801

WA-815-2

WA-814

WA-339-2

WA-382

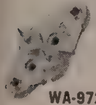
WA-302-140

WA-812

WA-813

Unique custom contacts and housings designed to solve specific customer requirements have long been a Wall-Able specialty. Single and multiple wire terminations for .093 pins, locking female terminals for .205 jewel disconnect tabs, PC edgeboard connectors and other parts have been cost-effectively and quickly engineered. Use our experience to reduce your connector costs and increase their reliability.

Power Transistor Bases


WA-972

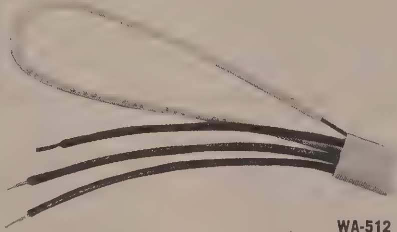
WA-923

WA-920

WA-943

Heavy duty, flame retardant molded transistor bases are manufactured with PC, 6-32, or 4-40 threaded saddles. A wide variety of contacts can be supplied in whatever plating best suits the individual requirements.

Harness Assemblies


WA-512

UL and CSA approved standard 18GA, 4-contact lamp socket assembly is assembled with durable urea housings. Special wire assemblies can be designed and produced.

Phono Jack Boards

WA-546-1

WA-544

WA-543

Phono jacks can be mounted independently or grouped on flame retardant phenolic boards or metal plates for use in audio and other phono base plate applications. Special common grounding links are also available.

Screw Terminals & Assemblies

WAJ-332

WAK-116

WAU-332

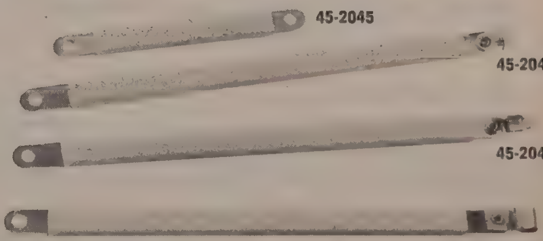
HU-375

WA-2120

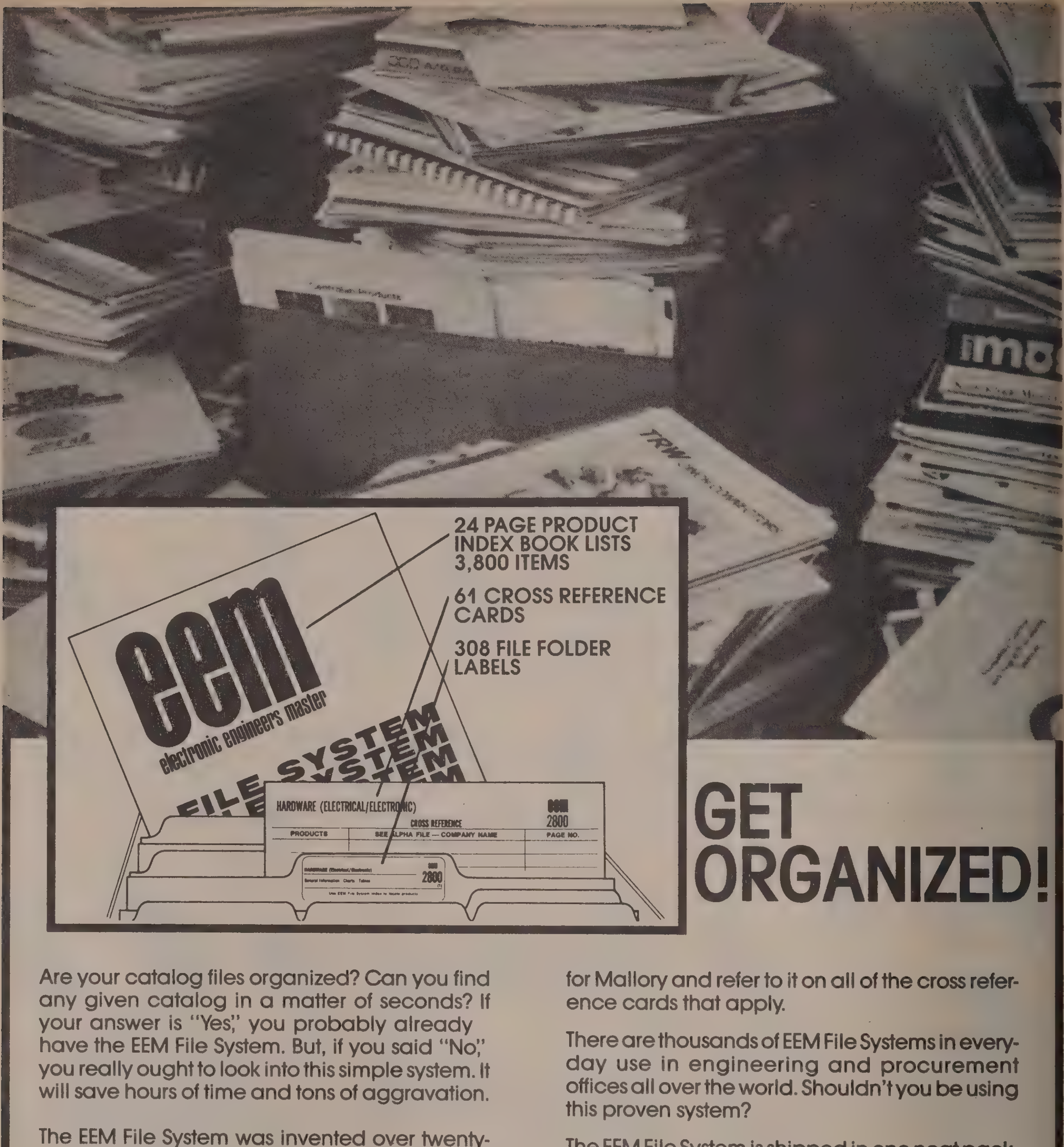
WA-21-510

Wall-Able's patented screw/nut snap-in terminal is available individually or in board mounted multiple assemblies. Chances of breaking the wire connection are minimized with this style assembly. Standard 6-32 screw terminal assemblies are also available.

Ground Straps



As a major supplier of flat strap ground assemblies, Wall-Able manufactures a variety of straps for all electronic products where a low-cost, highly effective ground is desired. Snap-on, anti-rotation rivet type, and special grip style clips are available to speed the assembly operation.


24 PAGE PRODUCT INDEX BOOK LISTS 3,800 ITEMS
61 CROSS REFERENCE CARDS
308 FILE FOLDER LABELS
eem
electronic engineers master
FILE SYSTEM
HARDWARE (ELECTRICAL/ELECTRONIC)
CROSS REFERENCE
PRODUCTS
SEE ALPHA FILE — COMPANY NAME
PAGE NO.
eem
2800
TRW

GET ORGANIZED!

Are your catalog files organized? Can you find any given catalog in a matter of seconds? If your answer is "Yes," you probably already have the EEM File System. But, if you said "No," you really ought to look into this simple system. It will save hours of time and tons of aggravation.

The EEM File System was invented over twenty-five years ago to help people who specify, buy, or work with electronic products and equipment. It is upgraded on a constant basis to reflect the current state of the art. It's easy to use and easy to customize to your particular needs.

You say you want to file catalogs by type of product? That's easy to do with The System. But, what are you going to do when there are multiple products in one catalog? Take Mallory for example. There are all kinds of products in the Mallory Short Form Catalog. With the EEM File System all you do is file the catalog under "M" for Mallory and refer to it on all of the cross reference cards that apply.

There are thousands of EEM File Systems in everyday use in engineering and procurement offices all over the world. Shouldn't you be using this proven system?

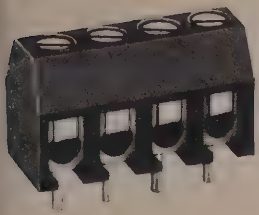
The EEM File System is shipped in one neat package. The package contains everything you need to set up your very own filing system. Best of all, it's easy to get and very affordable. Send a check or money order for $25.00 and EEM will pay the postage and sales tax. If you must use a purchase order, please add $5.00 for postage and handling. An invoice will accompany your System.

Don't waste any more time. Get organized now!

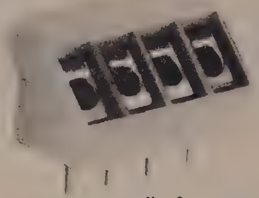
EEM FILE SYSTEM,
645 stewart ave., garden city, ny 11530

WECO

SCREW CONNECTORS FOR PRINTED CIRCUITS



No. 1



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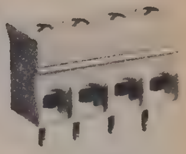

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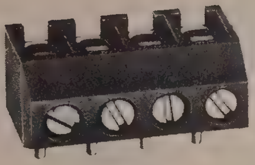

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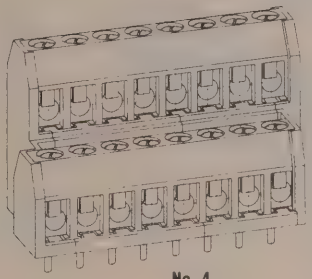


No. 4

Type	No. of circuits	Length mm	Length in	Height mm	Height in	Width mm	Width in	Wire Entrance relative to PCB: horizontal	45° angled	vertical	Center-to-Center mm	Center-to-Center in	UL recognized for: Voltage	Amperage	AWG	Design similar to figure No.:
95 GDS	2-27*	135	5.32	10	0.39	8	0.31	X			5	0.197	150	15	14-22	1
95 SGDS	2-27*	135	5.32	8	0.31	10	0.39			X	5	0.197	150	15	14-22	2
95 G/DS	2-14	135	5.32	10	0.39	8	0.31	X			10	0.394	300	15	14-22	1
95SG/DS	2-14	135	5.32	8	0.31	10	0.39			X	10	0.394	300	15	14-22	2
970 DS	2-31	156	6.14	13	0.51	9	0.35	X			5	0.197	150	15	14-22	1
971 DS	2-31	156	6.14	9	0.35	13	0.51			X	5	0.197	150	15	14-22	2
972 DS	2-16	156	6.14	13	0.51	9	0.35	X			10	0.394	300	15	14-22	1
973 DS	2-16	156	6.14	9	0.35	13	0.51			X	10	0.394	300	15	14-22	2
940 DS	2-32*	162.6	6.40	11.5	0.45	8	0.31	X			5.08	0.200	150	15	14-22	1
941 DS	2-32*	162.6	6.40	8	0.31	11.5	0.45			X	5.08	0.200	150	15	14-22	2
942 DS	2-16	162.6	6.40	11.5	0.45	8	0.31	X			10.16	0.400	300	15	14-22	1
943 DS	2-16	162.6	6.40	8	0.31	11.5	0.45			X	10.16	0.400	300	15	14-22	2
960 DS	2-32	163.5	6.44	13.5	0.53	9	0.35	X			5.08	0.200	150	15	14-22	1
961 DS	2-32	163.5	6.44	9	0.35	13.5	0.53			X	5.08	0.200	150	15	14-22	2
962 DS	2-16	163.5	6.44	13.5	0.53	9	0.35	X			10.16	0.400	300	15	14-22	1
963 DS	2-16	163.5	6.44	9	0.35	13.5	0.53			X	10.16	0.400	300	15	14-22	2
974 DS	2-26*	130	5.12	12	0.47	12.5	0.49		X		5	0.197	150	15	14-22	3
975 DS	2-13*	130	5.12	12	0.47	12.5	0.49		X		10	0.394	300	15	14-22	3
977 OPDS	2-19	141	5.55	13	0.51	9	0.35	X			7.5	0.295	300	15	14-22	1
976 DS	2-3	20	0.79	12	0.47	12.5	0.49		X		7.5	0.295	300	15	14-22	3
977 DS†	2-3	21	0.83	13	0.51	9.5	0.37	X			7.5	0.295	300	15	14-22	1
977 SGDS	2-3	21	0.83	9.5	0.37	13	0.51			X	7.5	0.295				2
910 DS	2-12	118	4.65	14	0.55	9	0.35	X			10	0.394	300	25	18-10	1
990 DS	2-28*	140	5.51	11.3	0.45	9	0.35	X			5	0.197	250	15	14-22	5
97 EDS	2-62	192.5	7.58	27	1.06	20.2	0.80	X			5	0.197	250	15	14-22	4

"Tiered Terminal": Two rows of type 970 DS are offset by half of the pitch. Produces an effective pitch of 2.5 mm/0.098 in.

*: Terminal strips can be butted side by side to form any requested pole configuration without losing center-to-center spacing.
Length measurement indicated refers to strip with maximal available number of circuits: 95 GDS-27 has 27 circuits and a length of 135mm/5.32in.
†: Each circuit is equipped with a test hole.

Terminal body accommodating 10-16 AWG: available for types: 970 DS, 972 DS, 960 DS, 962 DS, 97 EDS, 977 DS, 977 OPDS. It allows the connection of several conductors.

Extra features: Screen print labelling, labelling strips. Blocks can be supplied without wireguards (DS). Most types can be supplied with solder pins exceeding their standard length and up to 70mm/2.75in.

Moulding: Glass fibre reinforced Polyamide 6.6
Permissible temperature loading: short-time 200°C/392°F
continuous 100-120°C/212-248°F
Cold resistant down to: −50°C/−58°F

Terminal Body: Tin-plated Brass

Soldering Pin: Tin-plated copper, suitable for soldering

Wire Guard: Bright tin bronze

Screw: Zinc-plated steel, yellow chromated

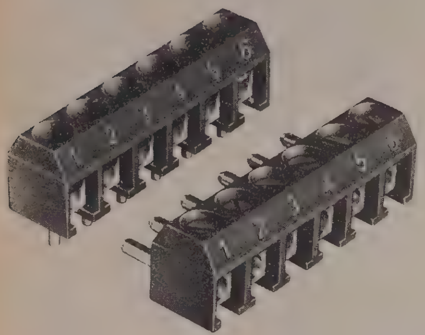
HOW TO ORDER: Indicate Type and No. of Circuits, e.g.: 95 GDS-12 is type 95 GDS with 12 circuits.

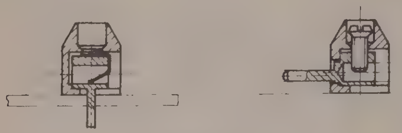
WECO Electrical Connectors Inc.
Headquarters Montreal:
P.O. Box 84, Ste. Anne de Bellevue, P.Q.
Canada H9X 3L4
Phone: (514) 457-3648
Telex: 05-821840 WECO CDA BDRF

WECO Electrical Connectors Inc.
US-Warehouse:
Trimex Building
RT. 11
Mooers, NY 12958

WECO

PLUG AND SOCKET SCREW-CONNECTOR SYSTEMS FOR PRINTED CIRCUIT BOARDS





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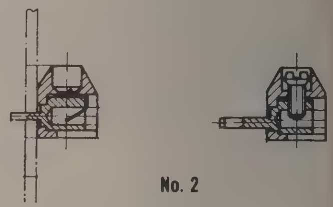

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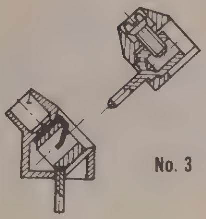

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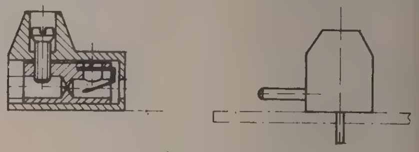

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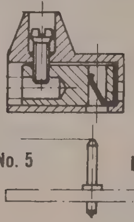


No. 5

LST 1,3 × 6,5

Types		No. of circuits	Length		Height		Width		Wire Entrance relative to PCB:			Plug–in direction relative to PCB			Center-to Center spacing		UL recognized for:			Design similar to figure No.:
Male	Female		mm	in	mm	in	mm	in	vertical	horizontal	45°	horizontal	vertical	45°	mm	in	Volt	Ampere	AWG	
95 SVDS with	95 FB°	2-27* 2-27*	135 135	5.31 5.31	10 10	0.39 0.39	8 8	0 31 0.31		X		X			5 5	0.197 0 197	250	6	16-22	1
95 SVDS with	95 SGFB°	2-27* 2-27*	135 135	5.31 5.31	10 8	0.39 0.31	8 10	0.31 0 39	X				X		5 5	0.197 0.197	250	6	16-22	2
97 SVDS with	97 FB°	2-31 2 31	156 156	6.14 6.14	13 13	0 51 0.51	9 9	0.35 0.35		X		X			5 5	0.197 0.197	250	6	14-22	1
97 SVDS with	971 FB°	2-31 2-31	156 156	6 14 6 14	13 9	0.51 0.35	9 13	0.35 0 51	X				X		5 5	0.197 0.197	250	6	14-22	2
95 SVG° with	97 FBSDS	2-27* 2-24*	135 120	5.31 4.72	10 13	0.39 0.51	8 15.5	0.31 0.61		X		X			5 5	0.197 0.197	250	6	14-22	4
LST 1.3 × 6.5° with	97 FBWDS	Single solder pin. Can also be ordered mounted on a strip. 2-24*	120	4.72	13	0.51	15.5	0.61		X			X		5	0.197	250	6	14-22	5
LST 1.3 × 6.5° with	97 FBSDS	Single solder pin. Can also be ordered mounted on a strip. 2-24*	120	4.72	15.5	0.61	13	0.51	X				X		5	0.197	250	6	14-22	5
95 SVDS with	974 FB°	2-27* 2-26*	135 130	5.31 5.12	complete ensemble: 16.5	0.65	15.5	0.60			X			X	5 5	0.197 0.197	300	6	14-22	3

°: soldered onto PC-board, the counterpart is removable.

*: terminal block can be butted side by side to form any requested pole configuration without losing center-to-center spacing.

Based on the standard program of screw-connectors for printed circuits a line of more than 20 different Plug and Socket Systems are available. A stainless steel spring provides the contact pressure to ensure a reliable connection not only to the male terminal, but also to other components. All systems offered provide for a quick connect and disconnect of wiring to PCB.

There are many advantages and benefits to using these components:

- Subassemblies manufactured at different places are equipped with either the male or female terminal of the selected WECO plug and socket screw-connector system. At the time the final assembly is to be finished one has only to plug the male into the female connector. No more wiring is necessary.
- Peripheral appliances can be connected to the main PC-board avoiding any risk of changing wires by mistake.
- For service purposes a PC-board can easily be disconnected. The plug-connector may then be used for testing the PC-board.
- The plug-connector also connects onto the PC-board, when direct wiring into a screw-connector is difficult because of limited space.
- Service-ability.

Spacing other than 5mm/0.197in: 5.08mm/0.200in available for types: 95 SVDS, 95 FB, 95 SGFB, 97 SVDS, 97 FB, 971 FB.
7.5mm/0.295in available for types:
97 SVDS/97 FB and 97 SVDS/971 FB
10mm/0.394in available for all listed types.

WECO Electrical Connectors Inc.
Headquarters Montreal:
P.O. Box 84, Ste. Anne de Bellevue, P.Q.
Canada H9X 3L4
Phone: (514) 457-3648
Telex: 05-821840 WECO CDA BDRF

Moulding: Glassfibre reinforced Polyamide 6.6
Permissible temperature loading: short time: 200°C/392°F
continuous: 100-120°C/212-248°F
Cold resistant down to: −50°C/−58°F

Terminal Body: Nickel-plated brass

Spring: Stainless steel strip

Plug: Tin-plated brass

Soldering Pin: Tin-plated copper, suitable for soldering

Single soldering pin LST 1.3 × 6.5: Silver-plated brass

Wire guard: Bright tin bronze

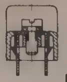
Screw: Zinc-plated steel, yellow chromated.

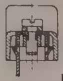
Extra features: Screen print labelling; labelling strips; Blocks can be supplied without wire guard (DS); some types are available with projecting ribs at wire entrance to increase air gaps and creepage distance. Carrying plates are available to additionally interlock each assembly, to increase creepage distance to panel and provide absolute sure connection in vibration treated environment.

How to order: Please indicate type and no. of circuits, e.g.: 95 SVDS-05 and 95 FB-05. This is the pluggable arrangement of type 95 SVDS and 95 FB, with each 5 circuits per strip.

WECO Electrical Connectors Inc.
US-Warehouse:
Trimex Building
RT. 11
Mooers, NY 12958

SINGLE ROW SCREW BARRIER TERMINAL STRIPS FOR PRINTED CIRCUITS


No. 1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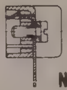

No. 3

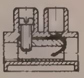
Moulding: Polyamide 6.6
Permissible temperature loading:
short-time: 140-160°C/284-320°F
continuous: 80-100°C/176-212°F
Cold resistant down to: −40°C/−40°F

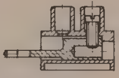
Terminal body: tin-plated brass, suitable for soldering.
Screw and wire clamp: zinc-plated steel, yellow chromated.
Extra features: Screen print labelling. Types 980, 982 and 983 can be supplied with quick-connect tabs for up to six terminations per pole. All PCB executions mentioned can be supplied for panel mounting.

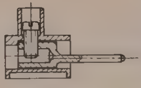
Type	No. of circuits	Length		Height		Width		Center to Center spacing		UL recognized for:			Design similar to figure No.:
		mm	in	mm	in	mm	in	mm	in	Voltage	Amperage	AWG	
980 S	26	166.3	6.55	15	0.59	14	0.55	6.35	1/4	250	7	18-22	2
980 D	26	166.3	6.55	15	0.59	14	0.55	6.35	1/4	250	7	18-22	1
980 W	26	166.3	6.55	14	0.55	15	0.59	6.35	1/4	250	7	18-22	3
982 S	26	247.7	9.75	16.5	0.65	16	0.63	9.52	3/8	300	20	12-20	2
982 D	26	247.7	9.75	16.5	0.65	16	0.63	9.52	3/8	300	20	12-20	1
983 S	26	260.0	10.24	16.5	0.65	16	0.63	10.00	0.394	300	20	12-20	2
983 D	26	260.0	10.24	16.5	0.65	16	0.63	10.00	0.394	300	20	12-20	1

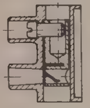
*These blocks can be butted side by side to form any requested number of circuits without losing center to center spacing.

PLUG AND SOCKET SCREW-CONNECTOR SYSTEMS FOR PANEL/CHASSIS MOUNTING






322 SVW


323 FBW

Types		No. of Circuits	Length		Height		Width		Contact pressure provided through:		UL recognized for:		
Male	Female		mm	in	mm	in	mm	in	Steel spring	Slotted Plug and Socket	Voltage	Amperage	AWG
302 SV	**302 FB**	2-12	94	3.74	15	0.59	16	0.63	X		250	6	14-20
302 STS	**302 STB**	2-12	94	3.74	15	0.59	16	0.63		X	250	6	14-20
322 SV	**323 FB**	2-12	117	4.61	16	0.63	14/21	0.55/0.83	X		250	10	12-18
322 SVW	**323 FBW**	2-12	117	4.61	16	0.63	14/21	0.55/0.83	X		250	10	12-18
(Male block plugs in from top. All other combinations plug together horizontally [relative to panel] as shown above)													
324 STFS	**324 STFB**	2-12	135	5.32	18.5	0.73	22	0.87		X	250*	25	10-18

*600V with insulating base

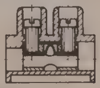
Where service-ability is a must.
Plug and Socket Connectors are particularly suitable for installations where simple circuit closing and opening is required.
By pre-wiring various equipment sections, it is possible to use Plug and Socket Connectors to provide a quick and reliable connection during final assembly. Therefore wire confusion is avoided.
Blocks can be coded (color coding, labelling, etc.) to ensure proper connection. For greater safety the male block can be equipped with an extra long grounding plug.
Some of these assemblies are available for printed circuit application.
Standard strip has 12 circuits and can easily be cut to required number of poles or ordered as required. A mounting hole is provided between each circuit. The terminal screws are backed up and ready for wiring. The dead front design is for safety and avoids short circuitry.

Moulding: Flexible natural Polyamide
Terminal body: Nickel-plated brass
Spring: Stainless steel strip
Wire guard: Bright tin bronze
Screw: Zinc-plated steel, yellow chromated

Permissible temperature loading:
short-time: 140-160°C/284-320°F
continuous: 80-100°C/176-212°F
cold resistant down to: −40°C/−40°F

Extra features: Screw connections can be equipped with wire guard (DS) on request, to protect the conductors against damage through the screw. Marking strips; labels; mouldings can be supplied made of PVC or Polyethylene.
How to order: Please indicate type and no. of circuits, e.g.: 302 SV-05 and 302 FB-05. These are the types 302 SV and 302 FB ea. with 5 circuits.

SOCKET TERMINAL STRIPS FOR PANEL/CHASSIS MOUNTING



Type	No. of circuits	Length		Height		Width		UL recognized for:		
		mm	in	mm	in	mm	in	Voltage	Amperage	AWG
302 HDS	1-12	94	3.74	15	0.59	16	0.63	250	20	12-20
323 HDS	1-12	117	4.61	16	0.63	21	0.83	250	20	10-20
324 HDS	1-12	135	5.32	18.5	0.73	22	0.87	250	35	8-14
324 FU HDS	1-12	135	5.32	21.3	0.84	22	0.87	600	40	8-14
326 HDS	1-12	171	6.73	22.5	0.89	30	1.18	300	55	8-14
327 HDS	1-12	171	6.73	25	0.98	30	1.18	300	65	6-14
327 FU HDS	1-12	171	6.73	28.5	1.12	30	1.18	600	65	6-14

Moulding: Flexible natural Polyamide
Permissible temperature loading:
short-time: 140-160°C/284-320°F
continuous: 80-100°C/176-212°F
Cold resistant down to −40°C/−40°F
Terminal body: Nickel-plated brass
Wire guard (HDS): stainless steel strip
Screw: zinc-plated steel, yellow chromated.

The terminal strips are used for connecting standard or solid wire directly to each contact. Standard strip has 12 circuits and can easily be cut to required number of poles or ordered as required. A mounting hole is provided between each circuit. The terminal screws are backed up and ready for wiring. The dead-front design is for safety and avoids short circuits. Each circuit has a wire guard (HDS), a thin memorizing steel plate placed between screw and wire. This avoids any wire damage. The screws are protected against working lose and cannot be lost.

Extra features: Marking strips, labels, strips can be supplied without wireguards. Strips can be made of PVC or Polyethylene. Several blocks can be supplied where each circuit is equipped with a screw/solder lug connection.

HOW TO ORDER: Please indicate Type and No. of circuits, e.g. 302 HDS-12 is terminal block type 302 HDS with 12 circuits.

WECO Electrical Connectors Inc.
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P.O. Box 84, Ste. Anne de Bellevue, P.Q.
Canada H9X 3L4
Phone: (514) 457-3648
Telex: 05-821840 WECO CDA BDRF

WECO Electrical Connectors Inc.
US-Warehouse:
Trimex Building
RT. 11
Mooers, NY 12958

Weidmüller TERMINALS FOR ELECTRONIC APPLICATIONS

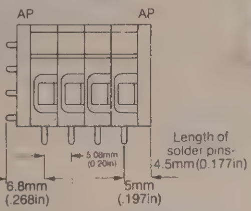
Printed Circuit Blocks, Diode-Fitted Blocks and Component Holders

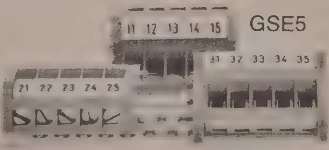
Weidmuller offers a wide range of small dimension modular blocks and multi-way strips which use a screw clamp for external connection. In addition, we also provide a wide selection of rail-mounted blocks fitted with diodes, and component holders which may be complemented with circuit conditioning components. These diode terminal blocks and holders can be assembled on STANDARD TS32 ASSEMBLY RAIL along with feed-through test, and fuse terminal blocks.

UL Recognized/CSA Certified

GSE Series for Printed Circuit Blocks

The single GSE modular block is interlocked with adjacent blocks by 5 spigots so that assemblies of up to 24 ways can be made with centers of 0.20 in (5.08 mm). Depending on the preferred mounting to the printed circuit GSE terminal blocks are supplied in three versions, horizontal, vertical or 45° angle. All Polyamid 6.6.



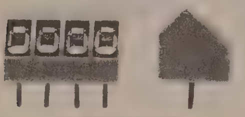


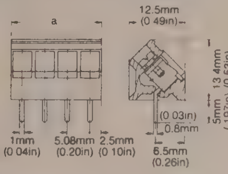
GSE5 GSE 5/24

1 2 3 4 5 6 7 8 9 10 11 12
13 14 15 16 17 18 19 20 21 22 23 24

TERMINAL TYPE	CAT. NO.	RATING V.	AMPS.	AWG SIZE NO.
GSE5 Horizontal	5561.6	300	10	22-12
GSE5 Vertical	5563.6	300	10	22-12
GSE5 45 Angle	5562 6	300	10	22-12

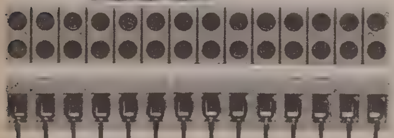
MK Series Multi-Way Terminal Strips

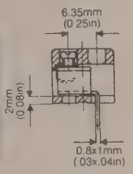




MK 8/4

MK10/14





TERMINAL TYPE	CAT. NO.	RATING V.	AMPS.	AWG SIZE NO.
MK 8/2	3320.6	50	15	22-14
MK 8/3	3078.6	50	15	22-14
MK 8/4	3077.6	50	15	22-14
MK 8/10	3026.6	50	15	22-14
2 to 10 way				
MK 10/14	3702 6	150	10	22-12

All Polyamid 6.6

Diode Terminals For use with standard TS32 assembly rail

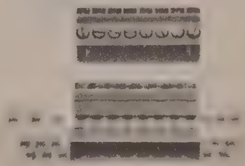
The DK4D Series offers a wide range of fittlings: Diode fitted; LED and Series Resistor fitted; LED, Series Resistor and Diode fitted, and with Neon Indicator and Series Resistor. Polyamid.

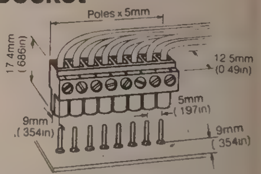
DK4D with Diode Fitted,

DK4D with LED,

TERMINAL TYPE	CAT. NO.	RATING V.	AMPS.	AWG SIZE NO.	DIMENSIONS (Inches) L.	H.	W.
DK4D Diode and 4 yokes fitted	4840.6	300	10	22-16	1.97	2.22	0.236
DK4D LED and Series Resistor; Top bar positive	4953.6	24V D.C. MAX	10	22-16	1.97	2.22	0.236
DK4D LED and Series Resistor; Top bar negative	4744.6	24V D.C. MAX	10	22-16	1.97	2.22	0.236
DK4D LED and 3 screw clamps.	4954.6	24V A.C. MAX	10	22-16	1.97	2.22	0.236
DK4D LED and 3 screw clamps.	6328.6	48V A.C. MAX	10	22-16	1.97	2.22	0.236
DK4 Neon indicator and 4 screw clamps.	5095 6	220V	10	22-16	1.97	2.22	0.236
DK4 Neon indicator and 4 screw clamps.	5695.6	110V	10	22-16	1.97	2.22	0.236

BL2...15/SL2...15 Series 2 to 15 Way Printed Circuit Plug and Socket





This plug and socket series is available in 5 mm and 5.08 mm centers that are mounted horizontal or vertical to the P.C. board. For an alternative connection, the BL socket can be connected to the P.C. board by means of a 0.63 in. (1.6 mm) round pin. Pins are suited to P.C. board up to 2 mm (0.78 in.) thick. The catalog numbers for this series reflect the 5.08 mm centers.

RATING VOLTS	AMPS	AWG SIZE NO.
300	8	22-14

TERMINAL TYPE	CAT. NO.	TERMINAL TYPE	CAT. NO. (Vertical)	CAT. NO. (Horizontal)
BL2	5104.6	SL2	1113.6	1126.6
BL3	5527.6	SL3	1112.6	1125.6
BL4	5528.6	SL4	1111.6	1124.6
BL5	5109.6	SL5	1110.6	1123.6
BL6	5529.6	SL6	1109.6	1122.6
BL7	5530.6	SL7	1108.6	1121.6
BL8	5392.6	SL8	1107.6	1120.6
BL9	1270.6	SL9	1106.6	1119.6
BL10	5131.6	SL10	1105.6	1118.6
BL11	1271.6	SL11	1104.6	1117.6
BL12	5164.6	SL12	1103.6	1116.6
BL13	1272.6	SL13	1102.6	1115.6
BL14	1275.6	SL14	1101.6	1114.6
BL15	5097.6	SL15	6922.6	6923.6

Polyamid 6.6

Component Holders For use with standard TS32 assembly rail

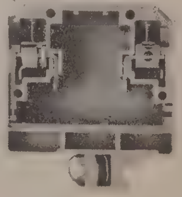
These component holders consist of a molded housing which can be fitted with a variety of screw clamps and solder lugs or quick-connect tabs.

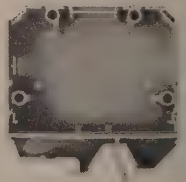
EG 32/1

The EG 32/1 series provides for inclusion of components such as diodes, surge supressors, and resistor/capacitor networks which can be soldered into position. The molding also has a provision for mounting an indicator lamp, toggle, or potentionmeter. Polyamid 6.6.

EG 32/2

The EG 32/2 is similar in design to the EG 32/1 but also has provision for mounting a small printed circuit board. This series provides an extensive choice of quick-connect/solder lug connection positions. Polyamid 6.6.





TERMINAL TYPE	CAT. NO.	RATING V.	AMPS.	AWG SIZE NO.	DIMENSIONS (Inches) L.	W.	H.
EG 32/1	4535.6	300	10	20-12	2.28	0.709	2.66
EG 32/2	5088.6	300	10	20-12	2.28	0.709	2.66

For complete listing and specifications for all Weidmuller Products contact your sales representative for a Weidmuller Catalog.

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Sales East: (804) 794-2882 • Sales West: (804) 794-2881

eem

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A

AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire guage

B

BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction code
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C

CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D

D/A digital to analog
DAC digital to analog converter
DC direct curent
DIL dual in-line
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E

EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EPROM electrically programmable ROM
ESR equivalent series resistance

F

FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G

GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H

HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I

IC integrated circuit
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J

JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K

kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L

LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LSI large scale integration
LVDT linear velocity displacement transformer

M

MATV master antenna television
μF microforad
MHz megahertz
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N

NBS National Bureau of Standards
NIM nuclear instrumentation module
NOR not OR

O

OEM original equipment manufacturer
OR a logical operator

P

pF picofarad
PC printed circuit
PCB printed circuit board
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PPI plan position indicator
PROM programmable read only memory
PUT programmable unijunction transistor

Q

QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R

RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S

SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic

T

TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TTL transistor-transistor logic
TTY teletypewriter

U

UHF ultra high frequency (300 MHz to 3 GHz)
UL Underwriters Laboratory
UPS uninterruptible power supply

V

VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W

WPS word processing software

Y

YIG yttrium iron garnet

WELCON PRODUCTION SOCKETS

SERIES 801 SINGLE BEAM

FEATURES

- Single face-wipe contacts providing low contact resistance with high retention force.
- Wide target area and chamfered cavity for easy insertion of IC devices.
- Overstress barrier to protect against contact damage.
- Very low profile . . . . 175″ off the p.c. board.
- Anti-float feature to hold the socket in place during the soldering process.
- Corner standoffs and open frame construction for easy removal of flux residue.
- Tin plating on phosphor bronze contacts.

TEST SPECIFICATIONS

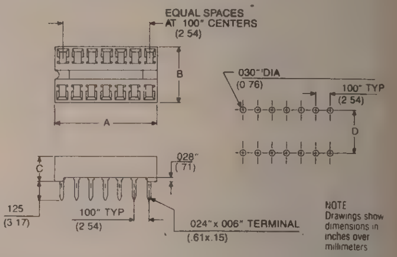
Contact Insertion Force: 250 grams max. per pin.
Contact Extraction Force: 30 grams min. per pin before and after conditioning.
Contact Resistance: 30 Milliohms max. initial; 50 Milliohms max. after 10 insertions or 100 hrs at 105°C.
Rating: 250 VAC
Dielectric Withstanding Voltage: 1000 VRMS minimum.
Insulation Resistance: 5000 Megohms minimum.
Capacitance: 1 Picofarad maximum.

MATERIALS

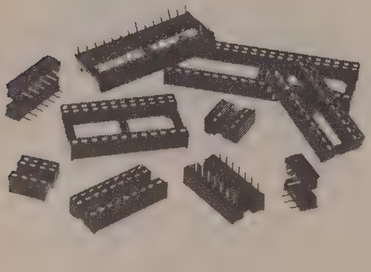
Socket Body: Nylon, UL 94V-0 rated material
Contacts: Phosphor bronze
Contact Plating: 50 microinches of tin

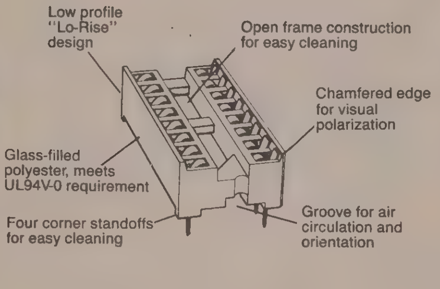
PHOSPHOR BRONZE CONTACTS PLATED WITH A MINIMUM OF 50 MICROINCHES OF TIN

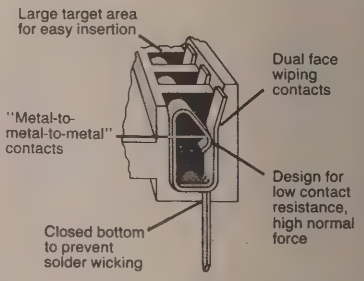
WELCON PART NO.	NO. OF PINS	LENGTH ("A") In.	LENGTH ("A") Mm	WIDTH ("B") In	WIDTH ("B") Mm	HEIGHT ("C") In.	HEIGHT ("C") Mm	PIN ROW CENTERS ("D") In.	PIN ROW CENTERS ("D") Mm
801-0081641	8	400	10.16	390	9.91	.175	4.45	.300	7.62
801-0141641	14	700	17.78	390	9.91	175	4.45	.300	7.62
801-0161641	16	800	20 32	.390	9.91	175	4.45	300	7.62
801-0181641	18	900	22 86	.390	9.91	.175	4.45	.300	7.62
801-0201641	20	1 000	25.40	.390	9.91	175	4.45	300	7.62
801-4221641	22	1 100	27.94	.500	12.70	175	4.45	400	10.16
801-7241641	24	1 200	30 48	.700	17 78	175	4 45	.600	15.24
801-7281641	28	1 400	35 56	.700	17 78	175	4.45	.600	15.24
801-7401641	40	2 000	50 80	.700	17.78	175	4.45	.600	15.24


EQUAL SPACES
AT 100″ CENTERS
(2 54)
B
A
030″'DIA
(0 76)
100″ TYP
(2 54)
D
C
028″
(71)
125
(3 17)
100″ TYP
(2 54)
024″ x 006″ TERMINAL
(.61x.15)
NOTE
Drawings show dimensions in inches over millimeters

SERIES 802 "LO-RISE®"



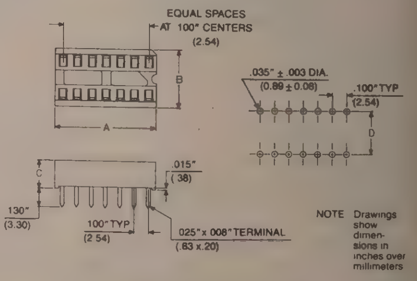

Low profile "Lo-Rise" design
Open frame construction for easy cleaning
Chamfered edge for visual polarization
Glass-filled polyester, meets UL94V-0 requirement
Four corner standoffs for easy cleaning
Groove for air circulation and orientation


Large target area for easy insertion
Dual face wiping contacts
"Metal-to-metal-to-metal" contacts
Design for low contact resistance, high normal force
Closed bottom to prevent solder wicking

WELCON PART NO.	NO. OF PINS	DIMENSIONS "A"		"B"		"C"		PIN ROW CENTERS("D")		CONTACT MATERIAL	CONTACT PLATING	PLATING THICKNESS (in microinches)
		In.	Mm	In.	Mm	In.	Mm	In.	Mm			
802-0081642	8	.396	10.06	396	10 06	200	5 08	.300	7.62	Phos. Bronze	Sn	50
802-0082542	8	396	10.06	396	10.06	200	5 08	300	7.62	Phos. Bronze	Select Au	10
802-0081612	8	396	10.06	396	10 06	200	5.08	.300	7.62	Be Copper	Sn	50
802-0082712	8	.396	10.06	396	10.06	200	5 08	300	7.62	Be Copper	Select Au	30
802-0141642	14	.696	17.68	396	10 06	200	5 08	.300	7.62	Phos. Bronze	Sn	50
802-0142542	14	696	17 68	396	10 06	200	5 08	.300	7.62	Phos. Bronze	Select Au	10
802-0141612	14	696	17.68	396	10.06	200	5 08	.300	7.62	Be Copper	Sn	50
802-0142712	14	696	17 68	396	10 06	200	5 08	.300	7.62	Be Copper	Select Au	30
802-0161642	16	796	20 22	396	10 06	200	5 08	.300	7.62	Phos. Bronze	Sn	50
802-0162542	16	796	20.22	396	10.06	200	5 08	300	7.62	Phos. Bronze	Select Au	10
802-0161612	16	796	20.22	396	10 06	200	5 08	.300	7.62	Be Copper	Sn	50
802-0162712	16	796	20 22	396	10 06	200	5 08	300	7.62	Be Copper	Select Au	30
802-0181642	18	896	22 76	396	10.06	200	5 08	.300	7.62	Phos. Bronze	Sn	50
802-0182542	18	896	22 76	396	10 06	200	5 08	.300	7.62	Phos. Bronze	Select Au	10
802-0181612	18	896	22 76	396	10 06	200	5 08	.300	7.62	Be Copper	Sn	50
802-0182712	18	896	22 76	396	10 06	200	5 08	300	7.62	Be Copper	Select Au	30
802-0201642	20	996	25.30	396	10 06	200	5.08	.300	7.62	Phos. Bronze	Sn	50
802-0202542	20	996	25 30	.396	10.06	200	5 08	.300	7.62	Phos. Bronze	Select Au	10
802-0201612	20	996	25.30	396	10 06	200	5 08	.300	7.62	Be Copper	Sn	50
802-0202712	20	996	25 30	396	10 06	200	5 08	.300	7.62	Be Copper	Select Au	30
802-6221642	22	1 096	27.84	496	12.60	200	5 08	400	10.16	Phos. Bronze	Sn	50
802-6222542	22	1 096	27 84	496	12 60	200	5 08	400	10.16	Phos. Bronze	Select Au	10
802-6221612	22	1 096	27 84	496	12 60	200	5 08	.400	10.16	Be Copper	Sn	50
802-6222712	22	1 096	27 84	496	12 60	.200	5.08	.400	10.16	Be Copper	Select Au	30
802-7241642	24	1 196	30.38	696	17 68	200	5 08	600	15.24	Phos. Bronze	Sn	50
802-7242542	24	1 196	30.38	696	17 68	200	5.08	.600	15.24	Phos. Bronze	Select Au	10
802-7241612	24	1 196	30 38	696	17 68	200	5 08	.600	15.24	Be Copper	Sn	50
802-7242712	24	1 196	30 38	696	17 68	.200	5 08	.600	15.24	Be Copper	Select Au	30
802-7281642	28	1 396	35 46	696	17 68	200	5.08	.600	15.24	Phos. Bronze	Sn	50
802-7282542	28	1 396	35 46	696	17 68	200	5 08	.600	15.24	Phos. Bronze	Select Au	10
802-7281612	28	1 396	35 46	696	17 68	200	5 08	600	15.24	Be Copper	Sn	50
802-7282712	28	1 396	35 46	696	17.68	200	5.08	.600	15.24	Be Copper	Select Au	30
802-7401642	40	1 996	50 70	696	17.68	200	5.08	600	15.24	Phos. Bronze	Sn	50
802-7402542	40	1 996	50 70	696	17 68	200	5 08	.600	15.24	Phos. Bronze	Select Au	10
802-7401612	40	1 996	50 70	696	17 68	200	5 08	.600	15.24	Be Copper	Sn	50
802-7402712	40	1 996	50 70	696	17 68	200	5 08	.600	15.24	Be Copper	Select Au	30

TEST SPECIFICATIONS

ELECTRICAL
Rating: 250 VAC
Dielectric Withstanding Voltage: 1000 VRMS minimum.
Insulation Resistance: 5000 Megohms minimum.
Capacitance: 1 Picofarad maximum.
Contact Resistance: 20 Milliohms max. initial: 30 Millohms max. after 10 insertions or 100 hrs. at 105°C.
MECHANICAL
Contact Insertion Force: 340 grams max. per. pin.
Contact Extraction Force: 15 grams min. per pin before and after conditioning.
Unseating Force: Force required to remove a contact from body of socket: 340 grams minimum.
ENVIRONMENTAL
Operating Temperature: −55°C to +105°C.
Vibration: Displacement amplitude .06″. 20 G's for 3 cycles in each of 3 axes over frequency range of 10-2000-10 Hz.
Shock: 3 shock pulses along longitudinal axis. Half sine wave at 300 G's and 2 Milliseconds. DIP terminals up.


EQUAL SPACES
AT 100″ CENTERS
(2.54)
B
A
.035″ ± .003 DIA.
(0.89 ± 0.08)
.100″ TYP
(2.54)
D
C
.015″
(38)
130″
(3.30)
100″ TYP
(2 54)
025″ x 008″ TERMINAL
(.83 x.20)
NOTE Drawings show dimensions in inches over millimeters

WELLS ELECTRONICS, INC., 1701 S. MAIN ST., SO. BEND, IN 46613, U.S.A. • PHONE 219/287-5941 • TELEX 25-8325

WELCON PRODUCTION SOCKETS

SERIES 630 "PRO-ZIF®"

FEATURES

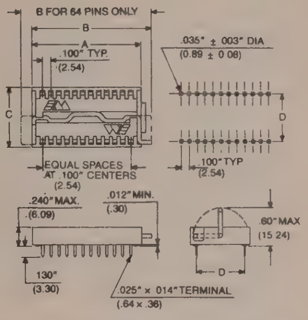
- Easy to operate . . . Lever controls opening and closing of contacts.
- Light lead wiping action while contacts close.
- Designed for use in many production applications.
- Very compact, standing less than ¼″ off the p.c. board.
- Single face-wipe contacts on .600″ and .900″ pin row centers.
- Operating range of −40°C. to +105°C.
- Available in 24-, 28-, 40- and 64-leads.
- Beryllium copper contacts plated with 50 microinches of tin or 30 microinches of select gold.

Operating Temperature: Continuous −40°C. to +105°C.
Insulation Resistance (At 500 V.D.C.): 5,000 Megohms minimum.
Dielectric Withstanding Voltage: 600 Volts A.C. RMS minimum.
Durability: 100 Cycles—No electrical degradation.
Thermal Shock: MIL-STD-1344, Method 1003. No physical or electrical degradation.
Moisture Resistance: MIL-STD-202. Method 106; except omit steps 6B and 7A. 300 Megohms minimum.
Vibration: MIL-STD-1344. Method 2005. Condition 111. No electrical interruption greater than 1 microsecond.
Mechanical Shock: MIL-STD-202. Method 213. Condition 1. No electrical interruption greater than 1 microsecond.

TEST SPECIFICATIONS

Contact Insertion Force: Zero force with device leads at specified centers.
Contact Resistance: 20 Milliohms max. initial; 25 Milliohms max. after 100 insertions or 100 hrs. at 105°C.
Test Current: 1 Ampere.

WELCON PART NO.	NO. OF PINS	CONTACT PLATING	"A" In.	"A" Mm	"B" In.	"B" Mm	"C" In.	"C" Mm	"D" In.	"D" Mm
630-7241612	24	Sn	1.380	*35.05*	1.510	*38.35*	.750	*19.05*	.600	*15.24*
630-7240312	24	Select Au	1.380	*35.05*	1.510	*38.35*	.750	*19.05*	.600	*15.24*
630-7281612	28	Sn	1.580	*40.13*	1.710	*43.43*	.750	*19.05*	.600	*15.24*
630-7280312	28	Select Au	1.580	*40.13*	1.710	*43.43*	.750	*19.05*	.600	*15.24*
630-7401612	40	Sn	2.180	*55.37*	2.310	*58.67*	.750	*19.05*	.600	*15.24*
630-7400312	40	Select Au	2.180	*55.37*	2.310	*58.67*	.750	*19.05*	.600	*15.24*
630-8641612	64	Sn	3.380	*85.85*	3.640	*92.46*	1.050	*26.67*	.900	*22.86*
630-8640312	64	Select Au	3.380	*85.85*	3.640	*92.46*	1.050	*26.67*	.900	*22.86*



NOTE Drawings show dimensions in inches over millimeters

SERIES 101 "VIP®" SCREW MACHINE

FEATURES

- Two-piece contact consisting of a machined outer sleeve and a four-leaf inner clip.
- Large, tapered entry providing easy insertion of the device leads and multiple points of contact.
- Gold-plated, beryllium copper inner clip to assure high reliability.
- Contact designed to meet MIL Specifications.
- Brass outer sleeve plated with 200 microinches of tin or 10 microinches of gold.
- Low profile . . . only .180″ above the p.c. board.
- Closed bottom to eliminate solder wicking.
- Three versions available . . . solid or open frame with solder pins and open frame with 2-level wire wrap tails.
- Open frame construction to allow maximum air circulation under the IC.
- Entry area designed to accept flat lead DIP ICs or .016″ to .021″ diameter round leads, maintaining a high retention.

OPEN FRAME WITH SOLDER TAILS

WELCON PART NO.	NO. OF PINS	"A" In.	"A" Mm	"B" In.	"B" Mm	"C" In.	"C" Mm	"D" In.	"D" Mm	OUTER SLEEVE PLATING
101-006**28**12	6	.300	*7.62*	.400	*10.16*	.106	*2.69*	.300	*7.62*	Tin
101-008**28**12	8	.400	*10.16*	.400	*10.16*	.106	*2.69*	.300	*7.62*	Tin
101-010**28**12	10	.500	*12.70*	.400	*10.16*	.106	*2.69*	.300	*7.62*	Tin
101-014**28**12	14	.700	*17.78*	.400	*10.16*	.106	*2.69*	.300	*7.62*	Tin
101-016**28**12	16	.800	*20.32*	.400	*10 16*	.106	*2.69*	.300	*7.62*	Tin
101-018**28**12	18	.900	*22.86*	.400	*10.16*	.106	*2.69*	.300	*7.62*	Tin
101-020**28**12	20	1.000	*25.40*	.400	*10.16*	.106	*2.69*	.300	*7.62*	Tin
101-622**28**12	22	1.100	*27.94*	.500	*12.70*	.106	*2.69*	.400	*10.16*	Tin
101-724**28**12	24	1.200	*30 48*	.700	*17.78*	.106	*2.69*	.600	*15.24*	Tin
101-728**28**12	28	1.400	*35.56*	.700	*17.78*	.106	*2.69*	.600	*15.24*	Tin
101-732**28**12	32	1.600	*40.64*	.700	*17.78*	.106	*2.69*	.600	*15.24*	Tin
101-736**28**12	36	1.800	*45.72*	.700	*17.78*	.106	*2.69*	.600	*15.24*	Tin
101-740**28**12	40	2.000	*50.80*	.700	*17.78*	.106	*2.69*	.600	*15.24*	Tin

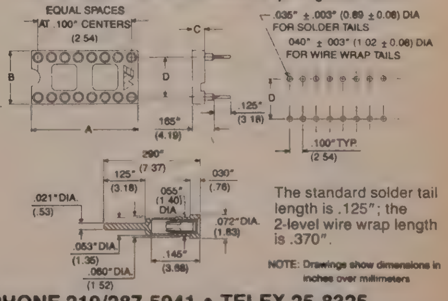
CONTACT PLATING

"28" denotes contact plating; Specifications are as follows:

"28":	Min. 10 microinches gold over min. 50 microinches nickel on the inner clip; min. 200 microinches tin on the outer sleeve.
"18" in place of "28":	Min 30 microinches gold over min. 50 microinches nickel on the inner clip; min. 200 microinches tin on the outer sleeve.
"06" in place of "28":	Min. 30 microinches gold over min. 50 microinches nickel on the inner clip; min. 10 microinches gold over min. 50 microinches nickel on the outer sleeve.

TEST SPECIFICATIONS

Contact Insertion Force: 340 grams maximum per pin. .008″x.015″ test blade, after conditioning.
Contact Extraction Force: 30 grams minimum per pin.. .008″x.015″ test blade, after conditioning.
Contact Resistance: 20 Milliohms maximum initial; 30 Milliohms maximum after 10 insertions or 100 hrs. at 105°C.
Vibration: 10 to 2000 Hz @ 20 g's per MIL-STD-202, test condition D. Method 204 (monitored for one microsecond opening).
Shock: 150 g's per MIL-STD-202, Method 213 (monitored for one microsecond opening).
Capacitance: Between adjacent terminals @ 1KHz per MIL-STD-202, Method 305. .4 pf maximum.
Capacitance: Between opposite terminals @ 1KHz per MIL-STD-202, Method 305. .02 pf maximum.
Terminal Anchoring Retention: Pull against barb locking action. 12 lbs. minimum.
Thermal Shock: −65°C. to +105°C. per MIL-STD-202, test condition F, Method 107. No failures.
Low Voltage Conductivity: Measured at an open circuit voltage of 10 microvolts. .1 milliamp minimum.
Salt Spray: Per MIL-STD-202, Method 101, condition B (48 hours). 20 Milliohms maximum.
Moisture Resistance: Per MIL-STD-202, Method 106, minus steps 7A and 7B. No damage.
Endurance and Exposure to Ammonium Sulfide Atmosphere (Contact): Exposure after 10 insertions of a DIP IC. Contact resistance: 30 Milliohms maximum.
Insulation Resistance (At 500 V.D.C.): Per MIL-S-83734. 500 Megohms minimum.
Dielectric Withstanding Voltage (At 1000 Volts AC): MIL-STD-202. Method 301 between adjoining conductors.



The standard solder tail length is .125″; the 2-level wire wrap length is .370″.

NOTE: Drawings show dimensions in inches over millimeters

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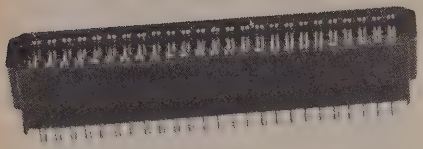
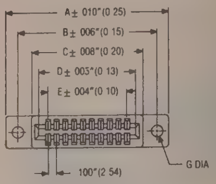
WELCON CONNECTORS

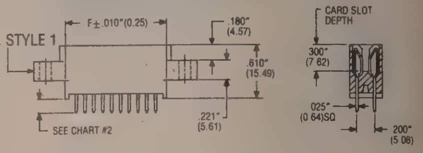
SERIES 400-401 CARD EDGE ON .100″ x .200″ SPACING



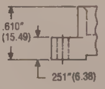
DESIGN FEATURES
- CDA 764 copper alloy contacts plated with low cost select gold.
- 10 Milliohms maximum contact resistance.
- Designed for easy board insertion.
- Available in 13 sizes with solder or wire wrap tails.
- Multiple mounting styles.
- Connector body molded of UL 94V-0 rated black polyester.

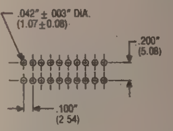


MTG. STYLE 1

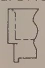


MTG. STYLE 2

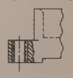




MTG. STYLE 3



MTG. STYLE.5



NOTE: Drawings show dimensions in inches over milimeters.

CHART #1

NO. OF POS.	TOTAL NO. OF CONTACTS	DIMENSIONS "A" In.	"A" Mm	"B" In.	"B" Mm	"C" In.	"C" Mm	"D" In.	"D" Mm	"E" In.	"E" Mm	"F" In.	"F" Mm
10	20	1 835	46.61	1.575	40.00	1 260	32.00	1 100	27 94	900	22 86	1 150	29 21
12	24	2.035	51.69	1.775	45.09	1.460	37.08	1 300	33.02	1.100	27 94	1 350	34 29
15	30	2.335	59.31	2 075	52.71	1.760	44.70	1.600	40.64	1.400	35 56	1.650	41.91
20	40	2 835	72.01	2.575	65 41	2 260	57.40	2 100	53.34	1 900	48.26	2 150	54.61
22	44	3.035	77.09	2.775	70.49	2.460	62.48	2 300	58.42	2.100	53.34	2.350	59 69
25	50	3.335	84.71	3.075	78.11	2 760	70.10	2 600	66 04	2 400	60 96	2 650	67.31
28	56	3.635	92.33	3 375	85.73	3.060	77.72	2 900	73.66	2.700	68.58	2 950	74 93
30	60	3.835	97.41	3 575	90.81	3.260	82.80	3.100	78 74	2.900	73 66	3 150	80.01
35	70	4 335	110 11	4.075	103.51	3.760	95.50	3 600	91 44	3.400	86 36	3.650	92 71
36	72	4.435	112.65	4.175	106.05	3.860	98.04	3.700	93.98	3.500	88 90	3 750	95 25
40	80	4.835	122 81	4.575	116.21	4.260	108.20	4.100	104 14	3 900	99.06	4.150	105 41
43	86	5.135	130 43	4.875	123.83	4 560	115.82	4 400	111 76	4 200	106 88	4 450	113 03
50	100	5.835	148.21	5.575	141 61	5.260	133.60	5.100	129.54	4.900	124.46	5.150	130.81

CHART #2

CONTACT DIM In.	CONTACT DIM Mm	TAIL LENGTH In.	TAIL LENGTH Mm
0–.025 Sq. (ST)	.64	.160	4.06
1–.025 Sq. (WW)	.64	.560	14.22

ST-Solder tail WW-wire wrap tail

CHART #3

MOUNTING STYLE	"G" DIA. In.	"G" DIA. Mm
1 (As shown)	.125	3.18
2 (Flush Mtd.)	.125	3.18
3	No Ears	
4	As shown with #4-40 thread insert	
5	Flush mtd. with #4-40 thread insert	

CHART #4

1- Min. 10 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails.

2- Min. 15 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails.

3- Min. 20 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails.

4- Min 30 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails.

5- Min. 10 microinches select gold over min 50 microinches nickel on the contact point, tin lead plated tails.

6- Min. 15 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

7- Min. 20 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

8- Min. 30 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

WELCON PART NO.
DESCRIPTION & ORDERING INFORMATION

40X - 1 XXX X 1 1 - X

Mtg. Style (Chart #3)
Body Material
Contact Material
Contact Plating (Chart #4)
Total No. of Contacts (Chart #1)
Lead Centers
Tail Length (Chart #2)

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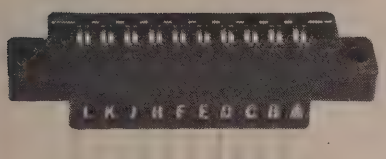
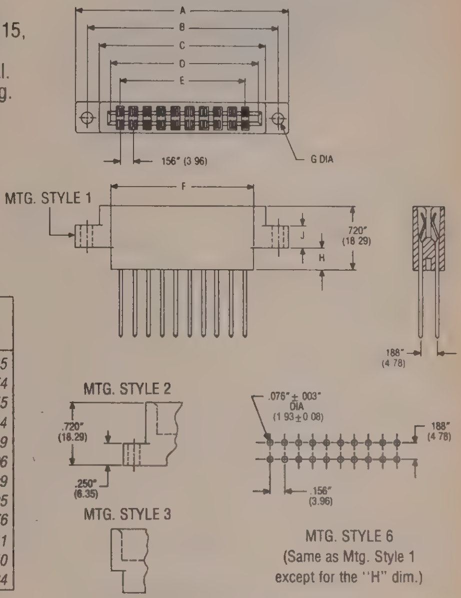
WELCON CONNECTORS

SERIES 402-407 CARD EDGE ON .156″ x .188″ SPACING



DESIGN FEATURES
- Economically priced with maximum reliability.
- CDA 764 copper alloy contacts plated with 10, 15, 20 or 30 microinches of select gold.
- Black polyester body, a UL 94V-0 rated material.
- Wire wrap tails, unplated or with tin lead plating.
- Several mounting styles available.
- Designed to meet MIL-STD-202.



MTG. STYLE 6
(Same as Mtg. Style 1
except for the "H" dim.)

NOTE Drawings show dimensions in inches over millimeters

CHART #1

NO. OF POS.	TOTAL NO. OF CONTACTS	DIMENSIONS "A" In	Mm	"B" In.	Mm	"C" In	Mm	"D" In.	Mm	"E" In.	Mm	"F" In.	Mm
7	14	1 938	49 22	1.690	42.93	1.408	35 76	1.256	31.90	.936	23.77	1.136	28.85
10	20	2 406	61 11	2.158	54.81	1.876	47.65	1.724	43.79	1.404	35.66	1.604	40.74
15	30	3.186	80 92	2.938	74.63	2.656	67.46	2.504	63.60	2.184	55.47	2.384	60.55
18	36	3 654	92 81	3.406	86.51	3.124	79.35	2.972	75.49	2.652	67.36	2.852	72.44
22	44	4 278	108.66	4 030	102.36	3 748	95.20	3.596	91.39	3.276	83.21	3.476	88.29
28	56	5 214	132.44	4.966	126.14	4.684	118.97	4.532	115.11	4.212	106.98	4.412	112.06
30	60	5.526	140.36	5 278	134.06	4.996	126.90	4.844	123.04	4.524	114.91	4.724	119.99
31	62	5.682	144.32	5.434	138 02	5.152	130.86	5.000	127.00	4.680	118.87	4.880	123.95
36	72	6 462	164 13	6.214	157.84	5.932	150.67	5.780	146.81	5.460	138.68	5.660	143.76
40	80	7.086	179.98	6 838	173 69	6 556	166.52	6.404	162.66	6.084	154.53	6.284	159.61
43	86	7.554	191 87	7.306	185.57	7.024	178.41	6.872	174.55	6.552	166.42	6.752	171.50
50	100	8.646	219.61	8.398	213.31	8.116	206.15	7.964	202.29	7.644	194.16	7.884	199.24

CHART #2

STYLE	TAIL DIMENSIONS CROSS SECTION In.	Mm	LENGTH In.	Mm
2	.045 x .045	1.14 x 1.14	.460	11.68
3	.045 x .045	1.14 x 1.14	.550	13.97
4	.045 x .045	1.14 x 1.14	.770	19.56
5	.031 x 062	.79 x 1.57	.460	11 68
6	031 x .062	.79 x 1.57	.550	13.97
7	031 x .062	.79 x 1.57	.770	19.56

CHART #3

MOUNTING STYLE	"G" In.	Mm	"H" In.	Mm	"J" In.	Mm
1	129	3.28	250	6 35	250	6.35
2	150	3.81	.250	6.35	.250	6.35
3	No Ears		250	6 35	No Ears	
6	.129	3.28	.210	5.33	250	6 35

Also available with #4-40 threads, please consult factory.

CHART #4

1- Min. 10 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails

2- Min. 15 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails

3- Min. 20 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails

4- Min. 30 microinches select gold over min. 50 microinches nickel on the contact point, unplated tails

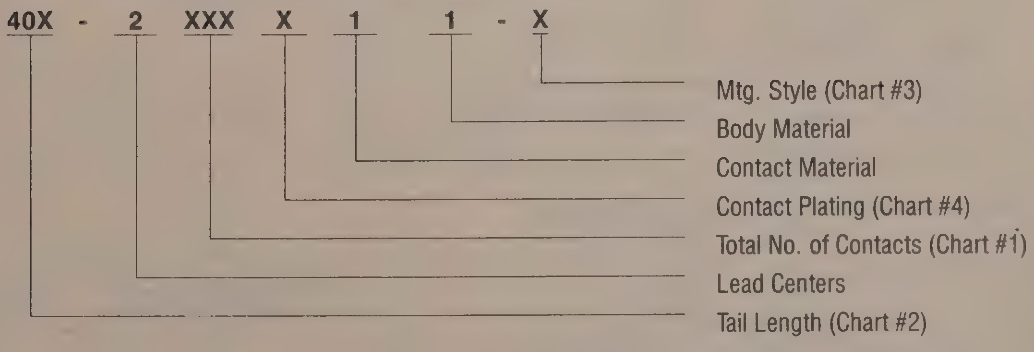
5- Min. 10 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails

6- Min. 15 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails

7- Min. 20 microinches select gold over min 50 microinches nickel on the contact point, tin lead plated tails

8- Min. 30 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails

WELCON PART NO.
DESCRIPTION & ORDERING INFORMATION



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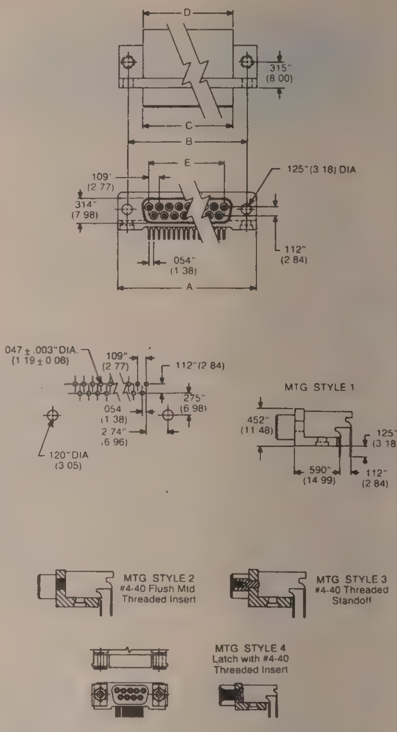
WELCON CONNECTORS

SERIES 420 D-SUBMINIATURE, ALL PLASTIC

DESIGN FEATURES

- Standard footprint
- Right angle receptacle for p.c. board mounting.
- CDA 521 copper alloy contacts selectively plated with 10, 15, 20 or 30 microinches of gold.
- Connector body molded of a UL 94V-O insulator.
- Large circuit cavity lead-in.
- RS 232 and RS 449 compatible
- Tin lead plating on the contact tails.


D
315"
(8 00)
C
B
E
125"(3 18) DIA
109"
(2 77)
314"
(7 98)
112"
(2 84)
054"
(1 38)
A
047 ± .003"DIA.
(1 19 ± 0 08)
109"
(2 77)
112"(2 84)
275"
(6 98)
054
(1 38)
2 74"
(6 96)
120"DIA
(3 05)
MTG STYLE 1
452"
(11 48)
125"
(3 18)
590"
(14 99)
112"
(2 84)
MTG STYLE 2
#4-40 Flush Mtd
Threaded Insert
MTG STYLE 3
#4-40 Threaded
Standoff
MTG STYLE 4
Latch with #4-40
Threaded Insert

NOTE Drawings show dimensions in inches over millimeters

CHART #1

NO. OF POS.	"A" In.	"A" Mm	"B" In.	"B" Mm	"C" In	"C" Mm	"D" In.	"D" Mm	"E" In.	"E" Mm
9	1.244	31.60	.984	24.99	642	16.31	.624	15.85	.436	11.07
15	1.572	39.93	1.312	33.33	.970	24 64	.952	24 18	.763	19.38
19	1.790	45.47	1.530	38 86	1.188	30.18	1.170	29.72	.981	24.92
25	2.112	53.64	1.852	47.04	1.510	38.35	1.492	37.90	1.308	33.22
37	2.760	70.10	2.500	63.50	2.158	54 81	2.140	54.36	1.962	49.84

CHART #2

5- Min. 10 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

6- Min. 15 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

7- Min. 20 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

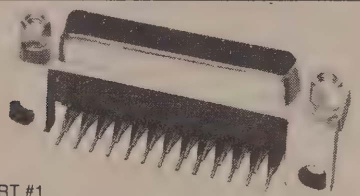
8- Min. 30 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

WELCON PART NO. DESCRIPTION & ORDERING INFORMATION

420 - 1 XX OX 1 1 - X

Mtg. Style
Body Material
Contact Material
Contact Plating (Chart #2)
Total No. of Contacts (Chart #1)
Right Angle Style
All Plastic Shell

SERIES 421 & 423 D-SUBMINIATURE, METAL SHELL



DESIGN FEATURES

- .318″ or .590″ footprint.
- Right angle receptacle.
- Large circuit cavity lead-in.
- Rigid tail configuration with built-in heat sink and good contact alignment.

SERIES 421
.590″ FOOTPRINT

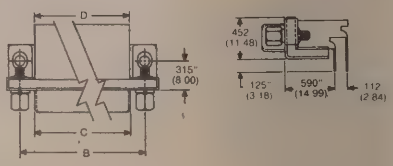

D
315"
(8 00)
C
B
452
(11 48)
125"
(3 18)
590"
(14 99)
112
(2 84)

CHART #1

NO. OF POS.	"A" In.	"A" Mm	"B" In.	"B" Mm	"C" In.	"C" Mm	"D" In.	"D" Mm	"E" In.	"E" Mm
9	1.224	31.09	.984	24.99	.642	16.31	.624	15.85	.436	11.07
15	1.552	39 42	1.312	33.33	.970	24.64	.952	24.18	.763	19.38
19	1.770	44.96	1.530	38.86	1.188	30.18	1.170	29.72	.981	24.92
25	2.092	53.14	1.852	47.04	1.510	38.35	1.492	37.90	1.308	33.22
37	2.740	69.60	2.500	63.50	2.158	54.81	2.140	54.36	1.962	49.84

CHART #2

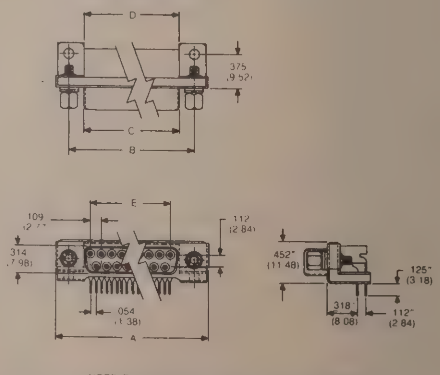
5- Min. 10 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

6- Min. 15 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

7- Min. 20 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

8- Min. 30 microinches select gold over min. 50 microinches nickel on the contact point, tin lead plated tails.

SERIES 423
.318″ FOOTPRINT


D
375
(9 52)
C
B
E
109
112
(2 84)
314
(7 98)
452"
(11 48)
125"
(3 18)
054
(1 38)
318
(8 08)
112"
(2 84)
A

NOTE Drawings show dimensions in inches over millimeters

WELCON PART NO. DESCRIPTION & ORDERING INFORMATION

42X - 1 XX OX 1 1 - 1

Mtg. Style
Body Material
Contact Material
Contact Plating (Chart #2)
No. of Contacts (Chart #1)
Right Angle Style
1-.590″ Footprint
3-.318″ Footprint

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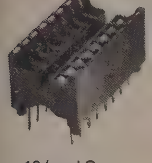
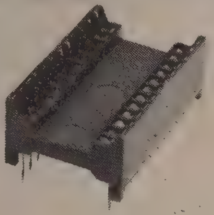
WELCON SOCKETS/CONTACTORS/CARRIERS

SERIES 613 "MID-RISE"



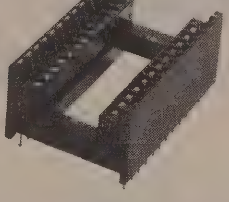
16-Lead On .300" Centers



24-Lead On .600" Centers

SERIES 603 "HI-RISE"

18-Lead On .400" Centers



24-Lead On .750" Centers

BURN-IN TEST SOCKETS

GENERAL FEATURES

- Low cost select gold plating on beryllium copper or stainless steel contacts.
- Dual, face-wipe contacts for long,dependable life.
- For burn-in applications up to 200°C.
- Large target area for fast, easy insertion of IC devices.
- Also available with 50 microinches of electro nickel plating on stainless steel contacts.
- Tin plate on the solder tails.

Beryllium Copper Contacts Plated With 30 Microinches of Select Gold

WELCON PART NO.	NO OF PINS	LENGTH In.	LENGTH Mm	WIDTH In.	WIDTH Mm	PIN ROW CENTERS In	PIN ROW CENTERS Mm
613-0060311	6	.330	8.38	.495	12.57	300	7.62
613-0080311	8	430	10.92	.495	12.57	.300	7.62
613-0140311	14	730	18 54	495	12.57	300	7.62
613-0160311	16	830	21.08	495	12 57	300	7.62
613-0180311	18	.930	23.62	495	12.57	.300	7.62
613-0200311	20	1.030	26.16	495	12.57	.300	7.62
613-0240311	24	1.230	31 24	.495	12.57	.300	7.62
613-7240311	24	1.230	31.24	.795	20 19	.600	15.24
613-7280311	28	1 430	36.32	.795	20.19	.600	15 24
613-7400311	40	2.030	51 56	.795	20.19	.600	15 24

Stainless Steel Contacts Plated with 50 Microinches of Electro Nickel

WELCON PART NO.	NO.OF PINS	LENGTH In.	LENGTH Mm	WIDTH In.	WIDTH Mm	PIN ROW CENTERS In.	PIN ROW CENTERS Mm
613-0061931	6	.330	8.38	.495	12.57	.300	7.62
613-0081931	8	.430	10.92	.495	12.57	.300	7 62
613-0141931	14	.730	18.54	.495	12.57	.300	7 62
613-0161931	16	.830	21.08	.495	12.57	.300	7.62
613-0181931	18	.930	23.62	.495	12.57	.300	7.62
613-0201931	20	1.030	26.16	.495	12.57	.300	7.62
613-0241931	24	1.230	31.24	.495	12.57	.300	7 62
613-7241931	24	1.230	31.24	.795	20.19	.600	15.24
613-7281931	28	1.430	36.32	.795	20.19	.600	15 24
613-7401931	40	2.030	51.56	.795	20.19	.600	15 24

Beryllium Copper Contacts Plated With 30 Microinches of Select Gold

WELCON PART NO.	NO.OF PINS	LENGTH In.	LENGTH Mm	WIDTH In.	WIDTH Mm	PIN ROW CENTERS In.	PIN ROW CENTERS Mm
603-1140311	14	800	20 32	565	14 35	.400	10 16
603-2140311	14	.800	20.32	.565	14.35	450	11.43
603-1160311	16	.900	22.86	.565	14.35	.400	10.16
603-2160311	16	900	22.86	.565	14.35	450	11.43
603-1180311	18	1.000	25.40	.565	14.35	.400	10 16
603-2180311	18	1.000	25.40	.565	14.35	.450	11.43
603-1200311	20	1.100	27.94	.565	14.35	.400	10.16
603-2200311	20	1.100	27.94	.565	14.35	450	11.43
603-2220311	22	1.200	30.48	.565	14.35	.450	11.43
603-3220311	22	1.200	30.48	.665	16.89	.500	12.70
603-3240311	24	1.300	33.02	.665	16.89	.500	12.70
603-5240311	24	1.300	33.02	.865	21.97	.700	17.78
603-8240311-007	24	1.300	33.02	865	21.97	.750	19 05
603-3280311	28	1.490	37.85	.665	16 89	.500	12.70
603-5280311	28	1.490	37.85	.865	21.97	.700	17.78
603-8280311-007	28	1.500	38.10	865	21 97	750	19 05
603-5400311	40	2 090	53.09	865	21.97	700	17 78
603-8400311-007	40	2.100	53.34	865	21 97	750	19 05
603-8420311-007	42	2 200	55 88	865	21 97	750	19 05
603-5480311	48	2.490	63 25	865	21.97	700	17.78
603-8480311-007	48	2 500	63.50	865	21.97	750	19 05

TEST DATA

Contact Insertion Force: 680 grams max. per contact pair.

Contact Withdrawl Force: 30 grams min. per contact pair.

Contact Resistance: 20 Millohms max.

Test Current: 1 Ampere

Insulation Resistance [At 500 V.A.C. (RMS)]: Per MIL-STD-1344, Method 3003. Result: 5000 Megohms minimum.

Dielectric Withstanding Voltage: Per MIL-STD-1344, Method 3001. Result: 600 V.A.C. (RMS) minimum.

Moisture Resistance: 24 hrs. at 85°C., 85% RH. Result: 1000 Megohms minimum.

Temperature Cycling: 168 hrs. at 200°C. Result: No electrical or mechanical degradation.

Durability: 10,000 insertion/withdrawl cyles. Result: No electrical or mechanical degradation.

CONTACTORS & CARRIERS

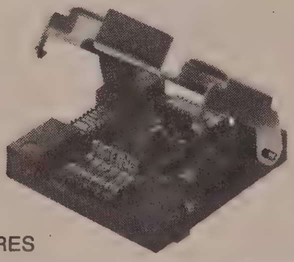
FLATPACK CONTACTORS

FEATURES

- Improved performance with new extra-low-force ("ELF") contacts.
- Improved insertion of IC devices . . . no lead damage.
- Side air slots to allow maximum air circulation.
- For burn-in applications up to 200°C.
- No carrier distortion under high temperature burn-in.
- Tin plating on the solder tails.
- One-piece, non-corrosive stainless steel latch.

WELCON PART NO.	NO. OF PINS	CONTACT MATERIAL	CONTACT PLATING	PLATING THICKNESS (In Microinches)
301-0140311	14	BeCu	Select Au	30
301-0160311	16	BeCu	Select Au	30
301-0180311	18	BeCu	Select Au	30
301-0240311	24	BeCu	Select Au	30

QUAD PACK CONTACTORS

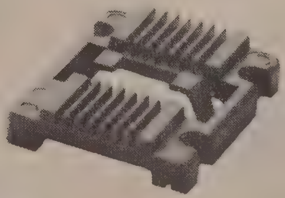


FEATURES

- 24-and 68-lead quad pack contactors with .050" spacing between contacts.
- 32-, 44-and 72-lead quad pack contactors with .040" spacing between contacts.
- New extra-low-force ("ELF") contacts.
- Longlasting metal hinge pins.
- Contactor body molded of a high temperature material for burn-in applications up to 200°C.
- No carrier distortion.
- Easy insertion of IC leads.

WELCON PART NO.	NO. OF PINS	CONTACT MATERIAL	CONTACT PLATING	PLATING THICKNESS (In Microinches)
304-0240311	24	BeCu	Select Au	30
631-0320311	32	BeCu	Select Au	30
631-0440311	44	BeCu	Select Au	30
305-0680311	68	BeCu	Select Au	30
632-0720311	72	BeCu	Select Au	30

ONE-PIECE CARRIERS



FEATURES

- Specially designed for automatic loading and unloading.
- Can be molded from ESP materials.
- Increased retention . . . IC device will not drop out.
- Allows for large marking area.

WELCON PART NO	NO OF LEADS	LEAD SPACING In	LEAD SPACING Mm	DEVICE DIMENSIONS WIDTH (max) In	DEVICE DIMENSIONS WIDTH (max) Mm	DEVICE DIMENSIONS LENGTH In	DEVICE DIMENSIONS LENGTH Mm
029-330-00X	14	050	1 27	270	6 86	380	9 65
029-341-00X	14	050	1 27	250	6 35	250	6 35
029-331-00X	16	050	1 27	270	6.86	380	9 65
029-343-00X	16	050	1 27	300	7 62	380	9 65
029-340-00X	18	050	1 27	320	8 13	410	10 41
029-348-00X	18	050	1 27	375	9 53	450	11 43
029-339-00X	20	050	1 27	350	8 89	500	12 70
029-352-00X	20	050	1 27	270	6 86	500	12 70
029-337-00X	20	030	76	200	5 08	380	9 65
029-353-00X	24	050	1 27	270	6 86	500	12 70
029-334-00X	24	050	1 27	375	9 53	375	9 53
029-336-00X	32	.040	1 02	395	10 03	395	10 03
029-335-00X	44	040	1 02	515	13 08	515	13 08
029-684-00X	68	050	1 27	900	22 86	900	22 86
029-338-00X	72	040	1 02	800	20 32	800	20 32

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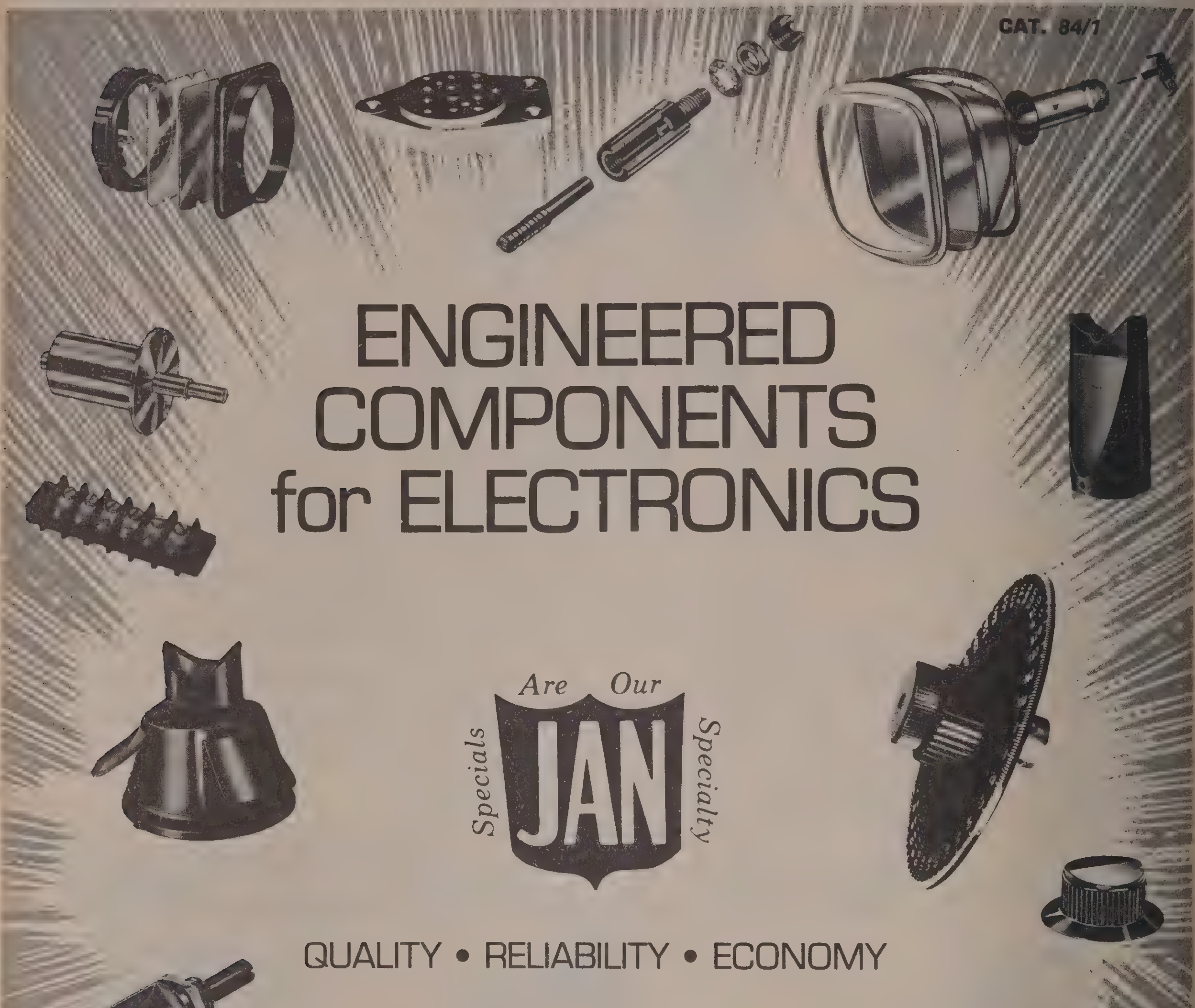

CAT. 84/1

ENGINEERED COMPONENTS for ELECTRONICS

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QUALITY ELECTRONIC COMPONENTS
PAGES 2•1762 — 2•1779

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MANUFACTURING CO., INC.

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PANEL HARDWARE

Manufacturer	Bezels	Dials, Instrument	Pointers, Dial	Handles	Knobs:	Type				Panel Markings	Plates, Escutcheon	Drives & Drive Mechanisms	Shaft Couplings	Shaft Locks	Speed Reducers
						Control-Shaft Locking	Limit Stop	Slip Clutch	Ratio Drive Torque						
Alcoswitch					2•1758		2•1758								
Buckeye Stamping					2•1019										
Datak										2•1759					
Interlok			2•1761		2•1761										
Jan Hardware	2•1771	2•1764		2•1767	2•1773	2•1766	2•1763	2•1773	2•1762		2•1771	2•1762	2•1765	2•1766	2•1772
JMJ Technical	2•1780														
Microavionics		2•1781			2•1781										
Power Dynamics			2•1783		2•1782	2•1782									
RMF Products	2•1785														
Rogan					2•1786										
Unicorp				2•1868											

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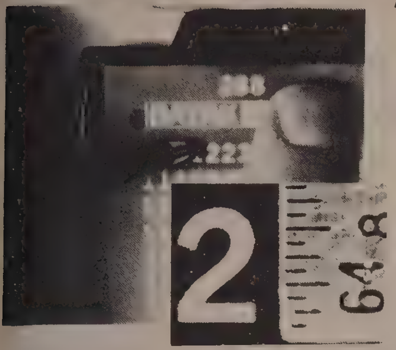
ALCOSWITCH Dept. EEM, 1551 Osgood Street, N. Andover, MA 01845

Tel: 617 685 4371 TWX; 710 342 0552

DATAK dry TRANSFERS and COATINGS



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TAILOR-MADE COATINGS . . . Any old protective spray won't work over dry transfers. Our formulas flow evenly over the transfer and protect it perfectly on all classes of surfaces: glass, paper, wood, metal, plastics or paint.

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Component designation sets (TERMINAL and CHASSIS MARKING sets) include 24 sheets, 3½" x 5" of sequential numbers, letters and letter combinations conforming to ANSI Y32.16 and IEEE STD 200. This series is ⅛" size only. See JotDraft #JD192-JD251 for .085" through .250" designation numbers. Coat transfers for protection. See coatings section.

MICRON MICROFARADS METER METER mHz
ABCDEFGHIJKLMN OPQRSTUVWXYZ
11112233445556 67788990000;;;;
ABCDEFGHIJKLMN OPQRSTUVWXYZ
11112233445556 67788990000;;;;
VIDEO VOICE VOL VOLUME VOR VU
ABCDEFGHIJKLMN OPQRSTUVWXYZ
11112233445555 667788990000;;;
JJJJPPPP 363738 394041424344454

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954 Black (955 White) 10 pt Lt. Face Letters	5.95
956 Black (957 White) 10 pt. Lt. Face Numbers	5.95
9581 Black (9591 White) 12 pt. Titles	11.25
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9661 Black (9671 White) Terminal & Chassis set	11.25

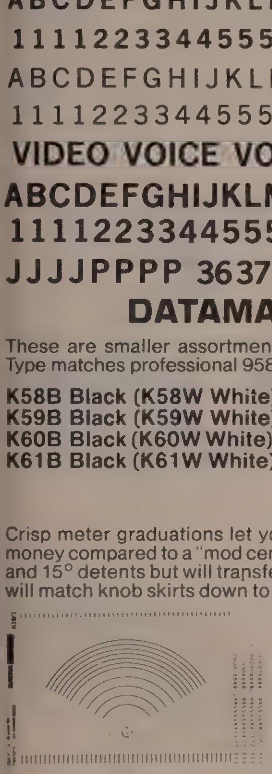
DATAMARK™ TITLES, PATTERNS, ALPHABETS and NUMBERS

These are smaller assortments for specialized electronic applications. Type matches professional 9581-9671 series. Switch patterns match some that are in #968 Meter Dial and Switch Marking set. All sets contain six 3½" x 5" sheets. Coat transfers for protection. See coatings section.

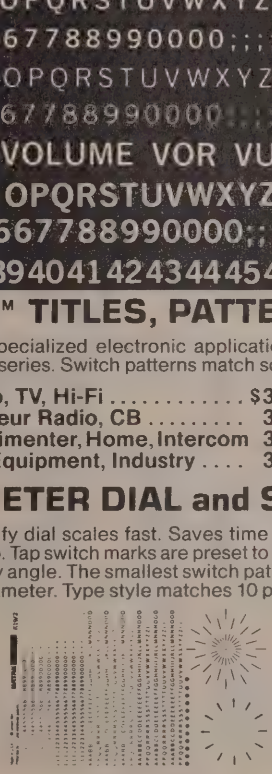
Item	Price
K58B Black (K58W White) Audio, TV, Hi-Fi	$3.00
K59B Black (K59W White) Amateur Radio, CB	3.00
K60B Black (K60W White) Experimenter, Home, Intercom	3.00
K61B Black (K61W White) Test Equipment, Industry	3.00
K62 Marks and Switch Patterns, black, white asst.	$3.00
K63 ⅛" Letters and Numbers, black, white, gold, asst.	3.00
K64 ¼" Letters and Numbers, black, white, gold, asst.	3.00
K65 ½" Letters and Numbers, black, white, gold, asst.	3.00

METER DIAL and SWITCH MARKING SET

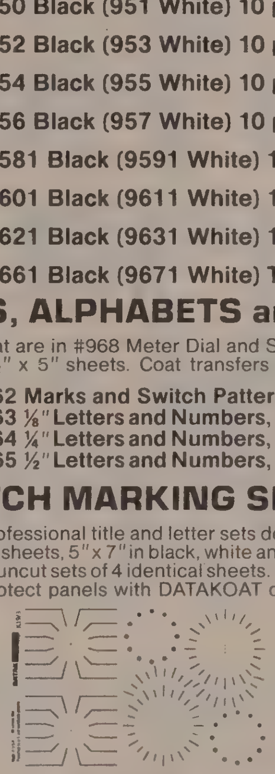
Crisp meter graduations let you modify dial scales fast. Saves time and money compared to a "mod center" job. Tap switch marks are preset to 7.5° and 15° detents but will transfer to any angle. The smallest switch pattern will match knob skirts down to 0.5" diameter. Type style matches 10 point professional title and letter sets described above. Complete set includes 12 sheets, 5"x 7" in black, white and red. Refill sheets available separately in uncut sets of 4 identical sheets. *K19/1 available in white as a refill only. Protect panels with DATAKOAT or HARDKOAT. Do not coat dialplates.



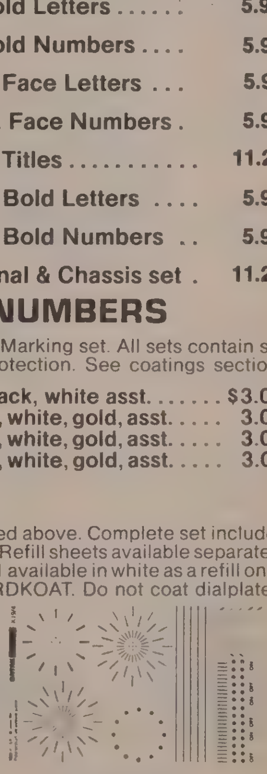
K19/1 BLK
K19/5 RED
K19/1* WHT



K19/2 BLK
K19/6 RED
K19/9 WHT



K19/3 BLK
K19/7 WHT
K19/12 RED



K19/4 BLK
K19/8, 10 WHT
K19/11 RED

Item	Price
968 Meter Dial and Switch Set	$11.25
K19/(Specify #) Refill of 4 identical sheets	$4.95

DATAKOAT™ PROTECTIVE COATINGS

DATAKOAT is a 100% acrylic high-solids water-clear coating for metals and plastics. It encapsulates dry transfers in a tough film. Its solvents will not attack most plastics, lacquers or cured enamels. The dry film has a high dielectric strength, is very flexible, moderately hard and extremely resistant to weathering and UV exposure. DATAKOAT is not recommended for transfers on paper

Item	Price
04176 DATAKOAT Brushcoat and Thinner Kit (1 oz. ea.)	$3.00
04177 DATAKOAT Gloss Spray (12 oz. net wt.)	4.50
04178 DATAKOAT Matte Spray (12 oz. net wt.)	4.50

HARDKOAT™ PROTECTIVE COATINGS

HARDKOAT is a clear, very high-solids quality cellulosic resin for paper, wood and other porous surfaces. Its solvents fuse the dry transfer into the surface while its resins bond to the surface with an extremely hard, flexible film. HARDKOAT may be used on metals and many painted surfaces where it gives superior protection against abrasion and scratching. Its solvents temporarily soften many plastic materials, so it should be used with caution. Multiple heavy coats may have a very faint yellowish tint. Use DATAKOAT if an absolutely water-clear coating is essential

Item	Price
04170 HARDKOAT Gloss Spray (12 oz. net wt.)	$4.50
04171 HARDKOAT Matte Spray (12 oz. net wt.)	4.50

See Sections 1700 and 6000 for DATAK Printed Circuit Kits and Wire Markers

EEM PRODUCT SELECTION GUIDES

There are 33 Guides in this edition of EEM. See page 2 (1A•2, 1B•2, 2•2, 3•2) of each volume to locate the Product Selection Guides that pertain to your needs.

Safety Collet Knobs

INTERLOK
ONE OF THE **PURDY** GROUP OF COMPANIES

770 AIRPORT BOULEVARD, BURLINGAME, CALIFORNIA 94010 • TEL (415) 348-5625 • TWX 910-374-2353

Modular Design

The modular design and the wide assortment of INTERLOK collet knobs offer countless possible combinations. The standard and wing knobs are of contemporary design, available in 7 sizes and various colors. A broad selection of accessory components is also available, including knobs caps and pointers in no less than 7 colors, various printed dials, stators, sockets and nut covers.

Material

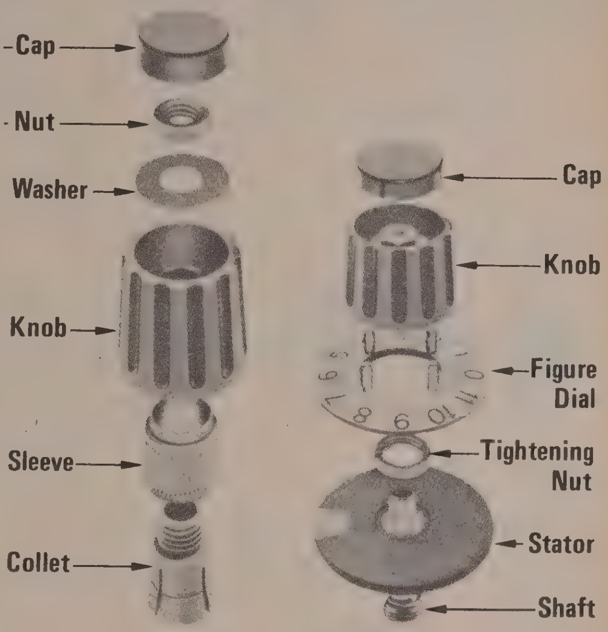
With the exception of the transparent figure dials all of the INTERLOK collet knbos and accessoires are made of Polyamide.

Safety

With the knob installed and the cap in place there is no possibility of shock hazard as there are no exposed metal parts, thus satisfying both O.S.H.A. and U.L. requirements.

Colors

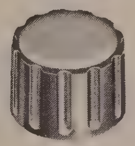
INTERLOK collet knobs offer a very wide coice of standard colors and color combinations in both glossy and matte finish. Collet knobs are available in light gray, black and red. Caps and pointers are available in light gray, black, red, blue, yellow, and green. In addition INTERLOK offers custom colors to meet your exacting requirements.



Collet Knobs Series A

This series offers a full range of sizes and colors. They have attractive and modern styling.

A Series



Collet Knob Sizes

INTERLOK collet knobs are available in diameters of 9 mm, 10 mm, 14.5 mm, 21 mm, 28 mm, 36 mm and 45 mm.

ϕ 9 mm
ϕ 10 mm

ϕ 14.5 mm

ϕ 21 mm

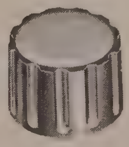
ϕ 28 mm

ϕ 36 mm
ϕ 45 mm

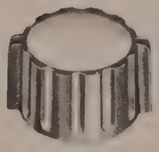
Collet Knob Designs

Every INTERLOK knob is available from stock in both conventional and wing versions, each with or without setting line.

Standard Knob



Wing Knob



Accessories

Caps, some with radius line, plus both small and large pointers are available in all sizes and many colors.

Cap for
A Series

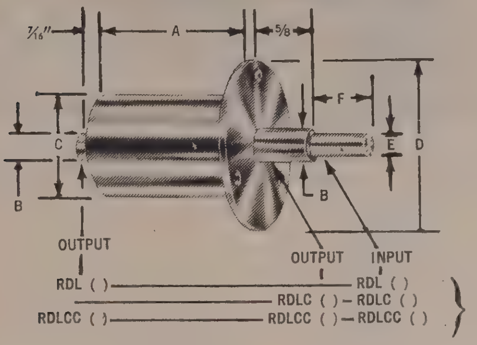
Small Pointer

Large Pointer

For complete information write for our Bulletin No. 7.

REDUCTION DRIVES — BALL BEARING TYPE

FOR FINE INSTRUMENT AND MACHINE CONTROL


7⁄16″
A
5⁄8
F
C
E
D
B
B
OUTPUT
OUTPUT
INPUT
RDL ( )
RDL ( )
RDLC ( ) — RDLC ( )
RDLCC ( )
RDLCC ( ) — RDLCC ( )

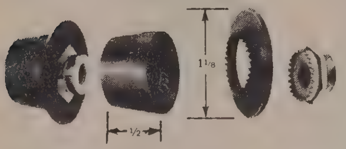
Cat. No.	Ratio	A	B O.D.	B I.D.	C	D	Input Shaft E	F	Bolt-Mtg. Dia.
RDL-1	2.6:1	1	3/8	1/4	1 1/8	1 13/16	1/4	3/4	1 15/32
RDL-2	7.0.1	1 13/32	3/8	1/4	1 1/8	1 13/16	1/4	3/4	1 15/32
RDL-3	17.0·1	1 13/16	3/8	1/4	1 1/8	1 13/16	1/4	3/4	1 15/32
RDLC-1	2.6:1	1	3/8	1/4	1 1/8	1 13/16	1/4	1 1/2	1 15/32
RDLC-2	7.0:1	1 13/32	3/8	1/4	1 1/8	1 13/16	1/4	1 5/64	1 15/32
RDLC-3	17.0:1	1 13/16	3/8	1/4	1 1/8	1 13/16	1/4	23/32	1 15/32
RDLCC-1	2.6:1	1 13/32	3/8	1/4	1 1/8	1 13/16	1/4	1 5/64	1 15/32
RDLCC-3	17.0:1	2 43/64	3/8	1/4	1 1/8	1 13/16	1/4	11/16	1 15/32
RDL-4	45.0:1	2 7/32	3/8	1/4	1 1/8	1 13/16	1/4	23/32	1 15/32
RDL-5	120.0:1	2 23/32	3/8	1/4	1 1/8	1 13/16	1/4	1 5/64	1 15/32
RDL-6	300.0:1	3 7/32	3/8	1/4	1 1/8	1 13/16	1/4	11/16	1 15/32

All Ratios are ±10%.

Employ precision ball bearings. For rotary control of components. Smooth motion. Ruggedly built, permanently sealed and lubricated.

Input and output shafts operate in SAME DIRECTION. Type "RDL" provides "in-line" input-output shafts. Type "RDLC" is supplied with **concentric** shafts whereby the output envelopes the input shaft. An added feature of Type "RDLCC" is the output shaft in the rear.

KNOB RATIO DRIVE



9 to 1 ratio (to dial skirt).
1:1 to potentiometer.

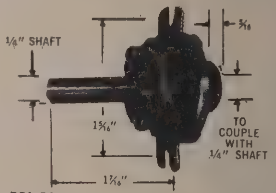
Cat. No. KRD-11 (Plain Gripping Surface)
Cat. No. KRD-12 (Knurled Gripping Surface)

Other ratios designed to specifications. Engineered miniature gear system, permits precise, fine tuning of controls.

Brass gears; black anodized aluminum knob and dial. Available with knurled or non-knurled outside knob. Available for 1/8″ shafts. 1/4″ on special order.

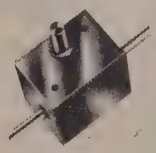
IN-LINE RATIO DRIVE — 6.3:1

For smooth rotary control of components requiring Vernier adjustments. Suitable for use where panel space is at a premium. Durable, ruggedized ball bearing mechanism.


1/8″ SHAFT
3/16
1 3/16″
TO COUPLE WITH 1/4″ SHAFT
1 7/16″

RDL-61

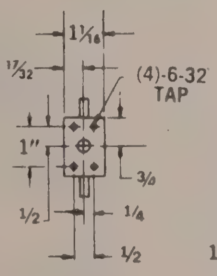
RIGHT ANGLE RATIO DRIVES — Versatile, Miniaturized, Right Angle Rotary Controls



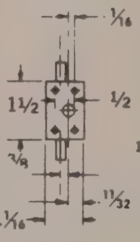
RAWG ( )
RABG ( )

Dual output stainless steel shafts at right angles to input, provide ideal type instrument control. With matched bevel, worm gears cover wide range of ratios.

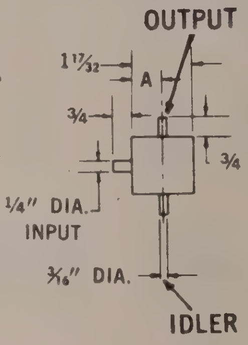
Especially useful for handling spring or gravity-loaded components. Output shaft automatically locks in any desired position yet remains free for smooth adjustment by input shaft. Assembled in dust-proof housings, gears are permanently pinned in place mounted in oilite bearings, and held under constant pressure.


1 1/16
17/32
(4)-6-32 TAP
1″
3/8
1/2
1/4
1/2

RABG


1/16
1 1/2
1/2
3/8
11/32
1 1/16

RAWG


OUTPUT
1 17/32
A
3/4
3/4
1/4″ DIA.
INPUT
3/16″ DIA.
IDLER

BEVEL GEAR RIGHT ANGLE DRIVES

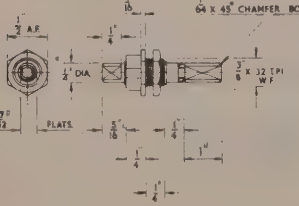
Cat. No.	Ratio	"A"
RABG-1	1:1	7/8
RABG-2	2:1	7/8
RABG-3	3:1	7/8

WORM GEAR RIGHT ANGLE DRIVES

Cat. No.	Ratio	"A"
RAWG-1	5.1	3/4
RAWG-2	10:1	3/4
RAWG-22	12:1	3/4
RAWG-3	20:1	3/4

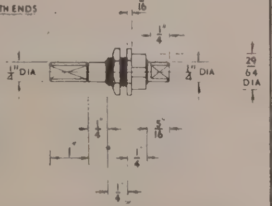
DIRECT DRIVE, REVERSE VERNIER
RDS - R 51

1:1 ratio 5:1 ratio

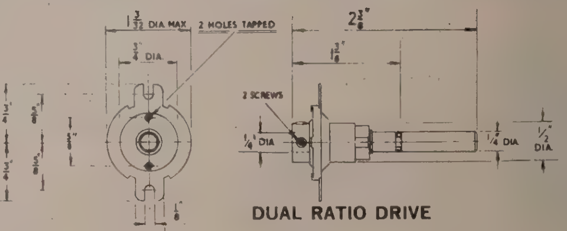

1/16
1/64 X 45° CHAMFER BOTH ENDS
1/2 A.F.
1/4
1/4″ DIA
3/8 X 32 TPI WF
7/32
FLATS
5/16
1/4
1/4
1″
1/4

CONTINUOUS DRIVE
RDS 51

5:1 ratio


1/16
1/4
1/4″ DIA
1/4″ DIA
29/64 DIA
1/4
5/16
1″
1/4
1/4

*OTHER LENGTHS AVAILABLE


1 3/32 DIA MAX
2 HOLES TAPPED
2 3/8″
3/8″ DIA
1 3/8″
2 SCREWS
1/4″ DIA
1/4″ DIA
1/2″ DIA
3/4″
3/4″
1/8
3/8″

DUAL RATIO DRIVE
RDLC-D 366

Reverse Vernier Action with 36-1 ratio and Fast Drive of 6-1 ratio.
Also available with flange bushing P/N RDLC-D 366-F

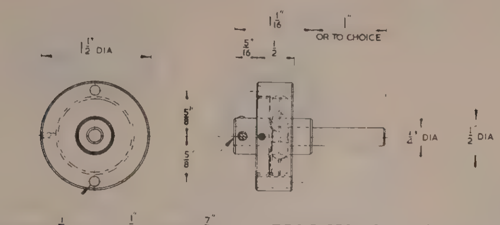
Specials Are Our Specialty

JAN

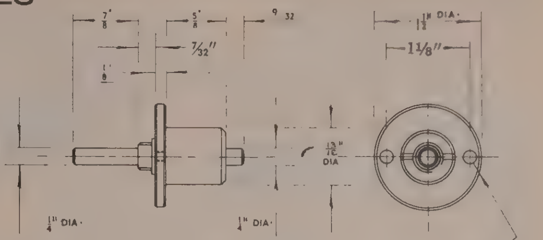
JAN HARDWARE
MANUFACTURING COMPANY INC.
47-27 36th STREET • LONG ISLAND CITY, NEW YORK 11101 • TEL: (212) 361-0800

QUALITY
RELIABILITY
ECONOMY

RATIO DRIVES


1 1/2" DIA
1 1/16"
1" OR TO CHOICE
5/16
1/2
5/8
5/8
1/4" DIA
1/2 DIA
2 HOLES 1/8 DIA
1/4 DIA BORE x 7/16 DEEP

RDLC-601 6-1 ratio.

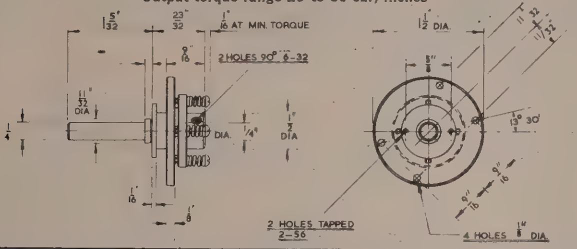

7/8"
5/8"
9/32
7/32"
1/8"
1 1/2" DIA
1 1/8"
13/16" DIA
1/4" DIA
1/4" DIA
2 HOLES 7/64" DIA

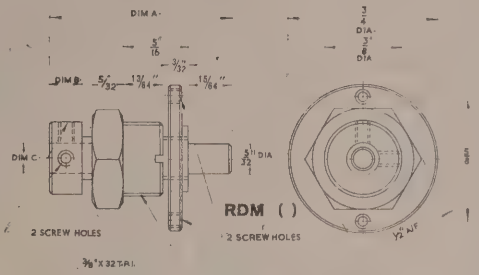
RDL-C 101 10-1 ratio.

ADJUSTABLE TORQUE BALL DRIVE

RDLA-601 6-1 ratio

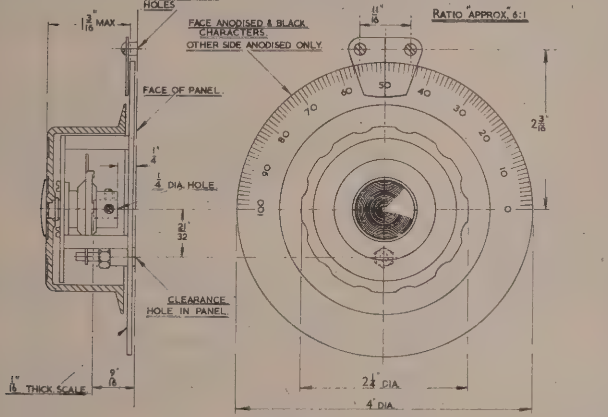
Output torque range 20 to 60 oz./inches


1 5/32"
23/32"
1/16 AT MIN. TORQUE
9/16
2 HOLES 90° 6-32
11/32" DIA
1/4
DIA
1/4"
1/2 DIA
1/16
1/8
2 HOLES TAPPED 2-56
1 1/2 DIA
5/8"
13/16" 30'
9/16"
4 HOLES 1/8" DIA

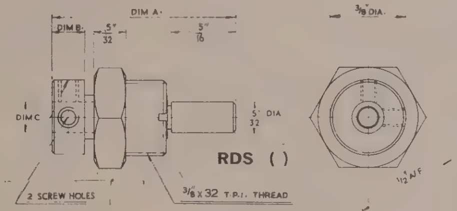

DIM A
3/4 DIA
3/8 DIA
5/16
3/32
DIM B 5/32 13/64 15/64
DIM C
5/32" DIA
RDM ( )
2 SCREW HOLES
2 SCREW HOLES
3/8" x 32 T.P.I.
1/2" NF

10-1 ratio.

BALL DRIVE DIAL


6 CLEARANCE HOLES
1 3/16" MAX
FACE ANODISED & BLACK CHARACTERS. OTHER SIDE ANODISED ONLY
11/16"
RATIO APPROX. 6:1
FACE OF PANEL
2 3/16"
1/4"
1/4 DIA. HOLE
21/32
CLEARANCE HOLE IN PANEL
1/16" THICK SCALE
9/16
2 1/4" DIA
4" DIA
100 90 80 70 60 50 40 30 20 10 0

DAD 600 6-1 ratio.

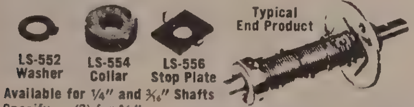

DIM A
DIM B
5/32"
5/16"
3/8" DIA
DIM C
5/32 DIA
RDS ( )
2 SCREW HOLES
3/8" x 32 T.P.I. THREAD
1/2" NF

10-1 ratio.

PART NO.	PART NO.	DIM A	DIM B	DIM C
RDS 101-1	RDM 101-1	29/32″	5/32″	5/32″
RDS 101-2	RDM 101-2	15/16″	13/64″	15/64″
RDS 101-3	RDM 101-3	15/16″	13/64″	1/4″

LIMIT STOP COMPONENTS

Limit stop as a component to design with, potentiometers, capacitors, or other similar units. Added washers enables an increase in stop range (with precision). Dual locking screws maintain settings under all conditions of shock and vibration.


Typical End Product

LS-552 Washer **LS-554** Collar **LS-556** Stop Plate

Available for 1/4″ and 3/16″ Shafts

Specify — (3) for 3/16″
— (4) for 1/4″

Can be designed internally into JANSET knobs.

MINIATURIZED SLIP CLUTCH

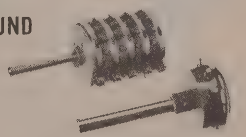
Couples 1/8″, 3/16″ or 1/4″ input-output (2 set screws). Also 'D' shafts (with or without set screws). Torques: 2 to 50 oz./in. All metal components. 5/8″ dia. x 5/8″ long.

APS-1723

Shaft sizes (—2=1/8″) (—3=3/16″) (—4=1/4″) min. & max. torque in oz./inches

Example: Part #APS-1723-34-8-16
To fit 3/16″ dia. shaft to 1/4″ dia. shaft, and torque 8 to 16 oz./inches.

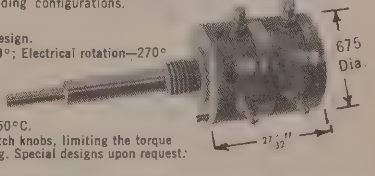
POTENTIOMETERS / PRECISION WIRE WOUND



- LINEAR AND NON-LINEAR • SINGLE AND MULTI-TURN
- PENDULUM OPERATED • SECTORS AND GYRO PICKOFFS • SWITCHES

Reliable, competitively priced wire-wound potentiometers for commercial, industrial and military electronic equipment manufacturers.

- **EXCELLENT LINEARITY:** 0.03% available in single turn 5″ diameter unit.
- **LONG LIFE:** Over two million revolutions with base metal windings.
- **WIDE TEMPERATURE RANGE:** Available for operation from −55°C to +125°C.
- **MAXIMUM STORAGE LIFE:** Platinum alloy winding also insures low noise level.
- **RELIABILITY:** Welded taps for better mechanical and electrical connections.
- **HIGH RESOLUTION:** Wire as fine as 0.0003″ diameter can be used.
- **CUSTOM DESIGNS:** Fast prototype delivery on special linear or non-linear units.
- **PRECISION CONSTRUCTION:** Anodized aluminum housings and polished steel shafts.
- **ACCURATE FUNCTIONS:** Welded taps to a single turn of wire eliminates shorted sections of winding at intermediate taps
- **RUGGEDNESS:** Meets all applicable MIL Specs.
- **LOW NOISE** Maintained over long life and extreme environments by unique wiper designs compatible with winding configurations.


.675 Dia.
27/32"

RESISTOR, VARIABLE. Single and Dual gang.
Conforms to MIL-R-12934. Resistance values as required. Linear design.
Power: 1 watt continuously, up to 70°C.; Mechanical rotation—300°; Electrical rotation—270°
Noise level less than 1% of total resistance.
Operating torque: 4.0 to 6.0 oz. in., detent where specified.
Detent torque: 5 oz. in. above operating torque, or 6.0 to 14.0 oz. in. including unit operating torque.
Min. rotational life: 25,000 cycles. Operating Temp.: −65°C to 150°C.
Clutch Knobs: These potentiometers must be adjusted solely by clutch knobs, limiting the torque exerted on shafts beyond their rotational limits. See Jan catalog. Special designs upon request.

Are Our Specials JAN Specialty

JAN HARDWARE

MANUFACTURING COMPANY INC.

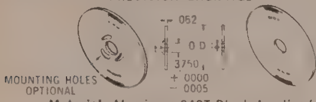
47-27 36th STREET • LONG ISLAND CITY, NEW YORK 11101 • TEL: (212) 361-0800

QUALITY
RELIABILITY
ECONOMY

DIALS, DISC

Clockwise and Counter Clockwise

PRECISION ENGRAVED

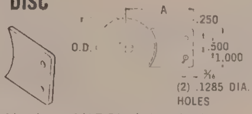

052
O D
3750
+ 0000
− 0005
MOUNTING HOLES OPTIONAL

Material: Aluminum 24ST Black Anodized

Cat. No.	Range	O. + .000 D. − .003	Steps in Degrees	Graduations
DA-01		1.500	-	BLANK
DA-02	0-360		2°	180
DA-03	0-100		3°-36′	100
DA-04	0-60		6°	60
DA-05	0-50		7°-12′	50
DA-06	0-25		14°-24′	25
DA-07	0-10		36°	10
DA-08	-	2.000	—	BLANK
DA-09	0-360		2°	180
DA-010	0-120		3°	120
DA-011	0-100		3°-36′	100
DA-012	0-72		5°	72
DA-013	0-60		6°	60
DA-014	0-50		7°-12′	50
DA-015	0-25		14°-24′	25
DA-016	0-10		36°	10
DA-017		3.000		BLANK
DA-018*	0-360		1°	360
DA-019*	0-360		2°	180
DA-020	0 200		1°-48′	200
DA-021	0-180		2°	180
DA-022	0-120		3°	120
DA-023*	0-100		3°-36′	100
DA-024	0-72		5°	72
DA-025	0-50		7° 12′	50
DA-026	0-10		36°	10
DA-027	—	4.000	—	BLANK
DA-028*	0-360		1°	360
DA-029*	0-360		2°	180
DA-030	0-200		1°-48′	200
DA-031	0-180		2°	180
DA-032	0-100		3°-36′	100
DA-033	0-50		7°-12′	50
DA-034	0-10		36°	10

*Available counter clockwise. To order, use prefix DC in place of DA.

INDEX, DIAL DISC


A
.250
O.D.
.500
1,000
3⁄16
(2) .1285 DIA. HOLES

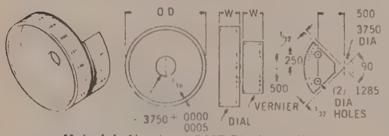
Material: Aluminum 24ST Black Anodized

Note: Use with "DA" and "DC" Type Disc Dials

Cat. No.	A	O.D. of Dial
DG-1	1 760	1.500
DG-2	2.010	2 000
DG-3	2 510	3.000
DG-4	3 010	4.000

DIAL, DRUM AND VERNIER SETS

PRECISION ENGRAVED


O D
W
W
500
3750 DIA
250
90
500
(2) 1285 DIA HOLES
VERNIER
DIAL
3750 + 0000 − 0005

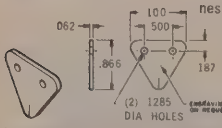
Material: Aluminum 24ST Black Anodized

Note: Special Sets Available on Request

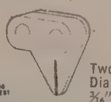
For Additional Information See Technical Section

Cat. No.	O. + .005 D. − .005	W	Dial Graduations	Dial Range	Vernier Reading
DJ-1	1 490	.375	360° in 2° Steps	0°-360°	12′
DJ-2	1 990	375			12′
DJ-3	2 490	.500	360° in 1° Steps		6′
DJ-4	2.990	.500			6′

INDEX, DIAL


062
100
500
.866
187
(2) 1285 DIA HOLES
ENGRAVING ON REQUEST

No. 1341 POINTER, DIAL
3⁄8″W. x 3⁄8″H. x 1⁄8″D. Pointer Section thickness .025.



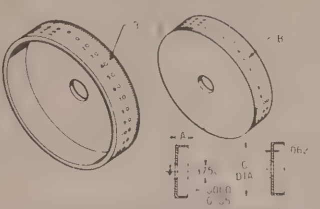
Two .078 Dia. Holes 3⁄16″ Apart.

Cat. No.	Material
DE-1	Clear Plexiglass
DE-2	Aluminum 24ST Black Anodized

DIALS, DRUM

Clockwise and Counter Clockwise

PRECISION ENGRAVED

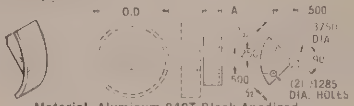


Material: Aluminum 24ST Black Anodized

Cat. No.	A	B	C	Range	Steps in Degrees
DB-1	3⁄8	--	.990	BLANK	—
DB-2		100		0-100	3°-36′
DB-3		180		0 360	2
DB-4	3⁄8	--	1.490	BLANK	—
DB-5		60		0-60	6°
DB-6		100		0-100	3°-36′
DB-7		180		0-360	2°
DB-8	3⁄8	—	1.990	BLANK	—
DB-9		50		0-50	7°-12′
DB-10		25		0-25	14′-24°
DB-11		10		0-10	36°
DB-12		180		0-180	2°
DB-13		180		0-360	2°
DB-14	1⁄2	-	2.490	BLANK	—
DB-15		200		0-200	1°-48′
DB-16		180		0-180	2°
DB-17*		180		0-360	2°
DB-18*		360		0-360	1°
DB-19		100		0-100	3°-36′
DB-20	1⁄2	—	2.990	BLANK	—
DB-21		180		0-180	2°
DB-22		100		0-100	3°-36′
DB-23		10		0-10	36°
DB-24*		360		0-360	1°
DB-25*		180		0-360	2°

*Available counter clockwise. To order, use prefix DD in place of DB.

INDEX, DRUM DIAL


O.D
A
500
3750 DIA
90
500
(2) .1285 DIA. HOLES

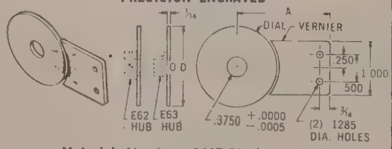
Material: Aluminum 24ST Black Anodized

Note: Use with "DB" and "DD" Type Drum Dials

Cat. No.	A	O.D. of Drum
DF 1	.375	1.490
DF-2	.375	1.990
DF-3	.500	2.490
DF-4	.500	2.999

DIAL, DISC AND VERNIER SETS

PRECISION ENGRAVED


1⁄16
A
DIAL
VERNIER
O D
.250
1 000
500
3⁄16
E62 HUB
E63 HUB
.3750 + .0000 − .0005
(2) 1285 DIA. HOLES

Material: Aluminum 24ST Black Anodized

Note: Special Sets Available on Request

For Additional Information See Technical Section

Cat. No.	O. + .000 D. − .005	A	Dial Graduations	Dial Range	Vernier Reading
DH-1	1 500	1.760	360° in 2° Steps	0°-360°	12′
DH-2	2.000	2.010			12′
DH-3	3.000	2.510	360° in 1° Steps		6′
DH-4	4.000	3.010			6′

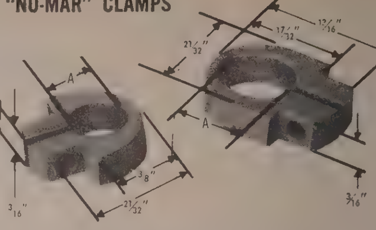
We invite your inquiries for special dials and drums. Also available from stock — precision ground shafts.

LOCKS, DIAL

No. AP-1060

Supplied completely assembled. Securely locks dial in position. Nickel plated on brass. Knurled head. 1⅜″ overall length.

"NO-MAR" CLAMPS


13⁄16″
17⁄32″
21⁄32″
A
A
3⁄8″
21⁄32″
3⁄16″
3⁄16″

Set screw does not touch shaft. Ideal for knob and gear applications. Variety of sizes available.

A Dimensions in Inches

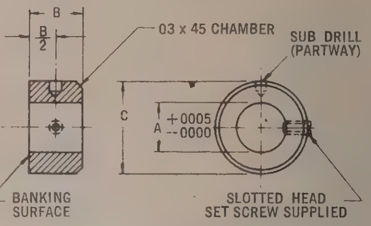
Cat. No.	-2	-3	-4	-5	-6	-7	-8
937	1⁄8	3⁄16	1⁄4	5⁄16	3⁄8	13⁄32	7⁄16
938	1⁄8	3⁄16	1⁄4	5⁄16	3⁄8	13⁄32	

PRECISION SET SCREW COLLARS

Material: 303 Stainless Steel
Finish: Clear Passivate **5⁄64 to 1⁄2 Bores**

Shaft Size	A	B	C	Set Screw	Part No.
5⁄64	.0779	.12	7⁄32	#0-80	SC7-07
3⁄32	.0935	.12	1⁄4	#0-80	SC8-09
.12	.1200	.18	5⁄16	#2-56	SC10-120
1⁄8	.1248	.18	5⁄16	#2-56	SC10-124
5⁄32	.1560	.18	5⁄16	#2-56	SC10-15
3⁄16	.1873	.22	3⁄8	#4-40	SC12-18
.24	.2405	.25	1⁄2	#6-32	SC16-240
1⁄4	.2498	.25	1⁄2	#6-32	SC16-249
5⁄16	.3123	.28	9⁄16	#6-32	SC18-31
3⁄8	.3748	.37	3⁄4	#10-32	SC24-37
1⁄2	.4998	.50	1	1⁄4-20	SC32-49

Special Collars Available on Request.

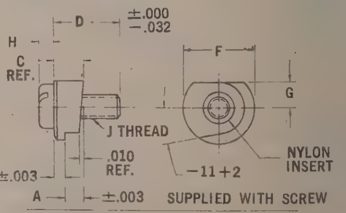

B
B/2
03 x 45 CHAMBER
SUB DRILL (PARTWAY)
C
A +0005 −0000
BANKING SURFACE
SLOTTED HEAD SET SCREW SUPPLIED

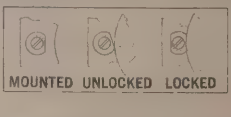
MOTOR MOUNT CLEATS

Quick release, self locking, instant nulling, meets shock & vibration requirements.

Type Mount	A	B	C	D	E	F	G	H	J	Part No
Flush & Recess	031	040	071	312	135	390 385	125	068 Max	#4 40	SMFR3 1
Flush	062	040	102	312						SMF3 2
Flush	062	050	112	375						SMS3 3
Flush	062	063	125	375						SMS3 4
Flush	078	063	141	375						SMS3 5
Flush	093	040	133	375						SMS3 6
Flush	093	050	143	375						SMS3 7
Flush	093	063	156	375						SMF3 8
Step	125	050	175	375						SMS3 9
Step	156	040	196	375						SMS3 10
Step	225	063	288	437						SMS3-11
Flush	250	063	312	625						SMF3 12
Flush & Recess	031	040	071	250	096	265 260	091	053 Max	#2 56	SMFR3 20
Flush	047	040	087	250						SMF3 21
Flush	062	040	102	250						SMF3 22
Flush	093	040	133	312						SMF3 23
Step	125	040	165	312						SMS3 24
Reverse	062	63	125	*	135	390 385	125	*	#4 40	SMRV3 30
Reverse	093	63	156	*				*		SMRV3 31

* Reverse type cleat supplied less screw


D ±.000 −.032
H
C REF.
F
G
J THREAD
.010 REF.
NYLON INSERT
B±.003
−11+2
A
±.003
SUPPLIED WITH SCREW


MOUNTED
UNLOCKED
LOCKED

Are Our Specials JAN Specialty

JAN HARDWARE
MANUFACTURING COMPANY INC.
47-27 36th STREET • LONG ISLAND CITY, NEW YORK 11101 • TEL: (212) 361-0800

QUALITY
RELIABILITY
ECONOMY

HI-VOLTAGE INSULATED COUPLINGS U.S. PATENT NO. 2,681,387

MEETS MILITARY SPECIFICATIONS — TEMPERATURE · HUMIDITY · SHOCK · VIBRATION · FUNGUS

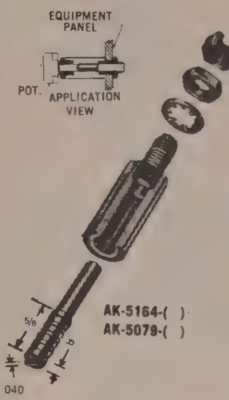
HI-VOLTAGE INSULATED COUPLINGS

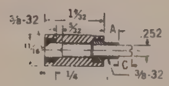
15 KV Breakdown—10 lb/in. torque
Series No. AK-5079 and No. AK-5164

Stainless steel shaft and screwdriver tip molded-integrally with Diallyl Phthalate per Mil Specs. Shock ,vibration and fungus proof, they operate with ease over an ambient temperature range of −75°C to +175°C. Supplied with mounting hardware.

Screwdriver tip fits standard slotted shafts (potentiometer, etc.) without further machining. Suited to adjust high voltage controls protecting operating personnel. Also used to reduce ground capacitance on other types of instrument controls.

For Commercial Instrument Applications . . . Available in general purpose Bakelite.





STANDARD TYPE

Cat. No.	Dimensions in Inches			
	"A"	"B"	Shaft	"C"
AK-5164-X-1	⅜	3/16	Slotted	5/16
AK-5164-B-1	⅜	1/16	Slotted	5/16
AK-5164-X-2	⅜	3/16	Slotted	15/32
AK-5164-B-2	⅜	1/16	Slotted	15/32
AK-5164-X-3	⅜	3/16	No Slot	15/16
AK-5164-B-3	⅜	1/16	No Slot	15/16
AK-5164-X-4	⅜	3/16	No Slot	1 7/16
AK-5164-B-4	⅜	1/16	No Slot	1 7/16
AK-5164-X-5	⅜	3/16	Slotted	Minus 1/16
AK-5164-B-5	⅜	1/16	Slotted	Minus 1/16

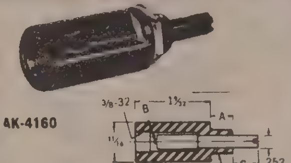
WITH LOCKING TYPE BUSHING

AK-5079-X-1	9/16	3/16	Slotted	⅛
AK-5079-B-1	9/16	1/16	Slotted	⅛
AK-5079-X-2	9/16	3/16	Slotted	9/32
AK-5079-B-2	9/16	1/16	Slotted	9/32

Note: (3/16″) to be used with ⅛″ long shaft.
(1/16″) to be used with ¼″ long shaft.

COMMERCIAL INSULATED COUPLINGS

30 KV Breakdown
10 lb-In. Torque.



STANDARD TYPE

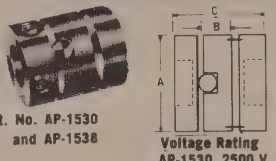
Cat. No.	Dimensions in Inches			
	"A"	"B"	Shaft	"C"
AK-4160-X-1	⅜	⅜	Slotted	⅛
AK-4160-B-1	⅜	3/16	Slotted	⅛
AK-4160-X-2	⅜	⅜	No Slot	½
AK-4160-B-2	⅜	3/16	No Slot	½

Series No. AK-4160
For TV and Industrial Applications

Withstands 30 KV, made of high grade Bakelite throughout except for stainless steel screwdriver tip molded in drive shaft. Mounting Hardware supplied.

AUTOLINEAR (INSULATED) SHAFT COUPLINGS

2.5-5 KV Breakdown Universal, Miniature, Self-aligning



Cat. No. AP-1530 and AP-1538

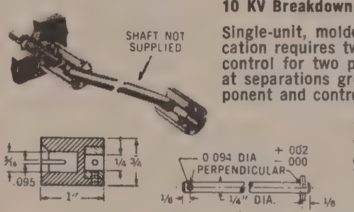
Voltage Rating
AP-1530, 2500 V
AP-1538, 5000 V

Part No.	Dimensions in Inches			
	Dia. Hole	"A"	"B"	"C"
AP-1530-2	⅛	½	15/64	59/64 ± 1/32
AP-1530-3	3/16	½	15/64	59/64 ± 1/32
AP-1530-4	¼	½	15/64	59/64 ± 1/32
AP-1538-2	⅛	½	27/64	1 7/64 ± 1/32
AP-1538-3	3/16	½	27/64	1 7/64 ± 1/32
AP-1538-4	¼	½	27/64	1 7/64 ± 1/32

Accommodates either similar or dissimilar ⅛″, 3/16″ or ¼″ shafts. Permits misalignment to 1/16″ and 5° angle. Operates free of backlash. Plastic insulator between cast aluminum hubs. Each hub has 2 set screws. Alodine finish. Also available with self-extinguishing low water absorption characteristic plastic insulator on special order.

Typical Part No.'s

AP-1530-34	accommodates a 3/16″ shaft one side, ¼″ shaft on other.
AP-1538-22	accommodates two ⅛″ shafts.



OFFSET-SHAFT (INSULATED) COUPLINGS

10 KV Breakdown ±30° Offset AP-15299

Single-unit, molded Nylon-to-metal insert. Application requires two couplings — permits smooth control for two parallel shafts offset up to 30° at separations greater than 3″. Secured to component and control shafts by 2 set screws.

Note: Coupling is accomplished with a ¼″ shaft of any length (not furnished). Coupling shaft keyed to coupler by steel drive pins supplied. See P. 9 for shafting.

VOLTAGE: 6000VDC INSULATED COUPLINGS FOR ⅛″ SHAFTS

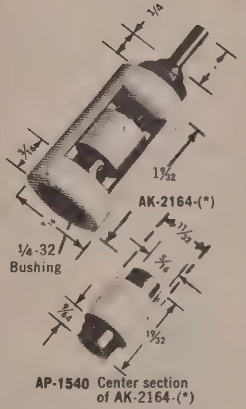
Material: Cycalac, Brass, Nickel Plated.

*Insert letter "S" or "N" followed by first two numbers of decimal equivalent, for fractional length of shaft beyond bushing.
"S" = with slot. "N" = no slot.

Typical Part Number: AK-2164-N31 =
5/16″ long shaft beyond bushing (standard), no slot. If length is 1″ use "X".

AK-2164-SX =
1″ long shaft beyond bushing, slotted.
If length exceeds 1″, use "X" and decimal equivalent for balance of number.

AK-2164-NX31 =
1 5/16″ long shaft beyond bushing, no slot.

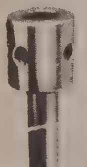


AP-1540 Center section of AK-2164-(*)

¼″ SHAFT COUPLING EXTENDER

AP-1010
Nickel plated brass with 2 set screws. ½″ O.D.; 1¾″ overall length.

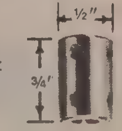
AP-1321
Same as above, except extends ¼″ shaft to ⅛″, overall length 2½″. Aluminum clear iridite.



SHAFT COUPLING

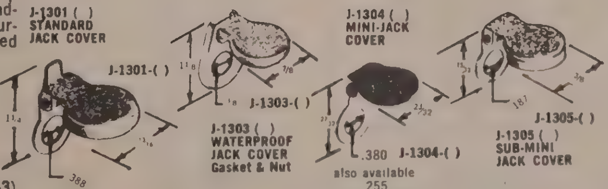
AP-15150
Nickel plated brass coupling for joining two ¼″ shafts. 4 set screws.

Cat. No. AP-15151
Same as above, 2 set screws.



JACK COVERS (TRIMMER COVERS)

Fit jack or panel bushings used to keep out dust and moisture and prevent inadvertent disturbance of control. Outer surfaces finished in standard colors of baked enamel.

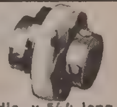


*Overall height in closed position when mounted on panel.

To Order Colors Specify:
(-1) Black Texture; (-2) Smooth Gray; (-3) Smooth Olive; (-4) Smooth Black; (-5) Bright Nickel Plate; (-6) Red (Top section only); (-7) White (Top section only).

Example: Jack cover, color black texture, order as **J-1301 (-1)**

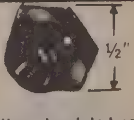
AK5610 INSULATED COUPLING



For ¼″ shaft. ¾″ dia. x ⅝″ long. Permits linear and angular misalignment up to .005″ and/or 10°. Breakdown voltage 3 KV.

AK771 REDUCER INSERT BUSHING

½″ Hex — 1/16″ thick. Overall length 5/32″



Adapter with high voltage insulated couplings to accommodate ⅛″ shaft potentiometers. ⅜ x 32 O.D., ¼ x 32 I.D.

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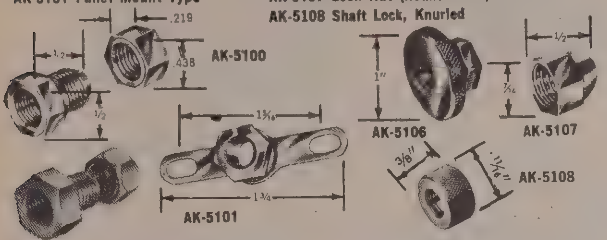
QUALITY
RELIABILITY
ECONOMY

SHAFT LOCKS Split-Bushing, Collet Type

Securely holds shaft in position. Brass, nickel plated body and lock nut.

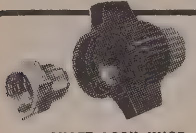
— **For 1/4" Shafts** 3/8-32 bushing

AK-5100 Standard Lock Nut
AK-5101 Panel Mount Type
AK-5106 Knurled Shaft Lock (1" O.D. Knurl)
AK-5107 Lock Nut (Round Head)
AK-5108 Shaft Lock, Knurled



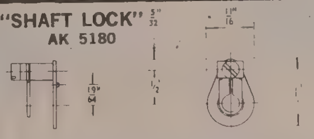
AK-103 — For 1/8" shaft — 1/4-32 bushing 3/8" Hex Dia., assembled length 1/2.

AK-5109 — For 1/8" shaft. 1/4-28 bushing (7/32" long x 5/16" dia.)



SHAFT LOCK KNOB
(with locking collet)

"SHAFT LOCK"
AK 5180



FITS 3/8" BUSHING, 1/4" SHAFT

SHAFT LOCKS One-piece; fits standard 1/4" and 3/8"-32 thread of shaft bushing. Friction grip holds shaft to prevent accidental or vibrational disturbance of control settings. Adjustment for semi-permanent locking, provided. Note: Part No's. 1047, 1048, 1049 maximum tightening torque — 5 lb.-in.

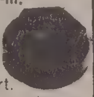
AK-1046 5/16" Hex OD. Metal w/plastic insert.

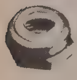
AK-1048 7/16" Hex OD. Metal w/plastic insert.

AK-1047 5/16" Hex OD. All Plastic

AK-1049 7/16" Hex OD. All Plastic

AK-1050 Plastic w/metal insert.

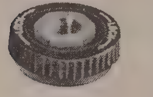




Ordering Data:	-(1) Nominal Shaft Dia.	-(2) Bushing Thd. Size
	2 = 1/8"	4 = 1/4-32
	4 = 1/4"	6 = 3/8-32

Typical P/N: AK1049-2-4 = for 1/8" shaft, 1/4-32 bushing.
AK1048-4-6 = for 1/4" shaft, 3/8-32 bushing.

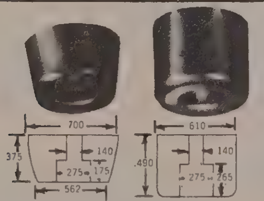
SHAFT KNOB LOCK



Cat. No.
AK-1057-2 (*) (1/8" shaft)
AK-1057-4 (*) (1/4" shaft)
(Used with 71 Series Knob)
AK-1059-4 (*) (1/4" shaft)
(Used with 91 Series Knob)
AK-1061-4 (*) (1/4" shaft)
(Used with 121 Series Knob)
*Specify "M" or "G" for matte or glossy finish.

Prevents movement of controls due to shock, vibration, or accidental contact. Available matte or glossy finish.

Typical Part Numbers: AK-1057-2MA = For 1/8" Shaft/matte finish/Black
AK-1059-4GA = For 1/4" Shaft/glossy finish/Black



CHASSIS AND CABINET BUMPERS

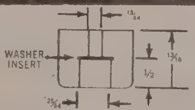
Low-friction polyethylene. Guards against scuffing. Supplied in either black or russet brown, with recessed hole for screw or bolt usage.

To Order Colors: Black, specify (4); Brown, specify (7). Other colors on request.

AK-574 also available in white nylon; thru hole .187 dia., C bore 3/8". Specify No. AK-577-8

NO. AK-576-4 HEAVY DUTY CHASSIS AND CABINET BUMPER (WITH STEEL WASHER INSERT)

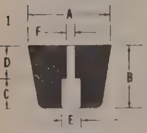
Molded neoprene. 1" diameter, 13/16" high. Configuration similar to AK-574 above. Color: Black. Other colors on request.



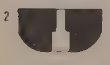
No. AK-162610-4 New, improved non-marring, high tear strength, neoprene.

RECESSED BUMPERS

1



2



PART NO.	A MAX. DIAM.	B HGT.	C SCREW HEAD DEPTH	D SCREW SHAFT DEPTH	E SCREW BASE OPENING	F SCREW SHAFT WIDTH	NOMINAL DURO-METER	FIG. NO.
REC-2082S	5/8	1/2	1/4	1/4	5/16	5/32	75	1
REC-2084S	3/4	3/8	3/16	3/16	7/16	3/16	75	1
REC-2081S	5/8	5/16	3/16	1/8	1/4	3/16	75	2

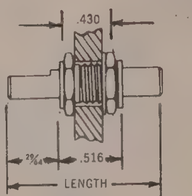
Suffix S — Steel Washer Insert

All items shown are molded of natural and synthetic rubber compounds or reclaimed rubber in combination or blends thereof. *Items are listed in ascending order of diameter and height for each Figure Number.*

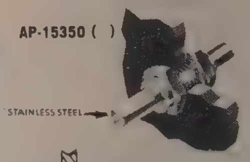
PANEL BEARING AND SHAFT ASSEMBLIES

Cat. No. AP-15350 Series

For rotary control of components. Stainless steel shaft 1/4" dia. one end flatted completely assembled with retaining rings, jam nut and lock washer. Nickel plated, brass panel bearing. Fits panels up to 3/16" thick; mounts in 13/32" dia. hole.

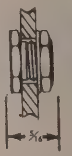


AP-15350

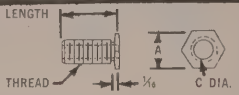


Cat. No.	Item	"L" Shaft Length
AP-15350	Panel Bearing	—
AP-15350-1	Panel Bearing &	1 5/16"
AP-15350-2	Shaft Assembly	3"
AP-15350-3		6"

Also available as Nylon Panel Bearing.



Cat. No. AK-5511 Panel Bearing Assembly
Shafts available on special order.



BUSHING, PANEL FOR 1/4 AND 1/8 SHAFT

Typical Pt. No. PB 60814-B = 1/4-28 Thd., 1/2 Lg. Brass w/ .127 Hole.

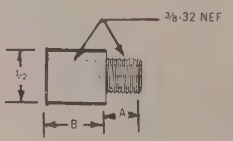
Bushing can be supplied with Mtg. nut and int. tooth lockwasher. Available with special nylon bearings.

Lgth.	A=3/8 1/4-28 Thread	A=1/2 3/8-32 Thread
3/8	PB 60614	PB 80638
7/16	PB 60714	PB 80738
1/2	PB 60814	PB 80838
5/8	PB 61014	PB 81038
3/4	PB 61214	PB 81238
7/8	PB 61414	PB 81438

Thread	"C" Dia.
1/4-28	.127
3/8-32	.252

BUSHING EXTENDERS AK-5075-1 thru AK-5075-11

Permit staggered mounting of components having 1/4" shafts, behind a panel. Nickel plated brass.
Note: *AK-5075-9 is a locking (collet) type, supplied with lock nut.



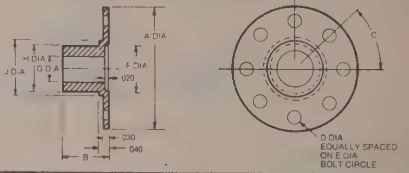
AK-5075 ( )

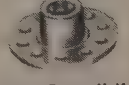
Dimensions in Inches

Cat. No.	"B"	"A"	Cat. No.	"B"	"A"
AK-5075-1	5/8	3/8	AK-5075-6	1 5/8	1/4
AK-5075-2	5/8	1/4	AK-5075-7	1 7/16	3/16
AK-5075-3	5/8	3/16	AK-5075-8	1 1/16	1/4
AK-5075-4	3/4	1/4	*AK-5075-9	11/16	1/2
AK-5075-5	2 1/4	1/4	AK-5075-10	1 21/64	7/16
			AK-5075-11	55/64	7/16

STUD, GROUND Multi-termination ground lugs.
Electrically Sound • Easily Installed • Space Saving

- Provides equipotential chassis termination for ground leads.
- Minimizes resistance between circuit contacts and ground point.
- Diminishes noise, pick-up and regenerative feedback.
- Eliminates the need for buss bars or stacks of lugs.
- Can be use as "Floating Ground" with proper insulation.





Material: Brass, Half Ha
Finish: Tin Plate

Part No.	A	B	C	D	E	F	G	H	J
G 1001	3/4"	5/16"	30°	1/16" Dia. 12 Holes	9/16"	21/64"	3/16"	5/16"	23/64"
G 5008	3/4"	1/4"	36°	5/64" Dia. 10 Holes	9/16"	21/64"	3/16"	5/16"	23/64"
G 7004	1/2"	9/32"	45°	1/16" Dia. 8 Holes	25/64"	17/64"	5/32"	7/32"	19/64"

Are Our Specials JAN Specialty

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MANUFACTURING COMPANY INC.
47-27 36th STREET • LONG ISLAND CITY, NEW YORK 11101 • TEL: (212) 361-0800

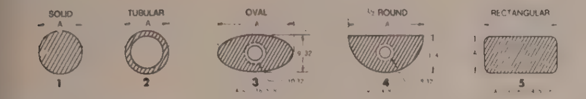
QUALITY
RELIABILITY
ECONOMY

EQUIPMENT HANDLES

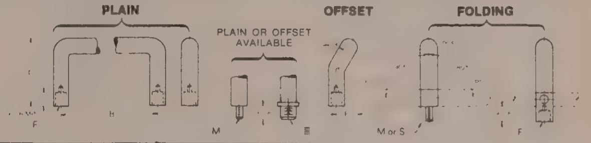
MATERIAL
A — ALUMINUM
B — BRASS
S — COLD ROLLED STEEL
SS — STAINLESS STEEL

FINISH
A — BLACK ANODIZE
B — OPTICAL BLACK
C — CLEAR ANODIZE
E — SATIN ETCH
N — NICKEL PLATE
X — BLACK OXIDE
P — PASSIVATE
0 — NO FINISH

SHAPE



TYPE



HOW TO SPECIFY

NOTE: For special designs, identify differences from standard in ( ) after Part No.
Example: 3008 H0A 1 F 10 C09 B08 A (F = 6-32 x ¾″ deep).

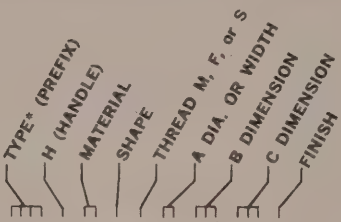
TYPE OF HANDLE

*TYPE	PREFIX	DESCRIPTION
PLAIN	NONE	———
OFFSET	ϕ, E	———
FOLDING	A	A = FREE 180°
	B	B = 2 POS., DETENT, 90°
	C	C = 3 POS., DETENT, 90°

A DIA.	³⁄₁₆	¼	⁵⁄₁₆	⅜	⁷⁄₁₆	½
M, F	4-40	8-32	10-32	10-32	10-32	10-32
S	10-32	¼-28	⁵⁄₁₆-24	⅜-24	⅜-24	⅜-24

**RECOMMENDED CARRYING LOAD (lbs.)
BASED ON HUMAN ENGINEERING FACTORS**

A DIA.	¼	⅜	½	⅝	¾
JAN STD. (lbs.)	10-15	15-20	20-30	30-40	40-50
MIL STD. 1472 (lbs. max.)	15	—	20	—	40



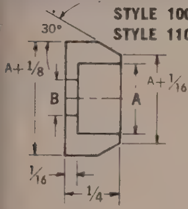
DIMENSION:
θ Specify in Degrees
A, E Specify in ¹⁄₁₆ increments
C, B Specify with Letter + Fraction in ¹⁄₁₆ increments

LETTER VALUE:
A thru Z = 1 thru 26. When Specifying dimension in ¹⁄₁₆ increments, use numerator of fraction for Part No.
See Examples.

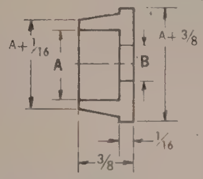
TYPICAL PART NUMBER

H 0B 1 M 04 D03 A02 X	Plain Handle Brass, Shape 1, Male Thd., A = ¼ O.D., B = 4³⁄₁₆, C = 1⅛, Black Oxide Finish.
3008 H 0A 1 F 10 C09 B08 A	30°, Offset, E = ½, Aluminum, Shape 1. Female Thd., A = ⅝ O.D., B = 3⁹⁄₁₆, C = 2½, Blk. Anodized.
A H SS 2 S 08 D00 A08 P	Folding Handle, 180°, Free. Stainless Steel, Shape 2. A = ½ Dia., B = 4″, C = 1½, Passivate, ⅜-24 thd.

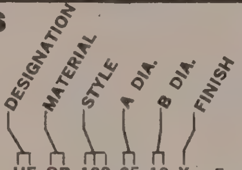
FERRULES



STYLE 100 (for M or F type)
STYLE 110 (for S type)



STYLE 200 (for M or F type)
STYLE 210 (for S type)



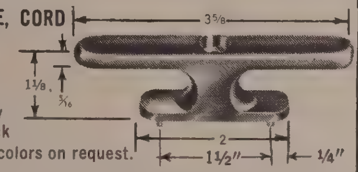
NOTES: "A" dimension is specified in ¹⁄₁₆ increments using numerator of fraction for part No.
"B" Dia. is clearance hole. For thd., see table.
For material and finish, see above.
See examples.

HF OB 100 05 10 X	Ferrule Brass, Style 100, A = ⁵⁄₁₆ Dia. B = clearance for 10-32, Black Oxide
HF OA 200 08 10 A	Ferrule Aluminum, Style 200, A = ½ Dia. B = clearance for 10-32, Black Anodized.

Thd. Size	4-40	6-32	8-32	10-32	¼-24	⅜-24
B	04	06	08	10	25	38

HANDLE, CORD

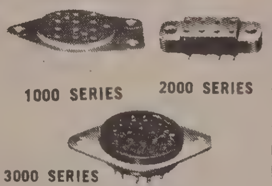
H-692-1



Colors:
(-1) Grey
(-2) Black
Special colors on request.

Die-cast aluminum handle designed for use on small instrument panels. Single integral hole accepts No. 10 screw. Dia. of pins ³⁄₁₆″ x .078H.

RELAY SOCKETS WITH FIXED OR REMOVABLE CONTACTS!

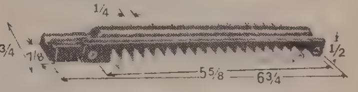


MS No.	JAN Part No.
MS-25322	No. 1010
MS-25324	No. 1020
MS-25326	No. 1030
MS-25328	No. 1040
MS-25330	No. 1050
MS-25456	No. 1060
MS-25458	No. 1070
MS-25460	No. 1080
MS-25462	No. 1090
MS-25464	No. 1100

"FEED THROUGH" TERMINAL BOARDS

No. T-746. Molded of wood-filled melamine per MIL-M-14E.

Avoid expensive tooling. Design around this integrally-molded 20 feed-through terminal board. Equally-spaced terminals can be used for wrap around and/or solder connections. Voltage Breakdown 4000 Volts.



JOLTA SHOCK TEST MACHINES

For Reproducible Impact-Shock Test Pulses

Engineered to reproduce the entire spectrum of all significant impact shock waves.

Designed for laboratory and production testing of light to medium weight components. Produced to meet practically all requirements of common Mil. Spec. qualification tests (JAN-S-44, Mil-Std. 202A, Mil-T-12679A). Each JOLTA is electronically calibrated to certify compliance with test specifications.

JOLTA — Floor Model Nos. F-3003-C1, C2, C3 — Precision-machined magnesium casting utilized for higher shock amplitudes. Typical tests with these units 50 to 5000 G at .2 to 11.0 millisecs. For high impact testing, accessory springs and twin anvil combinations yield impulses of 0.2 millisecs to 5000 G.

SPECIFICATIONS — JOLTA SHOCK TESTERS

Model No.	Carriage Volume	Test Weight	"G" Ranges
F-3003-C-1	5″ cube	0-12 lbs.	50-1500
F-3003-C-2	5″ cube	0-4.0 lbs.	350-5000

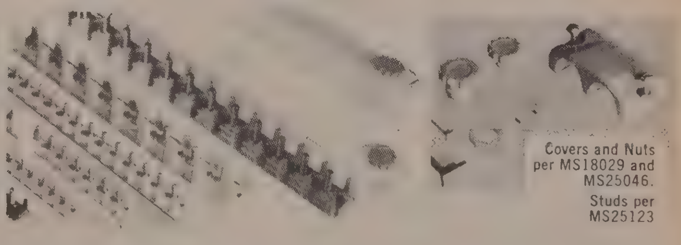
FEATURES
- **Economical**
- **Simple to Operate**
- **Rugged**
- **Uniformly Accurate**

For Production Testing, Can Be Automated for Continuous Operation

Note:
New design allows for quick changecvers of accessories.

Cat. No. X-3
INSULATED TERMINALS — plastic
For wire termination in metal and plastic cases (glue to case).
Contacts can be brass or brass plated.

TERMINAL BLOCKS A complete line of Terminal Blocks per MS27212, MS25123 and NAS 191.



Covers and Nuts per MS18029 and MS25046.
Studs per MS25123

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QUALITY
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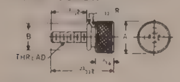
ECONOMY

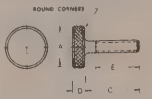
THUMB SCREW



Thread	A Dia.	B Dia.	Pt. No.
6-32	3/8 7/16 1/2	5/16 3/8 7/16	TS 6056 TS 7066 TS 8076
8-32	3/8 7/16 1/2	5/16 3/8 7/16	TS 6058 TS 7068 TS 8078
10-32	3/8 7/16 1/2	5/16 3/8 7/16	TS 60510 TS 70610 TS 80710

EXAMPLE (TO ORDER)

Pt. No. TS 6058-B = 8-32 x 13/32 Lg. Thread, Thumb Screw- Brass.



KNURLED THUMB SCREWS

Material: 303 Stainless Steel

Thread	A	C	D	E	Part No.
#4-40	1/4	3/8	1/8	5/16	ST4010
	1/4	1/2	1/2	7/16	ST4011
	1/4	3/4	1/2	5/8	ST4012
	3/8	3/8	1/8	5/16	ST4013
	3/8	1/2	1/8	7/16	ST4014
#6-32	1/4	1/2	1/2	7/16	ST6015
	1/4	3/4	1/2	5/8	ST6016
	1/4	1	1/2	13/16	ST6017
	3/8	3/8	1/8	5/16	ST6018
	3/8	1/2	1/8	3/8	ST6019
#8-32	1/4	1/2	1/2	7/16	ST8020
	1/4	3/4	1/2	5/8	ST8021
	1/4	1	1/2	13/16	ST8022
	3/8	3/8	1/8	5/16	ST8023
	3/8	1/2	1/8	3/8	ST8024
#10-24	3/8	1/2	3/16	7/16	ST11025
	3/8	3/4	3/16	5/8	ST11026
	3/8	1	3/16	13/16	ST11027
	3/8	1 1/4	3/16	1	ST11028
	1/2	3/4	3/16	5/8	ST11029
	1/2	1	3/16	13/16	ST11030
	1/2	1 1/4	3/16	1	ST11031
	1/2	1 1/2	3/16	1 1/4	ST11032
	3/4	3/4	3/16	5/8	ST11033
	3/4	1	3/16	13/16	ST11034
#10 24	3/4	1 1/4	3/16	1	ST11035
	3/4	1 1/2	3/16	1 1/4	ST11036
#10-32	3/8	1/2	3/16	7/16	ST10037
	3/8	3/4	3/16	5/8	ST10038
	3/4	1	3/16	13/16	ST10039
	3/8	1 1/4	3/16	1	ST10040
	1/2	3/4	3/16	5/8	ST10041
	1/2	1	3/16	13/16	ST10042
	1/2	1 1/4	3/16	1	ST10043
	1/2	1 1/2	3/16	1 1/4	ST10044
	3/4	3/4	3/16	5/8	ST10045
	3/4	1	3/16	13/16	ST10046
	3/4	1 1/4	3/16	1	ST10047
	3/4	1 1/2	3/16	1 1/4	ST10048
1/4 20	3/4	3/4	3/16	5/8	ST14049
	3/4	1	3/16	13/16	ST14050
	3/4	1 1/4	3/16	1	ST14051
	3/4	1 1/2	3/16	1 1/4	ST14052
	3/4	2	3/16	1 5/8	ST14053
	1	3/4	3/16	5/8	ST14054
	1	1	3/16	13/16	ST14055
	1	1 1/4	3/16	1	ST14056
	1	1 1/2	3/16	1 1/4	ST14057
	1	2	3/16	1 5/8	ST14058

SET SCREWS

CUP POINT STAINLESS

SOCKET HEAD

Class 3A Thread
Stainless Steel

Screw Size	L	Part No.
#0 80	1/8	SS-T-1
	3/16	SS-T-2
#2-56	1/8	SS T 3
	3/16	SS T 4
	1/4	SS-T-5
#4 40	1/8	SS T 6
	3/16	SS-T 7
	1/4	SS-T 8
#6 32	1/8	SS-T-9
	1/4	SS T 10
	3/8	SS-T 11
	1/2	SS T 12
#8 32	1/4	SS T-13
	3/8	SS-T 14
	1/2	SS T-15
	5/8	SS-T 16
#10 32	1/4	SS-T 17
	1/2	SS-T-18
	3/4	SS-T 19
	1	SS T 20
1/4 20	1/4	SS-T 21
	1/2	SS T 22
	3/4	SS-T-23
	1	SS-T 24
	1 1/4	SS T 25

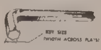
SLOTTED HEAD

Class 2A Thread

Screw Size	L	Part No.
#0-08	1/8	SS D-15
#0-80	3/16	SS-D-16
#2 56	1/8	SS-D-1-A
#4-40	1/8	SS D 2 A
#6 32	1/8	SS-D 3-A

SOCKET HEAD KEYS & SETS

Material
Steel
(Nickel Plated)



Set of Hex Socket Head Keys Containing 8 Keys from .050 to 3/32 Key Size — in case. Order SS-K-50

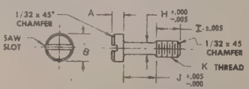
Screw Size	Key Size	Part No.
#2	035	SS K-40
#4	050	SS K-41
#6	1/16	SS-K 42
#8	5/64	SS K-43
#10	3/32	SS K-44
1/4	1/8	SS K 45
5/16	5/32	SS K-46
3/8	3/16	SS-K-47
1/2	1/4	SS K-48

THREADED ROD

— 1/4-20 THREAD — 2″ EACH END

Lgth		Lgth		Lgth		Lgth		Lgth		Lgth	
4½	TR 1445	7	TR 1470	9½	TR 1495	12	TR 14120	14½	TR 14145	17½	TR 14175
5	TR 1450	7½	TR 1475	10	TR 14100	12½	TR 14125	15	TR 14150	18	TR 14180
5½	TR 1455	8	TR 1480	10½	TR 14105	13	TR 14130	15½	TR 14155	18½	TR 14185
6	TR 1460	8½	TR 1485	11	TR 14110	13½	TR 14135	16	TR 14160	19	TR 14190
6½	TR 1465	9	TR 1490	11½	TR 14115	14	TR 14140	16½	TR 14165	19½	TR 14195
								17	TR 14170	20	TR 14200

MATERIALS B = Brass A = Aluminum SS = Stainless Steel



CAPTIVE SCREWS

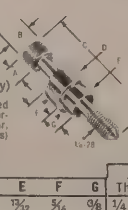
Material: 303 Stainless Steel

Thickness For Panel	A	B	H	I	J	K Thread	Part No.
1/16	1/8	1/4	072	187	.281	#4 40	CS4-1
1/8	1/8	1/4	072	187	.343		CS4-2
1/16	1/8	9/32	086	218	312	#6 32	CS6-1
1/8	1/8	9/32	086	.218	.375		CS6 2
3/16	1/8	9/32	086	218	437		CS6-3
1/8	5/32	5/16	114	250	.406	#8-32	CS8-2
3/16	5/32	5/16	114	250	.468		CS8-3
1/4	5/32	5/16	114	250	.531		CS8-4
1/16	3/16	3/8	136	312	.531	#10 32	CS10-3
1/4	3/16	3/8	136	312	593		CS10-4

CAPTIVE SCREW AND NUT ASSEMBLY

No. CS-711-(1)
No. CS-711-(2) (screw only)

Consists of slotted, knurled thumb screws made of corrosion resistant steel bar, and nickel-plated (on brass) panel inserts.



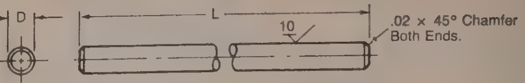
Cat. No. AP-1040
Screw, Captive
Cat. No. AP-1039
Insert, Captive

	A	B	C	D	E	F	G	J Thd.
—1	1/4	3/8	1 5/16	9/16	13/32	5/16	3/8	1/4-28
—2	1/4	29/64	1 7/16	9/16	13/32	5/16	3/8	8-32

Cat. No. AP-1197
Screw, Captive
1/16″ slotted knurled head (7/16″ O.D.)
1¼″ overall length; 8-32 thread.

PRECISION GROUND SHAFTS

.303 Stainless Steel



Tolerance

Shaft Dia. (D) PGS1 = $^{+.0000}_{-.0001}$

PGS2 = $^{+.0000}_{-.0002}$

PGS3 = $^{+.0000}_{-.0003}$

Standard Diameters — 1/16″ Increments

2 = .1247
3 = .1872
4 = .2497
5 = .3125
6 = .3747

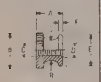
To specify: add (D) dia. × (L) length to prefix above.

IE. PGS1 — 2 × 6.375 = .1247 $^{+.0000}_{-.0001}$ Dia. × 6.375 Long.

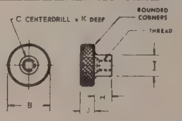
PGS2 — 3 × 3.250 = .1872 $^{+.0000}_{-.0002}$ Dia. × 3.250 Long.

PGS3 — 4 × 8.625 = .2497 $^{+.0000}_{-.0003}$ Dia. × 8.625 Long.

THUMB NUT KNURLED



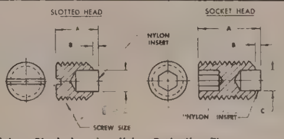
Thread	A	B Dia.	C Dia.	D Dia.	E Dia.	F	G	R Rad.	Part No.
4 36	1/4	3/8	1/8	147	5/16	3/64	7/32	3/64	KN 436
4-40	1/4	3/8	1/8	147	5/16	3/64	7/32	3/64	KN 440
6-32	1/4	3/8	9/64	169	5/16	3/64	7/32	3/64	KN 632
6-32	9/32	13/32	9/64	13/64	11/32	3/64	7/32	1/16	KN 6321
8-32	5/16	7/16	11/64	15/64	3/8	1/16	1/4	1/16	KN 832
10-24	21/64	1/2	13/64	17/64	7/16	1/16	9/32	.070	KN 124
10-32	21/64	1/2	13/64	17/64	7/16	1/16	9/32	070	KN 132
12-24	11/32	9/16	7/32	19/64	1/2	1/16	21/64	070	KN 224
1/4-20	3/8	5/8	17/64	21/64	9/16	1/16	23/64	5/64	KN 420



KNURLED THUMB NUTS

Material: 303 Stainless Steel

Thread	B Dia.	C	H	I	J	K	Part No.
#4-40	1/2	1/8	1/4	1/4	1/8	1/8	NK4070
	1/2	1/8	1/2	1/4	1/8	3/8	NK4071
	3/4	1/8	1/4	1/4	1/8	1/8	NK4072
	3/4	1/8	1/2	1/4	1/8	3/8	NK4073
#6 32	1/2	#26	1/4	1/4	1/8	3/32	NK4074
	1/2	#26	1/2	1/4	1/8	11/32	NK4075
	3/4	#26	1/4	1/4	1/8	3/32	NK4076
	3/4	#26	1/2	1/4	1/8	11/32	NK4077
#8 32	1/2	—	1/4	5/16	1/8	—	NK4078
	1/2	#15	1/2	5/16	1/8	1/4	NK4079
	3/4		1/4	5/16	1/8	—	NK4080
	3/4	#15	1/2	5/16	1/8	1/4	NK4081
#10-24	1/2	-	1/4	3/8	3/16	—	NK4082
	1/2	13/64	1/2	3/8	3/16	1/4	NK4083
	1		1/4	3/8	3/16		NK4084
	1	13/64	1/2	3/8	3/16	1/4	NK4085
#10 32	1/2	—	1/4	3/8	3/16	—	NK4086
	1/2	13/64	1/2	3/8	3/16	1/4	NK4087
	1	—	1/4	3/8	3/16	—	NK4088
	1	13/64	1/2	3/8	3/16	1/4	NK4089
1/4-20	3/4		1/4	1/2	1/4	—	NK4090
	3/4	17/64	1/2	1/2	1/4	1/4	NK4091
	1	—	1/4	1/2	1/4	—	NK4092
	1	17/64	1/2	1/2	1/4	1/4	NK4093
	1	17/64	3/4	1/2	1/4	1/2	NK4094



SET SCREWS

Material: Screw — Stainless Steel; Insert — Nylon Protective Tip

SLOTTED HEAD

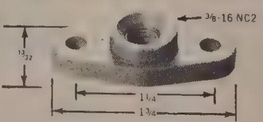
Screw Size	A	B	C	Part No.
#2-56	5/32	1/32	1/32	SSN-D 1
#4-40	5/32	1/32	1/16	SSN D-2
#6-32	5/32	1/32	1/16	SSN-D-3
#8 32	15/64	3/64	1/16	SSN D 4
#10 24	15/64	3/64	3/32	SSN-D-5
#10-32	15/64	3/64	3/32	SSN-D-6
1/4-20	5/16	1/16	1/8	SSN-D-7

SOCKET HEAD

Screw Size	A	B	C	Part No.
#2-56	5/32	1/32	1/32	SSN-T-8
	9/32	1/32	1/32	SSN T 24
#4-40	5/32	1/32	1/16	SSN-T-9
	9/32	1/32	1/16	SSN-T 25
	13/32	1/32	1/16	SSN-T 26
#6-32	5/32	1/32	1/16	SSN T-10
	9/32	1/32	1/16	SSN T-15
	17/32	1/32	1/16	SSN-T-27
#8-32	15/64	3/64	3/32	SSN-T-11
	27/64	3/64	3/32	SSN T 16
	43/64	3/64	3/32	SSN-T 28
#10-24	15/64	3/64	3/32	SSN-T 12
	27/64	3/64	3/32	SSN-T-17
#10-32	15/64	3/64	3/32	SSN T-13
	27/64	3/64	3/32	SSN-T-18
#10-32	43/64	3/64	3/32	SSN-T 29
1/4-20	5/16	1/16	1/8	SSN T-14
	7/16	1/16	1/8	SSN-T-19
	13/16	1/16	1/8	SSN-T-30
	1 3/16	1/16	1/8	SSN-T-31
1/4-28	7/16	1/16	1/8	SSN-T-20
5/16-18	19/32	3/32	3/16	SSN-T-21
	27/32	3/32	3/16	SSN-T 32
	1 3/32	3/32	3/16	SSN-T 33
3/8-16	19/32	3/32	3/16	SSN-T-22
	27/32	3/32	3/16	SSN T-34
	1 3/32	3/32	3/16	SSN T-35
1/2-13	3/4	1/8	1/4	SSN-T-23
	1 1/8	1/8	1/4	SSN-T-36

RETAINER NUT

Cat. No. R-1030



Used in conjunction with captive screw and nut assemblies. Die casting. Can be painted. Other thread sizes available upon special order.

JAN

JAN HARDWARE
MANUFACTURING COMPANY INC.
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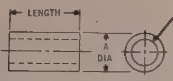
QUALITY
RELIABILITY
ECONOMY

STANDOFFS

SPACER-THRU HOLE



Clearance Hole	Code
.091 Dia. (No. 2 Screw)	1
.116 Dia. (No. 4 Screw)	2
.141 Dia. (No. 6 Screw)	3
.171 Dia. (No. 8 Screw)	4
.194 Dia. (No. 10 Screw)	5
.219 Dia. (No. 12 Screw)	6
.257 Dia. (No. 1/4 Screw	7
.312 Dia.	8

Length	A=1/8	A=3/16	A=1/4	Length	A=3/16	A=1/4
1/16	SP 021	SP 031		11/16	SP 0311	SP 0411
1/8	SP 022	SP 032	SP 042	3/4	SP 0312	SP 0412
3/16	SP 023	SP 033	SP 043	7/8	SP 0314	SP 0414
1/4	SP 024	SP 034	SP 044	15/16	SP 0315	SP 0415
5/16	SP 025	SP 035	SP 045	1	SP 0316	SP 0416
3/8	SP 026	SP 036	SP 046	1 1/8		SP 0418
7/16	SP 027	SP 037	SP 047	1 1/4		SP 0420
1/2	SP 028	SP 038	SP 048	1 3/8		SP 0422
9/16	SP 029	SP 039	SP 049	1 1/2		SP 0424
5/8		SP 0310	SP 0410			

EXAMPLE (TO ORDER) Pt. No. SP 035-2-B = 3/16 Dia. x 5/16 Lg. Spacer-Brass w/.116 Clearance Hole for #4 Screw.

Length	A=5/16	A=3/8	A=1/2	Length	A=5/16	A=3/8	A=1/2
1/8	SP 052	SP 062	SP 082	7/8	SP 0514	SP 0614	SP 0814
3/16	SP 053	SP 063	SP 083	15/16	SP 0515	SP 0615	SP 0815
1/4	SP 054	SP 064	SP 084	1	SP 0516	SP 0616	SP 0816
5/16	SP 055	SP 065	SP 085	1 1/8	SP 0518	SP 0618	SP 0818
3/8	SP 056	SP 066	SP 086	1 1/4	SP 0520	SP 0620	SP 0820
7/16	SP 057	SP 067	SP 087	1 3/8	SP 0522	SP 0622	SP 0822
1/2	SP 058	SP 068	SP 088	1 1/2	SP 0524	SP 0624	SP 0824
9/16	SP 059	SP 069	SP 089	1 5/8		SP 0626	SP 0826
5/8	SP 0510	SP 0610	SP 0810	1 3/4		SP 0628	SP 0828
11/16	SP 0511	SP 0611	SP 0811	1 7/8		SP 0630	SP 0830
3/4	SP 0512	SP 0612	SP 0812	2		SP 0632	SP 0832

EXAMPLE (TO ORDER) Pt. No. SP 064-3-PH = 3/8 Dia. x 1/4 Lg. Spacer-Phenolic w/ 141 Clearance Hole for #6 Screw.

FINISH

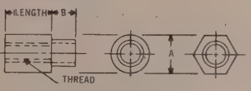
CA = Clear Anodize
P = Passivate
A = Black Anodize
I = Iridite #14 (Golden Yellow)
C = Cadmium Plate
CCC = Cadmium Plate and Clear Chromate
N = Nickel Plate
X = Black Oxide

MATERIALS

B = Brass
A = Aluminum
SS = Stainless Steel
S = Steel
N = Nylon
PH = Phenolic
T = Teflon

STANDOFF — RIVET

— HEX AND ROUND



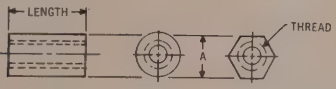
Code	Board Thickness	Shank B
1	1/32	.075
2	1/16	:105
3	3/32	.135
4	1/8	.165
5	3/16	.230
6	1/4	.290

	A=1/8 Dia. 0-80 Thread		A=1/4 Dia. 2-56 Thread		A=5/16 Dia. 4-40 Thread		A=3/8 Dia. 6-32 Thread	
Length	Round	Hex	Round	Hex	Round	Hex	Round	Hex
1/8	RR 202	RH 202	RR 4022	RH 4022	RR 5024	RH 5024	RR 6026	RH 6026
3/16	RR 203	RH 203	RR 4032	RH 4032	RR 5034	RH 5034	RR 6036	RH 6036
1/4	RR 204	RH 204	RR 4042	RH 4042	RR 5044	RH 5044	RR 6046	RH 6046
5/16	RR 205	RH 205	RR 4052	RH 4052	RR 5054	RH 5054	RR 6056	RH 6056
3/8	RR 206	RH 206	RR 4062	RH 4062	RR 5064	RH 5064	RR 6066	RH 6066
7/16	RR 207	RH 207	RR 4072	RH 4072	RR 5074	RH 5074	RR 6076	RH 6076
1/2	RR 208	RH 208	RR 4082	RH 4082	RR 5084	RH 5084	RR 6086	RH 6086
9/16	RR 209	RH 209	RR 4092	RH 4092	RR 5094	RH 5094	RR 6096	RH 6096
5/8	RR 210	RH 210	RR 4102	RH 4102	RR 5104	RH 5104	RR 6106	RH 6106
11/16	RR 211	RH 211	RR 4112	RH 4112	RR 5114	RH 5114	RR 6116	RH 6116
3/4	RR 212	RH 212	RR 4122	RH 4122	RR 5124	RH 5124	RR 6126	RH 6126
7/8	RR 214	RH 214	RR 4142	RH 4142	RR 5144	RH 5144	RR 6146	RH 6146
1	RR 216	RH 216	RR 4162	RH 4162	RR 5164	RH 5164	RR 6166	RH 6166

EXAMPLE (TO ORDER) Pt. No. RR 4052-2-B = 1/4 Dia. x 5/16 Lg. Round, Rivet Standoff-Brass w/2-56 Thread Shank = .105 for 1/16 Board.

STANDOFF — THREADED

— HEX & ROUND



MATERIALS B = Brass A = Aluminum SS = Stainless Steel PH = Phenolic

SPECIAL SIZES AND MATERIALS/MANUFACTURED TO ORDER

	A=1/8 Dia. 0-80 Thread		A=3/16 Dia. 2-56 Thread		A=3/16 Dia. 4-40 Thread	
Lgth.	Round	Hex	Round	Hex	Round	Hex
1/16	SR 201	SH 201	SR 3012	SH 3012	SR 3014	SH 3014
1/8	SR 202	SH 202	SR 3022	SH 3022	SR 3024	SH 3024
3/16	SR 203	SH 203	SR 3032	SH 3032	SR 3034	SH 3034
1/4	SR 204	SH 204	SR 3042	SH 3042	SR 3044	SH 3044
5/16	SR 205	SH 205	SR 3052	SH 3052	SR 3054	SH 3054
3/8	SR 206	SH 206	SR 3062	SH 3062	SR 3064	SH 3064
7/16	SR 207	SH 207	SR 3072	SH 3072	SR 3074	SH 3074
1/2	SR 208	SH 208	SR 3082	SH 3082	SR 3084	SH 3084
9/16	SR 209	SH 209	SR 3092	SH 3092	SR 3094	SH 3094
5/8	SR 210	SH 210	SR 3102	SH 3102	SR 3104	SH 3104
3/4	SR 212	SH 212	SR 3122	SH 3122	SR 3124	SH 3124
1			SR 3162	SH 3162	SR 3164	SH 3164

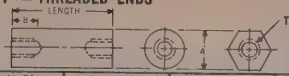
EXAMPLE (TO ORDER) Pt. No. SR 3032-A = 3/16 Dia. x 3/16 Lg. Round Standoff-Aluminum w/2-56 Threaded Hole.

	A=1/4 Dia.							
	4-40 Thread		6-32 Thread		8-32 Thread		10-32 Thread	
Lgth.	Round	Hex	Round	Hex	Round	Hex	Round	Hex
1/8	SR 4024	SH 4024	SR 4026	SH 4026	SR 4028	SH 4028	SR 40210	SH 40210
3/16	SR 4034	SH 4034	SR 4036	SH 4036	SR 4038	SH 4038	SR 40310	SH 40310
1/4	SR 4044	SH 4044	SR 4046	SH 4046	SR 4048	SH 4048	SR 40410	SH 40410
5/16	SR 4054	SH 4054	SR 4056	SH 4056	SR 4058	SH 4058	SR 40510	SH 40510
3/8	SR 4064	SH 4064	SR 4066	SH 4066	SR 4068	SH 4068	SR 40610	SH 40610
7/16	SR 4074	SH 4074	SR 4076	SH 4076	SR 4078	SH 4078	SR 40710	SH 40710
1/2	SR 4084	SH 4084	SR 4086	SH 4086	SR 4088	SH 4088	SR 40810	SH 40810
9/16	SR 4094	SH 4094	SR 4096	SH 4096	SR 4098	SH 4098	SR 40910	SH 40910
5/8	SR 4104	SH 4104	SR 4106	SH 4106	SR 4108	SH 4108	SR 41010	SH 41010
3/4	SR 4124	SH 4124	SR 4126	SH 4126	SR 4128	SH 4128	SR 41210	SH 41210
7/8	SR 4144	SH 4144	SR 4146	SH 4146	SR 4148	SH 4148	SR 41410	SH 41410
1	SR 4164	SH 4164	SR 4166	SH 4166	SR 4168	SH 4168	SR 41610	SH 41610

EXAMPLE (TO ORDER) Pt. No. SH 4086-B = 1/4 Dia. x 1/2 Lg. Hex Standoff-Brass w/6-32 Threaded Hole.

STANDOFF — THREADED ENDS

— HEX & ROUND



Thread	Depth B
0-80	3/16
4-40	1/4
6-32	3/8
8-32	7/16

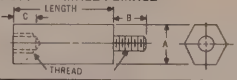
	A=1/8 Dia. 0-80 Thread		A=1/4 Dia. 4-40 Thread		A=1/4 Dia. 6-32 Thread		A=1/4 Dia. 8-32 Thread	
Length	Round	Hex	Round	Hex	Round	Hex	Round	Hex
1 1/16	DR 217	DH 217	DR 4174	DH 4174	DR 4176	DH 4176	DR 4178	DH 4178
1 1/8	DR 218	DH 218	DR 4184	DH 4184	DR 4186	DH 4186	DR 4188	DH 4188
1 3/16	DR 219	DH 219	DR 4194	DH 4194	DR 4196	DH 4196	DR 4198	DH 4198
1 1/4	DR 220	DH 220	DR 4204	DH 4204	DR 4206	DH 4206	DR 4208	DH 4208
1 5/16	DR 221	DH 221	DR 4214	DH 4214	DR 4216	DH 4216	DR 4218	DH 4218
1 3/8	DR 222	DH 222	DR 4224	DH 4224	DR 4226	DH 4226	DR 4228	DH 4228
1 7/16	DR 223	DH 223	DR 4234	DH 4234	DR 4236	DH 4236	DR 4238	DH 4238
1 1/2	DR 224	DH 224	DR 4244	DH 4244	DR 4246	DH 4246	DR 4248	DH 4248
2			DR 4324	DH 4324	DR 4326	DH 4326	DR 4328	DH 4323
2 1/8			DR 4344	DH 4344	DR 4346	DH 4346	DR 4348	DH 4348
2 3/4			DR 4444	DH 4444	DR 4446	DH 4446	DR 4448	DH 4448
3			DR 4484	DH 4484	DR 4486	DH 4486	DR 4488	DH 4488

EXAMPLE (TO ORDER) Pt. No. DH 219-B = 1/8 Dia. x 1 3/16 Lg. Hex Standoff-Tapped Both Ends Brass w/o-80 x 3/16 Hole.

	A=5/16 Dia. 6-32 Thread		A=3/8 Dia. 6-32 Thread		A=3/8 Dia. 8-32 Thread		A=1/2 Dia. 8-32 Thread	
Lgth.	Round	Hex	Round	Hex	Round	Hex	Round	Hex
1 1/16	DR 5176	DH 5176	DR 6176	DH 6176	DR 6178	DH 6178	DR 8178	DH 8178
1 1/8	DR 5186	DH 5186	DR 6186	DH 6186	DR 6188	DH 6188	DR 8188	DH 8188
1 3/16	DR 5196	DH 5196	DR 6196	DH 6196	DR 6198	DH 6198	DR 8198	DH 8198
1 1/4	DR 5206	DH 5206	DR 6206	DH 6206	DR 6208	DH 6208	DR 8208	DH 8208
1 5/16	DR 5216	DH 5216	DR 6216	DH 6216	DR 6218	DH 6218	DR 8218	DH 8218
1 3/8	DR 5226	DH 5226	DR 6226	DH 6226	DR 6228	DH 6228	DR 8228	DH 8228
1 7/16	DR 5236	DH 5236	DR 6236	DH 6236	DR 6238	DH 6238	DR 8238	DH 8238
1 1/2	DR 5246	DH 5246	DR 6246	DH 6246	DR 6248	DH 6248	DR 8248	DH 8248
1 3/4	DR 5286	DH 5286	DR 6286	DH 6286	DR 6288	DH 6288	DR 8288	DH 8288
2	DR 5326	DH 5326	DR 6326	DH 6326	DR 6328	DH 6328	DR 8328	DH 8328
2 1/4	DR 5366	DH 5366	DR 6366	DH 5366	DR 6368	DH 6368	DR 8368	DH 8368
2 1/2	DR 5406	DH 5406	DR 6406	DH 6406	DR 6408	DH 6408	DR 8408	DH 8408
3	DR 5486	DH 5486	DR 6486	DH 6486	DR 6488	DH 6488	DR 8488	DH 8488
3 1/2	DR 5566	DH 5566	DR 6566	DH 6566	DR 6568	DH 6568	DR 8568	DH 8568
4	DR 5646	DH 5646	DR 6646	DH 6666	DR 6648	DH 6648	DR 8648	DH 8648

EXAMPLE (TO ORDER) Pt. No. DR 6186-A = 3/8 Dia. x 1 1/8 Lg. Round Standoff-Aluminum-Tapped Both Ends w/6-32 x 3/8 Thread.

STANDOFF — MALE-FEMALE



Thread	B	C
4-40	3/16	1/4
6-32	1/4	3/8
8-32	3/8	7/16
10-32	3/8	1/2

	A=1/4 AC. Flts.				A=3/8 AC. Flts.			
Lgth.	4-40	6-32	8-32	10-32	4-40	6-32	8-32	10-32
1/4	MF 4044	MF 4046	MF 4048	MF 40410	MF 6044	MF 6046	MF 6048	MF 60410
3/8	MF 4064	MF 4066	MF 4068	MF 40610	MF 6064	MF 6066	MF 6068	MF 60610
1/2	MF 4084	MF 4086	MF 4088	MF 40810	MF 6084	MF 6086	MF 6088	MF 60810
5/8	MF 4104	MF 4106	MF 4108	MF 41010	MF 6104	MF 6106	MF 6108	MF 61010
3/4	MF 4124	MF 4126	MF 4128	MF 41210	MF 6124	MF 6126	MF 6128	MF 61210
7/8	MF 4144	MF 4146	MF 4148	MF 41410	MF 6144	MF 6146	MF 6148	MF 61410
1	MF 4164	MF 4166	MF 4168	MF 41610	MF 6164	MF 6166	MF 6168	MF 61610
1 1/8	MF 4184	MF 4186	MF 4188	MF 41810	MF 6184	MF 6186	MF 6188	MF 61810
1 1/4	MF 4204	MF 4206	MF 4208	MF 42010	MF 6204	MF 6206	MF 6208	MF 62010
1 3/8	MF 4224	MF 4226	MF 4228	MF 42210	MF 6224	MF 6226	MF 6228	MF 62210
1 1/2	MF 4244	MF 4246	MF 4248	MF 42410	MF 6244	MF 6246	MF 6248	MF 62410
1 5/8	MF 4264	MF 4266	MF 4268	MF 42610	MF 6264	MF 6266	MF 6268	MF 62610
1 3/4	MF 4284	MF 4286	MF 4288	MF 42810	MF 6284	MF 6286	MF 6288	MF 62810
2	MF 4324	MF 4326	MF 4328	MF 43210	MF 6324	MF 6326	MF 6328	MF 63210
2 1/2	MF 4404	MF 4406	MF 4408	MF 44010	MF 6404	MF 6406	MF 6408	MF 64010
3	MF 4484	MF 4486	MF 4488	MF 44810	MF 6484	MF 6486	MF 6488	MF 64810

EXAMPLE (TO ORDER) Pt. No. MF 4146-B = 1/4 AC. Flts. Standoff-Brass 6-32 Male-Female Threads.

STANDOFF — THREADED

	A=5/16 Dia.							
	4-40 Thread		6-32 Thread		8-32 Thread		10-32 Thread	
Lgth.	Round	Hex	Round	Hex	Round	Hex	Round	Hex
1/8	SR 5024	SH 5024	SR 5026	SH 5026	SR 5028	SH 5028	SR 50210	SH 50210
3/16	SR 5034	SH 5034	SR 5036	SH 5036	SR 5038	SH 5038	SR 50310	SH 50310
1/4	SR 5044	SH 5044	SR 5046	SH 5046	SR 5048	SH 5048	SR 50410	SH 50410
5/16	SR 5054	SH 5054	SR 5056	SH 5056	SR 5058	SH 5058	SR 50510	SH 50510
3/8	SR 5064	SH 5064	SR 5066	SH 5066	SR 5068	SH 5068	SR 50610	SH 50610
7/16	SR 5074	SH 5074	SR 5076	SH 5076	SR 5078	SH 5078	SR 50710	SH 50710
1/2	SR 5084	SH 5084	SR 5086	SH 5086	SR 5088	SH 5088	SR 50810	SH 50810
9/16	SR 5094	SH 5094	SR 5096	SH 5096	SR 5098	SH 5098	SR 50910	SH 50910
5/8	SR 5104	SH 5104	SR 5106	SH 5106	SR 5108	SH 5108	SR 51010	SH 51010
3/4	SR 5124	SH 5124	SR 5126	SH 5126	SR 5128	SH 5128	SR 51210	SH 51210
7/8	SR 5144	SH 5144	SR 5146	SH 5146	SR 5148	SH 5148	SR 51410	SH 51410
1	SR 5164	SH 5164	SR 5166	SH 5166	SR 5168	SH 5168	SR 51610	SH 51610

EXAMPLE (TO ORDER) Pt. No. SR 5146-PH = 5/16 Dia. x 7/8 Lg. Round Standoff-Phenolic w/6-32 Threaded Hole.

	3/8 Dia.					
	6-32 Thread		8-32 Thread		10-32 Thread	
Lgth.	Round	Hex	Round	Hex	Round	Hex
1/8	SR 6026	SH 6026	SR 6028	SH 6028	SR 60210	SH 60210
3/16	SR 6036	SH 6036	SR 6038	SH 6038	SR 60310	SH 60310
1/4	SR 6046	SH 6046	SR 6048	SH 6048	SR 60410	SH 60410
5/16	SR 6056	SH 6056	SR 6058	SH 6058	SR 60510	SH 60510
3/8	SR 6066	SH 6066	SR 6068	SH 6068	SR 60610	SH 60610
7/16	SR 6076	SH 6076	SR 6078	SH 6078	SR 60710	SH 60710
1/2	SR 6086	SH 6086	SR 6088	SH 6088	SR 60810	SH 60810
9/16	SR 6096	SH 6096	SR 6098	SH 6098	SR 60910	SH 60910
5/8	SR 6106	SH 6106	SR 6108	SH 6108	SR 61010	SH 61010
3/4	SR 6126	SH 6126	SR 6128	SH 6128	SR 61210	SH 61210
7/8	SR 6146	SH 6146	SR 6148	SH 6148	SR 61410	SH 61410
1	SR 6166	SH 6166	SR 6168	SH 6168	SR 61610	SH 61610

EXAMPLE (TO ORDER) Pt. No. SH 6068-B = 3/8 Dia. x 3/8 Lg. Hex Standoff-Brass w/8-32 Threaded Hole.

	A=1/2 Dia.							
	8-32 Thread		10-32 Thread		12-24 Thread		1/4-20 Thread	
Lgth.	Round	Hex	Round	Hex	Round	Hex	Round	Hex
1/8	SR 8028	SH 8028	SR 80210	SH 80210	SR 80212	SH 80212	SR 80214	SH 80214
3/16	SR 8038	SH 8038	SR 80310	SH 80310	SR 80312	SH 80310	SR 80314	SH 80314
1/4	SR 8048	SH 8048	SR 80410	SH 80410	SR 80412	SH 80412	SR 80414	SH 80414
5/16	SR 8058	SH 8058	SR 80510	SH 80510	SR 80512	SH 80512	SR 80514	SH 80514
3/8	SR 8068	SH 8068	SR 80610	SH 80610	SR 80612	SH 80612	SR 80614	SH 80614
7/16	SR 8078	SH 8078	SR 80710	SH 80710	SR 80712	SH 80712	SR 80714	SH 80714
1/2	SR 8088	SH 8088	SR 80810	SH 80810	SR 80812	SH 80812	SR 80814	SH 80814
9/16	SR 8098	SH 8098	SR 80910	SH 80910	SR 80912	SH 80912	SR 80914	SH 80914
5/8	SR 8108	SH 8108	SR 81010	SH 81010	SR 81012	SH 81012	SR 81014	SH 81014
3/4	SR 8128	SH 8128	SR 81210	SH 81210	SR 81212	SH 81212	SR 81214	SH 81214
7/8	SR 8148	SH 8148	SR 81410	SH 81410	SR 81412	SH 81412	SR 81414	SH 81414
1	SR 8168	SH 8168	SR 81610	SH 81610	SR 81612	SH 81612	SR 81614	SH 81614

EXAMPLE (TO ORDER) Pt. No. SR 80910-A = 1/2 Dia. x 9/16 Lg. Round Standoff-Aluminum w/10-32 Threaded Hole.

SPECIAL SIZES AND MATERIALS MANUFACTURED TO ORDER *NOTE: Ceramic and Steatite spacers and standoffs also available.*

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MANUFACTURING COMPANY INC.
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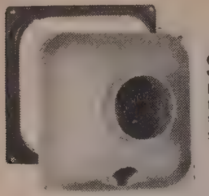
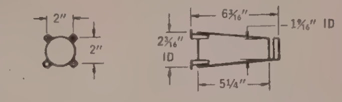
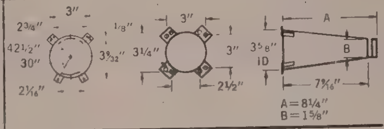
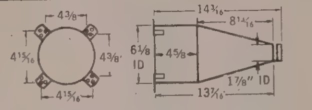
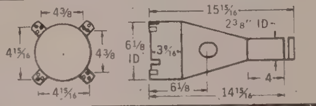
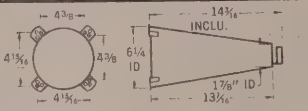
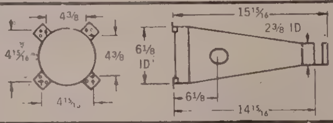
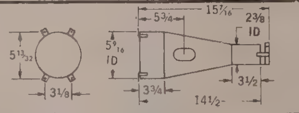
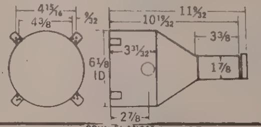
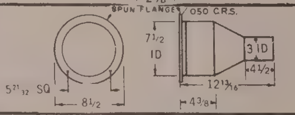
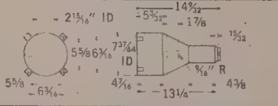
QUALITY
RELIABILITY
ECONOMY



SHIELDS, MAGNETIC

High nickel alloy, hydrogen annealed to insure optimum magnetic shielding. JAN's Magnetic Shields prevent distortion and intensify modulation of the electron beam due to stray magnetic fields. Shields protect personnel against the dangers of accidental tube breakage. Mounting holes are tapped for No. 6-32 screws. Designed to fit JAN's standard bezels as listed below. See following page for specifications on Jan's Bezel Assemblies.

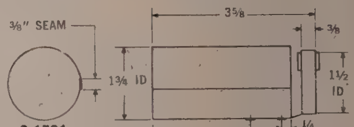
Shield Cat. No.	For Use With C.R.T. No.	Matching JAN Bezel	
S-2001 **S-2001-1**	902 2AP 2BP	CP-1110P2 CP-1120P2	 2" 2" 6 3/16" 1 5/16" ID 2 3/16" ID 5 1/4"
S-3001 adaptable for edge-lighting graticule using S-3010 with Bezel CP-1428*	3RP 3RPA	CP-1328-P1 CP-1427-1 CP-1429-1 CP-1328-P2 CP-1427-2 CP-1429-2 CP-3430-1 CP-3430-2	 3" 2 3/4" 42 1/2" 30" 2 1/16" 1/8" 3 9/32" 3 1/4" 3" 3" 2 1/2" 3 5/8" ID A B 7 9/16" A=8 1/4" B=1 5/8"
S-3003 **S-3003-1**	3KP 908A 3AP	CP-1328-P1 CP-1427-1 CP-1429-1	Same type as S-3001, except A=10 1/8 B=2
S-3004 — 12 (less anode hole) — 22 (with anode hole) adaptable for edge-lighting graticule using S-3012 with Bezel CP-1428*	3BP 3JP 3ACP	Same as S-3003 Same as S-3005	Same type as S-3001, except A=8 5/8 B=2 3/8
S-3005 adaptable for edge-lighting graticule using S-3008 with Bezel CP-1428*	3WP	CP-1328-P2 CP-1427-2 CP-1429-2	Same type as S-3001, except A=10 5/8 B=1 7/8
S-5001	5UP	CP-1465 CP-13584-1 CP-13549-1 CP-13595-1 CP-19495-1 CP-446-11 CP-446-22	 4 3/8 4 15/16 4 3/8 4 15/16 14 3/16 8 15/16 6 1/8 ID 4 5/8 1 7/8" ID 13 7/16
S-5002 adaptable for Edge-lighting	5BP 5CP 5ABP 5ADP	Same as S-5001 Same as S-5006	 4 3/8 4 15/16 4 3/8 4 15/16 15 15/16 2 3/8" ID 6 1/8 ID 3 9/16 4 6 1/8 14 15/16
S-5003	5UP	CP-1465 CP-13584-1 CP-13549-1 CP-13595-1 CP-19495-1	 4 3/8 4 15/16 4 3/8 4 15/16 14 3/16 INCLU. 6 1/4 ID 1 7/8" ID 13 7/16
S-5005 adaptable for edge-lighting	5AQP 5ABP 5ADP	CP-1465-2 CP-13549-2 CP-13584-2 CP-13595-2 CP-19495-2 CP-446-11 CP-446-22	 4 3/8 4 15/16 4 3/8 4 15/16 15 15/16 2 3/8 ID 6 1/8 ID 6 1/8 14 15/16
S-5017 adaptable for edge-lighting	5ABP 5ADP	CP-1465-2 CP-19636-2	 5 13/32 3 1/8 5 3/4 15 7/16 2 3/8 ID 5 5/16 ID 3 3/4 3 1/2 14 1/2
S-5027	5BTP	CP-19495-2	 4 15/16 4 3/8 9/32 10 19/32 11 9/32 3 3/8 3 31/32 6 1/8 ID 1 7/8 2 7/8
S-7001	7GP 7JP 7VP	CP-7330 CP-7445 CP-7331 CP-7550 CP-7420	 SPUN FLANGE .050 CRS. 7 1/2 ID 3 ID 4 1/2 12 13/16 4 3/8 5 21/32 SQ 8 1/2
S-7006	7AEP	CP-7330 CP-7445 CP-7331 CP-7550 CP-7420	 2 15/16" ID 14 9/32 5 5/32 1 7/8 15/32 5 5/8 6 3/16 7 37/64 ID 9/16" R 5 5/8 6 3/16 4 7/16 13 1/4 4 3/8

All Shields are Fabricated with Overlapped and Spot Welded Construction.
*See mounting hole arrangement illustrated with S-3001 edge-lit dimension drawing.

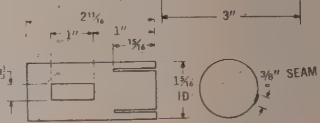
When ordering, be sure to specify CRT type number. Anode openings provided, where required. Shielding for EMC, RFI, and EMI now available, as bezels, shields, cushions, gaskets . . . in strip, sheet, formed, and molded.

MAGNETIC SHIELDS FOR PHOTO-MULTIPLIER AND SPECIAL PURPOSE TUBES

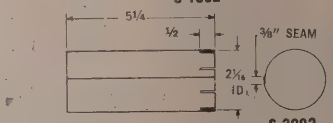
Shield	Tube
S-1091	ICP1
S-1181	929 930 5581 5653 IP39 IP40
S-1500	6291
S-1561	4440 6199 7102
S-1562	931 4471 4472 4473 6323 6328 7117
S-1562	IP21 IP22 IP28
S-1563	1EP1
S-2002	2002 6810 7264 7265 7326
S-2003	6903
S-2004	2020 4463 5819 6292 6342 6571 6655 7746 8053
S-2005	6372
S-2007	7850
S-2008	4459 6217
S-3015	1197 6363
S-5013	1112
S-5018	1198 6364
S-7009	1238 1287


3/8" SEAM
3 5/8
3/8
1 3/4 ID
1 1/2 ID
3/4
1/4
3"

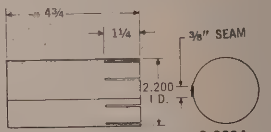
S-1561


2 11/16
1"
1"
15/16
3/8
1 5/16 ID
3/8" SEAM

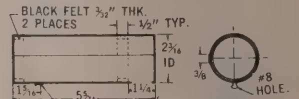
S-1562


5 1/4
1/2
3/8" SEAM
2 1/16 ID

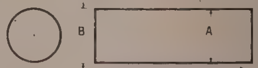
S-2002


4 3/4
1 1/4
3/8" SEAM
2.200 I.D.

S-2004


BLACK FELT 3/32" THK. 2 PLACES
1/2" TYP.
2 3/16 ID
1 5/16
5 5/16
1 1/4
RIVET
3/8
#8 HOLE.

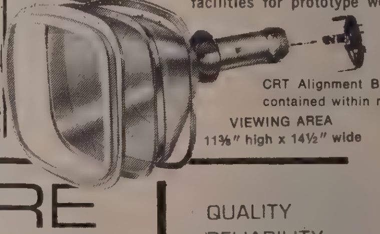
S-2007



Seamless Tubing **Available in These Dimensions** ▶
Can be supplied cut to your length, with holes and/or cutouts to your specifications.

A	B
1.010	1.050
.948	.998
.740	.783
.632	.663

We will design and manufacture SPECIAL Shields and Bezels, to customers specifications. Complete facilities for prototype work.



CRT Alignment Board contained within neck.

VIEWING AREA
11 3/8" high x 14 1/2" wide

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ESCUTCHEON PLATES FOR ELEGANT FRAMING OF PANEL OPENINGS

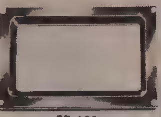
ET-150

ET-125

ET-120

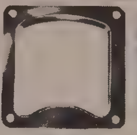
ET-135

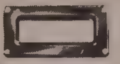
ET-140


ET-160

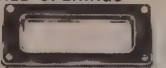
ET-165

ET-145


EM-310

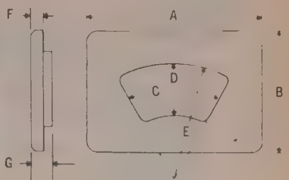

ET-155

EM-315


ET-130

EM-320

EM-325



SPECIFICATIONS — JAN ESCUTCHEONS

Escutcheon Cat. No.	A Overall Width	B Overall Height	C Window Width	D Window Height	E Effective Outer Dial Radius	Thickness F=Face Only	Thickness G=Incl. Flange	Panel Opening Width	Panel Opening Height	Mounting Holes Width	Mounting Holes Height	Type of Dial	Material
ET-128*	2 27/32	1 7/8	1 3/4	1	1 27/32	3/16	3/16	2 11/32	1 3/8	2 9/16 top 2 1/16 bottom	1 9/16	Circular	Injection Molded Tenite II, Black Matte Finish
ET-125*	3 7/8	2 15/16	2 7/8	1	3 1/4	3/16	5/16	3 1/2	1 1/2	3 1/2	1 15/16		
ET-135*	2 3/4	1 7/8	1 1/2	7/8	1 7/8	3/16	1/4	1 31/32	1 7/32	2 1/4	1 3/8		
ET-150*	3 7/8	2 5/16	2 7/8	3/4	3 1/8	3/16	5/16	3 9/32	1 7/32	3 1/2	1 15/16		
ET-165*	2 5/8	1 5/8	1 49/64	9/16	2 3/32	1/8	1/4	2 7/16	1 1/2	2 1/16	1 1/16		
ET-130*	4	1 13/16	2 3/4	13/16	—	3/16	1/4	2 13/32	1 11/32	3 1/2	1 3/16	Flexible Tape, Digital Counter, Cylinder or Drum	Injection Molded Tenite II, Black Matte Finish
ET-140*	2 1/2	1 1/2	1 1/4	5/8	—	1/8	5/16	1 17/32	1 1/32	2	1		
ET-145*	3 1/4	2 1/16	1 15/16	3/4	—	5/32	5/32	2 13/32	1 5/32	2 3/4	1 3/16		
ET-155*	2 1/2	1 3/16	1 11/16	1/2	—	5/32		2 1/32	29/32	2 1/4	15/16		
ET-160*	3 7/8	2 1/2	2 13/16	1 5/8	—	1/8	1/8	3	2 1/32	3 5/8	2 1/4		
EM-310	3	3	2 1/16	1 15/16	2 9/16	1/32	1/4	3 11/32	2 1/2	2 1/2	2 1/2	Helical	Soft Aluminum with Black Matte Enamel Finish
EM-315	3 1/4	3	2 1/4	5/8	2 1/16	1/32	1/8	2 15/32	1 5/64	2 3/4	2 5/8	Circular	
EM-320	3 1/4	2 3/4	2 1/4	5/8	2 1/16	1/32	1/8	2 29/64	1 3/64	2 3/4	2 1/4	Circular	
EM-325	3	3	2 1/16	1 1/2	2 5/16	1/32	1/4	2 11/32	1 61/64	2 1/2	2 1/2	Helical	

*To Order Specify: (1) frame only; (2) frame with clear window, (3) frame with clear window scribed with a center line.

Molded, black plastic escutcheons. Available in variety of different types and sizes. They provide a pleasing window frame.

Available frame only; frame w/clear windows; frame w/clear window scribed w/a center line.

For large working areas, stamped aluminum escutcheons, finished in dull black are available. −65°C to +80°C. NON INFLAMMABLE.

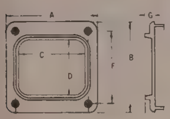
BEZELS

JAN's Bezels enhance appearance. Functionally designed to provide OPTIMUM UTILIZATION OF THE C.R.T. SCREEN, as well as safety against tube breakage and danger to operating personnel.

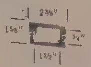
Bezel Assemblies supplied with a **bezel, calibrated graticule,** (where applicable) **light filter** and **C.R.T. cushion.** Finished in smooth dull black. Units mate with JAN Mu-Metal Shields.

Edge-lit Bezels (E.L.B.A.)**
Designed to provide edge lighting of engraved scale-calibrated graticule by means of pilot lights.

Camera Mount Bezel
Provide an integral cast mounting flange that fits all standard 3", 5" and 7" C.R.T. cameras and viewing hoods.



CP-1220-P

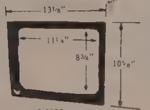


CP-1393

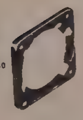
CP-1110P2
(with 4 mounting holes)
CP-1120P2
(same as above, but with 2 mounting holes, in diagonal corners)

CP13549-( )

CP-1465

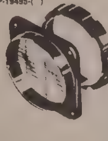


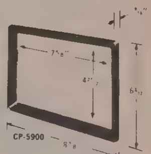
CP-1396


CP 7330

				Dimensions in Inches										
Cat. No.	C.R.T. Face	Material	Type	Panel Opening	A Overall Width	B Overall Ht.	C Visible Area (Bezel) Width	D Visible Area (Bezel) Ht.	E Mtg. Holes Width	F Mtg. Holes Ht.	G- Thickness (Face Only)	H- Thickness (Incl. Flange)	Visible Area (Cushion) Ht.	Visible Area (Cushion) Width
BEZELS FOR 2" C.R.T.														
CP-1110-P-2	Flat	Plastic*	Standard	2 3/16	2 5/8	2 5/8	1 3/4	1 3/4	2	2	5/16	7/16	1 3/4	1 3/4
BEZELS FOR 3" C.R.T.														
CP-1220-P‡	Curved or Flat	Plastic*	Camera Mount	—	4 7/8	3 1/4	2 3/4	2 1/4	4	2 1/2	5/16	11/16"	—	
CP-1328-P-1 CP-1328-P-2	Curved Flat	Plastic*	Standard	3 33/64	3 3/4	3 3/4	2 5/8	2 3/16	3	3	3/8	45/64	2 1/2	2 1/16
CP-1427-1 CP-1427-2	Curved Flat	Aluminum	Camera Mount	3 17/64	4	4	2 3/4 Dia.		3	3	9/16	27/32	2 25/32 Dia.	
CP-1428-1** CP-1428-2**	Curved Flat	Aluminum	Camera Mount E.L.B.A.**	3 17/64	4	4	2 3/4 Dia.		3	3	9/16	27/32	2 25/32 Dia.	
CP-1429-1 CP-1429-2	Curved Flat	Aluminum	Camera Mount	3 17/64	4	4	2 3/4 Dia.		3	3	9/16	27/32	2 25/32 Dia.	
CP-3430-1 CP-3430-2	Curved Flat	Steel	Standard	—	4 1/16 Dia.		3 3/8 Dia.		3 3/4	3 3/4	1 41/64	1 41/64	2 25/32 Dia.	
BEZELS FOR 4" C.R.T.														
CP-1533-P‡	—	Plastic*	Camera Mount	3 1/32	4 39/64	3 61/64	3	3	4	—	1 3/32	1 3/32	No Cushion	
BEZELS FOR 5" C.R.T.														
CP-13549-1 CP-13549-2	Curved Flat	Aluminum	Standard	6.0	6 1/4	6 1/4	4 7/8	3 3/4	4 15/16	4 15/16	17/32	1 3/32	4 1/4	3 3/16
CP-13584-1 CP-13584-2	Curved Flat	Aluminum	Camera Mount	6.0	6 1/4	6 1/4	4 7/8	3 3/4	4 15/16	4 15/16	1 5/32	1 23/32	4 1/4	3 3/16
CP-13595-1** CP-13595-2**	Curved Flat	Aluminum	Standard E.L.B.A.**	5 7/16	6 1/4	6 1/4	4 7/8	3 3/4	4 15/16	4 15/16	17/32	—	4 3/4 Dia.	
CP-1465 CP-1465-2	Curved or Flat Flat	Steel	Camera Mount	5 9/16 5 17/32	6 3/8 Dia.		5 35/64 Dia.		6	6	7/8	7/8	No Cushion 4 1/2 Dia.	
CP-19495-1** CP-19495-2**	Curved Flat	Aluminum	Camera Mount E.L.B.A.**	5 7/16	6 1/4	6 1/4	5 1/4 Dia.		4 15/16	4 15/16	1 5/32	—	4 3/4 Dia.	
CP-19636-2**	Flat	Aluminum	Camera Mount E.L.B.A.**	5 5/8	5 7/8	5 7/8	4 1/2 Dia	3	4 7/8	4 7/8	1 1/4	—	4 1/2 Dia.	
CP-446-11 CP-446-22	Flat	Steel	Camera Mount	—	6 5/16 Dia.		5 5/16 Dia.		6 5/32 6 1/8	6 5/32 6 1/8	1	1 19/64 1 3/16	4 1/2 Dia.	
CP-545	Curved or Flat	Aluminum	Camera Mount	5	5 27/32	5 27/32	4 25/32 Dia.		5	5	25/32	—	—	
BEZELS FOR 7" C.R.T.														
CP-7330-1 CP-7331-2**	Curved Flat	Plastic*	Standard E.L.B.A.**	7 13/32	7 13/16	7 13/16	6 5/16 Dia.		6 3/16	6 3/16	3/4	3/4	6 3/8 Dia.	
CP-7375-1** CP-7375-2**	Curved Flat	Aluminum	E.L.B.A.**	7 13/32	8	8	4 1/2	4 1/2	6 3/16	6 3/16	1 17/32	2 29/32	1 1/2	4 1/2
CP-7420-1** CP-7420-2**	Curved or Flat	Plastic*	Camera Mount	7 13/32	7 13/16	7 13/16	6 15/16 Dia.		6 3/16	6 3/16	3/4	1 3/8	6 3/8 Dia.	
CP-7550	Curved or Flat	Aluminum	Camera Mount	4 25/32	7 3/8	6 1/4	4 3/4	4 3/4	6 1/4	5 1/8	1 3/16	1 3/16	No Cushion	
BEZEL FOR 10" C.R.T.														
CP-10860	Curved or Flat	Aluminum	Standard	11 1/32	12 1/4 Dia.		8 1/16	6 1/4	11 1/2 B.O.		11/16	13/16	No Cushion	

*All Plastic Bezels are furnished in shock resistant plastic, per MIL-P-3414. **Edge Lit Bezel Assemblies. ‡Rectangular C.R.T.


CP-19495-( )



CP-5900

CP-545-( )

CP 1533-P

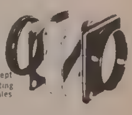
CP 7420

CP 7550

CP-1328-P-( )

CP-13595-( )

CP-13584-( )


CP-1428-( )

CP-1427 } Same as
CP-1429 } 1428, except for mounting holes

CP 725

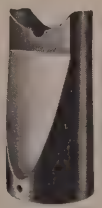
DISTINCTIVE FEATURES

- Engineered for 2", 3", 4", 5", 7", 8", 10" C R T
- Maximum display area
- Precision engraved, scale-calibrated graticules; standard or to customer's specifications
- Materials and finish to "Mil Spec
- Heavy buna-S shock cushion
- Models for edge-lighting
- Phosphor matched light filters
- Non-reflecting matte surfaces
- Rugged camera mounts
- Models for curved and flat-faced C R T

VIEWING HOODS

Black neoprene rubber, contour-molded, fits the shape of face. Keeps out ambient light when viewing scope.

Cat. No. H-465
Can be used as viewing hood, on 2 3/4" dia. bezels. (#1427; 1428; 1429). Also serves as adapter to permit use of face fitting neoprene rubber viewing hoods. All aluminum. Dull black enamel finish.


Cat. No. H-1361
(5 25/32" I.D.)

Cat. No. H-1063 (12" I.D.)
Flanges provided for hand access to PPI settings.

Cat. No. H-1008
TO FIT RECTANGULAR BEZELS
Can be adapted for smaller I.D.'s.
Can be used with JAN Bezel CP-1328P.
Can be adapted for #1533-P.

Cat. No. H-1713

Cat. No. H-689-1 (5 5/8" I.D.)
Used with following Jan Bezels:
19636; 19495; 13584; 1465
No. H-689-2 (4 7/8" I.D.)
Used with JAN Bezel #545

GRATICULES/FILTERS CUSHIONS
Assorted Sizes and Shapes

New! Non-reflective filter material.
Matte 1 side. Grey or Blue
Other colors on special order.

Specials *Are Our* *Specialty*

JAN

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MANUFACTURING COMPANY INC.
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RELIABILITY
ECONOMY

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MACROVERNIER

REDUCTION DRIVE

Precision Tuning Built Into Knob

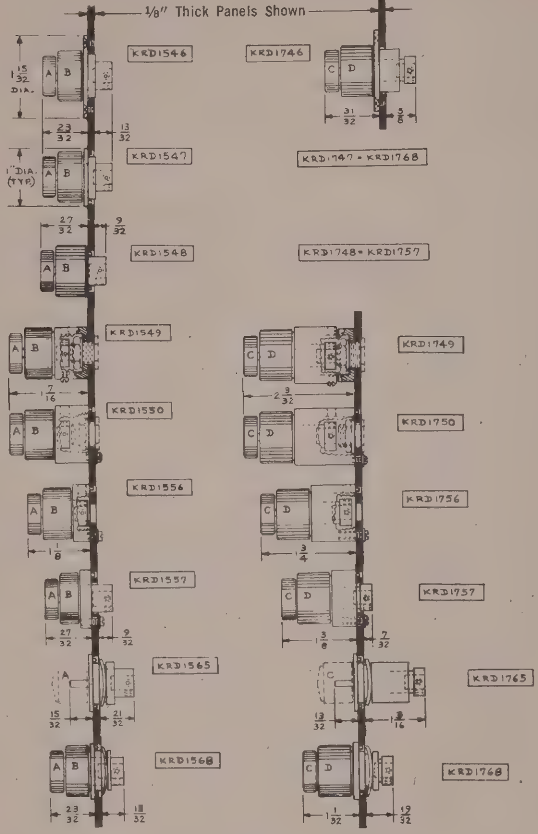
- Integral assembly
- Zero Backlash
- Infinite resolution with absolute shaft registration
- Driving torque-10 oz. in.
- Saves space behind the panel
- Installation in seconds, without special tools
- Knobs and Component Shaft rotate in same direction.

Series 1500: (10:1)
Series 1700: (40:1, 100:1)
Others available

MACROVERNIER CONTROL KNOBS — VISUAL INDEX

Single Unit KRD15 - -
"A" = 10:1 Vernier Drive
"B" = 1:1 Direct Drive

Double Unit KRD17 - -
"C" = Max. Ratio 100:1/10:1 OR 40:1/4:1
"D" = Min. Ratio


1/8" Thick Panels Shown
KRD1546
KRD1746
15/32 DIA.
23/32
13/32
31/32
5/8
KRD1547
KRD1747 - KRD1768
1" DIA. (TYP)
27/32
9/32
KRD1548
KRD1748 - KRD1757
KRD1549
KRD1749
7/16
2 3/32
KRD1550
KRD1750
KRD1556
KRD1756
1 1/8
3/4
KRD1557
KRD1757
27/32
9/32
3/8
7/32
KRD1565
KRD1765
15/32
21/32
13/32
1 3/16
KRD1568
KRD1768
23/32
11/32
1 1/32
19/32
A
B
C
D

FRONT FLANGE — Panel Mounted. 2 Screws.

2 PINS ONLY. Component Mounted.

PANEL BUSHING—Separate Spacer. Secured by bushing. Panel Mounted.

PANEL BUSHING—Integral Spacer.
-7 2 Pins Only. Component Mounted.
-8 2 Screws Only. Panel Mounted.

SCREWS AND/OR PINS THRU PANEL.
-7 2 Pins Only. Component Mounted.
-8 2 Screws Thru Panel.

SCREWS AND/OR PINS THRU PANEL.
-7 2 Pins Only. Component Mounted.
-8 2 Screws Thru Panel.

2 PINS AND BOWED RETAINING RING. Panel Mounted. Single Knob—Max. Ratio Only. (Various Size Knobs Available.)

2 PINS AND BOWED RETAINING RING. Panel Mounted.

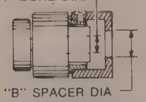
PANEL "HOLES" REQUIRED

KRD NUMBER	MIN. DIA. THRU PANEL	2 HOLES @ 180°	
		DIA.	B.C. DIA.
1546 1746	790	4-40 TAP	1.188 ± .001
1550-8 1750-8	NOTE No 1	125	.851 ± .001
1556-8 1756-8	NOTE No. 2	.125	.851 ± .001
1557 8 1757 8	562	125	851 ± 001
1549 1749	REQUIRES ONLY NOTE No. 1		

KRD NUMBER	MIN. DIA. THRU PANEL	2 SLOTS @ 180° .078 +.002 −.000 WIDE
		DIMEN. ACROSS OUTSIDE OF SLOTS
1547	790	.995 + 003 − 000
1548	530	750 + 003 − 000
1550-7 1750-7	NOTE No. 1	.945 ± .005
1556-7 1756-7	NOTE No. 2	.945 ± .005
1557 7 1757 7	562	.945 ± .005
1565 1765	.790	.995 +.003 −.000
1568 1768	.790	.995 +.003 − 000

NOTES
1. CLEARANCE HOLE FOR 1/4" OR 3/8" PANEL BUSHING
2. CLEARANCE HOLE FOR COMPONENT SHAFT ONLY.

MACROVERNIER CONTROL KNOBS — COMPLETE PART NUMBERS

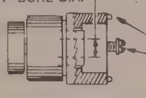

"A" BORE DIA.
"B" SPACER DIA

"A"

"A" +.002 −.000 BORE DIA	FIRST DASH NO.
.127	-2
.190	-3
252	-4

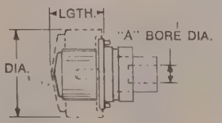
"B"

"B" DIA. THRU SPACER	SECOND DASH NO.
.252 +.002 − 000	-4
¼-32 THD.	-4T
.377 + 002 −.000	-6
⅜-32 THD.	-6T



"C"

PINS OR SCREWS (180° APART)	SECOND DASH NO.
2 Pins Only	-7
2 Screws Only	-8


LGTH.
"A" BORE DIA.
DIA.

"D"

KNOBS DIA.	LGTH.	SECOND DASH NO.
23/32	25/32	-07
15/16	29/32	-09
1 9/32	13/16	-12
1 25/32	31/32	-17

LOW RATIO SINGLE UNITS
(10/1 Ratio Only)

KRD1546-"A"
KRD1547-"A"
KRD1548-"A"
KRD1549-"A"-"B"
•KRD1550-"A"-"C"
KRD1556-"A"-"C"
KRD1557-"A"-"C"
KRD1565-"A"-"D"
KRD1568-"A"

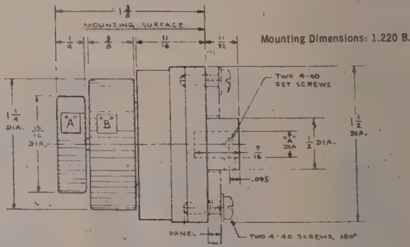
HIGH RATIO DOUBLE UNITS
Ratios (100/10) or (40/4)

KRD1746-"A"—
•KRD1749-"A"-"B"-
KRD1750-"A"-"C"-
KRD1756-"A"-"C"-
KRD1757-"A"-"C"-
KRD1765-"A" "D"
KRD1768-"A"—

TYPICAL PART NUMBERS:
•KRD1550-4-8
•KRD1749-3-6-100/10

KRD 1820

- Hybrid: Friction and gear reduction.
- Driving Torque 5 lb. in. minimum.


1 3/8
MOUNTING SURFACE
1/4
3/8
11/16
11/32
TWO 4-40 SET SCREWS
1 1/4 DIA.
15/16 DIA.
"A"
"B"
"A" DIA
1/2 DIA.
1 1/2 DIA.
7/16
.095
PANEL
TWO 4-40 SCREWS, 180°

Mounting Dimensions: 1.220 B.C.

Notes:
1. Knob "A" = Max. Ratio (input · output)
2. Knob "B" = Min. Ratio (input : output)
3. Both knobs & component shaft will rotate in same direction.
4. **Typical Assembly No.: KRD1857-3-Max/Min (ratios)**

"A" +.002 −.000 BORE DIA.	FIRST DASH NO.
127	-2
190	-3
252	-4

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WE CATALOGUE & MANUFACTURE MORE THAN 10,000 DIFFERENT KNOBS FOR COMMERCIAL, INDUSTRIAL, MILITARY AND OTHER GOV'T AGENCIES. (FSN, MS, SM, SC, ON, NAS, AN, etc.) WE INVITE YOUR INQUIRIES.

Standard Shaft Holes - 1/16″ Increments.

-(2)—1/8″	-(B)—1/8″ D Flatted	-(BB)—1/8″ Double Flatted
-(2.5)-5/32″	-(B.5)-5/32″ D Flatted	-(BB.5)-5/32″ Double Flatted
-(4)—1/4″	-(D)—1/4″ D Flatted	-(DD)—1/4″ Double Flatted

Nominal shaft dimensions: 1/8″ = .128 1/4″ = .253

Finish: M- Matte; G- Glossy; /WD- White Dot; /WL- White Line
Colors: A- Black; B- Red; C- Grey. (See pages 20-21 for other information.)
Typical Part No. K1697-(4)MA
(1/4″ shaft, Matte Finish, Black)

SLIP-CLUTCH KNOB with Spinners

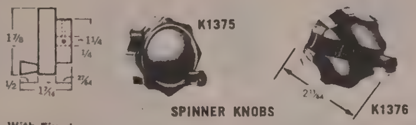
KS-1375-(4) & KS-1376-(4)

For driving devices such as variable capacitors, inductors, potentiometers, etc., the "slip-clutch"* automatically disengages and slips when pre-determined torque has been exceeded. Knobs are fluted, and equipped with either fixed or retractable spinner for fast turning. Backlash-free units safeguard against cranking beyond normal stops.

*Normally set for 3-6″ lbs./in. Can be modified for other requirements.

Model K-1376-(4) is identical with K-1375 with additional feature retractable spinner. Spring loading provides positive, toggle-type action to lock spinner in open or closed position. K-1376 for use where economy of space is essential.

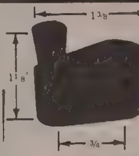
Cat. Nos. K-1275-(4) & 1276-(4)
In appearance, these knobs are identical with K-1375 and K-1376 but without Slip-Clutch. Molded Bakelite-to-metal-insert construction, two set screws for attachment to shafts.



SPINNER KNOBS

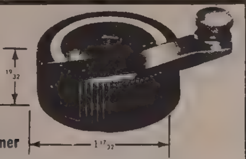
With Fixed or Retractable Spinners

Standard: Glossy finish. (Matte finish avail. on special order)



K-1125-(4) SPINNER KNOB

SK-1125 SLIP CLUTCH KNOB



MS-91522-1-(4)
Retractable Spinner CRANK KNOB
Aluminum Olive Drab. Other colors and shaft dia. on request. 2 5/8″ min. clearance required with handle in open position.

K1622
Retractable Spinner CRANK KNOB
Modified version to replace MS91522. Incorporates brake mechanism to lock control in position.

K1358-(2)
MINIATURE SPINNER KNOB
Nylon. 19/32″ H. x 3/4″ W. Spinner section dia. 3/8″. Accepts 1/8″ shaft or smaller.

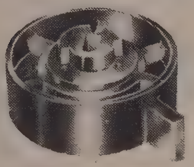
K1357-(4) SLIP CLUTCH KNOB
Knurl aluminum. Twin set screws. 1 3/8″ dia. skirt, tapers to 1″ at top. Height, 1″ Std. Torque 1 to 3 lbs./in. Avail. from 1/2 oz./in. to 48 oz./in.

For additional slip clutch knobs, see JANSET KNOBS

MOLDED PLASTIC KNOBS W/O METAL INSERTS

2 Set Screws (unless otherwise specified).

K1440
K1445
K1575
K1791
K1794
K1942
AN3220



K1794-(DD)
29/32″ H. x 3 1/2″ overall dia. Mounts from top.

AN3220-1-(4)
7/8″ H. 27/32″ dia. 1 1/2″ L.

AN3220-3-(D)
7/8″ H. x 27/32″ dia. 1 1/2″ L. 1 set screw.

K1445-(4)
1″ H. x 7/8″ dia. One set screw.

K1575-(4)
1/2″ H. x 3/4″ OD. Single set screw. No insert.

K1440 7/8″ H. x 1 3/4″ dia. Special mounting. Adaptable for other mounting.

R
O
25
25
DEFLECTION

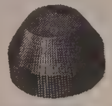
K1791 (3.5)
3/4″ H. x 1 23/32″ dia. Mounts from top.

K1942 flatted shaft. 41/64″ W. x 3/16″ thick. Mounts with clearance hole 11/64″ dia. thru 39/64″ thickness.
39/64″ Thick; 1 33/64″ L. x 1 7/64″ H.
Note: Add dash & number required to be at end of knob.

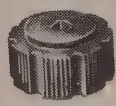
K1257
K1335
K1407
K1939
K1940
K1954
K2006
K2034

K1257-(1.75)
15/16″ H. x 7/16″ W. Hole for pinning to shaft.

K1939 .260 dia. shaft. no screws, must be pinned to shaft; 1 1/16″; 35/64″ H.



K1940-(3.25)
no screws—must be pinned to shaft; 1 1/64″ OD.; 5/8″ H.



K1335-(B.5)
11/32″ H. x 21/32″ dia. No screw holes.

K1954-(1.5)
63/64″ OD.; 11/16″ H. Allows turning with one finger or conventional.

K2034 Push Button.
For 3/64″ x 3/16″ flat shaft, 3/8″ L. 15/32″ H. x 29/64″ dia. Mounts by pushing onto shaft with flat spring in shaft hole. No screws.

K2006-(B)
1/2″ H. x 11/32″ dia. with 3/64″ indicator tip. No screws. Screwdriver slot on top.

K1407-1(B)
5/16″ H. x 23/64″ O.D. shaft hole dia. .083 with .048 flat: Screwdriver slot on top.
K1407-2(B) 1/2″ H.
With or w/o white dot.

K1717
K1795
K1948
K2005
SMC4447976
SMC447306

K1795-(DD)
1 3/16″ L. x 15/32″ H. 7/8″ skirt dia. Black w/ white fill. Mounts from top.

K2005-(8)
17/32″ H. x 3/4″ dia. (Two 5/32″ dia. holes on top thru to 1/2″ dia.)

K1717 15/32″ H. 1/2″ O.D.; ID .140 can be 8-32 thread.

K1948-(4)
1 1/4″ dia.; 1 11/16″ L. with .109 slot in one wall.

SMC 447306

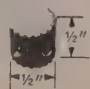
SMC 44479 76-
(1) -(2)

MINIATURE KNOBS

PLASTIC

K101294
K101295
K101297

K-101297

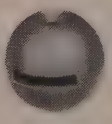


K-101295-(B)
-1 w/white dot
-2 plain
Also avail. with 1/8″ round shafts.

K-101294( )
-1 11/16″ skirt dia.
-2 3/4″ skirt dia.

NAS120
NAS121
NAS123
NAS124
NAS125
NAS168

NAS120-(2)(1.5)
For flat shafts. 3/4″ spherical dia. 1 screw.

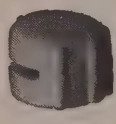


NAS121-(3)(2)(1.5)
For flat shafts. 1″ sperical dia. 1 screw.

NAS123-(2)(1.5)
For flat shafts. 1″ dia. 5/8″ oval. 1 screw.

NAS124-(3)(2)(1.5)
For flat shafts. 13/16″ H. x 1 1/4″ dia. 1 screw.

NAS125-(3)(2)(1.5)
For flat shafts. 1 1/8″ x 1 3/16″ semi-round. 1 screw.



NAS168-(3)(2)(1.5)
For flat shafts. 13/16″ H. x 1″ dia. 1 screw.

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QUALITY
RELIABILITY
ECONOMY

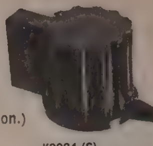
MOLDED PLASTIC KNOBS WITH METAL INSERTS

2 Set Screws (unless otherwise specified).

Standard Shaft Holes - 1/16″ Increments.

-(2)—1/8″ **-(B)—1/8″ D Flatted** **-(BB)—1/8″ Double Flatted**
-(2.5)- 5/32″ **-(B.5)- 5/32″ D Flatted** **-(BB.5)- 5/32″ Double Flatted**
-(4)—1/4″ **-(D)—1/4″ D Flatted** **-(DD)—1/4″ Double Flatted**
Nominal shaft dimensions: 1/8″ = .128 1/4″ = .253

Finish: M- Matte; G- Glossy; /WD- White Dot; /WL- White Line
Colors: A- Black; B- Red; C- Grey. (See pages 20-21 for other information.)
Typical Part No. K1697-(4)MA
(1/4″ shaft, Matte Finish, Black)

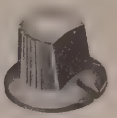

K2024-(6)
1 1/4″ H. x 1 11/32″ dia.
2 1/4″ overall length.

M-3926/3
1″ H. x 1″ OD.
with 9/16″ dia. hub.
Also avail. to accommodate 8-32 and 1/4-28 threaded shafts

K783
K1332
K1333
K1494
K1706
K1707
K1708
K1709
K1803
K1804
K2000
K2024
M-3926

K1332-(3)
21/32″ H. x 1 1/8″ dia.
Notch: 1/8″ W. x 3/16″ D.

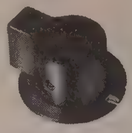
K1333-(3)
5/8″ H. x 3/4″ dia.


K2000-(2)
11/16″ H. x 1″ dia.

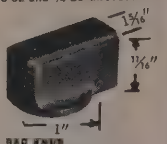
K1706-(D)
1 1/2″ O.D. x 7/8″ H.
Single set screw.
K1707 2″ O.D. x 7/8″ H.

K1708-(D)
3/4″ H. x 3/4″ wide bar. 1 1/2″ O.D. skirt.
K1709-(D)
7/8″ H. x 3/4″ wide bar. 2″ dia. skirt.

K1803-(4)
3/4″ H. x 1 3/16″ dia.
Skirt can have white line or notch.

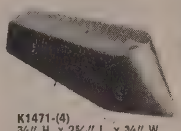

K1494-(4)
11/16″ H. x 1 1/8″ skirt dia., 1 1/4″ overall length.

K1804-(D)
5/8″ H. x 3/4″ dia.
1 1/16″ long. Can be supplied with skirt.



BAR KNOB
K-783 Set screw at back, for shaft attachment. Finished to specifications.

K1471
K1472
K1573
K1629
K1785
K1953
K2004
K2037
K2040
K3219


K1471-(4)
3/4″ H. x 2 5/16″ L. x 3/4″ W.
Center of shaft hole to pointer end, 49/64″.

K1472-(4)
21/32″ H. x 1 15/32″ L. x 3/4″ W.
Center of shaft hole to pointed end, 37/64″.

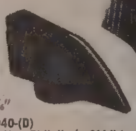
Black or Grey. Can be supplied for other round and "D" flat shafts.

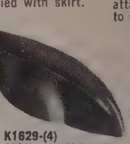
K2004-(4)
3/8″ H. x 1 1/8″ L. x 5/16″ body dia. (Avail. in Cast Alum. See K2002.)

AN3219-1-(4)
5/8″ H. x 3/4″ dia.
x 1 1/4″ L. 1 set screw.

K2037-(D)
3/4″ H. x 27/32″ dia.
1 1/2″ L.

K1573-(D)
3/4″ H. x 1 13/32″ L. x 13/16″ body dia.


K2040-(D)
3/4″ H. x 7/8″ dia. x 2 1/4″ L.


K1629-(4)
2 1/4″ overall length x 7/8″ overall width
Shaft hole centered.

K1785-(2)(4)
1/2″ H., 1 1/2″ W., x 1/2″ dia.

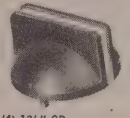
K1953-(4)
2 set screws, or for female or male threaded stud 23/64″ H. x 1 1/8″ OD.

K706
K772
K1468
K1481
K1492
K2011
K2014
K2015
K2035

K706-(DD)
(mounts from top of knob). No insert.
1″ H. x 5/8″ W. x 1 3/8″ L.

K2035-(4)
11/16″ H. x 7/8″ D.
x 1 1/4″ L.

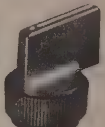
K1492-(4)
11/16″ H. x 1 1/8″ L.
Single set screw.


K772-(4) 1 3/8″ OD.;
3/4″ H. (not including non-rotation pin). Avail. in black, red, yellow, green, & blue.
To order add color to part no.

K2011-(4)
3/4″ H. x 1 3/8″ dia.
Overall length 1 5/8″.

K1481-(2)(4) "Pull" Knob
39/64″ H. x 23/32″ dia. x 27/32″.
Note: Basic configuration of knob is MS91528-1GG.

K2014-(4)
1″ H. x 45/64″ OD.
Overall length 29/32″.


K2015-(4)
1 1/16″ H. x 53/64″ OD.
Overall length 1 1/8″.

K1468-(4)
27/32″ H. x 11/16″ dia.
Single set screw.

K1280
K1345
K1351
K1353
K1355
K1700
K1718
K1772
K1793
K1805

K1718-(B)
21/32″ H. x 5/16″ O.D. Can supply for 1/4″ shaft on special order.

K1772-(2)
9/16″ H. x 11/16″ L.

K1351-(2)
.096 across flat.
9/16″ H. x 5/8″ dia.

K1355-(3)
5/8″ H. Base size 17/32″ x 13/32″.

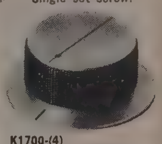
K1345-(3)
3/4″ W. x 7/16″ dia.
(Shaft mounts in side hole, screw at bottom).
Single set screw

K1280-(3.25)
5/16″ H. x 7/8″ L. x 11/16″ W.

K1353 5/16-32 threaded shaft.
59/64″ H. x 1/2″ dia.

K1805 Plastic with 8-32 metal stud.
7/32″ length of stud.
Plastic 1/8″ thick.
No set screw.

K1793-(D)
2 1/8″ L. x 1 1/16″ dia.
No set screw.


K1700-(4)
1 13/16″ H. x 1 3/16″ body O.D. Plastic body, metal cap, skirt and insert.
2 5/64″ skirt O.D.

K929
K936
K1334
K1344
K1349
K1350
K1359
K1792
K1945
K1946
K1993
K1997

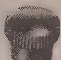
K1344-(B.5)
with .130 across flat.
7/8″ H. x 7/8″ dia.

K1349-(B.5)
11/16″ H. x 3/4″ dia.

K1350-(B)
7/8″ H. x 7/8″ dia.

K1359-(B)
9/16″ H. x 7/16″ OD.
"P" on top filled.
"Day-glo Saturn Yellow" or "White".

K1792 1/4-20 threaded shaft. 3/4″ H. x 7/8″ dia.
Color Gray.


K1945 6-32 threaded shaft. 17/32″ H. x 5/8″ OD.

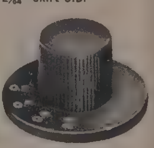
K1993-(4)
5/8″ H. x 43/64″ dia.

K1946 6-32 threaded shaft. 3/4″ OD.; 3/4 H. with 1/2″ dia. hub.

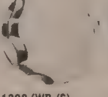
K936-(5)
Knob dia. 1 1/8″; Skirt dia. 1 1/2″; overall height 1 3/32″. Beveled aluminum skirt, black anodized finish. Deeply etched and filled contrasting markings. Accurately centered brass insert.
K936-(4) KNOB ONLY
K929-(5) Same as above, less skirt.
K929-(4)

Variations on shaft sizes and markings available in production quantities. Single set screw.

K1334-(2)
5/8″ H. x 3/4″ dia.
Notch: 3/32″ W. x 3/32″ D.

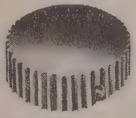

K1997-(4.25)
3/4″ H. x 1 3/8″ dia.

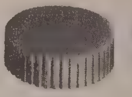
K1368
K1398
K1462
K1714
K1796
K1798
K1938
K1952
K2012


K1398/WD-(6)
1 1/16″ H. x 2 3/8″ dia.

K1798-(2)
1/2″ H. x 1 1/2″ dia.

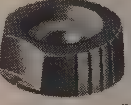
K1952-(4)
2 set screws, or for female or male threaded stud. 27/64″ H. x 1 1/8″ OD.


K1796-(7.5)
33/64″ H. x 1 1/2″ dia.
One set screw.


K1938-(3.5)
33/64″ H. x 1 1/2″ OD.
Single set screw.

K1714-(4)
2 3/64″ O.D. x 3/8″ H.

K2012-(4)
39/64″ H. x 2″ dia.


K1462-(4.25)
7/16″ H. x 1″ OD.

K1368-(D)
11/16″ H. x 11/16 dia.

K1331
K1347
K1348
K1352
K1464
K1579
K1771
K1783
K1789

K1331-(3)
3/4″ H. x 1 1/64″ dia.

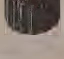
K1579-(2)(4)
1/2″ H. x 7/8″ dia.

K1771-(4)
1 3/32″ H. x 1 19/32″ dia.
Appearance same as JAN deluxe instrument knobs.

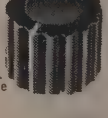
K1789-(B)
21/32″ H. x 1/2″ dia.
Note: Same as deluxe inst. knobs, except w/flat cap.

K1347-(2.5)
1/2″ H. x 3/4″ dia.

K1352-(B)
11/16″ H. x 1/2″ dia.


K1348-(2.5)(B.5)
1/2″ H. x 3/4″ dia.

K1464-(B)
11/16″ H. x 1/2″ OD.


K1783-(4)
1″ H. x 1 1/4″ dia.
Top recess can be color coded.

K1343
K1346
K1354
K1493
K1806
K1925
K1950
K1995
K1998

K1493-(3)
5/8″ H. x 9/16″ dia.
With or w/o white dot.

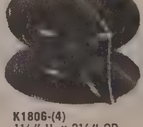
K1343-(D.5)
21/32″ H. x 7/8″ dia.

K1346-(D)
11/16″ H. x 11/16″ dia.

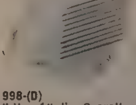
K1354-(D.5)
45/64″ H. x 3/4″ dia.

K1925-(2)
13/32″ H. x 11/16″ OD.
If white line is required add /WL to part no.

K1995-(5)
3/4″ H. x 23/32″ dia.
Color — Brown.


K1806-(4)
1 1/4″ H. x 2 1/8″ OD.
K2016 7/8″ H. x 1 1/2″ OD.

K1950-(4)
1 7/8″ dia. skirt, 1 1/4″ knob. 55/64″ H. overall.
Note: Knob less skirt is standard deluxe instrument P/N 121A4MA, color black. Skirt is gray w/clear tip & white line.


K1998-(D)
3/4″ H. x 1″ dia. Overall length 1 1/8″. One set screw.

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QUALITY
RELIABILITY
ECONOMY

TRANSILLUMINATED (BACK-LIT) MOLDED PLASTIC KNOBS WITH METAL INSERTS

2 Set Screws (unless otherwise specified).

Precision molded of JAN's transparent plastic material to military specs, with dull finish. Transilluminated pointers permit easy reading under subdued lighting conditions. For use on instrument panels, switchboards, electrical and electronic apparatus.

Can be supplied without transillumination, for other size shafts, and in other colors.

OTHER SPECIAL VARIATIONS AVAILABLE

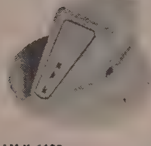
Standard Shaft Holes - 1/16" Increments.

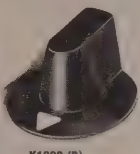
-(2)—1/8"	-(B)—1/8" D Flatted	-(BB)—1/8" Double Flatted
-(2.5)—5/32"	-(B.5)—5/32" D Flatted	-(BB.5)—5/32" Double Flatted
-(4)—1/4"	-(D)—1/4" D Flatted	-(DD)—1/4" Double Flatted

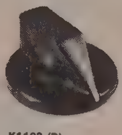
Nominal shaft dimensions: 1/8" = .128 1/4" = .253

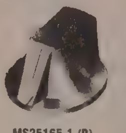
Finish: M- Matte; G- Glossy; **/WD-** White Dot; **/WL-** White Line
Colors: A- Black; B- Red; C- Grey. (See pages 20-21 for other information.)
Typical Part No. K1697-(4)MA
(1/4" shaft, Matte Finish, Black)

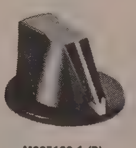
K977
K1103
K1199
K1788
~~K1999~~
MS24229-P1
MS25165-1
MS25166-1

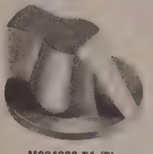

LM-K 1199
USED ON LUNAR MODULES!
Precision aluminum casting.
Adaptable for back lighting.
With slip clutch features similar to K1375.

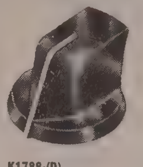

K1999-(D)
7/8" H. x 1 37/64" dia

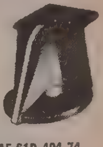

K1103-(D)
13/16" H. x 1 5/8" dia.
One set screw.


MS25165-1-(D)
23/32" H. x 1 1/4" dia.

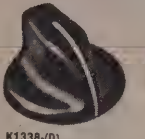

MS25166-1-(D)
27/32" H., 1 1/2" dia.
skirt. One set screw.

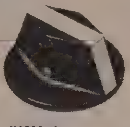

MS24229-P1-(D)
27/32" H. x 1 1/2" OD.
One set screw.

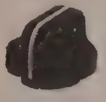

K1788-(D)
7/8" H. x 1 23/32" L.
Skirt dia. 1 3/8".
One set screw.

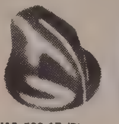

USAF 61D 404 74
K-977-(D)
1 1/8" H. x 1 1/4" dia.
Single set screw.

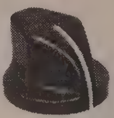
NAS 539
K1338
~~K1339~~
K1501
K1502
K1503
K1504
K1800
K2041

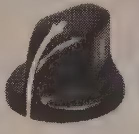

K1338-(D)
25/32" H. x 1 1/2" dia. One set screw.

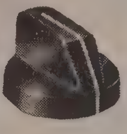

K1339-(4)
3/4" H. x 1 1/2" dia.

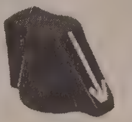

K2041-(4.4)(D)
7/8" H. x 1 5/32" dia.
Transilluminated
(No insert)

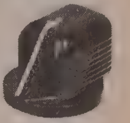

NAS 539-1B-(D)
1 set screw.
NAS 539-1C-(4)
2 set screws.
51/64" H. x 1 1/4" dia.


K1501-(B)
9/16" H. x 7/8" dia.

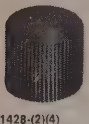

K1504-(B)
5/8" H. x 1" OD.

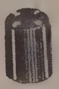

K1800-(D)
59/64" H. x 1 1/2" dia.
One set screw.

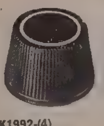

K1502-(B)
23/32" H. x 1 5/32" L.

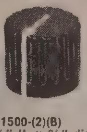

K1503-(B) 1" dia,
3/4" H. x 1 1/8" L.

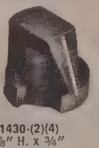
K1428
K1430
K1435
K1500
K1951
K1992
K2031
MS25169
MS25170
MS251701

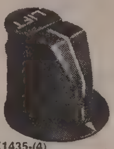

K1428-(2)(4)
5/8" H. x 3/4" dia.
Avail. w/backlit indicator line or dot.


K2031-(2)
3/4" H. x 9/16" OD.

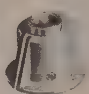

K1992-(4)
3/4" H. x 1 1/16" dia.

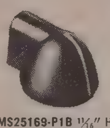

K1500-(2)(B)
5/8" H. x 3/4" dia.

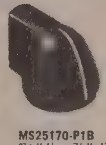

K1430-(2)(4)
5/8" H. x 3/4" dia. One set screw.

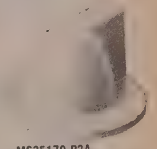

K1435-(4)
7/8" H. x 1 1/32" dia.
One set screw.

K1951-(5.25)
51/64" H. x 1" dia.
3 set screws. Metal insert extends above plastic body.

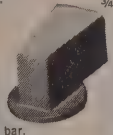


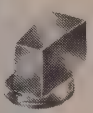

MS25169-P1B 11/16" H.
knob body .875" dia.
One set screw.
Also avail. w/skirt.

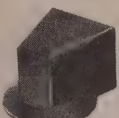

MS25170-P1B
27/32" H. x 7/8" dia.
One set screw.


MS25170-P2A
27/32" H. Skirt dia. 1 1/2";
knob body .875 dia.
One set screw.

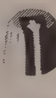
K1710
K1711
K1712
K1797
K1943
K2028
MS21382
MS21384

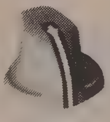

K1710-(D)
One set screw.
51/64" dia. x 29/32" H.
1 1/2" L. x 45/64" wide bar.
K1711 1" dia. x 45/64" H.
1" L. x 19/32" wide bar.
K1712 1" dia. x 29/32" H
1" L. x 19/32" wide bar.

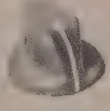

1797-(4)
13/16" H. x 1 5/16" L.
Skirt dia. 1 1/8".

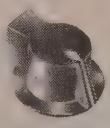

K1943-(4)
1 1/8" skirt OD.
3/16" H. x 1 17/32" L.

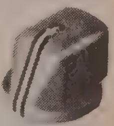
K2028-(2)
7/8" H. x 1" dia.


MS21382-(2)(B)
7/16" H. x 1/2" OD.

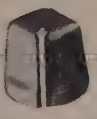

MS21384
Type 1
5/8" H. x 1" OD.

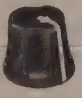

MS21384
Type 2
5/8" H. x 1" dia.

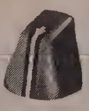

MS21384
Type 3 11/16" H.
1" Skirt dia.

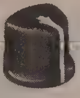

MS21384
Type 4 1 1/8" L.
3/4" H. x 1" OD.

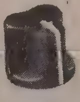
~~MS21385~~
MS21386

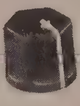

MS21385
Type 1
3/4" H. x 7/8" OD.

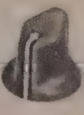

MS21385
Type 2
3/4" H. x 7/8" dia.

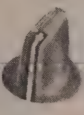

MS21385
Type 3
3/4" H x 7/8" OD.

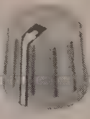

MS21385
Type 4
3/4" H. x 7/8" dia.

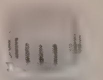

MS21385
Type 5
3/4" H. x 7/8" dia.

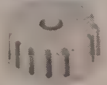

MS21385
Type 6
3/4" H. x 7/8" dia.


MS21385
Type 7
3/4" H x 7/8" OD.

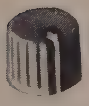

MS21385
Type 8
3/4" H. x 7/8" dia

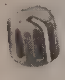

MS21385
Type 9
3/4" H. x 7/8" dia.

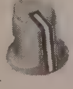

MS21386
Type 1 (B)
11/32" H. x 3/4" dia.

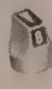

MS21386
Type 2 (D)
11/32" H. x 1" dia.
Shaft hole is for concentric mounting.

K1456
K1486
K1582
K2003
K2038
K2039
MS21387
MS91528

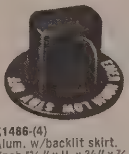

MS21387
5/8" H. x 3/4" OD.


K2038-(B)
7/16" H. x 1/2" dia.

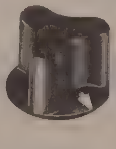

K2039-(B)
9/16" H. x 5/8" dia.

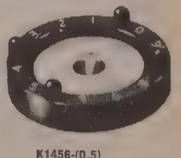

K1582-(2)
9/16" H. x 31/64" dia.

MS91528
See page 20 for specifications.



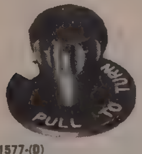
K1486-(4)
Alum. w/backlit skirt.
Knob 53/64" x H. x 3/4" x 7/16".
1 1/4" dia. skirt.
Also avail. w/o skirt.


K2003-(8)
13/16" H. x 1 1/8" dia.
One set screw.

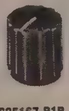


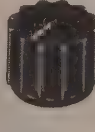
K1456-(D.5)
1/2" H. x 1 19/32" dia.
Backlit numbers.

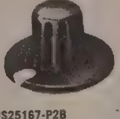
K1577
~~K1786~~
K1787
K2008
K2013
MS25167
MS25168

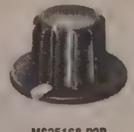


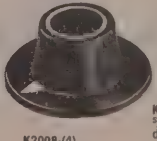
K1577-(D)
One set screw. 7/8" H. x 3/4" dia. Skirt dia. 1 1/4".
Avail. with other markings and/or less skirt.

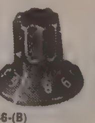

MS25167-P1B
23/32" H. x 5/8" dia.
One set screw.

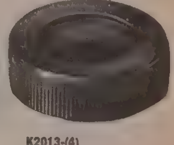

MS25168-P1B
27/32" H. x 1" dia.
One set screw.


MS25167-P2B
23/32" H. x 5/8" dia.
Skirt dia. 1 1/4". One set screw. Also avail. w/o skirt.


MS25168-P2B
27/32" H. x 1" dia.
Skirt dia. 1 1/2".
One set screw.


K2008-(4)
3/4" H. x 1 3/4" dia.


K1786-(B)
55/64" H. x 9/16" body dia., 1" skirt dia.
One set screw.
K1787 Same as 1786 except 41/64" H.


K2013-(4)
39/64" H. x 2" dia.
Back lit marking as required.

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JAN HARDWARE

MANUFACTURING COMPANY INC.

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QUALITY
RELIABILITY
ECONOMY

MACHINED METAL KNOBS — ALUMINUM

2 Set Screws (unless otherwise specified).

Standard Shaft Holes - 1/16″ Increments.

-(2)—⅛″	-(B)—⅛″ D Flatted	-(BB)—⅛″ Double Flatted
-(2.5)—5/32″	-(B.5)—5/32″ D Flatted	-(BB.5)—5/32″ Double Flatted
-(4)—¼″	-(D)—¼″ D Flatted	-(DD)—¼″ Double Flatted

Nominal shaft dimensions: ⅛″= .128 ¼″ = .253

Finish: M- Matte; G- Glossy; **/WD**- White Dot; **/WL**- White Line
Colors: A- Black; B- Red; C- Grey. (See pages 20-21 for other information.)
Typical Part No. K1697-(4)MA
(¼″ shaft, Matte Finish, Black)

SK630
K1007
K1105
K1330
NAS1553
K1702
K1909
K1944
K2007
K2009

K1702-(B)
½″ H. x 23/32″ dia.

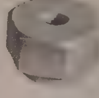
SK630-(B)
¾″ H. x ⅞″ dia.

K1330-(2) ½″ H. x ⅝″ dia.
Can be used for printed circuit boards. Gives both finger and screwdriver adjustment.

K1909-(2)
13/32″ H. x ¾″ dia.
K2009
Same as K1909 except 9/16″ H.

K1105-(4)
⅝″ H. x 1.4″ OD.

K-1007-(2)(4)
¾″ H. x ¾″ OD.


K2007-(4)
19/32″ H. x ⅞″ dia.

K1944 To fit ¼-20 threaded stud.
½″ H. x 1 3/16″ OD.

NAS1553
Style C
Avail. ¾″ to 2″ dia.
Alum. or steel.

K1130
AK1326
K1329
K1336
K1409
K1434
K1801
K2010

AK-1326-(4)
11/32″ H. x 9/16″ O.D.
Also avail. w/plain top.

K1336 8-32 threaded shaft. Aluminum locking knob. 15/32″ H., ½″ knurled OD.

K1329-(4)
23/32″ H. x ⅝″ dia.
Knurled edge for easy turning.

K2010-(4)
11/16″ H. x ½″ dia.
No screws. Mounts from top of knob.

K1434-(4)
9/16″ H. x ¾″ dia.
One set screw.

K1409-(3)
1 set screw and 1 spot-drill hole for pinning.
11/16″ H. x ¾″ head dia., 7/16″ shank dia. Avail. w/o marking. Brass.

K1801
Stainless Steel.
10-32 threaded shaft.
11/16″ OD. x 13/32″ L.

K1130
6-32 thd'd. shaft.
⅜″ L. x ½″ H. x ½″ OD.
Brass, nickel plated (screw-on type).

K1572
K1574
K1584
K1696
K1701
K1814
K1819
K2033

K1814-(4)
½″ H. x ¾″ dia.

K1696-(CC)
Mounts from top.
9/16″ H. x 13/16″ OD.

K1701-(2)
25/32″ H. x ⅝″ OD.
One set screw.

K1572-(2)
⅞″ H. x ¾″ dia.
Black anodized, with or w/o white filled line.

K1574-(2)
½″ H. x ½″ dia.
Painted black with or w/o markings.

K1584-(2)
½″ H. x ⅜″ OD.

K2033-(2)
33/64″ H. x 25/64″ dia.
Steel.

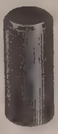
K1819-2MA/WD
13/32″ H. x ⅜″ dia.

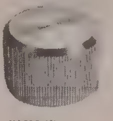
K819-2MA Same as above, without white dot.

K897
K1006
K1433
K1436
K1459
K1485
K1571
K1628
K2001

K-1006-(2)(3)
¾″ H. x ⅜″ dia.

K1485-(2)
13/16″ H. x ¼″ OD.


K2001-(3)
1⅛ H. x ½″ dia.


K1436-(4)
¾″ H. x 1 3/16″ dia.

K1571-(4)
¾″ H. x 1″ dia.
Painted black.

K1628-(3)
⅝″ H. x ⅞″ OD.

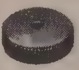
K897-(4)
7/16″ H. x 9/16″ dia.
Brass. Avail. in other finishes.
One set screw.

K1433-(2)(4) Same as K897 except aluminum.

K1459 (Screw on type).
5/16″-18 thd'd. shaft.
½″ L. x 1″ dia.
(Red anodize)

K1278
K1446
K1488
K1570
K1576
K1697
K1703
K1716

K1446-(2)(4)
¼″ H. x ¾″ dia.
Brass.
With or w/o white dot.



K1576-(2)
¼″ H. x ¾″ dia.
Painted black, with or w/o white dot.
Brass.

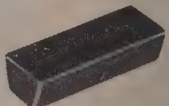
K1716-(4)
¼″ H. x 1¼″ OD.

K1703-(6)
Can be pinned or set screws. 1¾″ dia.
11/16″ H. x ¾″ hub dia.

K1488-(2.25)
11/64″ H. x ⅝″ dia.
Mounts from top.

K1697-(4)
1″ L. x ¾″ W. x 9/16″ H.
With or w/o white dot.

K1278-(4)
¾″ H. x 11/16″ dia.
One set screw.


K1570-(5)
29/64″ H. x 21/32″ L. x ⅝″ W.
Black anodized.

CAST ALUMINUM BAR KNOBS

2 Set Screws (unless otherwise specified).

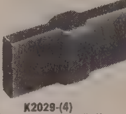
K1325
K1327
K1342
K1487
K1490
K1994
K1996
K2029

K1325-(4)
1″ level arm for heavy load switching.
⅝″ H. x 1 17/32″ L. x 9/16″ body dia.

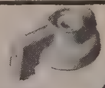
K1490-(2.5)
43/64″ H. x 1¼″ L. x 1/16″ hub. Can supply for mounting skirt.

K1994-(2.5)
25/32″ H. x 1″ long.
13/32″ body dia.

K1996-(4)
⅝″ H. x 1 13/64″ L.
21/32″ body dia.
Single set screw.


K2029-(4)
13/16″ H x ½″ dia.
x 1 13/16″ L.
One set screw.
Hole for pinning.

K1327-(4)
1″ H. x 11/16″ body dia.


K1487-(DD)
Mounts from top.
35/64″ H. x 1 3/16″ L.
x 27/32″ dia.

K1342-(DD)
Knob switch.
7/16″ H. x 1½″ L. 1″ body dia., 7/16″ bar dia.

K981
K1337
K1408
K1429
K1431
K1695
MS91523-1

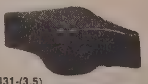
MS91523-1-(DD)
½″ H. x 1 7/32″ L.
Center of shaft hole to end of handle - 29/32″.

K1337-(4)
⅜″ H. x 1⅛″ L.
x ½″ body dia.

K1408-(D.5)
1 13/16″ H. x 1 29/32″ L.

K1695 .255 square shaft. ½″ H. x 1¾″ L.
Center of shaft hole to end of handle — 1⅜″.

K1429-(4)
15/32″ H. x 27/32″ L.
Magnesium Casting.
1 set screw and pinning hole.

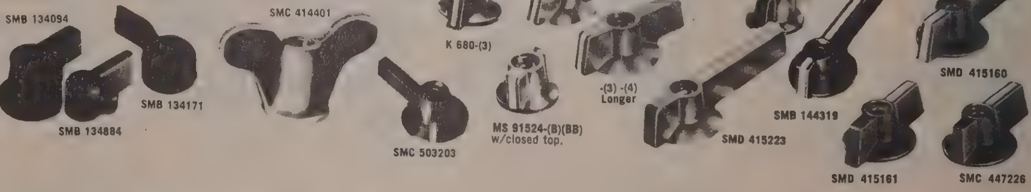

K1431-(3.5)
½″ H. x 1½″ L., Body dia. 9/16″
Normally supplied for pinning to shaft. Can be supplied for screw attachment. Can also be supplied in brass.

K981-(4)
9/16″ H. x 2 1/32″ L.
1 1/16″ body dia.

K680
SMC91018
MS91524
MS91525
SMB134094
SMB134171
SMB134884
SMB144319
SMC414401
SMC447226
SMD415160
SMD415161
SMD415223
SMC503203

MS & SIGNAL CORPS ALUMINUM & PLASTIC CONTROL KNOBS

Manufactured in Accordance with Applicable Military Specifications



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CAST ALUMINUM KNOBS

2 Set Screws (unless otherwise specified).

Standard Shaft Holes - 1/16″ Increments.

-(2)—1/8″ **-(B)—1/8″ D Flatted** **-(BB)—1/8″ Double Flatted**
-(2.5)—5/32″ **-(B.5)—5/32″ D Flatted** **-(BB.5)—5/32″ Double Flatted**
-(4)—1/4″ **-(D)—1/4″ D Flatted** **-(DD)—1/4″ Double Flatted**

Nominal shaft dimensions: 1/8″ = .128 1/4″ = .253

Finish: M- Matte; G- Glossy; /WD- White Dot; /WL- White Line
Colors: A- Black; B- Red; C- Grey. (See pages 20-21 for other information.)
Typical Part No. K1697-(4)MA
(1/4″ shaft, Matte Finish, Black)

K1005
K1022
K1023
K1024
K1389
K1461
K1773
K1775
K1802

K-1005-(4)
7/8″ H. x 1″ skirt dia. Overall length 1 5/16″. Available with or without skirt.

K1773-(DD)
11/16 H. x 1 1/8″ dia. Mounts from top.

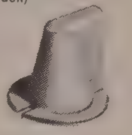
K1802-(2)
15/32″ H. x 1 3/16″ L. 7/8″ dia. skirt.

K1775-(4)
31/64″ H. x 1″ dia. x 1 5/32″ L.

No. K-1022-(4)
1 1/32″ H. x 15/16″ base dia.
Full Round Skirt

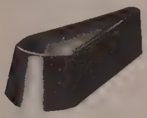
No. K-1023-(4)
Flat Back Round Skirt
1 1/32″ H. x 15/16″ base dia. (29/32″ to flat back).

No. K-1024-(4)
With cam shape cut out in bottom of knob.
1 1/32″ H. x 15/16″ base dia.


K1389-(4)
27/32″ H. x 15/16″ dia.

K1461-(4)
1 1/8″ H. x 3/4″ OD. (Overall width incl. bar, 15/16″). Avail. with skirt. One set screw.

K1020
K1021
K1328
K1390
K1392
K1799
K1947
K2002


K2002-(4)
3/8″ H. x 1 1/8″ L. x 5/16″ body dia. (Avail. in plastic w/metal insert. See K2004.)

K1947-(4)
3/4″ H. x 1 1/4″ L. x 5/8″ W.

K1390-(3)
11/16″ H. x 9/16″ dia. One set screw.

K1392-(3)
25/32″ H. x 11/16″ dia. (Bar is 13/16″ long).

K1328-(4)
11/16″ H. x 11/16″ dia.

K1020-(4)
11/16″ H. x 9/16″ base dia.

No. K-1021-(4)
11/16″ H. x 1″ base dia.

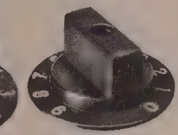
Other shaft diameters on request.

K1799-(D)
53/64″ H. x 1 1/2″ dia. One set screw. For transilluminated knob see K-1800.

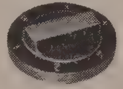
K1124
K1447
K1448
K1449
K1453
SMD500501
SMD500502

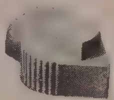
SMD500501

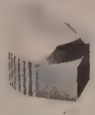
SMD500502



-(DD)
1/4″ double flatted shaft.
29/32″ H. x 1 13/16″ dia.


K1124-(2)
9/16″ H. x 1 1/16″ dia. One set screw.


K1453-(4)
11/16″ H. x 1 1/2″ L. x 15/16″ dia. Tactile Top.

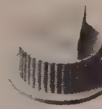

K1447-(4)
11/16″ H. x 15/16″ dia. x 3/32″ L. Tactile "Bar" Top.

K1448-(4)
11/16″ H. x 15/16″ dia. x 3/32″ L. Tactile "Sphere" Top.

K1449-(4)
11/16″ H. x 15/16″ dia. x 3/32″ L. Tactile "Edge" Top.

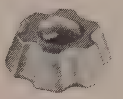
K1450
K1451
K1484
K1698
K1699
K1956
K1957

K1450-(4)
11/16″ H. x 15/16″ dia. Tactile "Square" Top.


K1451-(4)
11/16 H. x 1 3/16″ skirt dia. Tactile "Triangle" Top.

K1484 5/16-24 threaded shaft. 5/16″ H. x 1 5/8. OD. Partial pin holes supplied. for pinning to shaft.

K1698-(4)
3/4″ H. x 2″ O.D. One set screw.


K1699-(DD5)
1/2″ H. x 1″ dia. Mounts from top.

K1956-(4)
35/64″ H. x 1 5/8″ OD.

K1957-(4)
1/2″ H. x 1″ OD.

K1047
K1126
K1127
K1391
K1394
K1452
K1774
SCB41848

K1047-(B)
(Double D). 7/8″ H. x 1 1/8″ dia.

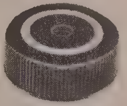
K1394-(2)
7/8″ H. x 1/2″ dia.

K1126-(DD)
15/32″ H. x 23/32″ dia. Mounts from top.

K1127-(2)
15/32″ H. x 23/32″ dia.

K1391-(2)
43/64″ H. x 5/8″ dia. White-filled line.

K1452-(4)
11/16″ H. x 15/16″ dia. Tactile "Round Ribbed" Top.


SCB-41848-(4)
5/8″ H. x 1 13/16″ dia.

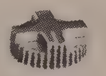
K1774-(5.25)
1 1/8″ H. x 2 1/8″ dia. Mounts from top.

BK1080
K1387
K1460
K1770
K1790
MS21360

MS21360-1BID-(2)
1/2″ H. x 27/64″ OD.

K1790-(4)
27/32″ H. x 49/64″ dia.

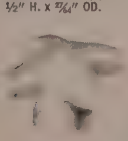
K1460-(4)
19/32″ H. x 7/8″ OD.


K1387-(2.5)
1/4″ H. x 23/32″ dia.

K1770-(2)(4)
1/2″ knob dia., 17/32″ H. x 1″ skirt dia.

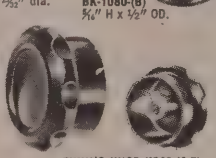
BK-1080-(B)
5/16″ H x 1/2″ OD.

K243
K1432
K1991
K2036

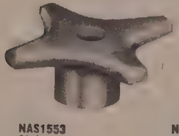

K1991-(6)
1″ H. x 1 1/2″ dia. No screws. 2 holes for pinning to shaft.

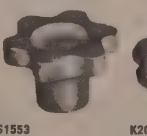
K2036
3/4″ H. x 9/16″ dia. x 1 5/32″ L. For 17/64″ shaft. .062 cross drilled
Stainless Steel.
Can be supplied with screws.

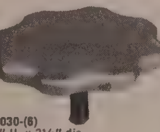
K1432-(5)
1 1/4″ H. x 1 7/8″ across wing. Body dia. 3/4″. Must be pinned to shaft.


TUNING KNOB K243-(4.5)
1 1/4″ H. x 2 5/16″ dia. Use no-mar clamp (Cat. No. 937-8) for mounting. (Not supplied).

K2030
K2032
NAS1553


NAS1553
Style A
Avail. 3/4″ to 2 1/2″ dia. Cast alum. or steel.


NAS1553
Style B
Avail. 1 1/2″ to 3″ dia. Cast alum. or steel.


K2030-(6)
3/8″ H. x 3 1/2″ dia. Can be supplied for screw or pinning.
Steel.

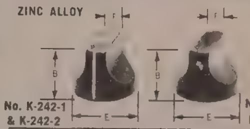
K2032
1 15/32″ H. x 3 1/2″ dia. Hub dia. 1 5/8″. Threaded 7/16″ - 20

K242
K984
SCB35862-1
SMC414393
SMC414399
SMC414680

SIGNAL CORPS DIE CAST KNOBS

ZINC ALLOY

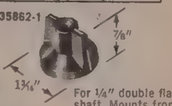
SMC 414399-(2)
3/4″ H. x 13/16″ dia. Mounts with screw (not supplied) from top.



Cat. No.	B	E	F	Marking
K-242-1	3/4″	15/16″	5/16″	White
K-242-2	7/8″	1 1/8″	3/8″	White
K-242-3	3/4″	15/16″	5/16″	None

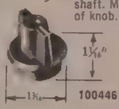
SMC 414680-1 thru 10
3/8″ x 5/32″ flatted shaft Push on mounting. 21/32″ H. x 9/16″ dia.

SCB35862-1



For 1/4″ double flatted shaft. Mounts from top of knob.

No. K-984
Dimensions as per 242-3 No markings. .257 tear drop shaft hole.



100446

SMC 414393-(2)
1/2″ H. x 11/16″ O.D. Mounts with screw (not supplied) from top.

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QUALITY
RELIABILITY
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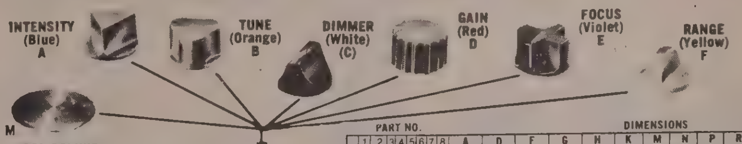
KNOBS, DELUXE INSTRUMENT

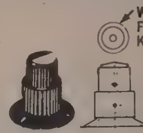
ROUND, ROUND FUNCTIONAL, TACTILE SHAPES

Visual and tactile funtion identifications. Tactile Knobs are in standard color & Configuration for its intended function. Available in other colors (special order).

Configuration meets performance **MS91528**, MIL-K-3926 and MIL STD. 242D (ships). Knobs meet environmental conditions MIL-E-16400. **QPL #3926 — T.R. #J101.** Patents: **4,012,966** and **4,077,503**. Others pending.



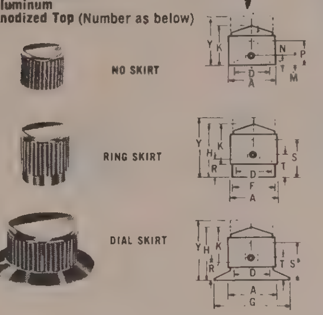
SUPER DELUXE Aluminum Anodized Top (Number as below)



Concentric Controls
"Piggy-back" knobs for concentric shaft pots or similar applications.

*'Y' dimension applies when A thru F caps (shown above) are used.

LOCK POINTER SKIRT
.320Max.



	PART NO. 1	2	3	4	5	6	7	8	DIMENSIONS A	D	F	G	H	K	M	N	P	R	S	T	TT	Y
		5	1	A	SPECIFY AS REQUIRED				.505	435				.509	158	026	.408					
		7	1	A					708	486				626	187	026	.406					.915
		9	1	A					.911	645				.798	255	114	.521					1.171
		12	1	A					1 255	974				.703	.260	.115	.458					1.220
		15	1	A					1 580	1 350					300	.040	.640					
		17	1	A					1.755	1.465				.854	.255	.114	.521					
		22	1	A					2.255	1.870				.885	.255	.114	.521					
		5	1	B	SPECIFY AS REQUIRED				.505	.435	.450		660	.509				.181	.563	.324	.355	
		7	1	B					.708	.486	670		805	626				.188	.568	.340	.406	1.100
		9	1	B					911	.645	.826		1 027	798				.323	.730	.484	.410	1 399
		12	1	B					1.255	.974	1 155		.870	.703				.262	.605	.427	.406	1.399
		15	1	B					1.580	1 350	1 500		1.100	.850				.280	.840	.540	.480	
		17	1	B					1.755	1.465	1 666		1.088	.854				.338	740	.489	.480	
		22	1	B					2.255	1 870	2 153		1 114	885				.333	.740	489	.480	
		5	1	C	SPECIFY AS REQUIRED				.505	.435		.885	660	509				.181	563	.324	.355	
		7	1	C					708	.486		1.135	805	626				.183	.568	.340	.406	1.100
		9	1	C					911	645		1 510	1 027	.798				.323	.730	.484	410	1.399
		12	1	C					1.255	974		1.822	.870	.703				.262	.605	.427	.406	1.399
		17	1	C					1.755	1.465		2 543	1 088	854				.338	.740	.489	.480	
		22	1	C					2 255	1 870		3 005	1 114	.885				.333	740	.489	.480	

TYPICAL PART NUMBERS — SEE BELOW

TT For Janset® Series

1 CAP STYLE
(Color of Tactile)
0 = NO TOP — Shaft Hole Drilled Thru
A = (INTENSITY - Blue)
B = (TUNE - Orange)
C = (DIMMER - White)
D = (GAIN - Red)
E = (FOCUS - Violet)
F = (RANGE - Yellow)
M = (ALUM ANODIZED TOP
T = STANDARD TOP
(PREFIX NOT REQUIRED) Use only when color of standard shape top differs from body color Precede T by color code from Column 7 (BT = RED top standard shape)

2 BODY DIA.
5 = .51
7 = .71
9 = .91
12 = 1.25
17 = 1.75
22 = 2.25

3 BODY STYLE
1 = ROUND
2 = POINTER
8 = HEX SHAPE

4 SKIRT
A = NO SKIRT
B = RING
C = DIAL W/POINTER
D = DIAL W/O POINTER
H = DIAL W/SLOT
J = RING SKIRT W/POINTER

5 — SHAFT HOLE DIA. ±.001
2 = .128
3 = .190
4 = .253
4.25 = .268
5 = .315
6 = .378
7 = .441
"D" FLAT SHAFT HOLES
B = .107 (⅛")
D = .222 (¼")

6 FINISH
M = MATTE
G = GLOSSY

7 COLOR
A = BLACK
B = RED
C = GREY
D = GREEN
E = YELLOW
F = PURPLE
G = BLUE
H = WHITE
J = ORANGE
K = BROWN

8 MARKING For no marking, omit
/WD = WHITE DOT
/FD = FLUORESCENT DOT
/PD = PHOSPHORESCENT DOT
/FA = FLUORESCENT ARROW
/PA = PHOSPHORESCENT ARROW
/BL = BACKLIGHTED
/WL = WHITE LINE
/BD = BLACK DOT
/WB = WHITE BULLSEYE ON TOP OF KNOB
/WR = WHITE RING (for concentric)

SLIP CLUTCH KNOBS

Aluminum.
⅜" dia. × ½" high.

JANSET® FUNCTIONAL KNOBS

"PUSH-TO-SET" OR "PUSH-TO-TURN"

DISTINCTIVE FEATURES:

- **Dimensions (see chart above).**
- **Installation: Same as a standard knob.**
- **Locks shaft automatically, upon release.**
- **Release Brake when depressed: settings can be altered.**
- **Resolution: Infinite, with zero backlash.**
- **Shaft Registration: to indicators, ie.: arrows, dots, cut-outs, etc.**
- **Shock or vibration settings are guarded against accidental change.**
- **Integral Assembly: Mechanism completely enclosed in knob body.**
- **Old designs: Janset® Knobs require no modificatioq to existing panels.**
- **Shaft sizes: ⅛ thru ¼ dia. (except ½ dia. knob, 5/32" shaft dia. max.).**
- **Panel Bushings: Fits with all ¼ and ⅜ standard.**
- **Space: No space required behind panel; all functions within knob body.**

PUSH TO TURN

PREFIX	
S (Slip Clutch)	**SLIP CLUTCH:** Prevents over torquing delicate mechanisms. Functions as standard knob between limit stops. When limit is reached and knob rotation continues, clutch overrides the stop without applying torque in excess of specifications. Driving torque in detented position .5-6 LB./IN, (depending on knob diameter).
PT (Push-To-Turn)	**BRAKE KNOB:** Prevents control setting from movement due to shock or vibration.
PSC (Push-To-Set)	**Brake Knob W/ OVERRIDING CLUTCH:** Same as "PT" with added feature of "S" (slip clutch) combined. Knob can be rotated without changing setting (if not pushed in).
PSCE (Push-To-Set /w Limit Stop)	**Brake Knob W/ Overriding Clutch & LIMIT STOP:** Same as "PT" & "PSC" with added feature of limit stop (320° MAX) built in.
LSC*** (Pull-To-Turn)	**Brake Knob W/ Overriding Clutch — PULL-TO-TURN:** Same as "PSC" except pull-to-turn. For use in extremely hostile environment, i.e.: Life Support Equipment.
PTN (Spin Free Push-To-Turn)	**SPIN FREE PUSH-TO-ENGAGE:** Prevents shaft from inadvertent turning — Knob spins free unless depressed and rotated until full internal engagement is accomplished for use where SHAFT TORQUE EXCEEDS 4 oz. in.
PTCN (Spin Free Push-To-Turn)	**Spin Free PUSH-TO-ENGAGE:** Same as "PTN" except for use where SHAFT TORQUE is LESS THAN 4 oz. in.
PTNN (Spin Free Press-To-Turn)	**Spin Free PRESS-TO-TURN:** (Friction) Prevents inadvertent change of setting. Use only where intent to turn is required. Must be pressed in while turning, for low torque applications.
LTN (Spin Free Lift-To-Turn)	**Spin Free LIFT-TO-TURN:** Same at "PTN" except pull-to-turn. For use where SHAFT TORQUE EXCEEDS 4 oz. in.
TC (Torque)	**TORQUE KNOB:** (Friction) For use where positive feel is desired and/or where minor excursions of shock and vibration are anticipated.
LEPR (Limit Stop & Release)	**LIMIT STOP W/ QUICK RELEASE:** For use where limited travel (0-? degrees) is required. Push-To-Release stop and continue to the next function.
LELR (Limit Stop & Release)	**Same as LEPR except PULL-TO-RELEASE:** For use in extremely hostile environment, i.e.: Life Support Equipment.

INCREMENTAL KNOBS

Repositions to the exact point, with zero backlash. Easily provides precise setting to pre-determined positions. Can be repeated with finite exactness to as many as 32 or as few as a single position.

Cap

		EE	I	B							
		GG	1	B							
		II	1	B							
		LL	1	B							
		QQ	1	B							
		VV	1	B							
		EE	1	C							
		GG	1	C							
		II	1	C							
		LL	1	C							
		QQ	1	C							
		VV	1	C							

PART NO.

FOR DIMENSIONS SEE TABLE ABOVE (COLUMNS A - Y)

(9) NO. OF INCREMENTAL POSITIONS
SPECIFY 1 THRU 32.

(10) INCREMENTAL ANGLES
E = Equal Angles
N = Unequal Angles*

* Supply table of angular increments In degrees and minutes. See Table.

* SAMPLE OF TYPICAL TABLE (to be supplied)

Position	Increment Angle	Total Angle
1	0	0
2	5	5
3	4	9
4	25	34
5	266	300

(11) TOTAL ANGULAR ROTATION IN DEGREES AND MINUTES
SPECIFY 0° to 360°

SPECIAL KNOBS TO YOUR SPECIFICATIONS (Give full description and/or sketch)

TYPICAL PART NUMBERS

S71C4MC = Slip Clutch Knob/.708 Dia./Dial Skirt/.253 Shaft Hole/Matte/Gray
PT71B4GA = Brake Knob marked Push-To-Turn/.708 Dia./Ring Skirt/.253 Shaft Hole, Glossy, Black
PSC91B4MA = Brake Knob marked Push-To-Set w/Overriding Clutch/.911 Dia./Ring Skirt/.253 Shaft Hole/Matte/Black
PS91C4GA — Push-To-Turn Brake Knob with cap marked Push-To-Set/.90 Dia./Round/Dial/½"/Glossy/Black

TYPICAL PART NUMBERS

IIB4MA/WD (17E 180°) = Standard Top/.90 Dia./Round/Plain/.253 Dia. Shaft Hole/Matte/Black/White Dot/17 Incremental Positions/Equally Spaced, in 180° Rotation.
MLL1C4GB (5N 300°) = Aluminum Anodized Top/1.25 Dia./Round/Dial with Pointer/.253 Dia. Shaft Hole/Glossy/Red/5 Incremental Positions/Unequally Spaced, in 300° Rotation (See Table).

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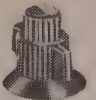
KNOBS, DELUXE INSTRUMENT

POINTER (2); DOUBLE BAR (3); BAR POINTER (5), (6); BAR (7) HEX (8); CRANK (4); ROUND (DEEP FLUTED)

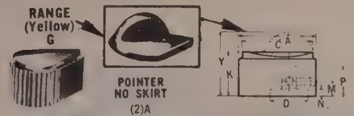
Visual and tactile funtion identifications. Tactile Knobs are in standard color & Configuration for its intended function. Available in other colors (special order).

Configuration meets performance **MS91528,** MIL-K-3926 and MIL STD. 2412D (ships). Knobs meet environmental conditions MIL-E-16400. **QPL #3926 — T.R. #J101.** Patents: **4,012,966** and **4,077,503.** Others pending.

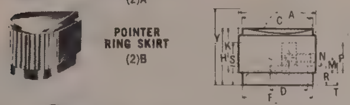


Concentric Controls
"Piggy-back" knobs for concentric shaft pots or similar applications.

51A & 73 Series



POINTER NO SKIRT
(2)A

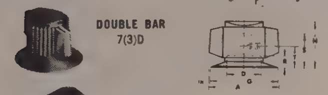


POINTER RING SKIRT
(2)B

POINTER KNOBS

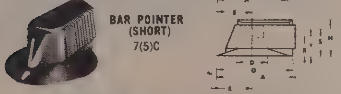
PART NO.

1	2	3	4	5	6	7	8	A	D	E	F	H	K	M	N	P	R	S	T	Y
	5	2	A	SPECIFY AS REQUIRED				750	406	.510			.505	.158	026	402				
	7	2	A					1.038	.486	.690			.619	.187	.026	.406				.918
	9	2	A					1.344	.645	.895			.796	.255	.114	.555				1.171
	5	2	B					.750	.406	.510	.669	.655	.505			.402	.177	.563	.324	
	7	2	B					1.038	.486	.690	.940	.791	.619			.406	.193	.573	.364	1.100
	9	2	B					1.344	.645	.895	1 251	1.051	.796			.555	.328	.796	.479	1.400



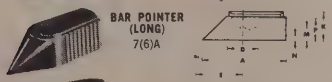
DOUBLE BAR
7(3)D

1	2	3	4	5	6	7	8	A	D	F	G	H	K	M	N	P	R	S	T
	7	3	A	SPECIFY AS REQUIRED				1.150	.486				.610	.187	.026	.406			
	7	3	B					1.150	.486	.680		.782					.183	.568	.364
	7	3	D					1.150	.486		1.135	.782					.183	.568	.364



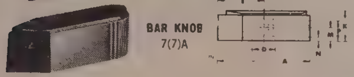
BAR POINTER (SHORT)
7(5)C

1	2	3	4	5	6	7	8	A	D	E	G	H	K	M	N	P	R	S	T
	7	5	A	SPECIFY AS REQUIRED				1 515	.515	.575			.645	.250	110	.445			
	7	5	C					1 720	515	.780	1.520	.815					.266	590	.435



BAR POINTER (LONG)
7(6)A

PART NO.								A	D	E	G	H	K	M	N	P	R	S	T
	7	6	A	SPECIFY AS REQUIRED				1.855	.595	.900			.645	.250	.110	445			
	7	6	D					1.870	.470	.915			.815	.435	.266	.590			



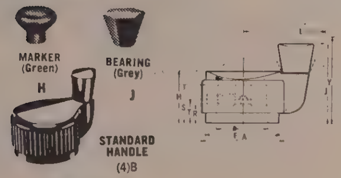
BAR KNOB
7(7)A

1	2	3	4	5	6	7	8	A	D	E	G	H	K	M	N	P	R	S	T
	7	7	A	SPECIFY AS REQUIRED				2 552	.562	1 290			.869	348	.177	.739			

HEX
7(8)B

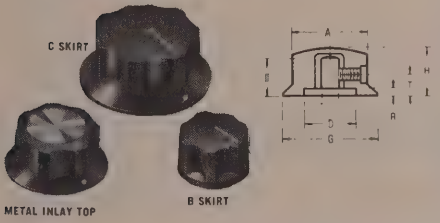
HEX KNOBS

1	2	3	4	5	6	7	8	A Flats	D	F	G	H	K	M	N	P	R	S	T	Y
	7	8	A	SPECIFY AS REQUIRED				.880	.645				.798	255	.114	.521				1 171
	7	8	B					880	.654	826		1.027	.798				.323	730	484	1 399
	7	8	C					880	645		1 510	1.027	.798				.323	.730	.484	1.399



CRANK KNOBS

1	2	3	4	5	6	7	8	A	D	F	H	J	L	R	S	T	Y
	12	4	B	SPECIFY AS REQUIRED				1.290	.685	1.185	850	1.350	1.275	.250	.605	.427	1.475
	17	4	B					1.750	.685	1.666	1.070	1.758	1.735	.320	.740	.489	1.940
	22	4	B					2.250	.685	2 185	1.095	1.782	1.970	320	740	.489	1 970



INSTRUMENT KNOBS — DEEP FLUTED (ALSO SUPPLIED WITH SLIP CLUTCH MECHANISM)

1	2	3	4	5	6	7	8	A	D	G	H	R	S	T
	6	1	B		SPECIFY AS REQUIRED			5/8	9/16		7/16	1/16	3/8	7/32
	8	1	B					13/16	11/16		19/32	3/32	1/2	9/32
	10	1	B					1	11/16		21/32	3/32	1/2	9/32
	13	1	B					1 1/4	31/32		3/4	5/32	9/16	11/32
	16	1	B					1 5/8	13/16		7/8	3/32	21/32	13/32

1	2	3	4	5	6	7	8	A	D	G	H	R	S	T
	6	1	C		SPECIFY AS REQUIRED			5/8	9/16	3/4	7/16	1/16	3/8	7/32
	8	1	C					13/16	11/16	1	19/32	3/32	1/2	9/32
	10	1	C					1	11/16	1 1/4	21/32	3/32	1/2	9/32
	13	1	C					1 1/4	31/32	1 1/2	3/4	5/32	9/16	11/32
	16	1	C					1 5/8	13/16	2	7/8	3/32	21/32	13/32

1 — CAP STYLE
(Color of Tactile)
0 = NO TOP —
Shaft Hole Drilled Thru
A = (INTENSITY - Blue)
B = (TUNE - Orange)
C = (DIMMER - White)
D = (GAIN - Red)
E = (FOCUS - Violet)
F = (RANGE - Yellow)
M = ALUM ANODIZED TOP
H = (MARKER - Green)†
J = (BEARING - Grey)†

T = STANDARD TOP (PREFIX NOT REQUIRED) Use only when color of standard shape top differs from body color. Precede T by color code from Column 7 (BT = RED top standard shape).

2 — BODY DIA.
5 = .51
6 = .62
7 = .71
8 = .80
9 = .91
10 = 1.00
12 = 1.25
13 = 1.25
16 = 1.62
17 = 1.75
22 = 2.25

3 — BODY STYLE
1 = ROUND
2 = POINTER
3 = BAR, ROUND
4 = SPINNER
5 = BAR, SHORT
6 = BAR, LONG
7 = BAR—HIGH TORQUE
8 = HEX SHAPE

4 — SKIRT
A = No Skirt
B = Ring (see F dim.)
C = Skirt with Marker
D = Skirt w/o Marker
H = Dial w/slot
J = Ring Skirt w/Pointer

5 — SHAFT HOLE DIA. ±.001
2 = .128
3 = .190
4 = .253
4.25 = .268
5 = .315
6 = .378
7 = .441
"D" FLAT SHAFT HOLES
B = .107 (1/8")
D = .222 (1/4")
(Standard—with metal insert. "0" preceding these numbers means w/o metal insert)

6 — FINISH
M = MATTE
G = GLOSSY

7 — COLOR
A = BLACK
B = RED
C = GREY
D = GREEN
E = YELLOW
F = PURPLE
G = BLUE
H = WHITE
J = ORANGE
K = BROWN

8 — MARKING
/WD = WHITE DOT
/WL = WHITE LINE ON TOP
/FL = FLUORESCENT LINE
/PL = PHOSPHORESCENT LINE
/FD = FLUORESCENT DOT
/PD = PHOSPHORESCENT DOT
/FA = FLUORESCENT ARROW
/PA = PHOSPHORESCENT ARROW
/BL = BACKLIGHTED
/BD = BLACK DOT
For no marking, omit

TYPICAL PART NUMBERS
91C4GA = .90 Dia./Round/Dial/1/4"/Glossy/Black
A71B4MA = Triangle Top Blue/.72/Round/Plain/1/4"/Matte Black
124B4MA = 1.25 dia./Crank (Spinner)/Plain/1/4"/Matte/Black
BT71B4MA = Standard Top Red/.72/Round/Plain/1/4"/Matte/Black
****071B4MA** = No Top. Shaft hole drilled thru/.72/Round/Plain/1/4"/Matte/Black.

TYPICAL PART NUMBERS
81D4GA = 13/16" Dia./Round Skirt w/o indicator marker 1/4" Shaft Hole Dia /w/o line on top/Glossy Black
101C4MA/WL = 1" Dia./Round/Skirt w/indicator marker/White Line on top/1/4" Shaft Hole Dia /Matte Black
M61B2GA = 5/8" Dia./Round/Plain Skirt/no marking/metal top/1/8" Shaft Hole Dia./Glossy Black
61B2GA/WL = 5/8" Dia./Round/Plain Skirt/White Line on top/no marking on skirt/1/8" Shaft Hole Dia./Glossy Black

SPECIAL KNOBS TO YOUR SPECIFICATIONS (Give full description and/or sketch)

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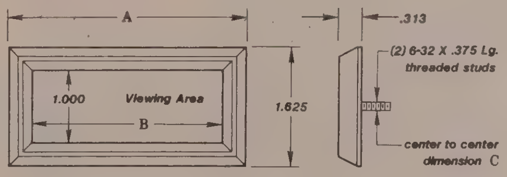
FEATURES

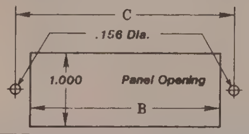
DIE CAST METAL FRAME

- Nonreflective black finish
- Durable — heat resistant
- Integral 6-32 mounting studs
- No exposed hardware
- Mounts in panels up to 3/16" thick
- Includes mounting hardware
- Available in three sizes
- Filters available in 10 colors and clear

DESCRIPTION

The DIE CAST SERIES of bezels consist of a special plastic screen and a die cast metal frame. Mounting is accomplished by two 6-32 studs which can also be used to mount PC boards or other components behind the panel. The high quality of the screen and frame, combined with the universal sizes and mounting flexibility, make the bezels usable for a wide range of applications.





PN	A	B	C
1-258	3.250	2.625	3.000
1-358	4.250	3.625	4.000
1-458	5.250	4.625	5.000

PLASTIC SERIES

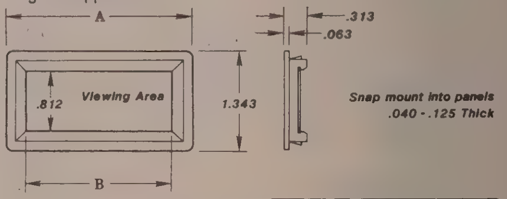
FEATURES

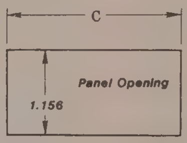
INJECTION MOLDED PLASTIC FRAME

- Nonreflective black finish
- Impact resistant ABS
- Snaps into front panels
- No exposed hardware
- Mounts in panels up to .125" thick
- Available in four sizes
- Filters available in 10 colors and clear

DESCRIPTION

The PLASTIC SERIES of bezels consist of a special plastic screen and an injection molded ABS frame. Mounting is accomplished by a snap-fit into rectangular cut-outs from the outside. The combination of a high quality filter and an inexpensive, easy to mount bezel make this series ideal for a wide range of applications.





PN	A	B	C
1316-138	1.906	1.375	1.750
1316-2	2.531	2.000	2.375
1316-3	3.531	3.000	3.375
1316-4	4.531	4.000	4.375

LOW COST CUSTOM BEZELS

Our new fabricating facility is totally dedicated to the production of non-standard bezels. Using specially designed machines, we can now offer made-to-order sizes in proto-type or production quantities, without costly tooling or extended lead times.

TYPICAL BEZEL MATERIALS

- Aluminum
- Stainless Steel
- Plastic

VARIETY OF FILTER MATERIALS

- Anti-Reflective Coatings
- Polycarbonate
- EMI Shielding
- Large Selection of Colors
- High Scratch Resistance

DESIGN FLEXIBILITY

- Panel Seals
- Welded Studs
- Any Size Viewing Area
- Multi-Opening Bezels

VARIETY OF FINISHING PROCESSES

- Anodizing
- Painting
- Screening
- Plating

Call or write for more information P.O. Box 26 Kendall Park, N.J. 08824 (201) 821-7151

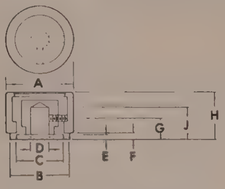
MICROTOUCH KNOBS

MICROTOUCH™ RUBBER COLLAR KNOBS

The components division of Microavionics, Inc., offers to avionics, instrumentation and systems designers a line of custom grade component hardware.

The new MICROTOUCH™ series of instrumentation knobs feature a **diamond knurled rubber collar** which gives the knob a distinctive high quality feel and appearance, and provides a sure grip for precise settings. The silicone rubber boot lasts indefinitely, without deterioration. The knob base is plastic, molded on a heavy brass insert to provide strength and positive set screw grip.

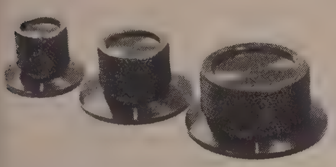
KNOB WITHOUT SKIRT

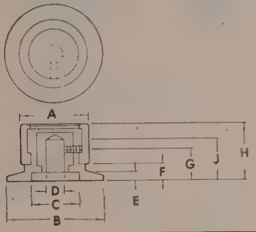


DIMENSIONS

PART NO.	A	B	C	D	E	F	G	H	J
1001-125	.50	.50	.38	.125	.08	.13	.25	.53	.38
1002-125	.72	.64	.57	.125	.05	.09	.29	.65	.40
1002-250	.72	.64	.57	.250	.05	.09	.29	.65	.40
1003-125	.94	.82	.65	.125	.09	.09	.29	.65	.44
1003-250	.94	.82	.65	.250	.09	.09	.29	.65	.44
1004-125	1.35	1.19	.90	.125	.09	.09	.29	.65	.44
1004-250	1.35	1.19	.90	.250	.09	.09	.29	.65	.44

KNOB WITH SKIRT

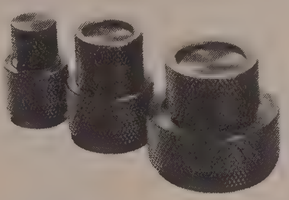


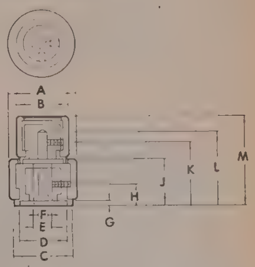


DIMENSIONS

PART NO.	A	B	C	D	E	F	G	H	J
1005-125	.50	.90	.38	.125	.15	.21	.33	.61	.37
1006-125	.72	1.20	.57	.125	.19	.23	.43	.79	.54
1006-250	.72	1.20	.57	.250	.19	.23	.43	.79	.54
1007-125	.94	1.38	.65	.125	.23	.23	.43	.79	.58
1007-250	.94	1.38	.65	.250	.23	.23	.43	.79	.58
1008-125	1.35	1.75	.90	.125	.23	.23	.43	.79	.58
1008-250	1.35	1.75	.90	.250	.23	.23	.43	.79	.58

CONCENTRIC SET WITHOUT SKIRT

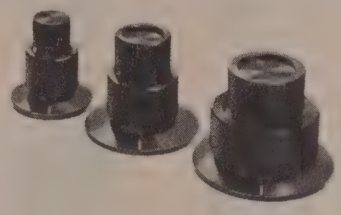


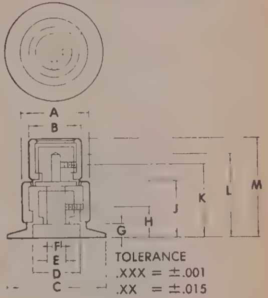


DIMENSIONS

PART NO.	A	B	C	D	E	F	G	H	J	K	L	M
1009	.72	.50	.64	.57	.250	.125	.09	.29	.65	.84	.97	1.12
1010	.94	.72	.82	.65	.250	.125	.09	.29	.65	.88	.99	1.24
1011	1.35	.94	1.19	.90	.250	.125	.09	.29	.65	.88	1.03	1.24

CONCENTRIC SET WITH SKIRT





TOLERANCE
.XXX = ±.001
.XX = ±.015

DIMENSIONS

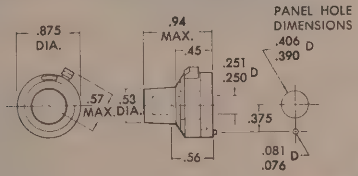
PART NO.	A	B	C	D	E	F	G	H	J	K	L	M
1016	.72	.50	1.20	.57	.250	.125	.19	.43	.79	.98	1.11	1.26
1017	.94	.72	1.38	.65	.250	.125	.23	.43	.79	1.02	1.13	1.52
1018	1.35	.94	1.75	.90	.250	.125	.23	.43	.79	1.02	1.17	1.52

DIGITAL DIALS

MICRO-SET/MODEL DN-22 TURNS COUNTING DIAL

FEATURES

- counts up to 15 turns, and divides each turn into 50 divisions with easy interpolation of 1/2 division for additional resolution
- distinctive satin chrome appearance
- locking lever prevents accidental movement
- rugged construction for high reliability



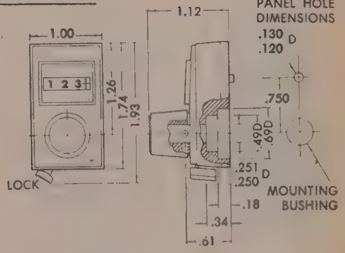
SPECIFICATIONS

Counting Capacity:	15 turns
Graduation:	1/50 turns
Torque:	1.5 in.oz.
Finish:	satin chrome
Weight:	0.35 oz.
Life:	10^6 cycles, min.
Temperature Range:	−55 deg.C to +85 deg.C

DIGIT-DIAL/MODEL TD-80 DIGITAL DIAL

FEATURES

- 10 turns provide 0 to 1000 counts – easy interpolation of 2/10 counts for additional resolution
- distinctive appearance and reliable performance
- locking lever prevents accidental movement
- clear, contrasting numerals for easy readability
- rugged construction for long operating life



SPECIFICATIONS

Counting Capacity:	ten turns
Graduation:	2/10,000
Torque:	1.5 in.oz.
Dial:	hot stamped white numeral on black wheel
Cover:	black; matte finish silver also available
Weight:	1.5 oz.
Locking torque:	14 in.oz.
Life:	10^6 cycles, min.
Temperature Range:	−55 deg.C to +85 deg.C

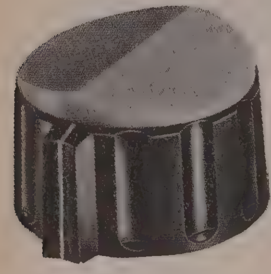
MICROAVIONICS
A TOTAL COMMITMENT CORPORATION
3198K AIRPORT LOOP DRIVE, COSTA MESA, CA 92626 (714) 957-6904

Power Dynamics, Inc.

177 Valley Street, South Orange, New Jersey 07079 • (201) 762-6886 • TWX: 136567 (PDI)

VISE-GRIP COLLET KNOBS INDUSTRY'S BEST "OFF-THE-SHELF" DELIVERY

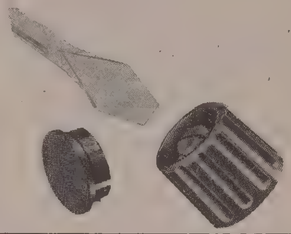
Knobs available in 10mm (0.40), 15mm (0.59), 21mm (0.82), 28mm (1.10) and 36mm (1.42) dia.



PDI knobs are distinguished by their styling, elegance, easy handling, long service life, excellent fit on the shaft as a result of "VISE GRIP" mounting and by their comprehensive accessories program in 24 different colors.

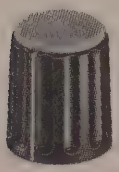
NO FLATS • NO SET SCREW • NO SLIPPAGE

1. REMOVE CAP
2. TIGHTEN COLLET SCREW WITH SCREWDRIVER
3. REPLACE CAP

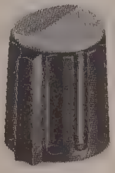


Our exclusive "VISE-GRIP" collet knobs offer distinguished styling, beauty and ease of mounting, as well as long life in the field. The exclusive "VISE-GRIP" collet works much the same way as a drill chuck. Once tightened, it will not work loose. Knobs are mounted with free-drive screws which can be tightened using a Phillips or an ordinary screwdriver.

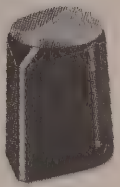
STANDARD KNOB



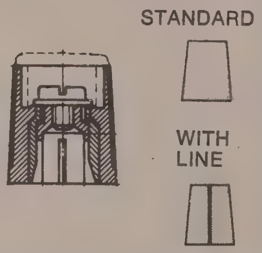
WING KNOB



ARROW KNOB



TYPICAL CROSS SECTION



MATERIAL

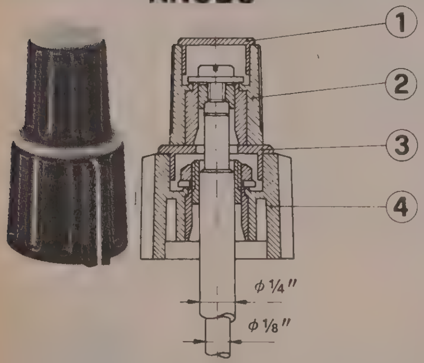
All mouldings of the collet knob are produced from polyamide. Transparent dials are made of luran. Brass 58 is used for the collets, sleeves and nuts. Steel is used for the screws and washers.

TEMPERATURE STABILITY

With normal mechanical stresses: −20°C to +70°C

We can also provide special types of knobs and accessories and custom color matching at lowest prices with prompt delivery. Contact Power Dynamics, Inc.

CONCENTRIC KNOBS

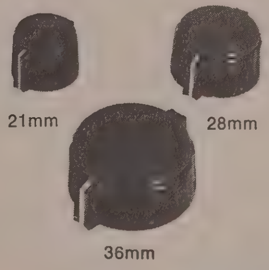


1. Cap 15mm, matte finish, gray
2. Knob 15mm, matte finish, black, collet ⅛ inch
3. Intermediate cap 21mm, matte finish, gray
4. Wing knob 21mm, with line, matte finish, black collet ¼ inch

Also available in 21mm, 28mm sizes and Lo-Profile Knob.

LO-PROFILE KNOBS

Available in 21mm, 28mm and 36mm styles only



(Not available as "Arrow Knobs")

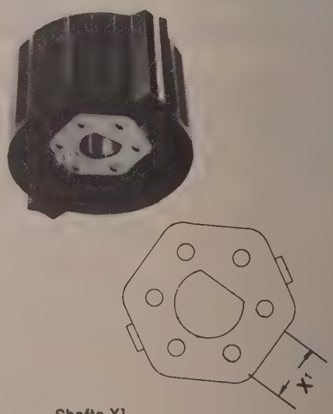
Overall height as follows:

21mm-Overall Height 15mm with cap
13.5mm without cap

28mm-Overall Height 15.5mm with cap
14mm without cap

36mm-Overall Height 16mm with cap
14mm without cap

LOCKING DEVICE



Shafts	X¹	
6mm	5.0	49 15 60 0
¼"	5.08	49 15 61 0

The locking device is a punched part to be pressed separately into the knob, allowing an accurate positioning of the collet knob and giving it an increased torque.

Available for knobs of 21, 28 and 36mm diameters.

CALL OR WRITE POWER DYNAMICS, INC. FOR COMPLETE ENGINEERING CATALOG • FSC60046

Power Dynamics, Inc.

177 Valley Street, South Orange, New Jersey 07079 • (201) 762-6886 • TWX: 136567 (PDI)

"PUSH-ON" KNOBS

INDUSTRY'S BEST "OFF-THE-SHELF" DELIVERY

Knobs available in 10mm (0.40), 15mm (0.59), 21mm (0.82), and 28mm (1.10) dia.

FSC 60046

POSITIVE VISE GRIP ACTION

SHAFT DIMENSIONS

DIN Norm.	
Shaft Dia.	**Flattened**
3mm	$2\,^{-0}_{-0.1}$ mm
4mm	$3\,^{0}_{-0.1}$ mm
6mm	$4\,^{0}_{-0.1}$ mm

MIL Spec. Norm.	
Shaft Dia.	**Flattened**
⅛″	2.39mm (0.094″)
¼″	5.49mm (0.216″)

SHAFT DIA. AVAILABLE

Shaft Dia.	Knob Dia.			
	10mm	15mm	21mm	28mm
3	X	▨	▨	▨
⅛″	X	X	▨	▨
4	X	X	X	▨
6	▨	X	X	X
¼″	▨	X	X	X

The shaded area of shaft dia. indicates availability on special order only. Delivery time: about 4 weeks.

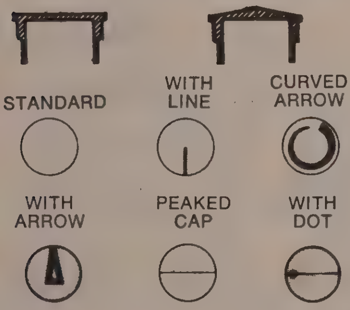
SET SCREW KNOBS

A complete line of both of these types now available. Contact PDI for complete catalogs.

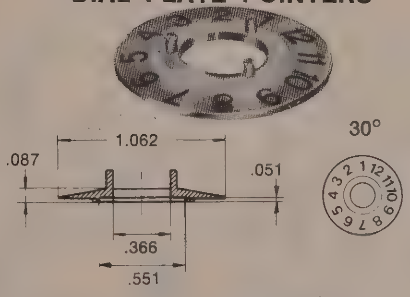
ALUMINUM KNOBS

KNOB ACCESSORIES

CAPS PEAKED CAPS



DIAL PLATE POINTERS



Also available for 36° and 60° spacing

BRUSHED ALUMINUM FINISH

This very unique finish offers a custom look at a fraction of the price of total aluminum fabrication. Knobs or caps may be combined with any other color combination.

COLORS

COLLET KNOBS

Collet knobs are standard or matte finish

ALUMINUM LT. GREY GREY
BLACK RED

"PUSH-ON" KNOBS

Light Grey Black
Plus other colors on request

CAPS

LT. GREY GREY BLACK
RED BLUE YELLOW GREEN

PDI BINDING POSTS

- For ⅛″ plug and wire connection up to .080″ Dia.
- Locking device.
- Captive insulation against electric shock.
- Can be fitted to front plates up to ¼″ thickness.
- Plastic parts made of Polyamide

Technical data:	15mm
Continuous load:	25 Ampere
Contact voltage:	2500 Volt
Insulation res.:	10^{13} Ohm
Capacity:	6pf

Colors available include:

Lt. Grey Red
Grey Blue
Black Yellow
Green

CUSTOM MADE KNOBS

If you do not find your particular knob in our vast collection, please do not hesitate to contact us. Power Dynamics' complete engineering, molding and machine shop capabilities allow us to design and manufacture aluminum or plastic knobs and accessories to customer specifications.

NEED MORE INFORMATION?

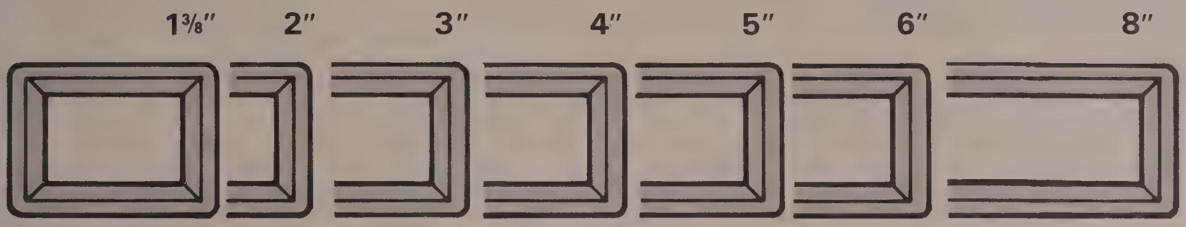
USE ONE OF THE NEW

EEMEDIATE ACTION CARDS

INSIDE THE BACK COVER OF VOLUMES 1A, 1B & 2

MODEL 140 SERIES BEZEL & FILTER ASSEMBLY

SIZES AVAILABLE

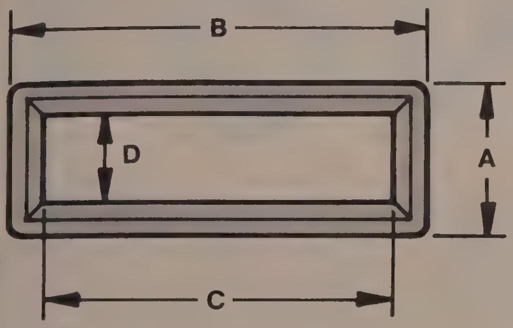


LOW COST bezel and filter assemblies enhance digital readouts easily, effectively and economically.

ATTRACTIVE plastic bezels are supplied with a variety of colored acrylic filters to match any type of display. Black bezels are standard but color variations are available on special order.

VARIETY OF SIZES are available to enhance the most popular digital displays.

INSTALLS EASILY without tools, adhesives or hardware in any panel thickness from .040 in. to .125 in.



	DIMENSIONS				PANEL OPENING	
MODEL	A	B	C	D	HT.	WD.
140-1	1.343	1.906	1.375	.812	1.156	1.750
140-2	1.343	2.531	2.0	.812	1.156	2.375
140-3	1.343	3.531	3.0	.812	1.156	3.375
140-4	1.343	4.531	4.0	.812	1.156	4.375
140-5	1.343	5.531	5.0	.812	1.156	5.375
140-6	1.343	6.531	6.0	.812	1.156	6.375
140-8	1.343	8.531	8.0	.812	1.156	8.375

RMF PRODUCTS, INC.
P.O. Box 520 1275 Paramount Parkway
Batavia, IL 60510 (312) 879-0020

THE DELTA GROUP

At last, a family of CLAMP-TYPE KNOBS with a functional shape and superior styling . . . and competitively priced.

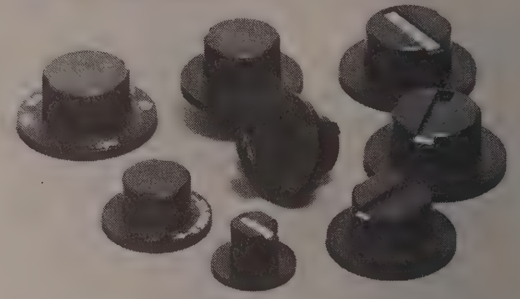
Molded of ABS thermoplastic, the DELTA GROUP is now available in FIVE basic diameters with threaded inserts or studs. Eighteen colors from which to choose. Optional decorative aluminum inlay available.

Call or write for the latest edition of our catalog . . . today.

Rogan Corporation
3455 Woodhead Drive
Northbrook, Illinois 60062
Phone (312) 498-2300
TWX: 910-686-0008

ROGAN
Quality You Can Afford
Since 1939

Industrial Control Knobs



Presenting the new TK Series

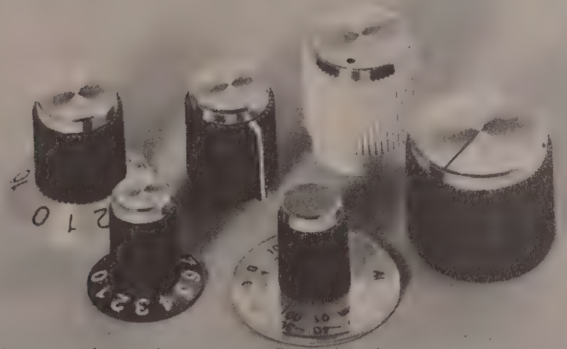
A unique control knob for general industrial applications requiring simplicity and functionality. Human factors engineering dictated the design. Applications for the **TK Series** are unlimited. A few uses include equipment controls, timers, thermostats, gas controls and heating devices. Diameters from 1-1/8″ to 2″. Lusterless satin black finish is standard. Many shaft hole sizes and mountings available. Options include pointers, decorative inlays and custom markings.

Write or call today for more information and a free sample package.

Rogan Corporation
3455 Woodhead Drive
Northbrook, Illinois 60062
Phone: (312) 498-2300
TWX: 910-686-0008

ROGAN
Quality You Can Afford
Since 1937

THE GAMMA GROUP



Forty years of experience are reflected in the superior styling details, variety and quality of Rogan's new GAMMA GROUP. Molded of ABS thermoplastic, the gamma group is available in four basic diameters and all are designed to be adaptable for applications requiring either set screw or press-fit mounting. Eighteen standard colors from which to choose. Optional decorative aluminum caps are available in a wide range of styles and colors.

Styling, variety and quality for as low as .28 each (1,000 piece lots). To obtain your free copy of the latest edition of our catalog, call or write:

Rogan Corporation
3455 Woodhead Drive
Northbrook, Illinois 60062
Phone (312) 498-2300
TWX: 910-686-0008

ROGAN
Quality You Can Afford
Since 1939

Miniature Switch Knobs

Rogan responds to the rapid expansion of the miniature switch market with the introduction of its new Gamma 50 Group. Molded of ABS thermoplastic, this series is ideally suited for applications where minimal space is available. The Gamma 50 Group offers three basic styles from which to choose: a plain round knob (.37″ O.D.), a plain round knob with tapered skirt (.62″ O.D.) and a plain round knob with functional pointer (.46″ O.D.). All are designed to be adaptable for applications that require either set screw or press-fit mounting. Your choice of eighteen standard colors. Optional decorative aluminum caps are available.

To obtain samples and your free copy of the latest edition of our catalog, call or write:

ROGAN
Quality You Can Afford
Since 1937

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3455 Woodhead Drive
Northbrook, Illinois 60062
Phone: (312) 498-2300
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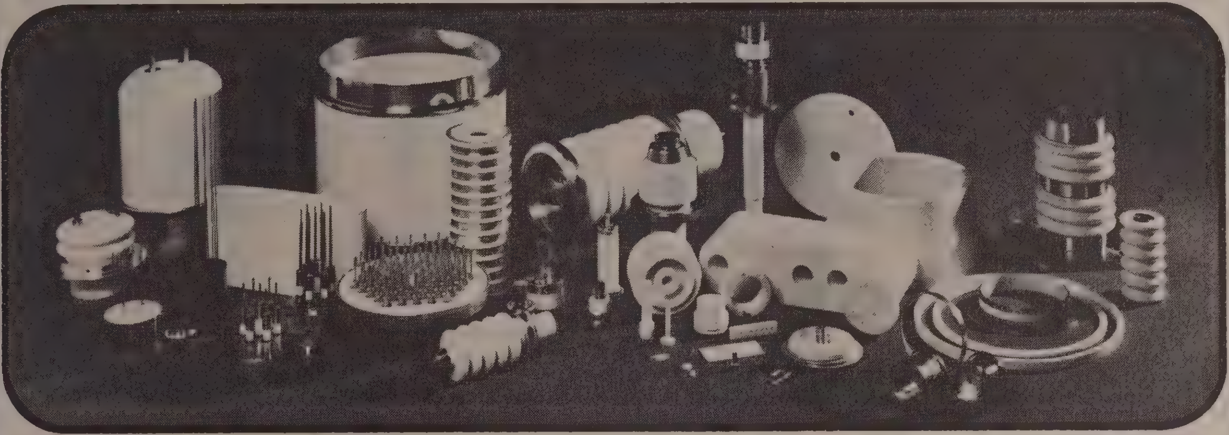
ALBEROX *... For outstanding performance in high temperature, hermetic terminals.*

We're SPECIALISTS in brazing METAL parts to high alumina CERAMICS for demanding HIGH TEMPERATURE, HERMETIC applications.

CUSTOM HERMETIC CONNECTORS Multipin hermetic connectors for demanding vacuum and space applications requiring 400°C. bakeout — conditions where glass connectors won't stand up — are being produced in a variety of configurations. To save cost, Alberox can also provide connector sub-assemblies such as pin decks to be brazed or welded into shells or flanges by the customer.

MINIATURE TUBE AND PIN SEALS Many high temperature applications require insulated pin or tube feedthrus. These are available with weldable or brazeable metal parts, and can be added to covers or flanges, etc. All Alberox feedthrus are suitable for cryogenic environments.



Since 1961, we have designed and produced a wide variety of seals for custom applications in diverse components such as . . .

- VACUUM FEEDTHRU TERMINALS
- CERAMIC ELECTRON TUBE AND VACUUM SWITCH ENVELOPES
- NUCLEAR REACTOR PENETRATOR FEEDTHRU TERMINALS and INSULATORS
- SQUIBB and DETONATOR CONNECTORS
- POWER SEMICONDUCTOR HOUSINGS
- SPACE FLIGHT HERMETIC CONNECTORS
- JET ENGINE THERMOCOUPLE COMPONENTS
- HIGH PRESSURE OIL WELL LOGGING FEEDTHRUS
- CAPACITORS and TRANSFORMER TERMINALS

In addition to the above, Alberox has designed and produced state-of-the-art components for critical nuclear devices.

The Alberox plant was designed and built specifically for the efficient production of ceramic-to-metal seals. We manufacture our own A-950 high alumina ceramic, which enables us to optimize on the best metalizing process for this ceramic; thus we can provide superior seals. By making our own ceramic, our customers benefit by fast delivery on custom designs.

Another important feature of Alberox is that all of the plating requirements are met "in-house", including nickel, gold, copper, silver, bright tin and solder plating!

We have several types of BRAZING FURNACES for brazing ceramic-to-metal and metal-to-metal parts in HIGH VACUUM, or HYDROGEN, ARGON or any other specified atmosphere! The standard operating procedure is to custom program the brazing cycle, taking into account the ceramic, the types of metals, braze materials and the atmosphere.

Alberox exercises complete control, from the design stage right through all manufacturing operations — to meet or exceed the highest quality standards and maintain the fastest delivery in the industry. Products made by Alberox are assured to outperform all design parameters set for them!

HIGH PRESSURE FEEDTHRUS *Alberox A-950 Alumina* has extraordinarily high compressive strength (350,000 psi). By using this strength to its best advantage, ceramic-to-metal seals can be produced to withstand high static or dynamic pressures. Thousands of these seals have been manufactured by Alberox.

MULTITERMINAL FEEDTHRUS Multiterminal feedthrus differ from multipin connectors in that individual feedthru terminals are brazed or welded into a metal deck or flange. These feedthrus are generally used for higher voltage applications than can be accommodated by a regular ceramic pin deck or connector. Alberox has an extensive line of catalog tubular terminal bushings which are often used for the individual feedthrus. In this way, custom multiterminal feedthrus can be delivered quickly.

POWER FEEDTHRUS Copper, or just about any other type of metal, from ⅛ inch to over 1 inch in diameter can be provided in power feedthrus. Modifications of our standard catalog tubular and fluted terminal bushings are often perfectly suited, and custom ceramic-to-metal seal designs can be easily accommodated. Weldable or brazeable flanges also can be added to the feedthrus to allow easy installation on existing flanges or bulkheads.

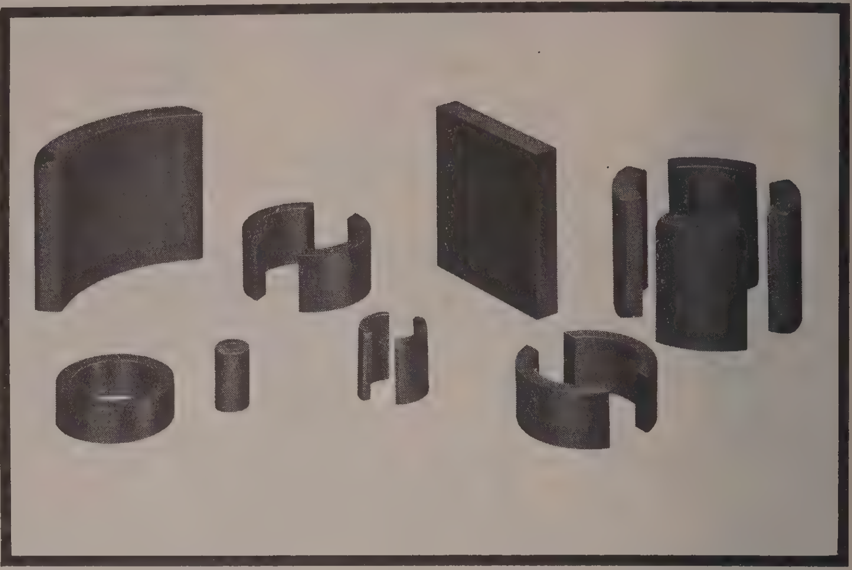
INSULATORS AND STANDOFFS Insulators and standoffs can be supplied in tubular or fluted shapes, bare or glazed, with or without metal adapters or studs. Alberox manufactures plain ceramic parts for use as spacers, insulators, supports, isolators, decks, or washers. Metalized and glazed cylinders are also available for envelopes of high power electron tubes such as Thyratrons or for vacuum switches.

CATALOG HIGH VOLTAGE BUSHINGS Alberox stocks the largest variety of high voltage tubular and fluted high alumina terminal bushings in the industry. Modifications to these catalog items are easily made. Typical modifications are: special studs, brazed-in-center conductors, different metal parts, finishes and ceramic dimensional changes. Fast delivery at reasonable prices can still be maintained. Ask for Catalog #472 which illustrates details of these parts.

Alberox is ready to assist you with your ceramic-to-metal seal design requirements. When you need FAST DELIVERY of SUPERB ceramic-to-metal seals, at realistic prices — contact ALBEROX.

ALBEROX CORPORATION
Industrial Park
New Bedford, Massachusetts 02745
Phone 617-995-1725

CERAMIC PERMANENT MAGNETS



GENERAL DESCRIPTION — Allen-Bradley offers a wide range of ferrite permanent magnets in material grades M6 through M10. Each is an oriented ceramic permanent magnet material ideally suited for specific requirements. This wide range of materials allows the design engineer to custom fit his magnet choice to the needs of the application and the severity of the operating environment.

This selection of permanent magnet materials represents the most technically advanced ceramic grades available in production quantities today. Typical configurations are angular arc segments, rings, bars, blocks, cylinders and slabs. Common applications are:

1. DC Commutator Motors
2. Brushless Motors
3. Synchronous Motors
4. Linear Actuators
5. Stepper Motors
6. Alternators and Generators
7. Magnetos
8. Magnetic Separators
9. Material Handling and Holding Devices

APPLICATIONS — Magnetic circuits that can be designed to take full advantage of the specific flux density and coercive force of each material offer opportunities for improved performance in the assembled product in one or more of the following ways:

1. Higher efficiency
2. Cooler operation
3. Greater output power
4. Smaller package size
5. Less weight
6. Lower cost

DESIGN VERSATILITY — A wide range of options using Allen-Bradley magnetic materials are available to the magnetic circuit designer.

- Large and small arcs - current sizes range from 1/10 oz. to over 5 lbs.
- Large and small blocks - current sizes range from roughly 1/100 oz. to over 10 lbs.
- Single or multiple pole patterns can be magnetized on a single magnet. The number of poles is limited only by the capability of magnetizing fixturing.
- Radial or transverse orientation.

MAGNETIZATION — It is usually desirable to magnetize the magnet after assembly to avoid handling problems. Since magnets are oriented in manufacture, they must be magnetized in the direction of orientation in order to obtain the listed magnetic properties. In other directions, only a fraction of the listed magnetic properties can be realized. These magnets require a magnetization force of 10,000 oersteds on 20,000 ampere turns per inch of magnet length in direction of orientation to secure proper magnetization.

DESIGN NOTES — The total flux produced by a magnet of any configuration is a function not only of the magnetic properties of the material from which it is made but also its physical dimensions, and the degree of orientation and other factors related to the manufacturing process. To insure delivery of flux as designed, the magnet must be magnetized to saturation and have sufficient coercive force to resist the demagnetizing effect of opposing magnetic fields to which it might be exposed.

The characteristics plotted on the next page show the normal and intrinsic demagnetization curves for each material at various temperatures. To avoid loss of flux, irreversible except by remagnetization, it is necessary that a magnet be operated above the knee of the demagnetization curve corresponding to the lowest temperature to which it may be subjected. The determination of this low temperature operating point must take into consideration not only the permeance coefficient of the magnetic circuit in which the magnet operates, but also any other demagnetizing m.m.f.'s which may exist.

COMPARATIVE PERFORMANCE —		M6	M7	M8	M9	M9B	M10
Peak Intrinsic Energy Product (BiHi), mega-gauss-oersteds		8.5	12.0	10.5	13.0	12.5	12.0
Peak Normal Energy Product (BdHd), mega-gauss-oersteds		2.7	2.7	3.5	3.2	3.4	3.8
Residual Induction (Br), gauss	typical [1]	3400	3400	3850	3700	3800	4000
Intrinsic Coercive Force (Hci), oersteds	typical minimum	3200 3000	4250 4000	3150 3000	4200 4000	4000 3800	3500 3300
Normal Coercive Force (Hc), oersteds	typical	2900	3250	2950	3425	3450	3350

[1] The flux performance of production magnets will be within ±7% of the flux produced by a magnet having nominal print dimensions and typical residual induction.

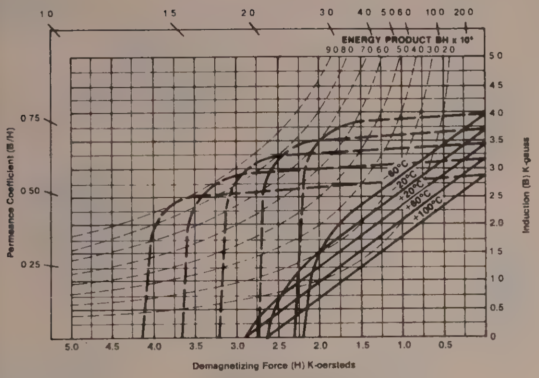
AB QUALITY ALLEN-BRADLEY

Milwaukee, Wisconsin 53204

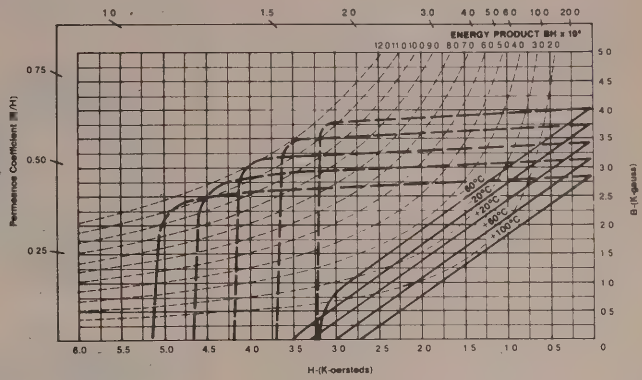
TYPICAL DEMAGNETIZATION CURVES

——— Normal Demagnetizing Curves
— — — Intrinsic Demagnetizing Curves
– – – – Energy Product Curves

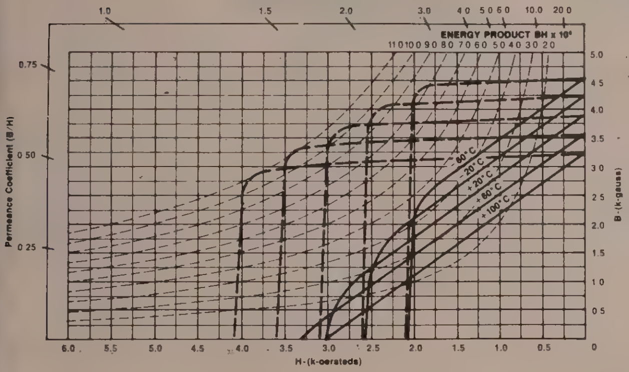
M6



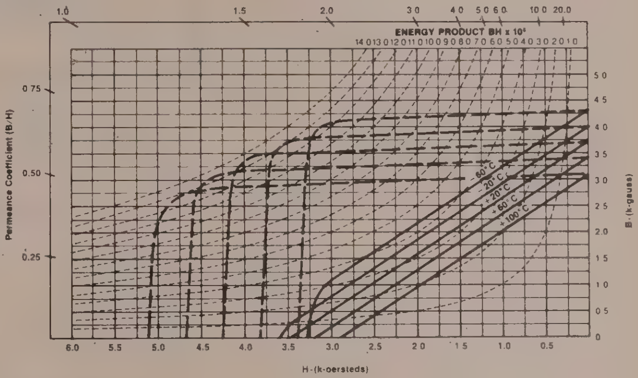
M7



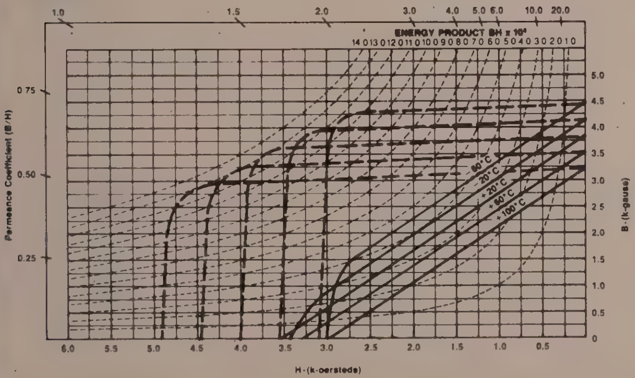
M8



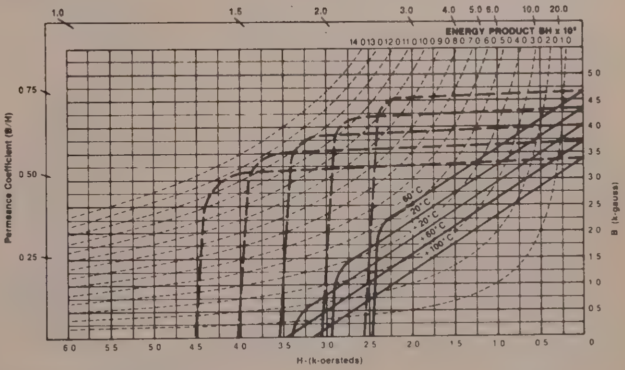
M9



M9B



M10



For more information request Publications M6-2.0, M7-2.0, M8-2.0, M9-2.0, M9B-2.0 and M10-2.0.

ALLEN-BRADLEY

Milwaukee, Wisconsin 53204

SOFT FERRITE MATERIAL

GENERAL DESCRIPTION — Allen-Bradley offers ferrite cores produced from three materials -- designated W5, R02 and R03. Each material is designed to fulfill specific applications, since no material can provide the specific magnetic properties needed for every circuit.

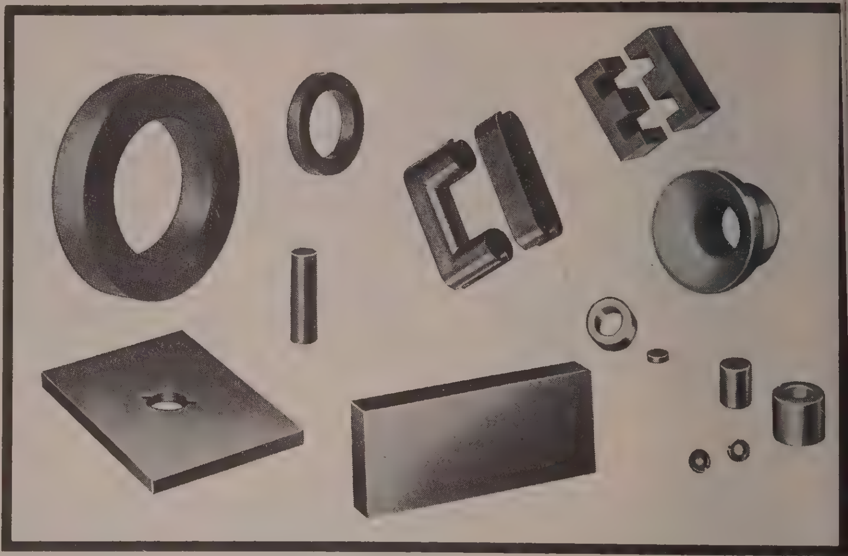
W5 MATERIAL — W5 is designed to be used in circuits where a low loss power ferrite is required. It is capable of operating at high flux densities at frequencies up to 500 KHz. Above 500 KHz, it may continue to provide useful performance when applied at low flux densities. Because of its low core losses, it is ideally suited for applications above 400 Hz where the excessive heating of laminated iron or tape wound cores becomes impractical. W5 also exhibits a linear B vs. H variation at flux densities less than 1500 gauss.

The versatility of W5 material is the major factor for the existence of the standard ferrite core program. This program offers W5 material in a variety of part shapes. namely Bar cores, E-cores, Pot cores, Toroidal cores, and U-cores.

R02 MATERIAL — For circuits operating at frequencies up to 10 MHz or where a temperature stable initial permeability material is required, R02 should be specified. R02 is ideally suited for demanding applications such as those requiring high Q and for temperature stable inductors. R02 material has core losses similar to those of W5 material cores, at frequencies between 500 KHz and 1 MHz. Between 1 MHz and 10 MHz core losses for R02 are less than those for W5. R02 is a desirable substitute for W5 at high frequencies.

R03 MATERIAL — This rectangular loop ferrite material exhibits high induction and low coercive force. It is useful in continuous switching applications which drive the core to saturation at frequencies less than 25 KHz. Rectangularity (Br/Bs) of greater than 80 percent makes R03 particularly suitable for magnetic amplifiers, frequency converters, and switching device applications.

Because of the increasing interest in R03 cores, this material is now available through the Standard Ferrite Core program. R03 is now available in eleven different sizes of toroids.



The following table is a summary of the typical characteristics of each material at 25° C.

Magnetic Properties	W5 16KHz	R02 4KHz	R03 1.5KHz
Saturation Flux Density (B_s) Gauss @ 10 Oersteds	4900	2750	3900
Initial Permeability (μ_i)	2800	290	325
Maximum Permeability ($\mu_{\text{màx}}$)	4000	510	3500
Core Loss (P_{cl}) (μ watts/cm^3-Hz) @ 1350 Gauss	2.5	—	—
Rectangularity (B_r/B_s)	—	—	$\geq$.80
Temp Coefficient of μ_i (TC)%/°C	—	.02	—

APPLICATIONS:

W5 Material
Switching Power Supplies
Transformers — All Types
Inductors
Ignition Systems
Regulators
Displays

R02 Material
Inductors
Transformers
Saturable Reactors
Particle Accelerators
Induction Heaters
Antennas

R03 Material
Magnetic Amplifiers
Frequency Converters
Magnetic Memories
Voltage Feedback Inverters
Magnetic Switches

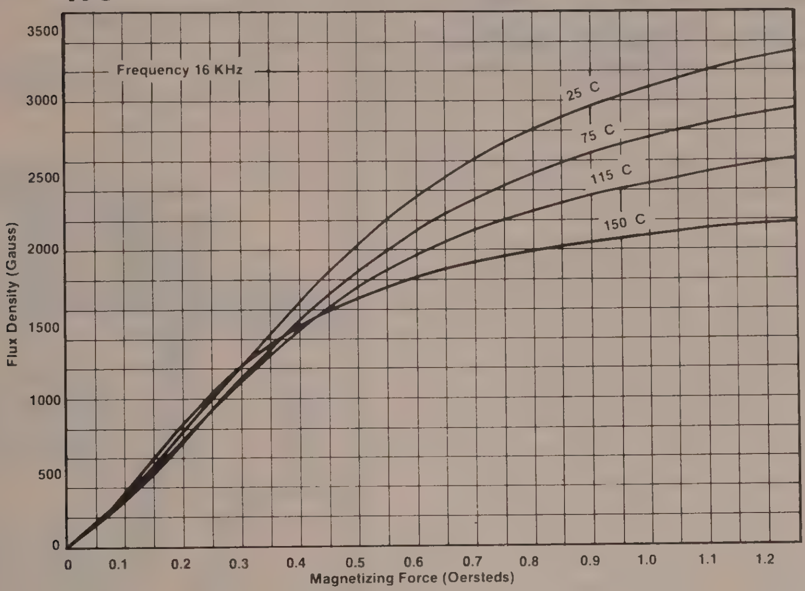
For more information request Publication 5657 (R02), Publication 3020-030 (R03) and Publication 3020-050 (W5).

ALLEN-BRADLEY

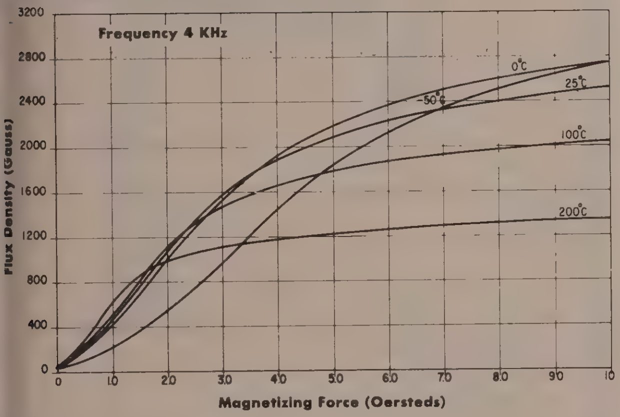
Milwaukee, Wisconsin 53204

TYPICAL MAGNETIZATION CURVES

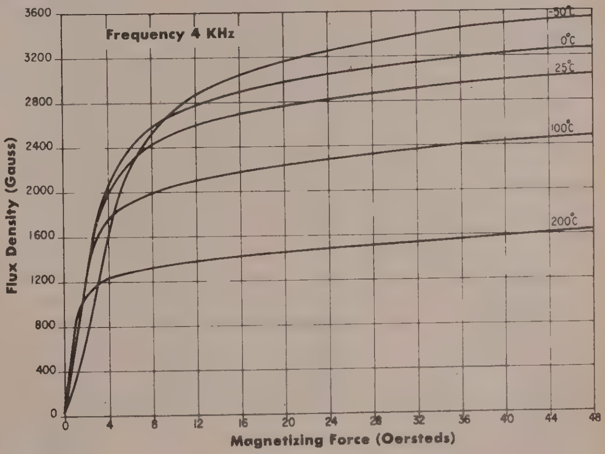
W5



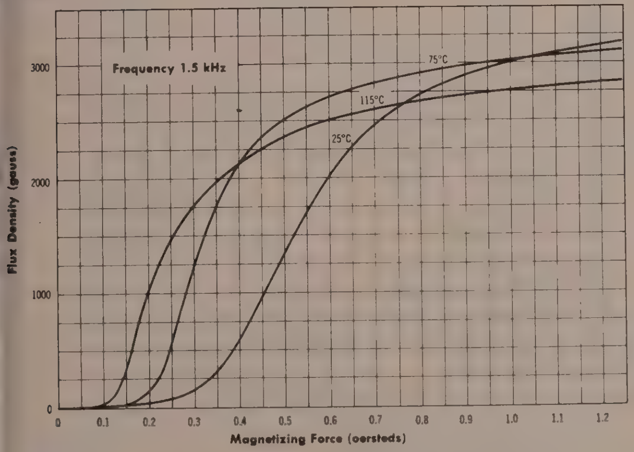
R02



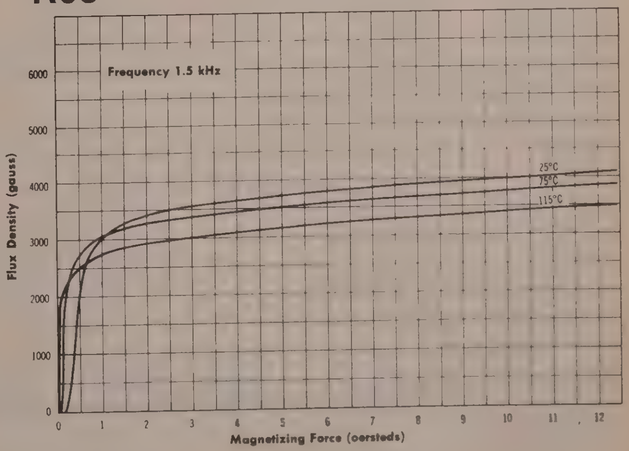
R02



R03



R03



ALLEN-BRADLEY

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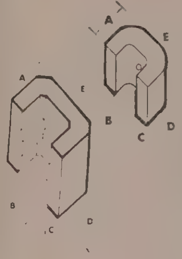
JOBMASTER MAGNETS

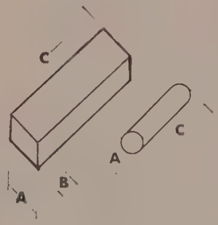
STOCK JOBMASTER MAGNETS



POWER MAGNET

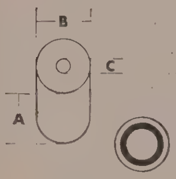
Cat No	A mm	A ins	B mm	B ins	C mm	C ins	D mm	D ins	E mm	E ins	Weight gr	Weight oz
811	19	3/4	14.2	9/16	7.9	5/16	19	3/4	4	5/32	71	2 1/2
812	25.4	1	19	3/4	9.5	3/8	25.4	1	4.7	3/16	142	5
813	28.6	1 1/8	22.2	7/8	11.1	7/16	28.6	1 1/8	4.7	3/16	226	8
814	35	1 3/8	35	1 3/8	11	7/16	44.5	1 3/4	8	5/16	368	13
815	41	1 5/8	41	1 5/8	14.3	9/16	57	2 1/4	8	5/16	709	25
816	54	2 1/8	47.6	1 7/8	16	5/8	82.5	3 1/4	9.5	3/8	1446	51

Hole centres 814 31 75 mm 1 1/4" 815 38 mm 1 1/2" 816 43 mm 1 11/16"



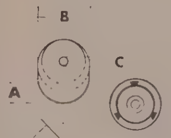
BAR MAGNET

Cat No	A mm	A ins	B mm	B ins	C mm	C ins	Weight gr	Weight oz
805	6	1/4 diameter			20	13/16	4	15
806	8	5/16 diameter			25	1	8	30
807	10	3/8 diameter			30	1 3/16	16	58
844	10	3/8	5	3/16	20	13/16	11	38
845	12.5	1/2	5	3/16	40	1 9/16	21	75
846	15	5/8	5	3/16	60	2 3/8	56	2
842	15	3/8	10	3/8	50	2	70	2 1/2
843	15	5/8	10	3/8	75	3	100	3 1/2



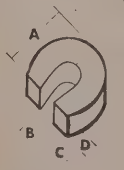
POT MAGNET

Cat No.	A mm	A ins	B mm	B ins	C	Weight gr	Weight oz
831	15.8	5/8	17.5	11/16	Tapped Hole	28	1
832	19.0	3/4	20.6	13/16	OBA/6 SI	47	1 3/4
833	25.4	1	27	1 1/16	or 10 NF	100	3 1/2
834	30.1	1 3/16	35	1 3/8		198	7



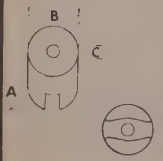
SHALLOW POT MAGNET

Cat No	A mm	A ins	B mm	B ins	C mm	C ins	Weight gr	Weight oz
826	8	5/16	19	3/4	3.5	9/64	14	1/2
827	9.5	3/8	28.6	1 1/8	4.7	3/16	50	1 3/4
828	11.1	7/16	38	1 1/2	4.7	3/16	100	3 1/2



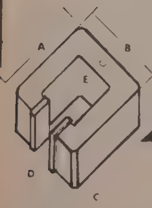
POCKET MAGNET

Cat No	A mm	A ins	B mm	B ins	C mm	C ins	D mm	D ins	Weight gr	Weight oz
802	25.4	1	6.35	1/4	7.9	5/16	7.9	5/16	28.3	1



BUTTON MAGNET

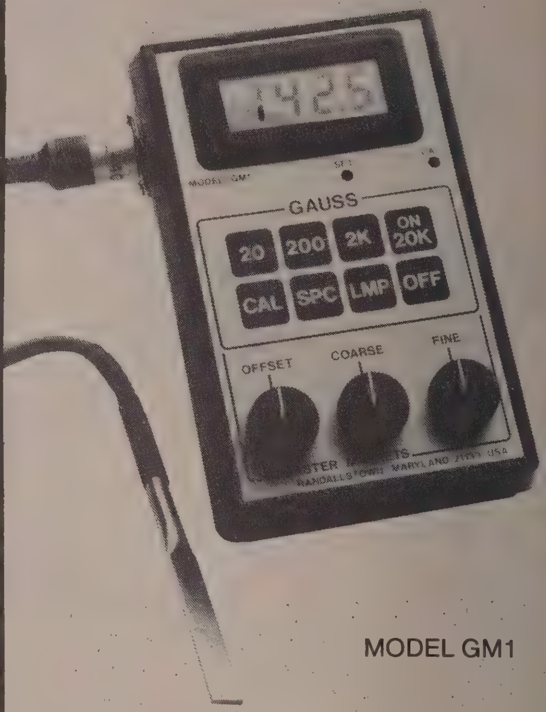
Cat No	A mm	A ins	B mm	B ins	C mm	C ins	Weight gr	Weight oz
821	9.5	3/8	12.7	1/2	4.4	11/64	10	1/3
822	12.7	1/2	19	3/4	4.8	3/16	28	1
823	15.9	5/8	25.4	1	4.8	3/16	56	2
824	25.4	1	31.7	1 1/4	6.4	1/4	113	4



MAJOR MAGNET

Cat No	A mm	A ins	B mm	B ins	C mm	C ins	D mm	D ins	E mm	E ins	Weight gr	Weight oz
862	111	4 3/8	103	4 1/16	52	2 3/16	40	1 9/16	6.3	1/4	2835	100

Micropower GAUSSMETER



MODEL GM1

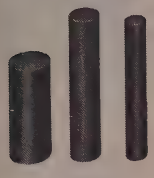
- 0.25% ±1 digit accuracy all ranges
- Automatic low battery warning, 100 hrs. life, 9V battery
- No reference magnets required... precalibrated probes
- Cal function for special or custom probes
- Calibrated analog output 200mV Full scale
- Front panel calibration and set-up
- Touch keyboard controls
- Display lighting
- Incremental/expanded scale operation. Null out up to ±4 kG
- Millitesla version available, at no extra cost
- Easy zeroing with three well balanced controls
- 3 ft. cable
- Rugged ABS case
- January 1984 price: $324.00 + Probes
- Probes for every application available at low cost
- Duracell battery included

JOBMASTER maintains an extensive stock of magnets, electromagnets, and related components.

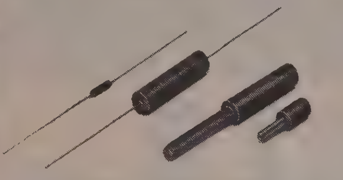
JOBMASTER CORPORATION

9010 Liberty Road
Randallstown, Maryland 21133
Phone: (301) 655-1400

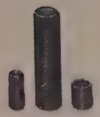
K KRYSTINEL LINEAR FERRITE CORES



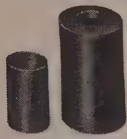
SLUGS



COIL FORMS INSERT TUNING CORES



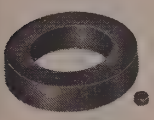
THREADED CORES



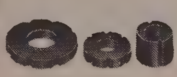
CUP CORES

BALUN CORES

BOBBINS

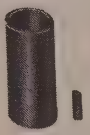


TOROIDS



WASHERS

SHIELD BEADS

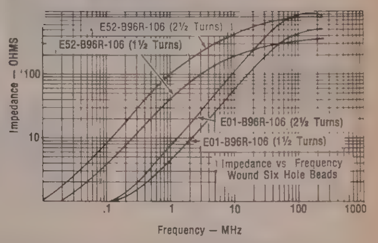


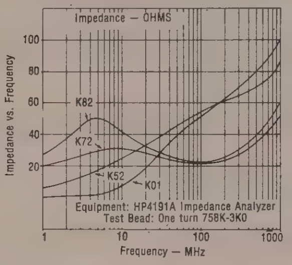
SLEEVES

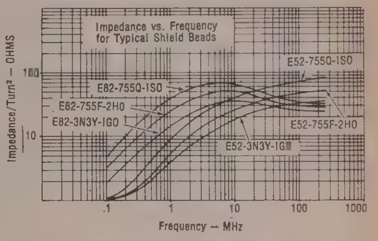
LINEAR FERRITE CORES

Krystinel manufactures a comprehensive line of standard and custom made ferrite cores. We maintain an inventory of some of our standard sizes and shapes. Additionally, special parts can be made to your electrical and mechanical specifications should our standard parts not satisfy your requirements.

Technical information, samples, and quotations may be obtained by contacting the sales department at our Paterson, New Jersey office.





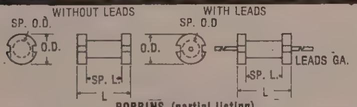


MAGNETIC CHARACTERISTCS

Characteristic	Unit	Symbol	Materials																			
Material			K31	K21	K01	KM1	K41	KA1	K51	K52	K11	K14	K61	K91	K60	K72	K81	K82	K83	K86	K87	K73	K84
Initial Permeability		μ_o	15	40	120	200	275	370	400	850	275	800	1500	1800	2250	3500	4400	5000	6000	7500	10000	3000	4500
Maximum Permeability		μ_{MAX}	40	100	300	750	1000	1200	1500	2500	700	1900	2500	6000	4100	4500	6300	7000	7500	10000	13000	4500	6300
Coercive Force	Oersted	H_C	23	4	2.5	1.5	1.0	1.0	0.5	0.4	0.8	0.4	0.4	0.15	0.2	0.15	0.13	0.1	0.08	0.1	0.1	0.1	0.1
Saturation Flux Density	Gauss	B_{SAT}	2200	2100	2800	2300	3100	3100	2100	3000	3000	3800	4750	4750	4800	4200	4200	4300	4400	4300	4300	4100	4200
@ H (Oersted)	Oersted	(H)	(50)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
Residual Flux Density	Gauss	B_R	1350	1000	1500	1250	1500	1400	1100	1300	1200	1300	1750	1600	1300	1200	1200	1100	900	1500	1200	700	800
Curie Temperature	°C	T_C	500	450	400	275	325	325	150	140	200	175	200	210	200	150	150	150	150	150	150	150	150
Volume Resistivity	Ω-CM	ρ	$2x10^4$	$1x10^6$	$1x10^7$	$1x10^6$	$1x10^8$	$1x10^8$	$1x10^7$	$1x10^6$	$3x10^3$	4x10	$1x10^2$	5x10	$5x10^2$	2x10	2x10	2x10	2x10	2x10	2x10	2x10	2x10
Temperature change of initial permeability (0°-60°C)	%	$\frac{\Delta\mu_o}{\mu_o @ 25°C}$	±5	±5	±6	±3	25°-60° +50% 25°-0° −25%	25°-60° +50% 25°-0° −25%	±12	±10	±5	±8	±10	±30	±20	±20	±20	±25	±25	±30	±30	±15	±20
Loss Factor x10⁻⁶ @ Frequency		$\frac{\tan\delta}{\mu_o}$	325	80	25	50	55	50	20	20	15	20	17	15	13	15	15	15	15	10	15	Not Applicable Pulse Materials	
	MHz		100	10	2	1	.4	.4	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	0.4	.02	.02		
Preferred Core Shapes			All	All	All	All	Coil Forms Sleeves Threads Slugs	Beads Baluns Toroids	Coil Forms Sleeves Threads Slugs	All	Slugs Threaded Cores Cups	Toroids Beads	Toroids	Toroids Threaded Cores Bobbins	Beads Baluns Toroids <.5 in. OD	All	All Except Coil Forms Threaded Cores Large Bobbins		Restricted to Toroids <.5 in. OD				

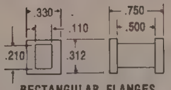
NOTES:

1. Normal tolerance of μ_o is ±20%.
2. For extended temperature ranges in all materials or tighter temperature coefficients of permeability, contact Krystinel Engineering Dept.
3. Loss data include both coil and core losses as read on a one/half inch diameter toroid.
4. Hysteresis loop data were taken @ 25°C.



BOBBINS (partial listing)

Part No.	Dimensions — Inches					
	MTL	Overall Length	Flange OD	Spindle Length	Spindle OD	Lead Size
H01-1A20-0F	K01	.045	.070	.015	.045	—
H0-2V20-1F	K01	.100	.070	.050	.040	—
H01-3A1J-1LPP	K01	.115	.054	.056	.039	#24
H01-5C1R-2MPP	K01	.187	.061	.092	.040	#24
H01-9F32-6KM4	K01	.330	.107	.230	.070	#22
H51-EA5Q-BFM2	K51	.500	.200	.400	.110	#22
H51-LFAQ-EAK2	K51	.750	.375	.500	.210	#20
H72-EA5L-BFM2	K72	.500	.196	.400	.107	#22
H72-LFAK-EAK2	K72	.750	.370	.500	.187	#20
H72-MIS0-E2	K72	.788	.945	.492	.512	—
H72-SIS0-E2	K72	.946	.945	.650	.512	—



RECTANGULAR FLANGES

Part No.	MTL	Overall Length	Flange Height	Flange Width	Spindle Ht. x Th.
S52-8XLF-EA	K52	.750	.312	.330	.210 x .110
S72-8XLF-EA	K72	.750	.312	.330	.210 x .110

BINOCULAR BALUN CORES (partial listing)

Dimensions Inches					Material	K01	KA1	K52	K72	K82
					Prefix	G01	GA1	G52	G72	G82
HT	W	TH	ID		Base P/N	A_L (NH/N²) @ 100 KHz				
100	.141	.083	.031	ADD PREFIX HERE TO BASE PART NO.	2V41-2D1	60	185	—	—	—
.100	.141	.081	.031		2V41-2B1	—	—	414	—	—
.100	.138	.081	.030		2V3Y-2B1	—	—	—	1776	2523
.250	.280	.165	.073		7580-4Q1	124	—	—	—	—
.250	.275	.160	.070		757V-4K1	—	390	—	—	—
.250	.270	.155	.070		757Q-4F1	—	—	858	3534	5049
.545	.525	.295	.165		FKF0-8F1	190	595	—	—	—

SHIELD BEADS (partial listing)

Dimensions Inches				Material	K01	KA1	K52	K72	K82
				Prefix	E01	EA1	E52	E72	E82
HT	O.D.	I.D.		Base P/N	A_L (NH/N²) @ ±25%				
050	.138	.051	ADD PREFIX HERE TO BASE PART NO.	1F3Y-1G0	30	93	202	214	1264
128	138	.051		3N3Y-1G0	77	239	517	550	3237
128	138	.062		3N3Y-1S0	62	192	416	442	2601
125	.163	.062		3K4N-1S0	73	227	491	521	3069
250	.163	.062		754N-1S0	147	454	982	1043	6139
125	.190	.090		3K5F-2K0	57	175	379	403	2373
.250	.190	.087		755F-2H0	114	351	759	806	4745
250	.200	062		755Q-1S0	178	550	1190	1264	7439
.250	.300	.125		758K-3K0	133	411	889	945	5560
.394	236	035		B96R-106	218	664	1458	1550	—

NOTE: B96R-106 has six holes — tolerances for these are ±30%

Also available wound with 1½ and 2½ turns

STANDARD COIL FORMS (partial listing)

Part Number	Dimensions - Inches		
	Length	O.D.	Leads
C01-4A1H-R5P	150	052	#26
C01-5C1R-P5N	.187	061	#24
C01-9725-M4N	.322	.075	#22
C01-AQ3K-M2N	.375	125	#22
C01-EA4G-K2N	.500	156	#20
C01-LF5C-K2N	750	187	#20
C01-TK70-K2G	1.00	245	#20
C01-10Q70-K2G	1.250	245	#20

STANDARD SLEEVES (partial listing)

Part Number	Dimensions - Inches		
	Length	O.D.	Leads
P01-4A3A-2G	150	.115	086
P01-8F3N-2T	295	128	098
P01-A149 35	368	149	110
P01-CH7A-60	437	255	.210
P01-EA7A-60	500	255	210

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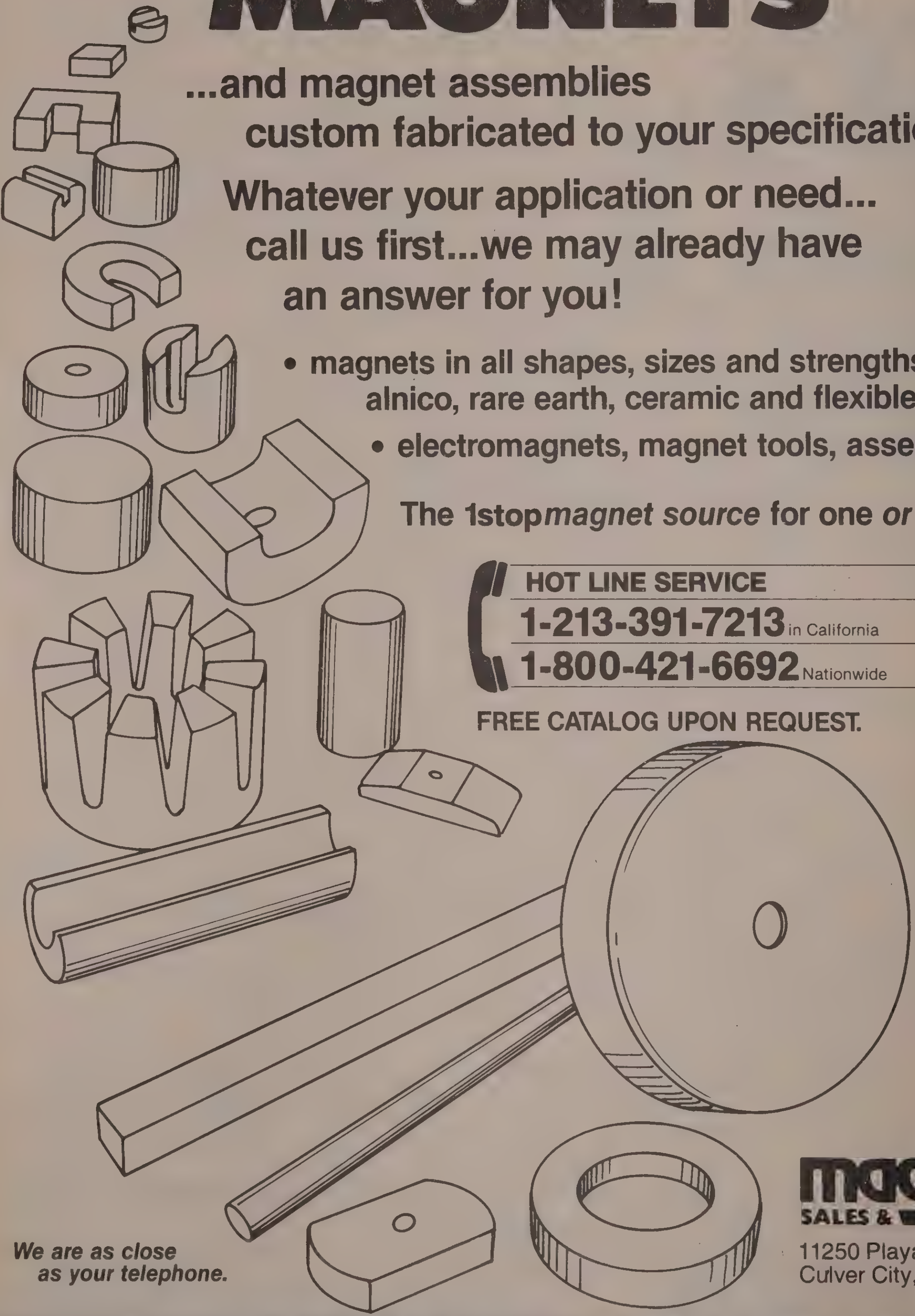

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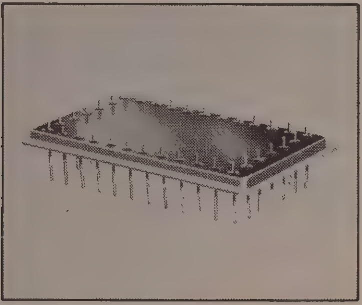
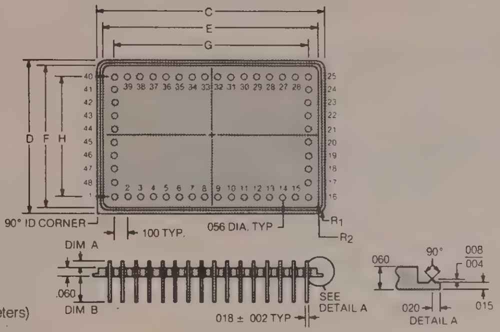
Hermetic Seal Packages

PLATFORMS KOVAR OR CRS MATERIAL




C
E
G
D
F
H
40
41
42
43
44
45
46
47
48
1
39 38 37 36 35 34 33 32 31 30 29 28 27 26
2 3 4 5 6 7 8 9 10 11 12 13 14 15
25
24
23
22
21
20
19
18
17
16
90° ID CORNER
.100 TYP.
.056 DIA. TYP
R1
R2
DIM A
.060
DIM B
SEE DETAIL A
.018 ± .002 TYP
.060
90°
.008
.004
.020
.015
DETAIL A

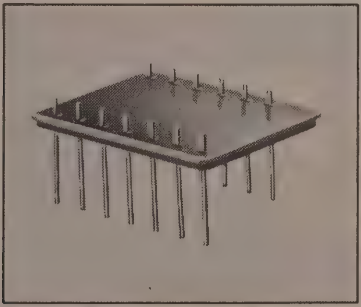
inches (millimeters)

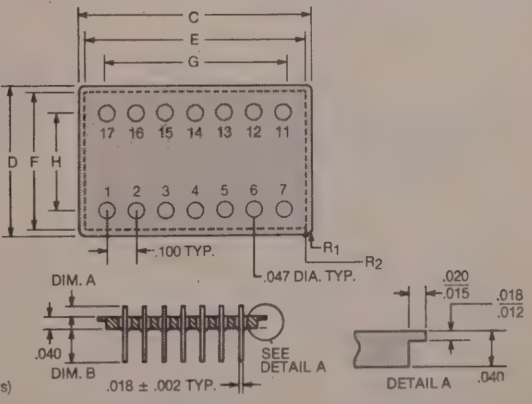
RESISTANCE WELD OR SOLDER SEAL

Part No.	No. Pins*	Pin Location	A**	B**	C	D	E	F	G	H	R1	R2	90°ID
04-20001-000	14	(7 + 7)G	.050	.250	.798	.497	.698	.397	.600	.300	.080	.030	YES
04-19538-000	14	(7 + 7)G	.050	.250	.870	.498	.770	.398	.600	.300	.080	.030	YES
04-19650-000	16	(8 + 8)G	.050	.250	.970	.498	.870	.398	.700	.300	.080	.030	YES
04-19759-000	22	(9 + 9)G/(2 + 2)H	.050	.250	1.070	.498	.970	.398	.800	.300	.080	.030	YES
04-19540-000	26	(8 + 8)G/(5 + 5)H	.050	.250	.970	.795	.870	.695	.700	.600	.080	.030	YES
04-19571-000	34	(12 + 12)G/(5 + 5)H	.050	.250	1.370	.795	1.270	.695	1.100	.600	.080	.030	YES
04-19529-000	32	(14 + 14)G/(2 + 2)H	.050	.250	1.560	.525	1.470	.435	1.300	.300	.080	.035	YES
04-19872-000	42	(14 + 14)G/(7 + 7)H	.050	.250	1.500	1.000	1.400	.900	1.300	.800	.085	.035	YES
04-19873-000	48	(16 + 16)G/(8 + 8)H	.050	.250	1.740	1.140	1.640	1.040	1.500	.900	.155	.105	NO

*Packages available with any quantity of pins less than maximum listed.
**Consult factory for other dimensions.

PLATFORM KOVAR OR CRS MATERIAL




C
E
G
D
F
H
17 16 15 14 13 12 11
1 2 3 4 5 6 7
.100 TYP.
R1
R2
.047 DIA. TYP.
DIM. A
.040
DIM. B
.018 ± .002 TYP.
SEE DETAIL A
.020
.015
.018
.012
.040
DETAIL A

inches (millimeters)

REVERSE FLANGE SOLDER SEAL

Part No.	No. Pins*	Pin Location	A**	B**	C	D	E	F	G	H	R1	R2
04-19522-000	14	(7 + 7)G	.050	.250	.740	.540	.700	.500	.600	.400	.045	.025

*Packages available with any quantity of leads less than maximum listed.
**Consult factory for other dimensions.

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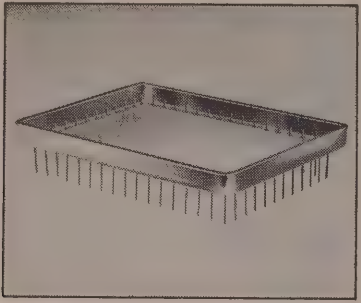
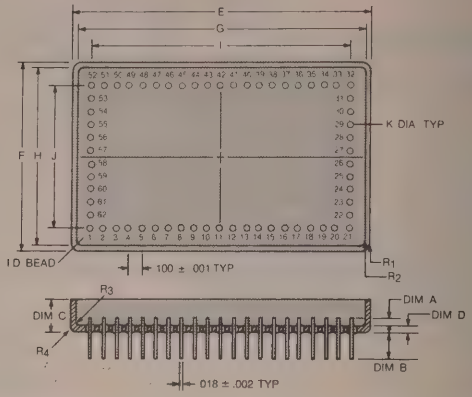
DRAWN TUB PLUG-INS KOVAR OR CRS MATERIAL



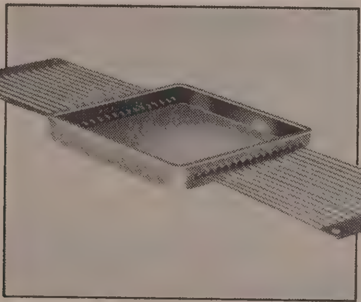


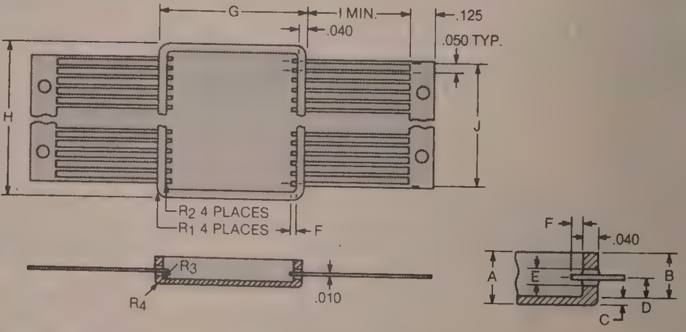
inches (millimeters)

Part No.	No. Pins*	Pin Location	A**	B**	C**	D	E	F	G	H	I	J	K	R1	R2	R3	R4
04-19526-000	18	(7 + 7)I/(2 + 2)J	.050	.250	.140	.040	.795	.470	.715	.390	.600	.300	.047	.060	.020	.010	.050
04-19758-000	22	(9 + 9)I/(2 + 2)J	.050	.250	.200	.040	.998	.490	.918	.410	.800	.300	.047	.060	.020	.010	.050
04-19536-000	30	(10 + 10)I/(5 + 5)J	.050	.250	.170	.040	1.140	.936	1.060	.856	.900	.600	.047	.155	.115	.010	.050
04-19544-000	32	(9 + 9)I/(7 + 7)J	.050	.250	.200	.040	.995	.995	.915	.915	.800	.800	.047	.060	.025	.010	.050
04-19651-000	44	(12 + 12)I/(10 + 10)J	.050	.250	.200	.040	1.250	1.250	1.170	1.170	1.100	1.100	.047	.060	.020	.010	.050
04-19549-000	34	(12 + 12)I/(5 + 5)J	.050	.250	.385	.040	1.270	.770	1.190	.690	1.100	.600	.047	.060	.020	.020	.060
04-19760-000	38	(12 + 12)I/(7 + 7)J	.050	.250	.185	.040	1.270	.970	1.190	.890	1.100	.800	.047	.060	.020	.020	.050
04-19515-000	48	(16 + 16)I/(8 + 8)J	.050	.250	.225	.040	1.740	1.140	1.660	1.060	1.500	.900	.056	.060	.020	.010	.050
04-19574-000	54	(17 + 17)I/(10 + 10)J	.050	.250	.165	.040	1.830	1.330	1.750	1.250	1.600	1.100	.056	.086	.046	.020	.050
04-19550-000	46	(18 + 18)I/(5 + 5)J	.050	.250	.160	.040	1.895	.775	1.815	.695	1.700	.600	.047	.060	.020	.020	.050
04-19566-000	52	(19 + 19)I/(7 + 7)J	.050	.250	.170	.040	1.990	.990	1.910	.910	1.800	.800	.047	.080	.040	.020	.080
04-19761-000	56	(20 + 20)I/(8 + 8)J	.050	.250	.385	.040	2.140	1.140	2.060	1.060	1.900	.900	.056	.060	.020	.010	.050
04-19537-000	62	(21 + 21)I/(10 + 10)J	.050	.250	.215	.050	2.300	1.400	2.200	1.300	2.000	1.100	.056	.090	.040	.010	.060

*Packages available with any quantity of pins less than maximum listed.
**Consult factory for other dimensions.

DRAWN TUB FLAT PACKS KOVAR MATERIAL





inches (millimeters)

Part No.	No. Leads*	A**	B**	C	D**	E	F**	G	H	I min.	J max.	R1	R2	R3	R4
04-19501-000	22	.135	.115	.020	.050	.033	.035	.625	.625	.800	.500	.060	.020	.010	.050
04-20039-000	32	.135	.115	.020	.052	.033	.035	1.000	1.000	.800	.750	.060	.020	.010	.050
04-19691-000	40	.160	.140	.020	.037	.033	.035	1.180	1.180	.800	.950	.060	.020	.010	.050
04-20040-000	64	.160	.140	.020	.037	.033	.035	1.215	1.715	.800	1.550	.060	.020	.010	.050
04-20380-000	74	.160	.140	.020	.050	.033	.035	1.000	2.000	.800	1.800	.060	.020	.010	.050
04-20381-000	46	.160	.140	.020	.050	.033	.035	1.250	1.250	.800	1.100	.060	.020	.010	.050

*Packages available with any quantity of leads less than maximum listed.
**Consult factory for other dimensions.

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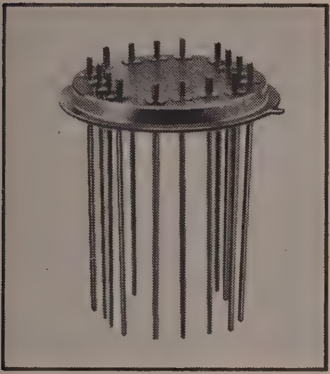
Hermetic Seal Packages

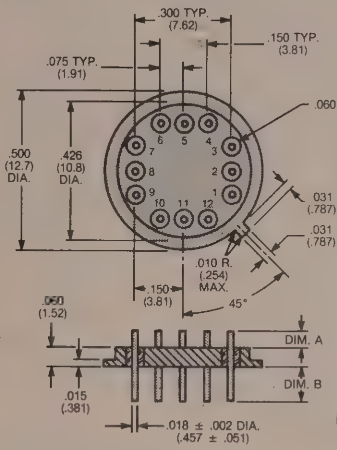
ROUND TO-8 PLUG-IN KOVAR OR CRS MATERIAL



Dimension	Standard	Tolerance
A	0.050 (1.27)	± 0.010 (.254)
B	0.600 (15.2)	Minimum

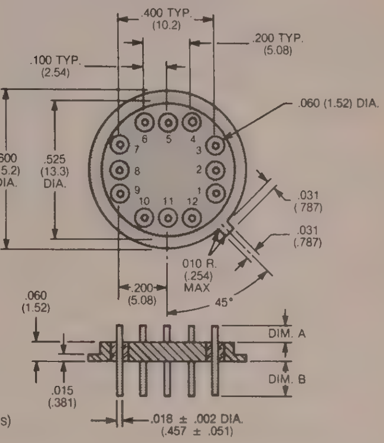
Dimensions A and B can be adjusted for individual applications. Please consult factory.

PART NO. 04-19525-000

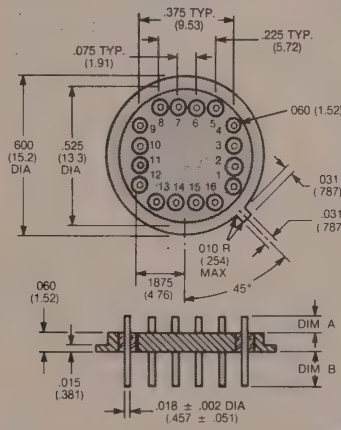

.300 TYP. (7.62)
.150 TYP. (3.81)
.075 TYP. (1.91)
.060 (1.52) DIA.
.500 (12.7) DIA.
.426 (10.8) DIA.
1 2 3 4 5 6 7 8 9 10 11 12
.031 (.787)
.031 (.787)
.010 R. (.254) MAX.
.150 (3.81)
45°
.060 (1.52)
DIM. A
DIM. B
.015 (.381)
.018 ± .002 DIA. (.457 ± .051)

inches (millimeters)

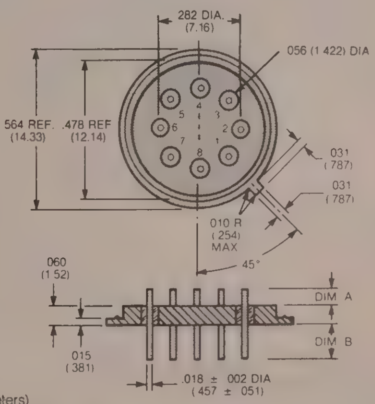
PART NO. 04-19561-000


.400 TYP. (10.2)
.200 TYP. (5.08)
.100 TYP. (2.54)
.060 (1.52) DIA.
.600 (15.2) DIA.
.525 (13.3) DIA.
1 2 3 4 5 6 7 8 9 10 11 12
.031 (.787)
.031 (.787)
.010 R. (.254) MAX
.200 (5.08)
45°
.060 (1.52)
DIM. A
DIM. B
.015 (.381)
.018 ± .002 DIA. (.457 ± .051)

PART NO. 04-20027-000

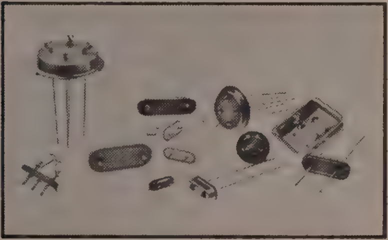

.375 TYP. (9.53)
.225 TYP. (5.72)
.075 TYP. (1.91)
.060 (1.52) DIA.
.600 (15.2) DIA
.525 (13.3) DIA
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
.031 (.787)
.031 (.787)
.010 R (.254) MAX
.1875 (4.76)
45°
.060 (1.52)
DIM A
DIM B
.015 (.381)
.018 ± .002 DIA (.457 ± .051)

PART NO. 04-19535-000


.282 DIA. (7.16)
.056 (1.422) DIA
.564 REF. (14.33)
.478 REF (12.14)
1 2 3 4 5 6 7 8
.031 (.787)
.031 (.787)
.010 R (.254) MAX
45°
.060 (1.52)
DIM A
DIM B
.015 (.381)
.018 ± .002 DIA (.457 ± .051)

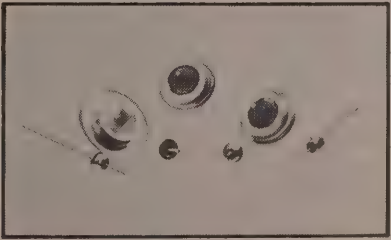
inches (millimeters)

QUARTZ CRYSTAL BASES



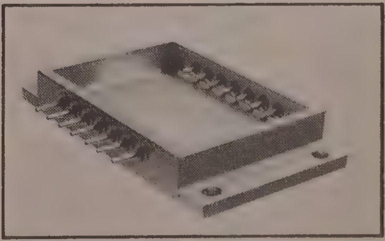
Reeves-Hoffman manufactures an extensive line of crystal bases, either to military standards or customer specification. Send us your prints for review. We may have a design that will satisfy your needs.

SPECIALIZED TERMINALS



A large variety of single pin terminals are available in numerous materials and platings. From a solderable terminal for an oscillator to a weldable tantalum lead terminal for a lithium battery.

POWER PACKAGES

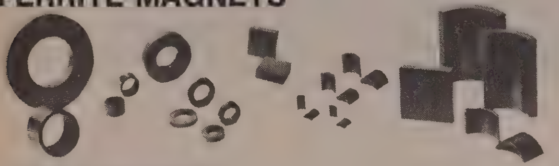


Custom designs to meet your specific requirements. Our in-house capability allows us to work with various materials and methods to achieve the results you desire; High Thermal Transfer and Mechanical Stability.

TDK

MAGNETS

FERRITE MAGNETS

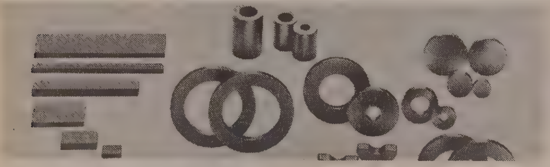


TDK manufactures a wide variety of high performance ferrite cores and magnets. They improve the devices they are used in and can be substituted for ALNICO in many applications. Both wet and dry pressed materials are available. Wet pressed: FB$_4$A, FB$_4$B, FB$_4$X, FB$_4$H, FB$_4$N. Dry pressed: FB$_1$, FB$_2$, FB$_3$B, FB$_3$X, FB$_3$K.

Material characteristics

	TDK Material	FB$_4$A	FB$_4$B	FB$_4$X	FB$_4$H	FB$_4$N	FB$_3$B	FB$_3$X	FB$_3$K	FB$_2$	FB$_1$
	MMPA Standard	ceramic 5	ceramic 8		ceramic 7		ceramic 6				
Residual flux density Br (Gs {mT})	Max.	4,200 {420}	4,100 {410}	4,300 {430}	3,800 {380}	4,400 {440}	3,700 {370}	3,900 {390}	3,150 {315}	3,950 {395}	2,350 {235}
	Typical	4,100 {410}	4,000 {400}	4,200 {420}	3,700 {370}	4,300 {430}	3,550 {355}	3,750 {375}	3,000 {300}	3,850 {385}	2,200 {220}
	Min.	4,000 {400}	3,900 {390}	4,100 {410}	3,600 {360}	4,200 {420}	3,400 {340}	3,600 {360}	2,850 {285}	3,750 {375}	2,000 {200}
Coercive force $_B$Hc (Oe {kA/m})	Max.	2,400 {191}	3,400 {271}	3,100 {247}	3,600 {288}	2,500 {199}	3,200 {255}	3,100 {247}	2,950 {235}	2,200 {175}	2,000 {159}
	Typical	2,200 {175}	3,200 {255}	2,950 {235}	3,450 {274}	2,300 {183}	3,000 {239}	2,950 {235}	2,750 {218}	2,000 {159}	1,900 {151}
	Min.	2,000 {159}	3,000 {239}	2,800 {223}	3,300 {263}	2,100 {167}	2,800 {223}	2,800 {223}	2,550 {203}	1,800 {143}	1,800 {143}
Intrinsic coercive force $_I$Hc (Oe {kA/m})	Max.	2,420 {193}	3,550 {282}	3,200 {255}	4,400 {350}	2,520 {201}	3,650 {290}	3,200 {255}	3,650 {290}	2,220 {177}	
	Typical	2,220 {177}	3,300 {263}	3,000 {239}	4,200 {334}	2,320 {185}	3,400 {271}	3,000 {239}	3,400 {271}	2,020 {161}	3,500 {278}
	Min.	2,020 {161}	3,050 {243}	2,800 {223}	4,000 {318}	2,120 {169}	3,150 {251}	2,800 {223}	3,150 {251}	1,820 {145}	3,000 {239}
Max energy product (BH) max. (MGOe {kJ/m^3})	Max.	4.2	4.1	4.4	3.5	4.6	3.2	3.5	2.4	3.7	1.2
	Typical	4.0 {32}	3.8 {30}	4.2 {33}	3.25 {26}	4.4 {35}	3.0 {24}	3.2 {26}	2.1 {17}	3.5 {28}	1.1 {8.9}
	Min.	3.8	3.5	4.0	3.0	4.2	2.8	2.9	1.8	3.3	0.9
Curie temperature (°C)		450	460	460	460	460	460	460	460	450	450
Material composition		BaO 6Fe$_2$O$_3$	SrO 6Fe$_2$O$_3$	SrO 6Fe$_2$O$_3$	SrO 6Fe$_2$O$_3$	SrO 6Fe$_2$O$_3$	SrO 6Fe$_2$O$_3$	SrO 6Fe$_2$O$_3$	SrO 6Fe$_2$O$_3$	BaO•(SrO) 6Fe$_2$O$_3$	BaO 6Fe$_2$O$_3$

RARE EARTH COBALT (REC) MAGNETS



TDK has developed the first REC magnet with a maximum energy product of 30 MGOe. This provides designers with a new high performance material previously unavailable. TDK has reduced the samarium and cobalt content by 10-15% and still provided temperature characteristics rivalling ALNICO. May be used in place of: REC-18B, 22B, 22, 24, 26 & 30 of the 2-17 group, and REC-18 and 20 of the 1-5 group. Excellent for use in speakers, motors, klystrons and other applications requiring very high performance magnets.

Material characteristics

		Series 2-17 (Sm$_2$ {Co, Cu, Fe, Zr}$_{17}$)						Series 1-5 {SmCo$_5$}	
		REC-30	REC-26	REC-24	REC-22	REC-22B	REC-18B	REC-20	REC-18
(Magnetic characteristics)									
Residual flux density Br (kG {mT})		10.8 to 11.2 {1080 to 1120}	10.2 to 10.8 {1020 to 1080}	9.8 to 10.2 {980 to 1020}	9.2 to 9.8 {920 to 980}	9.2 to 10.0 {920 to 1000}	8.2 to 9.0 {820 to 900}	8.8 to 9.2 {880 to 920}	8.3 to 8.7 {830 to 870}
Coercive force	$_B$Hc kOe {kA/m})	6.0 to 6.8 {477 to 541}	8.4 to 10.0 {669 to 796}	6.0 to 6.8 {477 to 541}	7.8 to 9.4 {621 to 748}	7.0 to 8.6 {557 to 685}	6.4 to 8.0 {509 to 637}	8.5 to 9.0 {676 to 716}	7.5 to 8.5 {597 to 676}
	$_I$Hc (kOe {kA/m})	6.2 to 7.0 {493 to 557}	10.0 {796} min.	6.2 to 7.0 {493 to 557}	10.0 {796} min.	8.0 to 10.0 {637 to 796}	8.0 to 10.0 {637 to 796}	12.0 to 20.0 {955 to 1592}	12.0 to 20.0 {955 to 1592}
Maximum energy product	(BH) max. (MGOe {kJ/m^3})	29 to 31 {232 to 248}	24 to 28 {142 to 224}	22 to 24 {176 to 192}	20 to 24 {160 to 192}	20 to 24 {160 to 192}	16 to 20 {128 to 160}	19 to 21 {152 to 168}	17 to 19 {136 to 152}
(Physical characteristics)									
Curie temperature	°C (K)	800 to 850 (1073 to 1123)	800 to 850 (1073 to 1123)	800 to 850 (1073 to 1123)	800 to 850 (1073 to 1123)	750 to 800 (1023 to 1073)	750 to 800 (1023 to 1073)	700 to 750 (973 to 1023)	700 to 750 (973 to 1023)
*Thermal expansion coefficient	C // 1/°C (1/K)	8×10^{-6} (8×10^{-6})	8×10^{-6} (8×10^{-6})	8×10^{-6} (8×10^{-6})	8×10^{-6} (8×10^{-6})	8×10^{-6} (8×10^{-6})	8×10^{-6} (8×10^{-6})	6×10^{-6} (6×10^{-6})	6×10^{-6} (6×10^{-6})
	C ⊥ 1/°C (1/K)	11×10^{-6} (11×10^{-6})	11×10^{-6} (11×10^{-6})	11×10^{-6} (11×10^{-6})	11×10^{-6} (11×10^{-6})	11×10^{-6} (11×10^{-6})	11×10^{-6} (11×10^{-6})	13×10^{-6} (13×10^{-6})	13×10^{-6} (13×10^{-6})
Thermal conductivity	kcal/m-h-°C W/m-°C	10 {12}	10 {12}	10 {12}	10 {12}	10 {12}	10 {12}	11 {13}	11 {13}
Specific heat	cal/g.°C J/kg-°C	8×10^{-2} {335}	8×10^{-2} {335}	8×10^{-2} {335}	8×10^{-2} {335}	8×10^{-2} {335}	8×10^{-2} {335}	9×10^{-2} {377}	9×10^{-2} {337}
Specific resistivity	Ω-m	8.6×10^{-3}	8.6×10^{-3}	8.6×10^{-3}	8.6×10^{-3}	9.6×10^{-3}	9.0×10^{-3}	5.3×10^{-3}	5.3×10^{-3}
Density	g/Cm^3	8.3 to 8.5	8.3 to 8.5	8.3 to 8.5	8.3 to 8.5	8.2 to 8.4	8.2 to 8.4	8.1 to 8.3	8.1 to 8.3
(Mechanical characteristics)									
Deflection strength	kgf/mm^2 (N/m^2)	15 (1.5×10^8)	15 (1.5×10^8)	15 (1.5×10^8)	15 (1.5×10^8)	15 (1.5×10^8)	15 (1.5×10^8)	18 (1.8×10^8)	18 (1.8×10^8)
Compressive strength	kgf/mm^2 (N/m^2)	82 (8×10^8)	82 (8×10^8)	82 (8×10^8)	82 (8×10^8)	82 (8×10^8)	82 (8×10^8)	102 (10×10^8)	102 (10×10^8)
Tensible strength	kgf/mm^2 (N/m^2)	3.6 (3.5×10^7)	3.6 (3.5×10^7)	3.6 (3.5×10^7)	3.6 (3.5×10^7)	3.6 (3.5×10^7)	3.6 (3.5×10^7)	4.1 (4×10^7)	4.1 (4×10^7)
Young's modulus	kgf/mm^2 (N/m^2)	1.2×10^4 (1.2×10^{11})	1.2×10^4 1.2×10^{11})	1.2×10^4 (1.2×10^{11})	1.2×10^4 (1.2×10^{-11})	1.2×10^4 (1.2×10^{11})	1.2×10^4 (1.2×10^{11})	1.6×10^4 (1.6×10^{11})	1.6×10^4 (1.6×10^{11})
Vickers hardness Hv		500 to 600	500 to 600	500 to 600	500 to 600	500 to 600	500 to 600	450 to 500	450 to 500

Figures in parentheses are given in SI units.
C // is the value measured in the easy magnetization direction while C ⊥ is the value measured in the direction vertical to the easy magnetization direction.
Tooling is available for various shapes and dimensions. Please contact us for further information.

TDK CORPORATION OF AMERICA • 4711 W. GOLF ROAD, SKOKIE, IL 60076 • (312) 679-8200

TDK

FERRITE CORES

FERRITE CORES CONSUMER USE

TDK ferrite cores are manufactured to the highest quality standards and in a wide variety of shapes from 38 different materials to provide the best performance. The types shown here are intended for consumer applications. The table to the right provides basic data. For complete information ask for Catalogue DAE-001A.

TDK Type	Description
CR	Deflection Yoke
UR	"U" Core
EE	"E" Core
EI	"EI" Core
T	Toroidal Core
RHH	Dbl. Aperture Core
R4H	Dbl. Aperture Core
RID	Dbl. Aperture Core
THP	Threaded Cup Core
DR	Bobbin Core
P	Cup Core
TH	Threaded Core
RI	Sleeve
RB	Cylindrical Core with Screw Inserted
BF	Ferrite Beads
R	Cylindrical Core
AR	Antenna Core
CS	Ferrite Substrates

For yoke, U and E cores (H series materials)

Characteristics	Practical frequency	µiac* ±25%	tanδ/µiac*	αµr*	T_c	B_{ms}	H_{cms}	µm*	δ	d	
Material	MHz	—	x 10⁻⁶	x 10⁻⁶/°C (+20°C to +60°C)	°C	G {mT}	Oe {A/m}	—	Ω-Cm {Ω-m}	g/Cm³ {kg/m³}	Cores
H_3S	0.01 to 0.4	2700	6 (0.1 MHz)	6	>200	4800 {480} (15.0 Oe {1194 A/m})	0.2 {16}	5500	30 {0.3}	4.8 {4.8x10³}	U-UR EI-EE-T
H_3T	0.01 to 0.4	1900	8 (0.1 MHz)	8	>200	5000 {500} (15.0 Oe {1194 A/m})	0.25 {16}	4900	30 {0.3}	4.8 {4.8x10³}	U-UR EI-EE
H_4M	0.01 to 0.4	320	52 (0.1 MHz)	40	>150	2100 {210} (15.0 Oe {1194 A/m})	0.50 {40}	2450	10⁷ {10⁵}	4.4 {4.4x10³}	CR

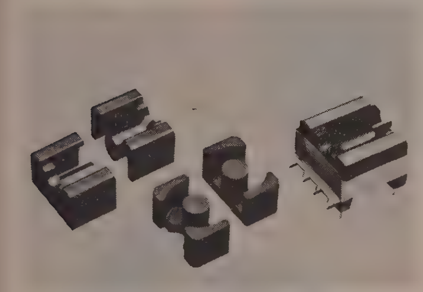
* Average value, obtained with toroidal cores at room temperature.

Quick chart for high frequency inductor materials

Practical frequency	ΔL/L/°C µiac	Small			Middle			Large		
		High	Middle	Low	High	Middle	Low	High	Middle	Low
Up to 0.2 MHz		H_3S	L_6, L_6H			L_6E	L_8H		L_9H	
0.2 to 3.0 MHz	High Q					Q_2M			D_3B Q_2	
	Middle Q	L_5N L_5T	L_4N		L_5	L_4	Q_1C		D_8 D_1B D_1C	
	Low Q								D_1F D_1L	
3.0 to 20 MHz	High Q				Q_5B	Q_5M				
	Middle Q		M_8N			M_8C, M_8B		Q_1D		
	Low Q					M_8L				
10 to 30 MHz			M_9N, M_9M			M_9			M_9D, M_9E	
30 to 80 MHz			$M_{11}M$ V_1F	*V_3F *V_3N	V_2F	M_{11}			$M_{11}E$	
70 to 150 MHz		F_3T	M_5N, F_4N, F_5N	F_6T		M_5M		M_5E		
100 to 250 MHz			V_4F			V_5F				

Note: * negative temperature coefficient

INDUSTRIAL USE



A full line of ferrites specifically designed for industrial use is available from TDK. These include: Pot Cores; Filter & Choke Cores; EE, EI, EC, PQ, EP, LP, X and PCH Cores; Toroidal Cores; and Thermal Ferrites. See Catalogue DLE-002F & -014A.

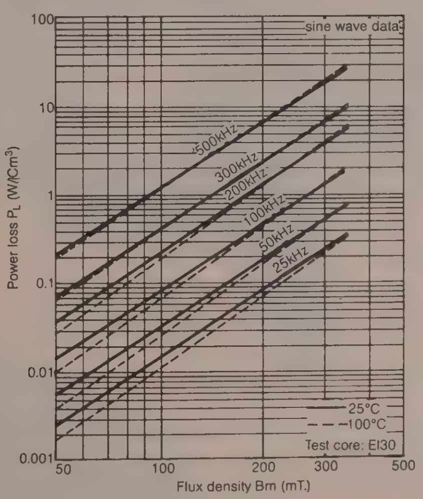
CHOKE CORES FOR SWITCHING POWER SUPPLIES

The "H7C4" material used in these cores is new and intended for high frequency switching power supplies. It has superlative power loss characteristics in the high frequency range.

FEATURES

1. High permeability
2. High saturation flux density
3. Negative power loss temperature dependency
4. Safeguards against thermal runaway
5. Low power loss from 100 kHz to 500 kHz
6. Low power loss in high magnetic fields

POWER LOSS VS. FLUX DENSITY



Initial permeability	µiac	2300 ±25%		
Amplitude permeability at 2000 Gs (200 mT) sine wave	µa	25°C	3000 min	
		60°C		
		100°C		
Curie temperature	Tc	°C	>215	
Power loss at 2000 Gs (200 mT) sine wave	P_L kW/Cm³	25°C	600	at 100 kHz
		60°C	450	
		100°C	410	
		120°C	500	
Saturation flux density at 15 Oe (1194A/m)	Bms	25°C Gauss mT	5100 510	
		60°C Gauss mT	4500 450	
		100°C Gauss mT	3900 390	
Remanence	Br	25°C Gauss mT	950 95	
		60°C Gauss mT	650 65	
		100°C Gauss mT	550 55	
Coercivity	Hc	25°C Oersted A/m	0.18 14	
		60°C Oersted A/m	0.13 10	
		100°C Oersted A/m	0.11 8.8	

SPRITE®DC
SPRINT DC
PATRIOT®DC
MUFFIN® XL DC
SCAMP DC

ROTRON D.C.
FAN CAPITOL OF THE ELECTRONICS INDUSTRY

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Commercial Division
ROTRON INC., SHOKAN, NEW YORK 12481

FANS & BLOWERS

Manufacturer	EEM Page No.	Model/Series	AC	DC	Type		Noise db	Capacity (CFM)				Variable Speed Control
					Fan	Blower		1-49	49-99	100-499	500 & up	
AMCO Engineering	2•1803	BTA3	●		T		25	27				
		BTA4-LF	●		T		24		60			
		BTA-HF	●		T		38			100		
		BTA6	●		T		47			260		
		BTA10	●		T		41.3-47.6			475 —	— 540	●
		BDS5	●			SC	51.7-55.8			150-200		●
		BDS8	●			SC	51-55			325-425		●
		BRDS	●			SC	51-55			300-400		●
			●									
ebm Industries	2•1807	W2S 075	●	●	T		16-23	18-34				
		W2S 086	●		T		33	46				
		W2S 107	●	●	T		15-34		71 —	— 106		
		W2S 115	●		T		30-34			106-127		
		W2S 130	●		T		41			233		
		W2S 142	●		T		53			236		
EG&G Rotron Commercial Division	2•1809	Muffin Venturi	●		T		NC-43			105		
		Muffin XL	●		T					115		
		Whisper Venturi	●		T		NC-27		57-75			
		Whisper XL	●		T				50-80			
		Hi-Lo 4715	●		T		NC-22		55 —	— 115		
		Hi-Lo 5015	●		T		NC-33			105-150		
		Skeleton	●		T		NC-27		57 —	— 105		
		Sprite	●		T		NC-28	21-35				
		Caravel	●		T		NC-45				550	
		Patriot	●		T		NC-47			240		
	2•1811	Major	●		T		NC-60			240		
		Feather	●		T		NC-45			245		
		Tarzan	●		T		NC-57			340		
		Biscuit	●			SC	NC-42	22				
	2•1812	Muffin		●	T			40 —	—	— 130		
		Sprite		●	T			10-40				
		Sprint		●	T		3.9-4.8 Bels	25-35				
		Scamp		●	T			21				
		Patriot		●	T					175-240		
EG&G Rotron Custom Division	2•1814	Sparton*		●	T					135		
		Saucer*		●	T					250		
		Mil 80 ECDC*		●	T				65			
	2•1815	Saucer*	●		T					280		
		Aximax*	●		T			10 —	—	— 155		
		Spartan*	●		T					113-188		
		Propimax*	●		T			22 —	—	— 225		
		Mil 901*	●		T					280		
		Mil 80*	●		T			28 —	— 58			
ETRI	2•1818	98	●		T		28, 39		45, 79			
		99	●		T		23, 32, 37	21, 32, 40				
		113	●		T		35		53			
	2•1819	125	●		T		29, 36, 40		57, 83	112		
		126	●		T		9, 19, 16	15, 23, 32				
		141	●		T		23, 33, 41		55, 75	105		
	2•1820	146	●		T		24.7	25				
		148	●		T		33, 39, 45, 51, 50.5			123, 149, 172, 255		
Frederick Components	2•1821	119	●	●	T			44	53, 75	105		
		092	●		T			25, 33				
		080	●	●	T			24, 25, 26, 30				
		880	●		T			16				
Hi-Tech, Inc.	2•1822	All	●		T	T, C					to 2000	
IMC Magnetics	2•1823	Blowers	●	●		C		6.3 —	—	—	— 3000	
		Fans	●	●	T, P			32 —	—	—	— 1100	
		Fans	●	●	V			6.5 —	—	—	— 12,000	
McLean Engrg.*	2•1824	2EB	●			C				130, 290, 300, 350,	500, 700, 800	●
		1EB	●			C				200, 345, 350	550, 1000	●
		4EB	●			C				250, 450		
		IDB	●			C			75			
		IEB	●			C				140, 150, 185		
	2•1825	Fans	●		P					265, 275, 300, 395, 450	725, 1200	

T Tangential, Blowers; T Tubeaxial, Fans; V Vaneaxial; P Propeller; R Radial; SC Scroll; C Centrifugal. * Mil. Spec.

FANS & BLOWERS (Con't.)

Manufacturer	EEM Page No.	Model/Series	AC	DC	Type Fan	Type Blower	Noise db	Capacity (CFM) 1-49	49-99	100-499	500 & up	Variable Speed Control
Micronel	2•1830	V240		●	V		36	3.15				
		V350/430		●	V		44	11.4				
		V360		●	V		44	11.4				
		V460		●	V		27	7				
		V480		●	V		55	23				
	2•1831	V570		●	V		27	19				
		V580		●	V		27	19				
		V590		●	V		50	46				
		V603		●	V		50	46				
	2•1832	V350/340	●		V		20	2.3				
		V460	●		V		16	4.7				
		V570/580	●		V		27	15.6				
	2•1833	V60	●		V		16	19				
		V620/630	●		V		22	17.6				
		V72CL/TL/PM	●		V		30	38				
	2•1836	US 2.5/3.1/4.1	●	●			35	10, 30	80			
	2•1837	UQ 2.5/3.1/4.1	●	●			22	10, 30	80			
	2•1838	UE 2.5/3.1/4.1	●	●			22	10, 30	80			
Pamotor	2•1840, 41	812, 814		●	T		40	11-29				
		3124F		●	T		40	33 —	— 57			
		4105GX		●	T		44		82 —	— 100		
	2•1840, 42	4112X/GX/KX		●	T		44, 46, 49		60 —	— 125		
		4124X		●	T		46		82 —	— 122		
	2•1840, 43	4124GX/KX		●	T		44, 49		70 —	— 125		
		4124F, 4148X		●	T		46, 48		80 —	— 122		
	2•1840, 44	6124, 6148		●	T		50			150-250		
		8105G, 8112		●	T		37, 38	28 —	— 41			
	2•1840, 45	8112G/K		●	T		37, 39	20 —	— 49			
		8124/G		●	T		37, 38	28 —	— 44			
	2•1840, 46	8124K, 8148		●	T		38, 39	27 —	— 41			
		RL90-18/24		●		R	54	19-31				
	2•1847, 48	2500	●		T		59			115		
		4600X/XP	●		T		50, 51			120		
		4800	●		T		32		70			
	2•1847, 49	7600	●		T		60, 61			240		
		8500	●		T		35, 36		40			
		8800	●		T		30	27				
	2•1847, 50	900, 950	●		T		22, 40	20-27	40			
		6008S	●		T		54			250		
		RL90-18/00	●			R	56	25				
TRW Motor Div.	2•1852	VAX	●	●		V		28 —	—	— 165		
		Blowers	●	●		C		to 33				
			●	●		T			to 62			
		Fans	●	●	P			28 —	—	— 195		
U.S. Toyo Fan	2•1854	TF	●		T		from 32	27 —	—	— 104		
	2•1855	TFD		●	T							
		SMF/SL		●	T							

T Tangential, Blowers; T Tubeaxial, Fans; V Vaneaxial; P Propeller; R Radial; SC Scroll; C Centrifugal.

AIR CONDITIONERS, COOLERS, HEAT PUMPS

Manufacturer	EEM Page No.	Type of System	Model/Series	Capacity Cooling (BTU/hr.)	Features/Applications
Electro Impulse	2•1817	Closed Loop Heat Exchangers/Coolers			Military, shipboard, indoor, & outdoor applications
McLean Midwest	2•1826	Air Conditioners	Slimboy Hiboy Loboy	1200-12000 2000-6000 2000-7000	
	2•1827	Heat Exchangers			Operating Range: 0°F to 125°F Enclosure mounting
Melcor	2•1828	Heat Pumps	CP/FC		Operating Range: −150°C to +110°C
TECA/Borg Warner	2•1805	Air Conditioners Temperature Controllers	AHP/LHP TC	110-1500	Cool Mode: −39.9°C to +50°C Heat Mode: −55°C to +150°C

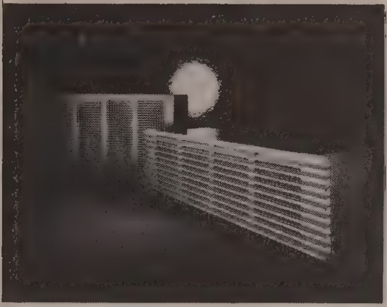
AMCO Cooling Devices

Cooling Devices for Electronics from AMCO Engineering Co.

AMCO Fans

AMCO's new line of high performance tube axial fans offers a variety of quiet air flow speeds and assembly options to meet your spot cooling requirements. Fans are available individually, in tandem assemblies or pre-mounted on attractively colored panels to simplify mounting to enclosure frames. Diameters of 3", 4" (low or high flow), 6" and 10" are offered, providing a range of air flows from 27 to 540 SCFM. AMCO fans include front protection grilles and mounting hardware. Standard panel mounted assemblies are available in 19", 24" and 30" width EIA panels and allow multiple fan configurations. Variable speed control is included with BTA10 fan. Optional accessories are available.

Recognized
Listed



AMCO Blowers

AMCO's line of dual scroll blower assemblies feature solid state variable speed controls incorporating high gain RF noise filters and full wave phase control circuitry to achieve infinite speed variations. Model BDS5 occupies 5¼" panel height and provides 150 to 200 SCFM with quiet operation at 51.7 to 55.8 dB. Occupying 8¾" panel height, Model BDS8 delivers 325 to 425 SCFM at 51 to 55 dB. For recessed base mounted applications, Model BRDS provides 300 to 400 SCFM at 51 to 55 dB, while utilizing only 3½" of vertical panel space. Blower housings are plated and grilles are clear anodized aluminum. All blowers mount in 19", 24" and 30" panel width consoles and are prewired with 3' or 6' three-conductor cords.

Purchase of an AMCO blower assembly includes mounting hardware, formed clear anodized aluminum grille, reusable filter, speed control, grille mounting hardware and blower box mounting hardware (BRDS only). Optional accessories include air deflectors, dust filters, replacement parts, hardware and deluxe grilles (BRDS only).

Recognized

Sample AMCO Cooling Devices Assembled to Frame.

Pictured above, top to bottom: BTA10-PX21-19-E, BTA3-19-4, BTA4-HF-19-1, BTA6-19-2, BDS5-19-3, BDS8-19-3, BRDS-19-25-3

Fan or Blower Number	Variable Speed Control	*SCFM Min. Speed	*SCFM Max. Speed	Speech Interference Level—db Min. Speed	Speech Interference Level—db Max. Speed	Standard Mounting
BTA3			27		25	Panel
BTA4-LF			60		24	Panel
BTA4-HF			100		38	Panel
BTA6			260		47	Panel
BTA10	X	475	540	41.3	47.6	Top Panel
BDS5	X	150	200	51.7	55.8	Panel
BDS8	X	325	425	51	55	Panel
BRDS	X	300	400	51	55	Recessed Base Panel

**Because laboratory environment (barometric pressure, temperature and humidity) can vary, all air flow performance ratings are corrected to standard cubic feet per minute—SCFM. This technique is a more accurate method of rating performance than using observed CFM which can vary depending on test conditions.*

Quick Selection Guide

The table at left is presented as a quick reference guide to AMCO Fans and Blowers. For more information on each fan or blower, request AMCO Catalog 803 or call the AMCO representative nearest you—ask about additional models soon to be available and special services provided by AMCO's Cooling Systems Laboratory.

amco

"Quality Is No Accident"

AMCO Engineering Co., 3801 North Rose Street, Schiller Park, IL 60176, Phone: 312/671-6670, TWX: 910-227-3152

COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A

AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire guage

B

BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction code
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C

CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D

D/A digital to analog
DAC digital to analog converter
DC direct curent
DIL dual in-line
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E

EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EPROM electrically programmable ROM
ESR equivalent series resistance

F

FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G

GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H

HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I

IC integrated circuit
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J

JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K

kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L

LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LSI large scale integration
LVDT linear velocity displacement transformer

M

MATV master antenna television
μF microforad
MHz megahertz
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N

NBS National Bureau of Standards
NIM nuclear instrumentation module
NOR not OR

O

OEM original equipment manufacturer
OR a logical operator

P

pF picofarad
PC printed circuit
PCB printed circuit board
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PPI plan position indicator
PROM programmable read only memory
PUT programmable unijunction transistor

Q

QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R

RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S

SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic

T

TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TTL transistor-transistor logic
TTY teletypewriter

U

UHF ultra high frequency (300 MHz to 3 GHz)
UL Underwriters Laboratory
UPS uninterruptible power supply

V

VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W

WPS word processing software

Y

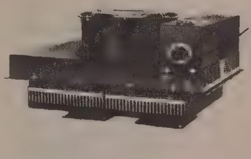
YIG yttrium iron garnet

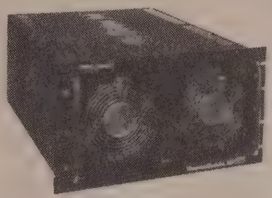
AIR CONDITIONERS

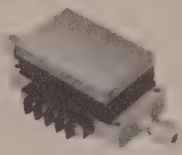
Temperature Control...

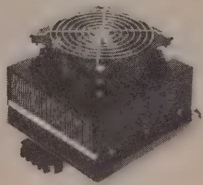
Solid State Cooling & Heating From One Product.

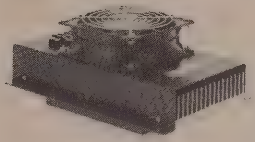
Thermoelectric Air Conditioners are a solid state method of refrigeration, which eliminates the need for a compressor, refrigerant fluids or piping. The only moving parts are highly reliable fans used to dissipate output heat to the ambient air. These air conditioners can be applied in computers, machine tool controls, instrumentation & electronics for hostile environment protection. They offer design flexibility in a wide range of industrial and consumer applications where compactness and reliability are key.

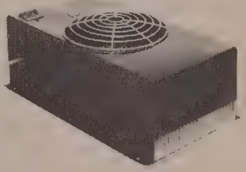

AHP-1700


AHP-3000


LHP-150


LHP-800


AHP-300


AHP-1000

Features:

- *No load cooling to –5°F (–20°C) at room temperature*
- *Lightweight, compact designs*
- *No compressor, no fluids, no coils*
- *Closed system protection from dust, chips, & moisture*
- *No moving parts except fans, means high reliability*
- *Low vibration, noise & maintenance*
- *Metal finishes resist corrosion*
- *Operates in any orientation - horizontal, vertical, etc.*
- *All models available from stock*

Other Products:

- Liquid cooled air conditioners rated to 1500 BTU/HR
- Thermoelectric cooling modules
- Temperature controllers
- Standard DC power supplies

Products

AIR CONDITIONERS (AIR COOLED)

AHP-150, with Cold Plate
Rating: 110 BTU/hr.
Overall Dimensions: 5.0W x 7.0L x 4.25T

AHP-300, with Cold Plate
Rating: 240 BTU/hr.
Overall Dimensions: 7.0W x 10.0L x 4.5T

AHP-300, with Cold Side Fin and Fan
Rating: 240 BTU/hr.
Overall Dimensions: 7.0W x 10.0L x 7.5T

AHP-800, with Cold Plate
Rating: 500 BTU/hr.
Overall Dimensions: 9.0W x 15.0L x 5.25T

AHP-800, with Cold Side Fin and Fan
Rating: 500 BTU/hr.
Overall Dimensions: 9.0W x 15.0L x 8.25T

AHP-1000, with Cold Plate
Rating: 560 BTU/hr.
Overall Dimensions: 8.35W x 15.0L x 7.2T

AHP-1000, with Cold Side Fin and Fan
Rating: 560 BTU/hr.
Overall Dimensions: 8.35W x 15.0L x 9.8T

AHP-1700, with Cold Side Fin and Fan
Rating: 1100 BTU/hr.
Overall Dimensions: 12.25W x 19.0L x 10.4T

AHP-3000
Rating: 2100 BTU/hr.
Overall Dimensions: 19.0W x 23.75L x 10.50T

AIR CONDITIONERS (LIQUID COOLED)

LHP-150, with Cold Plate
Rating: 135 BTU/hr.
Overall Dimensions: 2.7W x 5.2L x 1.65T

LHP-300, with Cold Plate
Rating: 205 BTU/hr.
Overall Dimensions: 6.0W x 4.5L x 1.65T

LHP-300, with Cold Sink and Fan
Rating: 305 BTU/hr.
Overall Dimensions: 6.0W x 4.5L x 4.75T

LHP-800, with Cold Plate
Rating: 740 BTU/hr.
Overall Dimensions: 6.225W x 7.93L x 1.78T

LHP-800, with Cold Sink and Fan
Rating: 740 BTU/hr.
Overall Dimensions: 6.225W x 7.93L x 5.73T

LHP-1700, with Cold Side Fin and Fan
Rating: 1500 BTU/hr.
Overall Dimensions: 7.0W x 19.0L x 8.67T

TEMPERATURE CONTROLLERS

TC-2, Cool Mode
Range: +20°C to 50°C

TC-106, Cool Mode
Range: –39.9°C to +39.9°C
Overall Dimensions: 3.25H x 6.0W x 6.18D

TC-107, Heat Mode
Range: –55°C to +150°C
Overall Dimensions: 3.25H x 6.0W x 6.18D

TC-108, Heat-Cool Mode
Range: –55°C to +150°C
Overall Dimensions: 3.25H x 6.0W x 6.18D

the experts in solid state cooling technology.

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teca

A New Name . . . the people, products & quality are the same

ThermoElectric Cooling America Corporation
448 North Halsted Street • Chicago, Illinois 60622 • 312/666-1600

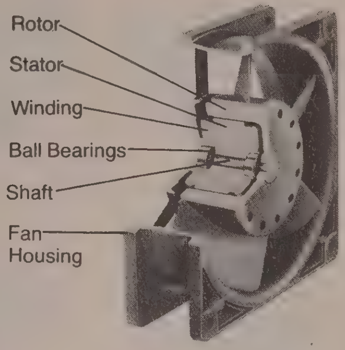
ebm Tubeaxial Fans

External Rotor Motor
All Metal Construction

One simple, reliable design for every electronic application

Motors

The motors used in ebm Tubeaxial fans are either shaded-pole, or PSC designs with Class "B" insulation. Available fans operate at 115V or 230V, 50/60Hz. Dual voltage 115/230V motors and other special models rated from 12V to 240V are also available. All motors are impedence protected in accordance with UL, CSA and VDE requirements. Electromagnetic interference (EMI) is greatly reduced by the self-shielding external rotor. This inherent feature of the ebm design makes it ideal for use in sensitive electronic equipment.



Acoustics

Acoustical sound measurements are made in an anechoic chamber at nominal voltage with a microphone one meter from fan air inlet.

Safety

All fans are designed to meet UL, CSA and VDE standards. Approved products are listed in UL yellow card E54522; CSA file LR3145 and VDE 836 and 11585. It is the responsibility of the user to be sure fans are installed and operated in accordance with all safety codes. Care should be taken to insure that the connecting screws for ground leads do not extend into the housing opening and impede operation of the impeller blades.

Nr. E 54 522 836

Construction

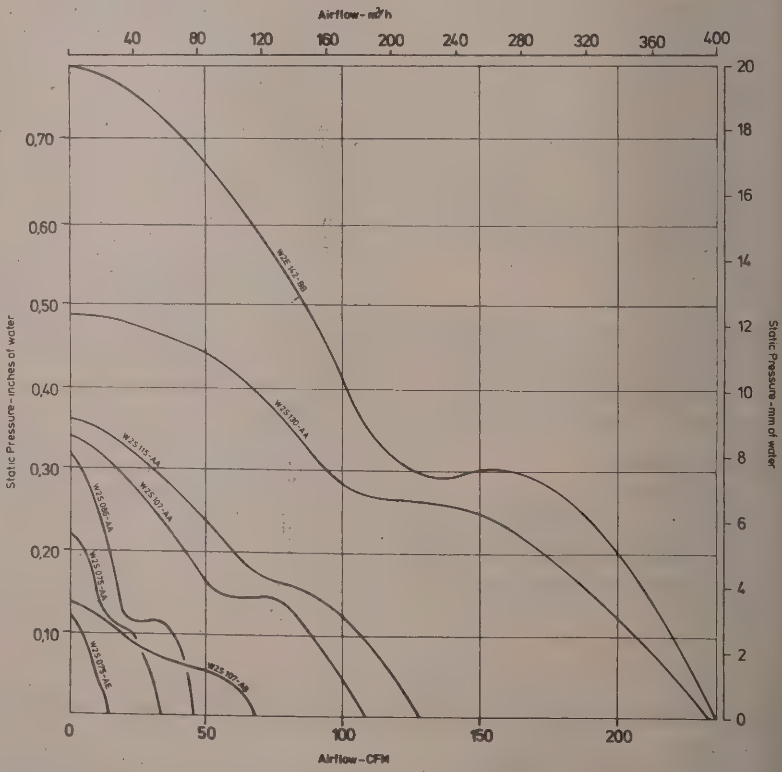
All-metal construction provides excellent heat dissipation, long life and structural stability. The fan itself functions as a heat sink by effectively transferring heat from the motor to the air stream via the metal impeller blades. The impeller blades are sheet steel, precision machined and welded to the metal rotor casing. The housing is die-cast aluminum.

The rotor and impeller blades are dynamically balanced in two planes in accordance with VDI2060. In addition, the fans are finished with an electrostatically applied black varnish to protect against severe environmental conditions.

Bearing System

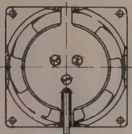
The type of bearing system selected will directly affect the "life" of the fan. It is recommended that sleeve bearings be used for −10°C to 60°C; ambients and ball-bearings for −30°C to 75°C. With either bearing system, typical operating life is between 20,000 and 40,000 hours. Actual life will depend on ambient temperature, duty cycle, mounting position and environmental conditions; 100,000 hours is not uncommon. Bearings are totally maintenance free.

Air Performance

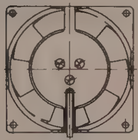


ebm Tubeaxial Fans

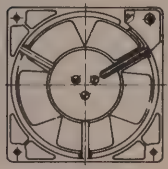
AC, DC or Dual Voltage AC (115/230)
UL, CSA, VDE Approved



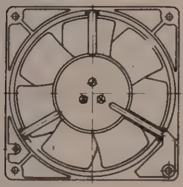
W2S 075
3⅛" x 1½"



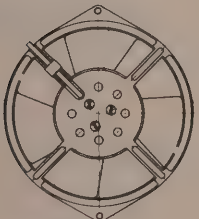
W2S 086
3⅝" x 1½"



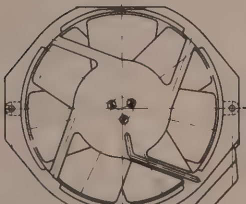
W2S 107
4¹¹/₁₆" x 1½"



W2S 115
5" x 1½"



W2S 130
6" x 2"



W2S 142
5.9" x 6.8" x 1.5"

Specifications

Type	Bearing	Volts†	CFM††	db(SIL)††	Max. Oper. Temp. °C
W2S 075-AA11-02	Sleeve	115	32	23	60
W2S 075-AA11-01	Ball	115	32	23	75
W2S 075-AA13-02	Sleeve	230	32	23	60
W2S 075-AA13-01	Ball	230	32	23	75
W2S 075-AA13-81	Sleeve	115/230	32	23	60
W2S 075-AD11-02	Sleeve	115	25	18	60
W2S 075-AD11-01	Ball	115	25	18	75
W2S 075-AD13-02	Sleeve	230	25	18	60
W2S 075-AD13-01	Ball	230	25	18	75
W2S 075-AD13-81	Sleeve	115/230	25	18	60
W2S 075-AE11-02	Sleeve	115	18	16	60
W2S 075-AE11-01	Ball	115	18	17	75
W2S 075-AE13-02	Sleeve	230	18	16	60
W2S 075-AE13-01	Ball	230	18	17	75
W2S 075-AE13-81	Sleeve	115/230	18	16	60
A2S 075-BA11-02*	Sleeve	115	32	23	60
W2G 075-AB22-01	Ball	12 DC	34	23	55
W2G 075-AB24-01	Ball	24 DC	34	23	55
W2G 075-AB26-01	Ball	48 DC	34	23	55
W2S 075 Finger guard accessory 9480-2-4039					
W2S 086-AA07-02	Sleeve	115	46	33	60
W2S 086-AA07-01	Ball	115	46	33	70
W2S 086-AA05-02	Sleeve	230	46	33	60
W2S 086-AA05-01	Ball	230	46	33	75
W2S 086 Finger guard accessory 9483-2-4039					
W2S 107-AA15-39	Sleeve	115	106	34	60
W2S 107-AA15-13	Ball	115	106	34	75
W2S 107-AA01-39	Sleeve	230	106	34	60
W2S 107-AA01-13	Ball	230	106	34	75
W2S 107-AA01-67	Sleeve	115/230	106	34	60
W2S 107-AB07-39	Sleeve	115	71	23	60
W2S 107-AB07-13	Ball	115	71	23	75
W2S 107-AB05-39	Sleeve	230	71	23	60
W2S 107-AB05-13	Ball	230	71	23	75
W2S 107-AB05-67	Sleeve	115/230	71	23	60
W2S 107-AB11-39	Sleeve	115	48	15	60
W2S 107-AB11-13	Ball	115	48	15	75
W2S 107-AB13-39	Sleeve	230	48	15	60
W2S 107-AB13-13	Ball	230	48	15	75
W2S 107-AB13-67	Sleeve	115/230	48	15	60
A2S 107-BA15-02*	Sleeve	115	106	34	60
A2S 107-BB07-02*	Sleeve	115	71	23	60
W2G 107-AB02-01	Ball	12 DC	100	32	55
W2G 107-AB04-01	Ball	24 DC	100	32	55
W2G 107-AB06-01	Ball	48 DC	100	32	55
W2S 107 Finger guard accessory 9497-2-4039					
W2S 115-AA03-39	Sleeve	115	127	34	60
W2S 115-AA03-13	Ball	115	127	34	75
W2S 115-AA01-39	Sleeve	230	127	34	60
W2S 115-AA01-13	Ball	230	127	34	75
W2S 115-AB11-39	Sleeve	115	106	30	60
W2S 115-AB07-39	Sleeve	230	106	30	60
W2S 115 Finger guard accessory 9496-2-4039					
W2S 130-AA25-01	Ball	115	233	41	75
W2S 130-AA03-01	Ball	230	233	41	75
W2S 130, W2E 142 Finger guard accessory 9498-2-4039					
W2E 142-BB05-16	Ball	115	236	53	75
W2E 142-BB01-16	Ball	230	236	53	75
For all models: Plug and cord set 1434-4-6711					

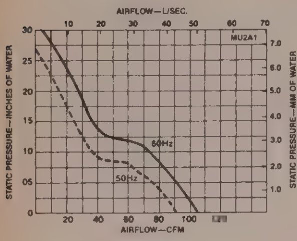
*Skeleton fans without housing   † AC volts rated at 50/60 Hertz   †† 0 static pressure

ebm Industries, Inc.—525 New Britain Avenue
Unionville, CT 06085, phone (203) 674-1515

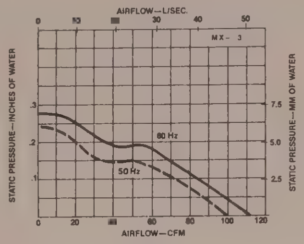
EG&G ROTRON

FAN PERFORMANCE AT SEA LEVEL

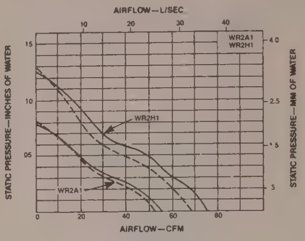
AC FANS



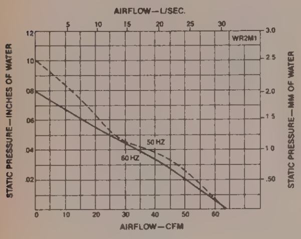
MUFFIN



MUFFIN XL



WHISPER



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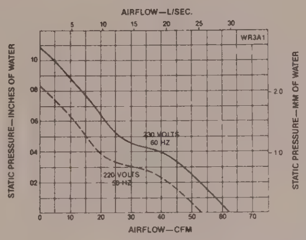
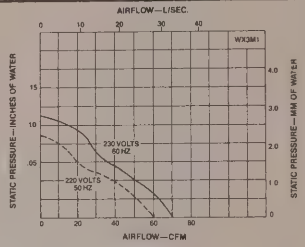
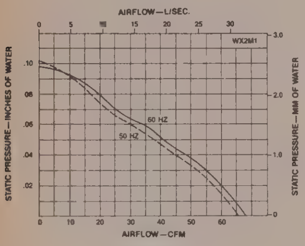


WHISPER



WHISPER XL



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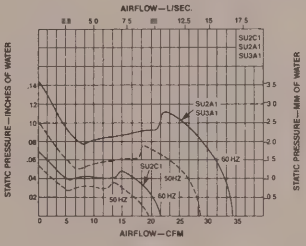
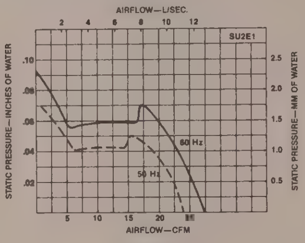


SPRITE



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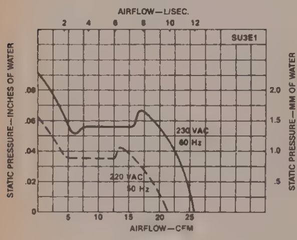

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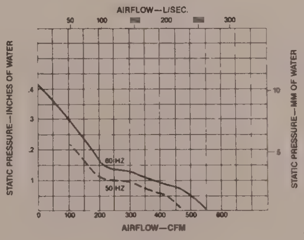
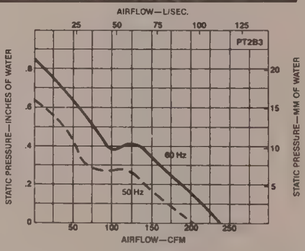
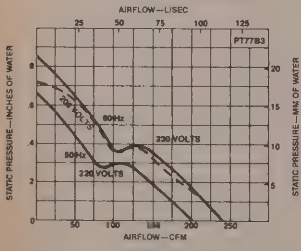


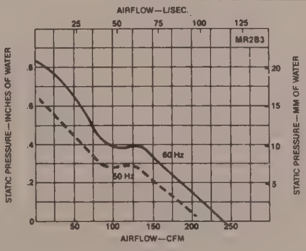
CARAVEL



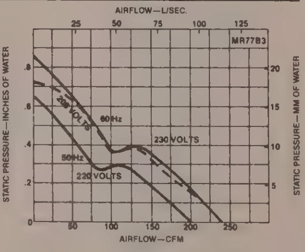
PATRIOT



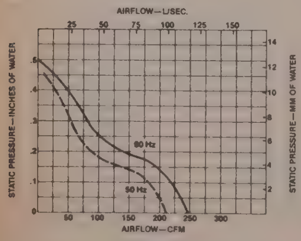
PATRIOT



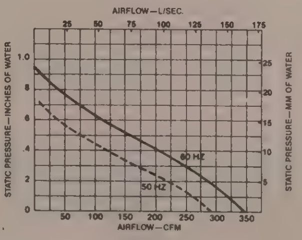
MAJOR



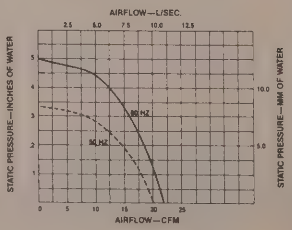
MAJOR



FEATHER

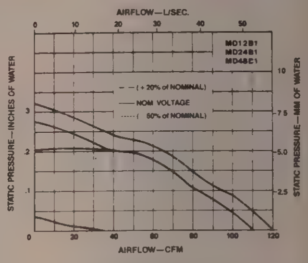


TARZAN

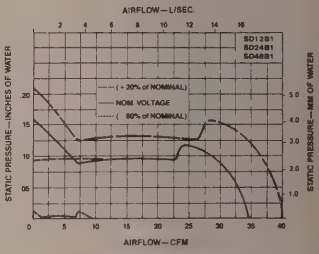


BISCUIT

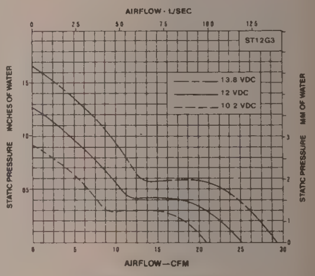
BRUSHLESS DC FANS



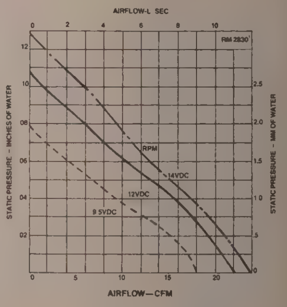
MUFFIN DC (Brushless)



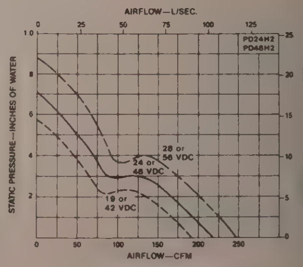
SPRITE DC (Brushless)



SPRINT DC (Brushless)



SCAMP DC (Brushless)

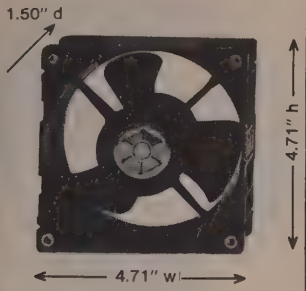


PATRIOT DC (Brushless)

EG&G ROTRON

AC FANS

MUFFIN® VENTURI FAN

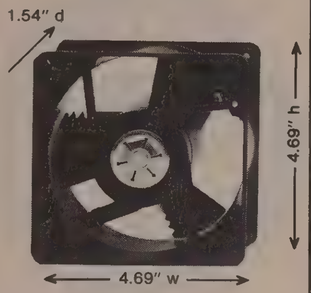


The dependable, low cost, largest selling fan for commercial cooling applications.

- 105 cfm (49.6 L/Sec) free air delivery
- 4.71" sq. x 1.50" deep (119.6 mm x 38.1 mm)
- Weight: 17.2 oz. (0.49 kg)
- Acoustical rating as low as NC-43
- Famous Muffin motor reliability
- Impedance protected
- For ambients to 70°C
- UL yellow card recognized and CSA certified

Catalog Sheet COM 040

MUFFIN® XL FAN

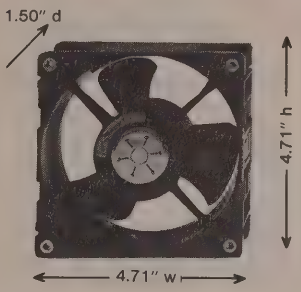


High performance and low noise level, with Muffin reliability. Sturdy one-piece metal venturi.

- 115 cfm (54.3 L/Sec) free air delivery
- 4.69" sq. x 1.54" deep (119.1 mm x 39.1 mm)
- Weight: 21 oz. (0.61 kg)
- Convenient ground lug bosses
- Feathered Edge™ airfoil blades for quietest operation
- Available in two flow directions
- Impedance protected
- For ambients to 70°C
- UL yellow card recognized and CSA certified
- VDE models available

Catalog Sheet COM 043

WHISPER® VENTURI FAN

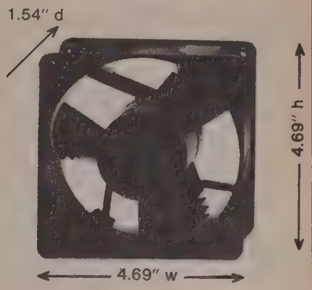


The quiet one for efficient cooling where low noise level is a must.

- 57 to 75 cfm (26.9 to 35.4 L/Sec) free air delivery
- 4.71" sq. x 1.50" deep (119.6 mm x 38.1 mm)
- Weight: 17.2 oz. (0.49 kg)
- Acoustical rating as low as NC-27
- Famous Muffin motor reliability
- Impedance protected
- For ambients to 70°C
- UL yellow card recognized and CSA certified

Catalog Sheet COM 050

WHISPER® XL FAN



High performance and low noise level with Muffin reliability. Sturdy one-piece metal venturi.

- 50 to 80 cfm (23.6 to 37.8 L/Sec) free air delivery
- 4.69" sq. x 1.54" deep (119.1 mm x 39.1 mm)
- Weight: 21 oz. (0.61 kg)
- Convenient ground lug bosses
- Feathered Edge™ airfoil blades for quietest operation
- Impedance protected
- For ambients to 70°C
- UL yellow card recognized and CSA certified
- VDE models available

Catalog Sheet COM 051

HI-LO FANS

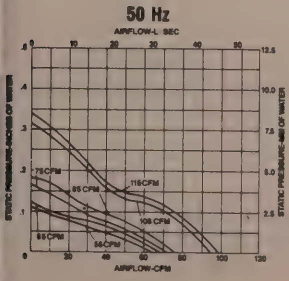
HI-LO 4715

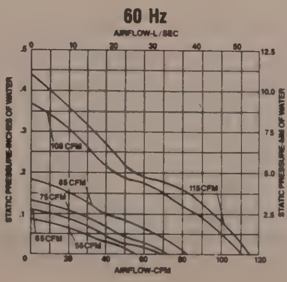
- 55 to 115 cfm (26 to 54.3 L/Sec)
- Size - 4.7" sq. x 1.50" deep (119.4 mm x 38.1 mm)
- Acoustics rating as low as NC-22
- Weight - 27 oz. (0.76 kg)
- For ambients to 70°C

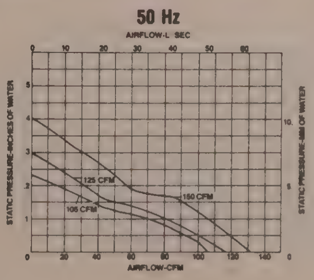
- **Meet UL, CSA, and VDE requirements**
- **Sleeve and ball bearings**
- **Optional dual voltage capability**

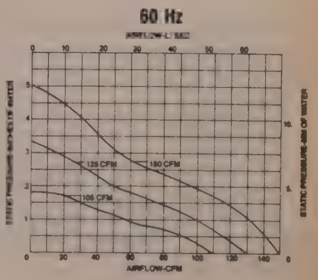
HI-LO 5015

- 105 to 150 cfm (49.6 to 70.8 L/Sec)
- Size - 5.0" sq. x 1.50" deep (127 mm x 38.1 mm)
- Acoustics rating as low as NC-33
- Weight - 27 oz. (0.76 kg)
- For ambients to 70°C







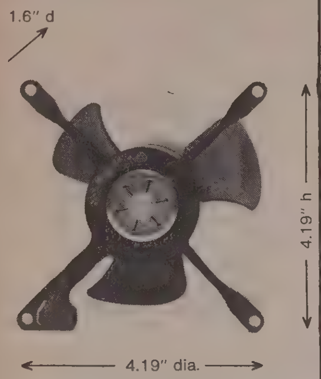


ROTRON, INC., COMMERCIAL DIVISION, SHOKAN, NY 12481 TEL. (914) 657-6661 TWX: 510-247-1941

EG&G ROTRON

AC FANS

SKELETON FANS

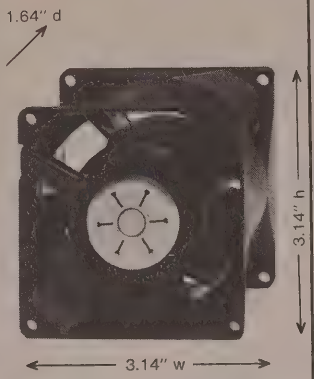


Reduced costs. Save .5" space (13.2 mm) on height and width compared to equivalent venturi models; particularly helpful in tight packaging applications. Mount directly to orifice molded into your own panel design.

- 57 to 105 cfm (26.9 to 49.6 L/Sec) free air delivery
- 1.6" (40.64 mm) deep; propeller dia. 4.19" (106.4 mm). Mounting holes on 4.125" centers (104.78 mm)
- Weight: 12.8 oz. (0.36 kg)
- Acoustical rating, depending on application, as low as NC-27
- Famous Muffin motor reliability
- Impedance protected
- For ambients to 70°C
- UL yellow card recognized and CSA certified

Catalog Sheet COM 058

SPRITE® FAN

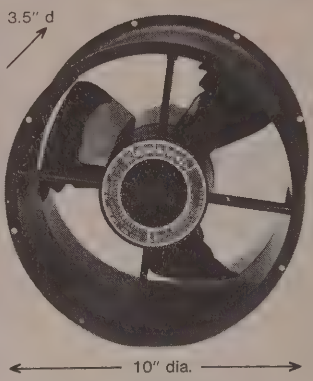


A smaller size fan that delivers relatively high pressures at close-to-maximum air delivery.

- 21 to 35 cfm (9.9 to 16.5 L/Sec) free air delivery
- 3.14" sq. x 1.64" deep (79.2 mm x 41.7 mm)
- Weight: 18 oz. (0.51 kg)
- Famous Muffin motor reliability
- Acoustical rating as low as NC-28
- Rugged die-cast zinc housing
- Impedance protected
- For ambients to 70°C
- UL yellow card recognized and CSA certified
- VDE models available
- Lead wire and terminal models

Catalog Sheet COM 030

CARAVEL® FAN

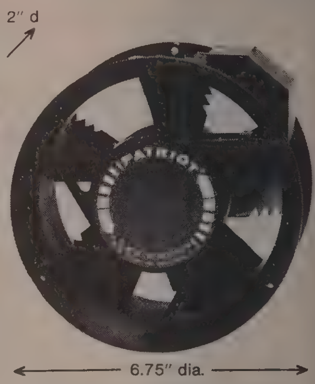


Maximum air volume, from a narrow fan, for flushing large racks and cabinets.

- 550 cfm (259.6 L/Sec) free air delivery
- 10" dia. x 3.5" deep (254 mm x 88.9 mm)
- Weight: 4.4 lbs. (1.99 kg)
- Ball bearing thermally protected slow speed motor
- Exclusive new Feathered Edge™ blade for low noise level operation
- Acoustical rating as low as NC-45
- For ambients to 60°C
- UL yellow card recognized and CSA certified

Catalog Sheet COM 110

PATRIOT® FAN



Quiet high pressure performance in a compact rugged fan.

- 240 cfm (113.3 L/Sec) free air delivery
- 6.75" dia. x 2.00" deep (171.5 mm x 50.8 mm)
- Weight: 1.84 lbs. (0.84 kg)
- Acoustical rating as low as NC-47
- One-piece die-cast aluminum housing
- Long life ball bearings
- Permanent split capacitor motor, capacitor provided
- For ambients to 70°C
- UL yellow card recognized and CSA certified
- Available with fan performance sensor. Senses and reacts to speed reduction, voltage reduction, open winding, non-start. No customer-supplied electronics necessary.

Catalog Sheet COM 083

UL, CSA AND VDE APPROVALS

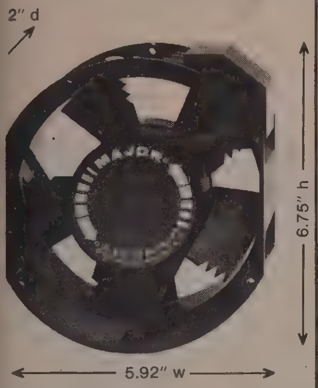
For years, Rotron fans have met UL and CSA safety requirements. And now, 4 Rotron fans - the Hi-Lo, Muffin XL, Whisper XL and Sprite are the first American-made equipment-cooling airmovers to meet the VDE fire and shock hazard safety standards. This VDE component approval, set by the West German Association of Electrical Engineers, makes it easier for OEM manufacturers to sell their products in West Germany and other Common Market nations.

1. VDE file no. 25636, 1703
2. UL component recognition file no. E31293
3. CSA Certification file no. LR20495, LR44938, LR46126, LR52898
4. Plug & Cord accessories listed under UL file no. E42397
5. All models 100% tested to meet 1500 VAC dielectric strength for one minute (production line equivalent 1800 VAC for 1 second)

EG&G ROTRON

AC FANS AND BLOWERS

MAJOR® FAN



For low cost, low noise, high pressure/volume cooling in the tightest of spaces.

- 240 cfm (113.3 L/Sec) free air delivery
- 6.75″ x 5.92″ x 2.00″ deep (171.5 mm x 150.4 mm x 50.8 mm)
- Weight: 1.84 lbs. (0.84 kg)
- Acoustical rating as low as NC-60
- One-piece die-cast aluminum housing
- Long life bearings
- Thermally protected
- For ambients to 70°C
- Permanent split capacitor motor, capacitor provided
- UL yellow card recognized and CSA certified
- Available with fan sensor. Senses and reacts to speed reduction, voltage reduction, open winding, non-start. No customer-supplied electronics necessary

Catalog Sheet COM 080

FEATHER® FAN

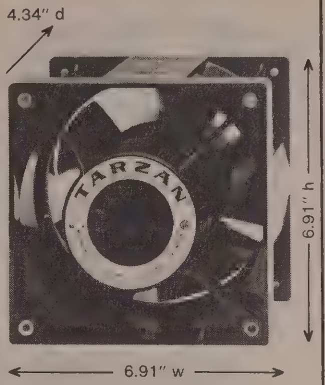
2.47″ d
FEATHER FAN
7″ dia

High volume air performance where space is severely limited, particularly in depth.

- 245 cfm (115.6 L/Sec) free air delivery
- 7″ dia. x 2.47″ deep (177.8 mm x 62.7 mm)
- Weight: 1.5 lbs. (0.68 kg)
- Exclusive new Feathered Edge™ blade is extra quiet at free delivery NC-45
- Permanently lubricated ball bearings
- Permanent split capacitor motor, capacitor provided
- For ambients to 65°C
- UL yellow card recognized

Catalog Sheet COM 090

TARZAN® FAN

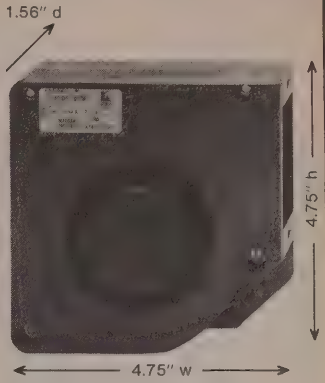


High air volume and pressure combined, for tightly packed cabinets and chassis.

- 340 cfm (160.5 L/Sec) free air delivery
- 6.91″ sq. x 4.34″ deep (175.5 mm x 110.2 mm)
- Weight: 5 lbs. (2.26 kg)
- Acoustical rating as low as NC-57
- Ball bearing thermally protected motor
- For ambients to 55°C
- Centrifugal blower performance in a compact axial flow fan
- UL yellow card recognized and CSA certified

Catalog Sheet COM 120

BISCUIT BLOWER



The only air moving device that fits inside a 1¾″ rack panel mounted instrument.

- 22 cfm (10.4 L/Sec) free air delivery
- High pressure capability
- Built around famous Muffin fan features
- 4.75″ sq. x 1.56″ deep (120.65 mm x 39.7 mm)
- Weight: 19 oz. (0.54 kg)
- Acoustical rating as low as NC-42
- For ambients to 70°C
- UL yellow card recognized

Catalog Sheet COM 130

ROTRON, INC., COMMERCIAL DIVISION, SHOKAN, NY 12481 TEL. (914) 657-6661 TWX: 510-247-1941

EG&G ROTRON

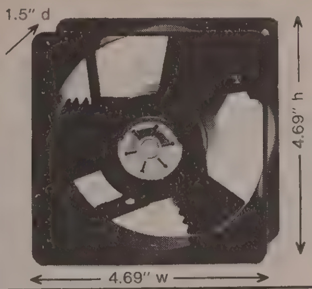
BRUSHLESS DC FANS

Rotron's American-made solid state brushless DC fans contain all the necessary circuitry within an extremely compact metal housing. Their superior design allows operation at greatly reduced voltages. This allows you to tailor your [illegible] requirements.

Rotron DC fans use far less energy than comparable AC fans, meet [illegible] safety [illegible], and are designed for long life. It is possible to standardize your inventory of fans by eliminating the need to match worldwide AC voltage / frequency requirements. DC fans can provide backup cooling during AC power interruption, and are available with thermal and speed sensing options.

Rotron DC fans are available in 12, 24, and 48 VDC (nominal) models, in sizes for virtually every electronic equipment application. For further information, please contact your Rotron distributor.

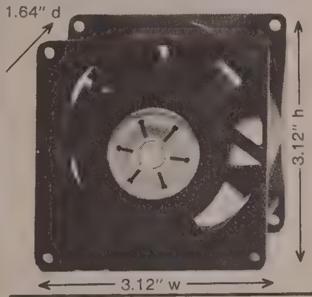
MUFFIN® DC FAN



- 40 to 130 cfm (18.9 to 61.4 L/Sec)
- Size: 4.69″ sq. x 1.5″ deep (119.13 mm x 39.12 mm)
- Weight: 21.5 oz. (0.61 kg)
- Terminal or leadwire versions

Catalog Sheet COM 041B

SPRITE® DC FAN

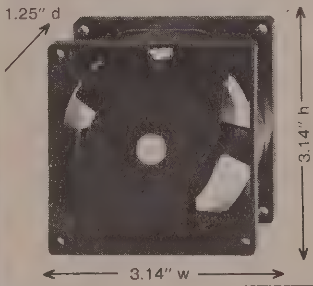


- 10 to 40 cfm (4.8 to 18.9 L/Sec)
- Size: 3.12″ sq. x 1.64″ deep (79.2 mm x 41.7 mm)
- Weight: 17.5 oz. (0.50 kg)
- Terminal or leadwire versions
- Superior low voltage capability

Catalog Sheet COM 031

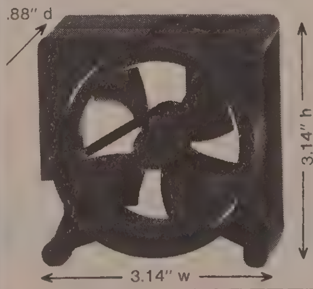
- Also available in single flange and reverse flow models

SPRINT® DC FAN



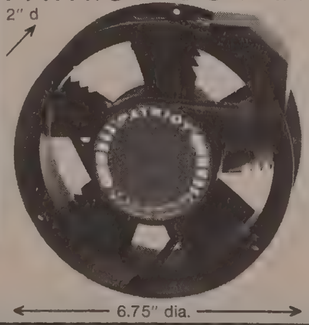
- Small size: 3.14″ x 3.14″ x1.25″ (80.0 x 80.0 x 32.0 mm)
- Lightweight: 6.3 oz. (178 gr)
- Low Noise: Noise power emission level of 3.9 - 4.8 Bels
- Low Power Consumption: 3 Watts
- Low EMI/RFI
- Long Life: Muffin® bearing system
- Polarity protection
- 25 - 35 cfm (11.8 - 16.5 L/Sec)
- Voltage: 12 and 24 VDC available (nominal)
- Operating Ambient: −10°C to +70°C

SCAMP™ DC FAN



- Thinnest fan available - .88″ (22.4 mm) deep and only 3.14″ (79.2 mm) sq.
- Low power draw - less than 2 watts
- Lightweight - 2.8 oz. (79.41 gr)
- 21 cfm (9.9 L/Sec)
- Polarity protected
- Low cost
- Motor winding location allows for lowest possible bearing temperature

PATRIOT® DC FAN



- 175 to 240 cfm (82.6 to 113.3 L/Sec)
- Size: 6.75″ dia. x 2.00″ deep (171.5 mm x 50.8 mm)
- Weight: 1.84 lbs. (.836kg)
- Available terminal only

Catalog Sheet COM 085

EG&G ROTRON

ACCESSORIES

		MUFFIN	MUFFIN XL	WHISPER	WHISPER XL	HI-LO 4715	HI-LO 5015	SKELETON	SPRITE	CARAVEL	PATRIOT	MAJOR	FEATHER	TARZAN	BISCUIT	MUFFIN D.C.	SPRITE D.C.	SPRINT D.C.	SCAMP D.C.	PATRIOT D.C.
FILTERS																				
Filter Assembly	477712	●		●																
Filter Assembly	551590	●	●	●	●											●				
Filter Assembly	553299					●	●													
Filter Frame	476000	●		●																
Filter Element	271018	●		●																
Filter Mounting Clips	271016	●		●																
Filter Coat	271021	●	●	●	●	●	●									●				
GRILLES																				
Grille Kit	478031	●		●																
Grille (Spiral)	476015	●		●																
Grille (Expanded Metal)	477727	●		●																
Screen Guard	550214	●	●	●	●	●										●				
FINGER GUARDS																				
Finger Guard (Metal)	476143								●								●	●		
Finger Guard (Plastic)	550648								●								●	●		
Finger Guard (Metal)	476042	●	●	●	●	●										●				
Finger Guard (Plastic)	550481	●	●	●	●	●										●				
Finger Guard (Plastic)	551147	●	●	●	●	●										●				
Finger Guard (Metal)	550272											●								
Finger Guard (Metal)	551199										●									●
Finger Guard (Metal) Rim Mount	476646												●							
Finger Guard (Metal) Panel Mount	476651												●							
Mounting Clips for Finger Guard	476649												●							
Finger Guard (Metal)	477626														●					
Finger Guard (Metal)	476323									●										
Finger Guard (Metal)	476136													●						
Finger Guard (Metal)	552934	●	●	●	●	●										●				
Finger Guard	553457						●													
Finger Guard	571230																		●	
MOUNTING CLIPS																				
#6-32 Flush Mtg. Clip	477663	●		●							●	●								●
#6-32 Standoff Mtg. Clip	477670	●		●							●	●								●
Mounting Clip	476155												●							
Mounting Clips (Bag of 3 #476155)	476154												●							
#6-32 Mounting Clip	550113		●		●	●	●									●				
PLUG & CORD SETS																				
Right Angle Plug & Cord	428056	●	●	●	●	●	●		●	●	●			●	●					
Straight On Plug & Cord	550440		●		●	●	●		●	●	●			●	●					
Straight On Plug & Cord	428023												●							
VIBRATION ISOLATOR	553148	●	●	●	●	●										●				

EG&G ROTRON

MILITARY/AEROSPACE FANS AND BLOWERS

Rotron Custom Division specializes in "AC" & "DC" airmovers to withstand the hostile environments found in Military, Aerospace, and other high reliability applications. Our "AC" product line has six (6) airmovers currently QPL approved. Our ECDC (Electronically Commutated Direct Current) product line is designed to meet requirements of MIL-B-28873, which is the new specification for brushless DC airmovers.

All brushless DC (ECDC) fans are supplied with a built-in performance sensor, which when coupled with a Rotron Low Speed Warning Detector (LSWD) or similar device, will allow fan speed (RPM) to be monitored for added system reliability. Fan Performance Sensors are also available for most of our "AC" product line as an option. Call or write for more information, including our ability to design new products to meet your toughest application requirements.

"AC" U.S. GOVERNMENT SPECIFIED PRODUCTS

Fan/Blower	Connector	Rotron Part No.	Slash Sheets	NSN
Saucer 654DH	MS3112E8-4P	020596	MIL-B-23071/1-002	
*Saucer 340ZH	MS3112E8-4P	020743	MIL-B-23071/1-001	4140-925-5188
*Spartan 682YF	MS3112E8-4P	020284	MIL-B-23071/7-001	4140-236-0730
*Propimax 3BM 473JH	MS3112E8-4P	021086	MIL-B-23071/8-001	4140-437-7858
*Model D	MS3112E8-4P	033461	MIL-B-23071/9-001	4140-143-9301
Propimax 3BM 754DH	MS3112E8-4P	023303	MIL-B-23071/8-002	4140-009-8803 or 4140-409-7984
*MIL 80 1891DF	Leads	033559	MIL-B-23071/28-001	
*MIL 901 1790YF	Leads	033037	MIL-B-23071/29-001	

***QPL accepted**

ACCESSORIES

Description	Part Number
Spartan, Spartan ECDC	
Finger Guard, mil. finish	272261
Finger Guard, stainless steel	501513
Saucer, Saucer ECDC	
Rim Mount Guard	501578
Panel Mount Guard	501579
Filter Box	476324
Filter Coat	501587
Panel Mounting Clip	501577
Synclamp	271167*
Reverse Synclamp	271166*
Guard Mounting Clip (3 required)	476762
Propimax 3, 3B, 3BM	
Finger Guard, mil. finish	476771
Mounting Clip (3 required)	503206
MIL 80, MIL 80 ECDC	
Finger Guard, mil. finish	502657
Finger Guard, stainless steel	502656
Low Speed Warning Detector with LED Display	
For Use With 9-15 VDC ECDC Fans	034053
For Use With AC Fans Only	034058
Airflow Switch	
Determinator Kit (includes switch)	020039
All products with terminals	
Terminal Boot (to cover terminals)	476665

*Also used on Aximax and Propimax. 3/Fan Required.

MIL GRADE BRUSHLESS DC FANS

Rotron ECDC (Electronically Commutated Direct Current) fans have already been tested, and passed vibration requirements of Mil-Std-202 Method 201 and Mil-Std 810C Method 514.2; Shock requirements of Mil-Std-202 Method 213 test conditions "A" & "C"; and Humidity/Salt Spray per MIL-B-28873, which is the new specification for brushless DC airmovers.

Selected models have been subjected to Nuclear Gamma Dot dose rates to 10^{11} Rad (Sil)/sec and Nuclear Radiation exposure to 10^{12} neutron/cm, with no degradation in performance.

Slash sheet and QPL approval to MIL-B-28873, is now being pursued.

Features include:

- designed to meet requirements of MIL-B-28873 Specification for Electronically Commutated Brushless Direct Current (ECDC) Fans and Blowers.
- no brushes to wear out; long life with low maintenance
- low power consumption, low EMI/RFI
- high operating temperature capability; to 100°C on some models
- rotational speed (RPM) change accomplished by simply varying the voltage.

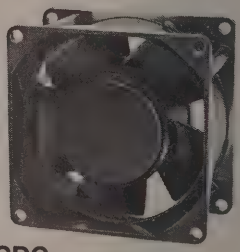
Spartan ECDC

- up to 135 cfm (65 L/Sec) free air delivery at 12 VDC and 180 cfm (86.5 L/Sec) at 26 VDC
- dimensionally interchangeable with Muffin and Spartan AC & DC Fans
- built-in fan performance sensor
- designed to meet all applicable military specs
- no brushes to wear out; low maintenance
- withstands ambients from −54°C to 100°C
- available in 12 & 26 VDC models
- housing, ball bearing suspension system, & lubricant are same as supplied in proven high reliability AC designs

Consult Factory For Special Designs

Saucer ECDC

- 250 cfm (120 L/Sec) free air delivery at 12 VDC and up to 325 cfm (156.3 L/Sec) at 26 V or 48 VDC
- dimensionally interchangeable with Feather & Saucer AC Fans
- built-in fan performance sensor
- designed to meet all applicable military specs
- no brushes to wear out; low maintenance
- withstands ambients from −54°C to 100°C
- available in 12, 26, & 48 VDC models
- housing, ball bearing suspension system, & lubricant are same as supplied in proven high reliability AC designs



MIL 80 ECDC

- up to 65 cfm (28.8 L/Sec) free air delivery at 12 V & 26 VDC and 38 cfm (18.3 L/Sec) at 48 VDC
- dimensionally interchangeable with Sprite and MIL 80 AC Fans
- built-in fan performance sensor
- designed to meet all applicable military specs
- no brushes to wear out; low maintenance
- withstands ambients from −54°C to 100°C
- available in 12, 26, & 48 VDC models
- housing, ball bearing suspension system, & lubricant are same as supplied in proven high reliability AC designs

Consult Factory for Special Designs

Saucer® Fan

High volume and high pressure both, from a minimum of fan space.

- 280 cfm (132 L/Sec) free air delivery
- generates pressures up to .5″ (12.7 mm) H_2O
- driving motor entirely within hub for minimum depth 2.50″ (63.5 mm), dia. 7″ (177.8 mm)
- pre-lubricated stainless steel ball bearings
- for ambients from −60°F (−54°C) to +257°F (+125°C)
- clamping rings at venturi ends for easy mounting
- meet all applicable military specs (MS connectors available)

See Custom Catalog

Aximax® 1, 2, 2H & 3

Family of miniature, high performance air movers for airborne and other critical space/weight/performance applications.

- free air delivery from 10 cfm to 155 cfm (4.7 to 73 L/Sec)
- optional Altivar® motors automatically increase speed with altitude
- life expectancies from 10,000 hours at 72°C, at 22,000 RPM
- withstands ambients up to 257°F (125°C)
- sizes: 1½″ x 1½″ (38.1 mm x 38.1 mm), 2″ x 1½″ (50.8 mm x 38.1 mm), and 3″ x 2 5/16″ (76.2 mm x 58.7 mm)
- weight: 4 oz. (113 grams), 4½ oz. (128 grams) and 14 oz. (.4 kg) respectively
- meet all applicable military specs (MS connectors available)

Models for 115 VAC, 1 phase, 400 Hz; 200 VAC, 3 phase, 400 Hz; and 115 VAC, 1 phase, 60 Hz

See Custom Catalog

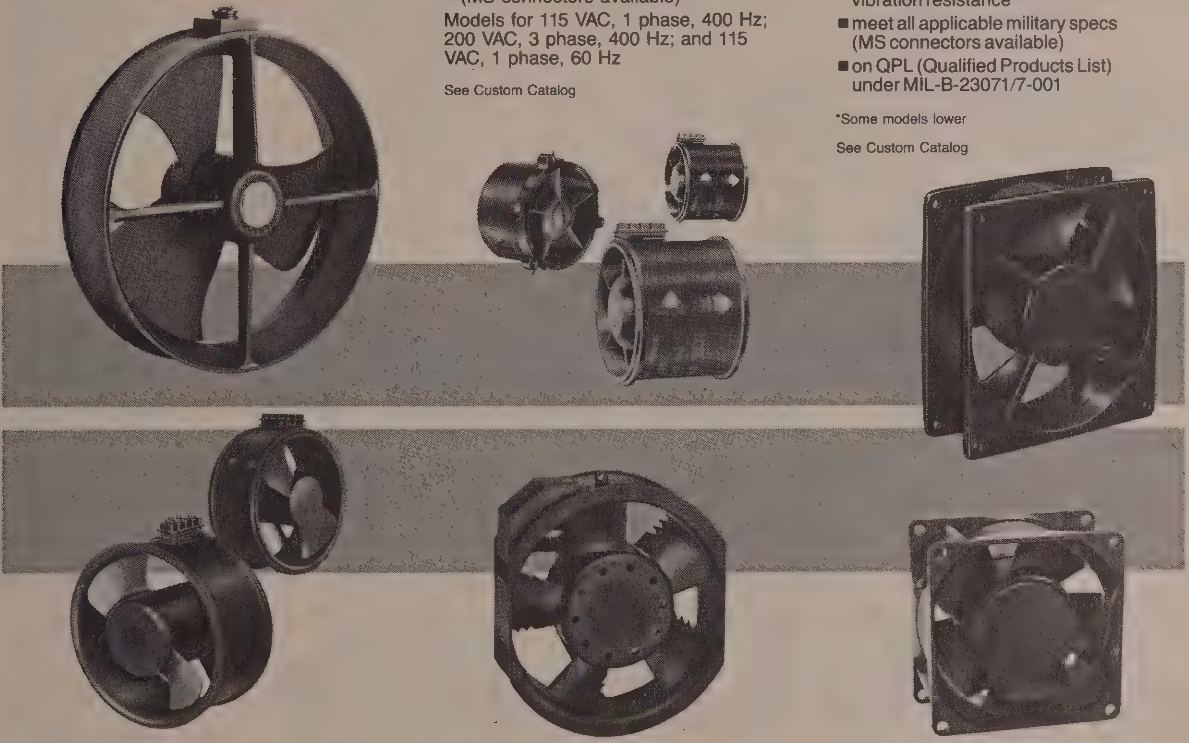
Spartan® Fan

The MIL SPEC version of the famous Muffin fan.

- 113 cfm (53 L/Sec) free air delivery. Up to 188 cfm (89 L/Sec) for some 400 Hz models
- unusually high pressure characteristics-up to .8″ (20.3 mm) H_2O.
- dimensionally interchangeable with the Muffin fan-4.71″ sq. x 1.50″ (119.6 mm x 38.1 mm)
- double shielded stainless steel ball bearings
- lubricated for life
- highly efficient multi-slot motor
- withstands ambients from −60°F (−54°C) to +212°F (+100°C)*
- venturi, spiders, and hub are single aluminum casting for shock and vibration resistance
- meet all applicable military specs (MS connectors available)
- on QPL (Qualified Products List) under MIL-B-23071/7-001

*Some models lower

See Custom Catalog



Propimax® 2, 3, 3B & 3BM

Large volume and high pressure air movers for airborne equipment.

- free air delivery from 22 to 225 cfm (10.3 to 106.2 L/Sec)
- offer pressures as high as 7″ (177.8 mm) H_2O at cut-off
- optional Altivar® motors automatically increase speed with altitude
- life expectancies of 10,000 hours at 72°C, at 22,000 RPM
- withstands ambients up to 257°F (125°C)
- size/weight: 3¼″ x 1½″ (82.5 mm x 38.1 mm) and 6.5 oz. (184.3 g) for Propimax 2, 3¾″ x 2″ (95.3 mm x 50.8 mm) and 15.2 oz. (431 g) for Propimax 3 & 3B
- meet all applicable military specs (MS connectors available)

Models for 115 VAC, 1 phase, 400 Hz; 200 VAC, 3 phase, 400 Hz; 115 VAC, 1 phase, 60 Hz

See Custom Catalog

MIL 901

The MIL SPEC version of the famous Major®/Patriot® fans.

- free air delivery to 280 cfm (104 L/Sec)
- pressure building capability up to .8″ (20.3 mm) H_2O at cut-off
- withstands MIL-S-901 shock levels
- on QPL (Qualified Products List) under MIL-B-23071/29-001
- meet all applicable military specs (MS connectors available)

See Custom Catalog

MIL 80

The MIL SPEC version of the famous Sprite® fan.

- free air delivery from 28 to 58 cfm (13 to 27 L/Sec)
- pressure building capability up to .5″ (12.7 mm) H_2O at cut-off
- withstands ambients up to 257°F (125°C)
- on QPL (Qualified Products List) under MIL-B-23071/28-001
- meet all applicable military specs (MS connectors available)

See Custom Catalog

EG&G ROTRON

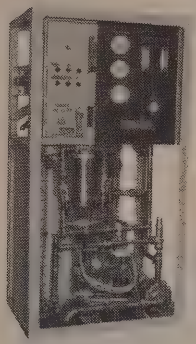
Custom Division

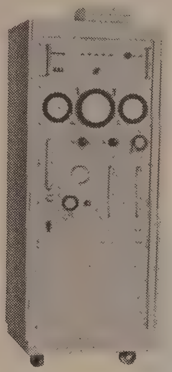
ROTRON INC., Woodstock, N.Y. 12498
TEL. (914) 679-5201 TWX: 510-247-9033

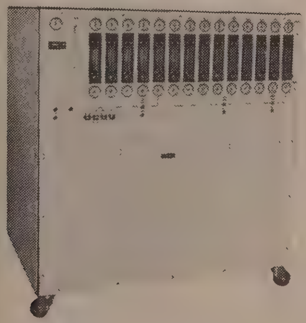
EEM PRODUCT SELECTION GUIDES

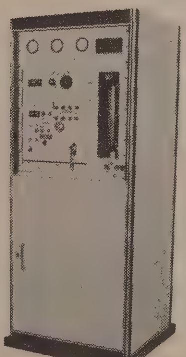
There are 33 Guides in this edition of EEM. See page 2 (1A•2, 1B•2, 2•2, 3•2) of each volume to locate the Product Selection Guides that pertain to your needs.

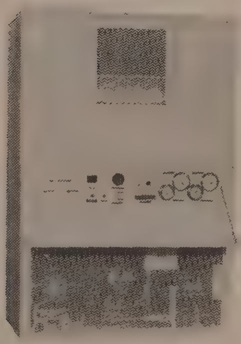
Electro
IMPULSE, INC.
EXCELLENCE IN ENGINEERING SINCE 1949


Shipboard Seawater to ETH/Water. H/E cools advanced radar system.


Coolanol to Air Military Heat Exchanger.


14 Path Cooling Unit with full instrumentation.


Burn in of travelling wave tubes is automatic using solid state systems in this Heat Exchanger.


Outdoor Mobile Heat Exchanger.

Closed Loop Cooling Systems

Self contained cooling packages for a wide variety of applications which allow user to

- **ELIMINATE TAP WATER**
- **CONTROL COOLANT QUALITY**
- **CONTROL COOLANT TEMPERATURES**
- **REDUCE COSTS**
- **IMPROVE PERFORMANCE OF EQUIPMENT**

HIGHEST QUALITY Industrial/Military Packages designed for long life/minimum maintenance.
UNITS AVAILABLE to circulate/cool air, water, coolanols, flourocarbons, hydraulic fluids, or any exotic coolants.
SEALED COOLANT SYSTEMS allow for high degree of purity: Filters, De-Ionizer Systems available.
HIGHLY EFFICIENT HEAT EXCHANGERS keep operating power to a minimum. Hot air exhausts can be used for space heating.
EXCELLENT TEMPERATURE CONTROL utilizing state of the art technology.
WIDE VARIETY OF OPTIONS available for monitoring, interlocking, controls, logic interfaces — customize a unit as you want it.

WRITE FOR COMPLETE INFORMATION

Electro
IMPULSE, INC.

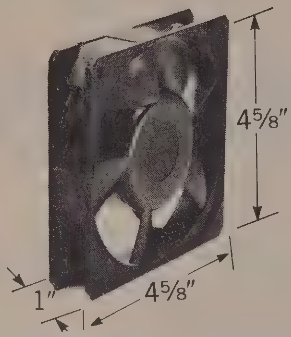
ELECTRO IMPULSE LABORATORY, INC.
DEPT. EM • 116 CHESTNUT ST., PO BOX 870
RED BANK, NJ 07701
TELEPHONE: (201) 741-0404 • TWX: 7107225717

SEE OUR OTHER PRODUCTS ON PAGE 3•1220

ETRI tube

ETRI has long been a leader in the design of air-moving devices, from large mine ventilators to miniature flat axial fans. Today, ETRI air movers are cooling and protecting the most sophisticated of electronic packages. Throughout this time, our basic commitment to uncompromising quality and high performance standards has not changed. Our history of innovative designs and materials, coupled with precise manufacturing techniques provide you with an efficient, quality product for long maintenance-free operation.

MODEL 98

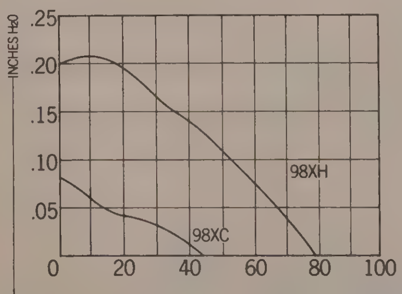


High volume/pressure performance where space is at a premium.

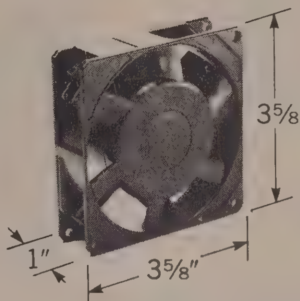
- Unique 1″ thin profile on 4⅝″ fan.
- Two RPM versions available.
- Available in either sleeve or ball bearing construction.
- Precision engineered blade-to-venturi fit.
- Low input power—as low as 10 watts.
- UL recognized/CSA certified.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
98XC-2182	115	60	10	110	1700	28	45
98XC-2181	220	60	12	70	1700	28	45
98XH-2182	115	60	11	110	3000	39	79
98XH-2181	220	60	13	65	3000	39	79

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits



MODEL 99

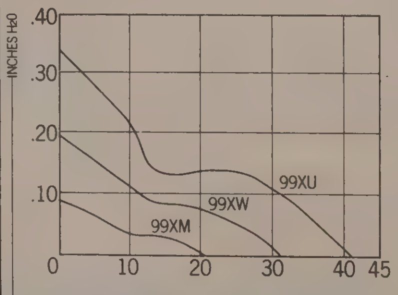


Slim 1″ profile takes up less behind-the-panel space.

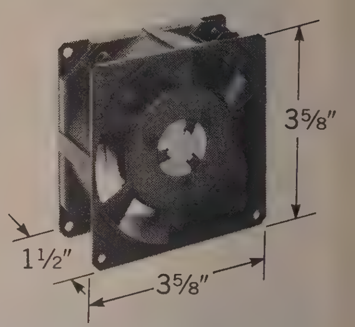
- Three different speed models in two voltage versions.
- Noise levels as low as 23 db (sil).
- True airfoil impeller blades move more air.
- Convenient standard terminals.
- Precision balanced lightweight rotor for longer vibration-free work life.
- UL recognized/CSA approved.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
99XM-2182	115	60	6	65	1700	23	21
99XM-2181	220	60	7	35	1700	23	21
99XW-2182	115	60	6	70	2500	32	32
99XW-2181	220	60	7	40	2500	32	32
99XU-2182	115	60	9	105	3200	37	40
99XU-2181	220	60	11	60	3200	37	40

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits.



MODEL 113

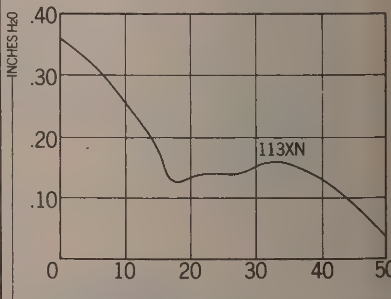


An intermediate size fan. Ideal for power supply applications.

- 3.25″ mounting centers.
- Quiet, efficient operation with maximum volume/pressure delivery.
- 94V-O rated glass-filled impeller is heat stable with high resistance to breakage.
- Available in either sleeve or ball bearing construction.
- UL recognized/CSA approved.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
113XN-2182	115	60	11	135	3300	35	53
113XN-2181	220	60	12	80	3300	35	53

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits



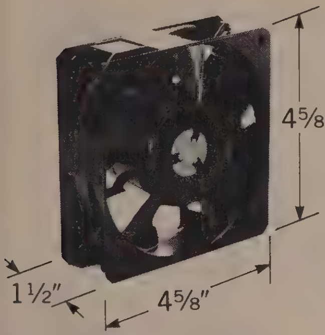
ETRI

ETRI/PO Box 568/608 Broome St/Monroe, NC 28110/TWX 810-649-1352 **(704)289-5423**

axial fans.

ETRI's popular-sized fans utilize rugged die cast housings for strength and durability. Glass-filled hermoplastic impellers (94V-O rated) are heat-stable and resistant to breakage. Rotors are lightweight and precision balanced for vibration-free operation. Bearings (either sleeve or ball) are ifetime lubricated. All models operate efficiently at 50Hz or 60Hz and most are available in either 115VAC or 220VAC. Every model is UL Recognized (file E64887) and CSA Certified (file 43861). Many models are VDE approved. For more information call ETRI at 704/289-5423.

MODEL 125

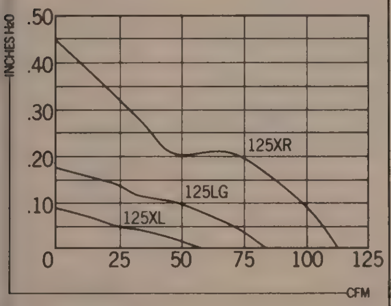


Extremely effective in high density applications where high pressure performance is required.

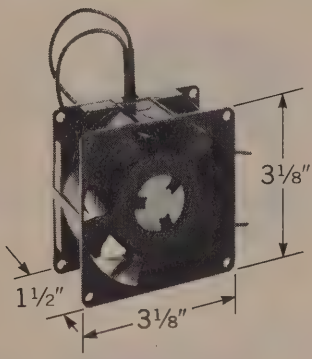
- Develops 90 CFM at .15″ H_2O and 75 CFM at .2″ H_2O.
- Can replace two conventional fans in demanding applications.
- Produces highest volume of air per watt of power of any fan of its type.
- Available in either sleeve or ball bearing construction.
- UL recognized/CSA certified.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
125XL-2282	115	60	10	115	1650	29	57
125XL-2281	220	60	10	65	1650	29	57
125LG-2282	115	60	13	160	2400	36	83
125LG-2281	220	60	15	90	2400	36	83
125XR-2282	115	60	15	180	3250	40	112
125XR-2281	220	60	15	105	3250	40	112

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits



MODEL 126

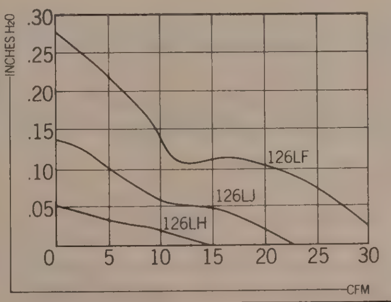


Low input power, low noise, high performance in this fan package.

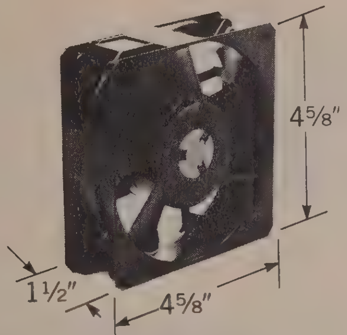
- 2.81″ mounting centers.
- Very quiet operation—only 8 db (sil) on Model 126LH.
- #20AWG, 12″ long, flying leads.
- Three different RPM models.
- Available in either sleeve or ball bearing construction.
- UL recognized CSA certified.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
126LH-2182	115	60	3	40	1550	9	15
126LJ-2182	115	60	5	60	2400	19	23
126LF-2182	115	60	8	100	3200	26	32
126LF-2181	220	60	8	60	3200	26	32

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits



MODEL 141

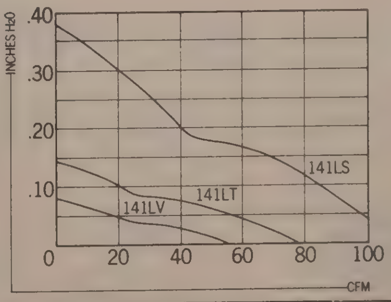


105, 75, and 55 CFM versions are available in this most popular size fan.

- 4.125″ mounting centers and standard terminal configuration.
- Low power consumption—only 8 watts on 141LV model
- Tight blade-to-venturi fit assures optimum performance.
- Available in either sleeve or ball bearing construction.
- UL recognized/CSA certified
- Reverse flow models available.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
141LV-2282	115	60	8	100	1700	23	55
141LV-2281	220	60	9	55	1700	23	55
141LT-2282	115	60	9	110	2300	33	75
141LT-2281	220	60	10	65	2400	33	75
141LS-2282	115	60	12	140	3200	41	105
141LS-2281	220	60	12	80	3200	41	105

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2 from the last group of digits



SEE FOLLOWING PAGES

ETRI

ETRI PO Box 568 608 Broome St. Monroe, NC 28110 TWX 810-649-1352 **(704) 289-5423**

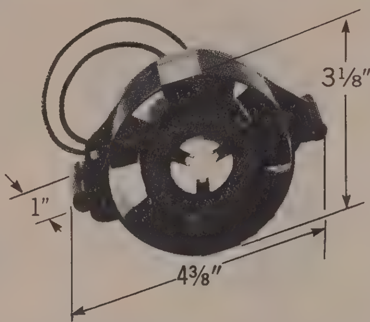
ETRI fans

ETRI's flat tubeaxial fans are quiet, efficient, cost effective components that are ideal for most electronic cooling applications. For complete technical specifications and delivery information call the ETRI factory at (704) 289-5423.

and accessories.

Accessory items assure correct fit on ETRI fans. Finger Guards will retro fit most existing fans.

MODEL 146

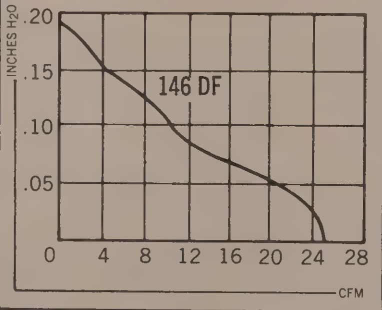


3″ x 1″ fan specially designed for desk-top electronic applications

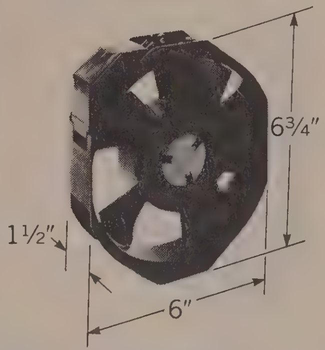
- Low acoustical levels.
- 25 CFM at free air delivery.
- Simplified time saving mounting with bosses and speed nuts provides real economy for high volume installation.
- 115 or 220 volt.
- UL recognized/CSA certified/VDE approved.
- Will fit 3⅛″ designs in a 1″ profile.

PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
146DF-2182	115	60	5	60	3100	24.7	25
146DF-2181	220	60	9	50	3100	24.7	25

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits



MODEL 148

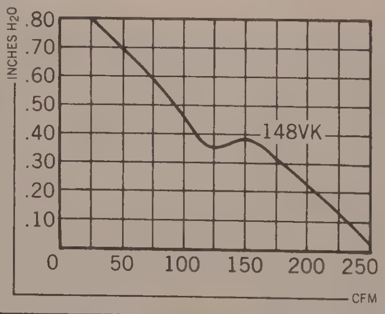


Ideal for high pressure/high flow applications. Develops 180 CFM at .3″ H_2O.

- 1½″ thick—less than most 6″ fans.
- Efficient, permanent split-capacitor motor, thermally protected.
- Pre-loaded ABEC-3, double-shielded, ball bearing system runs quietly in any position.
- UL recognized/CSA certified.
- Reduced speed versions available.
- Provides wide range cooling with low acoustical disturbances.

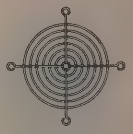
PART NUMBER	VOLT (V)	FREQ (Hz)	POWER INPUT (W)	CURRENT INPUT (ma)	SPEED (RPM)	NOISE LEVEL SIL/dB	FREE AIR DELIVERY (CFM)
148VE282	115	60	11	90	1650	33	123
148VE281	220	60	14	80	1650	33	123
148VP282	115	60	18	160	2100	39	149
148VP281	220	60	22	100	2350	45	172
148VK282	115	60	32	270	3300	51	255
148VK281	220	60	33	170	3200	50.5	255

Model numbers shown are for sleeve bearing versions. To order ball bearing fans, omit the first "2" from the last group of digits



FINGER GUARDS

Ensures safe operation in situations that require guarding.



- Standard mounting centers for versatile installation.
- Meets UL Spacing requirements.
- Sturdy .062″ steel wire rings welded to .080″ ribs.
- Bright zinc-plated finish.

FILTERS

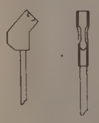
Provides maximum air flow while permitting effective filtering.

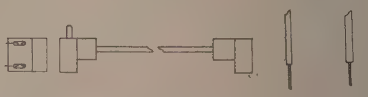
- Expanded/slit aluminum foil traps dust particles.
- Minimum pressure loss.
- Complies with UL requirements.

CORDS

All cords are UL recognized #18AWG wire.

- Black SPT-1 type wire in several lengths.





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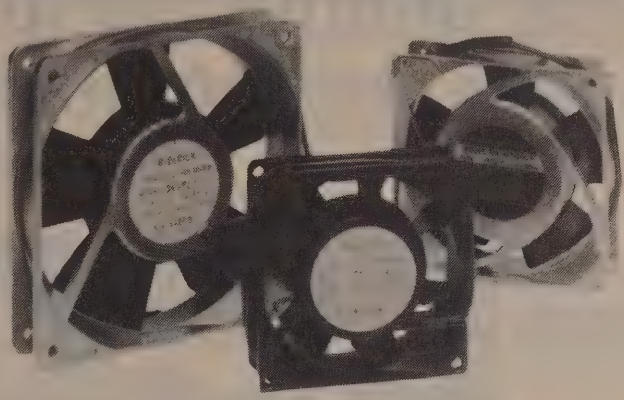
FCI AC and DC FANS



Selection Guide

AC TUBE AXIAL FANS (UL and CSA approved)

MODEL NO.	BEARINGS	VOLTS	CFM	SIZE	WIDTH
OA-119S-T3E-F	Sleeve	115	105	4.69″	1.50″
OA-119B-T3E-F	Ball	115	105	4.69″	1.50″
OA-119B-T3LE-F	Ball	115	53	4.69″	1.50″
OA-092S-T3E-F	Sleeve	115	33	3.62″	.984″
OA-092B-T3E-F	Ball	115	33	3.62″	.984″
OA-092B-T3LE-F	Ball	115	25	3.62″	.984″
FC-080B-W3	Ball	115	30	3.14″	1.50″
FA-080B-W3	Ball	115	25	3.14″	.984″
FA-880B-W3	Ball	115	16	3.14″	.984″

Note: Above available in 230V—change "3" to "6."

DC BRUSHLESS MOTOR FANS

MODEL NO.	BEARINGS	VOLTS	CFM	SIZE	WIDTH
DC-119B-W24-F	Ball	24	105	4.69″	1.50″
DA-119B-W12-F	Ball	12	75	4.69″	.984″
DA-119B-W24-F	Ball	24	75	4.69″	.984″
DA-119B-W12L-F	Ball	12	44	4.69″	.984″
DF-080B-W12-F	Ball	12	25	3.14″	1.25″
DF-080B-W24-F	Ball	24	26	3.14″	1.25″
DA-080B-W06-F	Ball	6	24	3.14″	.984″
DA-080B-W12-F	Ball	12	24	3.14″	.984″
DA-080B-W24-F	Ball	24	24	3.14″	.984″

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FCI
Frederick Components International
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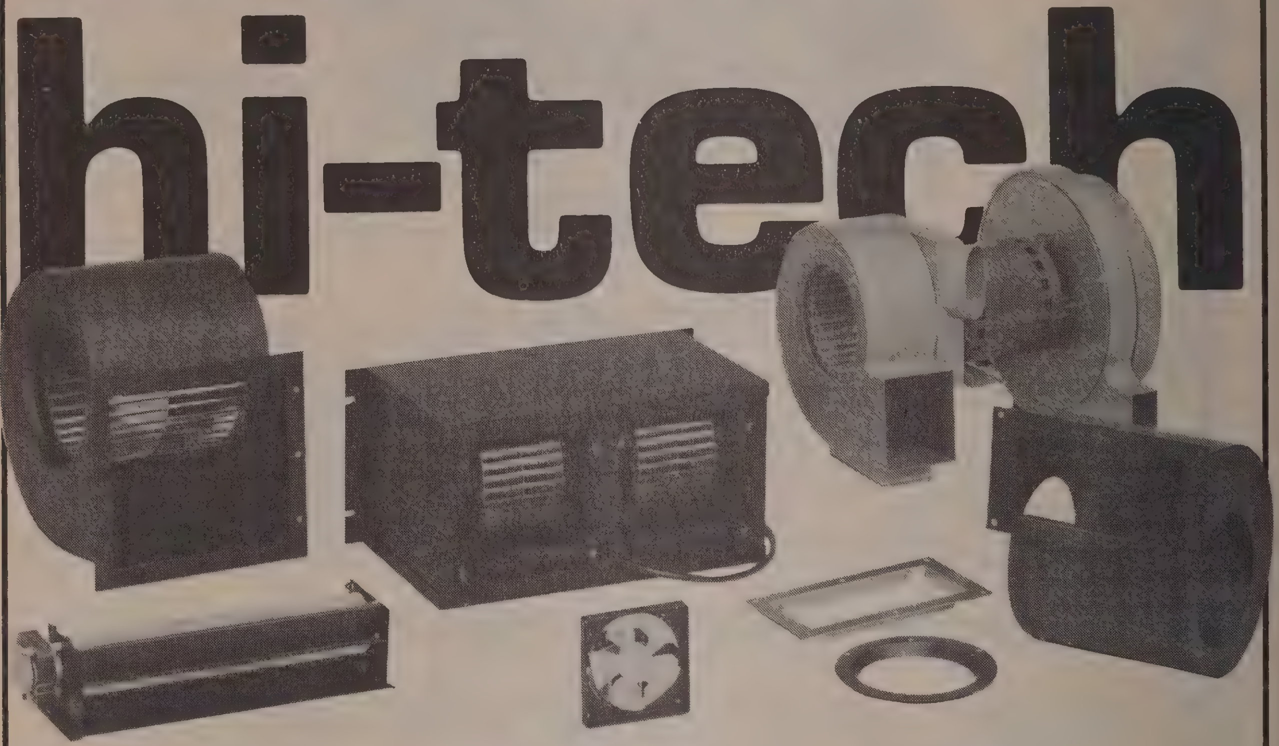
Chatsworth, California 91311
(818) 882-0868

the reliable alternative for fans, blowers and cooling devices



MODULAR CABINET BLOWERS
Applications include heat exchangers, slot blowers, coolers, filter boxes. As a solid state temperature control, unit maintains optimum temperature range.

PACKAGE BLOWERS
Fully assembled high performance blowers feature standard double inlet wheels and automatic reset thermal protection. Housings are heavy-weight steel with a durable flat black finish.

BLOWER HOUSINGS/PARTS
Housings, inlet flanges, cover plates and outlet collars in sizes from 2″ to 13″ are available for prompt delivery. All parts can be furnished either unpainted or with a hard wearing flat black finish.

AXIAL FLOW FANS
Hi-Tech's axial flow fans are the economical solution for high volume, low static pressure applications; for limited space, spot cooling installations; and where extremely low sound levels are required.

TANGENTIAL BLOWERS
LAMINA-FLO tangential blowers are designed for low profile, wide outlet installations and feature high CFM, even air flow patterns and extremely quiet operation.

SINGLE/DUAL CENTRIFUGAL BLOWERS
Smooth, vibration-free performance assured with balanced wheels and motors. Single and three phase UL approved motors. Static pressures from 0″ to 3.0″; outputs to 2000 CFM; wheel diameters from 3″ to 12″.

When you need a backup source you need them now! When you need assistance with a custom fan or blower you need it now! Hi-Tech will provide that bend-over-backwards service plus first line quality and uncompromising product reliability.

Hi-Tech designs and builds all kinds of cooling components, from axial fans to solid state temperature controllers. Send us your needs. Hi-Tech — The reliable alternative.

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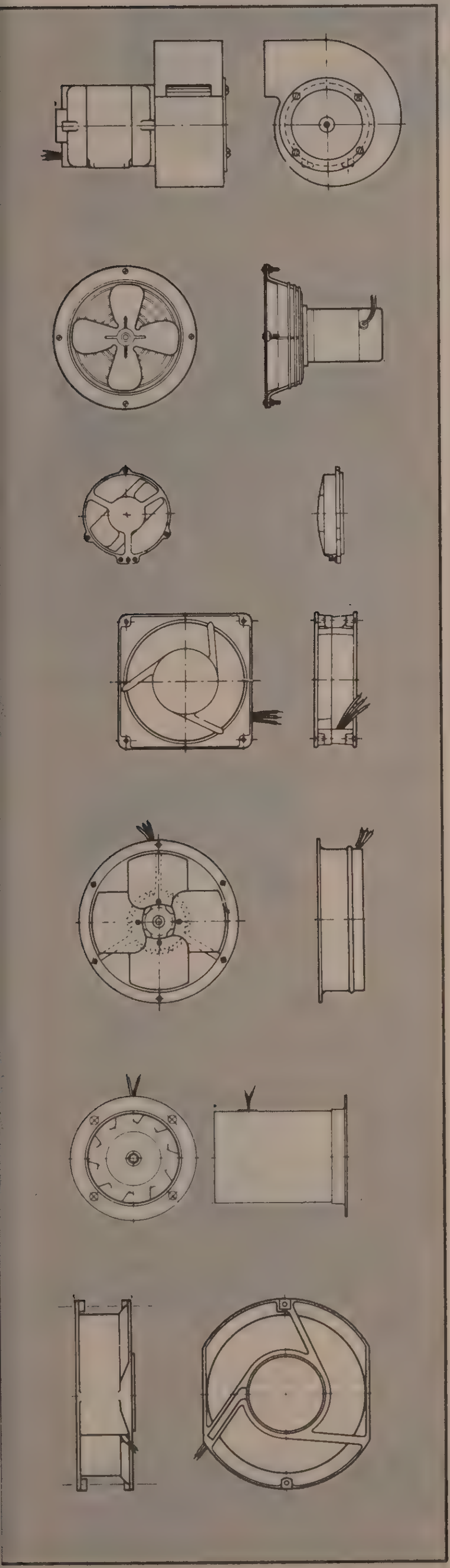

Centrifugal Blowers

Centrifugal blowers have special housings for attachment to ducts, boots, transition pieces or equipment walls. Air is moved by a wheel (containing multiple cut-outs or blades), which is driven by any of the various types of IMC motors or by an external source of rotating energy. They are most often used in applications requiring air that is transported through ducts or for blast cooling of electronic and control enclosures where high velocity air is required.

Sizes: 16 Frame to 55 Frame
Air Delivery: 6.3 cfm to 3,000 cfm
Frequency: 60 HZ-400 HZ – DC and Brushless DC
Accessories: Outlet Flanges Inlet Rims – Inlet Cones
Inlet Filters. Boot Accommodations and Air Vane Switches.

Propeller and Tubeaxial Fans

Commercial and military propeller and tubeaxial fans are noted for their short axial length. This facilitates mounting in electronic compartments and cabinets where space is at a premium. Molded airfoil designed impellers provide high air flow at low noise levels.

Propeller Fans

Sizes: 3″ to 10.5″ diameter.
Air Delivery: 32 cfm to 1,100 cfm.
Frequency: 60 HZ – 400 HZ – Variable and DC.

Tubeaxial Fans

Sizes: 3.125″ Sq. to 12.25″ diameter round.
From 1.5″ deep to 3.75.″
Frequency: 60 HZ – 400 HZ – Variable.

Vaneaxial Fans

The vaneaxial fan is an axial flow airmover whose impeller hub is relatively large and which employs straightening vanes to recover a substantial portion of the pressure. The entire airmover – its motor, impeller and housing are a single source of responsibility. IMC features the Turbo-Slot® vaneaxial fan which produces high pressure at low speed, Mixed Flow fans which combine the space-saving advantages of the axial type fan with the desirable performance characteristics of the centrifugal fan and standard vaneaxial fans. "Hi-Slip" models for high altitude applications are available as well as many custom models to fit your specific needs.

Sizes: 1″ to 26″ diameter.
Air Delivery: 6.5 cfm to 12,000 cfm.
Frequency: 60 HZ – 400 HZ – DC and Brushless DC.
Motor driven and gear driven.

FREE CATALOGS ON REQUEST
Centrifugal Blower Catalog EB3
Fan Catalog EF4 (Propeller & Tubeaxial)
Vaneaxial Catalog EV3
Each manual contains comprehensive theory and applications information.

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EASTERN DIVISION
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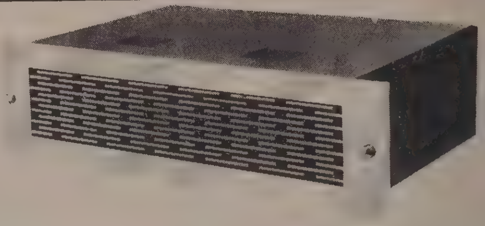
McLEAN PACKAGED COOLING EQUIPMENT

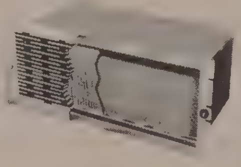


RACK—MOUNTED BLOWERS

Over 100 models available in any panel width. Heights from 3½″ to 12¼″. Airflows to 1000 CFM. Pressurize systems with cool, filtered air. Prevent dust from entering systems. Standard EIA notching. Quick, easy mounting. No cutting. No filing. Also Packaged Fans for pressurizing or evacuating. Four sizes. Airflows from 275 to 1200 CFM. All units available to Commercial, Military or EMI Shielded Specifications.

MODEL	CAT. PAGE	CFM	PANEL* HEIGHTS	MOTOR**		REMARKS
				RPM	AMPS OR WATTS	
2EB300	10	130	3½ & 5¼	2900	80W	FOR LIMITED SPACE
2EB3500	10	290	3½ & 5¼	3000	125W	HIGH PRESSURE-LIMITED SPACE
2EB410	10	300	5¼ & 7	1500	95W	QUIET OPERATION
2EB412	10	350	5¼ & 7	3000	200W	HIGH PRESSURE & VELOCITY
2EB512	10	500	7 & 8¾	1700	130W	LARGE VOL. HIGH VELOCITY
2EB612	10	800	8¾ & 10½	1500	260W	HIGH VOLUME-HIGH VELOCITY
2EB412	16	350 & 700	5¼-7	3000	200W	SIDE DISCHARGE DUCT BLOWER
1EB800G	—	1000	10½	1100	240W	LOW NOISE-HIGH CFM
1EB920	17	200/350	3½-5¼	1135	412W	SIDEWINDER
1EB980	17	345/550	5¼-7	1350	580W	SIDEWINDER
4EB300	14	250	5¼ x 14⅝D	Two 3100	140W	MULTI-EXHAUST BLOWER
4EB424	14	450	7 x 19½D	Two 1700	130W	MULTI-EXHAUST BLOWER
IDB300	15	75	5¼	3000	40W	HALF PANEL WIDTH
IE220C	15	150	3½	3100	80W	SLOT BLOWER
IEB710	17	140/185	1¾-3½	1400	136W	SIDEWINDER

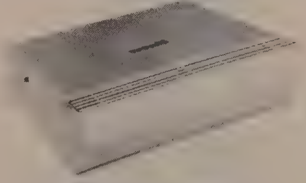
* ALL MODELS ARE 19″ WIDTH EXCEPT IDB300 (HALF PANEL) ** ALL MOTORS ARE 115V 50/60 HZ UL APPROVED
UNITS ALSO AVAILABLE TO OTHER RACK WIDTHS AND FOR RECESSED INSTALLATION



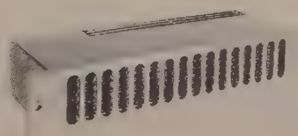
EMI—SHIELDED UNITS
All packaged blowers available with an EMI shield and wave guide media built into the airstream. Cuts signal leakage inward or outward.

HEAT EXCHANGERS
Maintain cabinet temperature at 80°F maximum with 1 KW heat dissipation. Air recirculates in rack and is cooled by exchanger in blower case.

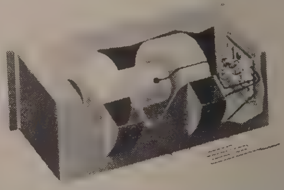
HEATER—COOLERS
For unheated field installations. Maintains an even 65°F with surrounding air as low as 10°F.



SIDEWINDER BLOWERS
More air. More pressure. Less space. Delivers 180, 350 or 550CFM in a 17″ wide airstream.



SLOT BLOWERS
Ideal for jam-packed circuitry. Delivers 150 CFM from a 3½″ panel. Quiet.



SOLID STATE TEMPERATURE CONTROLLERS
Cuts noise level. Modulates blower speed. Keeps operating between 80-90°F. Costs less than air conditioning.

Also a broad line of accessory equipment including grilles, controls, etc.

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OVER 100 MODELS ALWAYS IN STOCK!!

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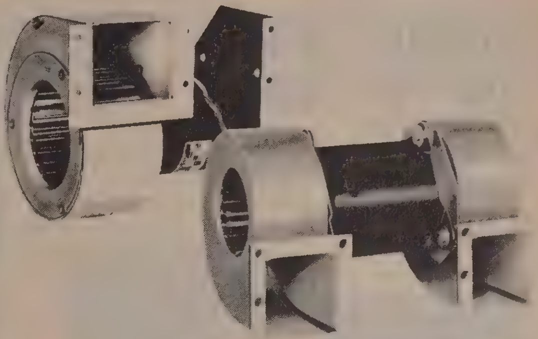
McLEAN SINGLE & DUAL CENTRIFUGAL BLOWERS

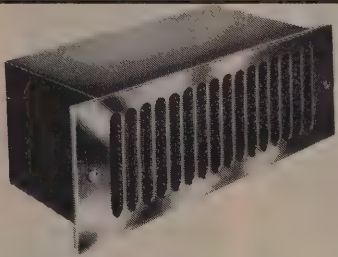
Fans—Orifice, Panel, Reversible, Filter Grille Panels

SINGLE & DUAL CENTRIFUGALS

Wide choice of static pressures — 0″ to 3.0″. Outputs range up to 2000 CFM. Wheel diameters range from 3″ to 12″. Motors supplied to any AC frequency or power, single or three-phase. Bearings properly loaded, double-shielded, permanently lubricated. Motors and wheels precision balanced for vibration-free performance. Motors, UL approved.

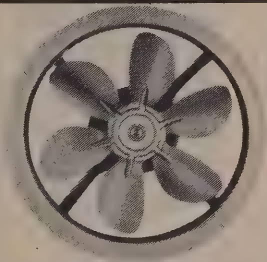
NEW!
VANGUARD SERIES





PACKAGED PROPELLER FANS

Low cost fans for use where static pressure requirements are minimal. Panel height, 7″. Units operate at 115V/60/50 Hz.



ORIFICE MOUNTED FANS

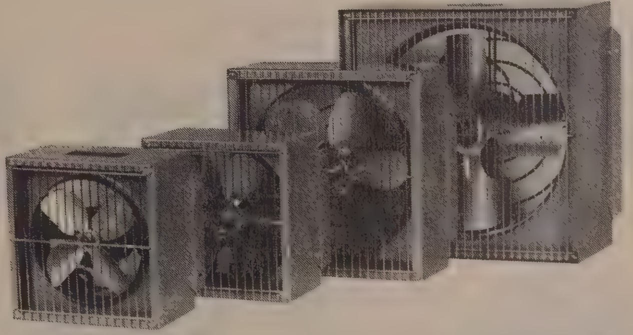
Push or pull airflow. CFMs 275, 300 or 395. Dim. 4″ x 8½″ or 4¾″ x 10¼″. Quiet, vibrationless 115V/50/60 Hz, 1600 RPM, or 3000 RPM.

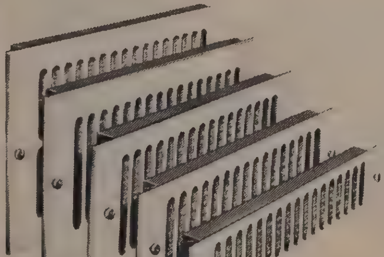
PANEL MOUNTED FANS

Low cost, long life, ready to mount, shaft in any position. 265 CFM, 3100 RPM, 115V/50/60 Hz. Dim. 9″ square panel on 7″ centers, 4$\frac{23}{32}$″ deep.

REVERSIBLE FILTER BOX PROPELLER FANS

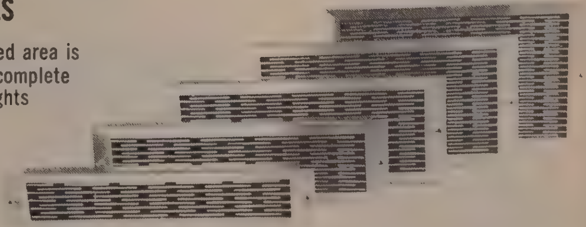
MODEL 1RB65 delivers 275 cfm, 3100 rpm 4½″ deep x 8⅞″ square. MODEL 1RB80 delivers 450 cfm, 1650 rpm 4½″ deep x 8⅞″ square. MODEL 1RB100 delivers 725 cfm, 1600 rpm 4½″ deep x 12⅛″ square. MODEL 1RB120 delivers 1200 cfm, 1450 rpm 7⅜″ deep x 15⅛″ square. MODEL LA120 Back Draft Damper is used in conjunction with Model 1RB120. Louvers automatically open when power is applied and close when power is off. May be used in horizontal or vertical positions.





FILTER GRILLE ASSEMBLIES

For use in cabinets where louvered area is needed for ventilation. Supplied complete with dust filters and in panel heights of 3½″ to 10½″ and widths 9½″, 19″, 24″ and 30″.



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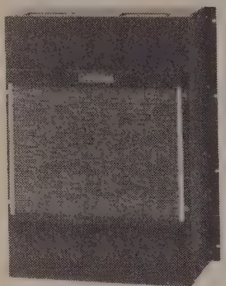
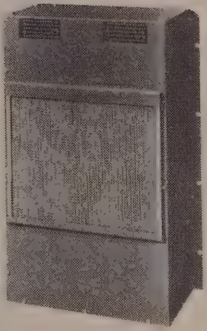
McLEAN MIDWEST AIR CONDITIONERS
For Electronics & Computer-Controlled Machine Tool Systems

SLIMBOY® SERIES 1200 TO 12000 BTU/HR

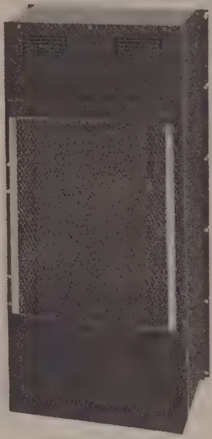
Cool & protect electronic control systems operating in harsh factory settings. "Closed-Loop" design constantly cools and recirculates internal cabinet air locking out heat, moisture & airborne particulates. Components are cooled by clean air only. Continuous duty to 20,000 hours assured at ambients to 125°F. Units mount quickly & easily. Available in 115V/50-60HZ, 115V/60HZ, 230V/50HZ and 230V/60HZ. Send for Condensed Catalog No. 8118 or specific folders indicated below.



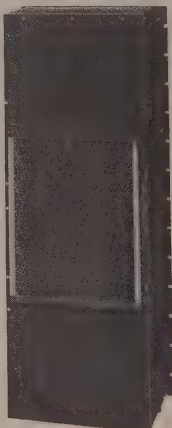
SLIMBOY® 24 SERIES
Capacity: 1400-2000-3000 BTU/HR. Reliable cooling for medium range use. Can be door, side or rack-mounted. 24″ high, 9⅛″ deep, 19″ wide. Specify Catalog Folder 8121.



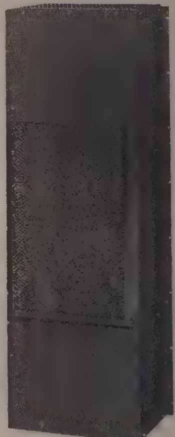
28 SERIES SLIMBOY®
Capacity: 2000-3000-4000 BTU/HR. Effective cooling in a 28½″ high package that can be door-mounted, side-mounted or rack-mounted. 28½″ high, 9⅛″-deep, 19″ wide. Specify Catalog Folder 8102.



36 SERIES SLIMBOY®
Capacity: 4000-5000-6000 BTU/HR. Large capacity cooling in a 36 11/16″ high package that can be door-mounted, side-mounted or rack-mounted. 36 11/16″ high, 10″ deep, 19″ wide. Specify Catalog Folder 8103.



47 SERIES SLIMBOY®
Capacity: 4000-5000-6000 BTU/HR. Fully interchangeable mounting with competitive models; a 47¼″ high package for door-mounting, side-mounting or rack-mounting. 47¼″ high, 10″ deep, 19″ wide. Specify Catalog Folder 8104.



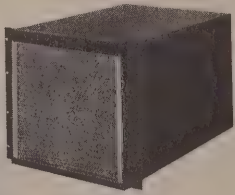
52 SERIES SLIMBOY®
Capacity: 5000-6000-7000-8000-9000-10000-12000 BTU/HR. Maximum range of capacities in a unit for door-mounting, side-mounting or rack-mounting. 52⅝″ high, 9½″ deep, 19″ wide. Specify Catalog Folder 8105.

MICRO-MINI SLIMBOY®, HIBOY® & LOBOY® SERIES

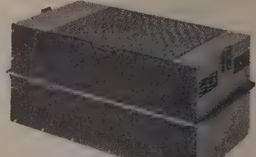
MICRO-MINI SLIMBOY® 13 SERIES

Capacity: 1200 BTU/HR @ 110°F. The 14⅛″ width of the MICRO-MINI SLIMBOY® makes it an ideal unit for mounting on enclosures that are only 18″ deep. 12⅞″ high, 6¼″ deep, 14⅛″ wide. Specify Catalog Folder 8101.

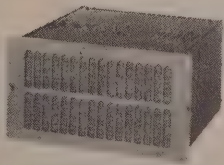
HIBOY® 11 SERIES
Capacity: 2000-3000-4000 BTU/HR. Unit can be rack-mounted inside the enclosure at the top or mounted outside the enclosure on the top surface. 10 15/32″ high, 19⅝″ deep, 19″ wide. Specify Catalog Folder 8106.



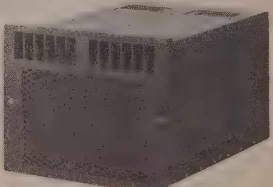
HIBOY® 16 SERIES
Capacity: 5000-6000-7000 BTU/HR. High capacity cooling for enclosures requiring inside or outside top-mounting installation. 15 23/32″ high, 24″ deep, 19″ wide. Specify Catalog Folder 8107.



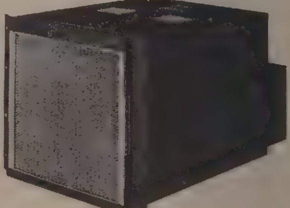
HIBOY® 30 SERIES
Capacity: 4000-5000-6000 BTU/HR. Large capacity package for mounting on top of the enclosure, partially recessed. Special models also available for mounting on the top surface of the cabinet. 14″ high, 31⅜″ long, 16⅜″ wide. Specify Catalog Folder 8108.



LOBOY® 11 SERIES
Capacity: 2000-3000-4000 BTU/HR. Package for rack-mounting inside the enclosure near the bottom. 10 15/32″ high, 19⅝″ deep, 19″ wide. Specify Catalog Folder 8109.



LOBOY® 14 SERIES
Capacity: 4000, 5000, 6000, 7000 BTU/HR. Mounts at or near bottom of enclosure. Cool air blows up. 14¾″ high, 24 11/16″ deep, 19″ wide. Specify Catalog Folder 8120.



LOBOY® 16 SERIES
Capacity: 5000-6000-7000 BTU/HR. High capacity package for mounting inside the enclosure near the bottom. 15 23/32″ high, 24″ deep, 19″ wide. Specify Catalog Folder 8110.

ZERO
McLEAN MIDWEST
SUBSIDIARY OF ZERO CORPORATION

4000 83rd Avenue North,
Brooklyn Park, Minnesota 55443
Telephone 612/561-9400 Telex 29-0883 TWX 910-576-2951

See our catalog in THOMCAT

McLEAN MIDWEST AIR-TO-AIR HEAT EXCHANGERS

For Electronics & Computer-Controlled Machine Tool Systems

McLean Heat Exchangers will remove up to 1000 watts of heat load from a sealed enclosure with only a 30°F temperature differential above the ambient, at a maximum ambient temperature of 125°F.

Heat Exchangers differ from air conditioners in that they can not cool the enclosure below the ambient temperature. But where the ambient air is not excessively hot or moisture-laden, and where the electronic controls can operate in an enclosure temperature slightly above the ambient, it's possible that a McLean Heat Exchanger can be used to transfer heat from inside the electronic enclosure to the outside atmosphere.

McLean Heat Exchangers employ the same closed loop design that's used in the McLean air conditioners. Hostile ambient air is sealed out of the cabinet. Clean air from the enclosure itself is continuously cooled and recirculated.

Full line of package configurations for door-mounting, side-mounting, rack-mounting and top-mounting. Operating temperature range: 0°F to 125°F. Special coating for heat pipe cores available when units are required to operate in corrosive environments.

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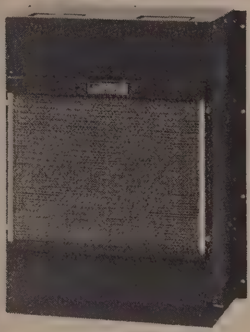
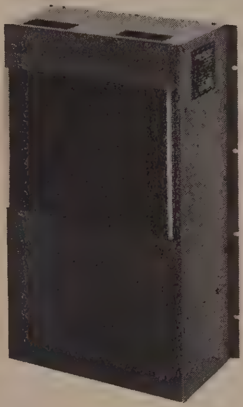


HE-24 SERIES

For door-, side-, or rack-mounting. 24″ high, 9⅛″ deep, 19″ wide. Specify Catalog Folder 8122.

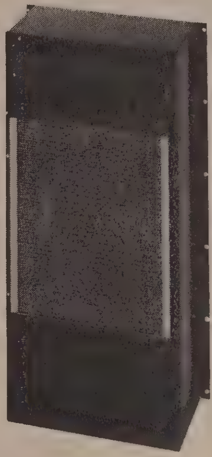


HE-28 SERIES

Unit can be door-mounted, side-mounted or rack-mounted. 28½″ high, 8⅝″ deep, 19″ wide. Specify Catalog Folder 8111.

HE-33 SERIES

Narrow width makes it ideal for shallow enclosures. Can be door-, or side-mounted. 34¼″ high, 9″ deep, 13¾″ wide. Specify Catalog Folder 8123.



HE-36 SERIES

For door-mounting, side-mounting or rack-mounting. 36 11/16″ high, 8⅝″ deep, 19″ wide. Specify Catalog Folder 8112.

HE-47 SERIES

Package can be door-mounted, side-mounted or rack-mounted. 47⅛″ high, 8⅝″ deep, 19″ wide. Specify Catalog Folder 8113.

◀HE-52 SERIES

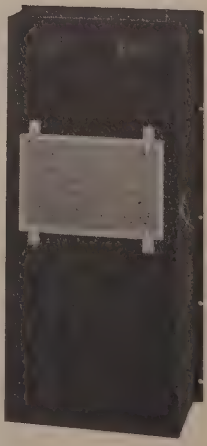
For mounting on door, side or rack. 52 9/16″ high, 9½″ deep, 19″ wide. Specify Catalog Folder 8114.

HE-30 SERIES

For mounting on top of the enclosure, partially recessed. Special models also available for mounting on the top surface of the cabinet. 16¾″ high, 31⅜″ deep, 16⅜″ wide. Specify Catalog Folder 8115.

◀HP-3600 SERIES

For mounting on door, side or rack. 36¾″ high, 7″ deep, 19″ wide. Specify Catalog Folder 8116.



HP-3800 ▶ SERIES

For mounting on door, side or rack. 38⅛″ high, 8″ deep, 19″ wide. Specify Catalog Folder 8117.

McLEAN MIDWEST
SUBSIDIARY OF ZERO CORPORATION

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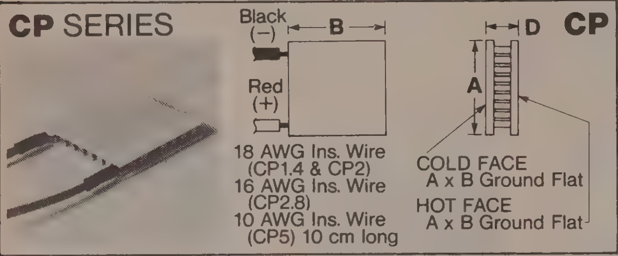
MELCOR
MATERIALS ELECTRONIC PRODUCTS CORP.
994 SPRUCE STREET
TRENTON, NEW JERSEY 08648 U.S.A.
TELEPHONE (609) 393-4178 / TELEX 843314

SOLID STATE COOLING WITH THERMOELECTRICS

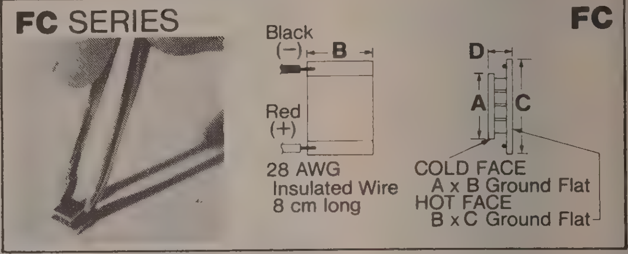
Thermoelectric (Peltier) Heat Pump Module Specifications

Thermocouples constructed of N & P elements of highest grade bismuth telluride in form of oriented polycrystalline ingots. Ingot ends soldered to copper bus bars interfaced with ceramic plates, affording good mechanical integrity, high dielectric strength and thermal conduction. Temperature range, −150°C to +110°C. Solid state construction. Both hot and cold faces lapped flat, TYPE L. Both faces metallized and tinned, TYPE TT. Hybrid, hot face tinned, cold face lapped, TYPE TL.

CP SERIES



FC SERIES



			HOT FACE Th = 25°C			UNIVERSAL MULTIPLIERS			DIMENSIONS, MM				
	CATALOG NUMBER	I MAX AMPS	Q MAX WATTS	V MAX VOLTS	△ T MAX °C	N NO. COUPLES	G GEOMETRY FACTOR	G x N	A	B	C	D*	WEIGHT GRAMS
CP SERIES	CP 1.0- 7-06L	3.3	1.5	0.85	67	7	0.066	0.46	7.5	7.5		3.7	1.5
	CP 1.0- 14-06L	3.3	3.1	1.69	67	14	0.066	0.92	11.5	9.5		3.7	2.1
	CP 1.0- 31-06L	3.3	6.9	3.75	67	31	0.066	2.05	15.0	15.0		3.7	3.6
	CP 1.0- 63-06L	3.3	14.0	7.62	67	63	0.066	4.16	15.0	30.0		3.7	6.4
	CP 1.0-127-06L	3.3	28.2	15.4	67	127	0.066	8.38	30.0	30.0		3.7	12.0
	CP 1.0-127-05L	3.9	33.4	15.4	67	127	0.078	9.91	30.0	30.0		3.2	11.3
	CP 1.4- 3-10L	3.9	0.77	0.36	70	3	0.078	0.23	5.0	10.0		4.7	0.6
	CP 1.4- 7-10L	3.9	1.85	0.85	70	7	0.078	0.55	10.0	10.0		4.7	1.4
	CP 1.4- 11-10L	3.9	2.90	1.33	70	11	0.078	0.86	10.0	15.0		4.7	2.2
	CP 1.4- 17-10L	3.9	4.48	2.06	70	17	0.078	1.33	15.0	15.0		4.7	3.4
	CP 1.4- 31-10L	3.9	8.15	3.75	70	31	0.078	2.4	20.0	20.0		4.7	6.4
	CP 1.4- 71-10L	3.9	18.7	8.60	70	71	0.078	5.54	30.0	30.0		4.7	14.2
	CP 1.4-127-10L	3.9	33.4	15.4	70	127	0.078	9.91	40.0	40.0		4.7	25.4
	CP 1.4- 3-06L	6.0	1.2	0.36	67	3	0.12	0.36	5.0	10.0		3.8	0.5
	CP 1.4- 7-06L	6.0	2.8	0.85	67	7	0.12	0.84	10.0	10.0		3.8	1.2
	CP 1.4- 11-06L	6.0	4.4	1.33	67	11	0.12	1.32	10.0	15.0		3.8	1.8
	CP 1.4- 17-06L	6.0	6.9	2.06	67	17	0.12	2.04	15.0	15.0		3.8	2.9
	CP 1.4- 31-06L	6.0	12.5	3.75	67	31	0.12	3.72	20.0	20.0		3.8	5.5
	CP 1.4- 71-06L	6.0	28.7	8.60	67	71	0.12	8.52	30.0	30.0		3.8	12.2
	CP 1.4-127-06L	6.0	51.4	15.4	67	127	0.12	15.24	40.0	40.0		3.8	21.8
	CP 1.4-127-045L	8.5	68.8	15.4	65	127	0.17	21.60	40.0	40.0		3.3	20.0
	CP 2 - 3-10L	9.0	1.8	0.36	70	3	0.18	0.54	8.0	15.0		5.6	1.9
	CP 2 - 7-10L	9.0	4.2	0.85	70	7	0.18	1.26	15.0	15.0		5.6	4.3
	CP 2 - 15-10L	9.0	9.1	1.81	70	15	0.18	2.70	15.0	30.0		5.6	8.9
	CP 2 - 31-10L	9.0	18.8	3.75	70	31	0.18	5.58	30.0	30.0		5.6	18.5
	CP 2 - 71-10L	9.0	43.1	8.60	70	71	0.18	12.78	44.0	44.0		5.6	42.0
	CP 2 - 3-06L	14.0	2.8	0.36	67	3	0.28	0.84	8.0	15.0		4.6	1.9
	CP 2 - 7-06L	14.0	6.6	0.85	67	7	0.28	1.96	15.0	15.0		4.6	4.3
	CP 2 - 15-06L	14.0	14.1	1.81	67	15	0.28	4.20	15.0	30.0		4.6	8.9
	CP 2 - 31-06L	14.0	29.2	3.75	67	31	0.28	8.68	30.0	30.0		4.6	18.5
	CP 2 - 71-06L	14.0	67.0	8.60	67	71	0.28	19.88	44.0	44.0		4.6	35.6
	CP 2.8- 32-06L	24.0	51.8	3.87	67	32	0.48	15.36	40.0	40.0		4.9	34.0
	CP 5 - 31-10L	39.0	81.5	3.75	67	31	0.78	24.18	55.0	55.0		5.8	73.0
	CP 5 - 31-06L	60.0	125.4	3.75	67	31	1.20	37.20	55.0	55.0		4.9	64.5
FC SERIES	FC 0.45- 4-05L	0.8	0.22	0.48	67	4	0.016	0.064	1.8	3.4	3.4	2.4	All weights below 0.7 g
	FC 0.45- 8-05L	0.8	0.43	0.97	67	8	0.016	0.13	3.4	3.4	5.0	2.4	
	FC 0.45- 12-05L	0.8	0.65	1.45	67	12	0.016	0.19	3.4	5.0	5.0	2.4	
	FC 0.45- 18-05L	0.8	0.97	2.18	67	18	0.016	0.29	5.0	5.0	6.6	2.4	
	FC 0.45- 32-05L	0.8	1.72	3.87	67	32	0.016	0.51	6.6	6.6	8.3	2.4	
	FC 0.45- 66-05L	0.8	3.56	7.98	67	66	0.016	1.06	9.9	9.1	11.5	2.4	
	FC 0.6- 4-06L	1.2	0.32	0.48	67	4	0.024	0.096	2.2	4.2	4.2	2.7	All weights below 0.7 g
	FC 0.6- 8-06L	1.2	0.65	0.97	67	8	0.024	0.19	4.2	4.2	6.2	2.7	
	FC 0.6- 12-06L	1.2	0.97	1.45	67	12	0.024	0.29	4.2	6.2	6.2	2.7	
	FC 0.6- 18-06L	1.2	1.46	2.18	67	18	0.024	0.43	6.2	6.2	8.3	2.7	
	FC 0.6- 32-06L	1.2	2.59	3.87	67	32	0.024	0.77	8.3	8.3	10.3	2.7	
	FC 0.6- 66-06L	1.2	5.34	7.98	67	66	0.024	1.58	12.3	11.3	14.4	2.7	
	FC 0.6- 4-05L	1.5	0.40	0.48	67	4	0.030	0.12	2.2	4.2	4.2	2.4	All weights below 0.7 g
	FC 0.6- 8-05L	1.5	0.81	0.97	67	8	0.030	0.24	4.2	4.2	6.2	2.4	
	FC 0.6- 12-05L	1.5	1.21	1.45	67	12	0.030	0.36	4.2	6.2	6.2	2.4	
	FC 0.6- 18-05L	1.5	1.82	2.18	67	18	0.030	0.54	6.2	6.2	8.3	2.4	
	FC 0.6- 32-05L	1.5	3.23	3.87	67	32	0.030	0.96	8.3	8.3	10.3	2.4	
	FC 0.6- 66-05L	1.5	6.67	7.98	67	66	0.030	1.98	12.3	11.3	14.4	2.4	
	FC 0.7- 4-05L	2.0	0.54	0.48	67	4	0.040	0.16	2.4	4.7	4.7	2.4	All weights below 0.7 g
	FC 0.7- 8-05L	2.0	1.08	0.97	67	8	0.040	0.32	4.7	4.7	7.0	2.4	
	FC 0.7- 12-05L	2.0	1.62	1.45	67	12	0.040	0.48	4.7	7.0	7.0	2.4	
	FC 0.7- 18-05L	2.0	2.43	2.18	67	18	0.040	0.72	7.0	7.0	9.3	2.4	
	FC 0.7- 32-05L	2.0	4.31	3.87	67	32	0.040	1.28	9.3	9.3	11.6	2.4	

*Thickness (D, mm) for TYPE L only

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SOLID STATE COOLING WITH THERMOELECTRICS

How to Use Universal Performance Graphs

Example: Convert universal scale values of Q_C/ GxN, V/N and I = 50G for Module Number CP1.4-127-06 L.

CP1.4-127-06 L

Hot and Cold Faces Lapped Flat, Type L
.06″ Thermocouple Height
127 Thermocouples
1.4 mm x 1.4 mm Thermoelement Cross Section

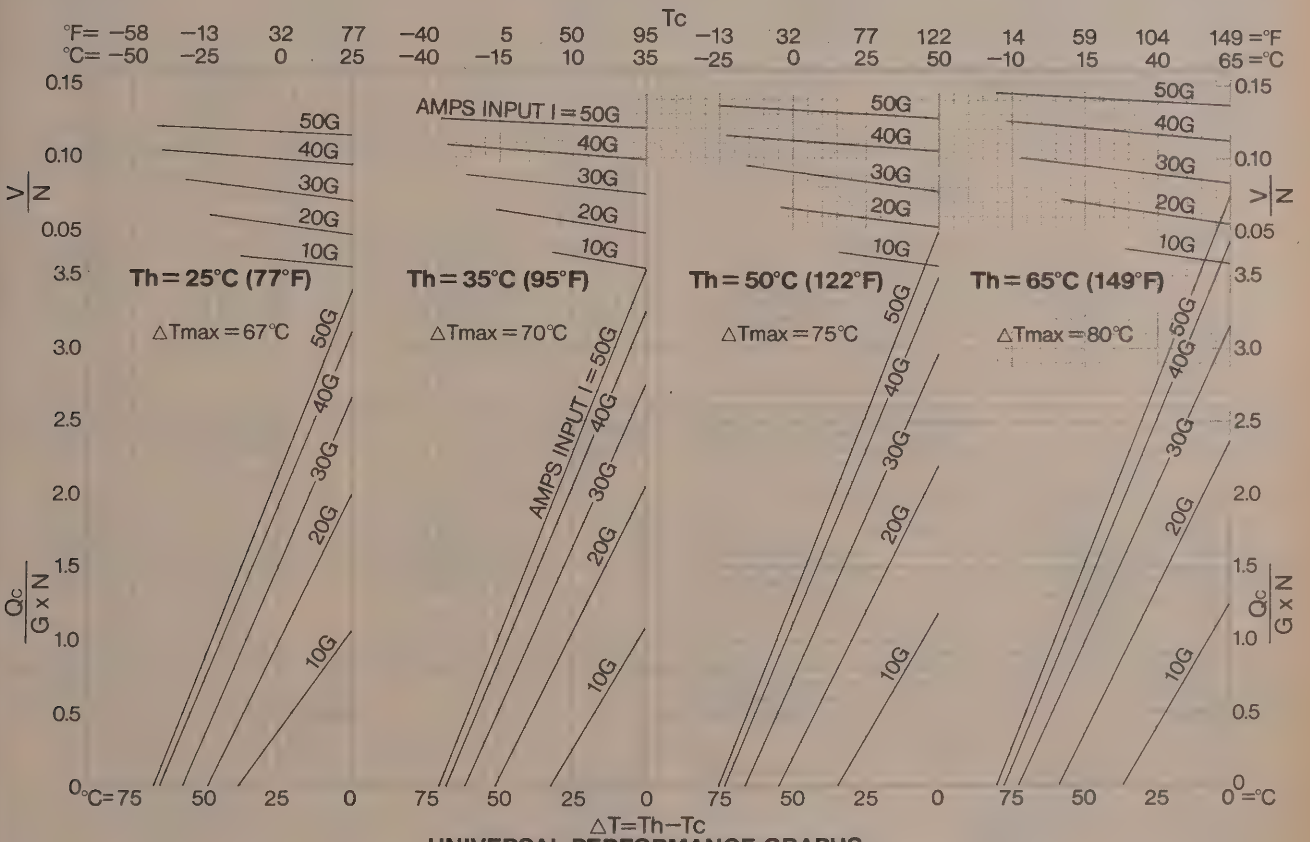
1. Obtain universal multipliers for CP1.4-127-06L from Module Specifications Chart: N = 127 (number of thermocouples)
G = 0.12
(thermoelement geometry factor)
G x N = 15.24

2. Calculate amps input Imax = 50G = 50 x 0.12 = 6.0 amps. Also identify I = 40G = 40 x 0.12 = 4.8 amps, etc. Note: Imax values are also listed in Module Specifications Table.

3. Convert Q_C/GxN scale values to Q_C = Watts Heat Pumped values: Q_C = Q_C/GxN x GxN. Example: from universal scale, Q_C/GxN = 3, then Q_C = 3 x 15.24 = 45.72

4. Convert V/N scale values to V = Volts Input values: V = V/N x N. Example: from universal scale, V/N = 0.09, then V = 0.09 x 127 = 11.4 x 3.

5. From graphs, determine Input Current (I) and Heat Pumped Rating (Q_C) for CP1.4-127-06L, operating at Input Voltage V = 12, Tc = 5°C, Th = 35°C; ΔT = Th − Tc = 35 − 5 = 30°C. From V vs. Tc (upper) graphs, Th = 35°C panel, locate I = 4.3 amps (36G) at V = 12, Tc = 5. Drop down vertically on Tc = 5°C/ΔT = 30°C abscissa to point corresponding to I = 4.3 amps. Read Q_C = 25.1 watts (Q_C/GxN = 1.65) heat pumped.

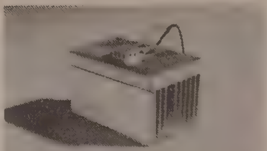


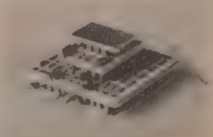
UNIVERSAL PERFORMANCE GRAPHS

Tc = Cold Face Temperature; Th = Hot Face Temperature; I = Module Current, Amps; V = Module Voltage, Volts; Qc = Watts Heat Pumped; N = Number of Thermocouples; G = Thermoelement Geometry Factor

Special Heat Pump Assemblies

Special assemblies are available in O.E.M. quantities, designed to customer requirements using heat exchangers furnished by customer or by Melcor. Multi-stage cascades also available in standard and custom configuration, with temperatures to −95°C (6 stage). Ceramic construction with solder interfacing between stages.

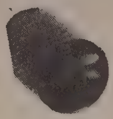


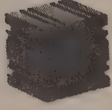


MINIATURE FANS DC

Technical data

V244L


V361L


V359L

V463M

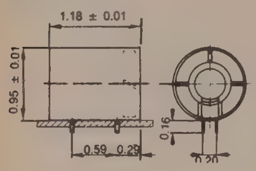
V484M

MODEL	V240	V350 340⁷	V360	V460	V480
Size	φ 0.95 x 1.18	φ 1.5 x 1.5 x 1.4	φ 1.42 x 1.77	φ 1.89 x 1.42	φ 1.89 x 2.36
Voltage	6/12 V ═	6/12/24	6/12/24 V ═	6/12 V ═	12/24 V ═
Housing	cylindrical	square/cyl.⁷	cylindrical	cylindrical	cylindrical
Power	0.3 W	1.6 W	1.6 W	0.25 W	4.2 W
Speed	14000 min⁻¹	13000 min⁻¹	13000 min⁻¹	4200 min⁻¹	11000 min⁻¹
Air Vol.	90 l/min (3.15 CFM)	360 l/min (11.4 CFM)	360 l/min (11.4 CFM)	200 l/min (7.0 CFM)	660 l/min (23 CFM)
Air Pres.	0.6 mar	1.5 mbar	1.5 mbar	0.2 mbar	2 mbar
Life	1000 h*	1500 h*	1500 h*	8000 h*	12000 h* 170 g
Temp.	−20°C/+65°C	−20°C/+65°C	−20°C/+65°C	−20°C/+65°C	−20°C/+65°C
Weight	16 g	50 g	50 g	74 g	170 g
Bearing	sleeve bearing	sleeve bearing	sleeve bearing	sleeve bearing	ball bearing
Noise	36 DBA	44 DBA	44 DBA	27 DBA	55 DBA

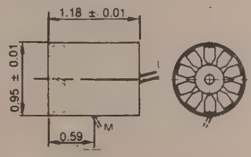
* Life figures are for maximum performance Temperature Control modules can extend life by a factor of five — Consult Factory

NOTES:
1. Symbols ◀ Airflow direction
2. Standard leads are 7.5 inches long — 24 AWG
3. 1 mbar = 10,197mmWS = 0.4 inches
4. One oz. = 28.4 grams
5. 1 liter = 0.035 cubic feet
6. Tolerances ±0.01 unless otherwise shown
7. See V340AC [illegible] for mechanical data

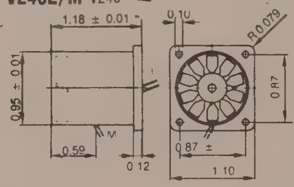
V241K V241 ▶
V249K V249 ◀


1.18 ± 0.01
0.95 ± 0.01
0.16
0.59
0.29
0.20

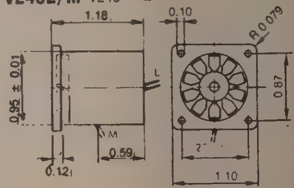
V241L/M V241 ▶
V249L/M V249 ◀


1.18 ± 0.01
0.95 ± 0.01
L
M
0.59

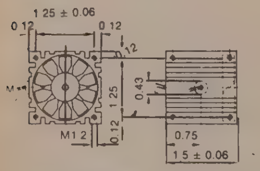
V243L/M V243 ▶
V246L/M V246 ◀


1.18 ± 0.01
0.10
R 0.079
0.95 ± 0.01
L
M
0.87
0.59
0.12
0.87 ±
1.10

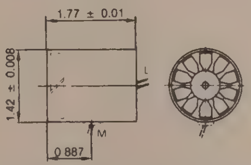
V244L/M V244 ▶
V245L/M V245 ◀


1.18
0.10
R 0.079
0.95 ± 0.01
L
M
0.87
0.59
0.12
1.10

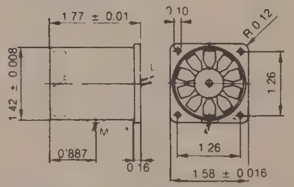
V351L/M V351 ▶
V359L/M V359 ◀


1 25 ± 0.06
0.12
0.12
M
1.25
0.43
M1 2
0.12
0.75
1.5 ± 0.06

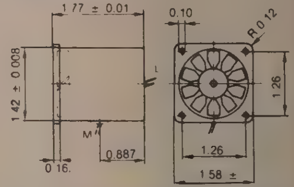
V361L/M V361 ▶
V369L/M V369 ◀


1.77 ± 0.01
1.42 ± 0.008
L
M
0.887

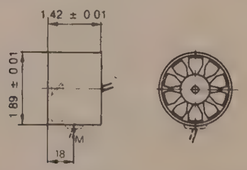
V363L/M V363 ▶
V366L/M V366 ◀


1.77 ± 0.01
0.10
R 0.12
1.42 ± 0.008
L
M
1.26
0.887
0.16
1.26
1.58 ± 0.016

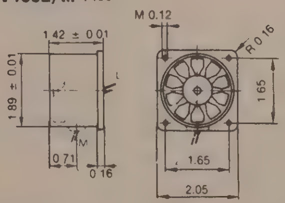
V364L/M V364 ▶
V365L/M V365 ◀


1.77 ± 0.01
0.10
R 0.12
1.42 ± 0.008
L
M
1.26
0.16
0.887
1.26
1.58 ±

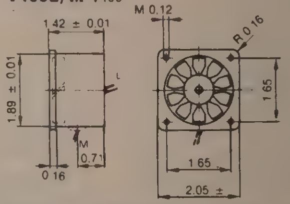
V461L/M V461 ▶
V469L/M V469 ◀


1.42 ± 0.01
1.89 ± 0.01
M
18

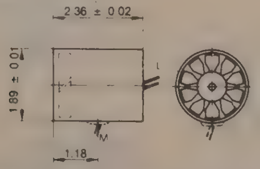
V463L/M V463 ▶
V466L/M V466 ◀


M 0.12
1.42 ± 0.01
R 0.16
1.89 ± 0.01
L
1.65
M
0.71
0.16
1.65
2.05

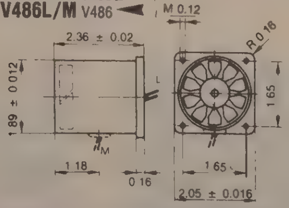
V464L/M V464 ▶
V465L/M V465 ◀


M 0.12
1.42 ± 0.01
R 0.16
1.89 ± 0.01
L
1.65
M
0.71
0.16
1.65
2.05 ±

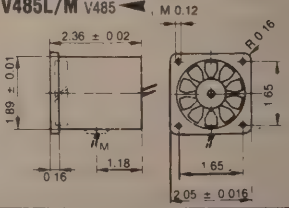
V481L/M V481 ▶
V489L/M V489 ◀


2.36 ± 0.02
1.89 ± 0.01
L
M
1.18

V483L/M V483 ▶
V486L/M V486 ◀


M 0.12
2.36 ± 0.02
R 0.16
1.89 ± 0.012
L
1.65
M
1.18
0.16
1.65
2.05 ± 0.016

V484L/M V484 ▶
V485L/M V485 ◀


M 0.12
2.36 ± 0.02
R 0.16
1.89 ± 0.01
L
1.65
M
1.18
0.16
1.65
2.05 ± 0.016

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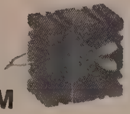
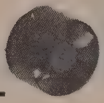
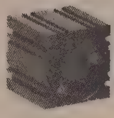


V571M



V581L



V591L

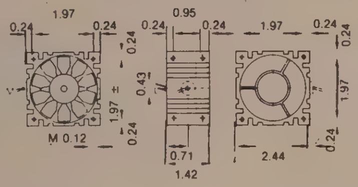
V603L

MODEL	V570	V580	V590	V600
Size	φ 2.44 x 2.44 x 1.42	φ 2.36 x 1.42	φ 2.44 x 2.44 x 2.36	φ 2.36 x 2.36
Voltage	6/12 V =	6/12 V =	12/24 V =	12/24 V =
Housing	square	cylindrical	square	cylindrical
Power	0.6 W	0.6 W	9.6 W	9.6 W
Speed	3800 min^{-1}	3800 min^{-1}	10200 min^{-1}	10200 min^{-1}
Air Vol.	530 l/min (19 CFM)	530 l/min (19 CFM)	1320 l/min (46 CFM)	1320 l/min (46 CFM)
Air Pres.	0.35 mbar	0.35 mber	3 mbar	3 mbar
Life	8000 h*	8000 h*	12000 h*	12000 h
Temp.	−20°C/+65°C	−20°C/+65°C	−20°C/+65°C	−20°C/+65°C
Weight	155 g	90 g	300 g	190 g
Bearing	sleeve bearing	sleeve bearing	ball bearings	ball bearings
Noise	27 DBA	27 DBA	50 DBA	50 DBA

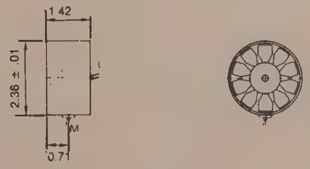
* Life figures are for maximum performance Temperature Control modules can extend life by a factor of five — Consult Factory

NOTES:
1. Symbols ◄ Airflow direction
2. Standard leads are 7.5 inches long — 24 AWG
3. 1 mbar = 10,197mmWS = 0.4 inches
4. One oz. = 28.4 grams
5. 1 liter = 0.035 cubic feet
6. Tolerances ±0.01 unless otherwise shown
7. See V340AC Types for mechanical data

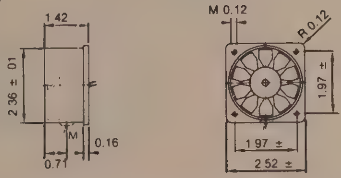
V571L/M V571 ◄
V579L/M V579 ►


1.97
0.24
0.24
0.95
0.24
0.24
1.97
0.24
0.24
0.43
1.97 ±
0.24
M 0.12
0.71
1.42
2.44
1.97
0.24

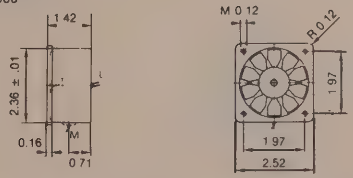
V581L/M V581 ►
V589L/M V589 ◄


1.42
2.36 ± .01
M
0.71

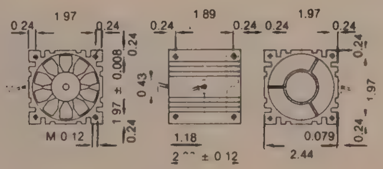
V583L/M V583 ►
V586L/M V586 ◄


1.42
2.36 ± .01
M
0.16
0.71
M 0.12
R 0.12
1.97 ±
1.97 ±
2.52 ±

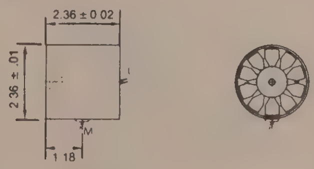
V584L/M V584 ►
V585L/M V585 ◄


1.42
2.36 ± .01
0.16
M
0.71
M 0.12
R 0.12
1.97
1.97
2.52

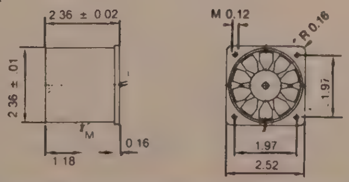
V591L/M V591 ◄
V599L/M V591 ►


0.24
1.97
0.24
0.24
1.89
0.24
0.24
1.97
0.24
0.24
0.43
1.97 ± 0.008
M 0.12
0.24
1.18
2 ± 0.12
0.079
2.44
1.97
0.24

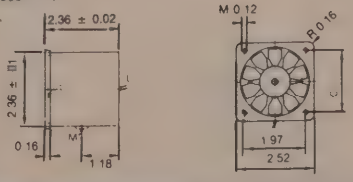
V601L/M V601 ►
V609L/M V609 ◄


2.36 ± 0.02
2.36 ± .01
M
1.18

V603L/M V603 ►
V606L/M V606 ◄


2.36 ± 0.02
2.36 ± .01
M
0.16
1.18
M 0.12
R 0.16
1.97
1.97
2.52

V604L/M V604 ►
V605L/M V605 ◄


2.36 ± 0.02
2.36 ± .01
0.16
M
1.18
M 0.12
R 0.16
1.97
2.52

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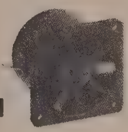
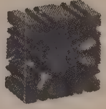
V359L

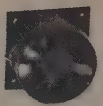
V349L



V464M



V571M

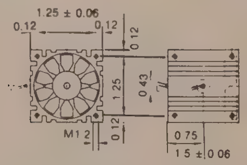


V583M

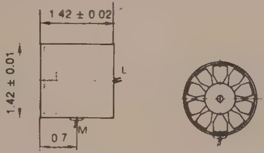
MODEL	V350	V340	V460	V570	V580
Size	φ 1.5 x 1.5 x 1.4	φ 1.42 x 1.42	φ 1.89 x 1.42	φ 2.44 x 2.44 x 1.42	φ 2.36 x 1.42
Voltage	12/24 VAC~A	12/24 VAC~A	12/24 VAC~A	12/24 VAC~A	12/24 VAC~A
Housing	square	cylindrical	cylindrical	square	cylindrical
Power	3.3 VA	3.3 VA	3.3 VA	3.3 VA	3.3 VA
Speed	3600 min⁻¹	3600 min⁻¹	3600 min⁻¹	3600 min⁻¹	3600 min⁻¹
Air Vol.	65 l/min (2.3 CFM)	65 l/min (2.3 CFM)	132 l/min (4.7 CFM)	444 l/min (15.6 CFM)	484 l/min (15.6 CFM)
Air Pres.	0.42 mbar	0.42 mbar	0.15 mbar	0.25 mbar	0.25 mbar
Life	15000 h	15000 h	15000 h	15000 h	15000 h
Temp.	−20°C/+65°C	−20°C/+65°C	−20°C/+65°C	−20°C/+65°C	−20°C/+65°C
Weight	62 g	52 g	80 g	162 g	95 g
Bearing	sleeve bearing	sleeve bearing	sleeve bearing	sleeve bearing	sleeve bearing
Noise	20 DBA	20 DBA	16 DBA	27 DBA	27 DBA

NOTES: A. May be operated on 115 VAC with use of a series capacitor B. Also available in 6, 36, and 48 VAC on special order. External phase shift capacitor required

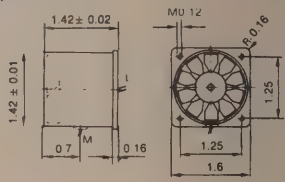
V351L/M V351 ◄
V359L/M V359 ►


1.25 ± 0.06
0.12
0.12
0.12
1.25
0.43
M1.2
0.12
0.75
1.5 ± 0.06

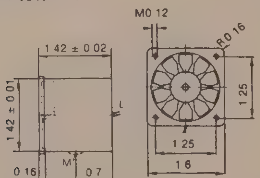
V341L/M V341 ►
V349L/M V349 ◄


1.42 ± 0.02
1.42 ± 0.01
L
0.7
M

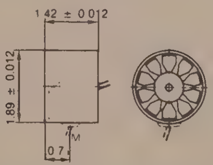
V343L/M V343 ►
V349L/M V349 ◄


1.42 ± 0.02
M0.12
R0.16
1.42 ± 0.01
L
1.25
0.7
M
0.16
1.25
1.6

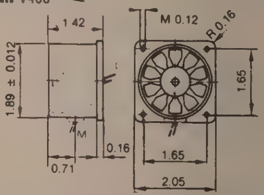
V344L/M V344 ►
V345L/M V345 ◄


M0.12
R0.16
1.42 ± 0.02
1.42 ± 0.01
L
1.25
0.16
M
0.7
1.25
1.6

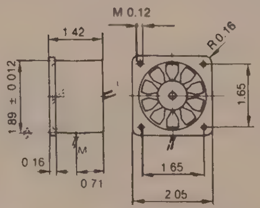
V461L V461 ►
V469L V469 ◄


1.42 ± 0.012
1.89 ± 0.012
M
0.7

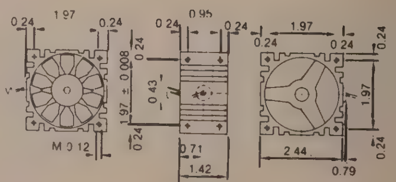
V463L/M V463 ►
V466L/M V466 ◄


1.42
M 0.12
R0.16
1.89 ± 0.012
L
1.65
M
0.16
0.71
1.65
2.05

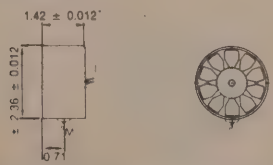
V464L/M V464 ►
V465L/M V465 ◄


M 0.12
1.42
R0.16
1.89 ± 0.012
L
1.65
0.16
M
0.71
1.65
2.05

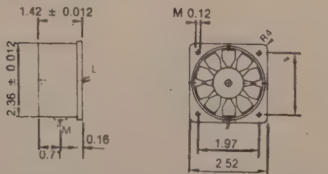
V571L/M V571 ◄
V579L/M V579 ►


0.24
1.97
0.24
0.24
0.95
0.24
1.97
0.24
0.24
0.24
1.97 ± 0.008
0.43
1.97
M 0.12
0.24
0.71
1.42
2.44
0.24
0.79

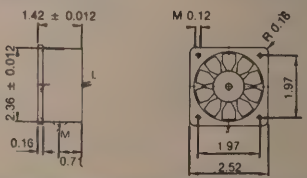
V581L/M V581 ►
V589L/M V589 ◄


1.42 ± 0.012
2.36 ± 0.012
L
M
0.71

V583L/M V583 ►
V586L/M V586 ◄


1.42 ± 0.012
M 0.12
R4
2.36 ± 0.012
L
M
0.16
0.71
1.97
2.52

V584L M V584 ►
V585L/M V585 ◄


1.42 ± 0.012
M 0.12
R0.16
2.36 ± 0.012
L
1.97
0.16
M
0.71
1.97
2.52

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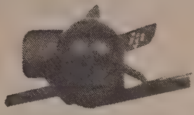


V60TL

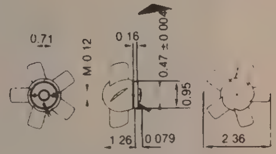
V624L

V72JM

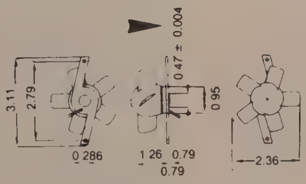
MODEL	V60	V620	V630	V72CL/TL	V72CL/PM
Size	ϕ 2.36 x 1.34	ϕ 2.36 x 1.42	ϕ 2.44 x 2.44 x 1.42	ϕ2.84 x 1.5	ϕ 3.1 x 1.5
Voltage	12/24V∼A	12/24/110/ 120V∼B	12/24/110/ 120V∼B	12/24/110/ 120V∼B	12/24/110/ 120V∼B
Housing	no housing	cylindrical	square	no housing	cylindrical
Power	3.3 VA	6.6 VA	6.6 VA	6.6 VA	6.6 VA
Speed	3400 min^{-1}	3600 min^{-1}	3600 min^{-1}	3600 min^{-1}	3600 min^{-1}
Air Vol.	534 l/min (19 CFM)	504 l/min (17.6 CFM)	504 l/min (17.6 CFM)	912 l/min (32 CFM)	1100 l/min (38 CFM)
Air Pres.	——	0.25 mbar	0.25 mbar	——	0.3 mbar
Life	15000 h	15000 h	15000 h	15000 h	15000 h
Temp.	−20°C/+65°C	−20°C/+65°C	−20°C/+65°C	−20°C/+65°C	−20°C/+65°C
Weight	55 g	140 g	200 g	108 g	128 g
Bearing	sleeve bearing	sleeve bearing	sleeve bearing	sleeve bearing	sleeve bearing
Noise	16 DBA	22 DBA	22 DBA	30 DBA	30 DBA

NOTES: A. May be operated on 115 VAC with use of a series capacitor B. Also available in 6, 36, and 48 VAC on special order. External phase shift capacitor required

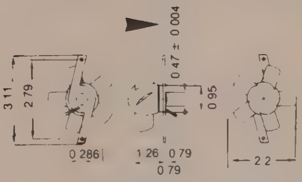
V60CL


0.71
M 0.12
0.16
0.47 ± 0.004
0.95
1.26
0.079
2.36

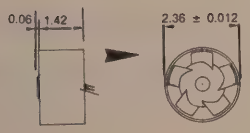
V60TL


0.47 ± 0.004
3.11
2.79
0.95
0.286
1.26
0.79
0.79
2.36

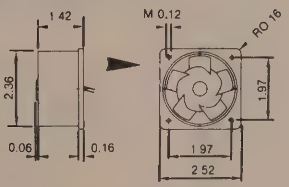
V60TLS

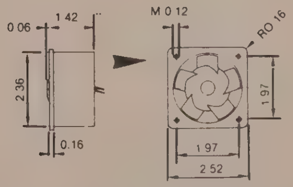

0.47 ± 0.004
3.11
2.79
0.95
0.286
1.26
0.79
0.79
2.2

V621L

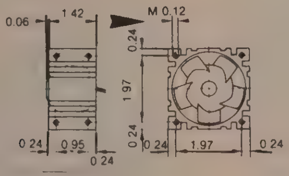

0.06
1.42
2.36 ± 0.012

V623L

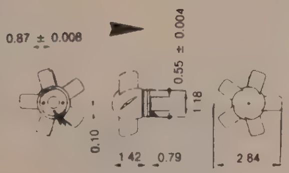

1.42
M 0.12
RO 16
2.36
1.97
0.06
0.16
1.97
2.52


0.06
1.42
M 0.12
RO 16
2.36
1.97
0.16
1.97
2.52

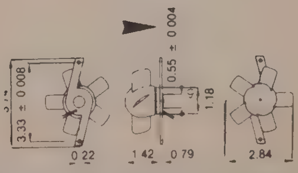
V631L


0.06
1.42
M 0.12
0.24
1.97
0.24
0.95
0.24
0.24
0.24
1.97
0.24

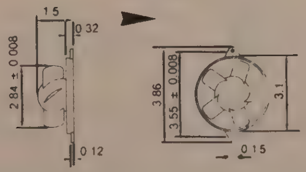
V72CL


0.87 ± 0.008
0.55 ± 0.004
1.18
0.10
1.42
0.79
2.84

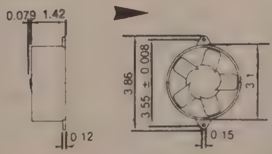
V72TL


0.55 ± 0.004
3.33 ± 0.008
1.18
0.22
1.42
0.79
2.84

V72PM


1.5
0.32
2.84 ± 0.008
3.86
3.55 ± 0.008
3.1
0.12
0.15

V72JM


0.079
1.42
3.86
3.55 ± 0.008
3.1
0.12
0.15

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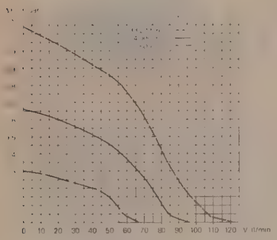
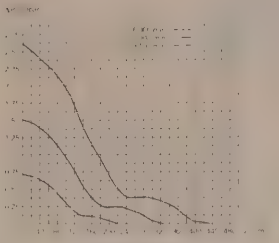
MINIATURE FANS

Airflow Data

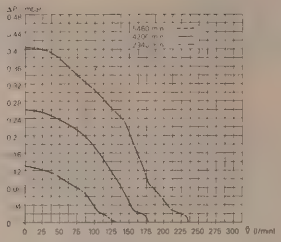
AIRFLOW DATA



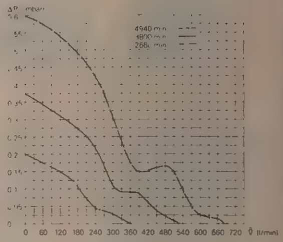
Liters/min.
V241-V244 — DC Fans



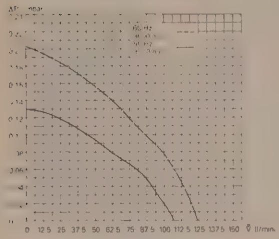
Liters/min.
V361-V364 — DC Fans



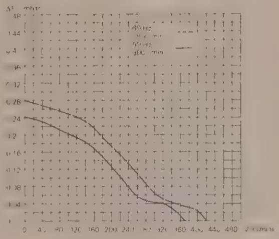
Liters/min.
V461-V464 — DC Fans



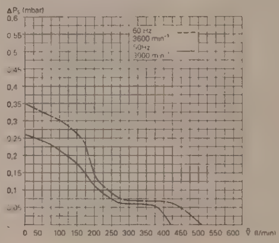
Liters/min.
V571/V581-V584 — DC Fans



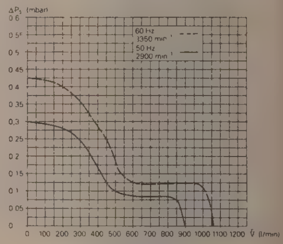
Liters/min.
V461-V464 — AC Fans



Liters/min.
V571/V581-V584 — AC Fans

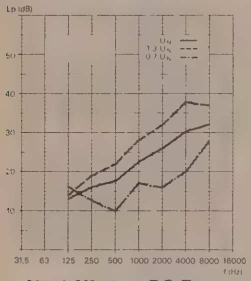


Liters/min.
V621-V624/V631 — AC Fans

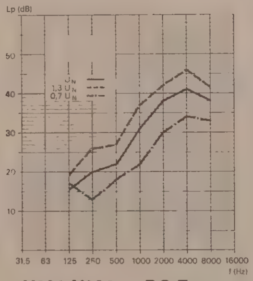


Liters/min.
V72JM — DC Fans

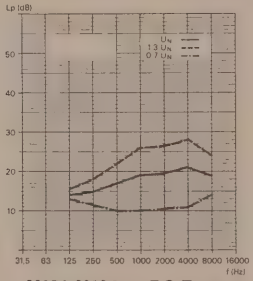
ACOUSTICAL DATA



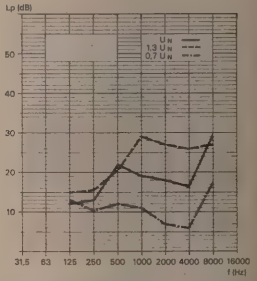
V241-V244 — DC Fans



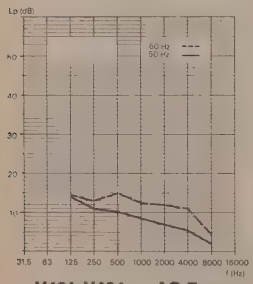
V361-V364 — DC Fans



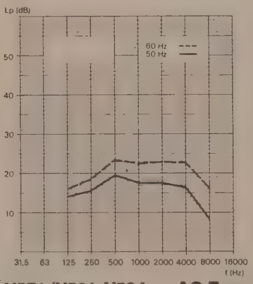
V461-V464 — DC Fans



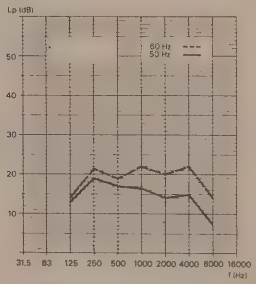
V571/V581-V584 — DC Fans



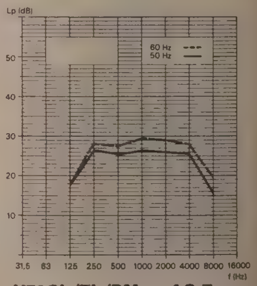
V461-V464 — AC Fans



V571/V581-V584 — AC Fans



V621-V624 — AC Fans

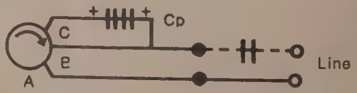


V72CL/TL/PM — AC Fans

PHASE SHIFT CAPACITOR SPECIFICATIONS FOR AC FANS

TYPE FAN	LINE VOLTAGE	Cp VALUE µF	Cp VOLTAGE	LEAD COLORS**		
				A	B	C
V60-V72	12	†100 µF	50	Black	Yellow	Red
All others	12	† 47 µF	50	Black	Yellow	Red
V60-V72	24	† 22 µF	75	Green	Yellow	Red
All others	24	† 10 µF	75	Green	Yellow	Red
V60-V72	115	2.2 µF	150	Grey	Yellow	Red
All others	115	1.5 µF	150	Grey	Yellow	Red
V60-V72	220	.68 µF	180	White	Yellow	Red

† Electrolytic Caps ** For clockwise impeller rotation. Reverse leads and C for CCW rotation.



* Line capacitors can be utilized to operate any fan off 115 or 220 volt sources.

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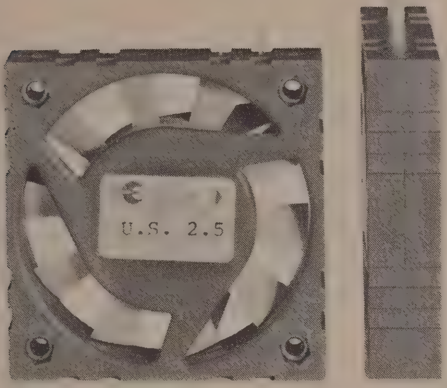
SPECIAL MINIATURE FANS

BRUSHLESS DC FANS

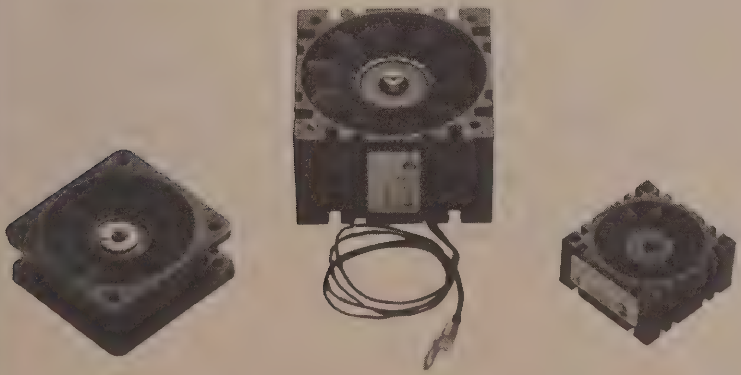


FEATURES
- Ultra Thin Design - 0.55″
- High performance - up to 20 CFM
- Low noise ≤20 DBA
- Long life ≥20,000 hrs.
- Low EMI/RFI
- Polarity protected

HIGH TEMPERATURE FANS

FEATURES
- Operational temp. to 85°C
- High performance - up to 50 CFM
- Long life ≥12,000 hrs.
- Variable speed
- Bi-directional
- Temperature controlled

TEMPERATURE CONTROLLED FANS



FEATURES
- CFM proportional to cooling needs
- Low noise ≥10 DBA
- Air volume - 3 CFM to 50 CFM
- Small dia. - 1″ and larger
- Long life - up to 20,000 hrs.
- Low power - 0.25W - up

MICRONEL's broad experience and technical expertise in development and design of high performance precision motors and assemblies has been utilized to develop the product shown herein. Our appreciation of the customer's system performance requirements, thermal constraints, mechanical interfaces, and cost factors allow MICRONEL U.S. to offer unique solutions to your problems. TRY US!

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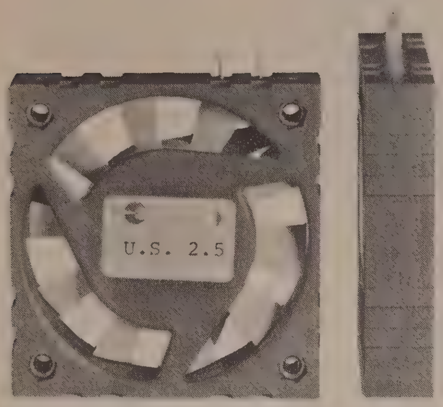
MINIATURE BRUSHLESS DC/AC FANS

ULTRA-SLIM SERIES



"Actual Size"
Model US 2.5

NEW!

MICRONEL'S* NEW US SERIES

fans utilize an aerodynamically optimized impeller driven by an unique brushless D.C. motor. The high reliability electronic drive circuitry contain provisions for thermally controlling fan C.F.M. output. The series can also be operated on AC line voltages of 5V, 12V, 115V and 220V.

* Patent Pending

The US Series is currently available in the following sizes:

	MODEL US 2.5	MODEL US 3.1†	MODEL US 4.1†
Size	2.45 x 2.45 x 0.55	3.15 x 3.15 x 0.55	4.13 x 4.13 x 0.55
Air Volume	10 CFM	30	80
Expected Life	>10,000 Hrs.*	>10,000 Hrs.*	>10,000 Hrs.*
Operating Range	−10°C➔55°C**	−10°C➔55°C**	−10°C➔55°C**
Input Power	<2 Watts	<5 Watts	<12 Watts
Voltages - DC	5, 12, 24	5, 12, 24	5, 12, 24
Voltages - AC	5, 12, 24, 115, 220	5, 12, 24, 115, 220	5, 12, 24, 115, 220
Noise Level	<35 dBA***	<35 dBA***	<35 dBA***
Case/Impeller Mat.	CPO - Glass Filled	CPO - Glass Filled	CPO - Glass Filled
Temp. Controller	Yes	Yes	Yes

* Projected life >25,000 hrs. ** High temp. units available. *** Max. level. †Available 1985

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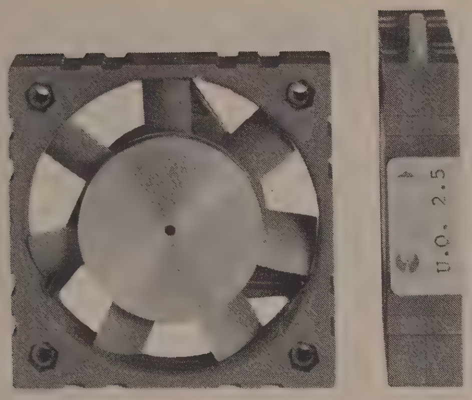
MINIATURE BRUSHLESS DC/AC FANS

ULTRA-QUIET SERIES-22 dBA



Actual Size
Model UQ 2.5

NEW!

MICRONEL'S* NEW UQ SERIES

fans utilize an aerodynamically optimized impeller driven by an unique brushless D.C. motor. Utilization of Rare Earth Magnets results in improved efficiency. The high reliability electronic drive circuitry contain provisions for thermally controlling fan C.F.M. output. The series can also be operated on AC line voltages of 5V, 12V, 24V, 115V and 220V.

* Patent Pending

The UQ Series is currently available in the following sizes:

	MODEL UQ 2.5	MODEL UQ 3.1†	MODEL UQ 4.1†
Size	2.45 x 2.45 x 0.75	3.15 x 3.15 x 0.75	4.13 x 4.13 x 0.75
Air Volume - Max.	10	30	80
Expected Life	>10,000 Hrs.*	>10,000 Hrs.*	>10,000 Hrs.*
Operating Range	−10°C➔55°C**	−10°C➔55°C**	−10°C➔55°C**
Input Power	<2 Watts	<5 Watts	<12 Watts
Voltages - DC	5, 12, 24	5, 12, 24	5, 12, 24
Voltages - AC	5, 12, 24, 115, 220	5, 12, 24, 115, 220	5, 12, 24, 115, 220
Noise Level	22 dBA***	22 dBA***	22 dBA***
Case/Impeller Mat.	CPO - Glass Filled	CPO - Glass Filled	CPO - Glass Filled
Temp. Controller	Yes	Yes	Yes

* Projected life >25,000 hrs. ** High temp. units available. *** Max. level. †Available 1985

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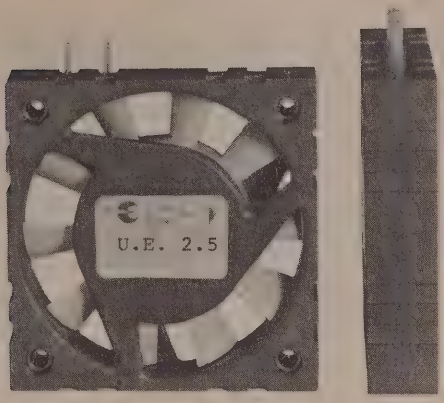
MINIATURE BRUSHLESS DC/AC FANS

ULTRA-EFFICIENT SERIES



Actual Size
Model UE 2.5

MICRONEL'S* NEW UE SERIES

fans utilize an aerodynamically optimized impeller driven by an unique brushless D.C. motor. Utilization of Rare Earth Magnets results in improved efficiency. The high reliability electronic drive circuitry contain provisions for thermally controlling fan C.F.M. output. The series can also be operated on AC line voltages of 5V, 12V, 24V, 115V and 220V.

* Patent Pending

The UE Series is currently available in the following sizes:

	MODEL UE 2.5	MODEL UE 3.1†	MODEL UE 4.1†
Size	2.45 x 2.45 x 0.75***	3.15 x 3.15 x 0.75***	4.13 x 4.13 x 0.75***
Air Volume - Max.	10	30	80
Expected Life	>10,000 Hrs.*	>10,000 Hrs.*	>10,000 Hrs.*
Operating Range	−10°C➤55°C**	−10°C➤55°C**	−10°C➤55°C**
Input Power	0.5 Watts	1.5 Watts	4.0 Watts
Voltages - DC	5, 12, 24	5, 12, 24	5, 12, 24
Voltages - AC	5, 12, 24, 115, 220	5, 12, 24, 115, 220	5, 12, 24, 115, 220
Noise Level	22 dBA	22 dBA	22 dBA
Case/Impeller Mat.	CPO - Glass Filled	CPO - Glass Filled	CPO - Glass Filled
Temp. Controller	Yes	Yes	Yes

* Projected life >25,000 hrs. ** High temp. units available. *** Can be reduced to 0.65″. †Available 1985

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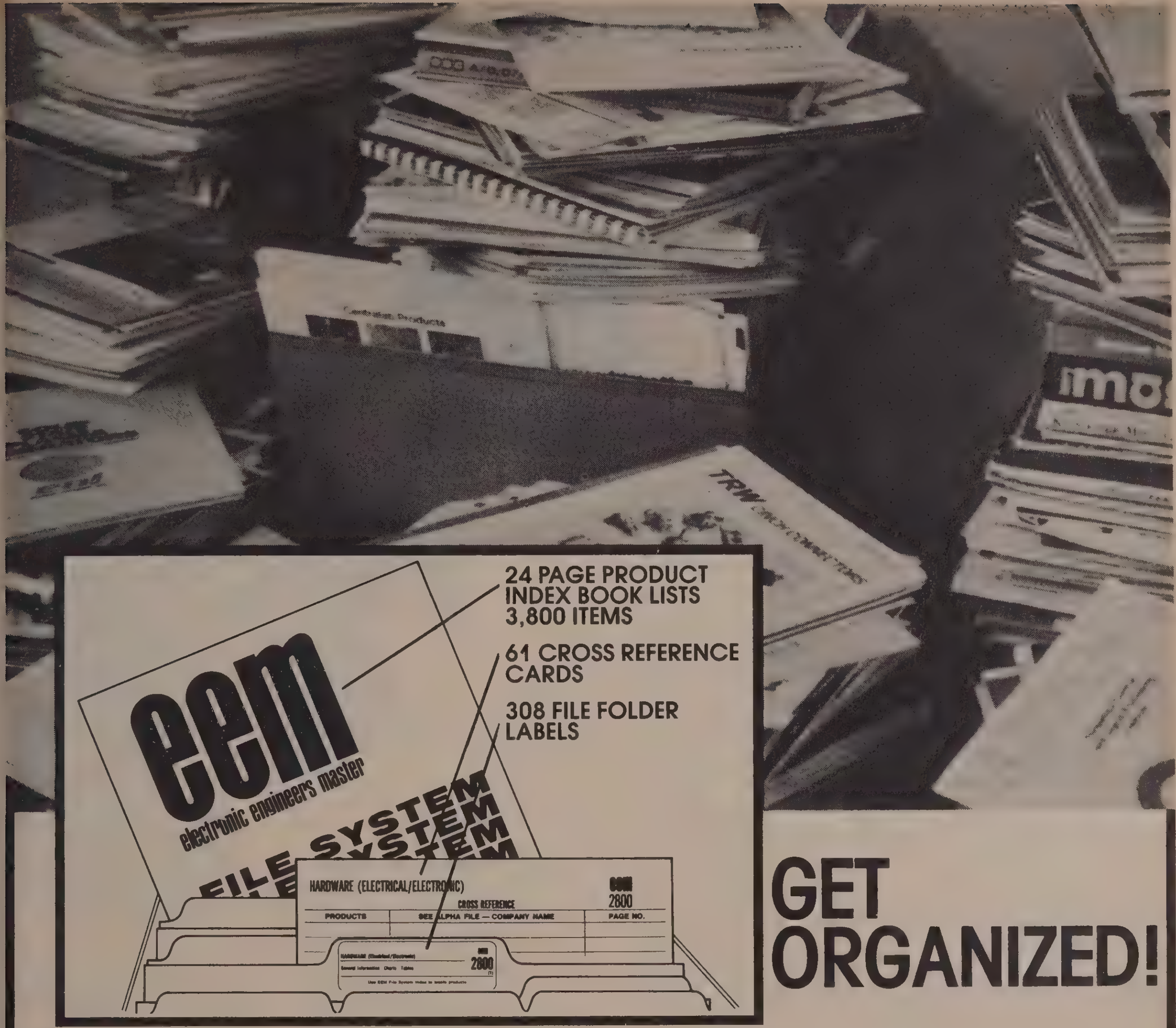
24 PAGE PRODUCT INDEX BOOK LISTS 3,800 ITEMS
61 CROSS REFERENCE CARDS
308 FILE FOLDER LABELS
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PAMOTOR SOLID STATE BRUSHLESS DC FANS

THE ONLY COMPANY OFFERING YOU A FULL FAMILY OF SOLID STATE, BRUSHLESS DC FANS IN POPULAR FRAME SIZES & VOLTAGES, & AT POPULAR PRICES.

PAMOTOR has a full line of self-contained, solid state, brushless DC fans for you to choose from. Through their design, these fans have been engineered to tackle those specialized applications which require highly reliable DC performance. Common uses include mobile radio equipment, medical electronics, shipboard computers, airborne applications, communications systems, automotive applications, marine use and telecommunications; wherever DC voltage is normally available. They are also finding wide acceptance for use in power stand-by modes to prevent memory loss in the event of AC power failure.

These fans are especially efficient and will outperform similar sized fans at normal operating back pressure. Typically, they offer greater air volume (cfm), reduced noise levels and reduced power drain. For example, the power drain at maximum back pressure is approximately 25% of that required in conventional AC units. These fans also achieve a new low in magnetic radiation and RF noise, thereby assuring the pure signals necessary for critical airborne or shipboard use.

These fans work well at all rated voltages, and are extremely quiet. They can be adjusted for performance and noise level by altering the voltage within the voltage range for your particular application. They feature a brushless motor with all electronics mounted on a PC card within the motor frame. Drive amplifiers for the motor are controlled by a patented Hall-effect generator circuit which is coupled by small pole pieces to the motor's field magnet (Patent No. 3-873-897). Available voltages include 5 VDC nominal, 12 VDC nominal, 24 VDC nominal and 48 VDC nominal.

The brushless DC motor is polarity protected* to avoid accidental damage and costly down time. If the input polarity is accidentally reversed, integral diodes block all circuits and the motor simply stops. Even in a locked rotor condition,* the motor goes into a neutral state to avoid damage. Precision bearings and lubricants help to achieve a life expectancy of 35,000 hours (sleeve bearing) and 60,000 hours (ball bearing) at maximum permissible ambient temperature. Note: If the ambient temperature in which the fan operates is at 20° C below the above levels the life expectancy increases by 10,000 hours.

These fans do not require an external voltage inverter. This means that you save valuable mounting space and weight because the only consideration in mounting is the fan itself. This new concept has eliminated many of the inherent reliability and RF noise problems generally associated with using AC motors in a DC environment.

DC Fans Quick Selection Guide

Model	Voltage Range	Airflow Range	Nominal Input Power (zero static pressure)	Frame Size
	VDC	cfm	Watts	inches
812	6-15	11-29	3.0	2-1/2 sq. x 1 D
814	12-30	11-29	3.0	
3124F	18-30	33-57	2.5	3-5/8 sq. x 1 D
4105GX	4.5-5.5	82-100	4.0	4-11/16 sq. x 1-1/2 D
4112X	9.5-14	82-122	4.0	
4112GX	8-16	60-120	4.3	
4112KX	8-14.5	75-125	6.0	
4124X	19-28	82-122	4.1	
4124GX	18-30	70-120	4.3	
4124KX	18-29	90-125	6.0	
4124F	18-30	80-120	6.0	4-11/16 sq. x 1 D
4148X	38-56	82-122	4.1	4-11/16 sq. x 1-1/2 D
6124	16-32	150-250	11.0	6-3/4 dia. x 2-3/16 D
6148	32-60	150-250	10.5	
8105G	4.5-5.5	31-40	2.5	3-1/8 sq. x 1-1/2 D
8112	9.5-14	28-41	2.9	
8112G	8-16	21-49	2.6	
8112K	8-16	20-48	3.0	
8124	19-28	28-41	3.0	
8124G	18-30	26-44	2.6	
8124K	18-30	27-44	3.0	
8148	38-56	30-41	3.1	
RL90-18/24	19-28	19-31	5.2	4-3/4 sq. x 1-1/2 D

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*Except for 5 Volt models.

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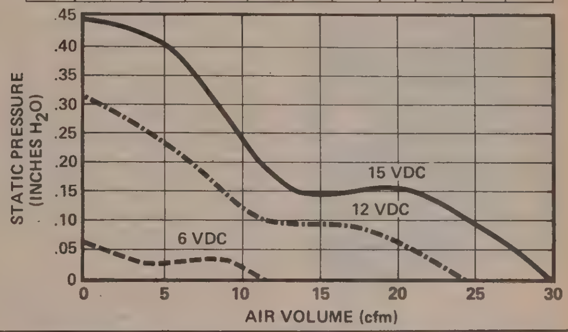
Model 812 DC Fan

Size: 2-1/2″ Square x 1″ Deep
Advantages: High performance, solid state integral electronics, no external inverter required, sub-miniature frame size, locked rotor and polarity protected.
Construction: Venturi and impeller are glass fiber reinforced plastic, brushless electronic motor, 12″ leads.
Life Expectancy: 60,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

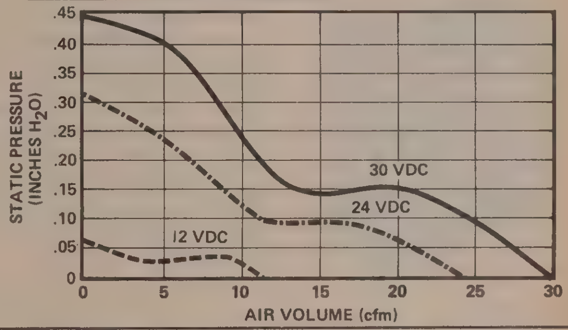
Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
812		X	6-15 12 nominal	250 mA @ free air	3 W @ free air	23	5300	3	40	28



Model 814 DC Fan

Size: 2-1/2″ Square x 1″ Deep
Advantages: High performance, solid state integral electronics, no external inverter required, sub-miniature frame size, locked rotor and polarity protected.
Construction: Venturi and impeller are glass fiber reinforced plastic, brushless electronic motor, 12″ leads.
Life Expectancy: 60,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
814		X	12-30 24 nominal	125 mA @ free air	3 W @ free air	23	5300	3	40	28

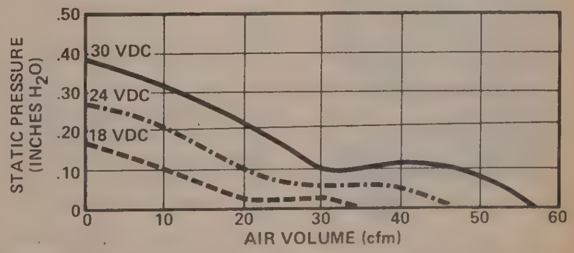


Model 3124F DC Fan

Size: 3-5/8″ Square x 1″ Deep
Advantages: Extra slim profile, solid state integral electronics, no external inverter required, locked rotor and polarity protected.
Construction: All-metal, brushless electronic motor, terminal block.
Life Expectancy: 60,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
3124F		X	18-30 24 nominal	103 mA @ free air	2.5 W @ free air	45	3000	14	40	30

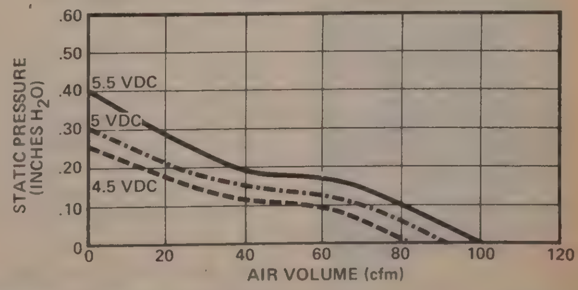


Model 4105GX DC Fan

Size: 4-11/16″ Square x 1-1/2″ Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, high airflow.
Construction: Aluminum alloy venturi, glass fiber reinforced plastic impeller, brushless electronic motor, terminal block.
Life Expectancy: 35,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
4105GX	X		4.5-5.5 5 nominal	775 mA @ free air	4 W @ free air	92	2750	18	44	34



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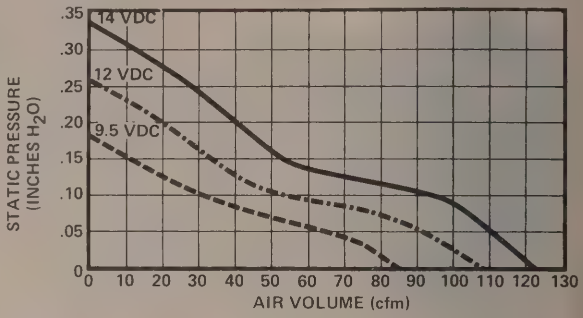
Model 4112X DC Fan

Size: 4-11/16" Square x 1-1/2" Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, high airflow, locked rotor and polarity protected.
Construction: All-metal, brushless electronic motor, terminal block.
Life Expectancy: 60,000 hours at 72° C.
Max. Operating Temp.: +72° C.
Safety Codes: UL recognized, Yellow Card E41168. Also conforms to CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
4112X		X	9.5-14 12 nominal	330 mA @ free air	4 W @ free air	106	2900	20	46	38

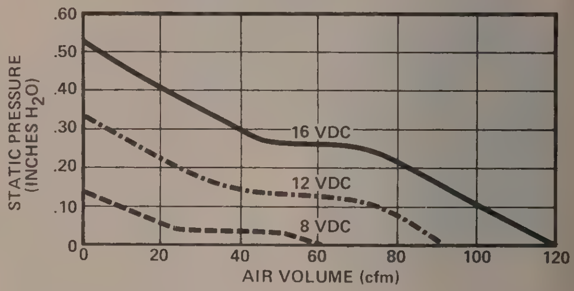


Model 4112GX DC Fan

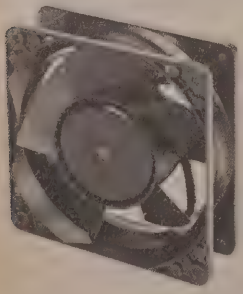
Size: 4-11/16" Square x 1-1/2" Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, high airflow, locked rotor and polarity protected.
Construction: Aluminum alloy venturi, glass fiber reinforced plastic impeller, brushless electronic motor, terminal block.
Life Expectancy: 35,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
4112GX	X		8-16 12 nominal	360 mA @ free air	4.3 W @ free air	90	2750	18	44	34



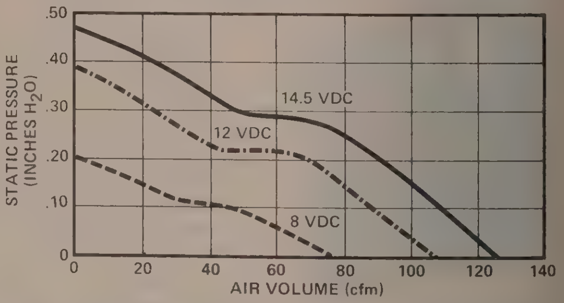
Model 4112KX DC Fan



Size: 4-11/16" Square x 1-1/2" Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, high airflow, locked rotor and polarity protected.
Construction: Aluminum alloy venturi, glass fiber reinforced plastic impeller, brushless electronic motor, terminal block.
Life Expectancy: 60,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
4112KX		X	8-14.5 12 nominal	500 mA @ free air	6 W @ free air	106	3200	18	49	40

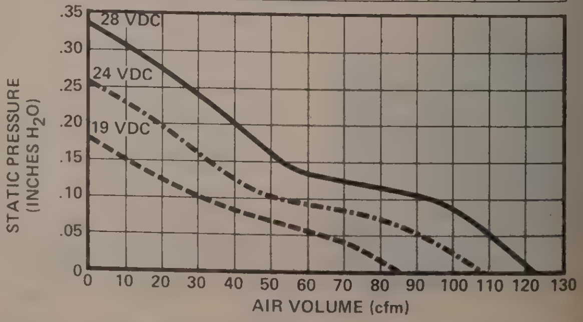


Model 4124X DC Fan

Size: 4-11/16" Square x 1-1/2" Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, high airflow, locked rotor and polarity protected.
Construction: All-metal, brushless electronic motor, terminal block.
Life Expectancy: 60,000 hours at 72° C.
Max. Operating Temp.: +72° C.
Safety Codes: UL recognized, Yellow Card E41168. Also conforms to CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
4124X		X	19-28 24 nominal	170 mA @ free air	4.1 W @ free air	106	2900	20	46	38



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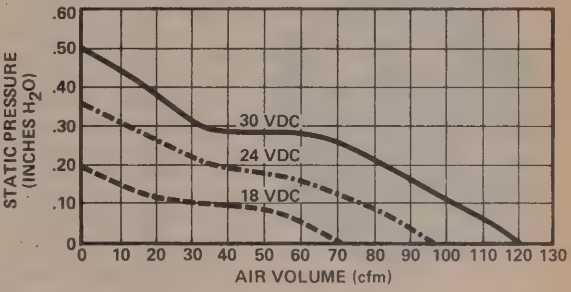
Model 4124GX DC Fan

Size: 4-11/16" Square x 1-1/2" Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, high airflow, locked rotor and polarity protected.
Construction: Aluminum alloy venturi, glass fiber reinforced plastic impeller, brushless electronic motor, terminal block.
Life Expectancy: 35,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
4124GX	X		18-30 24 nominal	180 mA @ free air	4.3 W @ free air	95	2750	18	44	34

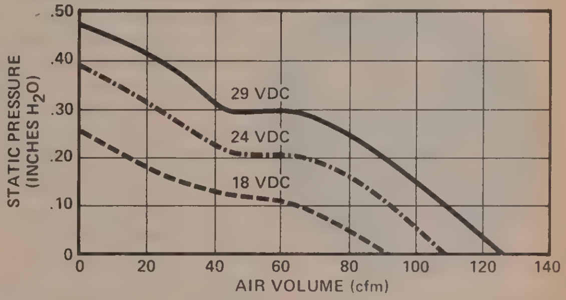


Model 4124KX DC Fan

Size: 4-11/16" Square x 1-1/2" Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, high airflow, locked rotor and polarity protected.
Construction: Aluminum alloy venturi, glass fiber reinforced plastic impeller, brushless electronic motor, terminal block.
Life Expectancy: 60,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
4124KX		X	18-29 24 nominal	250 mA @ free air	6 W @ free air	106	3200	18	49	40

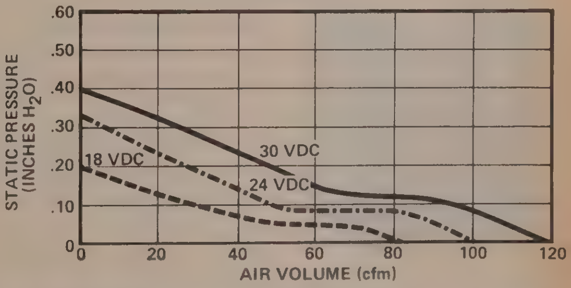


Model 4124F DC Fan

Size: 4-11/16" Square x 1" Deep
Advantages: Extra slim profile, solid state integral electronics, no external inverter required, locked rotor and polarity protected.
Construction: All-metal, brushless electronic motor, terminal block.
Life Expectancy: 60,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
4124F		X	18-30 24 nominal	245 mA @ free air	6 W @ free air	100	2900	12	48	39

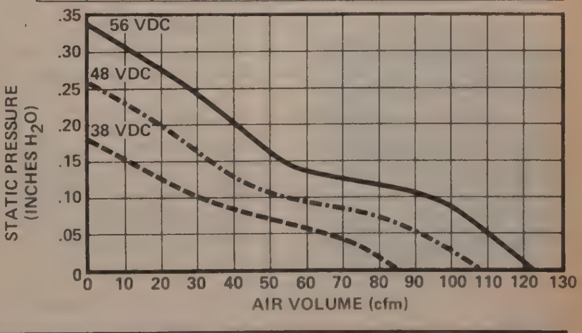


Model 4148X DC Fan

Size: 4-11/16" Square x 1-1/2" Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, high airflow, locked rotor and polarity protected.
Construction: All-metal, brushless electronic motor, terminal block.
Life Expectancy: 60,000 hours at 72° C.
Max. Operating Temp.: +72° C.
Safety Codes: UL recognized, Yellow Card E41168. Also conforms to CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
4148X		X	38-56 48 nominal	85 mA @ free air	4.1 W @ free air	106	2900	20	46	38



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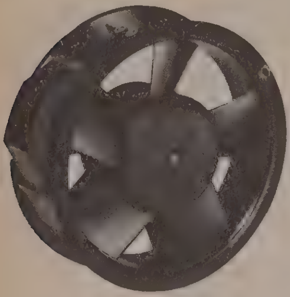
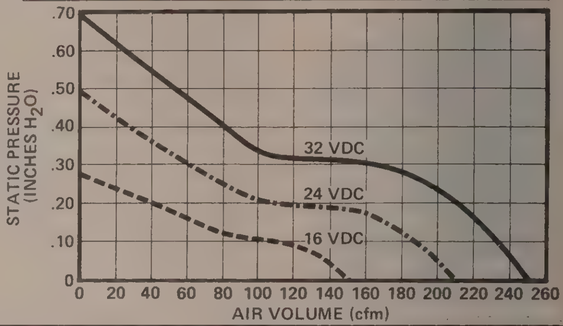
Model 6124 DC Fan



Size: 6-3/4″ Diameter x 2″ Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, high airflow, locked rotor and polarity protected.
Construction: Aluminum alloy housing, glass filled polyphenylene oxide impeller, brushless electronic motor, terminal block.
Life Expectancy: 60,000 hours at 72° C.
Max. Operating Temp.: +72° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessoires are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level dB (A)	Noise Level dB (SIL)
6124		X	16-32 24 nominal	450 mA @ free air	11 W @ free air	210	2850	38	50	38

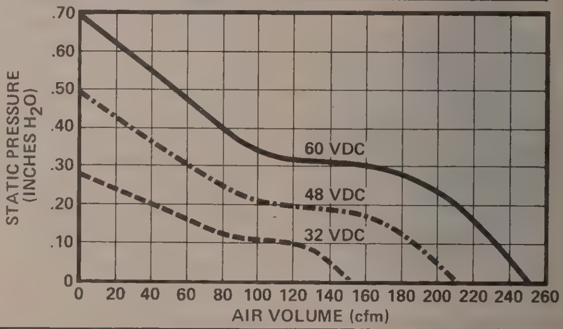


Model 6148 DC Fan

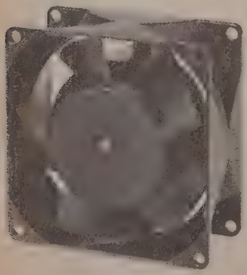
Size: 6-3/4″ Diameter x 2″ Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, high airflow, locked rotor and polarity protected.
Construction: Aluminum alloy housing, glass filled polyphenylene oxide impeller, brushless electronic motor, terminal block.
Life Expectancy: 60,000 hours at 72° C.
Max. Operating Temp.: +72° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level dB (A)	Noise Level dB (SIL)
6148		X	32-60 48 nominal	205 mA @ free air	10.5 W @ free air	210	2800	38	50	38



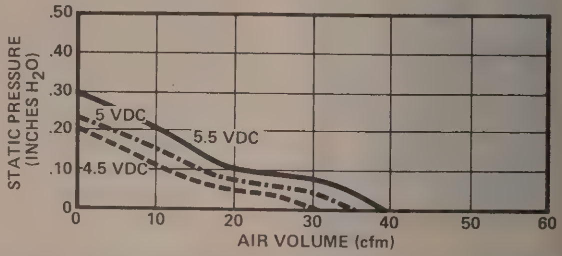
Model 8105G DC Fan



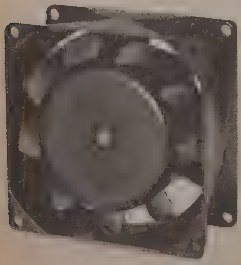
Size: 3-1/8″ Square x 1-1/2″ Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, high airflow, low EMI and RFI.
Construction: All-metal brushless electronic motor, 12″ leads.
Life Expectancy: 35,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level dB (A)	Noise Level dB (SIL)
8105G	X		4.5-5.5 5 nominal	480 mA @ free air	2.5 W @ free air	36	3450	18	37	29



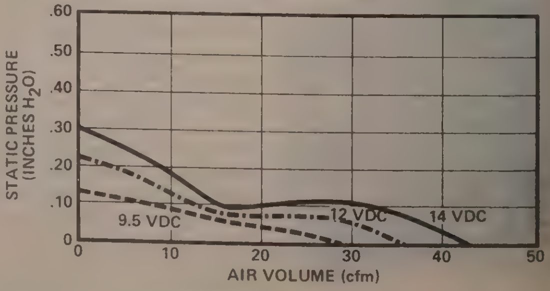
Model 8112 DC Fan



Size: 3-1/8″ Square x 1-1/2″ Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, locked rotor and polarity protected.
Construction: All-metal, brushless electronic motor, 12″ leads.
Life Expectancy: 60,000 hours at 72° C.
Max. Operating Temp.: +72° C.
Safety Codes: UL recognized, Yellow Card E41168. Also conforms to CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level dB (A)	Noise Level dB (SIL)
8112		X	9.5-14 12 nominal	240 mA @ free air	2.9 W @ free air	36	3300	18	38	28



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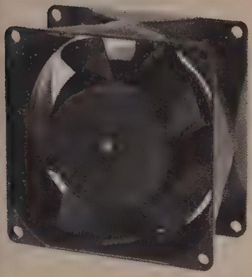
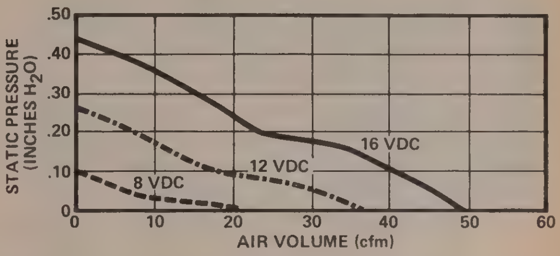
Model 8112G DC Fan

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
8112G	X		8-16 12 nominal	220 mA @ free air	2.6 W @ free air	36	3450	18	37	29



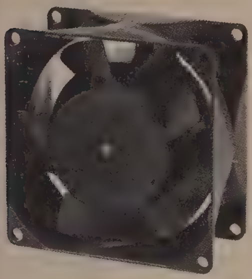
Size: 3-1/8" Square x 1-1/2" Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, locked rotor and polarity protected.
Construction: All-metal, brushless electronic motor, 12" leads.
Life Expectancy: 35,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessories are available.



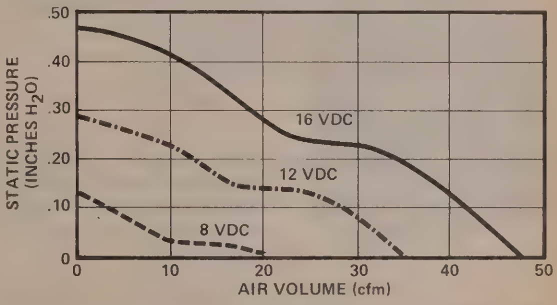
Model 8112K DC Fan

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
8112K		X	8-16 12 nominal	200 mA @ free air	2.4 W @ free air	35	3450	18	39	29



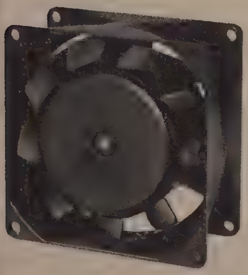
Size: 3-1/8" Square x 1-1/2" Deep
Advantages: Solid state integral electronics, no external inverter required, low EMI and RFI, locked rotor and polarity protected.
Construction: All-metal, brushless electronic motor, 12" leads.
Life Expectancy: 60,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessories are available.



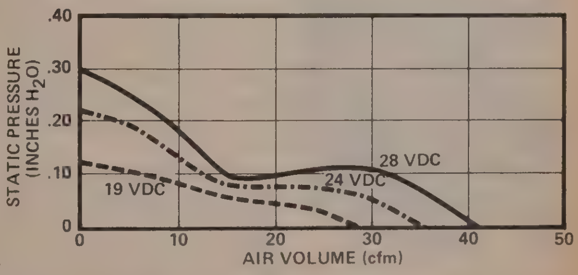
Model 8124 DC Fan

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
8124		X	19-28 24 nominal	125 mA @ free air	3 W @ free air	36	3300	18	38	28



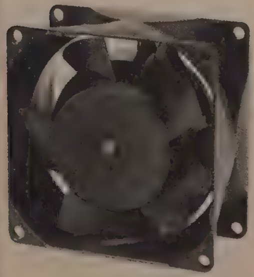
Size: 3-1/8" Square x 1-1/2" Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, locked rotor and polarity protected.
Construction: All-metal, brushless electronic motor, 12" leads.
Life Expectancy: 60,000 hours at 72° C.
Max. Operating Temp.: +72° C.
Safety Codes: UL recognized, Yellow Card E41168. Also conforms to CSA, VDE and IEC standards.

Fan accessories are available.



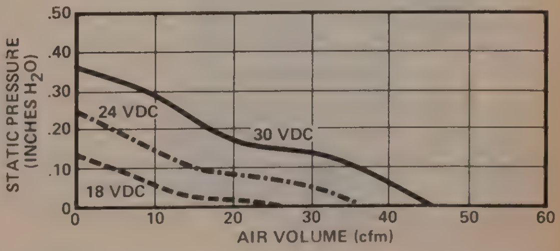
Model 8124G DC Fan

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
8124G	X		18-30 24 nominal	110 mA @ free air	2.6 W @ free air	37	3450	18	37	26



Size: 3-1/8" Square x 1-1/2" Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, locked rotor and polarity protected.
Construction: All-metal-brushless electronic motor, 12" leads.
Life Expectancy: 35,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessories are available.



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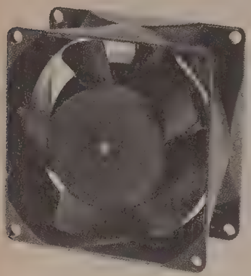
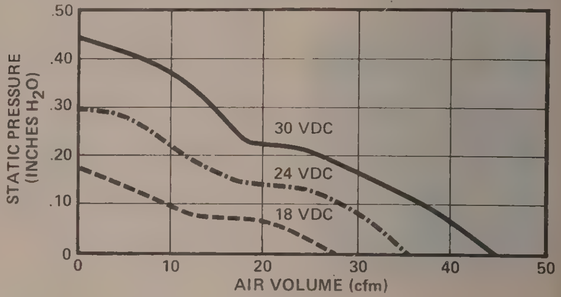
Model 8124K DC Fan



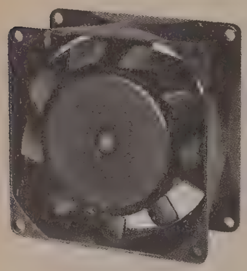
Size: 3-1/8″ Square x 1-1/2″ Deep
Advantages: Solid state integral electronics, no external inverter required, low EMI and RFI, locked rotor and polarity protected.
Construction: All-metal, brushless electronic motor, 12″ leads.
Life Expectancy: 60,000 hours at 65° C.
Max. Operating Temp.: +65° C.
Safety Codes: Conforms to UL, CSA, VDE and IEC standards.

Fan accessories are available.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
8124K		X	18-30 24 nominal	205 mA @ free air	4.9 W @ free air	35	3450	18	39	29



Model 8148 DC Fan

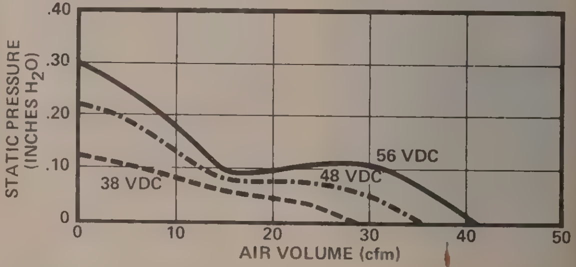


Size: 3-1/8″ Square x 1-1/2″ Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, locked rotor and polarity protected.
Construction: All-metal, brushless electronic motor, 12″ leads.

Life Expectancy: 60,000 hours at 72° C.
Max. Operating Temp.: +72° C.
Safety Codes: UL recognized, Yellow Card E41168. Also conforms to CSA, VDE and IEC standards.

Fan accessories are available.

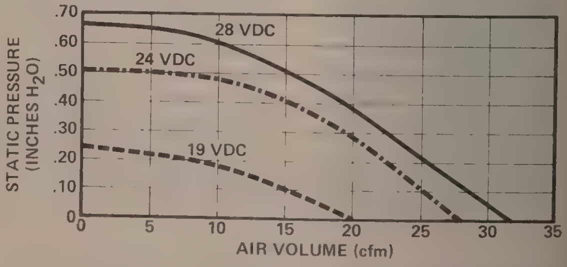
Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
8148		X	38-56 48 nominal	64 mA @ free air	3.1 W @ free air	38	3400	18	38	28



RL90-18/24 DC Radial Blower

Size: 4-3/4″ Square x 1-1/2″ Deep
Advantages: Solid state integral electronics, no external inverter required, low input power, high concentrated airflow, locked rotor and polarity protected.
Construction: Polycarbonate housing, steel mounting plate, polyamide fan wheel, brushless electronic motor, 12″ leads.
Life Expectancy: 60,000 hours at 72° C.
Max. Operating Temp.: +72° C.
Safety Codes: UL recognized, Yellow Card E41168. Also conforms to CSA, VDE and IEC standards.

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (dc)	Input Current	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
RL90-18/24		X	19-28 24 nominal	215 mA @ free air	5.2 W @ free air	28	2520	23	54	43



Cooling Devices Product Manual

PAMOTOR announces the availability of their all new product manual.

Detailed, yet easy to read, the manual contains all information needed to select the correct fan or blower for specific requirements.

Application notes, helpful hints - what to look for, what to avoid - product specifications, they are all here, between common covers. For a free copy please send request on letterhead to PAMOTOR, 770 Airport Blvd., Burlingame, CA 94010, Attn: Marketing Dept.

Fans & Blowers

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PAMOTOR AC FANS

Field proven, quality products you can rely upon for all of your cooling requirements.

PAMOTOR offers a wide variety of fans for your selection. Each model combines the features of extended life with high airflow delivery at low noise levels.

Lightweight all-metal construction is typical of PAMOTOR AC fans. This all-metal construction eliminates breakage and warping often found in conventional plastic fans. This all-metal feature also permits the entire fan to function as a natural heat sink, assuring cooler operation by effectively transferring heat from the rotor into the air stream via the impeller blades. Potential injurious heat is also transferred from the stator to the die-cast venturi by way of the metal struts. Life expectancy: (1) AC fans with sleeve bearings - 20,000 hours at maximum permissible ambient temperatures. (2) AC fans with ball bearings - 20,000 hours at 72° C or at the maximum permissible temperature if this is less than 72° C. Note: If the ambient temperature in which the fan operates is at 20° C below the above levels the life expectancy increases by 10,000 hours.

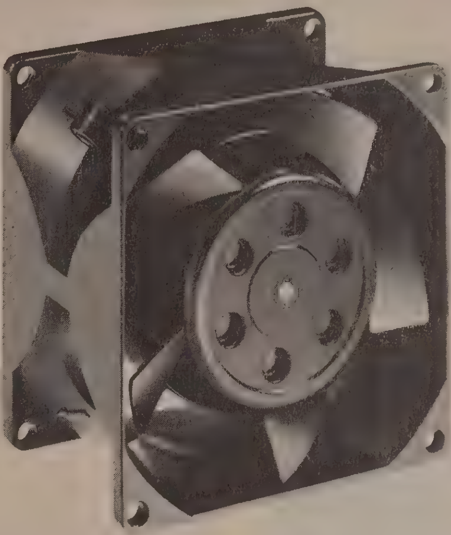
The PAMOTOR exclusive bearing lubrication system incorporates hand-fitted broached sintered iron sleeve bearings on most fans, with precision high-temperature ball bearing versions also available. The dual sleeve bearings are separated by a large oil felt reservoir, which provides continuous fault free circulation of a special lubricant to the shaft and bearing surface.

An efficient, powerful inside-out motor, housed entirely within the impeller hub to conserve axial depth, has higher torque capabilities and a lower internal heat rise than the contemporary fixed shaft designs.

The impeller blades are computer designed and impulse welded to the precision hub and dynamically balanced to within .0001 inches in each end plane to minimize acoustical and mechanical vibrations.

PAMOTOR also offers a super premium grade fan; the PENTAFLOW series (5 year warranty).

Perhaps the two most important fields of application for PENTAFLOW fans are: (1) in limited-production deluxe equipment, in professional-grade instrumentation, in few-of-a-kind, custom-designed and permanently-installed systems requiring optimum performance and absolute dependability for many years; and (2) as field replacements for retrofit units for original-equipment fans that have proven to be unreliable, are too noisy, or do not produce sufficient cooling airflow.



PAMOTOR fans are Underwriters' Laboratories, Inc. recognized and have their Yellow Card Component Recognition Number E41168. Many are CSA certified and VDE approved.

AC Fans Quick Selection Guide

Model	Operating Voltage VAC	Frequency Hz	Airflow cfm	Frame Size inches
Shaded Pole Fans				
2500S	115	50/60	115	4-1/2 sq. x 2 D
2550S	230	50/60	115	
4600X	115	50/60	120	4-11/16 sq. x 1-1/2 D
4600XP	115	50/60	120	
4606X*	115	50/60	120	
4650X	230	50/60	120	
4656X*	230	50/60	120	
4800X	115	50/60	70	
4850X	230	50/60	70	
7600S	115	50/60	240	6 dia. x 2-3/16 D
7606*	115	50/60	240	
7650S	230	50/60	240	
7656*	230	50/60	240	
8500D	115	50/60	40	3-1/8 sq. x 1-1/2 D
8500DP	115	50/60	40	
8506D*	115	50/60	40	
8550D	230	50/60	40	
8556D*	230	50/60	40	
8800D	115	50/60	27	
8850D	230	50/60	27	
Induction Type Fans				
900†	24-42	50/60	20-27	3-1/8 dia. x 1-1/2 D
950†	24	50/60	40	3 dia. x 1-1/2 D
6008S*	115	50/60	250	6-3/4 dia. x 2 D
6058S*	230	50/60	250	6-3/4 dia. x 2 D
Radial Blower				
RL90-18/00	115	50/60	25	4-3/4 sq. x 1-1/2 D

*High temperature ball bearing models.
†Models 900 & 950 require an additional capacitor.

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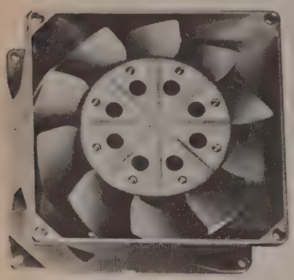
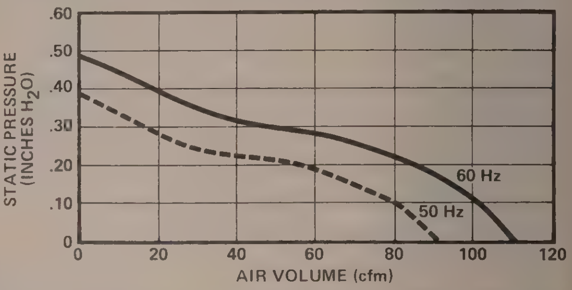
2500 Series Shaded Pole Fans

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (ac)	Frequency (Hz)	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
2500S	X		115	50/60	27 W	115	3300	32	59	42
2550S	X		230	50/60	27 W	115	3300	32	59	42



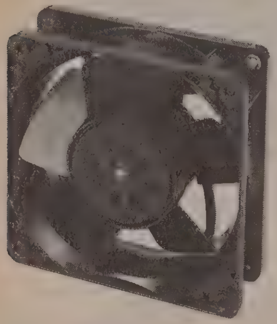
Size: 4-1/2″ Square x 2″ Deep
Advantages: Powerful, high cooling capacity.
Construction: All-metal, shaded-pole motor, 12″ leads (2550S, 6″ Leads).
Max. Operating Temp.: +55° C @ 115 VAC/60 Hz or 230 VAC/60 Hz.
Safety Codes: UL recognized, Yellow Card E41168. CSA certified. Also conforms to VDE and IEC standards.

Fan accessories are available.



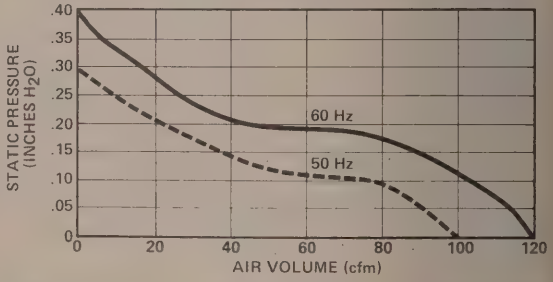
4600X Series Shaded Pole Fans

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (ac)	Frequency (Hz)	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
4600X	X		115	50/60	18 W	120	3100	20	50	40
4606X*		X	115	50/60	17.5 W	120	3170	20	51	41
4650X	X		230	50/60	17 W	120	3100	20	50	40
4656X*		X	230	50/60	17 W	120	3150	20	51	41



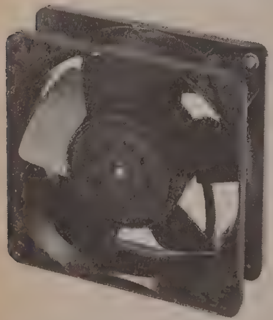
Size: 4-11/16″ Square x 1-1/2″ Deep
Advantages: High airflow at maximum back pressure.
Construction: All-metal, shaded-pole motor, terminal block.
Max. Operating Temp.: +65° C (*+85° C) @ 115 VAC/60 Hz or 230 VAC/60 Hz.
Safety Codes: UL recognized, Yellow Card E41168. CSA certified and VDE approved. Also conforms to IEC standards.

Fan accessories are available.



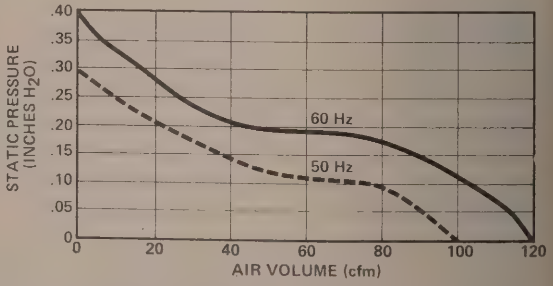
4600XP Pentaflow™ Premium Fan

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (ac)	Frequency (Hz)	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
4600XP	X		115	50/60	18 W	120	3100	20	50	40



Size: 4-11/16″ Square x 1-1/2″ Deep
Advantages: High airflow at maximum back pressures, 5 year warranty.
Construction: All-metal, shaded-pole motor, terminal block.
Max. Operating Temp.: +65° C @ 115 VAC/60 Hz.
Safety Codes: UL recognized, Yellow Card E41168. CSA certified and VDE approved. Also conforms to IEC standards.

Fan accessories are available.

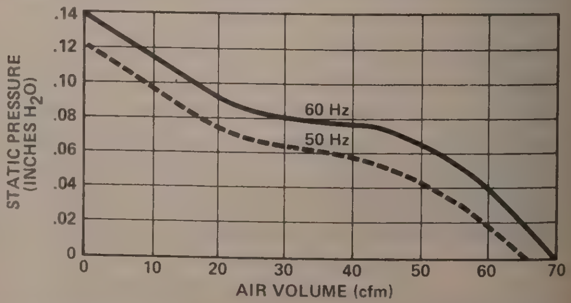


4800X Series Shaded Pole Fans

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (ac)	Frequency (Hz)	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
4800X	X		115	50/60	9.5 W	70	2000	19	32	23
4850X	X		230	50/60	9.5 W	70	1800	19	32	23

Size: 4-11/16″ Square x 1-1/2″ Deep
Advantages: The quietest of fans in this size.
Construction: All-metal, shaded-pole motor, terminal block.
Max. Operating Temp.: +80° C @ 115 VAC/60 Hz or 230 VAC/60 Hz.
Safety Codes. UL recognized, Yellow Card E41168. CSA certified and VDE approved. Also conforms to IEC standards.

Fan accessories are available.



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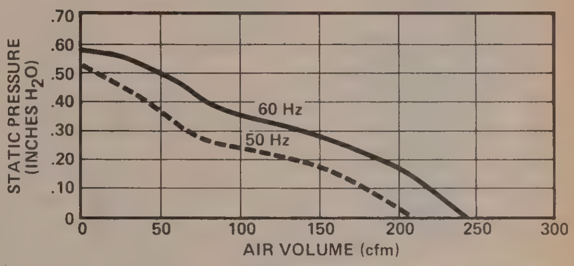
7600 Series Shaded Pole Fans

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (ac)	Frequency (Hz)	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
7600S	X		115	50/60	38 W	240	3350	38	60	48
7606*		X	115	50/60	38 W	240	3350	38	61	48
7650S	X		230	50/60	37 W	240	3350	38	60	48
7656*		X	230	50/60	36 W	240	3350	38	61	48

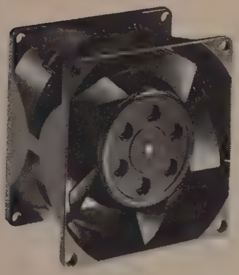
Size: 6" Diameter x 2" Deep
Advantages: High airflow, excellent back pressures.
Construction: All-metal, shaded-pole motor, 12" leads.
Max. Operating Temp.: +55° C (*+85° C) @ 115VAC/60 Hz or 230 VAC/60 Hz.
Safety Codes: UL recognized, Yellow Card E41168. CSA certified and VDE approved. Also conforms to IEC standards.

Fan accessories are available.



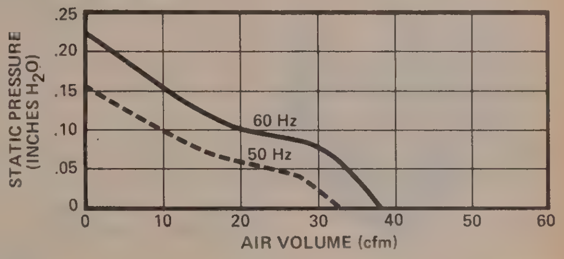
8500 Series Shaded Pole Fans

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (ac)	Frequency (Hz)	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
8500D	X		115	50/60	12 W	40	3250	17	35	27
8506D*		X	115	50/60	11.5 W	40	3300	17	36	28
8550D	X		230	50/60	13 W	40	3250	17	35	27
8556D*		X	230	50/60	12.5 W	40	3300	17	36	28



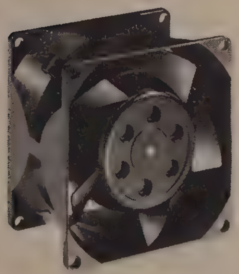
Size: 3-1/8" Square x 1-1/2" Deep
Advantages: Compact, high airflow, low noise.
Construction: All-metal, shaded-pole motor, 12" leads.
Max. Operating Temp.: +70° C (*+90° C) @ 115 VAC/60 Hz or 230 VAC/60 Hz.
Safety Codes: UL recognized, Yellow Card E41168. CSA certified and VDE approved. Also conforms to IEC standards.

Fan accessories are available.



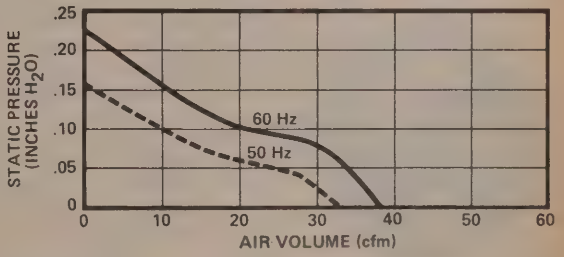
8500DP Pentaflow™ Premium Fan

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (ac)	Frequency (Hz)	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
8500DP	X		115	50/60	12 W	40	3250	17	35	27



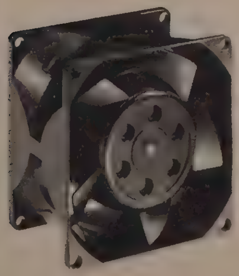
Size: 3-1/8" Square x 1-1/2" Deep
Advantages: Compact, high airflow, low noise, 5 year warranty.
Construction: All-metal shaded-pole motor, 12" leads.
Max. Operating Temp.: +70° C @ 115 VAC/ 60 Hz.
Safety Codes: UL recognized, Yellow Card E41168. CSA certified and VDE approved. Also conforms to IEC standards.

Fan accessories are available.



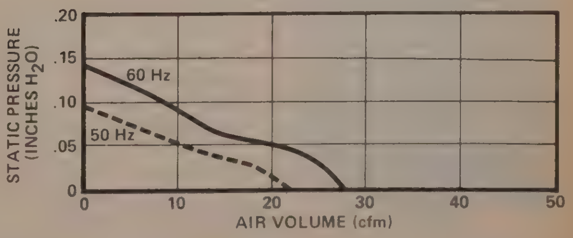
8800 Series Shaded Pole Fans

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (ac)	Frequency (Hz)	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
8800D	X		115	50/60	12.5 W	27	2550	17	30	21
8850D	X		230	50/60	13 W	27	2550	17	30	21



Size: 3-1/8" Square x 1-1/2" Deep
Advantages: Compact, very low noise.
Construction: All-metal, shaded-pole motor, 17" leads.
Max. Operating Temp.: +70° C @ 115 VAC/60 Hz or 230 VAC/60 Hz.
Safety Codes: UL recognized, Yellow Card E41168. CSA certified and VDE approved. Also conforms to IEC standards.

Fan accessories are available.



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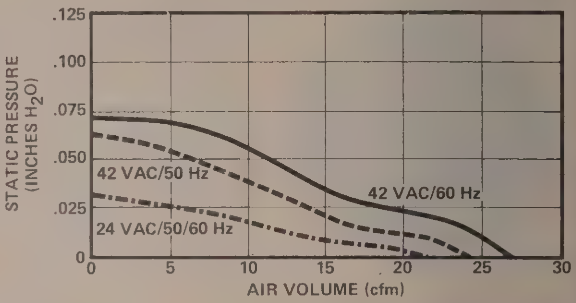
Model 900 Induction Fan

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (ac)	Frequency (Hz)	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
900	X		24-42	50/60	2.3 W	20	1700	5	22	15

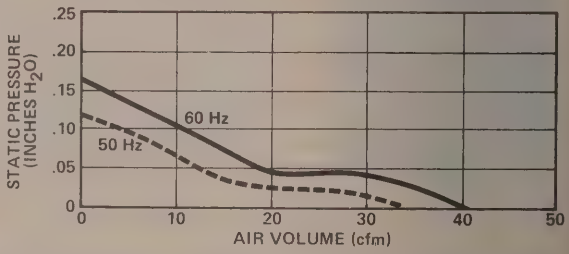
Size: 3-1/8″ Diameter x 1-1/2″ Deep
Advantages: Compact - little mounting space required, very quiet, extremely low stray field, axial and radial air entry.
Construction: Special Trogamid-T, induction motor, 6″ leads.
Max. Operating Temp.: +85° C @ 24 VAC/60 Hz, and +55° C @ 42 VAC/60 Hz.
Safety Codes: UL recognized, Yellow Card E41168 and VDE approved. CSA certified models are available upon request. Conforms to IEC standards.
Capacitor Required: 5.6 mfd.



Model 950 Induction Fan

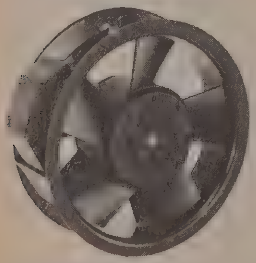
Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (ac)	Frequency (Hz)	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
950	X		24	50/60	6.5 W	40	3550	5	40	31

Size: 3″ Diameter x 1-1/2″ Deep
Advantages: Very efficient, quiet, small frame.
Construction: Polyamide, 5″ leads.
Max. Operating Temp.: +70° C @ 24 VAC/60 Hz.
Safety Codes: UL recognized, Yellow Card E41168 and VDE approved. CSA certified models are available upon request. Conforms to IEC standards.
Capacitor Required: 15 mfd.



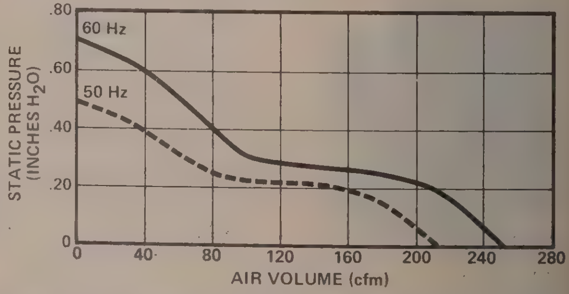
6008S Series Split Capacitor Fans

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (ac)	Frequency (Hz)	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
6008S		X	115	50/60	26.5 W	250	3400	38	54	45
6058S		X	230	50/60	26 W	250	3400	38	54	45



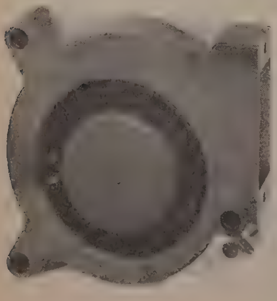
Size: 6-3/4″ Diameter x 2″ Deep
Advantages: High airflow, low noise, capacitor furnished with fan.
Construction: Aluminum alloy housing, glass filled polyphenylene oxide impeller, efficient split capacitor motor, terminal block.
Max. Operating Temp.: +80° C @ 115 VAC/60 Hz or 230 VAC/60 Hz.
Safety Codes: UL recognized, Yellow Card E41168. CSA certified. Also conforms to VDE and IEC standards.

Fan accessories are available.

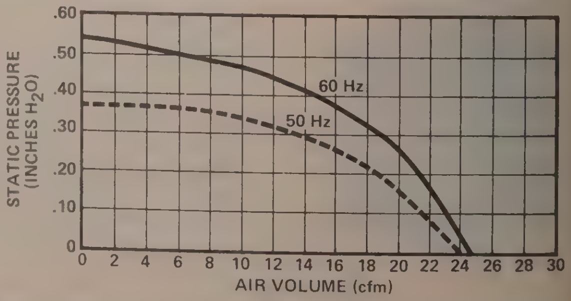


RL90-18/00 Radial Blower

Model Number	Sintered Iron Sleeve	Ball Bearing	Voltage (ac)	Frequency (Hz)	Input Power	Airflow (cfm)	Speed (rpm)	Weight (ounces)	Noise Level	
									dB (A)	dB (SIL)
RL90-18/00	X		115	50/60	20 W	25	2730	23	56	45



Size: 4-3/4″ Square x 1-1/2″ Deep
Advantages: High concentrated airflow at maximum pressures, low acoustical disturbance, perfect for spot cooling.
Construction: Polycarbonate housing, polyamide wheel, shaded-pole motor, 12″ leads.
Max. Operating Temp.: +55° C @ 115 VAC/60 Hz.
Safety Codes: UL recognized, Yellow Card E41168. VDE approved. Conforms to CSA and IEC standards.



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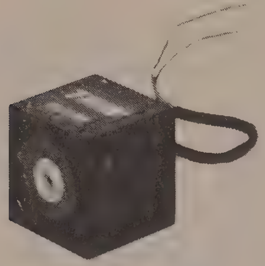
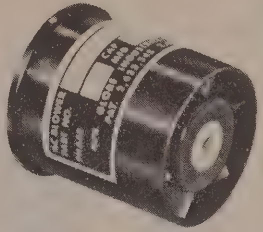
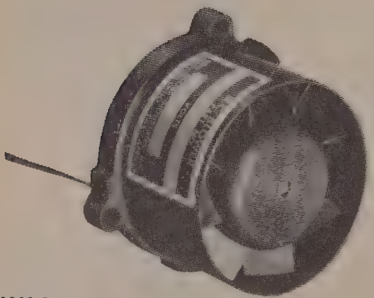


VAX-1
1″^{3} BLOWER, 1″^{3} VANEAXIAL A.C. delivers up to 6 cfm @ 0.7″ H_2O; 26 v.a.c.; single phase, 400 Hz. 1.5 oz. 1000 hrs. min. @ 85°C.



VAX-1
1⅛″ VANEAXIAL A.C. or D.C. VAX-1-AC delivers 10 cfm @ .6″ H_2O. 26 v.a.c., single phase, 400 Hz. 1.5 oz. VAX-1-DC delivers 8.5 cfm @ .5″ H_2O. 26 v.d.c. 1.4 oz.

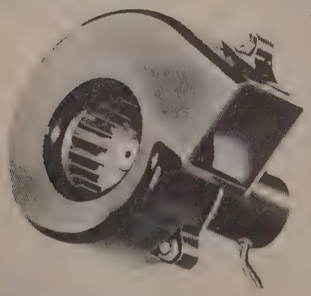
VAX-1.5
1¾″ VANEAXIAL A.C. or D.C. VAX-1.5-AC delivers 12.0 cfm @ 1.9″ H_2O. 115 v.a.c., single phase, 400 Hz. 4.0 oz. VAX-1.5-DC delivers 15 cfm @ 1.3″ H_2O. 27 or 50 v.d.c. 5.0 oz.



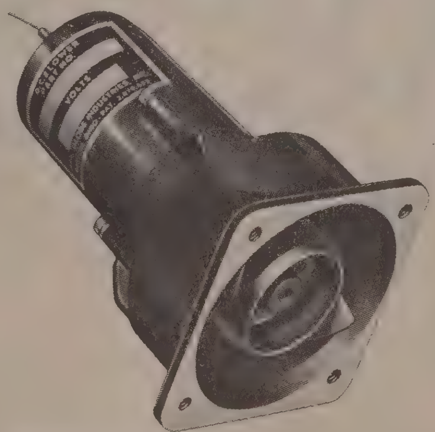
VAX-2
2″ VANEAXIAL A.C. or D.C. VAX-2 delivers 50 cfm @ 2.1″ H_2O; 115 or 200 v.a.c., 1 or 3 phase; 60 or 400 Hz; 6 oz. VAX-2 D.C. delivers 37 cfm @ 1.5″ H_2O; 26 v.d.c.; 5 oz.

VAX-3
3″ VANEAXIAL. Four types A.C. and D.C. deliver 85 to 165 cfm at 0″ H_2O. 115 and 200 v.a.c.; 12 and 28 v.d.c. 14 to 17 oz.

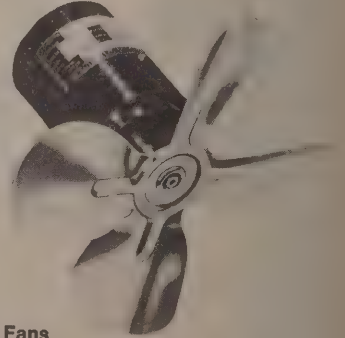
VAX-4-FC
4″ HIGH ALTITUDE VANEAXIAL A.C. delivers 170 cfm @ 0″ H_2O, 140 cfm @ 2.1″ H_2O at 25,000 ft. or 95 cfm @ 2.5″ H_2O at sea level. 200 v.a.c., 3-phase, 400 Hz. 2 lbs.



Centrifugal Blowers
1″ to 2½″ impeller dia, RH or LH scroll models, A.C. or D.C.; round or rectangular outlet; up to 33 cfm @ 0″ H_2O 115 v.a.c., 60 or 400 Hz; 27 v.d.c.; 4 to 13 oz. CW or CCW rotation.



Tubeaxial Blowers
Tubeaxial blowers deliver up to 62 cfm free air, available in a.c. or d.c. 27 to 200 v.a.c. 1, 2 or 3-phase, 60 and 400 Hz. 4 to 70 v.d.c. 5 to 9½ oz. Airflow either direction.



Open Fans
Fifteen types, a.c. and d.c., deliver 28 to 195 cfm. Fan diameters from 2″ to 5½″. 26 v.d.c. Economical and reliable.

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TRW

Fans and Blowers

Open Fans

Motor Type	Fan Dia.	CFM	Power Source	Part No.
SS	2″	28	26 v.d.c.	47A102
MM	3″	85	26 v.d.c.	3A1246
LL	3″	110	26 v.d.c.	3A1247
SC	2″	25	115 v.a.c. 400 Hz	19A549
MC	2″	60	115 v.a.c. 400 Hz	19A550
MC	3″	90	115 v.a.c. 400 Hz	19A551
MC	4″	90	115 v.a.c. 400 Hz	19A552
FC	3″	110	115 v.a.c. 400 Hz	19A640
FC	4″	190	115 v.a.c. 400 Hz	19A641
FC	4½″	195	115 v.a.c. 400 Hz	19A642
FC	3″	38	115 v.a.c. 400 Hz	19A643
FC	4″	88	115 v.a.c. 400 Hz	19A644
FC	4½″	110	115 v.a.c. 400 Hz	19A645
FC	5″	130	115 v.a.c. 400 Hz	19A646
FC	5½″	165	115 v.a.c. 400 Hz	19A647

Centrifugal Blowers

Curve	Type	Blower #	Power Source	Part No.	
				CW	CCW
1	SS	#1	26 v.d.c.	19A1858	19A1859
2	SC	#1	115 v.a.c. 400 Hz	19A565	—
3	MM	#1½	26 v.d.c.	19A1860	19A1861
4	MC	#1½	115 v.a.c. 400 Hz	19A518	19A1305
5	LL	#2	26 v.d.c.	19A1862	19A1863
6	MC	#2	115 v.a.c. 400 Hz	19A535	19A2774
7	LL	#2½	26 v.d.c.	19A1864	19A1865
8	MC	#2½	115 v.a.c. 400 Hz	19A532	19A2775

Tubeaxial Blowers

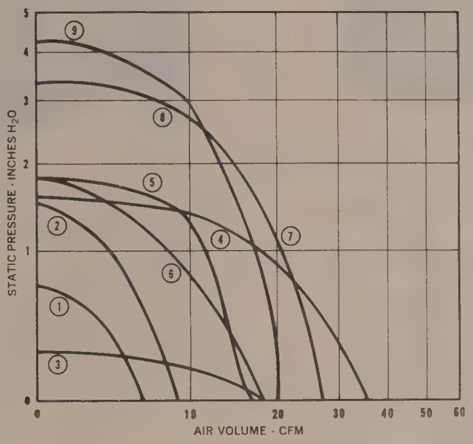
Curve	Type	Impeller Diameter	Power Source	Part No.	
				Flow F	Flow R
1	SS	1.4″	12 v.d.c	19A2749	—
1	SS	1.4″	26 v.d.c.	19A2750	—
3	SS	2″	26 v.d.c.	19A554	19A544
3	SC	2″	26 v.a.c. 400 Hz	19A651-2	19A650-2
3	SC	2″	115 v.a.c. 400 Hz	19A651-1	19A650-1
3	SC	2″	200 v.a.c. 400 Hz	19A651-3	19A650-3
4	SC	2″	26 v.a.c. 400 Hz	19A653-2	19A652-2
4	SC	2″	115 v.a.c. 400 Hz	19A653-1	19A652-1
4	SC	2″	200 v.a.c. 400 Hz	19A653-3	19A652-3
3	MC	2″	115 v.a.c. 400 Hz	19A591	19A590
5	MC	2½″	115 v.a.c. 400 Hz	19A527	19A526
2	MC	2½″	115 v.a.c. 60 Hz	19A540	19A533
3	MM	2″	27 v.d.c.	19A523	19A514
5	LL	2½″	27 v.d.c.	19A524	19A522

Vaneaxial Blowers

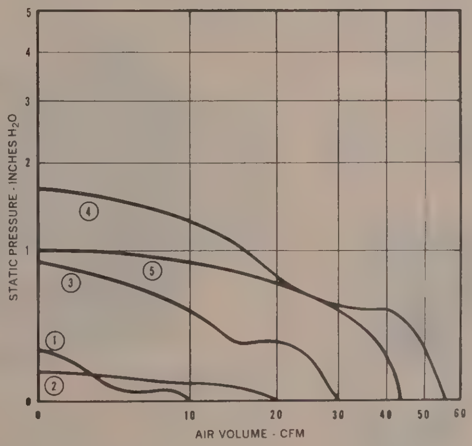
Curve	Type	Dia.	Wt.	Power Source	Part No.
1	VAX-1DC	1⅛″	1.4 oz.	26 v.d.c.	19A1040
2	VAX-1AC	1⅛″	1.5 oz.	26 v.a.c. 400 Hz	19A1173
3	VAX-1.5	1½″	4.2 oz.	115 v.a.c. 400 Hz	19A1233
4	VAX-2MM	2″	5 oz.	26 v.d.c.	19A1771
5	VAX-2MC	2″	5 oz.	200 v.a.c. 400 Hz	19A774
6	STAX-3	3″	28 oz.	200 v.a.c. 400 Hz	19A920
7	STAX-3	3″	28 oz.	200 v.a.c. 400 Hz	19A921
8	STAX-3	3″	29 oz.	200 v.a.c. 400 Hz	19A922
9	VAX-3BD	3″	16 oz.	28 v.d.c.	19A827
9	VAX-3GN	3″	16 oz.	115 v.a.c./v.d.c.	19A908
10	VAX-3FC	3″	15 oz.	200 v.a.c. 400 Hz	19A751
11	VAX-3.5	3½″	30 oz.	200 v.a.c. 400 Hz	19A2346
12	VAX-4FC	4″	26 oz.	200 v.a.c. 400 Hz	19A1348
13	VAX-4.5LC	4¹¹⁄₁₆″	5.5 lbs.	200 v.a.c. 400 Hz	19A1350
14	VAX-5	5″	6.5 lbs.	200 v.a.c. 400 Hz	19A2561

Note: 115V units are 1 phase; 200V, 3 phase.

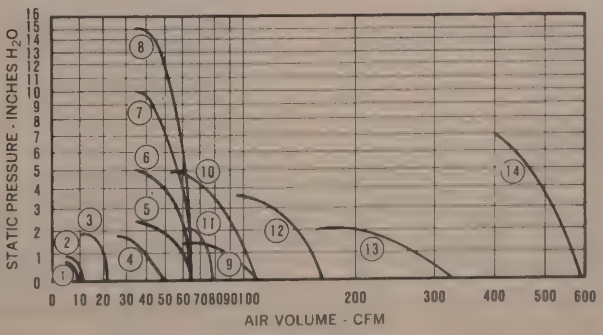
Centrifugal Blowers



Tubeaxial Blowers



Vaneaxial Blowers



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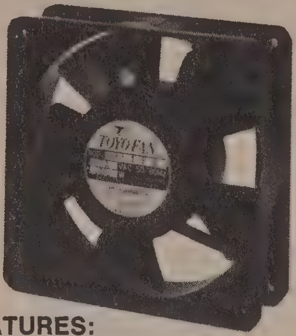
TF120 Series



FEATURES:

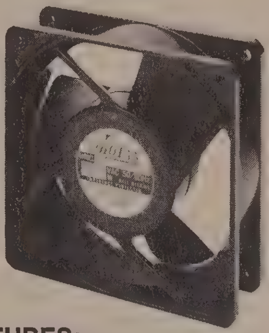
- 4.70″ sq. x 1.50″ deep (119.5mm x 38mm)
- 104 to 76 CFM free air delivery
- Choice of three speeds for various applications
- Noise rating as low as 38 dB(A) at 1.5m
- Precision ball bearings provide long service life
- Rugged die cast aluminum frame
- Choice of 115VAC or 230VAC
- Choice of terminals or wire leads
- Impedance protected
- U.L. recognized — File No. E75082
- CSA certified — File No. LR48371
- Also available in dual voltage fan Model TF120345 Series
- **Sleeve bearing model available soon**

ULTRA THIN FAN
TF120RX Series

FEATURES:

- The thinnest axial fan available — .787″ (20mm) thick
- High performance
- Low noise level
- Precision ball bearings provide long service life
- Durable die cast aluminum frame
- Choice of 115VAC or 230VAC
- Impedance protected
- U.L. recognition and CSA certification pending

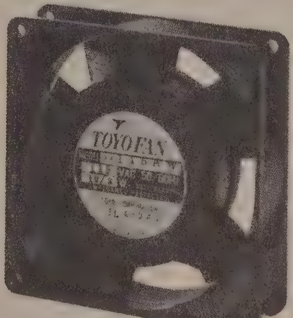
QUIET FAN
TF120U Series



FEATURES:

- Designed for low noise level applications
- Precision ball bearings provide long service life
- Durable die cast aluminum frame
- Choice of 115VAC or 230VAC
- Impedance protected
- U.L. recognized — File No. E75082
- CSA certification pending

TF92 Series



FEATURES:

- Less than 1 inch deep
- 3.62″ sq. x .98″ deep (92mm x 25mm)
- 34 to 27 CFM free air delivery
- Choice of three speeds for various applications
- Noise rating as low as 32 dB(A) at 1.5m
- Precision ball bearings provide long service life
- Rugged die cast aluminum frame
- Choice of 115VAC or 230VAC
- Choice of terminals or wire leads
- Impedance protected
- U.L. recognized — File No. E75082
- CSA certified — File No. LR48371
- Also available in dual voltage fan Model TF92345 Series
- **Sleeve bearing model available soon**

THE THIN FAN
TF120R Series

FEATURES:

- Less than 1 inch deep
- 4.70″ x .98″ deep (119.5mm x 25mm)
- 92 to 76 CFM free air delivery
- Choice of two speeds for various applications
- Noise rating as low as 34 dB(A) at 1.5m
- Precision ball bearings provide long service life
- Rugged die cast aluminum frame.
- Choice of 115VAC or 230VAC
- Impedance protected
- U.L. recognition and CSA certification pending

ULTRA THIN FAN
TF92RX Series

FEATURES:

- The thinnest axial fan available — .787″ (20mm) thick
- High performance
- Low noise level
- Precision ball bearings provide long service life
- Durable die cast aluminum frame
- Impedance protected
- U.L. recognition and CSA certification pending

U.S. TOYO FAN CORPORATION

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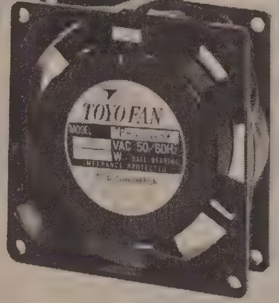
TF80 Series

TOYO FAN
MODEL
VAC 50/60Hz
W
TOYO CORPORATION

FEATURES:

- Low profile design — 3.15″ sq. x 1.50″ (80mm x 38mm)
- High performance airflow
- Low noise level
- Precision ball bearings provide long service life
- Rugged die cast aluminum frame
- Choice of 115VAC or 230VAC
- Choice of terminals or lead wires
- Impedance protected
- U.L. recognition and CSA certification pending
- Also available in dual voltage fan Model TF80345 Series
- **Sleeve bearing model available soon**

SMALL-THIN FAN
TF80R Series



FEATURES:

- Low profile design — 3$^1/_8$″ square
- Less than 1 inch thick — .984″ (25mm)
- Precision ball bearings provide long service life
- Durable die cast aluminum frame
- Choice of 115VAC or 230VAC
- Impedance protected
- U.L. recognition and CSA certification pending

SMALL-ULTRA THIN FAN
TF80RX Series

TOYO FAN
MODEL
VAC 50/60Hz
W BALL BEARING
IMPEDANCE PROTECTED

FEATURES:

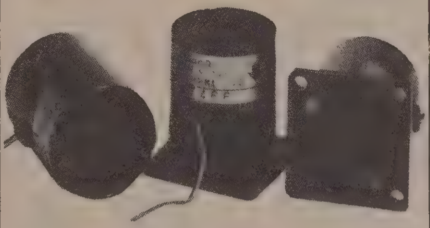
- The thinnest axial fan available — .787″ (20mm thick)
- Low profile design — 3$^1/_8$″ square
- High performance
- Low noise level
- Precision ball bearings provide long service life
- Durable die cast aluminum frame
- Choice of 115VAC or 230VAC
- Impedance protected
- U.L. recognition and CSA certification pending

DC BRUSHLESS
TFD80 Series & TFD120 Series

FEATURES:

- DC brushless motor provides low EMI/RFI interference
- Available in 12 and 24 Volt DC
- 4.70″ square x 1½″ thick TFD120 Series
- 3.15″ square x .984″ or 1.26″ thick TFD80 Series
- Precision ball bearings provide long service life
- Polarity protected
- Impedance protected

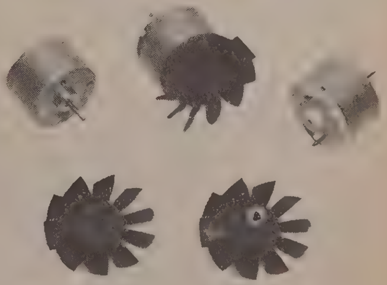
DC MICRO FAN
SMF1836 Series



FEATURES:

- Provides cooling in extremely confined areas
- Compact-miniature size — 1.42″ diameter x 1.77″ long
- High performance
- Choice of 5, 10, 12, and 24VDC
- Choice of optional mounting flanges
- **Brushless model also available**

DC MINI FAN
SL510 Series



FEATURES:

- Low cost
- Miniature size — 1.50″ long x 1.72″ diameter including impeller
- Low acoustical noise
- Dependable performance

WARRANTY — All U.S. Toyo fans are warranted to be free of defects in materials and workmanship for a period of one year from date of delivery.

AIRFLOW PERFORMANCE DATA — Performance data obtained with test chamber and methods in accordance with AMCA Standard 210-74.

ACOUSTICAL NOISE DATA — Acoustical measurements made at distances of 1.0 and 1.5 meters from fan intake. All measurements made on dB (A) scale. Fans operating at 60Hz line frequency.

OPERATING TEMPERATURE — Recommended ambient operating temperature is −30°C to +70°C.

IMPEDANCE PROTECTION — All fans are designed and manufactured to prevent "burn-out" failure caused by restriction of rotating parts.

LIFE EXPECTANCY — Life test data available on request.

SAFETY — All fans are designed and manufactured to meet UL and CSA standards. Approved fans are listed as follows: UL File No. E75082 and CSA File No. 48371M2.

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES

TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 84/85 EDITION OF EEM

Abbreviations/Acronyms .... **1A**•1137, **1B**•1035, **2**•1014, **3**•1014
ASCII Code .... **3**•1103
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Capacitors, Miniglossary .... **1A**•1069
Capacitors, Product Selection Guide .... **1A**•1003
Circuit Boards (Printed), Product Selection Guide .... **2**•1089
Coils, Chokes, & Inductors, Product Selection Guide .... **1A**•1219
Connectors, Miniglossary .... **2**•1264
Connectors, Terminals, & Sockets, Product Selection Guide .... **2**•1097
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide .... **1A**•1309
Delay Lines, Product Selection Guide .... **1A**•1445
Discrete Semiconductors, Product Selection Guide .... **1A**•2087
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Instruments, Graphic Recording, Product Selection Guide .... **3**•1381
Instruments, Panel Meters, Product Selection Guide .... **3**•1321
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Power Supplies, DC, Product Selection Guide .... **3**•1439
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ADD Electronics (617) 478-4200
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Glynn Electronics—(617) 947-4262
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Semtex Industrial Corp. (617) 935-2466
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RM Electronics Co., Inc. (616) 531-9300
RS Electronics (313) 525-1155
RS Electronics (616) 241-3483
S-F Electronic Supply, Inc. (616) 459-0216
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Electronic Center, Inc. (612) 371-5200
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Hooper Electronic Supply (601) 762-9383

MISSOURI
Electronic Supply Co., Inc. (816) 931-0250
Franklin Electronics (314) 993-5333
Lectronix Inc. (314) 946-6424
Olive Electronics, Inc. (314) 426-4500
Van Sickle Radio Electronics, Inc. (314) 621-5000

NEBRASKA
Scott Electronics Supply Corp. (402) 466-8221

NEVADA
CRW, Inc. (702) 451-5490

NEW HAMPSHIRE
C & H Electronics (603) 882-1133
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Delmar Electronics, Inc. (516) 420-1234
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LRP Electronics, Inc. (419) 228-1220
REM Electronics Supply Co., Inc. (216) 373-1800
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Arch Electronics Co. (215) 563-4660
Barbey Electronics (215) 376-6116
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Douglas Electronics (512) 883-5103
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Electrotex (713) 526-3456
ESI Supply (915) 694-9657
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Kent Electronics Corporation (214) 669-2600
Kent Electronics Corporation (512) 834-1900
LBI Electro-optics (214) 358-4251
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Solid State Electronics Co. (214) 438-5700
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Central Utah Electronics Supply (801) 373-7522
Kimball Electronics, Inc. (801) 328-2075

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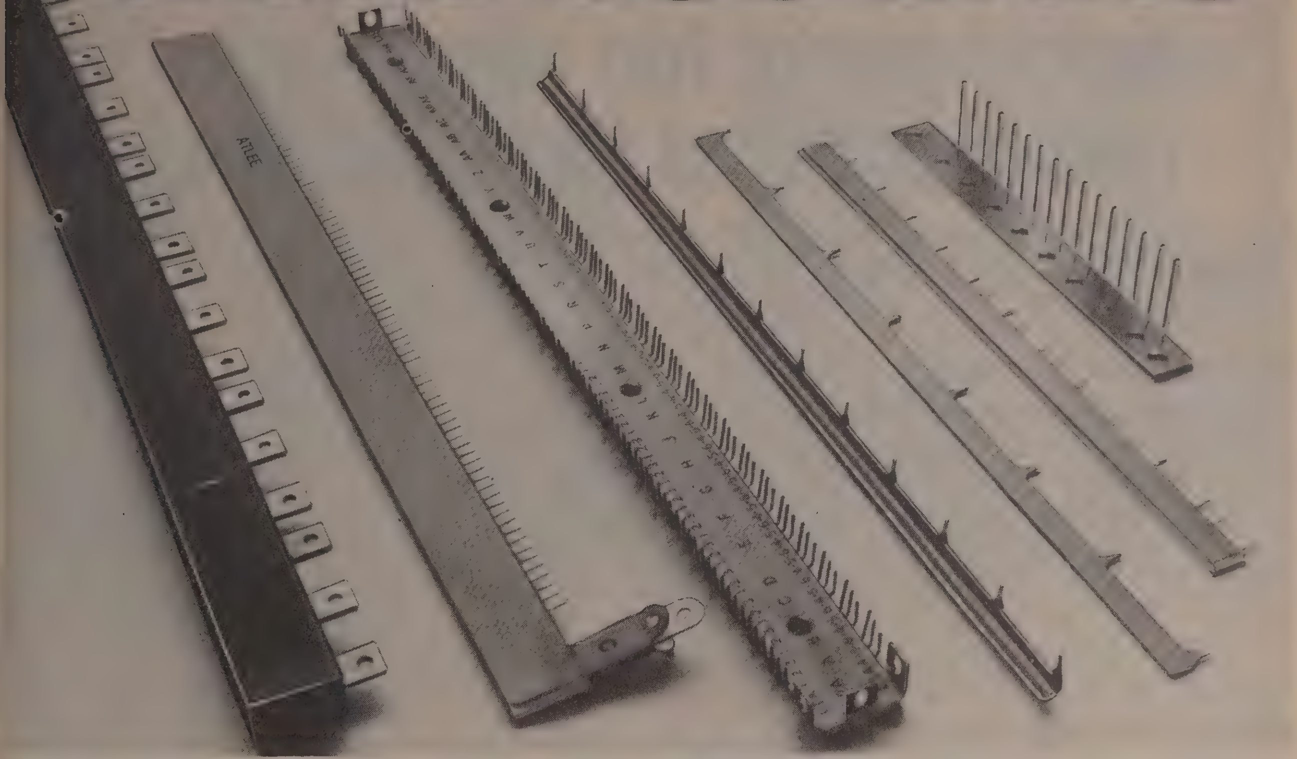
ATLEE BUS BARS



Atlee is a full line manufacturer of bus bars, serving the computer industry, avionics, military contractors and various high tech manufacturers. We have available design and engineering services as well as prototype department. In addition, Atlee has sales representatives nationwide to service our customers. Please contact Atlee to service your bus bar requirements.

TO SPECIFY AN ATLEE BUS BAR

Please contact the factory for a bus bar catalog and any questions you may have.

TO SPECIFY A CUSTOM BUS BAR

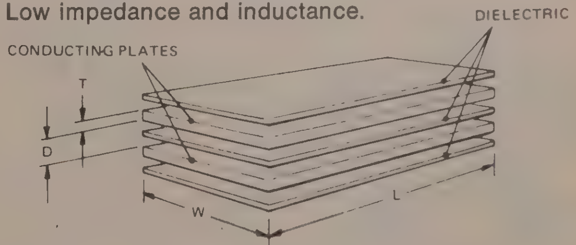
If your requirements do not permit the use of an Atlee Standard Bus Bar, send a drawing print or even a rough sketch of the Bus Bar that would meet your specifications and let Atlee's Sales Engineering Department work out the details and give you a quotation. Atlee will manufacture any type bus bar to your specifications. In general the information required includes:

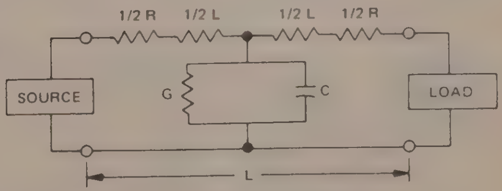
1. Application and quantity
2. Space available
3. Current paths required
4. Type of terminations
5. Number and location of terminations
6. Current requirements
7. Voltage drop requirements
8. Tab to tab spacing on each conductor
9. Type of mounting
10. Capacitance desired
11. Dielectric strength
12. Environmental requirements
13. Type finish on conductors
14. Marking
15. Quantity

DESIGNER'S NOTES

Atlee laminated bus bars consist of flat conductor layers stacked on one another and separated by appropriate dielectrics. Typically such an assembly is laminated and edge-sealed or encapsulated so that the final product becomes a rigid unit with high reliability and stable electrical and mechanical properties. These properties provide uniform capacity, low impedance, and high-speed transmissions of signal and current. Atlee bus bars are an economical alternative to multi-layer printed circuit boards and wire harnesses. They offer:

- Lowered production costs, because assembly is simple and fast.
- Reduced volume which permits higher density packaging than possible with wire harnesses.
- Reduced noise with ideally distributed capacitance and isolation of conductors.
- High current-carrying capacity.
- Low impedance and inductance.





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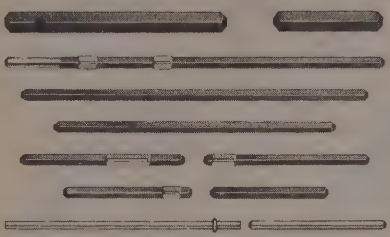
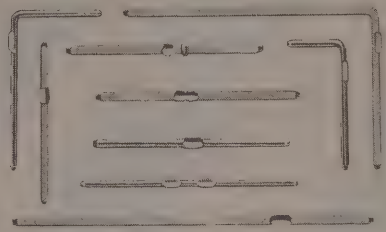
Precision formed and plated metal parts for electronic and electrical applications.

WRAPOST® TERMINALS



Industry's finest. Square and/or round, .025″ or .045″, up to 3″ lengths, single or double locking stars. Standard and custom sizes.

FLAT CABLE HEADER PINS

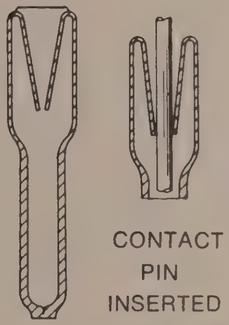


Provides smooth mating in female connectors. Straight or 90°, with or without locking stars. Lead-in angles perfectly blended for low insertion force.

BANDOLIERED PINS

Standard and custom bandolier styles. In-house selection plating allows zone or striped plating to cut precious metal plating costs.

SPRING SOCKET PINS

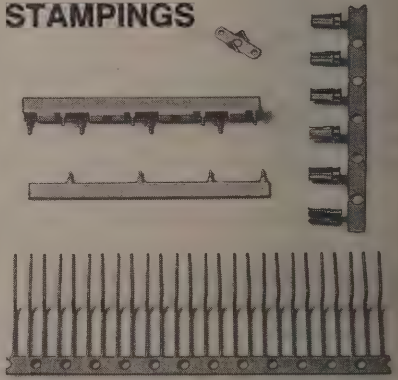


Low cost, low profile spring socket pins. Accepts .185″ lead length . . . used in .075″ and up grids. Takes round or square pins without orientation.

DIE SWAGED PARTS

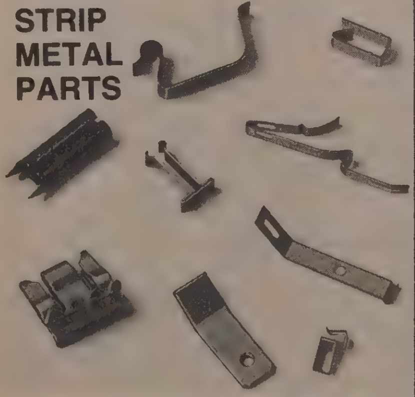
Cut cost of screw machine parts by 50–70%. High speed, scrapless forming to precision tolerances.

STAMPINGS



Simple blanking to complex forming with progressive dies.

STRIP METAL PARTS



Tubular parts or complex stampings. Our fourslide expertise can help cut your part costs.

METAL WIRE PARTS

Intricate forming even in difficult materials. Capability includes combination wire and strip metal parts.

Auto-Swage specializes in high speed, precision forming of terminals, pins, contacts, leads, spacers, clips, sockets, etc. Die swaging, pin rolling, fourslide forming and stamping operations allows selection of lowest cost forming method. In-house plating (both barrel and selective zone) assures single source responsibility on all your orders. Send parts today for our quotation.

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Products, Inc.
726 River Road
Shelton, CT 06484
Phone 203/929-1401

auto-swage

When the job calls for...

Relieving strain

Anchor, insulate and flex-protect cable with Heyco® Nylon Strain Relief Bushings.

Bell-mouth type

Straight-thru type

Right angle type

Sealing out liquids

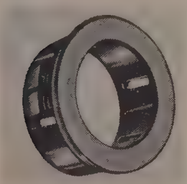
Keep the fluids where they belong with Heyco Nylon Liquid Tight Connectors.

Flex liquid tight connector

Liquid tight connector

Insulating cables

Smooth raw edged cable holes, protect cable and install easily with Heyco Nylon Insulating Bushings.



Snap bushing

Shorty bushing

Double insulated bushing

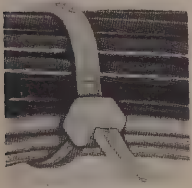
Open/closed bushing

Universal bushing

Snub bushing

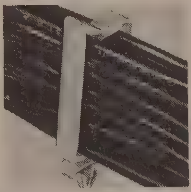
Gathering and tying cables

Anchor, bundle, tie and hold with Heyco Nylon Cable Ties, Holders and Cable Clamps.

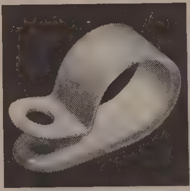


Nytye® cable tie

Beaded wire tie



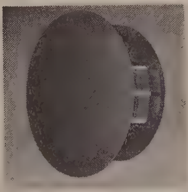
Wire and cable holder



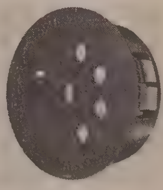
Cable clamp

Plugging holes

Close unused holes or provide ventilation with Heyco Nylon Hole and Vent Plugs.



Hole plug



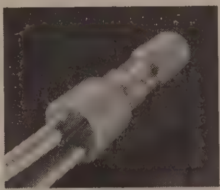
Vent plug

Connecting Wires

Make your connections thru Heyco turn-on or crimp-on wire connectors.

Polypropylene & phenolic turn-on wire connectors

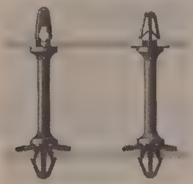
Nylon turn-on wire connector



Closed end/crimp-on wire connector

Spacing printed circuit boards

Provide needed spacing between printed circuit boards and chassis with Heyco Nylon Spacer Supports.



Spacer supports

A box of solutions

Keep a Heyco LabKit ™ handy for problem solving or development work on your projects.

Assembly

Heyco nylon screws, nuts and washers are an inexpensive, long-lasting alternative to costly metal parts.

Screws

Nuts

Washers

HEYCO

HEYCO MOLDED PRODUCTS

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PERMA POWER®

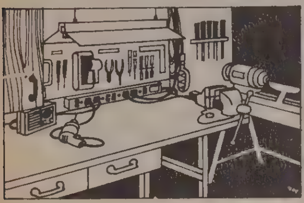
Sockets Plus™

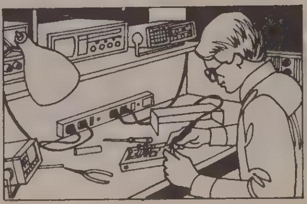
Multiple Outlet Strips

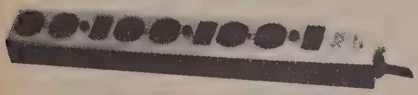
A safe and convenient way to distribute power where it's needed

- Acts as power control center; most units have on/off switch and indicator light.
- Overload protected, built-in 15 amp circuit breaker shuts off power *here*—not down the line.
- Rated 1875 watts, 125 V., 15A.
- Double insulated #14/3 "SJT" line cord.
- U-ground outlets with electrically-wired ground; phosphor bronze, dual wiping contacts.
- Heavy duty, 22 gauge metal construction.
- Tough silver and black industrial finish, corrosion resistant zinc phosphate undercoat.

INDUSTRIAL MODELS







INDUSTRIAL MODEL SELECTOR CHART

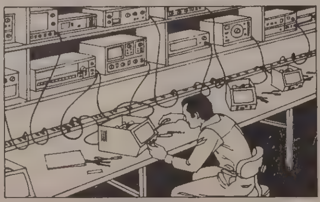
All UL Listed All Circuit Breaker Protected

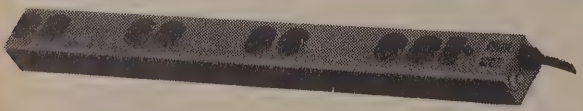
UL LISTED

6 Ft. Cord Model No.	12 Ft. Cord Model No.	Number of Outlets	Master Switch & Indicator Light	Switched Outlet Parts with Indicator Lights	Individually Switched Outlets with Indicator Lights	Case Length (inches)
K400	K402	4	—	—	—	9
K410	K412	4	—	—	—	9
K420	K422	4	—	2	—	12
K440	K442	4	—	—	4	15
K450	K452	4	1	—	4	15
K510*	K512*	5	1	—	—	12
K520*	K522*	5	—	2	—	12
K540*	K542*	5	—	—	4	15
K600	K602	6	—	—	—	12
K610	K612	6	1	—	—	12
K630	K632	6	—	3	—	15
K710*	K712*	7	1	—	—	15
K800	K802	8	—	—	—	15
K810	K812	8	1	—	—	15

*Includes one outlet always "live" for clocks, etc.

2, 4, & 6 FOOT INDUSTRIAL MODELS





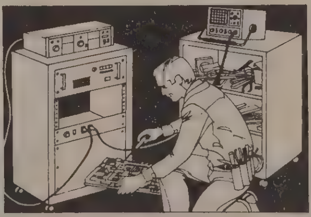
2, 4 & 6 FOOT INDUSTRIAL MODELS

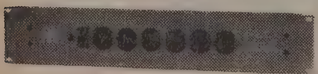
All UL Listed All Circuit Breaker Protect

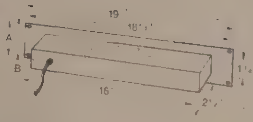
UL LISTED

6 Ft. Cord Model No.	12 Ft. Cord Model No.	Number of Outlets	Master Switch & Indicator Light	Outlet Spacing (inches)	Case Length (inches)
J082A011	J082A211	8	1	3	24
J084A011	J084A211	8	1	9	48
J164A011	J164A211	16	1	3	48
J126A011	J126A211	12	1	9	72
J246A011	J246A211	24	1	3	72

INDUSTRIAL RACK MOUNT MODELS







INDUSTRIAL RACK MOUNT MODELS

All circuit breaker protected

RECOGNIZED

6 Ft. Cord Model No.	12 Ft. Cord Model No.	Outlets Front	Outlets Back	Master Switch & Indicator Light	Front Panel Height	Mounting Centers
J06A0	J06A2	0	6	1	3½"	3"
J06B0	J06B2	0	6	1	1¾"	1¼"
J24A0	J24A2	2	4	1	3½"	3"
J24B0	J24B2	2	4	1	1¾"	1¼"
J60A0	J60A2	6	0	1	3½"	3
J60B0	J60B2	6	0	1	1¾"	1¼"

PERMA POWER®
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Chicago, Illinois 60648
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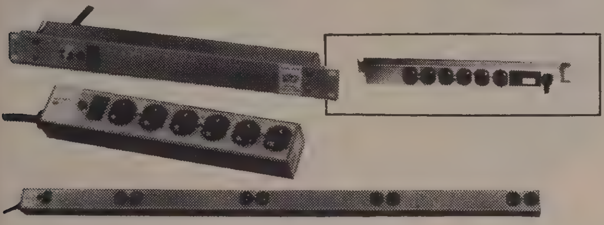
PERMA POWER®

Multiple Outlet Strips

Sockets Plus™

INDUSTRIAL/SCIENTIFIC/MEDICAL "HIGH ABUSE" MODELS with Hospital Grade components



SPECIFICATIONS FOR PLUGS AND RECEPTACLES

Designated by a green dot—your assurance the components are U.L. Hospital Grade

- UL Hospital Grade Standards #498 and #544
- Federal Specification WC 596E (8200, 8210, 8300, 8310)
- NEMA Standard WD1
- NEMA 5-15R and 5-20R
- CSA Certified (8200-8210 series only)
- Corrosion-resistant per ASTM B-117-73

This industrial/scientific/medical series of Multiple Outlet Strips is specifically designed for high-abuse applications, for special safety requirements, or where equipment is exposed to fumes from corrosive chemicals or liquids.

When conditions require an outlet strip that "measures up," you need components that measure up. The plugs and receptacles in these strips are "Hospital Grade"—verified by Underwriters' Laboratories to have passed a series of torturous tests assuring the user of continuous, safe operation, even in the face of human negligence and corrosive environments.

Plugs and receptacles meet or exceed these "Hospital Grade" UL tests:
■ Abrupt removal of plug ■ Ground pin retention ■ Terminal strength ■ Assembly security ■ Face impact ■ Ground contact temperature ■ Ground contact resistance ■ Fault current test ■ Mold stress relief

All units have 6-foot double-insulated #14/3 "SJT" line cord. All are overload-protected by a built-in 15-amp circuit breaker that shuts off the power *here*, not down the line.

"HIGH ABUSE" MODEL SELECTOR CHART

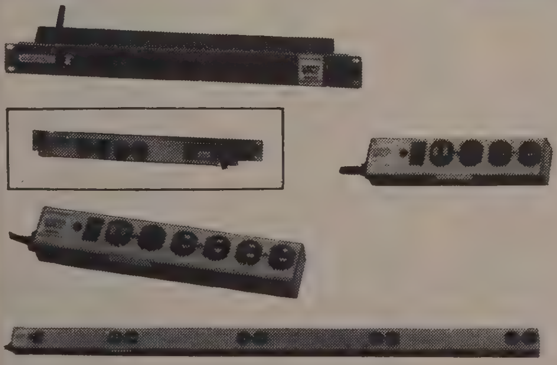
All Models circuit-breaker-protected

INDUSTRIAL UL LISTED	Number of Outlets	Master Switch & Indicator Light	Case Length (Inches)
K410H	4	1	9
K610H	6	1	12

RACK MOUNT RU RECOGNIZED	Number of Outlets Front	Number of Outlets Back	Master Switch & Indicator Light	Front Panel Height "A" (Inches)	Mounting Centers "B" (Inches)
J24AOH	2	4	1	3½	3
J24BOH	2	4	1	1¾	1¼
J06AOH	0	6	1	3½	3
J06BOH	0	6	1	1¾	1¼

4-FT. & 6-FT. STRIPS UL LISTED	Number of Outlets	Master Switch & Indicator Light	Outlet Spacing (Inches)	Case Length (Inches)
J084A011H	8	1	9	48
J126A011H	12	1	9	72

GROUND FAULT CIRCUIT INTERRUPTER MODELS



Moisture or dampness, improper or faulty wiring, or worn insulation can all contribute to a condition where the electric current in an appliance takes an unexpected path "to ground." If a person using such an appliance is in this current path, the resultant electric shock can cause injury or even death.

Perma Power GFCI Multiple Outlet Strip Models provide protection from these potentially hazardous ground fault currents. These models detect ground fault leakage current before it reaches hazardous levels, and instantly shut off all power to tools, appliances or equipment, thus guarding the user and providing assurance of maximum personal safety. When properly used and maintained, the GFCI Fault Finder device interrupts the circuit upon detecting any leakage greater than 0.006 amperes. Built-in "Test" and "Reset" buttons provide maximum user confidence.

The Perma Power GFCI outlet strips also have a built-in 15-amp circuit breaker to guard *the line* from overload conditions, but it's the GFCI device that guards individuals. Each strip has a double-insulated, #14/3 "SJT" line cord, and is rated at 1875 watts, 125 volts, 15 amps. To act as a power control center, each unit has an on/off switch and indicator light.

GROUND FAULT MODEL SELECTOR CHART

INDUSTRIAL UL LISTED	Number of Outlets	Master Switch & Indicator Light	Case Length (Inches)
K310G	3	1	9
K510G	5	1	12
RESIDENTIAL UL LISTED			
L310G	3	1	9
L510G	5	1	12

RACK MOUNT RU RECOGNIZED	Number of Outlets Front	Number of Outlets Back	Master Switch & Indicator Light	Front Panel Height "A" (Inches)	Mounting Centers "B" (Inches)
J14AOG	1	4	1	3½	3
J14BOG	1	4	1	1¾	1¼
J50AOG	5	0	1	3½	3
J50BOG	5	0	1	1¾	1¼

4-FT. & 6-FT. STRIPS UL LISTED	Number of Outlets	Master Switch & Indicator Light	Outlet Spacing (Inches)	Case Length (Inches)
J074A011G	7	1	9	48
J116A011G	11	1	9	72

NOTE: GFCI device protects all outlets in strip.

PERMA POWER®
Electronics Inc.

5615 West Howard Avenue
Chicago, Illinois 60648
Telephone (312) 647-9414

Free Customizing.

Let our Engineering and R&D Depts. design a product for your specific needs.

If you need 50 or more multiple outlet strips, SGL WABER® has the expertise to help you develop a product with one or all of the following variations:

- Case size and shape (longer, shorter, deeper, wider, etc.)
- Relocation of components
- Increased or decreased number of outlets, switches, pilot lights, fuses, circuit breakers
- Special grade outlets, timers, motors, switches, pilot lights (e.g., hospital grade)
- More circuits or different capacity circuits
- 1 amp to 20 amps; 1 volt to 250 volts AC
- Length, type, and size of power supply cord
- Special configurations to meet local code requirements
- Over 480 UL Listed and 310 CSA Certified non-stocking designs are available to meet your specific need
- Other unusual characteristics

We are pleased that our customers keep coming back to SGL WABER to use our experience and capability to create those special quality electrical interconnections to fit their most exacting applications.

Let us be of service to you. Call or write us today!
THERE IS NO OBLIGATION ON YOUR PART.

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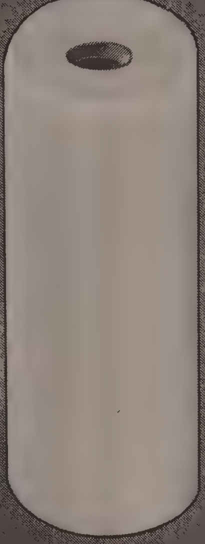
SGL WABER Electric—The Powerhouse.

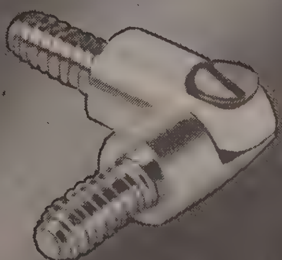
HHSmith

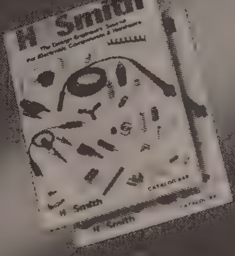
FUTURETECH™

Spacers and Standoffs



The largest quality selection in the industry! Choose from a broad range of brass, aluminum or insulated. Sizes from 1/8" to 6"L. Hex, round, male/female, swage and more. Clearance hole and threaded. Need standoffs? Insulators? Yes! Smith also produces custom spacers to meet special requirements. Contact our "rep" or distributor.





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Kulka Smith.

HHSmith Interconnect Devices & Mechanical Hardware

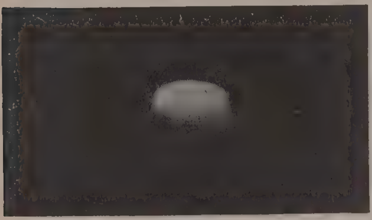
KULKA SMITH, INC., A North American Philips Company
1913 Atlantic Avenue Manasquan, NJ 08736 Tel: (201) 223-9400 TWX 710-723-4410

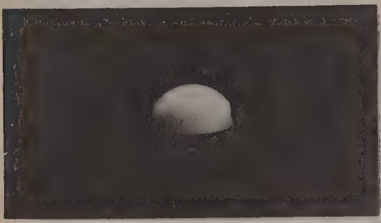
See EEM pages **2**•1565 and **3**•1303 for more HHSmith Products

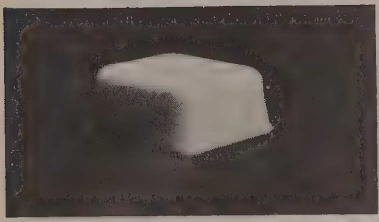
Bumper
Products *corporation*

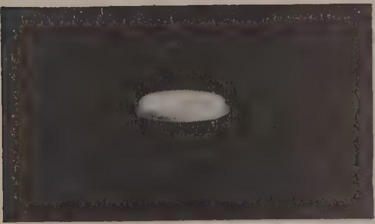
Self-Adhesive Bumpers

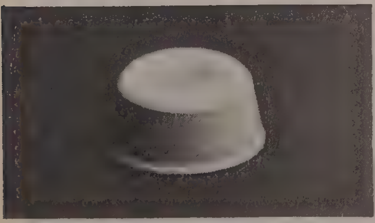
Assorted Popular Styles

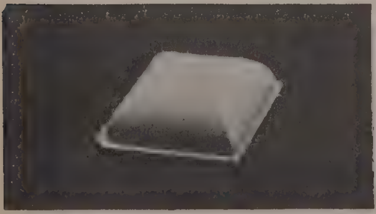

GD-1, 4000/case,
Kiss-Cut 50/pad
0.50 dia, 0.15 thick,
equals 3M
SJ-5012


GD-2, 4000/case,
Kiss-Cut 50/pad
0.45 dia, 0.20 thick,
equals 3M
SJ-5003


GD-4, 1000/case,
Kiss-Cut 48/pad
0.75 sq, 0.34 thick


GD-5, 4000/case,
Kiss-Cut 50/pad


GD-17, 1000/case,
Kiss-Cut 48/pad
.88" dia. x
.40" thick
equals 3M
SJ-5009


GD-19, 1000/case,
Kiss-Cut 48/pad
.81" sq. x
.30" thick
equals 3M
SJ-5023

Typical Applications

- Electronics
- Telecommunications
- Appliances
- Cabinets
- Desk Top Equipment
- Computers
- Computer Phepherals
- Isolation Mounts

COMPARISON CHART

Bumper Product Style No.	3-M No.	Min. Order Qty.	Size	Description
GD-1	SJ 5012	4000	ht. .14" dia. .50" ht. 3.5mm dia. 12.7mm	Cylindrical
GD-2	SJ 5003	4000	ht. .20" dia. .45" ht. 5.0mm dia. 11.1mm	Hemisphere
GD-3	SJ 5018	4000	ht. .20" sq. .50" ht. 5.6mm sq. 12.7mm	Square
GD-4		1000	ht. .34" sq. .75" ht. 8.6mm sq. 19.1mm	Square
GD-5		4000	ht. .06" dia. .50" ht. 1.6mm dia. 12.7mm	Cylindrical
GD-6		4000	ht. .250" dia. .50" ht. 5.1mm dia. 12.7mm	Cylindrical
GD-10		4000	ht. .26" sq. .50" ht. 6.6mm sq. 12.7mm	Square
GD-11		4000	ht. .40" dia. .62" ht. 10.2mm dia. 15.9mm	Cylindrical
GD-13		5000	ht. .09" width .144" ht. 2.4mm width 3.7mm	Strip 1.150" Strip 29.2mm
GD-15	SJ 5027	1000	ht. .32" dia. .63" ht. 7.9mm dia. 16.0mm	Hemisphere
GD-17	SJ 5009	1000	ht. .40" dia. .88" ht. 10.1mm dia. 22.3mm	Circular Depressed
GD-18		4000	ht. .14" dia. .50" ht. 3.5mm dia. 12.7mm	Cylindrical Concavity
GD-19	SJ 5023	1000	ht. .30" sq. .81" ht. 7.6mm sq. 20.6mm	Tapered Square
GD-20		5000	ht. .06" width .13" ht. 1.7mm width 3.3mm	Strip 3.92" Strip 99.6mm
	SJ 5017		ht. .38" dia. .75" ht. 9.6mm dia. 19.0mm	Hemisphere
	SJ 5510		ht. .15" width .50" ht. 3.8mm width 12.7mm	Strip
	SJ 5514		ht. .52" width .81" ht. 13.2mm width 20.6mm	Truncated Square Cone
GD-22		5000	ht. .125" sq. .625" ht. 3.1mm sq. 15.9mm	Square
GD-24		5000	ht. .125" dia. .810" ht. 3.1mm dia. 20.5mm	Cyindical
GD-25		5000	ht. .250" dia. .810" ht. 6.2mm dia. 20.5mm	Cyindical
GD-26		4000	ht. .090" dia. .50" ht. 2.4mm dia. 12.7mm	Cyindical
GD-29		5000	ht. .325" dia. .50" ht. 7.9mm dia. 12.7mm	Cyindical
GD-30	SJ 5532	100	ht. .66" dia. 1.88" ht. 16.7mm dia. 47.7mm	Circular Depressed
GD-31		4000	ht. .117" dia. .50" ht. 2.90mm dia. 12.7mm	Cyindical
GD-32	SJ 5008	4000	ht. .12" sq. .50" ht. 3.1mm sq. 12.7mm	Tapered Square

STOCK COLORS: White, Black, Grey, Brown and Clear. Special colors available on request.

Bumper Products Corporation
14 King Street, Mount Holly, NJ 08060 • 609-261-8100 800-541-2500 Telex 244437-ACTP-UR

Noise, Vibration And Shock Control For Disk Drives, Printers, Electronics Cabinetry And Other Precision Equipment

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indianapolis, in 46268
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**HIGH PERFORMANCE CONTROL OF AIRBORNE AND STRUCTUREBORNE NOISE OVER WIDEST FREQUENCY RANGE.
HIGHEST RATIO OF PERFORMANCE TO THICKNESS OF CURRENTLY AVAILABLE MATERIALS.**

PROTECT

precision electronics from damage due to handling and shock.

STOP

sensitive, high speed parts safely . . . within controlled parameters.

QUIET

vibrating sheet metal parts or housings.

TYPICAL APPLICATIONS

DISK DRIVES

- Shock, Vibration Isolation Grommets
- Crash Stops
- Stepper Motor Inertial Dampers
- Grounding Strap Dampers

PRINTERS

- Print Head Bumper Stops
- Cabinet Damping/Sound Absorbing Composites
- Metal Parts Damping
- Striker Bar Damping

ELECTRONICS CABINETRY

- Shock, Vibration Isolation Mounts
- Damping/Sound Absorbing Composites

PRECISION EQUIPMENT

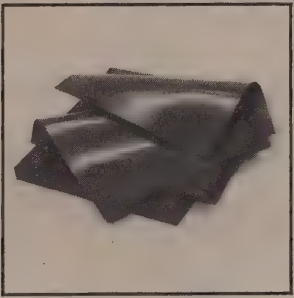
- Structural Damping
- Lab-Type Isolation Mounts

PRINTED CIRCUIT BOARD DAMPING

MOTOR, FAN

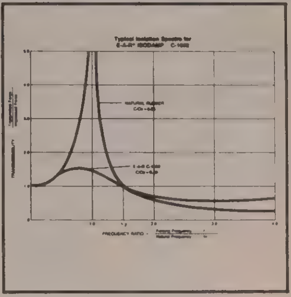
- Isolation Mounting Grommets
- Plenum Sound Absorbers

ACOUSTIC GASKETS AND SEALS



C-1002 "SOFT BLUE" ISOLATION

- Highly damped vibration isolation material
- Uniquely effective for shock or vibration over a broad frequency range
- Excellent wear and physical properties
- Available in sheets, die cut or custom injection molded parts
- Ideal for:
  - — Disk drive shock protection grommets
  - — Crash stops
  - — Stepper motor inertial dampers
  - — Isolation grommets for fractional HP motors and small fans
  - — Precision equipment mounts
  - — Acoustic gaskets and seals

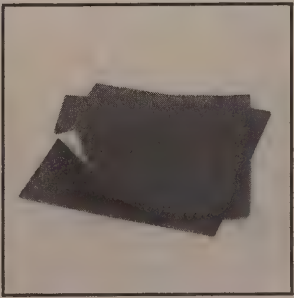


C-1002 GROMMETS

- Available in standard sizes for common metal thicknesses, bolt dimensions and loading parameters

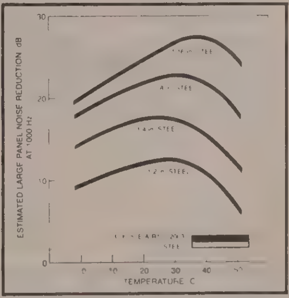
ISODAMP® GROMMETS

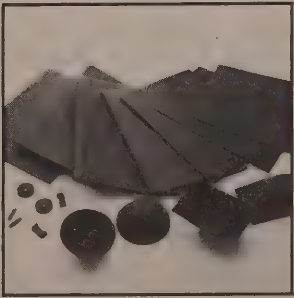
PRODUCT NUMBER	BOLT SIZE	PLATE THICK-NESS	UNITS/BOX
Grommet 1	3/16"	1/16"	500
Grommet 2	3/16"	1/8"	500
Grommet 3	1/4"	1/16"	500
Grommet 4	1/4"	1/8"	500
Grommet 5	3/16"	1/16"	500
Star Grommet	1/4"	varies	500



C-2003 "HARD BLUE" DAMPING

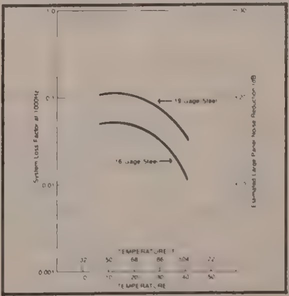
- Uniquely efficient damping material
- Easily applied with strong pressure sensitive adhesive backing
- Available in sheets or custom die-cut parts
- Ideal for:
  - — Disk drive grounding strap damping
  - — Metal parts damping
  - — Electronics cabinetry damping





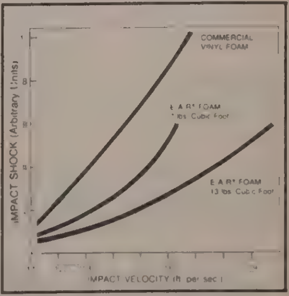
C-2200 DAMPING MATERIAL

- Cost effective vibration damping for metal, plastic and structural foam
- Available in composite with plain and embossed sound absorbing foams for easy installation
- Available in sheets or die-cut parts; Also may be injection molded or vacuum formed for special applications
- Ideal for:
  - — Printer housings
  - — Electronics cabinetry
  - — Metal parts damping



C-3001, 3002 DAMPING FOAMS

- Energy absorbing, PVC alloy, closed cell foam
- Superior damping; light weight
- Available in sheets, rolls, or die-cut parts
- Ideal for:
  - — Printed circuit board damping
  - — Acoustic gaskets and seals
  - — Low load crash stops
  - — Protective packaging for shipment of delicate instruments



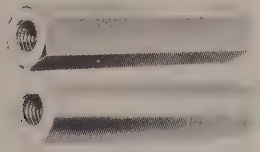
LEADERSHIP IN NOISE CONTROL

UNICORP

Leading Manufacturer of Precision Electronic Hardware

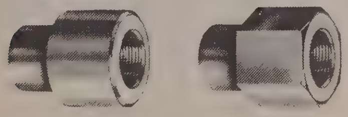
Buy direct from the manufacturer
Buy from the largest inventory of standard sizes and materials

Standoffs, Spacers



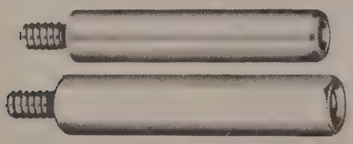
Threaded, Unthreaded
Shapes: round—square—hex
Diameters: ⅛" through ⅝"
Materials: brass, aluminum, stainless steel, cold rolled steel, nylon, teflon, linen base phenolic, 10% glass filled Lexan®

Standoffs—Swage and Rivet Type



Threaded, Unthreaded
Shapes: round—hex
Diameters: ⅛" through ⅜"
Materials: brass, aluminum, stainless steel, cold rolled steel

Standoffs—Male to Female



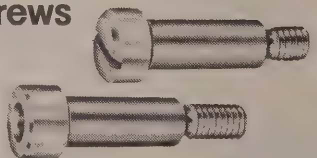
Shapes: Round—square—hex
Diameters: ⅛" through ½"
Materials: brass, aluminum, stainless steel, carbon steel, nylon

Captive Panel Hardware

Screws and Retainers

Head configurations: knurled and slotted, knurled and unslotted, slotted hex, unslotted hex
Materials: brass, aluminum, stainless steel, carbon steel, nylon, 10% glass-filled Lexan
Threads: 4-40 through 5/16-24
Retainers: standard and spring-loaded

Precision Shoulder Screws



Head shapes: slotted round, Allen round
Diameters: ¼" to ¾"
Material: Type 303 stainless steel—other materials on special order

Handles

Shapes: round, oval, rectangular, half-round
Styles: internal thread, external thread, straight, offset, hinged, extruded
Materials: brass, aluminum, stainless steel, carbon steel

Insulating Washers

Shapes: Shoulder, flat. Precision machined—not molded.
Diameters: Shoulder .187 to .505; flat .093 to .386
Materials: nylon, teflon, glass-filled Lexan, phenolic

Custom Manufacturing

UNICORP will manufacture non-standard shapes and sizes to fit your design requirements at reasonable prices. Send us your specifications.

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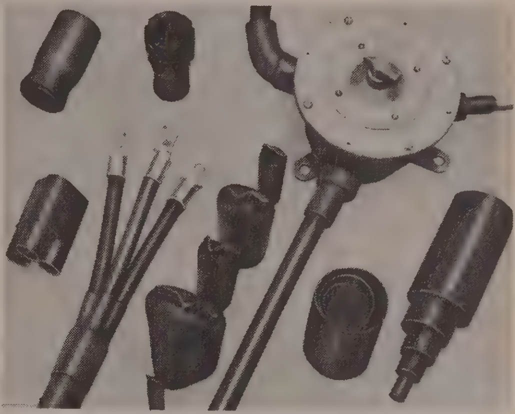
STANDOFFS • FASTENERS • SHOULDER SCREWS • SPACERS • CAPTIVE PANEL HARDWARE • HANDLES

AMP Heat Shrinkable Products

			Thick Wall Tubing		
Recommended Application Range	Minimum Expanded I.D.	Nominal Length in./ft.	Minimum Recovered Wall Thickness	Part Number	
				Without Sealant	With Sealant
.180 to .300	.400	3"	.060	54079-1	54081-1
		4"		54079-2	54081-2
		6"		54079-3	54081-3
		9"		54079-4	54081-4
		12"		54079-5	54081-5
		18"		—	—
		24"		—	—
		4'		54079-8	—
		100'		54079-6	—
.260 to .600	.750	3"	.095	54020-1	54021-1
		4"		54020-2	54021-2
		6"		54020-3	54021-3
		9"		54020-4	54021-4
		12"		54020-5	54021-5
		18"		—	54021-7
		24"		—	54021-6
		4'		54020-6	54021-9
		25'		54020-7	—
		100'		54020-8	—
.450 to .880	1.100	4"	.120	54025-1	54026-1
		6"		54025-2	54026-2
		8"		54025-3	54026-3
		9"		54025-4	54026-4
		12"		54025-5	54026-5
		18"		54025-6	54026-6
		24"		54025-7	54026-7
		30"		—	54026-8
		4'		54025-8	1-54026-5
		25'		54025-9	—
		100'		1-54025-0	—
.450 to 1.100	1.300	12"	.130	—	54084-1
		20"		—	54084-2
		25'		54097.1	—
.600 to 1.200	1.500	4"	.140	54030-1	54031-1
		6"		54030-2	54031-2
		8"		54030-3	54031-3
		9"		54030-4	54031-4
		12"		54030-5	54031-5
		18"		54030-6	54031-6
		20"		54030-7	54031-7
		24"		54030-8	54031-8
		30"		54030-9	54031-9
		36"		1-54030-0	1-54031-0
		4'		1-54030-1	1-54031-4
		25'		1-54030-2	—
		40'		1-54030-3	—
		30'		1-54030-4	—
		100'		1-54030-5	—
.900 to 1.600	2.000	4"	.155	54035-1	54036-1
		6"		54035-2	54036-2
		8"		54035-3	54036-3
		9"		54035-4	54036-4
		12"		54035-5	54036-5
		18"		54035-6	54036-6
		20"		54035-7	54036-7
		24"		54035-8	54036-8
		30"		54035-9	54036-9
		36"		1-54035-0	1-54036-0
		4'		1-54035-1	1-54036-6
		25'		1-54035-2	—
		100'		1-54035-3	—
1.400 to 2.750	3.000	6"	.155	54140-1	54141-1
		9"		54140-2	54141-2
		12"		54140-3	54141-3
		18"		54140-4	54141-4
		24"		54140-5	54141-5
		30"		54140-6	54141-6
		36"		54140-7	54141-7
		4'		54140-8	54141-8
		25'		54140-9	—



Tubing With and Without Sealant

Features

■ Thermally stabilized ■ Thick wall ■ High shrink ratio 3 to 1 ■ Excellent electrical insulating properties ■ Unaffected by long shelf life ■ Highly resistant to moisture, fungus and weathering ■ Exceptional chemical resistance ■ Highly resistant to splitting even over severe configurations ■ Mechanically seals to standard plastic and elastomeric materials and conduit ■ Recognized under the Component Program of Underwriters Laboratories Inc. where indicated. File #E69768

Request Catalog No. 76-369

Thin Wall Heat Shrinkable Tubing — Type VFP-I

Features

■ Thermally stabilized ■ Ease of installation ■ Exceptional chemical resistance ■ Meets or exceeds the requirements of UL Standard 224 and MIL-I-23053C/5 Class I ■ Excellent electrical insulating properties ■ Flexible and flame retardant ■ Recognized under the Component Program of Underwriters Laboratories Inc. (File No. E 75641) and Certified by the Canadian Standards Association (No. LR47982-1)

Request Catalog No. 76-404

Expanded Size	Expanded I.D. Minimum	Recovered I.D. Maximum	Fully Recovered Wall Thickness Nominal	Part Numbers — 4′ ± ½″		
				Black	White	Red
3/64"	.046	.023	.016	938011-5	938039-5	938067-5
1/16"	.063	.031	.017	938012-5	938040-5	938068-5
3/32"	.093	.046	.020	938013-5	938041-5	938069-5
1/8"	.125	.062	.020	938014-5	938042-5	938070-5
3/16"	.187	.093	.020	938015-5	938043-5	938071-5
1/4"	.250	.125	.025	938016-5	938044-5	938072-5
3/8"	.375	.187	.025	938017-5	938045-5	938073-5
1/2"	.500	.250	.025	938018-5	938046-5	938074-5
3/4"	.750	.375	.030	938019-5	938047-5	938075-5
1"	1.000	.500	.035	938020-5	938048-5	938076-5
1½"	1.500	.750	.040	938021-5	938049-5	938077-5
2"	2.000	1.000	.045	938022-5	938050-5	938078-5
3"	3.000	1.500	.050	938023-5	938051-5	938079-5
4"	4.000	2.000	.055	938024-5	938052-5	938080-5

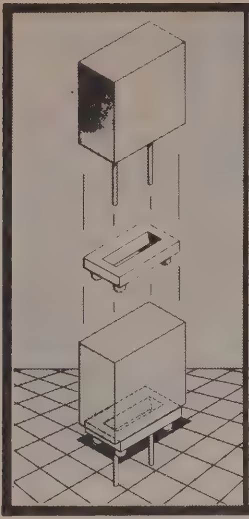
Note: Other colors and lengths are available upon request.

Need more details? Call AMP Customer Service at (717) 780-4400,
or write AMP Incorporated, Harrisburg, PA 17105.

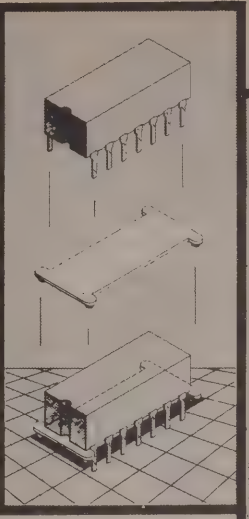
Specifications subject to change. Consult AMP Incorporated for latest design specifications.

AMP — Trademark of AMP Incorporated

AMP
INCORPORATED

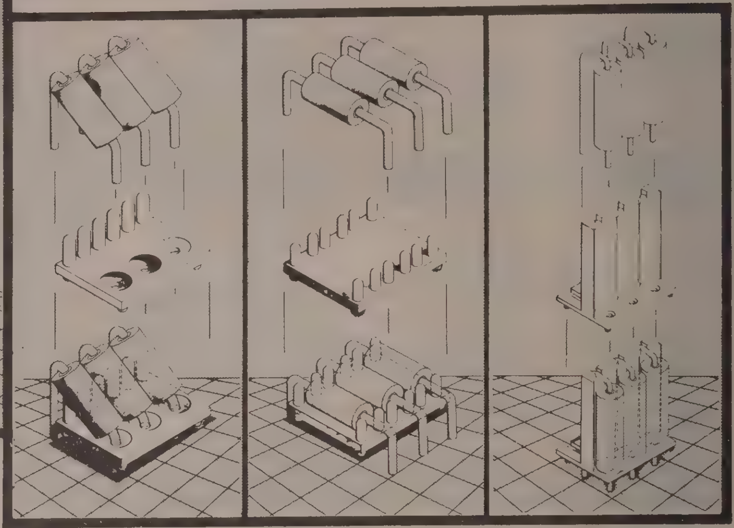


CAPACITOR INSULATORS

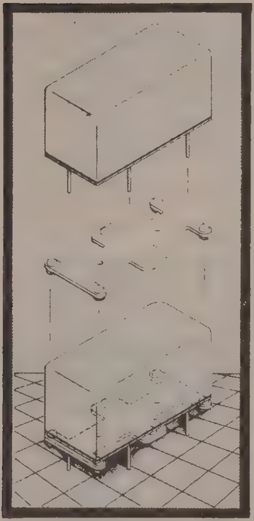


DIP INSULATORS

DIODE AND RESISTOR INSULATORS



ANGLE MOUNT **AXIAL MOUNT** **VERTI-MOUNT**



RELAY INSULATORS

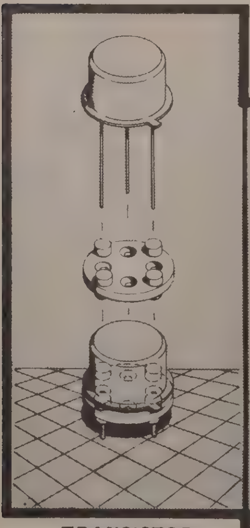
Stock to 4 Weeks Max.

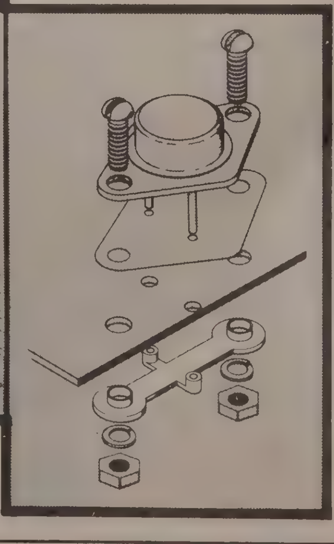
MOST ORDERS FILLED IMMEDIATELY FROM INVENTORY

FOR NEARLY 20 YEARS ROBISON ELECTRONICS, INC. HAS BEEN SERVING THE ELECTRONICS INDUSTRY AS A MANUFACTURER OF PROPRIETARY PLASTIC MOLDED PRODUCTS.

Our component mounting insulators have been the mainstay of a product line that can be considered as basic hardware designed to assist in the fabrication of more reliable assemblies.

TO-3 and TO-66 type insulators pictured below shorten assembly time by taking the place of four insulators.





TRANSISTOR INSULATORS

Our component mounting insulators ensure product reliability in the following ways:

- **UNIFORMLY SPACES AND INSULATES THE COMPONENT FROM THE PRINTED CIRCUITRY**
- **PROVIDES CLEARANCE TO ALLOW SOLDER-FILLET FORMATION ON DOUBLE SIDED CIRCUIT BOARDS**
- **PERMITS FLUSH CLEANING OF SOLDER-FLUX RESIDUES**
- **ALLOWS INSPECTION OF SOLDER-FILLETS**
- **PERMITS IMPROVED CONVECTION AIR COOLING**
- **AIDS IN PREVENTING MOISTURE ENTRAPMENT DUE TO CONDENSATION**
- **REDUCES EFFECT OF SHOCK AND VIBRATION BY PROVIDING A SECURE, PERMANENT MOUNTING BASE**
- **PROTECTS THE COMPONENT FROM OVERHEATING DURING SOLDERING BY INCREASING THE EFFECTIVE LEAD LENGTH BETWEEN THE COMPONENT AND THE PRINTED CIRCUIT BOARD**

Our extensive line of insulators, though designed specifically for capacitors, diodes, resistors, DIPs, relays and transistors, can also be used to mount other components such as trim potentionmeters, LEDs, integrated circuits, etc.

FREE CALL OR WRITE TODAY FOR YOUR

NEW CATALOG

OF COMPONENT MOUNTING INSULATORS

Our toll-free number outside California is (800) 235-4144.

ROBISON ELECTRONICS, INC.
3580 SACRAMENTO DRIVE, P. O. BOX Y
SAN LUIS OBISPO, CALIFORNIA 93406
TELEPHONE: (805) 544-8000

ZEUS TUBING

Meets Your Most Challenging Insulation Requirements!

SUB-LITE-WALL™ • HEAT SHRINK SPAGHETTI • SNAPTUBE™

BEADING • SHAPES • UNIQUE WIRE INSULATIONS

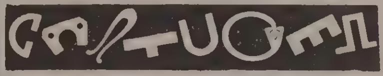
Made from High Performance Fluoropolymer Extrusions

TEFLON* TFE, FEP, PFA, & TEFZEL®

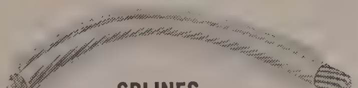
For the most demanding applications in aerospace, electronics, medical, automotive, chemical & industrial fields.

SUB-LITE-WALL™ TUBING

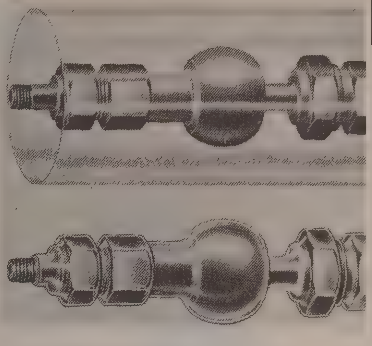
SPIRAL-CUT CABLE WRAP



SHAPES



SPLINES



HEAT SHRINK TUBING

SUB-LITE-WALL™ TUBING OF TEFLON* — The world's smallest tubing. Rivals nature's own capillaries. Walls as thin as 0.0015″ in I.D.s of 0.022″ and larger. Also I.D.s less than 0.002″ with wall thicknesses of 0.007″ or greater, or an 0.060″ I.D. with wall thickness of only 0.0015″! (Note: The average dimension of a human hair is 0.003″.) Superior lubricity — slides easily into tiny convoluted passages. Chemically inert and stable. Available for heat-shrink applications. Withstands extremes of heat (up to 500°F). Zero water absorption. I.D.s and wall thicknesses absolutely uniform!

HEAT SHRINK TUBING OF TEFLON* TFE — Now your components can overpower hell, high water, and the acid test when protected by Zeus heat shrink TFE tubing! Provided in the expanded state. A brief application of heat produces a skin-tight protective jacket to items that will be subjected to extremes of heat, corrosion, shock, moisture! Shrink ratios up to 4 to 1. Wide range of AWG, fractional inch, and industrial sizes. Standard wall, thin wall, and lightweight wall. Outstanding electrical, thermal, and mechanical properties.

DUAL-SHRINK TUBING OF TEFLON* TFE/FEP — Features an outer tubing of heat-shrink TFE and an inner tubing of FEP. TFE shrinks for tight fit when heat is applied. FEP melts and flows to form an encapsulation with a fit so tight that it can withstand severe stresses of pull or vibration and protect against moisture, acids, etc. Ideal for wires, cables, connectors, etc. Service temperature up to 450°F.

HEAVY CONSTRUCTION TUBING OF TEFLON* TFE — For extra strength, durability, and easy handling. For automotive, chemical, electrical and mechanical applications. Features low coefficient of friction, high heat and abrasion resistance, inertness and stability.

SPAGHETTI TUBING OF TEFLON* TFE — The ultimate in heat resistance, continuous use at 500°F, chemical stability, and dielectric properties. Unmatched concentricity and close tolerances. Standard wall, thin wall, and lightweight wall. Inert to solvents, acids, alkalies, and salts. Wide range of AWG sizes, fractional inch and industrial grade. Commercial and Mil Specs. UL File No. E-64007A.

TUBING OF TEFLON* FEP — Chemically inert, excellent dielectric properties. Continuous use at 400°F. Non-aging, anti-stick. Great tensile strength. UL File No. E-64007.

TUBING OF TEFLON* PFA — Tough, flexible. Continuous use near 500°F. Features clarity, chemical inertness, excellent flex-life, and chemical flow. Exceptional stress-crack resistance combined with great dielectric properties. For extended service in critical electrical, chemical, and thermal environments.

TUBING OF TEFZEL® — Mechanically superior, tough material of medium stiffness with excellent flex-life, impact resistance, cut-through resistance and low water absorption. Weather-resistant, and inert to most solvents and chemicals. Excellent resistance to high energy radiation. Low-loss dielectric. Continuous use at 300°F.

SNAPTUBE™ — A cost-effective protective wrapping of Teflon TFE for the restoration and reutilization of conductors with damaged insulations. Snaps quickly into place over wires or cables. Conductors can be left in place so that cost and installation of the conductor is not lost. Can also be used as a chafing guard over wire, cable, or wire bundles to form a homogeneous cable structure. Cut into small sections SNAPTUBE can be used as CABLE TIES. Available also in long lengths and sizes to accommodate wire bundles. Also available for color coding.

SPIRAL-CUT CABLE WRAPS OF TEFLON* — For harnessing and insulating wires, cables, etc. Expandable, abrasion-resistant. Over wire bundles, openings provide individual leads to be broken out at any point while creating a rugged, homogeneous harness assembly which can be channeled, bent, or flexed. Available in TFE, FEP, PFA, or TEFZEL.®

ROUND BEADING OR MINIATURE ROD — Available in TFE, FEP, PFA, or TEFZEL® and in a range of diameters and tolerances to meet most requirements. TFE beading is fully cured.

SHAPES OF TEFLON* TFE — Unlimited capability and variety made to customer specification.

SPLINES OF TEFLON* TFE — For coaxial cables requiring the ultimate in TFE/AIR primary dielectric over a primary conductor of coaxial cable or tube. Unsurpassed concentricity and tolerance.

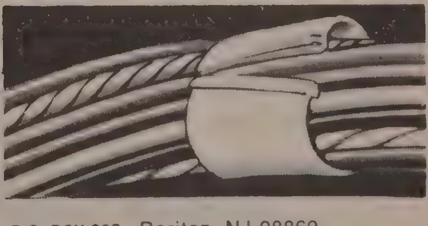
ZEUS "C" SHAPE GUIDE RAIL COVERS OF TEFLON*TFE — Slick surface increases conveyor-line speed. Doubles system life for beer soda and food packagers, and manufacturers of cans and containers

Data sheets available on any of the above items. For new catalog write on company letterhead stating area of interest

ALSO, SPECIALTY WIRES, CABLES, COAXIAL CORES, AND ETCHING ON TUBING OF TEFLON*

CABLE TIES

SNAPTUBE™



ZEUS INDUSTRIAL PRODUCTS, INC.

P.O. BOX 298, Raritan, NJ 08869
800-526-3842 • 201-526-0800 • TWX 710-480-9346

"*DuPont's registered trademark for its fluoropolymer resins."

A PANEL OF EXPERTS

EMC NOW OFFERS COMPATIBLE WIRE WRAPPABLE BOARDS FEATURING 108–PIN CONNECTOR!

EMC PANEL OF EXPERTS:
Quality high-density w/w boards offer up to 540 I/O connector pins and 465 16-pin I.C.'s.

EMC STAMPED AND FORMED 4-FINGER CONTACTS

- **Avoid Damage to IC Leads** with our special design featuring
  - burr-free internal edges
  - flexibility for consistent insertion & withdrawal force

EMC NURL-LOC® TERMINALS

- **Avoid Panel Damage:** Nurl-loc® ribs allow material displacement without tearing the board.
- **Avoid Panel Warp:** Nurl-loc® ribs have up to 500% more bearing surface to distribute pressure evenly.
- **Avoid Pin Straightening:** Nurl-loc® guiding action during insertion into panel promotes accurate positioning.
- **Avoid Terminal Twisting:** Nurl-loc® ribs prevent terminals from spinning during wire-wrapping.

Electronic Molding Corporation

96 MILL ST., WOONSOCKET, R.I. 02895 (401) 769-3800 TWX 710-387-1350

SEE OUR PAGES THIS SECTION 2•1880 - 2•1886

ALSO SEE OUR PAGES IN SECTION 2100 — PAGES 2•1268 - 2•1270

EMC®

The Leader in Nurl-Loc® Technology

BOARDS, PLUG-IN

Manufacturer	EEM Page No.	Extender	Interface	Memory	Processor	Prototype
Augat	2•1876-1879		•	•		
Electronic Molding	2•1880-1886	•	•	•	•	•
Gordos	2•1888, 1889		•			
ITI	2•1890	•	•	•		•
Precicontact	2•1892		•	•		
Prototek	2•1893		•			•

BACKPANELS

Manufacturer	EEM Page No.	Model/ Series	Plug-in	Interface Computer/ Peripheral	Spacing in Inches	Power BUS	Pattern
Augat	2•1876	R	•	•			Universal
	2•1877	8136	•	•	.3, .6, .9	•	Universal
	2•1878	8136	•	•	.3, .4, .6, .9		Universal
	2•1879	8136	•	•	.3, .4, .6, .9		Universal
Electronic Molding	2•1884		•	•	.100 x .100 .200 x .100 .125 x .125 .250 x .125 .200 x .156	•	
ITI	2•1890	Metric				•	Eurocard
Symtron	2•1896	SY		•	.100, .125, .150, .156		

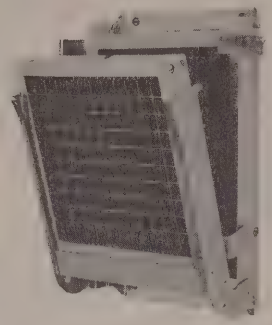
PROGRAMMING BOARDS/SYSTEMS SWITCHING MATRICES

Manufacturer	EEM Page No.	Series/Model	Type of Connections	No. of Connections	Fixed	Contact Spacing
Allied Systems	2•1874	576 667 576/667	Patchcord Hook type	200 - 3264 200 - 5120 200 - 3264	•	.250 x .281 .281 x .281 .250 x .250
Mac Panel	2•1891	140 157 157	Plugboard Plugboard Plugboard	240 - 5120 200 - 5120 200 - 1280	•	

ALLIED SYSTEMS CORPORATION

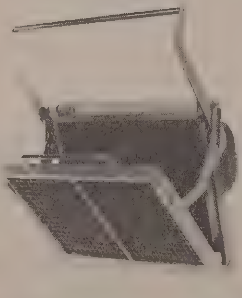
Patchboard Programming Systems

MODEL 902 200 POSITIONS

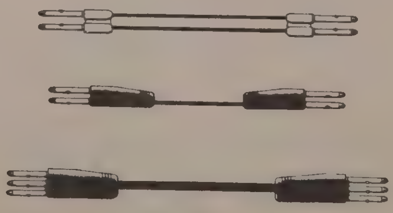

MODEL 904 440 POSITIONS

MODEL 901 680 POSITIONS

MODEL 922 1280 POSITIONS


MODEL 921 1600 POSITIONS

MODEL 910 5120 POSITIONS



Allied Systems now offers two complete lines of patchcord programming systems, with more than twenty-one sizes available. Allied also supplies associated patch cords and hardware for both lines.

Catalog 567 covers IBM style systems which normally have a contact spacing of .250 X .281 or .281 X .281. These systems use larger taper pins for rear panel wiring.

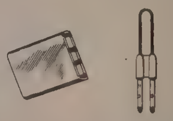
Catalog 667 covers hook type systems which have a contact spacing of .250 X .250. These systems are available for taper pin, wire wrap or locking latch type rear panel wiring.

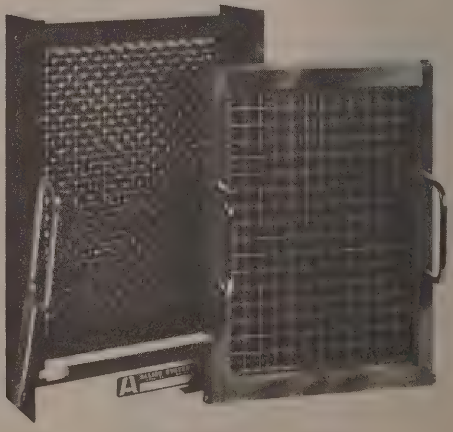
Patch cords are available in a variety of types: single conductor, coax, two conductor shielded, etc., to fit any programming requirement.

Thirteen sizes of *fixed* programming systems are available in both types of systems, ranging in size from 200 to 3264 contacts.

The extremely competitive pricing of the Allied Systems lines, plus the unexcelled quality of their products, gives you, the user, a competitive edge in the design and pricing of your system.

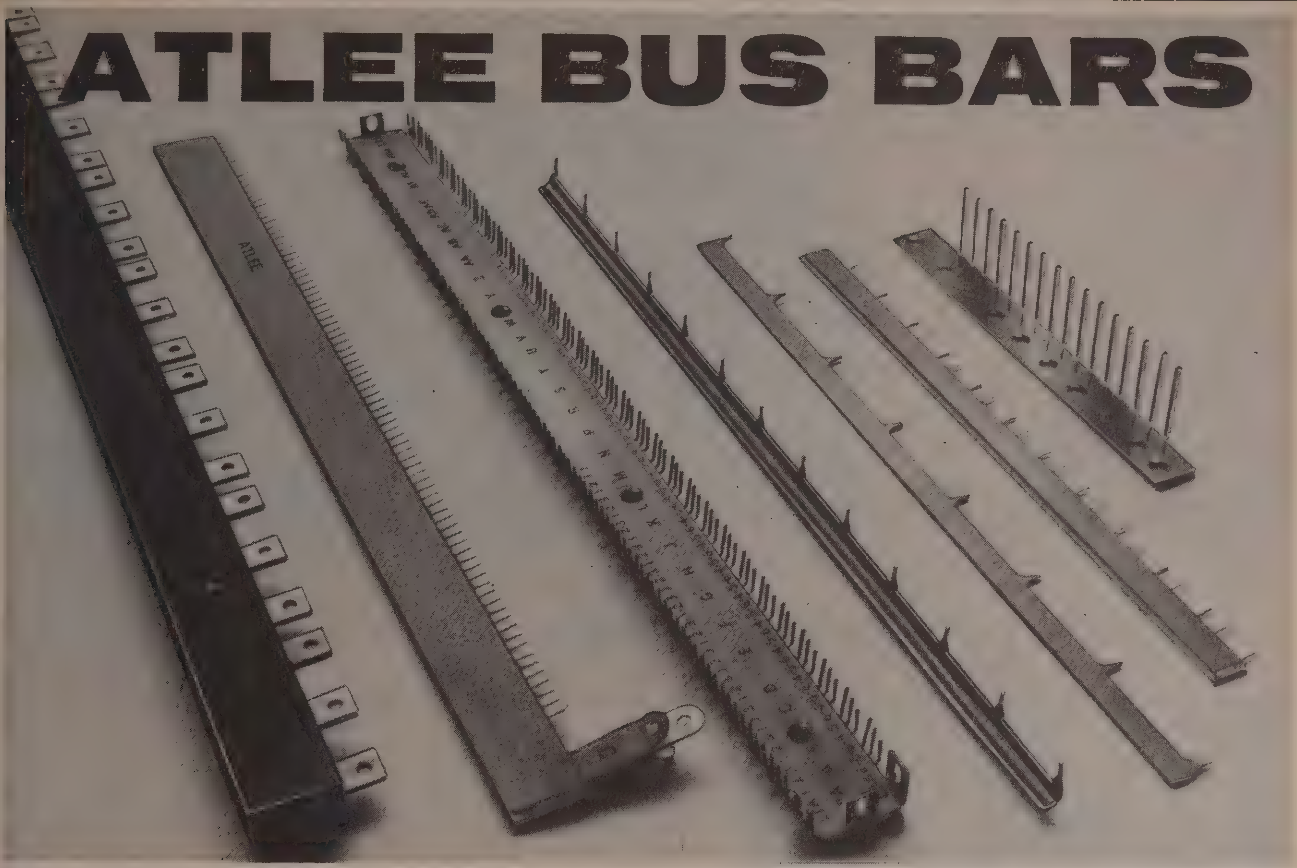
Call your nearest Allied Rep. or Home Office for application help in using Allied Systems patch panels and programming systems, or for prices.




MODEL 816

BOX 18077, GREENSBORO, NORTH CAROLINA 27419, (919) 299-2294

ATLEE BUS BARS



Atlee is a full line manufacturer of bus bars, serving the computer industry, avionics, military contractors and various high tech manufacturers. We have available design and engineering services as well as prototype department. In addition, Atlee has sales representatives nationwide to service our customers. Please contact Atlee to service your bus bar requirements.

TO SPECIFY AN ATLEE BUS BAR

Please contact the factory for a bus bar catalog and any questions you may have.

TO SPECIFY A CUSTOM BUS BAR

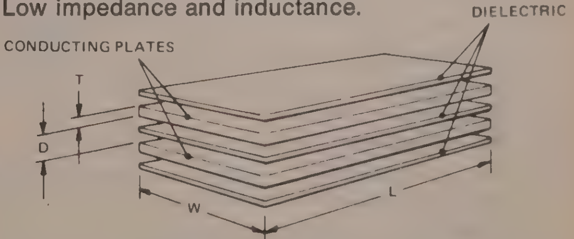
If your requirements do not permit the use of an Atlee Standard Bus Bar, send a drawing print or even a rough sketch of the Bus Bar that would meet your specifications and let Atlee's Sales Engineering Department work out the details and give you a quotation. Atlee will manufacture any type bus bar to your specifications. In general the information required includes:

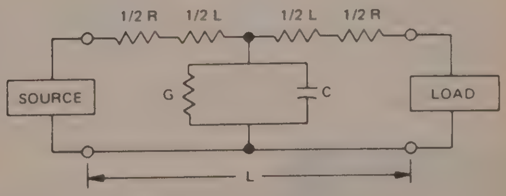
1. Application and quantity
2. Space available
3. Current paths required
4. Type of terminations
5. Number and location of terminations
6. Current requirements
7. Voltage drop requirements
8. Tab to tab spacing on each conductor
9. Type of mounting
10. Capacitance desired
11. Dielectric strength
12. Environmental requirements
13. Type finish on conductors
14. Marking
15. Quantity

DESIGNER'S NOTES

Atlee laminated bus bars consist of flat conductor layers stacked on one another and separated by appropriate dielectrics. Typically such an assembly is laminated and edge-sealed or encapsulated so that the final product becomes a rigid unit with high reliability and stable electrical and mechanical properties. These properties provide uniform capacity, low impedance, and high-speed transmissions of signal and current. Atlee bus bars are an economical alternative to multi-layer printed circuit boards and wire harnesses. They offer:

- Lowered production costs, because assembly is simple and fast.
- Reduced volume which permits higher density packaging than possible with wire harnesses.
- Reduced noise with ideally distributed capacitance and isolation of conductors.
- High current-carrying capacity.
- Low impedance and inductance.





ATLEE

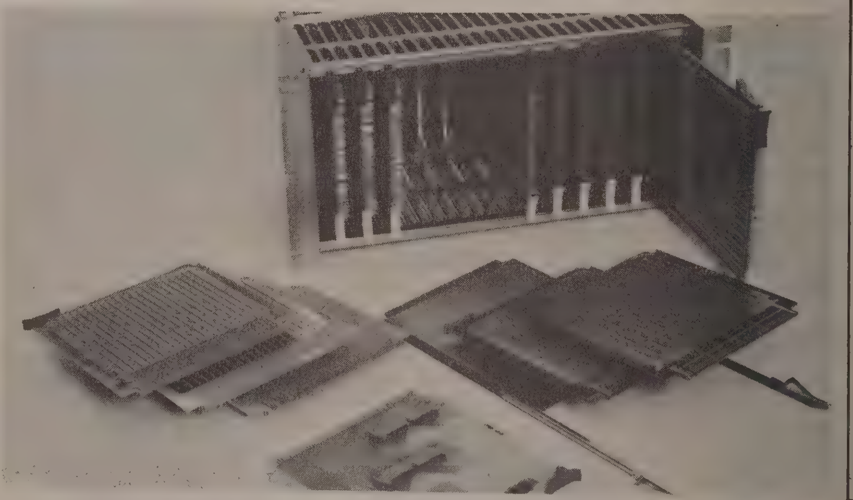
1 GILL STREET, WOBURN, MA 01801 • (617) 933-3510 • TELEX 949407

MODULAR SERIES

Augat's MODULAR SERIES is designed to handle a broad range of ICs. Panels are available in segmented or full size for maximum cost effectiveness.

- Accepts 14- through 64-pin dual-in-line ICs
- Panels are .125″ thick for added strength
- Choice of four plug-compatible I/O styles
- Silkscreened nomenclature
- .125″ diameter circuit clearances and cross traces between socket terminals on wire-wrap side for maximization of power and ground bussing
- V and G positions use sleeves (no inner contact) for easy soldering of decoupling capacitor on the same side of the panel
- Two-piece, tapered-entry socket terminals feature a four-fingered, fully machined (neither stamped nor formed) inner contact and a machined outer sleeve
- Available in committed and uncommitted patterns as well as Universal
- Designed for wiring on automatic wire wrap machinery
- Full size drawer is designed to accept 4 full size modular panels; half size drawer is designed to accept 2 full size modular panels; all drawers are mountable in a 19″ rack

R SERIES



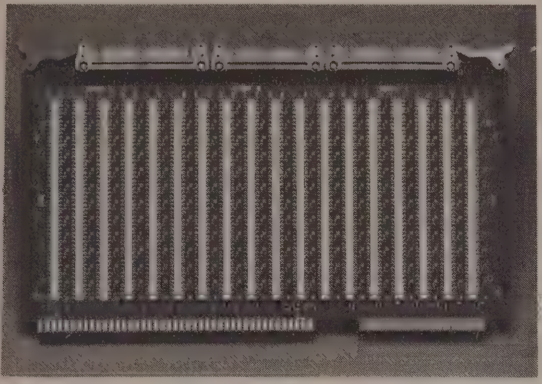
- Augat's R SERIES panels are available in 1/8″ or 1/16″ thicknesses
- Available for TTL, Schottky and ECL design
- Dual 60 edge fingers (120 I/O positions) on .100″ centers gives a 2:1 I/O to IC ratio; finger I/O is provided with polarization slot
- I/O is available with uncommitted fingers or the prededicated fingers to power and ground
- Extended version has provision for mounting 4 TO-3 case voltage regulators in pattern or Universal style
- Silkscreened nomenclature
- .125″ diameter circuit clearances and cross traces between socket terminals on wire-wrap side for maximization of power and ground bussing
- V & G positions use sleeves (no inner contacts) for easy soldering of decoupling capacitors on the same side of the panel
- Two-piece, tapered entry socket terminals feature a four-fingered, fully machined (neither stamped nor formed) inner contact and a machined outer sleeve
- Card cage is designed to accept 13 cards on 1.2″ centers; cage is mountable on standard 19″ racks
- Backpanel is supplied with 13 card edge connectors in committed or uncommitted format; provision for an additional 12 connectors is standard on R SERIES backpanels
- Card cages are available to hold 3, 6 or 9 panels on 1.2″ centers
- All R SERIES panels and backpanels are designed for wiring on automatic wire-wrapping machinery
- Full complement of accessory cards available for the R SERIES (i.e. extender cards, blank cards, discrete cards, etc.); see page 37 for details
- Worksheets are available for R SERIES panels upon request

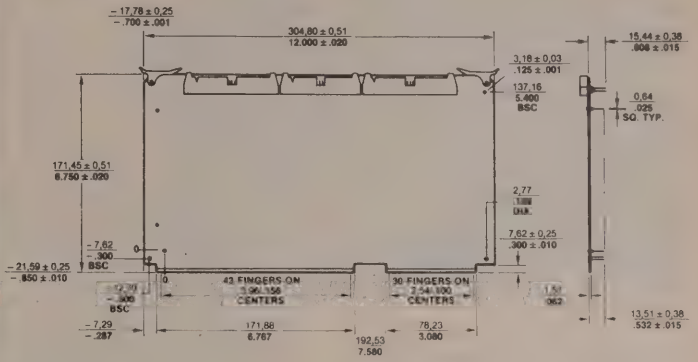
AUGAT®

Interconnection Systems Group
40 Perry Avenue, P.O. Box 1037, Attleboro, MA 02703
(617) 222-2202 TWX 710-391-0644

COMPUTER INTERFACE PANELS

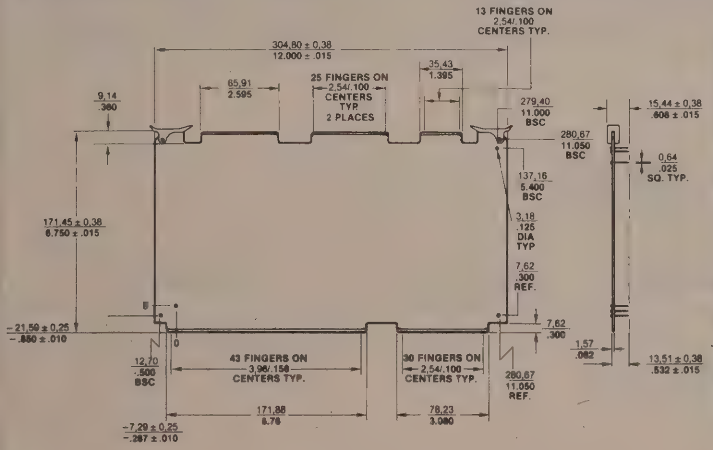
MULTIBUS UNIVERSAL • 36 columns of 50 pins • Columns on .3″ centers allow any combination of I.C.'s with between row spacing of .3″, .6″ or .9″. • V & G pins are empty sleeves located alongside every other column for flexibility and decoupling caps • I/O is two 50-pin right angle wire-wrap headers and one 40-pin wire-wrap header

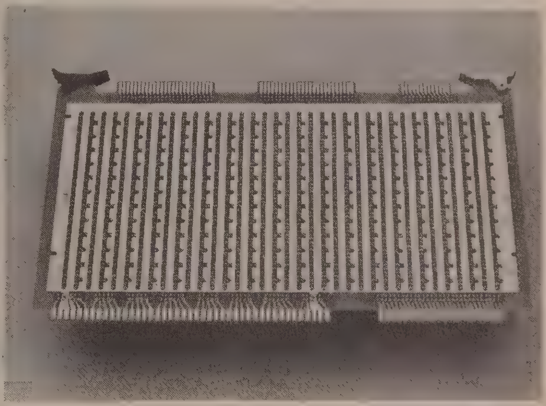



17,78 ± 0,25
.700 ± .001
304,80 ± 0,51
12.000 ± .020
3,18 ± 0,03
.125 ± .001
137,16
5.400
BSC
15,44 ± 0,38
.608 ± .015
0,64
.025
SQ. TYP.
171,45 ± 0,51
6.750 ± .020
2,77
.109
DIA.
7,62 ± 0,25
.300 ± .010
7,62
.300
BSC
21,59 ± 0,25
.850 ± .010
43 FINGERS ON
3,96/.156
CENTERS
30 FINGERS ON
2,54/.100
CENTERS
1,57
.062
13,51 ± 0,38
.532 ± .015
7,29
.287
171,88
6.767
192,53
7.580
78,23
3.080

8136-UG159-2 8136-UG159-2TG

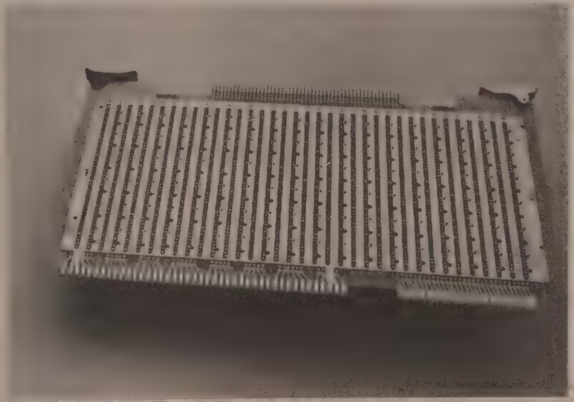
MULTIBUS UNIVERSAL • 36 columns of 50 pins • Columns on .3″ centers allow any combination of I.C.'s with between row spacing of .3″, .6″ or .9″. • V & G pins are empty sleeves located alongside every other column for flexibility and decoupling caps • I/O is two 25/50 and one 13/26 card edge, fingers on .1″ centers

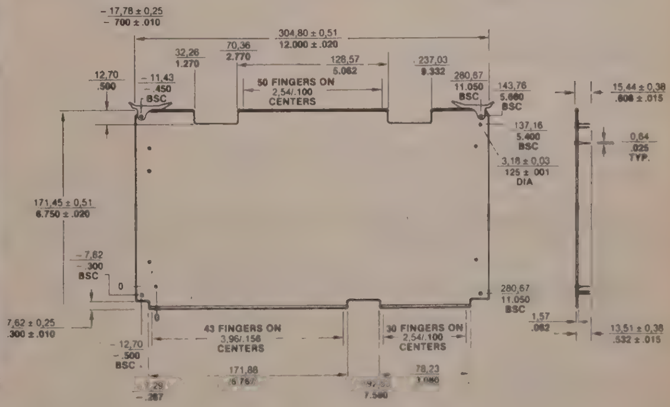

13 FINGERS ON
2,54/.100
CENTERS TYP.
304,80 ± 0,38
12.000 ± .015
35,43
1.395
65,91
2.595
25 FINGERS ON
2,54/.100
CENTERS
TYP
2 PLACES
9,14
.360
279,40
11.000
BSC
15,44 ± 0,38
.608 ± .015
280,67
11.050
BSC
0,64
.025
SQ. TYP.
137,16
5.400
BSC
171,45 ± 0,38
6.750 ± .015
3,18
.125
DIA
TYP
7,62
.300
REF.
21,59 ± 0,25
.850 ± .010
7,62
.300
1,57
.062
12,70
.500
BSC
43 FINGERS ON
3,96/.156
CENTERS TYP.
30 FINGERS ON
2,54/.100
CENTERS TYP.
280,67
11.050
REF.
13,51 ± 0,38
.532 ± .015
171,88
6.76
78,23
3.080
7,29 ± 0,25
.287 ± .010



8136-LG912-2
8136-LG912-2TG

MULTIBUS UNIVERSAL • 36 columns of 50 pins • Columns on .3″ centers allow any combination of I.C.'s with between row spacing of .3″, .6″ or .9″ • V & G pins are empty sleeves located alongside every other column for flexibility and decoupling caps • I/O is one 50/100 card edge with fingers on .1″ centers



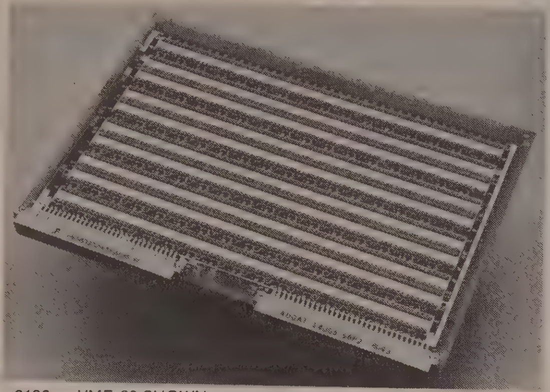

17,78 ± 0,25
.700 ± .010
304,80 ± 0,51
12.000 ± .020
32,26
1.270
70,36
2.770
128,57
5.062
237,03
9.332
12,70
.500
11,43
.450
BSC
50 FINGERS ON
2,54/.100
CENTERS
280,67
11.050
BSC
143,76
5.660
BSC
15,44 ± 0,38
.608 ± .015
137,16
5.400
BSC
0,64
.025
TYP.
3,18 ± 0,03
.125 ± .001
DIA
171,45 ± 0,51
6.750 ± .020
7,62
.300
BSC
280,67
11.050
BSC
7,62 ± 0,25
.300 ± .010
1,57
.062
13,51 ± 0,38
.532 ± .015
43 FINGERS ON
3,96/.156
CENTERS
30 FINGERS ON
2,54/.100
CENTERS
12,70
.500
BSC
171,88
6.767
78,23
3.080
7,29
.287
7.580

8136-LG918-2
8136-LG918-2

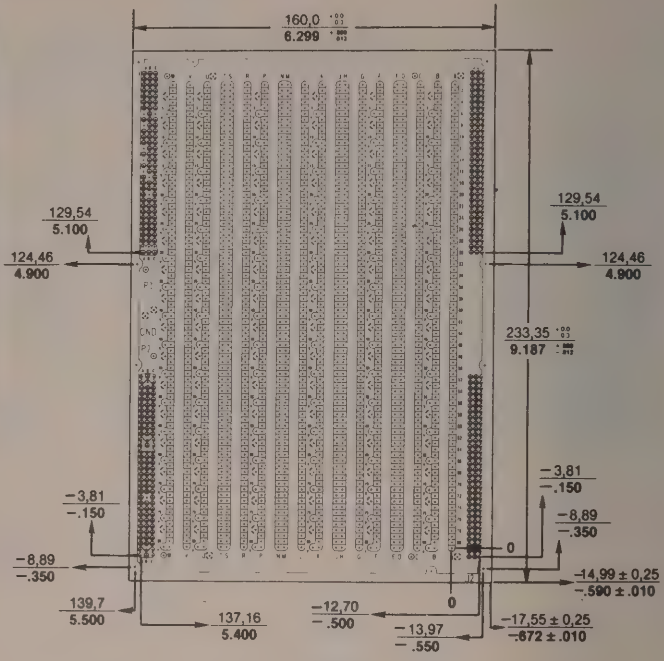
AUGAT®

Interconnection Systems Group
40 Perry Avenue, P.O. Box 1037, Attleboro, MA 02703
(617) 222-2202 TWX 710-391-0644

COMPUTER INTERFACE PANELS



8136 — VME 20 SHOWN


160,0 +0.0 -0.3
6.299 +.000 -.012
129,54
5.100
124,46
4.900
129,54
5.100
124,46
4.900
233,35 +0.0 -0.3
9.187 +.000 -.012
−3,81
−.150
−8,89
−.350
−3,81
−.150
−8,89
−.350
0
−14,99 ± 0,25
−.590 ± .010
139,7
5.500
137,16
5.400
−12,70
−.500
0
−13,97
−.550
−17,55 ± 0,25
−.672 ± .010

- HI-PAK™ (High Packaging Density) Universal pattern allows devices with between-row-spacing of .3″, .4″, .6″ or .9″ to be placed anywhere on the panel
- Front of panel J1 and J2 is drilled to accept two 96-pin DIN connectors, aluminum front panel, puller handles, or flat cable headers, as required
- VCC and GND pins will accept radial lead capacitors with lead spacing of .3″ or .2″
- Green solder mask with white nomenclature for easy readability
- Solder plate alongside columns allows installation of solder clips when required

8136 - S VME XX - X XX

PREFIX
For all W/W panels

SCHOTTKY CONSTRUCTION
(see page 5)

SERIES

LENGTH OF W/W PIN
Blank—3 level
-2—2 level

PLATING
Blank—Gold contact, gold sleeve
T/G—Gold contact, tin sleeve
T/T—Tin/lead contact, tin sleeve

WITHOUT CONNECTORS	96-PIN DIN	CAPACITY	CONNECTOR	COMMITMENT
SINGLE WIDTH (100mm X 160 mm)				
VME11	VME10	42	P1	PI commitments VCC Pin 32 Row A, B & C GND row A pin 9, 11, 15, 17 & 19 row B pin 20 & 23 row C pin 9 P2 commitments VCC row B pin 1, 13 & 32 GND row B pin 2, 12, 22 & 31 P3 non-committed
VME14	VME13	42	P2	
DUAL WIDTH (233,35mm X 160mm)				
VME21	VME20	90	P1 & P2	
DUAL EXTENDED (233,35 X 220mm)				
VME31	VME30	135	P1 & P2	
TRIPLE WIDTH (279,90mm X 366,70)				
VME41	VME40	270	P1-P2 committed P3 non-committed	

NOTE: Prefix S — defines Schottky construction.

AUGAT®
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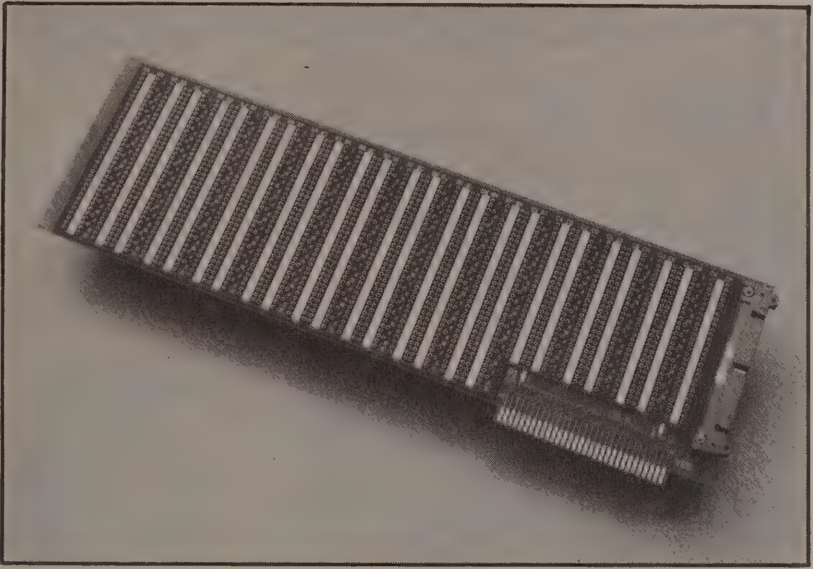
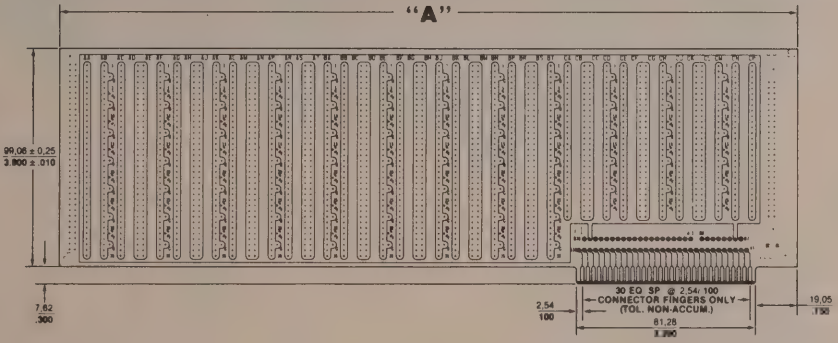
COMPUTER INTERFACE PANELS

IBM SERIES



8136-HPG28 SHOWN

- HI-PAK™ (High Packaging Density) Universal pattern allows devices with between-row-spacing of .3", .4", .6" or .9" to be placed anywhere on the panel
- P1 dual 31-pin I/O has pre-dedicated VCC and GND specified by IBM. VCC plane (component side) and GND plane (wiring side).
- J1 connector is a 50-pin header. All pins are uncommitted.
- J2 68-pin footprint. Holes are drilled to .040".
- VCC and GND pins will accept radial lead capacitors with lead spacing of .3" or .2"
- Green solder mask with white nomenclature for easy readability
- Solder plate alongside columns allows installation of solder clips when required



8136 - S HPG XX - X XX

PREFIX
For all Augat W/W panels

SCHOTTKY CONSTRUCTION
(see page 5)

LOGIC PATTERN
(see page 9)

LENGTH OF W/W PIN
Blank—3 level
-2—2 level

PIN PLATING
Blank—Gold contact, gold sleeve
T/G—Gold contact, tin sleeve
T/T—Tin/lead contact, tin sleeve

	"A" DIMENSION	BASIC P/N	CAPACITY 16-PIN DEVICES
IBM®PC1	5.200	HPG8	25
IBM®PC2	9.200	HPG18	57
IBM®PC3	13.200	HPG28	89

NOTE: S prefix to logic pattern defines Schottky construction.

AUGAT®
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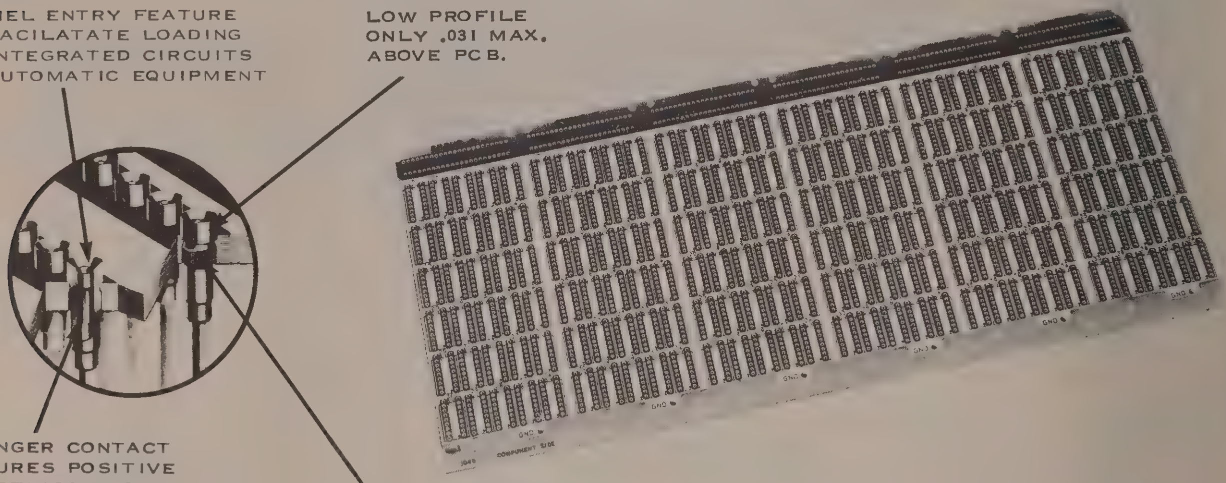
EMC
ELECTRONIC MOLDING CORPORATION
96 MILL ST., WOONSOCKET, R.I. 02895 U.S.A. (401) 769-3800 TWX NO. 710-387-1350

HIGH DENSITY NURL-LOC® IC PANELS
PM SERIES PATTERN MODULAR
14 AND 16 PIN POSITIONAL PATTERN

With input-output terminals for plug or receptacle cable interfacing plugs.

- PANELS FEATURING NURL-LOC® TERMINALS ARE OFFERED IN FOUR PATTERN STYLES AND FOUR INPUT-OUTPUT CLUSTER TYPES. THE STANDARD PATTERNS ARE IN ONE TO SIX GROUPS OF THIRTY POSITIONS EACH FOR UP TO 180 IC'S. ALL PANELS ARE AVAILABLE IN TWO TERMINAL PLATING COMBINATIONS, GOLD/GOLD OR GOLD/TIN.

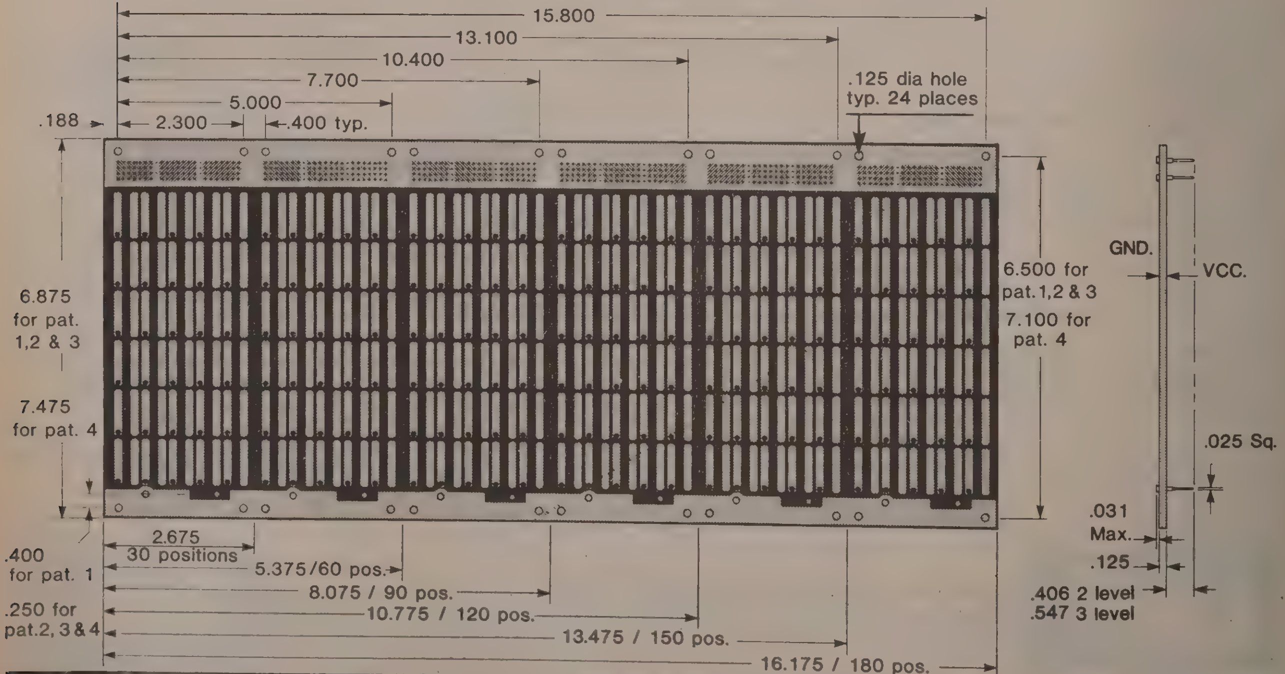


FUNNEL ENTRY FEATURE TO FACILATATE LOADING OF INTEGRATED CIRCUITS BY AUTOMATIC EQUIPMENT

LOW PROFILE ONLY .031 MAX. ABOVE PCB.

4 FINGER CONTACT ASSURES POSITIVE ELECTRICAL CONNECTION AT ALL TIMES WITH LOW CONTACT RESISTANCE

NURL-LOC TERMINALS PREVENT TWISTING DURING WRAPPING


15.800
13.100
10.400
7.700
5.000
.188
2.300
.400 typ.
.125 dia hole typ. 24 places
6.875 for pat. 1,2 & 3
7.475 for pat. 4
6.500 for pat. 1,2 & 3
7.100 for pat. 4
GND.
VCC.
.025 Sq.
.031 Max.
.125
.406 2 level
.547 3 level
.400 for pat. 1
.250 for pat. 2, 3 & 4
2.675 30 positions
5.375/60 pos.
8.075 / 90 pos.
10.775 / 120 pos.
13.475 / 150 pos.
16.175 / 180 pos.

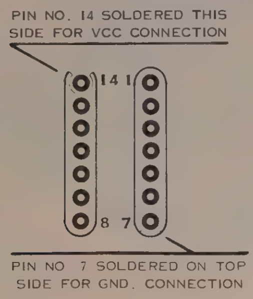
EMC

ELECTRONIC MOLDING CORPORATION

96 MILL ST., WOONSOCKET, R.I. 02895 U.S.A. (401) 769-3800 TWX NO. 710-387-1350

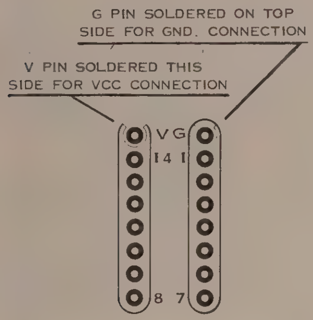
PATTERN VARIATIONS

PART NUMBERS


PIN NO. 14 SOLDERED THIS SIDE FOR VCC CONNECTION
14 1
8 7
PIN NO 7 SOLDERED ON TOP SIDE FOR GND. CONNECTION

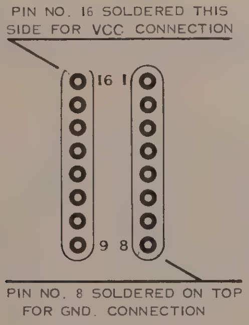
14 PIN COMMITTED	GROUPS	POSITIONS
CC01018—A3G—1SX	1	30
CC01018—A3G—2SX	2	60
CC01018—A3G—3SX	3	90
CC01018—A3G—4SX	4	120
CC01018—A3G—5SX	5	150
CC01018—A3G—6SX	6	180

▲


G PIN SOLDERED ON TOP SIDE FOR GND. CONNECTION
V PIN SOLDERED THIS SIDE FOR VCC CONNECTION
V G
14 1
8 7

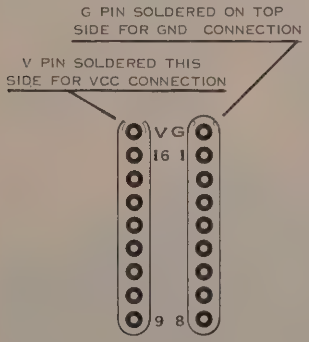
14 PIN UNCOMMITTED	GROUPS	POSITIONS
CC01031—A3G—1SX	1	30
CC01031—A3G—2SX	2	60
CC01031—A3G—3SX	3	90
CC01031—A3G—4SX	4	120
CC01031—A3G—5SX	5	150
CC01031—A3G—6SX	6	180

▲


PIN NO. 16 SOLDERED THIS SIDE FOR VCC CONNECTION
16 1
9 8
PIN NO. 8 SOLDERED ON TOP FOR GND. CONNECTION

16 PIN COMMITTED	GROUPS	POSITIONS
CC01044—A3G—1SX	1	30
CC01044—A3G—2SX	2	60
CC01044—A3G—3SX	3	90
CC01044—A3G—4SX	4	120
CC01044—A3G—5SX	5	150
CC01044—A3G—6SX	6	180

▲


G PIN SOLDERED ON TOP SIDE FOR GND CONNECTION
V PIN SOLDERED THIS SIDE FOR VCC CONNECTION
V G
16 1
9 8

16 PIN UNCOMMITTED	GROUPS	POSITIONS
CC01057—A3G—1SX	1	30
CC01057—A3G—2SX	2	60
CC01057—A3G—3SX	3	90
CC01057—A3G—4SX	4	120
CC01057—A3G—5SX	5	150
CC01057—A3G—6SX	6	180

▲

PLEASE MAKE CODE SELECTIONS (INDICATED BY ARROWS) ON PAGE 2-1886 TO COMPLETE THE PART NUMBER.

EXAMPLE: CC 01018 —A 3 G — 6 S A

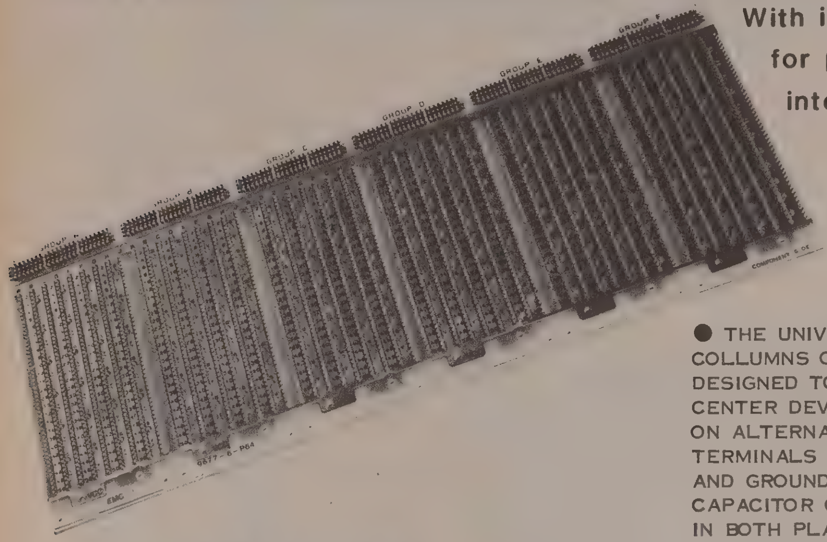
1/8 INCH THICK PANEL
BASIC PART NUMBER
ELECTRO SOLDER PLATE
THREE LEVELS OF WIRE WRAP
GOLD OVER NICKEL
SIX SECTIONS (180 POSITIONS)
SOCKET TERMINALS FOR V & G
I O CONFIGURATION (2 ROWS OF 23 EACH)

NOTE:
FOR 1/16 INCH EQUIVALENT PANELS, SUBSTITUTE CA FOR CC AS THE FIRST TWO DIGITS OF THE PART NO.

EMC ELECTRONIC MOLDING CORPORATION

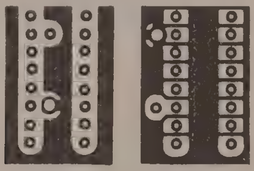
96 MILL ST., WOONSOCKET, R.I. 02895 U.S.A. (401) 769-3800 TWX NO. 710-387-1350

HIGH DENSITY NURL-LOC® IC PANELS
UNIVERSAL MODULAR-UM SERIES


GROUP A
GROUP B
GROUP C
GROUP D
GROUP E
GROUP F
COMPONENT SIDE
68/7-6-P84
EMC

With input – output terminals for plug or receptacle cable interfacing plugs.

- THE UNIVERSAL PATTERN CONSISTS OF PARALLEL COLLUMNS OF 50 TERMINALS ON .300 CENTERS, DESIGNED TO ACCEPT ALL STANDARD .300 AND .600 CENTER DEVICES AND RANGE FROM 9 TO 54 COLUMNS. ON ALTERNATE COLUMNS, A NETWORK OF 48 TERMINALS PER GROUP IS CONNECTED TO VOLTAGE AND GROUND PLANES FOR DEVICE POWER & DECOUPLING CAPACITOR CONNECTION. ALL PLANES ARE AVAILABLE IN BOTH PLATING COMBINATIONS, GOLD OR TIN.



VCC. (COMP. SIDE) **GND.** (W/W SIDE)

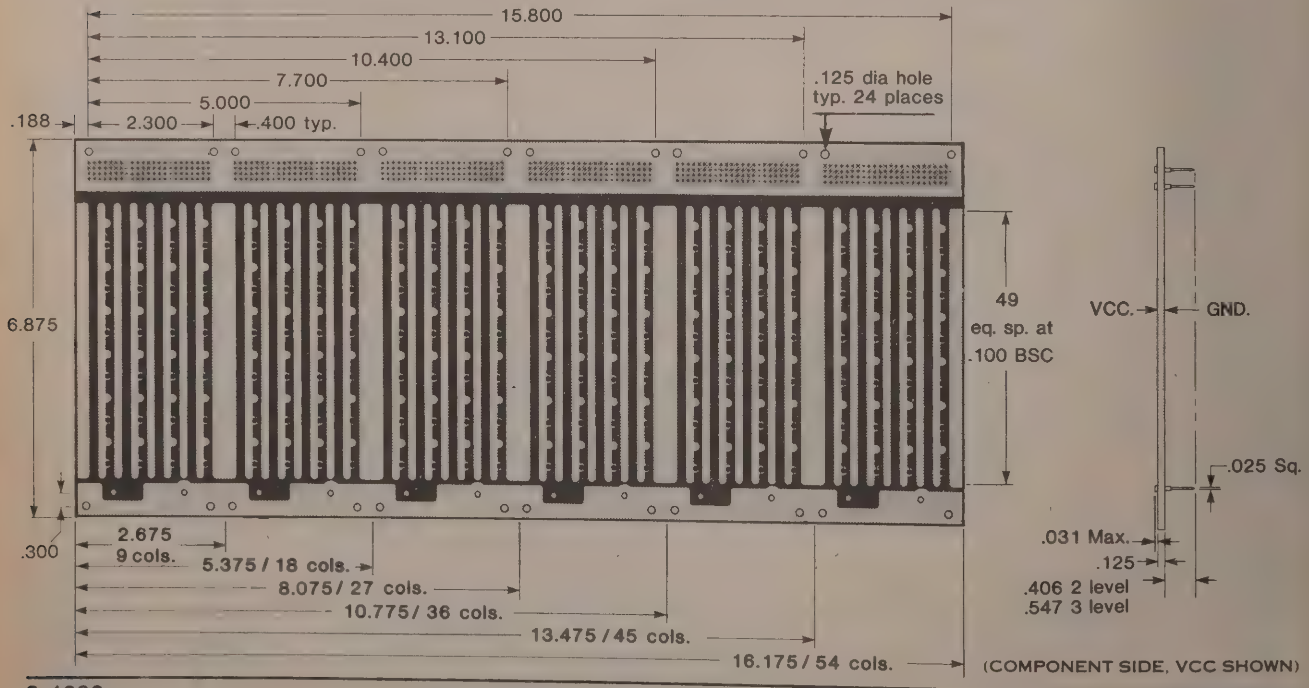
ADDITIONAL GROUND WEBBING BETWEEN PINS ALLOWS SHORTER PATH FOR GREATER NOISE REDUCTION.

(GND ON WIRE WRAP SIDE)

PART NUMBER	SECTIONS	COLUMNS
CC09683—A3G—1SX	1	9
CC09683—A3G—2SX	2	18
CC09683—A3G—3SX	3	27
CC09683—A3G—4SX	4	36
CC09683—A3G—5SX	5	45
CC09683—A3G—6SX	6	54

▲▲ ▲▲

PLEASE MAKE CODE SELECTIONS ON PAGE 2-1886 TO COMPLETE THE PART NUMBER.

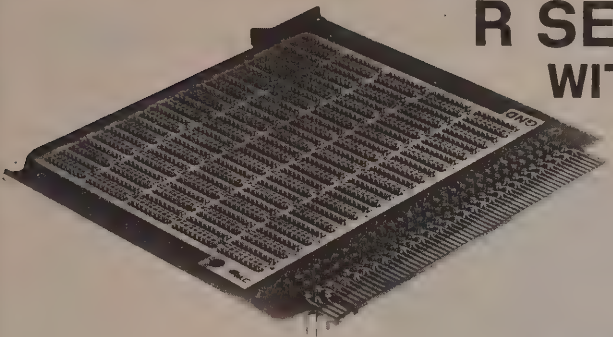

15.800
13.100
10.400
7.700
5.000
2.300
.400 typ.
.188
.125 dia hole typ. 24 places
6.875
49 eq. sp. at .100 BSC
.300
2.675 9 cols.
5.375 / 18 cols.
8.075 / 27 cols.
10.775 / 36 cols.
13.475 / 45 cols.
16.175 / 54 cols.
VCC.
GND.
.025 Sq.
.031 Max.
.125
.406 2 level
.547 3 level

(COMPONENT SIDE, VCC SHOWN)

EMC

ELECTRONIC MOLDING CORPORATION

96 MILL ST., WOONSOCKET, R.I. 02895 U.S.A. (401) 769-3800 TWX NO. 710-387-1350

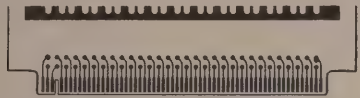


R SERIES: NURL-LOC® IC PANELS WITH EDGE CARD CONNECTORS

- PANELS UTILIZE NURL-LOC® TERMINALS IN TWO AND THREE LEVELS OF WIRE WRAP.
- FIVE PATTERN STYLES AVAILABLE FOR UP TO SIXTY IC POSITIONS.
- EDGE TAB CONNECTOR FOR 1/8" AND 1/16" PANELS MATES WITH 122 PIN CONNECTOR. (120 ACTIVE CONTACTS, 2 - KEYED)

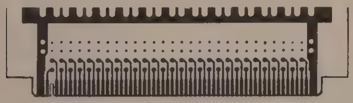
TYPE ONE (NON-COMMITTED I/O)

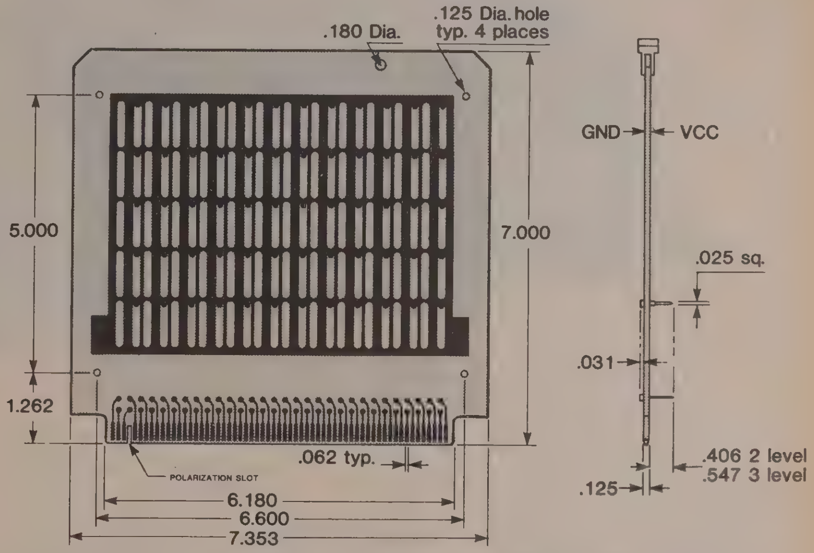
FINGERS ARE CONNECTED TO BOTH VCC & GND BY WIRE WRAPPING. PINS 1 THROUGH 61 ARE TIED TO COMPONENT SIDE AND 62 THROUGH 122 TO WIRE WRAP SIDE



TYPE TWO (COMMITTED I/O)

FINGERS ARE DIRECTLY CONNECTED TO VCC & GND. PINS 1, 2, 60 & 61 ARE TIED TO COMPONENT SIDE AND 62, 63, 121 & 122 TO WIRE WRAP SIDE.

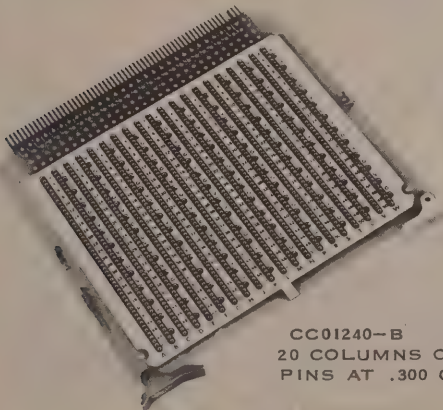



.180 Dia.
.125 Dia. hole typ. 4 places
5.000
7.000
1.262
.062 typ.
POLARIZATION SLOT
6.180
6.600
7.353
GND
VCC
.025 sq.
.031
.406 2 level
.547 3 level
.125

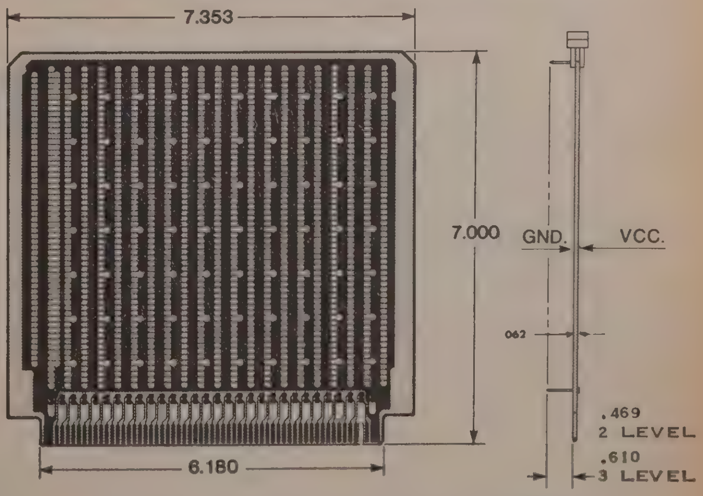
TYPE ONE I/O UNCOMMITTED	TYPE TWO I/O COMMITTED	PATTERN SEE PG. 13	BOARD THICKNESS
CC01186-BXX-0SN	CC60002-BXX-0SN	1	1/8 INCH
CC01188-BXX-0SN	CC60003-BXX-0SN	2	
CC01190-BXX-0SN	CC60004-BXX-0SN	3	
CC01192-BXX-0SN	CC60005-BXX-0SN	4	
CA01186-BXX-0SN	CA60002-BXX-0SN	1	1/16 INCH
CA01188-BXX-0SN	CA60003-BXX-0SN	2	
CA01190-BXX-0SN	CA60004-BXX-0SN	3	
CA01192-BXX-0SN	CA60005-BXX-0SN	4	
CC01240-BXX-0HN	CC60010-BXX-0HN	UNIV.	1/8 INCH
CA01240-BXX-0HN	CA60010-BXX-0HN *CA09788-BXX-0HN	UNIV. HI. DEN.	1/16 INCH

▲▲ ▲▲

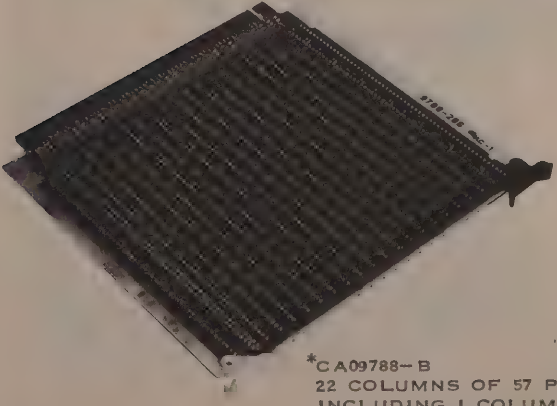
PLEASE MAKE CODE SELECTIONS (INDICATED BY ARROWS) ON PAGE 2-1886 TO COMPLETE THE PART NUMBER.



CC01240-B
20 COLUMNS OF 50 PINS AT .300 CENTERS


7.353
7.000
GND.
VCC.
.062
.469 2 LEVEL
.610 3 LEVEL
6.180

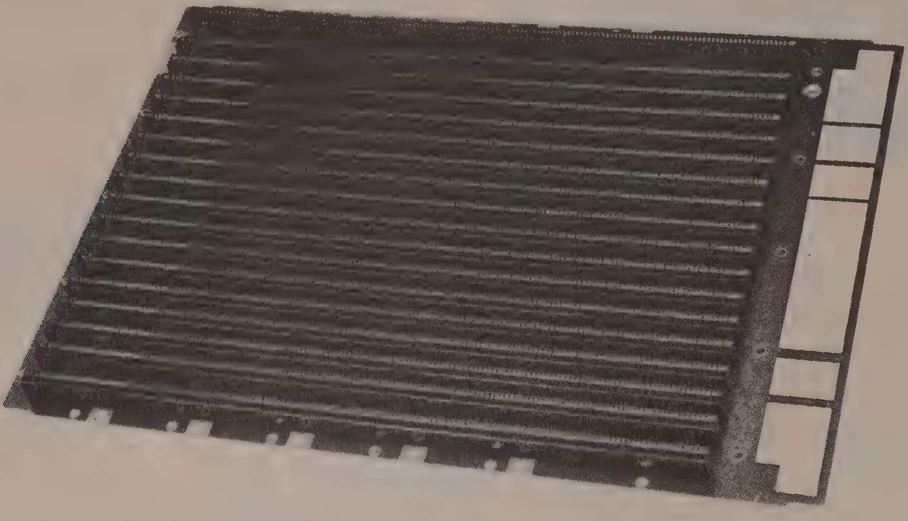
WIRE WRAP SIDE (GND.) SHOWN



*CA09788-B
22 COLUMNS OF 57 PINS INCLUDING 1 COLUMN AT .400 CENTERS.

EMC
ELECTRONIC MOLDING CORPORATION
96 MILL ST., WOONSOCKET, R.I. 02895 U.S.A. (401) 769–3800 TWX NO. 710–387–1350

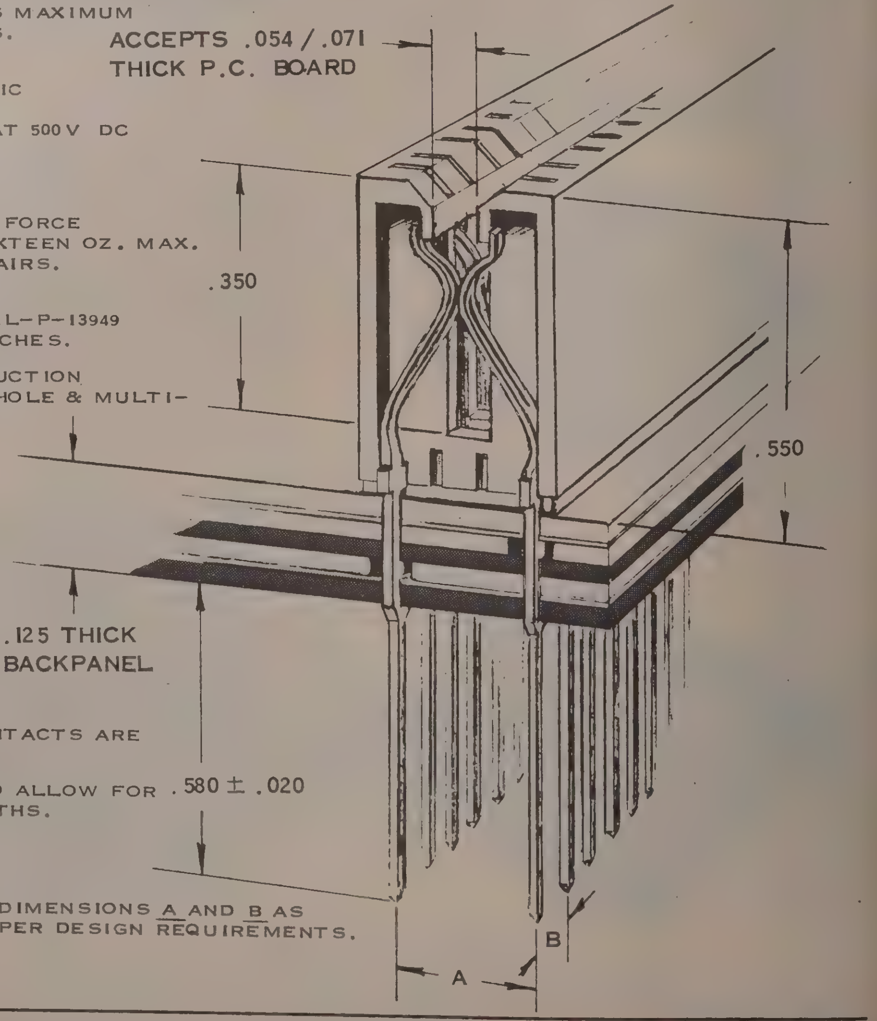
BACK PANELS
PRESS FIT CONNECTOR BACK PANEL SYSTEM



1. CONTACTS – CARD EDGE TYPE.
   MATERIAL – CA725 WITH STANDARD PLATING
   .025 INCHES SQUARE WIRE WRAPPABLE TAIL
   CURRENT RATING – 5 AMPS MAXIMUM
   I R DROP .03 MV AT 5 AMPS.
2. INSULATION MATERIAL –
   POLYESTER THERMOPLASTIC
   COLOR – BLACK
   I R – 5000 MEGOHMS MIN. AT 500 V DC
3. PLUGGABLE P.C. CARD SIZE
   .054/.071 PER MIL–C–21097
4. INSERTION AND WITHDRAWAL FORCE
   ONE OUNCE MINIMUM – SIXTEEN OZ. MAX.
   PER OPPOSING CONTACT PAIRS.
5. P.C. PANEL MATERIAL
   UL APPROVED FR–4 PER MIL–P–13949
   THICKNESS – .093 & .125 INCHES.
6. TYPICAL P.C. BOARD CONSTRUCTION
   TWO SIDED PLATED THRU HOLE & MULTI-LAYER FABRICATION.
7. OPERATING TEMPERATURE
   –60°C TO 115°C
8. CONTACT RETENTION
   EIGHT POUNDS MINIMUM
9. GRID SPACING AVAILABLE

A		B	
.100	X	.100	INCHES
.200	X	.100	INCHES
.125	X	.125	INCHES
.250	X	.125	INCHES
.200	X	.156	INCHES

10. FEED–THRU AND FEED–ON CONTACTS ARE ALSO AVAILABLE
11. INSULATORS ARE MODULAR TO ALLOW FOR VARIOUS CONNECTOR LENGTHS.



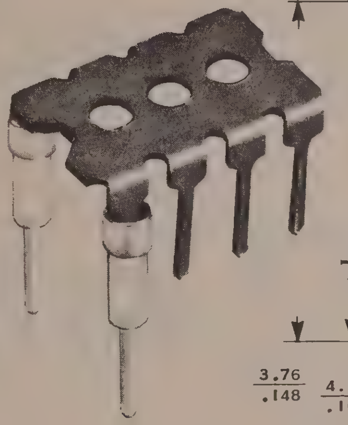
DIMENSIONS A AND B AS PER DESIGN REQUIREMENTS.

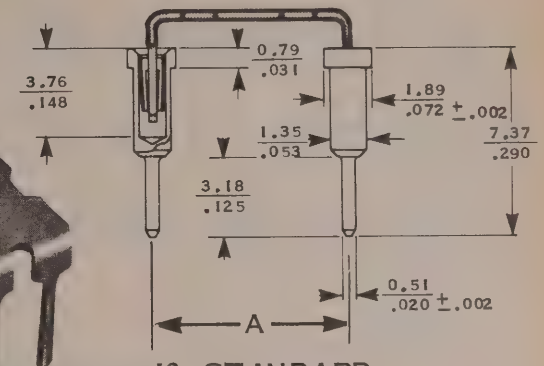
EMC
ELECTRONIC MOLDING CORPORATION
96 MILL ST., WOONSOCKET, R.I. 02895 U.S.A. (401) 769-3800 TWX NO. 710-387-1350

TERMINAL CARRIER SOCKET ASSEMBLIES

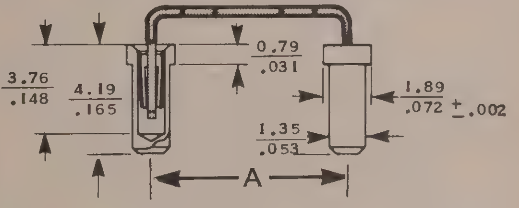
PART NO.	A	CONTACT PLATING	TERMINAL PLATING
12306-12-445	.300	GOLD	TIN
12306-12-446		GOLD	GOLD
12308-12-445		GOLD	TIN
12308-12-446		GOLD	GOLD
12314-12-445		GOLD	TIN
12314-12-446		GOLD	GOLD
12316-12-445		GOLD	TIN
12316-12-446		GOLD	GOLD
12318-12-445		GOLD	TIN
12318-12-446		GOLD	GOLD
12320-12-445		GOLD	TIN
12320-12-446		GOLD	GOLD
12322-12-445		GOLD	TIN
12322-12-446		GOLD	GOLD
12324-12-445		GOLD	TIN
12324-12-446		GOLD	GOLD
12422-12-445	.400	GOLD	TIN
12422-12-446		GOLD	GOLD
12424-12-445		GOLD	TIN
12424-12-446		GOLD	GOLD
12624-12-445	.600	GOLD	TIN
12624-12-446		GOLD	GOLD
12628-12-445		GOLD	TIN
12628-12-446		GOLD	GOLD
12632-12-445		GOLD	TIN
12632-12-446		GOLD	GOLD
12636-12-445		GOLD	TIN
12636-12-446		GOLD	GOLD
12640-12-445		GOLD	TIN
12640-12-446		GOLD	GOLD

FOR OPTIONAL TERMINAL ASSEMBLY SUBSTITUTE -16 IN PLACE OF -12.



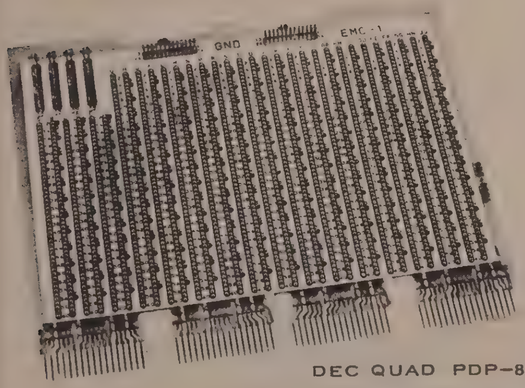


-12 STANDARD TERMINAL ASSEMBLY

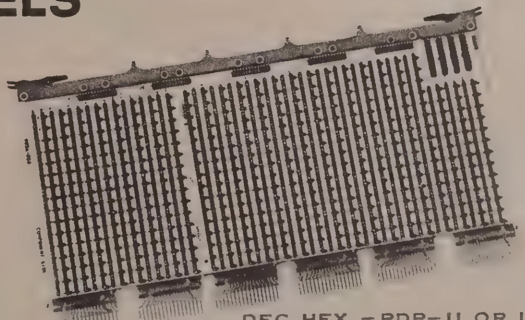


-16 OPTIONAL TERMINAL ASSEMBLY

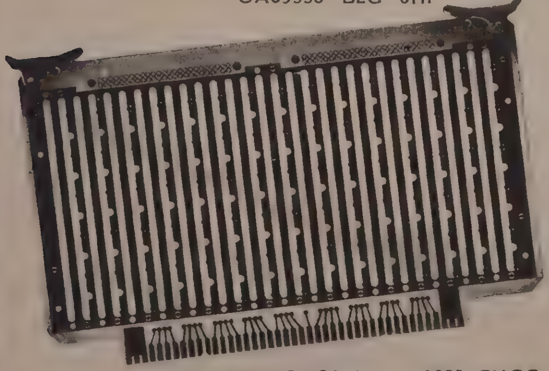
MICROPROCESSOR PANELS



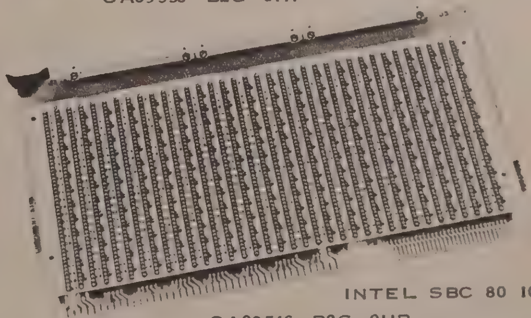
DEC QUAD PDP-8 BUSS
CA09558-B2G-0HF



DEC HEX - PDP-11 OR LSI-11 BUSS
CA09556-B2G-0HF



MOTOROLA - M6800 BUSS
CA09978-B2G-0HF



INTEL SBC 80 10 BUSS
CA09546-B2G-0HP

ALL MICROPROCESSOR PANELS SHOWN FEATURE:

- UNIVERSAL PATTERN - TO ACCOMODATE A MIX OF ALL .300 & .600 SPACED DEVICES.
- SHORT INNER CONTACT - TO PREVENT IC BACKOUT.
- STANDARD EDGE CONNECTOR CONFIGURATION - TO DIRECTLY INTERFACE WITH EXISTING DEC, INTEL AND MOTOROLA FORMATS.

EMC

ELECTRONIC MOLDING CORPORATION

96 MILL ST., WOONSOCKET, R.I. 02895 U.S.A. (401) 769-3800 TWX NO. 710-387-1350

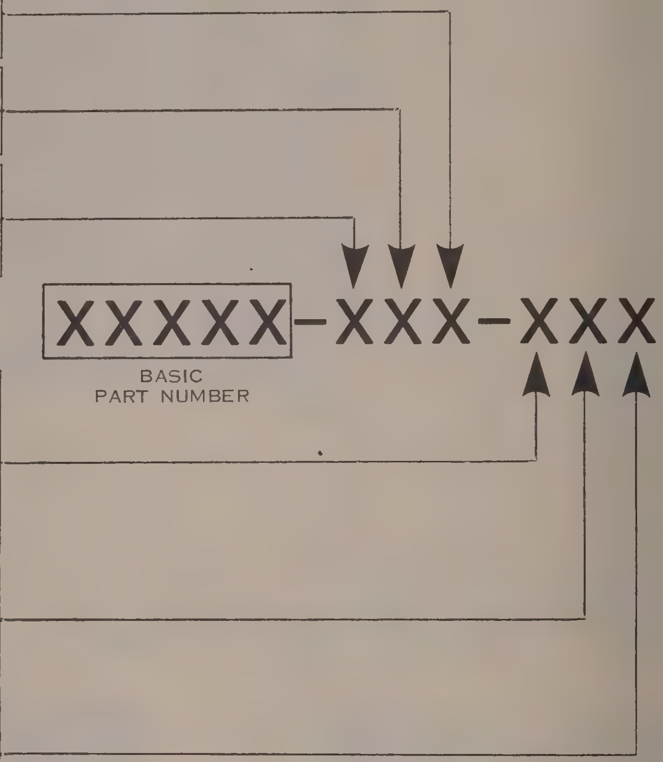
PART NUMBERING SYSTEM

- BASIC PART NUMBERS AND BOARD PLATINGS ARE PREDETERMINED ON INDIVIDUAL PAGES.
- SELECT THE CODE DESIRED FOR EACH REMAINING DIGIT OF THE PART NUMBER.

TERMINAL PLATING
G = GOLD OVER NICKEL
T = TIN OVER COPPER

TERMINAL LEVELS OF WIRE WRAP
2 = TWO LEVEL WIRE WRAP
3 = THREE LEVEL WIRE WRAP

BOARD PLATING
A = ELECTRO-SOLDER PLATE
B = 30 MμʺGOLD PLATED EDGE CONNECTOR
C = 50 MμʺGOLD PLATED EDGE CONNECTOR



NUMBER OF BOARD SECTIONS
1 = 1 SECTION (30 POSITIONS OR 9 COLUMNS)
2 = 2 SECTIONS (60 POSITIONS OR 18 COLUMNS)
3 = 3 SECTIONS (90 POSITIONS OR 27 COLUMNS)
4 = 4 SECTIONS (120 POSITIONS OR 36 COLUMNS)
5 = 5 SECTIONS (150 POSITIONS OR 45 COLUMNS)
6 = 6 SECTIONS (180 POSITIONS OR 54 COLUMNS)

V & G TERMINALS
H = HOLLOW
N = NAIL HEAD
S = SOCKET

I/O CONFIGURATIONS
A = 2 ROWS OF 23 EACH
B = 4 ROWS OF 13 EACH
C = 3 CLUSTERS, 4 ROWS OF SEVEN EACH
D = 4 ROWS OF 20 EACH

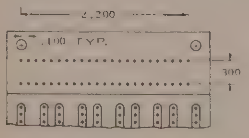
EXAMPLES:

1.) TO CONSTRUCT A PART NUMBER TO INCLUDE THREE LEVEL GOLD PLATED WIRE WRAP TERMINALS SELECT: "A3G." TO SELECT TWO LEVEL TIN PLATED TERMINALS USE "A2T."

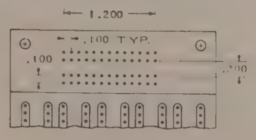
2.) TO CONSTRUCT A PART NUMBER FOR 180 POSITION, 16 PIN COMMITTED PATTERN WITH FEED THRU I O, SELECT: CC01044–A3G–6SB. FOR SIMULAR PANEL WITH EXPANDED FEED THRU I O CONFIGURATION, SELECT: CC01044–A3G–6SD

3.) TO CONSTRUCT A PART NUMBER FOR A 90 POSITION, 16 PIN UNCOMMITTED PATTERN WITH SOCKET TERMINALS IN VCC & GND LOCATIONS WITH HIGH DENSITY I O, SELECT: CC01057–A3G–3SD.

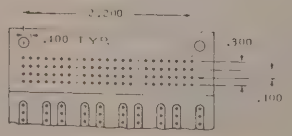
I/O CONFIGURATIONS



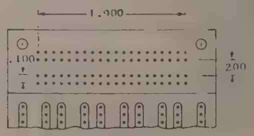
TYPE A



TYPE B

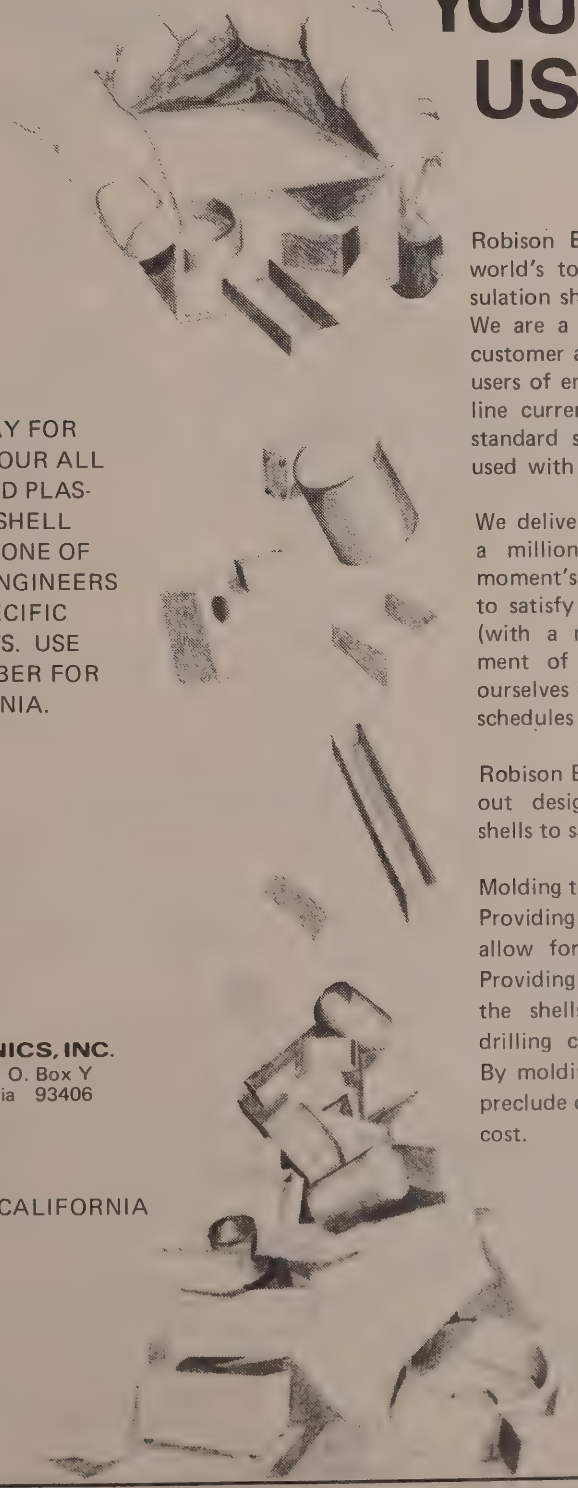


TYPE C



TYPE D

call the leader for...
MOLDED PLASTIC ENCAPSULATION SHELLS
YOU'LL FIND US AT THE TOP



Robison Electronics, Inc., is one of the world's top suppliers of molded encapsulation shells to the electronics industry. We are a major supplier to over 1,500 customer accounts, including most major users of encapsulation shells; our product line currently includes more than 2,500 standard sizes and special headers to be used with these shells.

We deliver...our inventory stands at over a million parts, ready to ship at a moment's notice. We will tool new items to satisfy specific customer requirements (with a minimum initial order requirement of only 250 parts). We pride ourselves in providing quick, firm delivery schedules of a quality product.

Robison Electronics, Inc., produces (with out design compromise) encapsulation shells to satisfy the end need by:

Molding to design sizes
Providing a step in the open end to allow for a header.
Providing cored holes in the bottom of the shells, or in the headers to save drilling costs.
By molding shells to the desired depth to preclude cutting deeper shells at increased cost.

For your encapsulation shells,
call the TOP

CALL OR WRITE TODAY FOR YOUR FREE COPY OF OUR ALL NEW 96-PAGE "MOLDED PLASTIC ENCAPSULATION SHELL CATALOG." ASK FOR ONE OF OUR APPLICATIONS ENGINEERS TO DISCUSS YOUR SPECIFIC SHELL REQUIREMENTS. USE OUR TOLL-FREE NUMBER FOR OUTSIDE OF CALIFORNIA.

ROBISON ELECTRONICS, INC.
3580 Sacramento Drive, P. O. Box Y
San Luis Obispo, California 93406

PHONE (805) 544-8000
TOLL-FREE OUTSIDE CALIFORNIA
(800) 235-4144

GORDOS
ARKANSAS

INPUT/OUTPUT SYSTEMS
(PB Boards for I/O Modules)

MODULE BOARDS

Gordos hybrid thick film I/O Systems give you everything you need to interface with any 5, 15, or 24 volt logic unit.

Since the function is self-contained in each module, you determine the layout of your own system boards. The plug-in modules with single hold-down screw make later revisions easy; and the barrier strip allows module replacement without disconnecting the wires.

Gordos Module Board

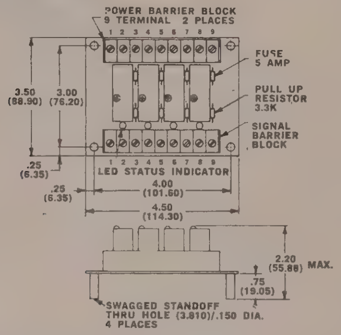
- Plug-compatible logic contracts on 8, 16, and 24 position boards. Screw terminal logic connections on 4 position boards
- Barrier strip with screw terminals for load connections
- Circuitry for pull-up resistors
- 5 amp field replaceable fuses
- LED status indicators
- All even pins logic GND.

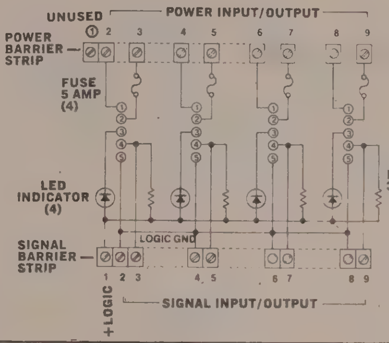
OUTLINE DIMENSIONS

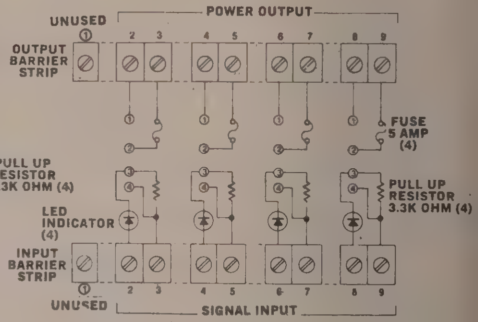
SCHEMATICS

4-POSITION MODULE BOARD

PB4R and PB4

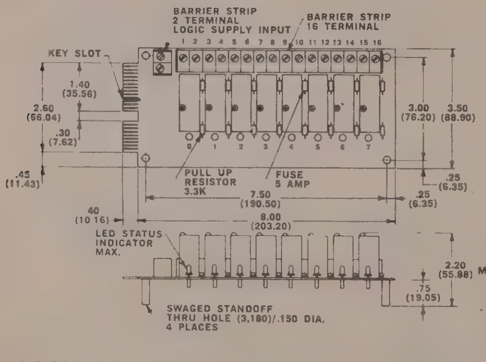

POWER BARRIER BLOCK
9 TERMINAL 2 PLACES
1 2 3 4 5 6 7 8 9
FUSE
5 AMP
PULL UP
RESISTOR
3.3K
SIGNAL
BARRIER
BLOCK
3.50
(88.90)
3.00
(76.20)
.25
(6.35)
LED STATUS INDICATOR
4.00
(101.60)
.25
(6.35)
4.50
(114.30)
2.20
(55.88) MAX.
.75
(19.05)
SWAGGED STANDOFF
THRU HOLE (3.810)/.150 DIA.
4 PLACES


UNUSED
POWER INPUT/OUTPUT
POWER
BARRIER
STRIP
1 2 3 4 5 6 7 8 9
FUSE
5 AMP
(4)
LED
INDICATOR
(4)
PULL UP
RESISTOR
3.3K OHM (4)
LOGIC GND
SIGNAL
BARRIER
STRIP
1 2 3 4 5 6 7 8 9
+LOGIC
SIGNAL INPUT/OUTPUT


UNUSED
POWER OUTPUT
OUTPUT
BARRIER
STRIP
1 2 3 4 5 6 7 8 9
FUSE
5 AMP
(4)
PULL UP
RESISTOR
3.3K OHM (4)
LED
INDICATOR
(4)
INPUT
BARRIER
STRIP
UNUSED
SIGNAL INPUT

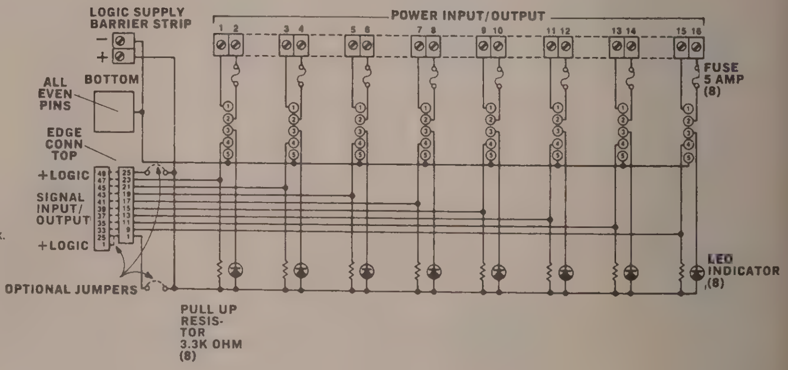
8-POSITION MODULE BOARD

PB8


BARRIER STRIP
2 TERMINAL
LOGIC SUPPLY INPUT
BARRIER STRIP
16 TERMINAL
KEY SLOT
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
1.40
(35.56)
2.60
(66.04)
.30
(7.62)
.45
(11.43)
3.00
(76.20)
3.50
(88.90)
0 1 2 3 4 5 6 7
PULL UP
RESISTOR
3.3K
FUSE
5 AMP
.25
(6.35)
7.50
(190.50)
.25
(6.35)
.40
(10.16)
8.00
(203.20)
LED STATUS
INDICATOR
MAX.
2.20
(55.88) MAX.
.75
(19.05)
SWAGED STANDOFF
THRU HOLE (3,180)/.150 DIA.
4 PLACES

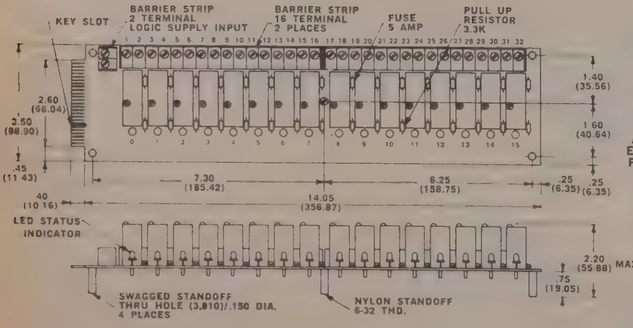
Pins 1 & 25 + logic by customer inserted jumper. Otherwise, no connection.

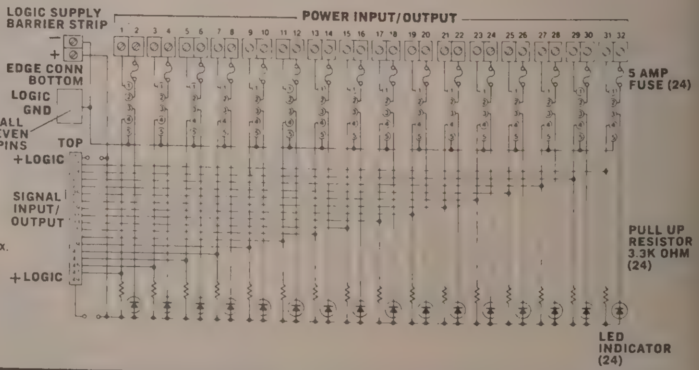
Arranged to accommodate 26- or 50-contact .1" center card edge connector.


LOGIC SUPPLY
BARRIER STRIP
POWER INPUT/OUTPUT
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
ALL
EVEN
PINS
BOTTOM
EDGE
CONN
TOP
+LOGIC
SIGNAL
INPUT/
OUTPUT
+LOGIC
OPTIONAL JUMPERS
FUSE
5 AMP
(8)
LED
INDICATOR
(8)
PULL UP
RESIS-
TOR
3.3K OHM
(8)

16-POSITION MODULE BOARD

PB16


KEY SLOT
BARRIER STRIP
2 TERMINAL
LOGIC SUPPLY INPUT
BARRIER STRIP
16 TERMINAL
2 PLACES
FUSE
5 AMP
PULL UP
RESISTOR
3.3K
1.40
(35.56)
2.60
(66.04)
3.50
(88.90)
1.60
(40.64)
.45
(11.43)
7.30
(185.42)
6.25
(158.75)
.25
(6.35)
.25
(6.35)
.40
(10.16)
14.05
(356.87)
LED STATUS
INDICATOR
2.20
(55.88) MAX.
.75
(19.05)
SWAGGED STANDOFF
THRU HOLE (3,810)/.150 DIA.
4 PLACES
NYLON STANDOFF
6-32 THD.


LOGIC SUPPLY
BARRIER STRIP
POWER INPUT/OUTPUT
EDGE CONN
BOTTOM
LOGIC
GND
ALL
EVEN
PINS
TOP
+LOGIC
SIGNAL
INPUT/
OUTPUT
+LOGIC
5 AMP
FUSE (24)
PULL UP
RESISTOR
3.3K OHM
(24)
LED
INDICATOR
(24)

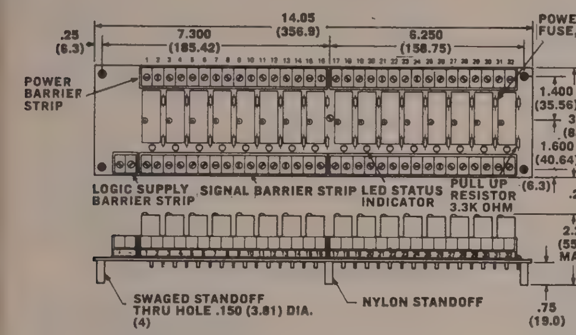
GORDOS ARKANSAS

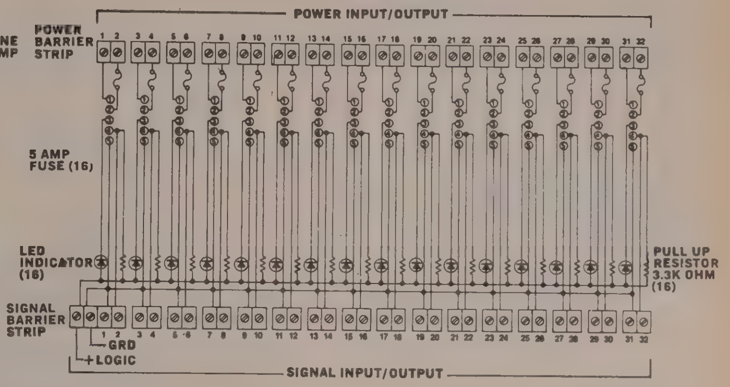
INPUT/OUTPUT SYSTEMS
(PB Boards for I/O Modules)

OUTLINE DIMENSIONS

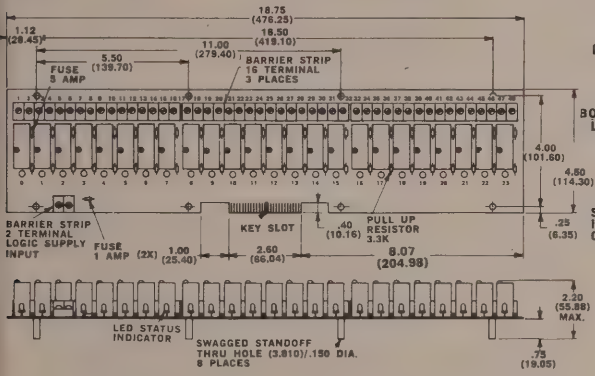
SCHEMATICS

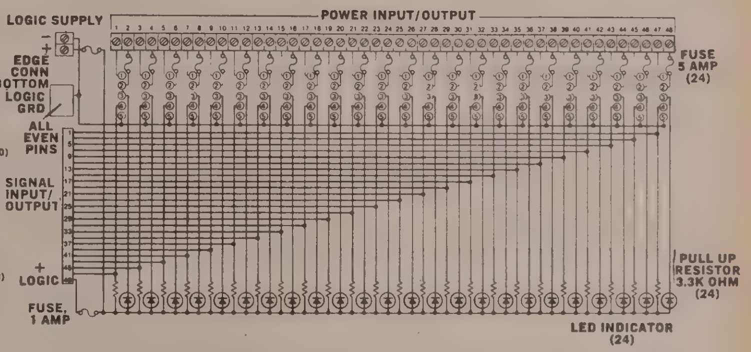
PB16T


14.05
(356.9)
.25
(6.3)
7.300
(185.42)
6.250
(158.75)
POWER LINE FUSE, 5 AMP
POWER BARRIER STRIP
1.400
(35.56)
3.50
(88.9)
1.600
(40.64)
LOGIC SUPPLY BARRIER STRIP
SIGNAL BARRIER STRIP
LED STATUS INDICATOR
PULL UP RESISTOR 3.3K OHM
(6.3)
.25
2.20
(55.9)
MAX.
SWAGED STANDOFF THRU HOLE .150 (3.81) DIA. (4)
NYLON STANDOFF
.75
(19.0)


POWER INPUT/OUTPUT
POWER BARRIER STRIP
5 AMP FUSE (16)
LED INDICATOR (16)
PULL UP RESISTOR 3.3K OHM (16)
SIGNAL BARRIER STRIP
GRD
+LOGIC
SIGNAL INPUT/OUTPUT

PB 24

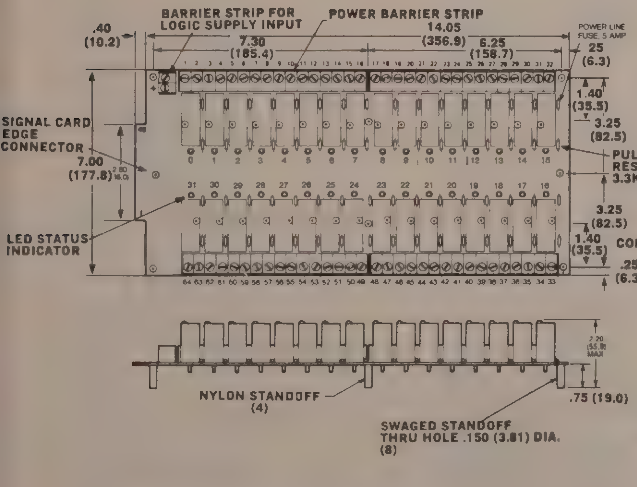

18.75
(476.25)
16.50
(419.10)
1.12
(28.45)
11.00
(279.40)
5.50
(139.70)
FUSE 5 AMP
BARRIER STRIP 16 TERMINAL 3 PLACES
4.00
(101.60)
4.50
(114.30)
BARRIER STRIP 2 TERMINAL LOGIC SUPPLY INPUT
FUSE 1 AMP (2X)
1.00
(25.40)
KEY SLOT
2.60
(66.04)
.40
(10.16)
PULL UP RESISTOR 3.3K
8.07
(204.98)
.25
(6.35)
2.20
(55.88)
MAX.
LED STATUS INDICATOR
SWAGGED STANDOFF THRU HOLE (3.810)/.150 DIA. 8 PLACES
.75
(19.05)

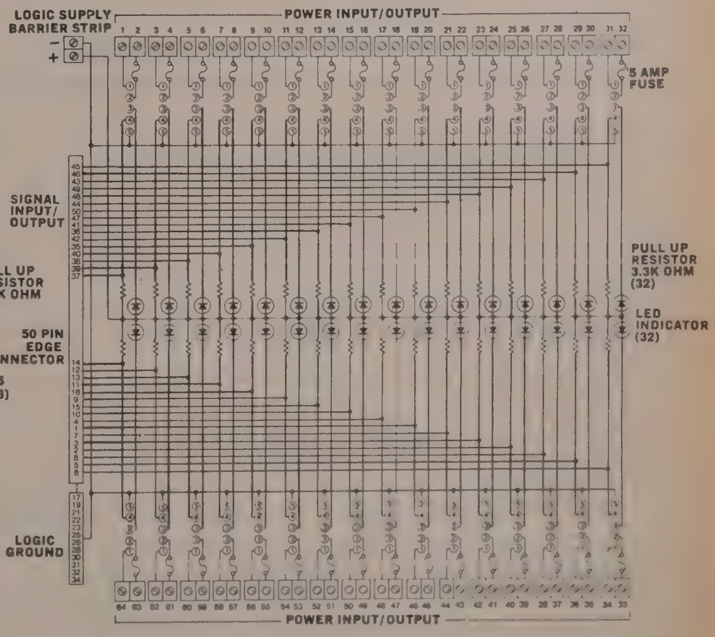

LOGIC SUPPLY
POWER INPUT/OUTPUT
EDGE CONN BOTTOM
LOGIC GRD
ALL EVEN PINS
SIGNAL INPUT/OUTPUT
+ LOGIC
FUSE, 1 AMP
FUSE 5 AMP (24)
PULL UP RESISTOR 3.3K OHM (24)
LED INDICATOR (24)

Pin 1 & 49 + logic by customer inserted jumper. Otherwise, no connection.

Arranged to accommodate 50-contact .1" center card edge connector.

PB32D


BARRIER STRIP FOR LOGIC SUPPLY INPUT
POWER BARRIER STRIP
14.05
(356.9)
.40
(10.2)
7.30
(185.4)
6.25
(158.7)
POWER LINE FUSE, 5 AMP
.25
(6.3)
1.40
(35.5)
3.25
(82.5)
SIGNAL CARD EDGE CONNECTOR
7.00
(177.8)
PULL UP RESISTOR 3.3K OHM
3.25
(82.5)
1.40
(35.5)
.25
(6.3)
LED STATUS INDICATOR
2.20
(55.9)
MAX
NYLON STANDOFF (4)
.75 (19.0)
SWAGED STANDOFF THRU HOLE .150 (3.81) DIA. (8)


LOGIC SUPPLY BARRIER STRIP
POWER INPUT/OUTPUT
5 AMP FUSE
SIGNAL INPUT/OUTPUT
PULL UP RESISTOR 3.3K OHM (32)
LED INDICATOR (32)
50 PIN EDGE CONNECTOR
LOGIC GROUND
POWER INPUT/OUTPUT

Pin 49 + logic by customer relocating 1 Amp fuse.

Arranged to accommodate 50-contact .1" center card edge connector.

Total project control off-the-shelf with

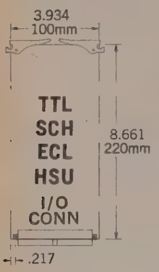
THE METRIC SERIES

World Class Packaging System

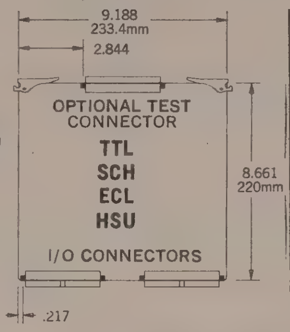
High-Speed Circuit Performance in DIN/Eurocard standard format.

24 Socket Pin PC Boards

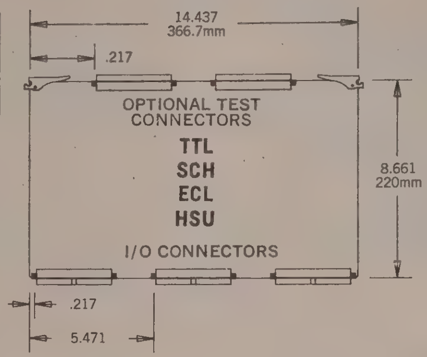
Model 11


3.934
100mm
TTL
SCH
ECL
HSU
I/O
CONN
8.661
220mm
.217

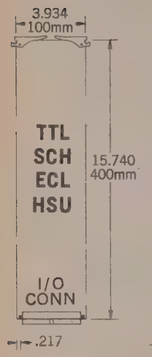
Model 21


9.188
233.4mm
2.844
OPTIONAL TEST CONNECTOR
TTL
SCH
ECL
HSU
8.661
220mm
I/O CONNECTORS
.217

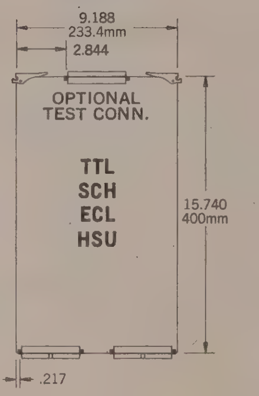
Model 31


14.437
366.7mm
.217
OPTIONAL TEST CONNECTORS
TTL
SCH
ECL
HSU
8.661
220mm
I/O CONNECTORS
.217
5.471

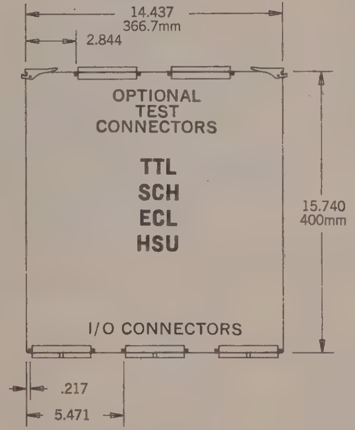
Model 12


3.934
100mm
TTL
SCH
ECL
HSU
15.740
400mm
I/O
CONN
.217

Model 22


9.188
233.4mm
2.844
OPTIONAL TEST CONN.
TTL
SCH
ECL
HSU
15.740
400mm
.217

Model 32


14.437
366.7mm
2.844
OPTIONAL TEST CONNECTORS
TTL
SCH
ECL
HSU
15.740
400mm
I/O CONNECTORS
.217
5.471

All Metric Series boards contain high density 96 pin inverse DIN connectors.

24 Extender Cards

Ruggedly framed and supported extender card with 96 pin Reverse DIN connectors, 5-layers, 96 patched test points for each board size and logic option.

12 Backplanes

For .800″ or 1.200″ card centers. 96 pin Reverse DIN connectors, press-fit V&G wrap-pins. Massive power and ground planes. Wire wrap interconnections. TTL, Schottky, ECL and High-Speed Universal.

16 Card Racks

6 free standing and 6 Retma mount vertical racks for each size board .800″ and 1.200″ card spacing. 2 horizontal (free standing or Retma mount) racks for Model 32 boards, and mixer racks for different board sizes.

Three Pin Technologies

Stitch-Wire
MIL-approved wiring technique providing optimum performance for ECL and fast Schottky devices. Fast, easy and low cost changeability with the highest reliability of difussion bonding.

Wire-Wrap
Tin or gold plated 1 to 3 level wrap pins. Suitable for TTL and some Schottky applications.

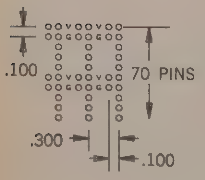
Insulation Displacement. Fast, convenient breadboarding for a test circuit. Available only in TTL boards in the Metric Series. Easy conversion to Stitch-Wire.

Design, Wiring Services and Equipment.

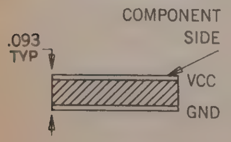
Logic conversion, Stitch-wiring, Insulation Displacement wiring. Numerically controlled and manually operated Stitch-Wire machine. Custom Board Design.

All ITI Metric Series Boards are available in four configurations:

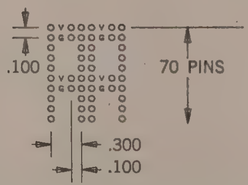
TTL 2-Layer Board
Typical TTL Pin Pattern


.100
70 PINS
.300
.100

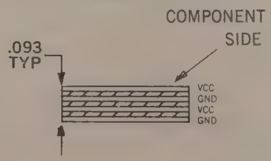
TTL BOARD LAYERS


COMPONENT SIDE
.093 TYP
VCC
GND

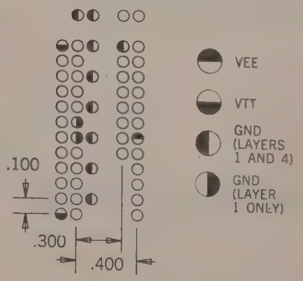
Schottky 4-Layer Board
Typical Schottky Pin Pattern


.100
70 PINS
.300
.100

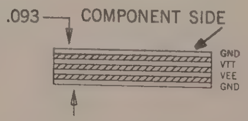
SCHOTTKY BOARD LAYERS


COMPONENT SIDE
.093 TYP
VCC
GND
VCC
GND

ECL 4-Layer Board
Typical ECL Pin Pattern

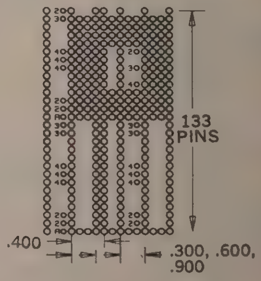

VEE
VTT
GND (LAYERS 1 AND 4)
GND (LAYER 1 ONLY)
.100
.300
.400

ECL BOARD LAYERS

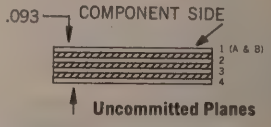

.093
COMPONENT SIDE
GND
VTT
VEE
GND

High-Speed Universal HSU 4-Layer Board

TYPICAL HSU PIN PATTERN


133 PINS
.400
.300, .600, .900

HSU BOARD LAYERS


.093
COMPONENT SIDE
1 (A & B)
2
3
4
Uncommitted Planes

Allows mixing of TTL & ECL

ITI - Where quality starts -- and never stops!
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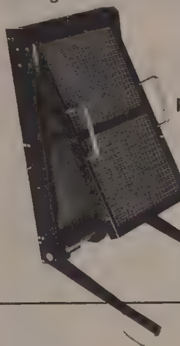
MAC PANEL

1958-1983 Our 25th Year
PLUGBOARD PROGRAMMING SYSTEMS

SERIES 140 PLUGBOARD SYSTEMS

Extremely strong and compact systems with removable plugboards. Features cam-closing mechanism. Choice of taper pin or wrap terminations for connecting to external equipment. A complete line of Series 140 plugwires is offered. Catalog 102.



Model 939 (2,560 positions)

Series 140 Plugwire Tip

SERIES 157 PLUGBOARD SYSTEMS

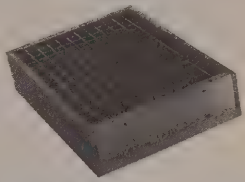
Reliable economical program control. Taper pin or wrap terminations to external equipment. Removable plugboard patched with Series 157 plugwires. Catalog 101.

Model 922 (1,280 positions)

Series 157 Plugwire Tip

SERIES 157 FIXED SYSTEMS

Used where program change requirements do not dictate the use of removable plugboards. Systems from 200 to 1280 contact positions are offered from stock. Sizes up to 9,600 positions are made to order. Catalog 101.



Model 809 (816 positions)

IN-STOCK CONNECTORS & TOOLS

We maintain shelf stock on connectors, and crimping, insertion and extracting hand tools. Used for interconnecting the plugboard system to external equipment.

APPLICATIONS OF REMOVABLE PLUGBOARD SYSTEMS

MAC PANEL Plugboard Programming Systems are used whenever there is a need for frequent or fast changes in the functions performed by electrical equipment and circuits or in the interconnection of two or more machines and/or circuits. Removable Plugboards are prewired with plugwire assemblies to provide a given pattern of interconnection. Changes can be made either by changing the program wired in the removable Plugboard or by simply replacing the Plugboard in the Receiver with another pre-programmed Plugboard in a matter of seconds. **MAC PANEL** Plugboard Programming Systems are used as large connectors with up to 5,120 contact positions on standard models. Thousands of **MAC PANEL** systems have been installed in the United States and in over forty foreign countries since 1958.

SERIES 157 PLUGBOARD SYSTEMS (Catalog 101)
(Accepts Series 157 Plugwire Tips)

CONTACT POSITIONS	MODEL NUMBER	HOLE PATTERN HOR.-VERT.	LOCKING MECHANISM	RECEIVER DIMENSIONS W	H	D
200	902	10 x 20	SPRING	4.1	10.2	3.0
320	903	16 x 20	SPRING	5.4	10.2	3.0
440	904	22 x 20	SPRING	7.1	10.2	3.0
440	905	20 x 22	SPRING	6.5	10.7	3.0
680	901	20 x 34	LEVER-ARM	8.6	14.1	6.0
748	906	22 x 34	LEVER-ARM	8.6	14.1	6.0
816	907	24 x 34	LEVER-ARM	9.6	14.1	6.0
1280	922	40 x 32	LEVER-ARM	13.4	13.6	6.0
1600	921	50 x 32	LEVER-ARM	16.3	13.6	6.0
480	916	20 x 24	CAM-ARM	8.1	9.3	2.2
680	918	20 x 34	CAM-ARM	8.1	12.1	2.2
748	920	22 x 34	CAM-ARM	8.1	12.1	2.2
816	919	24 x 34	CAM-ARM	9.3	12.1	2.2
1088	988	32 x 34	CAM-ARM	11.2	12.3	2.2
1280	924	40 x 32	CAM-ARM	13.0	11.8	2.2
1496	923	44 x 34	CAM-ARM	15.3	12.3	2.2
1632	925	48 x 34	CAM-ARM	17.7	12.3	2.2
2560	926	40 x 64	CAM-ARM	13.5	23.7	2.5
3264	927	48 x 68	CAM-ARM	17.5	24.0	2.5
4896	928	48 x 102	CAM-ARM	17.2	35.0	2.5
5120	929	80 x 64	CAM-ARM	24.3	23.6	2.5

SERIES 140 PLUGBOARD SYSTEMS (Catalog 102)
(Accepts Series 140 Plugwire Tips)

CONTACT POSITIONS	MODEL NUMBER	HOLE PATTERN HOR.-VERT.	LOCKING MECHANISM	RECEIVER DIMENSIONS W	H	D
240	930	10 x 24	CAM-ARM	5.2	8.9	2.0
480	931	20 x 24	CAM-ARM	7.7	8.9	2.0
640	932	20 x 32	CAM-ARM	7.8	10.9	2.0
816	933	24 x 34	CAM-ARM	8.7	11.4	2.0
1280	934	40 x 32	CAM-ARM	13.1	10.9	2.0
1632	935	48 x 34	CAM-ARM	15.1	11.4	2.0
2560	939	40 x 64	CAM-ARM	13.5	21.9	2.5
3264	937	48 x 68	CAM-ARM	15.9	22.9	2.5
5120	938	64 x 80	CAM-ARM	20.1	25.6	2.5

GENERAL PRODUCT DESCRIPTION

Each system consists of a Receiver and one or more removable Plugboards. The Receiver is the frame and the engaging mechanism that accepts the removable Plugboard. Depending on the system there are from one to six molded black phenolic or blue diallyl phthalate panels in the Receiver and Plugboard frames. A molded panel will contain up to 1280 holes or contact positions. These panels are silk screened with a grid pattern that provides a unique alphanumeric address for each contact position in the system. Special customized printing in any number of colors can be provided on either the Plugboard or Receiver.

A contact spring is factory installed in each Receiver contact position. The front portion of these nickel or gold plated contact springs mates with nickel or gold plated plugwire tips inserted in the appropriate contact position of the Plugboard when the Plugboard is inserted in the Receiver. All Receivers are equipped with a mechanical interlock that assures proper mating of contact springs and plugwire tips. Each contact position can also be directly connected to the equipment from the rear of the Receiver by soldering, insertion of taper pins, or wire-wrapping. The desired method of connection must be determined prior to ordering so that the appropriate type of contact springs will be provided in the Receiver.

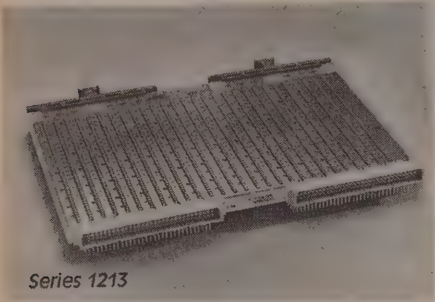
MAC PANEL maintains shelf stock on over 500 types of plugwire assemblies. These include single conductor and multi-conductor unshielded and shielded plugwires as well as crimpable and wire-wrapable plugwire tips.

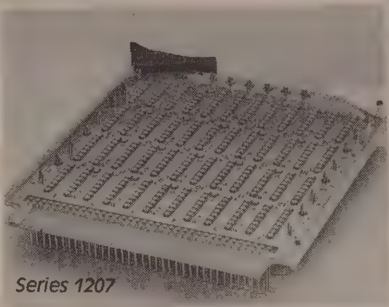
MAC PANEL customer service personnel and design engineers invite your inquiries. We can promptly and economically design, build, and install a special custom system or plugwire if our standard product will not meet your requirements.

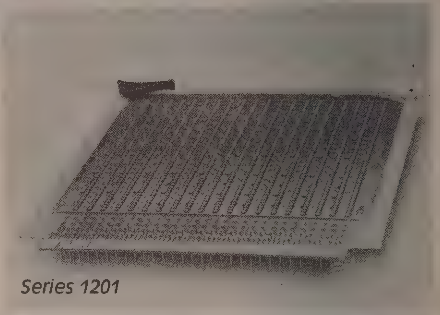
MAC PANEL COMPANY

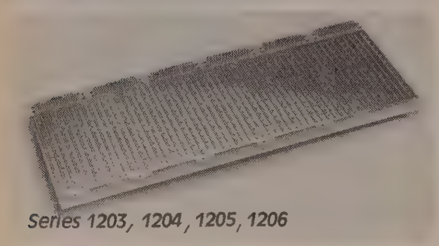
P.O. Box 5027, High Point, N.C. 27262
Telephone (919) 884-8111 • TWX 510-926-1542

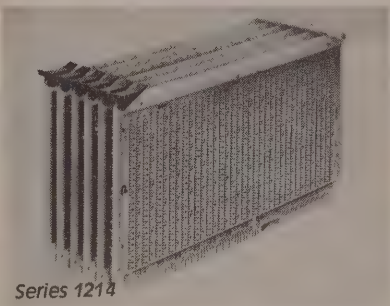
BOARDS...I.C. Pluggable, Computer Interface and Schottky

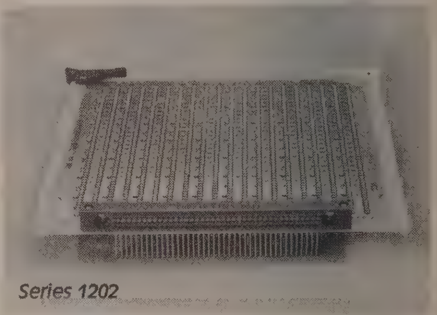

Series 1213

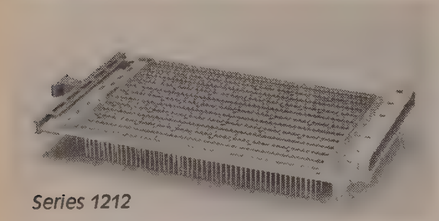

Series 1207


Series 1201


Series 1203, 1204, 1205, 1206


Series 1214


Series 1202


Series 1212

I.C. PLUGGABLE PANELS

Standard cards accept 14 or 16 or 20 pin dip packages. Universal pattern accepts dip packages on .300″ and .600″ centers. Boards have two-piece tapered entry socket terminal with 4-leaf inner contact. 1, 2 or 3-level wire wrap tails.

Edge Connector Types

Series 1201 (120 Contacts) 60 patterns with either internal or external volt and ground commitments.

Series 1207 (72 Contacts) 12, 18 and 24 patterns. Extra slotted pins for mounting discrete components. 6 test points.

Series 1208, 1209, 1210, 1211 (70 or 140 Contacts) Four different sizes. External volt & ground commitments. Can accept filter capacitors.

One-or-Two 96 Pin Connector Type

Series 1212 & 1213 (Metric) Single or double widths. Boards have pull handles with holes to probe test points.

Pin & Socket Connector Type

Series 1202 (120 pins) 60 or 72 patterns. Supplied with 120-contact male connector. Female connector sold separately.

Modular Types

Series 1203, 1204, 1205, 1206 Choice of 4 I/O styles. 30 patterns per section. Up to 6 sections available.

COMPUTER INTERFACE PANELS

Series 1214 A wide variety available in the most demanded bussing configurations:

- Data General Micro Nova Panel
- IEEE-696 S-100 Bus Panel
- Prolog 7000 Standard Bus Panel
- Digital Equipment Corp Panels
- INTEL Multibus Panel
- Motorola Versabus Panel

SCHOTTKY PANELS

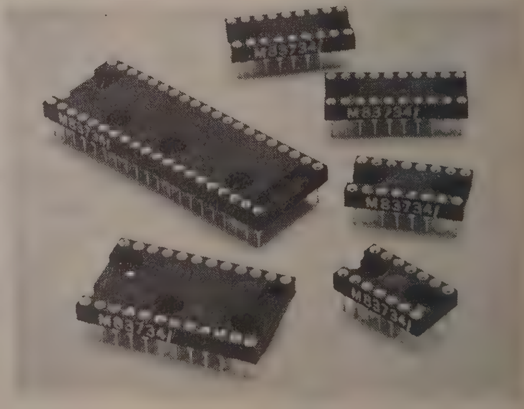
Series 2000 All standard Precicontact Packaging Panels can be supplied in multilayer Schottky configurations with voltage plane sandwiched between two outer ground planes. These true laminated printed circuit panels with plane-to-plane continuity made via plated-thru holes provide low impedance ground distribution and reduced noise at high frequencies.

CUSTOM PANELS

Series 1299 Precicontact can provide custom panels to your exact specifications. Our design staff will work closely with you to quickly and economically solve your packaging problem.

Low profile DIP Sockets approved for MIL-S 83734

Series SO-M High reliability and performance at low cost. Accommodates 8 thru 40 flat lead DIP IC's or 0.51/.016 to 0.51/.021 dia. round leads maintaining high retention. Tapered entry socket terminal with 4-leaf BeCu closed entry inner contact and machined outer sleeve. Four-finger contact accepts short IC leads. Closed-end construction eliminates wicking problems.



Precicontact, inc.

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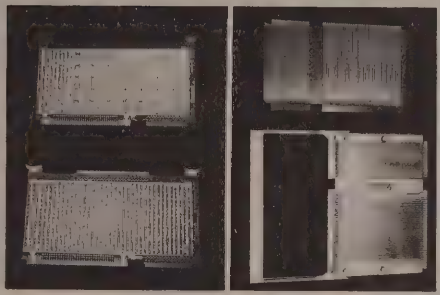
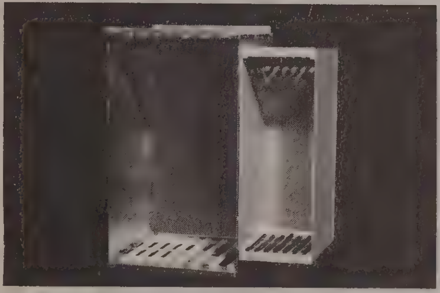
215-757-1202 TELEX: 83-4253

PROTOTEK INC

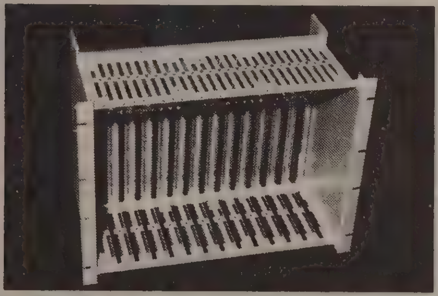
CAN support your BUS Developments from Prototype through Production



Wire Wrap Cards/Extender Cards - MBI

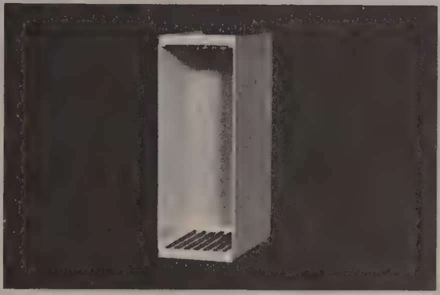


Multibus II Products

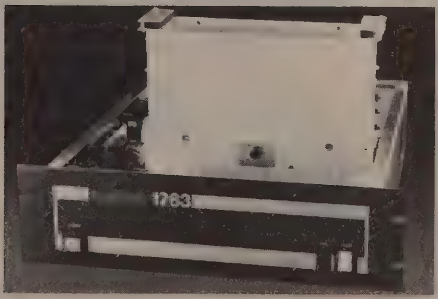


26 Slot Card Cage - MBI

- Also Available in 5, 7, 9, 11, 14, and 18, Slot

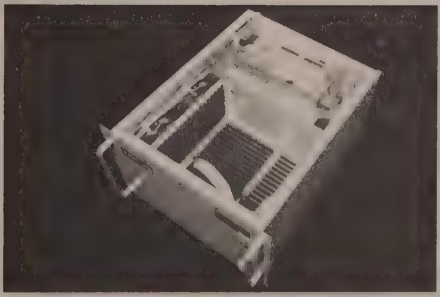


VME Products



Industrial
Power Ready Chassis - MBI/MBII

- Meets FCC Class A EMI Requirements
- Available in 4, 11, and 18 Slot



Military EMI/RFI
Power Ready Chassis - MBI

- Meets MIL STD 461 EMI Requirements

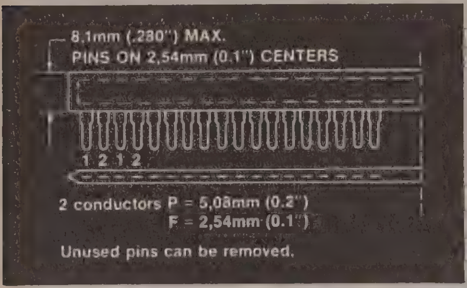
Call and discuss your requirements with us

PT PROTOTEK INC

P.O. Box 46512 • Cincinnati, Ohio 45246 • Phone (513) 874-5094

Mini/Bus® PRINTED CIRCUIT BOARD BUS BARS

M833 2-LAYER VERTICALLY MOUNTED


8,1mm (.280") MAX.
PINS ON 2,54mm (0.1") CENTERS
1 2 1 2
2 conductors P = 5,08mm (0.2")
F = 2,54mm (0.1")
Unused pins can be removed.

PITCH (P)
Pin-to-pin spacing on the same conductor layer.

OFFSET (F)
Dimension from the first pin of layer 1 to the first pin of layer 2.

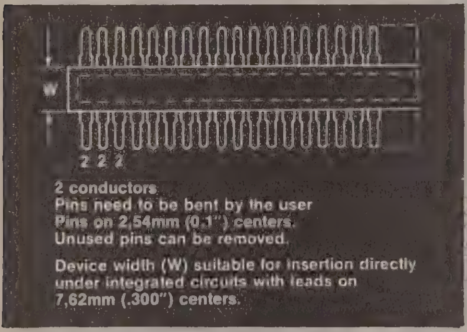
SPACES (X)
Number of spaces on the same conductor layer.

Mini/ Bus Standard Parts — M833

Part Number L.P.F.	X	L
M833 20.2.1	20	107,95mm (4.25")
M833 25.2.1	25	133,35mm (5.25")
M833 30.2.1	30	158,75mm (6.25")
M833 35.2.1	35	184,15mm (7.25")
M833 40.2.1	40	209,55mm (8.25")
M833 50.2.1	50	260,35mm (10.25")
M833 60.2.1	60	311,15mm (12.25")

WORKING VOLTAGE: Maximum working voltage is 50 VDC
TEMPERATURE RANGE: Mini/bus bus bars are suitable for the commercial temperature operating range of -10°C to +85°C
STORAGE TEMPERATURE: -55°C to +105°C

M832 2-LAYER HORIZONTALLY MOUNTED


W
2 2 2
2 conductors
Pins need to be bent by the user
Pins on 2,54mm (0.1") centers.
Unused pins can be removed.
Device width (W) suitable for insertion directly under integrated circuits with leads on 7,62mm (.300") centers.

P = 2,54mm (0.1")
F = 0.0mm (0.0")

PITCH (P)
Pin-to-pin spacing on the same conductor layer.

OFFSET (F)
Dimension from the first pin of layer 1 to the first pin of layer 2.

SPACES (X)
Number of spaces on the same conductor layer.

Mini/ Bus Standard Parts — M833

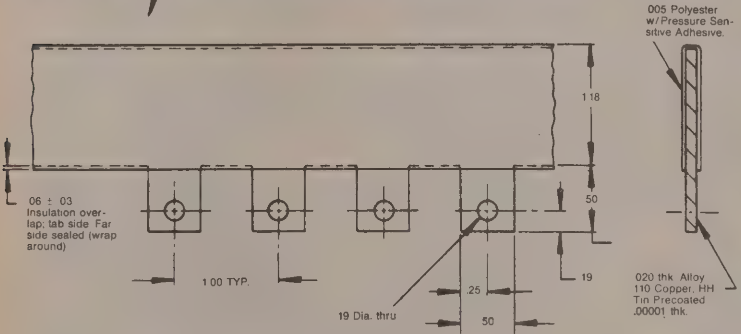
Part Number X.P.F.	X	L
M832 40.1.0	40	105,4mm (4.15")
M832 50.1.0	50	130,3mm (5.15")
M832 60.1.0	60	156,2mm (6.15")
M832 80.1.0	80	207mm (8.15")
M832 100.1.0	100	257,8mm (10.15")

WORKING VOLTAGE: Maximum working voltage is 50 VDC

TEMPERATURE RANGE: Mini/bus bus bars are suitable for the commercial temperature operating range of -10°C to +85°C

STORAGE TEMPERATURE: -55°C to +105°C

Quik/Bus® CONDUCTORS FOR MULTILAYER BUS BARS


005 Polyester w/Pressure Sensitive Adhesive.
1 18
50
19
06 ± 03 Insulation overlap; tab side Far side sealed (wrap around)
1 00 TYP.
19 Dia. thru
.25
50
020 thk Alloy 110 Copper, HH Tin Precoated .00001 thk.

SPECIFICATIONS/AVAILABILITY

Quik/ Bus conductors are available in reels of 50 conductor feet, standard. Conductor is .020" thick copper, HH, tin precoated. Current carrying capacity is 74 AMPS @ 30°C temperature rise.

QUIK/BUS APPLICATIONS

Quik/ Bus was developed by Rogers to provide a fast, economical way to make multi-layer bus bars with no tooling cost, no waiting for custom parts. This do-it-yourself Quik / Bus approach is especially useful for prototypes and low volume uses. It retains all the advantages of custom fabricated laminar power distribution bus bars.

FOR OTHER STYLES OF QUIK/BUS CONDUCTORS CONTACT THE FACTORY.

HOW TO MAKE MULTILAYER BUS BARS WITH QUIK/BUS CONDUCTORS

1. Unroll conductors from reel.
2. Cut to length.
3. Remove unneeded input and output tabs where necessary.
4. For large end tabs peel back insulation and cut. Punch holes as required.
5. Form tabs as required.
6. Align conductors and form bus bar body as required.
7. Bundle securely with cable ties.
8. Check finished part for shorts.

ROGERS

Rogers Corporation
Bus Products Division
5750 East McKellips Road, Mesa, AZ 85205
602 830-3370

MEKTRON®
INTERCONNECTION PRODUCTS

For price/delivery or to place an order: Contact Customer Service Department.

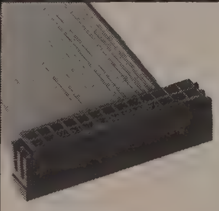
For technical information or design assistance Contact Strip/Bus or Quik/Bus Product Specialist.

SYMBEX

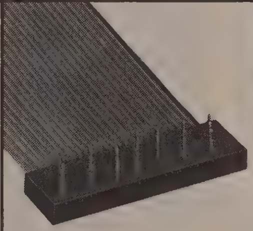
IDC INTERCONNECT SYSTEMS

The only flat cable/connector systems with molded-in quality, reliability and convenience...Cable and contacts are integrally molded into the connector body to form a one-piece interconnect system.

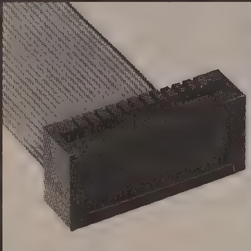
TERMINATIONS



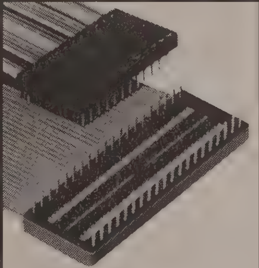
Sockets
hi-profile • low-profile • with tab key • without tab key
sizes-10, 14, 16, 20, 26, 34, 36, 40, 42, 50, 60



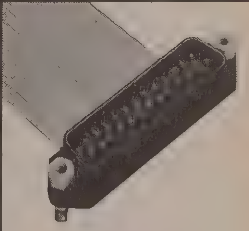
PCB/Transition
sizes-10, 20, 26, 34, 40, 50



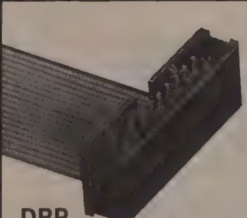
Card-edge
with ears • without ears
sizes-20, 26, 34, 40, 50



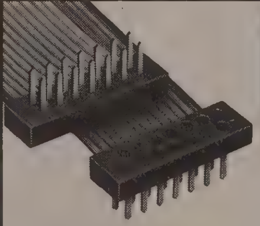
DIP
sizes-14, 16, 24, 40



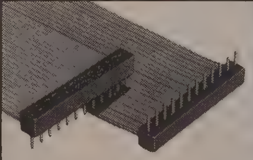
D-Sub Min
male • female
sizes-09, 15, 25, 37



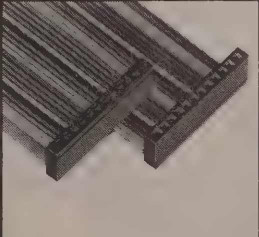
DRP
(Dual Row Plug)
with ears • without ears • with tab keys • without tab keys
sizes-10, 14, 16, 20, 26, 34, 40, 50



DRB
(Dual Row Board)
sizes-10, 14, 16, 20, 24, 26, 34, 36, 40, 42, 50, 60



SRB
(Single Row Board)
sizes-08, 09, 11, 12, 14, 20



SRS
(Single Row Socket)
sizes-02, 05, 07, 08, 10, 11, 12, 14, 16, 20, 24, 32

For FCC compliant D-Sub Min assemblies see Symbex ad page 2•1587

All terminations feature integral strain-relief • Choose gold or nickel-silver contacts • Daisy chains and custom configurations available

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EAST

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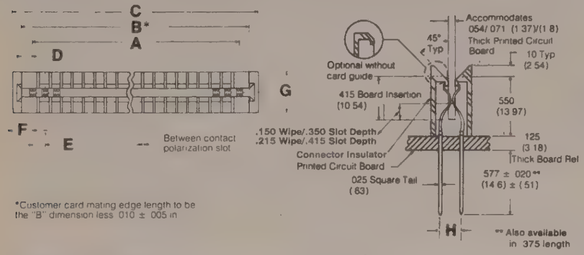
Pressfit Backpanels and Multi-Layer Boards . . . .

For Connectors with .350 in. and .415 in. slot depth PK Series


C
B*
A
D
G
F
E
Between contact polarization slot
Optional without card guide
45° Typ
Accommodates 054/ 071 (1 37)/(1 8) Thick Printed Circuit Board
10 Typ (2 54)
415 Board Insertion (10 54)
550 (13 97)
.150 Wipe/.350 Slot Depth
.215 Wipe/.415 Slot Depth
Connector Insulator
Printed Circuit Board
125 (3 18)
Thick Board Ref
577 ± 020** (14 6) ± (51)
025 Square Tail (63)
H

*Customer card mating edge length to be the "B" dimension less 010 ± 005 in

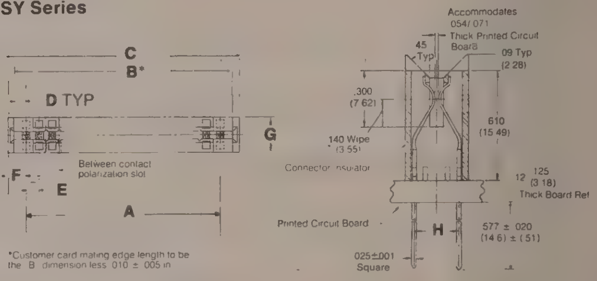
** Also available in 375 length

Spacing Available		**Dimensions**								
Series	**Grid Spacing**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
PK1010	.100x.100 (2.54)x (2.54)	Number of contacts minus 1 times E	A + (2 times D)	A + (2 times F)	100 (2 54)	100 (2.54)	.180 (4.57)	382 (9.7)	100 (2 54)
PK1020	100x 200 (2 54)x(5 08)				.100 (2.54)	.100 (2.54)	180 (4 57)	382 (9 7)	200 (5 08)
PK1212	125x 125 (3 18)x(3 18)				115 (2 92)	125 (3 18)	180 (4 57)	354 (8 99)	125 (3 18)
PK1225	125x.250 (3.18)x(6.35)				125 (3 18)	125 (3 18)	180 (4 57)	354 (8 99)	250 (6 35)
PK1562	.156x 200 (3 96)x(5 08)				156 (3.96)	.156 (3.96)	.218 (5.54)	324 (8.2)	.200 (5 08)
PK1515	.150x.150 (3.8)x(3.8)				145 (3 68)	150 (3 8)	210 (5 3)	354 (8 99)	150 (3 8)

Press-fit Connector Design Guide

For Connectors with .300 in. Slot Depth

SY Series


C
B*
D TYP
G
F
E
A
Between contact polarization slot
Accommodates 054/ 071 Thick Printed Circuit Board
45 Typ
09 Typ (2 28)
.300 (7 62)
610 (15 49)
140 Wipe (3 55)
Connector insulator
12 125 (3 18) Thick Board Ref
Printed Circuit Board
H
577 ± 020 (14 6) ± (51)
025±001 Square

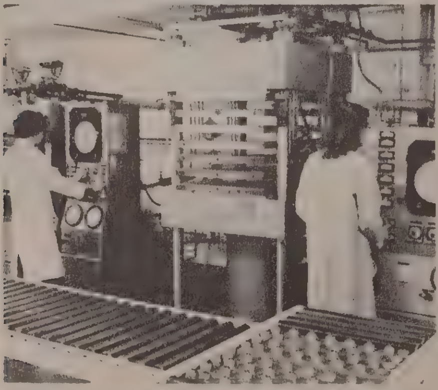
*Customer card mating edge length to be the B dimension less 010 ± 005 in

Spacing Available		**Dimensions**								
Series	**Grid Spacing**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
SY1020	100x 200 (2 54)x(5 08)	Number of contacts minus I times E	A + (2 times D)	A + (2 times F)	100 (2 54)	100 (2 54)	180 (4 57)	370 (9 39)	200 (5 08)
SY1225	.125x.250 (3.18)x(6 35)				125 (3.18)	125 (3.18)	.180 (4.57)	.370 (9.39)	250 (6.35)

PCB Connector Backpanel Systems

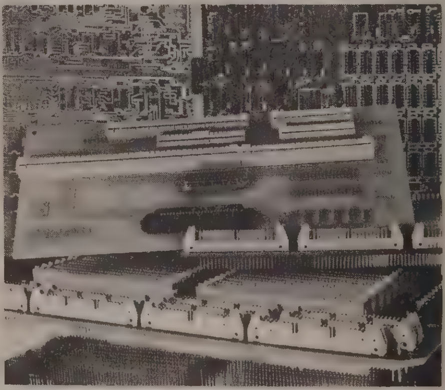
The solderless press-fit connector concept, first produced in 1970, offers an extremely reliable, low cost method of interconnection in electronic packaging. Press-fit is widely used in backpanel applications by manufacturers of main frame computer, peripheral and tele-communications equipment. The PK Series of press-fit contacts is standardized on .100, .125, .150, and .156 centers for ease of interchangeability with other backpanel manufacturers. The SY series replaces most discrete connectors.

Multi-layer Capability



Symtron's experience in lamination dates back to the birth of multi-layer boards. Our Edge here really keeps us ahead of our competitors. Multiple opening steam and electric presses are used. Qualified to MIL-P-55110C.

Pressfit Capabilities



Along with the Standard Product Lines, Symtron offers Pressfit Terminal Blocks, subminiature D connectors, Vertical Headers, DIN, and Telephone Connectors.

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Symtron Corporation

The Leading Edge in Printed Circuit and Backpanel Technology

ENGINEERING DATA FOR INDUSTRY STANDARD CASES

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INCORPORATED

KARY KASE ™

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INDUSTRY STANDARD CASES

HEAVY DUTY TRANSIT CASE

MODEL*	W	L	H1	H2	A	B	C	D	E	F	AVAILABLE FOR WHEEL & HANDLE
GH0715RP-2	7-3/16	15-1/16	2-1/8 to 3-1/4 4 to 5-1/8	2-1/8 to 3-1/4 4 to 5-1/8	6	13-5/8	5-3/4	13-3/4	3/4	3/4	
GH0818RP-1	8-3/4	18-7/8	4-3/8 to 7	4-3/8 to 7	6-3/4	16-3/4	6-3/4	16-3/4	3/4	3/4	
GH0912RP-1	9	12-1/2	4 to 5	4 to 5	7-1/4	11	7-1/4	11	3/4	3/4	
GH1218RP-2	12-15/16	18-1/8	2-1/4 to 3-11/16	2-1/4 to 3-11/16	11-3/4	17	11-3/4	17	3/4	3/4	
GH1219RP-2	12-1/16	19-13/16	2 to 4	2 to 4	11-1/4	18-3/4	11-1/4	18-3/4	3/4	3/4	
GH1313RP-1	13-5/16	13-7/8	4-3/8 to 5-1/4	4-3/8 to 5-1/4	11-7/8	12-3/8	11-7/8	12-3/8	3/4	3/4	
GH1314RP-2	14-7/16	13-7/8	3-1/8 to 4 6-1/4 to 6-3/4	3-1/8 to 4 4-1/4 to 6-3/4	13-7/8	13-1/4	13-1/8	12-1/2	3/4	3/4	
GH1317RP-2	13-3/4	17	3-1/4 to 4	3-1/4 to 4	12-1/8	15-3/4	12-1/8	15-3/4	3/4	3/4	
GH1319RP-1	13	19-3/8	3-7/8 to 5	3-7/8 to 5	11-3/4	18	11-3/4	18	3/4	3/4	
GH1330RP-2	13-7/8	30-7/8	4 to 6-7/16	4 to 6-7/16	12-1/4	29-3/8	12-1/4	29-3/8	3/4	3/4	X
GH1419RP-2	14	19-7/16	3-1/4 to 3-3/4 4-1/4 to 6 7-5/8 to 9-3/4	3-1/4 to 3-3/4 4-1/4 to 6 7-5/8 to 9-3/4	12	17-1/2	12	17-1/2	3/4	3/4	
GH1420RP-2	14	20	4 to 5-1/2	4 to 5-1/2	12-1/2	18-1/2	12-1/2	18-1/2	3/4	3/4	
GH1423RP-2	14-7/16	23-3/4	4-3/16 to 6-5/16	4-3/16 to 6-5/16	13	22-3/8	13	22-3/8	3/4	3/4	X
GH1617RP-2	16-1/2	17-3/4	3-1/8 to 4-3/8 6-1/8 to 8	3-1/8 to 4-3/8 6-1/8 to 8	15	16-3/8	15-1/4	16-1/2	3/4	3/4	
GH1622RP-2	16-1/2	22-3/8	3-1/2 to 4 4-1/2 to 5-3/4 6-1/4 to 8-5/16	3-1/2 to 4 4-1/2 to 5-3/4 6-1/4 to 8-5/16	14-7/8	21-1/4	14-7/8	21-1/4	3/4	3/4	
GH1624RP-2	16-3/8	24-3/4	3-3/4 to 4-15/16	3-3/4 to 4-15/16	15-1/2	24-1/4	15-1/2	24-1/4	3/4	3/4	X
GH1727RP-2	17-13/16	27-3/4	3-3/4 to 4-1/2 5-1/2 to 7	3-3/4 to 4-1/2 5-1/2 to 7	16-1/4	26-1/2	16-1/4	26-1/2	3/4	3/4	X
GH1823RP-2	18-1/8	23-7/8	3-3/4 to 5-3/8 5-1/2 to 7-1/2	3-3/4 to 5-3/8 5-1/2 to 7-1/2	16-1/4	22-1/2	16-1/4	22-1/2	3/4	3/4	X
GH2020RP-2	20-13/16	20-13/16	4-1/2 to 5	4-1/2 to 5	19-1/4	19-1/4	19-1/4	19-1/4	3/4	3/4	
GH2122RP-2	21-3/16	22-5/8	2 to 3	2 to 3	19-5/8	21	19-5/8	21	3/4	3/4	
GH2325RP-2	23	25	5-1/4 to 7-3/16	5-1/4 to 7-3/16	21-1/4	23-1/4	21-1/4	23-1/4	3/4	3/4	X
GH2530RP-2	25-1/8	30-1/8	5-1/4 to 7	5-1/4 to 7	23	28	23	28	3/4	3/4	X

X-STACKING TRANSIT CASE

MODEL*	W	L	H1	H2	A	B	C	D	E	F
GH1021RP-X	10-1/2	21	2-3/4 to 3-13/16	2-3/4 to 3-13/16	8-15/16	19-7/16	8-15/16	19-7/16	3/4	3/4
GH1417RP-X	14-1/2	17	2-3/4 to 5-1/4	2-3/4 to 5-1/4	12-15/16	15-7/16	12-15/16	15-7/16	3/4	3/4
GH1717RP-X	17	17-1/2	3-to 3-7/8	3-to 3-7/8	15-7/16	15-15/16	15-7/16	15-15/16	3/4	3/4
GH1823RP-X	18-1/8	23-7/8	3-3/4 to 5-3/8 5-1/2 to 7-3/4	3-3/4 to 5-3/8 5-1/2 to 7-3/4	16-1/4	22-1/2	16-1/4	22-1/2	3/4	3/4
GH1921RP-X	19-1/8	21	3-1/4 to 4-3/8 5-1/4 to 6-5/8	3-1/4 to 4-3/8 5-1/4 to 6-5/8	17-1/2	19-1/2	17-1/2	19-1/2	3/4	3/4
GH1927RP-X	19	27	3 to 3-3/4 6-5/8 to 7-7/8	3 to 3-3/4 6-5/8 to 7-7/8	17-7/16	25-7/16	17-7/16	25-7/16	3/4	3/4
GH2325RP-X	23	25	5-1/4 to 7-3/16	5-1/4 to 7-3/16	21-1/4	23-1/4	21-1/4	23-1/4	3/4	3/4

HEAVY DUTY CARRYING CASE

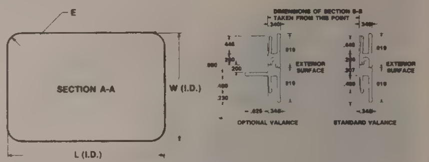
MODEL*	W	L	H1	H2	A	B	C	D	E	F
GH0511R-1	5-7/8	11-3/8	3 to 3-3/4 7-1/4 to 8	3 to 3-3/4 7-1/4 to 8	4-7/8	10-1/4	4-3/8	10	3/4	3/4
GH0617R-1	6-1/8	17-1/8	2-5/8 to 2-15/16	2-5/8 to 2-15/16	4-3/4	15-3/8	5-3/8	16-3/8	3/4	5/8
GH0710R-1	7-1/2	10	3-1/8 to 3-3/8 4-3/16 to 5-3/8	3-1/8 to 3-3/8 4-3/16 to 5-3/8	6-1/2	8-3/4	6-1/4	8-5/8	3/4	1/2
GH0813R-2	8-5/8	13-7/8	2-3/4 to 3-1/4 5-1/2 to 6-1/2	2-3/4 to 3-1/4 5-1/2 to 6-1/2	6-15/16	12	6-15/16	12	3/4	5/8
GH0814R-2	8-11/16	14	4 to 5-1/16	4 to 5-1/16	7-1/4	12-1/2	7-1/4	12-1/2	7/8	3/4
GH0830R-1	8-13/16	30-11/16	1-1/4 to 2-3/4	1-1/4 to 2-3/4	8-1/4	30-1/4	8-1/4	30-1/4	3/4	1/2
GH0909R-1	9-7/8	9-7/8	2-11/16 to 3-9/16	2-11/16 to 3-9/16	8-5/16	8-5/16	8-5/16	8-5/16	3/4	5/8
GH0912R-1	9-1/16	12-1/16	1-1/2 to 1-3/4 3-1/4 to 3-3/4	3-1/4 to 3-3/4 7 to 7-13/16	8-1/4	11-1/2	6-1/4	9-1/2	3/4	1-1/4B
GH0914R-1	9-1/4	14	2-1/2 to 2-3/4, 3-1/2 to 6, 6-7/16 to 7-3/8	2-1/2 to 2-3/4, 3-1/2 to 6, 6-7/16 to 7-3/8	8-1/4	12-3/4	7-1/2	12-1/4	3/4	1/2T 3/4
GH0916R-1	9-3/4	16-13/16	1-3/4 to 2-11/16 7-3/4 to 10-3/4	1-3/4 to 2-11/16 7-3/4 to 10-3/4	9	16-3/8	8	15-1/4	3/4	3/4
GH0918R-1	9	18-15/16	2-1/2 to 3-1/2 8-13/16 to 9-9/16	2-1/2 to 3-1/2 8-13/16 to 9-9/16	7-7/8	18	7-1/2	17-3/8	3/4	3/4
GH0922R-1	9-5/8	22-11/16	2 to 3-1/16	2 to 3-1/16 6-5/8 to 10-1/2	8-3/8	21-1/8	8-1/4	21	3/4	3/4
GH0942R-1	9	42-5/8	1-1/4 to 2	1-1/4 to 2	8-3/8	41-3/4	8-3/8	41-3/4	3/4	1/2
GH1013R-1	10	13-1/8	2-3/4 to 3-1/2	2-3/4 to 3-1/2 9-3/4 to 10-1/2	8-1/2	11-3/4	7-3/4	11-1/4	3/4	3/4
GH1016R-1	10	16-1/16	1-3/4 to 2 7-1/4 to 9-3/8	1-3/4 to 2 7-1/4 to 9-3/8	9-1/4	15-1/4	8-1/4	14-1/4	3/4	1/2
GH1021R-1	10-1/4	21-15/16	4-3/8 to 5-1/4	4-3/8 to 5-1/4	9-1/8	20-1/2	9-1/8	20-1/2	3/4	3/4
GH1113R-1	11	13	2-1/4 to 2-3/4	2-1/4 to 2-3/4	10-1/8	12-1/8	10-1/8	12-1/8	3/4	1/2
GH1116R-2	11	16-1/2	2-5/8 to 3-15/16	2-5/8 to 3-15/16	10-1/2	16-1/16	10-1/2	16-1/16	3/4	1/2
GH1117R-2	11-5/8	17-1/2	2 to 3-1/4 3-1/2 to 4-3/4	2 to 3-1/4 3-1/2 to 4-3/4	10-3/8	16-1/2	10-3/8	16-1/2	3/4	3/4
GH1119R-1	11-5/16	19-5/16	2-3/16 to 3	2-3/16 to 3	10-5/8	18-1/2	10-5/8	18-1/2	3/4	3/4
GH1121R-2	11-7/16	20-15/16	3-1/16 to 4-1/16 6-5/8 to 8-13/16	3-1/16 to 4-1/16 6-5/8 to 8-13/16	10	19-1/2	10	19-1/2	3/4	3/4
GH1123R-2	11-11/16	23-3/4	1-1/4 to 2-1/4	1-1/4 to 2-1/4	11-1/4	23-3/8	11-1/4	23-3/8	3/4	1/4
GH1137R-2	11-7/8	37-3/4	1-1/4 to 2-1/4	1-1/4 to 2-1/4	11-11/16	37-3/4	11-11/16	37-3/4	3/4	1/4
GH1212R-2	12	12	3-9/16 to 4-1/4	3-9/16 to 4-1/4	10-5/8	10-5/8	10-5/8	10-5/8	3/4	5/8
GH1220R-2	12-7/16	20-5/16	3-1/8 to 4	3-1/8 to 4	11-3/4	19-3/4	11-3/4	19-3/4	1-1/32	1/4
GH1316R-1	13-13/16	16-13/16	2-5/16 to 3-1/8 3-5/8 to 6-1/4	2-5/16 to 3-1/8 3-5/8 to 6-1/4	12-13/16	15-3/4	12-5/8	15-1/2	3/4	3/4
GH1318R-2	13	18	3-9/16 to 5-1/4	3-9/16 to 5-1/4	11-5/8	16-1/2	11-5/8	16-1/2	3/4	1/2
GH1319R-2	13-13/16	19-3/4	2-3/4 to 3-5/8 7-1/4 to 8-1/8	2-3/4 to 3-5/8 7-1/4 to 8-1/8	11-1/2	17-1/4	11-1/2	17-1/4	3/4	5/8
GH1319R-2	13-7/8	19-5/8	3 to 3-3/4 4-3/4 to 6	3 to 3-3/4 4-3/4 to 6	12-5/8	18-1/4	12-5/8	18-1/4	3/4	1/2
GH1417M-1	14-7/8	17-3/4	3-3/4 to 5-3/16	3-3/4 to 5-3/16	14-1/8	17	14-1/8	17	M	45°
GH1419R-1	14-1/4	19-15/16	1-1/4 to 1-9/16 11-1/8 to 13-7/16	1-1/4 to 1-9/16 11-1/8 to 13-7/16	13-1/2	19-3/16	13-1/2	19-3/16	3/4	1/2
GH1444R-2	14-13/16	44-3/16	3-1/16 to 3-5/16	3-1/16 to 3-5/16	13-11/16	43-9/16	13-11/16	43-9/16	3/4	1/2
GH1523R-2	15-1/8	23-7/16	2-5/8 to 4-5/8 3-9/16 to 5-13/16	2-5/8 to 4-5/8 3-9/16 to 5-13/16	14	22-1/8	14	22-1/8	3/4	1/2
GH1528R-2	15-1/4	28-1/16	2-5/8 to 4-3/4 6-7/8 to 9-1/16	2-5/8 to 4-3/4 6-7/8 to 9-1/16	13-1/4	26-1/4	13	25-1/2	3/4	3/4
GH1631R-2	16	31	4-3/8 to 6-7/8	4-3/8 to 6-7/8	14-1/4	29-3/8	14-1/4	29-3/8	3/4	3/4
GH1733R-2	17-13/16	33-3/4	1-1/4 to 2-9/16	1-1/4 to 2-9/16	13-1/8	34-1/4	13-1/8	34-1/4	3/4	1/2
GH1820R-2	18	20	2 to 3-1/2	2 to 3-1/2	16-5/8	18-3/4	16-5/8	18-3/4	3/4	5/8
GH1825R-2	18	25-3/4	1-13/16 to 2-13/16 5-1/4 to 6-9/16	1-13/16 to 2-13/16 5-1/4 to 6-9/16	17	25-1/4	16-1/2	24-3/8	3/4	5/8
GH1828R-2	18-1/16	28-3/16	3-3/4 to 4-1/2 6-3/4 to 7-1/2	3-3/4 to 4-1/2 6-3/4 to 7-1/2	16-5/8	26-3/4	16-1/2	26-1/2	3/4	3/4
GH2121R-2	21-1/4	21-1/4	5-5/16 to 6-11/16	5-5/16 to 6-11/16	18-3/4	18-3/4	18-3/4	18-3/4	3/4	3/4
GH2131R-2*	21	31	3 to 5	3 to 5	19-15/16	29-15/16	19-15/16	29-15/16	3/4	3/4
GH2639R-2	26-13/16	39-3/16	1-1/4 to 2-13/16 4-11/16 to 5-7/16	4-11/16 to 5-7/16	26	38-3/8	25-3/8	37-13/16	3/4	5/8

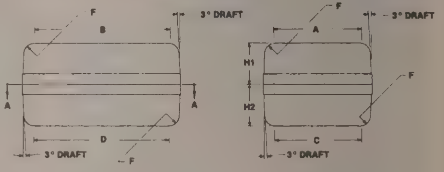
HEAVY DUTY RACK MOUNT CASE

MODEL	EIA STANDARD PANEL	W	L	A	B	C	D	E	F
GH0514M	—	5-5/16	14-3/16	12-3/4	12-5/16	—	—	14-3/8	5-9/16
GH0519M	5.219 x 19	5-5/16	19-1/4	18-5/16	17-7/8	2-1/4	—	19-1/4	5-7/16
GH0714M	—	6-15/16	13-11/16	12-3/4	12-5/16	—	—	13-11/16	7
GH0719M	6.969 x 19	7-1/16	19-1/4	18-5/16	17-7/8	4	—	19-1/4	7-1/4
GH0919M	8.719 x 19	8-13/16	19-1/4	18-5/16	17-7/8	5-3/4	—	18-7/8	8-7/16
GH1119M	10.469 x 19	10-9/16	19-1/4	18-5/16	17-7/8	2-1/4	3	19-1/4	10-3/4
GH1219M	12.219 x 19	12-5/16	19-1/4	18-5/16	17-7/8	3-1/2	2-1/4	19-1/4	12-1/2

Gemini specializes in custom designed cases for industry. We have the capability to design a case specifically for your product and follow through from prototypes to production. If you are currently purchasing a standard case from another manufacturer, we may be able to duplicate that case at a lower cost. We welcome the opportunity to quote on your case requirements and to work with you on design.

Gemini's standard line of **HEAVY DUTY TRANSIT CASES** are constructed from high density polyethylene, and extremely tough and resilient material ideally suited to the abuses transit cases are subjected to. The heavy wall (.100″ nominal) shells and heavy duty 1.838″ wide #6063 T52 aluminum valance combine to form a container capable of transporting delicate portable instruments under the most adverse conditions. Available with recessed wheels and folding handle.

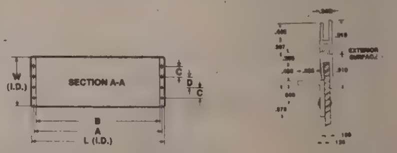


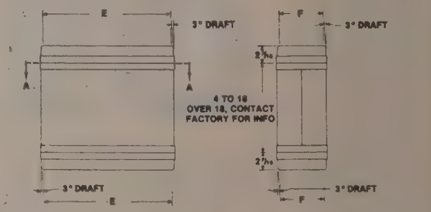


Gemini's standard line of **HEAVY DUTY CARRYING CASES** are constructed from rugged A.B.S. and feature a heavy wall aluminum valance to provide an extremely rugged case with contemporary lines for transporting delicate portable instruments under the most demanding conditions.

Standard Features include:

- .100″ to .150″ nominal wall black A.B.S. shells
- variable case depth
- heavy wall 1.838″ wide #6063 T52 aluminum valance with dust seal
- choice of handle, latch, hinge and bumpers





GEMINI
INCORPORATED

103 Mensing Way
Cannon Falls, MN 55009-0018
PHONE: (507) 263-3957

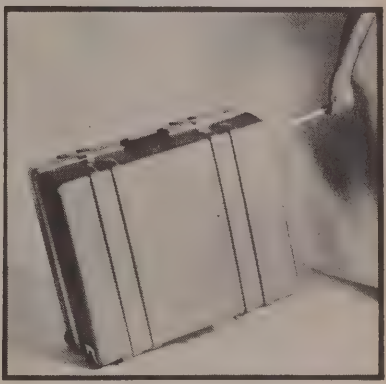
INDUSTRY STANDARD CASES

TRANSIT CASE

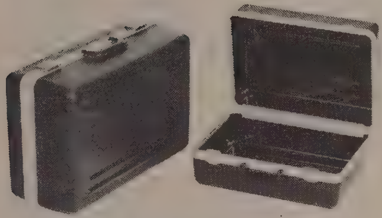
MOLDED LOGOS

TOOL CASE

X-STACKING TRANSIT CASE & CART



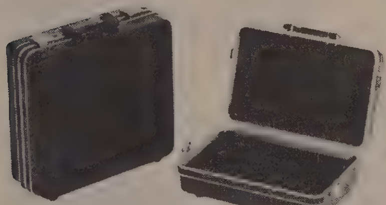
WHEEL CASE



HEAVY DUTY CARRYING CASE

DOORS/HINGED DIVIDERS
DIE-CUT FOAM INSERTS

CATALOG CASE



ATTACHE STYLE CASE

CIRCUIT BOARD CASE

EIA RACK MOUNT CASE

Contact factory for:
- Special hardware selections available
- Special colors
- Flame retardant material
- Special brackets
- Door/dividers/formed inserts
- EMI/RFI shielding
- Foam filled
- Foam die cut
- Foam molded
- Printed circuit board racks

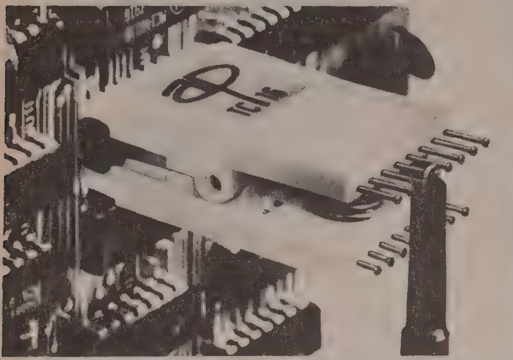
GEMINI
INCORPORATED

103 Mensing Way
Cannon Falls, MN 55009-0018
PHONE: (507) 263-3957

A P PRODUCTS

9450 Pineneedle Drive • P.O. Box 540 • Mentor,Ohio 44060
Telephone: (216) 354-2101 • TWX: 810-425-2250

INTEGRATED CIRCUIT ACCESSORIES CABLE JUMPERS, IC TEST CLIPS, CONNECTORS, SWITCHES



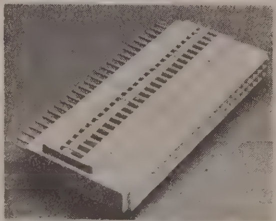
IC TEST CLIPS — We've improved on the original

The Super-Grip II IC Test Clip has a narrow nose for fitting on DIP's on high-density boards. "Open-nose" design also permits probe tip access at DIP leads. New "duck-bill" contacts are flat, won't roll off narrow DIP leads. Contact comb fits between DIP leads, eliminates shorts. New "nail-head" contact pins keep probe hooks from sliding off. Offset pin rows allows probes to hang free on longer top row pins and not interfere with shorter lower row. Sizes to fit all DIP's (TC-14 fits 14-pin DIP etc.). Gold-plated or unplated alloy-770 pin contacts. Simplifies testing, trouble-shooting and QC inspection. Also available with long, headless lead pins for attaching cable connectors.

IC Test Clips — AP No.				IC Test Clips
Alloy 770		Gold-Plated		
Std.	Headless	Standard	Headless	
923695	923690-08	923743-08	923739-08	TC-08
923698	923690-14	923739-14	923739-14	TC-14
923700	923690-16	923743-16	923739-16	TC-16
923702	923690-16LSI	923743-16LSI	923739-16LSI	TC-16LSI
923703	923690-18	923743-18	923739-18	TC-18
923704	923690-20	923743-20	923739-20	TC-20
923705	923690-22	923743-22	923739-22	TC-22
923714	923690-24	923743-24	923739-24	TC-24
923718	923690-28	923743-28	923739-28	TC-28
923720	923690-36	923743-36	923739-36	TC-36
923722	923690-40	923743-40	923739-40	TC-40
923724	923690-48	923743-48	923739-48	TC-48
923726	923690-64	923743-64	923739-64	TC-64

INTRA-SWITCH

AP No.	No. Pins
922578-20	20
922578-26	26
922578-34	34
922578-40	40
922578-50	50

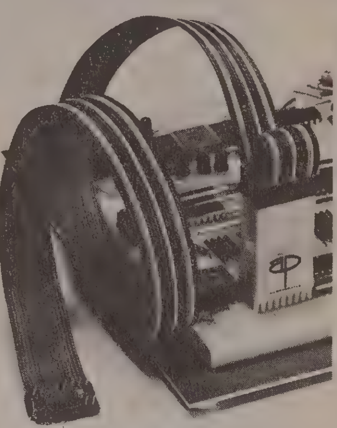


The Intra-Switch allows opening and closing any number of lines individually. It is interjected between standard .10" x .10" dual-row system connectors to provide instant line-by-line switching for diagnostic or QA testing. Ideal for switching command signals to or from test equipment and programming optional preset logic functions. Contacts are Alloy 770. Switches are recessed and actuate by pencil or probe tip.

INTRA-CONNECTOR

AP No.	No. Pins
922576-20	20
922576-26	26
922576-34	34
922576-40	40
922576-50	50
922576-60	60

In use, Intra-Connector is interjected between mating system connectors to provide external pin contacts for probing individually or connecting to another cable assembly. Mates with standard .10" x .10" dual-row connectors or PC board-mounted .025" sq. pins. Ideal for daisy chaining. Signals can be probed under no load and full load conditions using two Intra-Connectors plus an Intra-Switch. Contacts are Alloy 770.



LOGICAL CONNECTIONS

A P Logical Connections are a Test Clip/Jumper Assembly combined. They are the most convenient and reliable way to connect remote testing equipment to DIP circuitry. A Logical Connection combines the performance proven IC Test Clip with a complete, tested, ready-to-use cable assembly. It provides the ideal connection from a logic analyzer to DIP IC. On one end, a pair of single-row socket connectors attach to the pins of a connector-compatible model Test Clip. On the other end, choose from among the four industry standard connector types shown below, or order it open-ended, to terminate with your own connector. All important performance features of A P Test Clips (described at left) are incorporated in Logical Connections. Connectors have Alloy 770 contacts, probe access holes in backs and are molded into the color-coded flat ribbon cable for optimum electrical integrity and strain relief. Models listed below all are 18" long.

Logical Connections

AP No.**	No. Contacts	Remote End Termination
923880-16	16	NONE
923880-20	20	
923880-24	24	
923880-40	40	
923880-48	48	
923880-64	64	
923881-16	16	**SOCKET CONNECTOR** Mates with two rows of .025" sq. or dia. pins on .10" centers, and shielded receptacles.
923881-20	20	
923881-24	26*	
923881-40	40	
923881-48	50*	
923881-64	64	
923882-16	16	**CARD-EDGE CONNECTOR** Mates with double-sided 1/16" PC board with contact fingers on .10" centers
923882-20	20	
923882-24	26*	
923882-40	40	
923882-48	50*	
923882-64	64	
923883-16	16	**PCB Solder-In CONNECTOR** Mates with 4 rows of .047" dia. holes .10" apart with each row staggered .05" from first row.
923883-20	20	
923883-24	26*	
923883-40	40	
923883-48	50*	
923884-16	16	**DIP CONNECTOR** Mates with standard 16, 20, 24, and 40 pin DIP sockets.
923884-20	20	
923884-24	24	
923884-40	40	

*On 26 position connectors, positions #25 and #26 are unused. On 50 position connectors, positions #49 and #50 are unused.
**Suffix is No. of contacts in Test Clip.

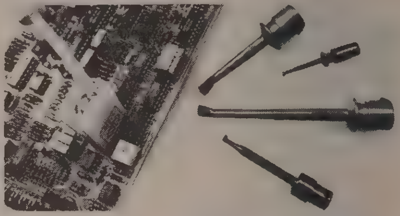
Dip Jumper

Connector on one end

AP No.	No. Pins
924102-36	14
924112-36	16
924122-36	24
924132-36	40

Connector on both ends

924106-06	14
924106-12	14
924106-18	14
924106-24	14
924106-36	14
924116-06	16
924116-12	16
924116-18	16
924116-24	16
924116-36	16
924126-06	24
924126-12	24
924126-18	24
924126-24	24
924126-36	24
924136-06	40
924136-12	40
924136-18	40
924136-24	40
924136-36	40



PROBE-IT Plunger-Actuated Probes

For hands-free testing, press caps to extend hook contact, hook it onto lead or wire under test and release it. Select from 4 sizes: Micro (1.63"), Mini (2.19"), Standard (2.38"), and Maxi (3.56"). Solder any length of stranded hook-up wire to contact under cap.

AP No.	Color Dash Code	Probe-it Model	Qty/ Pkg.
923830-	Rd,Bk,Bu,Gn,Yl,Wt	Micro	2
923835-	Rd,Bk,Bu,Gn,Yl,Wt	Mini	2
923840-	Rd,Bk	Standard	2
923845-	Rd,Bk	Maxi	2
923848	(One ea. of 6 colors)	Micro	6
923850	(One ea. of 6 colors)	Mini	6

Plunger Wires
Jumper Wires

BREADBOARD JUMPER WIRE KIT

350 wires cut to 14 different lengths from 0.1" to 5.0". Each length is color coded and segregated in convenient plastic box. Leads are stripped 1/4" and bent 90° for easy insertion. Wire is solid, tinned 22-gauge copper with PVC insulation. **JK1 Wire Kit . . . 92335**

JUMPER WIRE PACKAGES

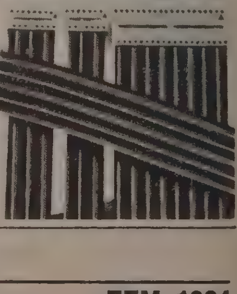
Shown above: individual packages with all wires same length and color in each package.

Jumper Wire Packages

AP No.	Length (in.)	Color	Qty/ Pkg.
923345-01	0.1	(bare)	200
923345-02	0.2	Red	200
923345-03	0.3	Orange	200
923345-04	0.4	Yellow	200
923345-05	0.5	Green	200
923345-06	0.6	Blue	200
923345-07	0.7	Violet	150
923345-08	0.8	Gray	150
923345-09	0.9	White	150
923345-10	1.0	Brown	100

DIP JUMPERS

DIP jumpers fit standard DIP sockets. Ideal for jumpering within PC boards; between boards, backplanes, and motherboards; I/O signals, etc. Connectors molded onto cable for optimum strain relief; factory tested; probe access holes on backs. Conductors: 28 AWG. Color-coded cable uses 10-color sequence.



Suffix in AP No. is length (-06=6 in.)

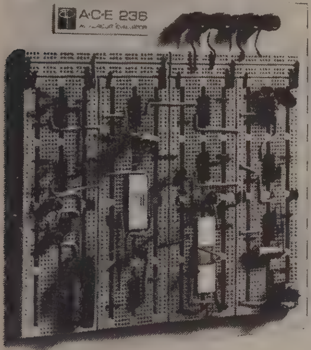
A P PRODUCTS

9450 Pineneedle Drive • P.O. Box 540 • Mentor, Ohio 44060
Telephone: (216) 354-2101 • TWX: 810-425-2250

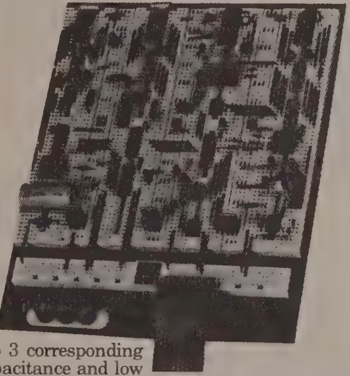
**INTEGRATED CIRCUIT ACCESSORIES
POWERED BREADBOARDS,
TERMINAL & DISTRIBUTION STRIPS**

ACE ALL-CIRCUIT EVALUATORS

Two kits and 8 assembled breadboards for quick build-up and check-out of experimental circuits. All models have integral voltage distribution system with solderless plug-in tie points on universal .100" x .100" matrix for excellent circuit design flexibility. These ACE's accept all DIP's, TO-5's, discrete components and solid wire patch cords to .032". Uses buses for voltage, ground, reset and clock lines, shift command, etc. Five-way binding posts. Aluminum base serves as ground; has gold-anodized protective surface. Multi-tie-point terminals are non-corrosive nickel silver.



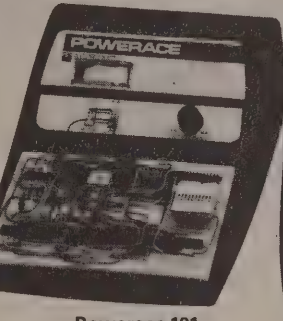
ACE 236



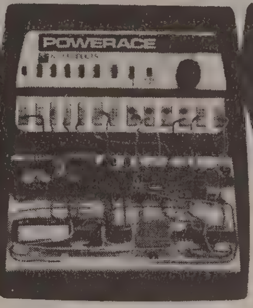
BREADBOARD II

Fully assembled. Unique system of 3 distribution strips. 2 levels of printed circuits and 3 binding posts. 18 buses are color coded and internally connected to 3 corresponding color binding posts. High distributed capacitance and low inductance minimize unwanted voltage spikes, provide superior low impedance system. Same plug-in matrix features as ACE's. Laminated NEMA G-10 glass epoxy; circuits and ground plane are 2-oz. copper; terminals are copper alloy 770.

AP No.	ACE's and Breadboard II	Tie-Pts.	DIP Cap.	No. Buses	No. Posts	Size (inches)
923336	ACE 109 (assem.)	840	9 (14's)	8	3	7 x 4
923333	ACE 200-K (kit)	728	8 (16's)	2	2	4⁹⁄₁₆ x 5⁹⁄₁₆
923332	ACE 208 (assem.)	872	8 (16's)	8	2	4⁹⁄₁₆ x 5⁹⁄₁₆
923334	ACE 201-K (kit)	1032	12 (14's)	2	2	4⁹⁄₁₆ x 7
923331	ACE 212 (assem.)	1224	12 (14's)	8	2	4⁹⁄₁₆ x 7
923326	ACE 218 (assem.)	1760	18 (14's)	10	2	6½ x 7⅛
923325	ACE 227 (assem.)	2712	27 (14's)	28	4	8 x 9¼
923324	ACE 236 (assem.)	3648	36 (14's)	36	4	10¼ x 9¼
923323	ACE 245 (assem.)	4520	45 (14's)	48	4	12⁷⁄₁₆ x 9¾
923322	ACE 254 (assem.)	5424	54 (14's)	56	4	14¹¹⁄₁₆ x 9¾
923605	BB II (assem.)	2696	36 (14's)	18	3	7 x 9



Powerace 101
923101 . . . 120 VAC
923221 . . . 220 VAC



Powerace 102
923102 . . . 120 VAC
923222 . . . 220 VAC

Powerace 103
923103 . . . 120 VAC
923223 . . . 220 VAC

POWERACE POWERED BREADBOARDS

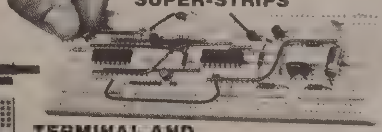
Fully assembled. All three Powerace models offer a new dimension in convenience for fast, solderless, circuit building and testing. Each incorporates two A P Super-Strips with 1680 plug-in tie points to hold up to 18 14-pin DIP's. Breadboards accept all DIP sizes including RTL, DTL, TTL and CMOS devices, TO-5's and discretes with leads up to .032" dia. Built-in groundplane — ideal for high-frequency and high-speed/low-noise circuits. Interconnect with any solid 20 or 30 AWG wire via plug-in tie-point blocks on panels. Operate on 200 to 240 VAC at 50 Hz or on 110 to 130 VAC at 60 Hz (with fused power supplies). Ripple/noise is ≤ 10 mV at full load. Dimensions of all three Poweraces are: 7.5" wide, 11.5" deep, 4.0" high at the rear, but only 0.75" high at the front for working-level convenience. Weights are approx. 2.5 lb. Complete operating instructions included.

POWERACE 101 — General purpose for all types of circuits. Power supply is regulated, adjustable from +5 to +15 VDC at 600 mA. Line and load regulation is ≤ 3%. O-15 VDC meter for monitoring power supply or circuits.

POWERACE 102 — For prototyping digital circuits. Power supply is regulated +5 VDC at 1 amp. Line load regulation is ≤ 1%. Built-in pulse detection with memory — combined with three buffered logic indicators, provide free built-in logic probe. Also contains two logic switches, four data switches, a clock generator and a one-shot pulse generator.

POWERACE 103 — Triple-output power supply for linear and digital circuits has outputs of +5 VDC at 750 mA; +15 VDC at 250 mA; and -15 VDC at 250 mA (±15-volt outputs track). Line and load regulation is ≤ 1%. Meter is built-in 15-O-15 VDC. Also contains two buffered logic indicators, two logic switches and two data switches.

SUPER-STRIPS



CIRCUIT-STRIPS

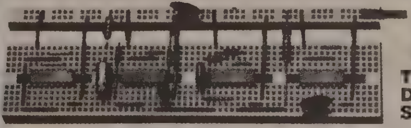
Super-Strip universal, breadboarding elements have 840 solderless, plug-in tie points, integral, low-impedance distribution system, accept all DIP's, TO-5's, discretes and solid jumpers to .032". Hold up to nine 14-pin DIP's. Choice of contact finishes. Includes integral, non-shorting, instant-mounting backing.

Circuit-Strip duplicates the advantages of the Super-Strip but in a smaller size. Then it goes one better with a molded-in alpha-numeric grid for faster and easier identification of every tie point in your circuit. This makes labeling schematics easier in lab or training course, and simplifies troubleshooting. Circuit-Strip holds up to six 14-pin DIP's and is available with or without gold contact finish.

TIE-POINT BLOCKS

Four models available with .1" matrix of solderless, plug-in, 4-tie-point terminals for custom layouts, attaching relays, displays, in/out patching. LED block accepts 3/16" dia. bulb (not included). All have solder tails and mount by press-fitting into holes. Packaged 20 per pack.

AP No.	Tie-Point Blocks	Tie-Points
923297	TB1 (single)	4
923299	TB2 (double)	8
923301	TB3 (triple)	12
923303	TB4 (quad)	16
923305	LB1 (LED)	1
923306	Assortment: 4 each of above 5 styles	



TERMINAL AND DISTRIBUTION STRIPS

For building custom breadboards. Solderless, plug-in matrices on .1" x .1" centers that accept all DIP's, TO-5's, discretes and solid wire jumpers to .032". Terminal strips available in 4- and 5-tie-pt. single and dual rows. Distribution strips available with 2 or 6 buses. Includes integral, non-shorting mounting backing.

AP No.	Terminal Strips, Distribution Strips and Super-Strips	Buses, Terminals and Tie Points	DIP Capacity	Size# (in.) L. x W.
923273	217L Terminal strip	34 five-tie-point term.	2 (16's)	1.8 x 1.36
923269	234L Terminal strip	68 five-tie-point term.	4 (16's)	3.5 x 1.36
923265	248L Terminal strip	96 five-tie-point term.	6 (14's)	4.9 x 1.36
923261	264L Terminal strip	128 five-tie-point term.	9 (14's)	6.5 x 1.36
923289	264R Terminal strip	128 four-tie-point term.	9 (14's)	6.5 x 1.1
923285	206R Distrib. strip	2 buses of 24 tie points	. . . .	3.5 x .35
923281	209R Distrib. strip	2 buses of 36 tie points	. . . .	4.9 x .35
923277	212R Distrib. strip	2 buses of 48 tie points	. . . .	6.5 x .35
923293	606R Distrib. strip	6 buses of 24 tie points	. . . .	6.5 x .43
923252	SS-2 Super-Strip	128 five-tie-point term. &	9 (14's)	6.5 x 2.25
923748	SS-1 Super-Strip†	8 buses of 25 tie points	9 (14's)	6.5 x 2.25
923252	Circuit-Strip	94 five tie-point term. &	6 (14's)	4.9 x 2.25
923749	Circuit-Strip†	4 buses of 35 tie points.	6 (14's)	4.9 x 2.25

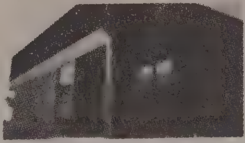
†Gold-plated copper alloy terminals. #Height of all strips is .32 inches.

Bring Your Magnetic Interference Problems To The Problem Solving Magnetic Shielding Specialists

AD-VANCE MAGNETICS

COMPLETE FACILITIES IN 3 LARGE MODERN PLANTS • 4 DECADES OF MAGNETIC SHIELDING LEADERSHIP

Rochester, Indiana


West Coast

Over 90% past and present magnetic shield designs have been created by engineers and fabricated by production personnel with Ad-Vance.

AD-MU shielding is everywhere: off planet in spacecraft and satellites; planet-wide in exacting industrial, military, laboratory and consumer applications.

ECONOMICAL AD-MU FOILS—CUT & APPLY IN MINUTES

Cut with Ordinary Scissors

These do-it-yourself foils solve many magnetic shielding problems for designers, experimenters, production people and relatively small production runs

- No waiting—save days or weeks of valuable time. Always keep a supply handy for emergencies.
- Eliminate designing, tooling and fabrication costs of pre-fabricated shields.
- Especially suited for hard-to-get-at places.
- Delivered already heat treated, ready for instant use.

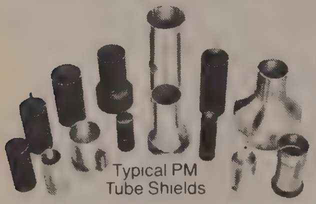
AD-MU CUSTOM FABRICATED SHIELDS FOR CATHODE RAY TUBES

Enhance CRT performance by eliminating effects of external magnetic fields on the electron beam.

Ad-Vance already owns tooling for many types of magnetic shields used during the past quarter century, making tooling savings possible. Or, our Engineering Dept. will gladly help design and produce the optimum shield for your application.

Typical CRT Shields; others to your specs

AD-MU HIGH PERMEABILITY SHIELDS FIT 324 TYPES OF PHOTOMULTIPLIER TUBES


Typical PM Tube Shields

For your special application or specific magnetic environment, Ad-Vance engineers can either modify a stock shield or custom design a shield to your exact requirement.

AD-MU TRANSFORMER SHIELDS

Reduce or eliminate the problem of stray field emission caused by transformers. Custom designed and fabricated to your precise specification.

AD-MU CUSTOM FABRICATED SHIELDS FOR OTHER COMPONENTS & SYSTEMS

Any specified configuration or shielding requirement from the simplest component to the most complex system can be handled by the Ad-Vance Engineering Dept.

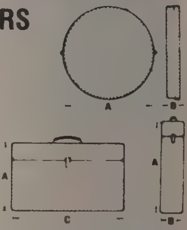
AD-MU SHEET STOCK—DELIVERY FROM STOCK

- For your in-house designing and manufacturing convenience.
- Easy to work, bend, stamp, draw, finish, etc. on ordinary sheet metal working equipment. SHIELDS MUST BE HEAT TREATED before end use or further finishing by plating, painting, etc.

STURDY AD-MU TAPE DATA PROTECTORS

Holds up to 36 Cassette Cartridges

Round or Rectangular Types



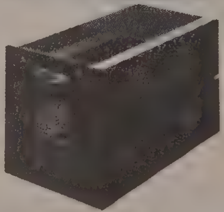
- Prevent distortion, partial erasure or degradation of valuable tape recorded data during routine safekeeping or transport.
- Provide inexpensive insurance against magnetic pollution.

AD-MU ALLOYS PROTECT PERMANENTLY

- Won't saturate when properly used.
- No excessive permeability loss from shock.
- No costly periodic annealings expense/inconvenience.
- Minimum retentivity.

84-PAGE TIME-SAVING ENGINEERING REFERENCE MANUAL/CATALOG

- Gives Major Guidelines for magnetic shielding design/procurement.
- 2/3 of pages contain valuable technical/engineering information about the entire magnetic shielding field.
- 1/3 is product/facilities data.


3984 hits in only 10.6 minutes on CNC press vs. 56 minutes average on manual turret duplicator press.

LOWER COSTS TO AD-VANCE CUSTOMERS ON THEIR PUNCHED PRODUCTS

- New CNC Control Capability also increases product quality and provides absolute precision.
- Repeatability to ±.005 accuracy. .002 accuracy not unusual.
- From prototype quantities to tens of thousands.

YOUR MAGNETIC SHIELDING PROBLEMS END HERE

AD-VANCE SHIELDING—THE "NICKEL'S" WORTH

AD-VANCE MAGNETICS, INC., 625 MONROE ST. / ROCHESTER, IN 46975 / (219) 223-3158 / TWX 810-290-0294

As Endless As Man's Imagination...

Amuneal Will Meet Your Toughest Magnetic Shield Specifications

Everyday, new and unique applications for magnetic shields continue to emerge ... and so do the stringent requirements that must be met. Transforming these challenging ideas into actual use can seem like a monumental task. Not at Amuneal.

We have the proven versatility and advanced facilities to design and manufacture magnetic shields to meet your toughest specifications. To do it, we've got a team of engineers and specialists who are ... just as tough.

Our people are involved in every phase of development ... in selecting the proper alloy and shield's geometric design ... in determining the best method of fabrication ... in controlling hydrogen annealing ... in the construction of a prototye and its thorough analytical testing and finally, in manufacturing whatever quantities your requirements dictate.

If you have a shielding project, call us at (215) **535-3000**
There's no limit to what we can do for you.

...Matching Man's Visions With Ingenuity

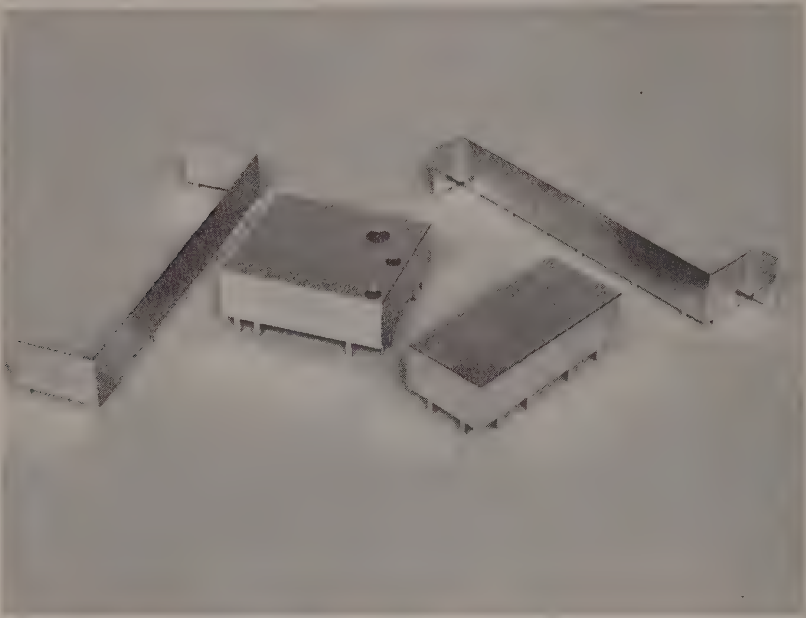
amuneal
MANUFACTURING CORP.

• (215) **535-3000**

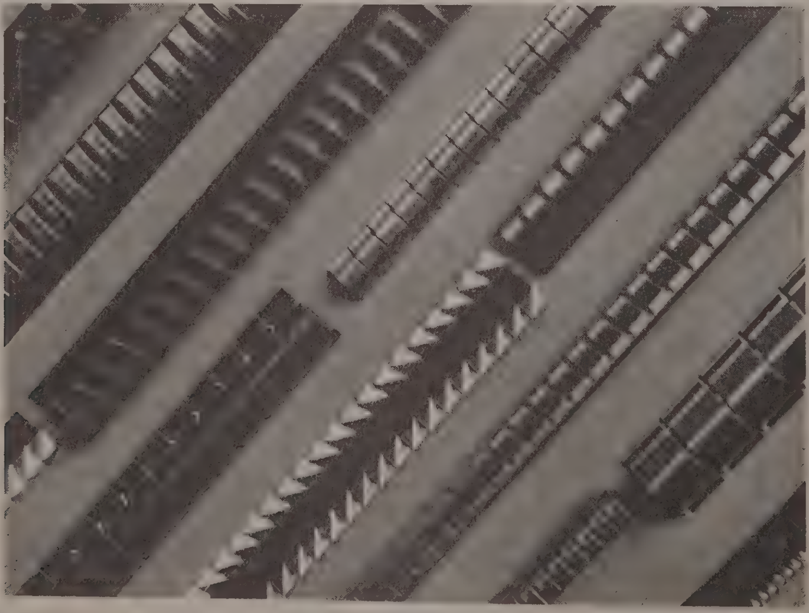
4737 Darrah St. Phila., Pa 19124

RFI / EMI SHIELDING

Atlee manufactures custom RFI/EMI shielding made from beryllium copper, brass or nickel silver. These shields are used to isolate the source of RFI on the circuit board.



Atlee finger contacts and gasketing made from beryllium copper are used for grounding and shielding applications. Ideal for electronic enclosures and chassis.

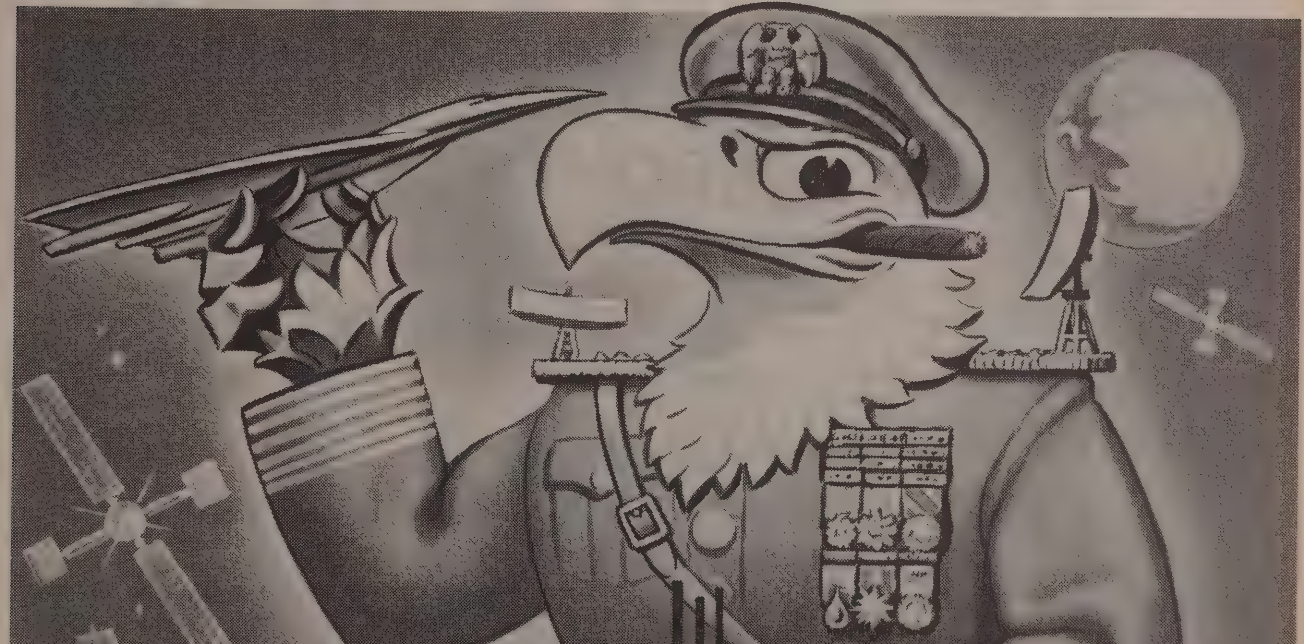


ATLEE

1 Gill Street
Woburn, MA 01801
(617) 933-3510 TELEX 949407

EMI PROBLEMS?

Let Eagle Magnetic TAKE COMMAND of your magnetic shielding problems!



EAGLE MAGNETIC COMPANY, INC.

For more information write or call:

P.O. Box 24283 • Indianapolis, Ind. 46224
Phone (317) 297-1030

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES

TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 84/85 EDITION OF EEM

Abbreviations/Acronyms	**1A**•1137, **1B**•1035, **2**•1014, **3**•1014
ASCII Code	**3**•1103
Batteries, Product Selection Guide	**3**•1399
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide	**2**•1003
Capacitors, Basic Formulas	**1A**•1093
Capacitors, Miniglossary	**1A**•1069
Capacitors, Product Selection Guide	**1A**•1003
Circuit Boards (Printed), Product Selection Guide	**2**•1089
Coils, Chokes, & Inductors, Product Selection Guide	**1A**•1219
Connectors, Miniglossary	**2**•1264
Connectors, Terminals, & Sockets, Product Selection Guide	**2**•1097
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide	**1A**•1309
Delay Lines, Product Selection Guide	**1A**•1445
Discrete Semiconductors, Product Selection Guide	**1A**•2087
Displays, Readouts, Lamps, & Lights, Product Selection Guide	**1B**•1021
EBCDIC Code	**3**•1153
Encapsulation, Miniglossary	**2**•1082
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide	**2**•1801
Filters, Product Selection Guide	**1A**•1577
Instruments, Graphic Recording, Product Selection Guide	**3**•1381
Instruments, Panel Meters, Product Selection Guide	**3**•1321
Instruments, Test & Measuring, Product Selection Guide	**3**•1182
Interconnection Systems, Product Selection Guide	**2**•1873
Keyboards & Keypads, Product Selection Guide	**1B**•1759
Microwave Components, Product Selection Guide	**1A**•1685
Military Qualified Products Lists	**1B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide	**1B**•1121
Opto Semiconductors, Miniglossary	**1B**•1218
Oscilloscopes, Product Selection Guide	**3**•1361
Panel Hardware, Product Selection Guide	**2**•1757
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide	**1A**•2017
Power Supplies, Miniglossary	**3**•1455
Power Supplies, AC, Product Selection Guide	**3**•1815
Power Supplies, DC, Product Selection Guide	**3**•1439
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide	**1B**•1255
Relay Contact Forms	**1B**•1317
Relays, Electromechanical, Miniglossary	**1•B**1292
Relays, Product Selection Guide	**1B**•1289
Resistor Color Codes	**1A**•1791
Resistors, Product Selection Guide	**1A**•1789
Servo Components, Miniglossary	**3**•1935
Solenoids, Product Selection Guide	**1B**•1481
Switches, Product Selection Guide	**1B**•1499
Thyristors/High Power Diodes, Miniglossary	**1A**•1652
Transducers & Encoders, Product Selection Guide	**1B**•1827
Transformers, Product Selection Guide	**1A**•2115
Wire & Cable, Product Selection Guide	**2**•1935

HOW TO STOP EMI

BEFORE IT STOPS YOUR PRODUCT.

The rapidly evolving world of electronics opens new vistas of efficiency and convenience in our professional and personal lives. There is, however, a reverse side to the electronic "coin": pollution by EMI/RFI and other spurious signals generated in many electronic systems and radiated by inter-connecting cables.

U.S.F.C.C. and foreign government regulations of increasing severity limit permissible EMI/RFI emissions for most electronic or electronically controlled equipment. Violators are subject to costly penalties.

Unique properties of ferrite provide relatively constant impedances over a broad segment of the high to ultra-high frequency ranges. They attenuate unwanted signals without contributing to power loss at DC and low frequencies. Fair-Rite beads, sleeves and toroids have become industry standards. They are installed simply by sliding or clamping one or more onto the leads of involved components or on connecting wires, or inserting "beads on leads" into PC boards.

CABLE AND CONNECTOR
EMI SUPPRESSOR KIT
FAIR-RITE
PRODUCTS CORP

THE NEW CABLE & CONNECTOR EMI SUPPRESSOR KIT.

To aid the designer in selecting and specifying ferrite components to solve specific EMI/RFI problems, Fair-Rite, the leader in ferrites for shielding, has developed three Engineering Evaluation Kits providing the necessary ferrite cores, with descriptions and technical data to help solve given EMI/RFI problems.

FAIR-RITE'S NEW CABLE AND CONNECTOR EMI SUPPRESSOR KIT offers 13 different large beads and toroids, one-piece and split sleeves, and the new multi-hole shielding plates for use with IC/DIP's and multi-pin connectors. All are in the ferrite material of choice for shielding applications, Fair-Rite No. 43; impedance (Z) values are from 47 to 285 ohms typical at 100 MHz.

THE NEW BEAD ON LEAD AND WOUND BEAD, OR |Z| KIT offers 10 different beads on leads, plus two 6-hole shield beads wound with 1½ and 2½ turns, all in Fair-Rite No. 43 material. Production quantities of the beads on leads are available taped and reeled for use with high speed automatic insertion equipment per EIA Standard RS296D. The beads supplied yield impedance values from 68 to 680 ohms typical at 100 MHz.

THE FAIR-RITE BEAD, BALUN AND BROADBAND KIT, "JOULE BOX" provides 34 different shield beads, balun and broadband cores in seven different Fair-Rite materials. Literally thousands of designers have used this kit to guide them in the suppression of unwanted circuit noise over the past seven years. Its continued popularity is proof of its value as a design tool. Impedance values range from 30 ohms to 550 ohms, typical, at 25 MHz or 100 MHz, depending on material.

EACH KIT comes with its own Engineering Bulletin fully describing the contents and guiding the designer in the use of Fair-Rite components to solve his EMI/RFI problems. Also, Impedance vs. Frequency and other curves are included, as well as concise explanations of the function of ferrites in EMI/RFI suppression.

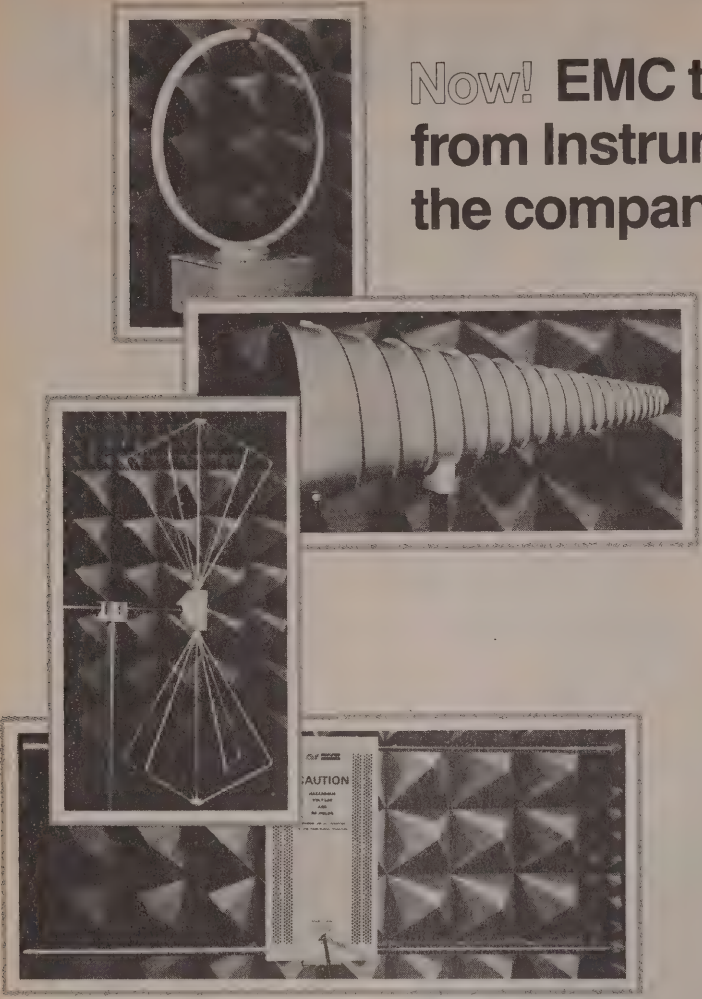
KITS ARE $25.00 EACH postpaid from stock against your payment; or plus shipping when ordered on your PO or letterhead.

The Engineering Bulletins are **FREE** for the asking. So is our catalog.

Fair-Rite also manufactures a broad range of ferrite cores for other electronic applications, including: coil forms; U, E and I cores; rods and slugs; pot cores; and a wide range of bobbin (drum) cores, as well as custom shapes to special order.

FAIR-RITE PRODUCTS CORP.

Dept. EM4, PO Box J, Wallkill, NY 12589 Phone 914-895-2055 TWX 510-249-4819 FRWALK



Now! EMC testing services from Instrument Specialties—the company that knows shielding inside and out!

If you're involved with keeping RFI/EMI in or out, you already know about Instrument Specialties. You've probably used our beryllium copper shielding strips...received our engineering help ...even used our new line of ESD devices.

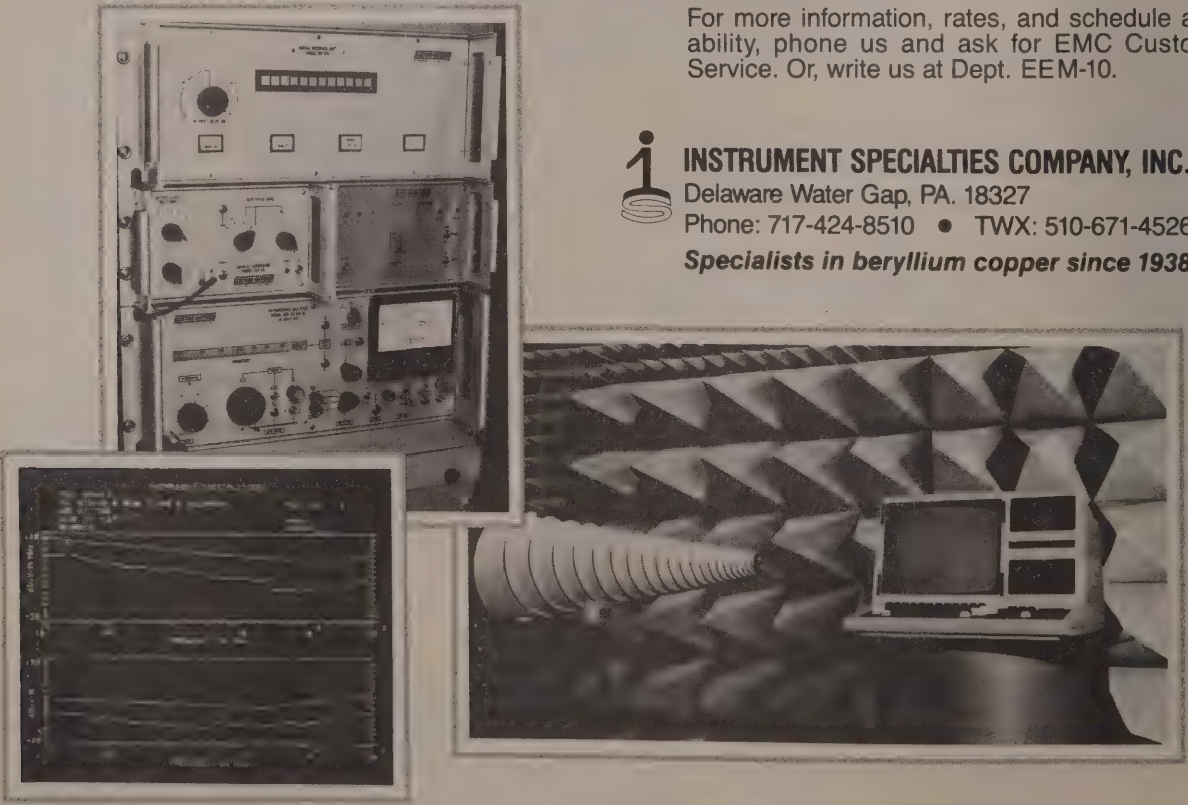
And *now*—the superb EMC testing facilities we use to assure performance of our products is *available to you for the first time.* You now can access the sophisticated equipment you don't have—but *must* have—to secure the test results you need!

State-of-the-art computer-controlled emission and susceptibility measurements from 10 kHz to 1 GHz...RF gasket evaluation...FCC/VDE/CISPR and MIL-STD-461A/B Tests...networks for power line conducted RF emission tests...semi-anechoic shielded enclosure...confirming open field test site...computer-produced hard copy readout of test results—all are yours at Instrument Specialties.

Following testing, you'll leave our facility with the precise documentation you need. In the event you need help to meet required interference specifications, we can supply that as well. All this, from one qualified source!

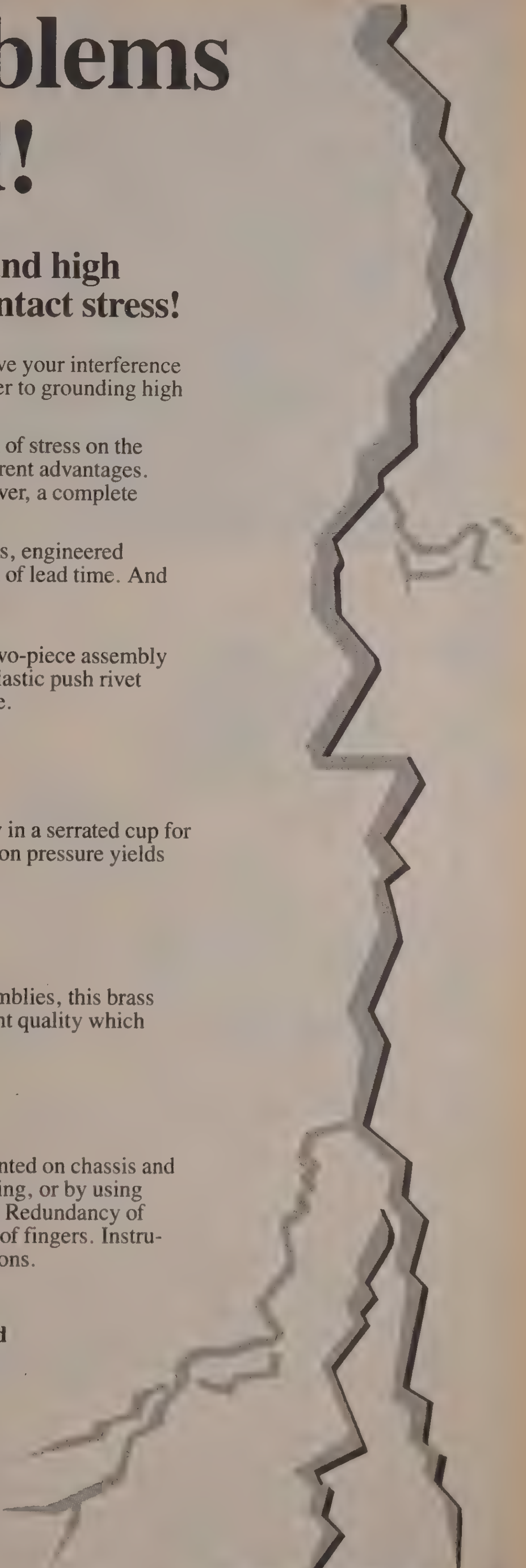
For more information, rates, and schedule availability, phone us and ask for EMC Customer Service. Or, write us at Dept. EEM-10.

INSTRUMENT SPECIALTIES COMPANY, INC.
Delaware Water Gap, PA. 18327
Phone: 717-424-8510 • TWX: 510-671-4526
Specialists in beryllium copper since 1938



Drive ESD problems into the ground!

NEW Instrument Specialties devices ground high voltage static discharge with minimum contact stress!



You *know* how Instrument Specialties' shielding strips have helped solve your interference control problems. Now, a design breakthrough can provide your answer to grounding high voltage discharge.

These new assemblies provide optimum contact force with a minimum of stress on the contact. Material is either brass, or beryllium coppper, with all its inherent advantages. Mounting is compatible with all surface textures and materials. Moreover, a complete spectrum of platings is available to ensure galvanic compatibility.

A few typical, off-the-shelf assemblies are shown here. *Special* designs, engineered precisely to meet your requirements, can be produced with a minimum of lead time. And there's no charge for consultation.

97-700

The Instrument Specialties' "Mushroom" is a two-piece assembly consisting of a beryllium copper top plate and plastic push rivet which mounts through a .250 inch diameter hole.

97-710

The "Pop-Up" is a spring-loaded brass assembly in a serrated cup for easy snap-in mounting. One pound of compression pressure yields over 1000 pounds contact force per square inch.

97-720

Used with both the Mushroom and Pop-Up assemblies, this brass contact plate acts as a mating surface of consistent quality which mounts in the opposing plane.

97-733

These beryllium copper grounding bars are mounted on chassis and cabinet frame components by riveting, heat staking, or by using common hardware such as screws and fasteners. Redundancy of contact points is attained by varying the number of fingers. Instrument Specialties also offers many custom variations.

To get your copy of our complete manual, discussing theoretical and practical aspects of interference and grounding problems and their solutions, use the Reader Service Card. Or, write directly to the address shown below, Attn: Dept. EEM-11.

INSTRUMENT SPECIALTIES COMPANY, INC.
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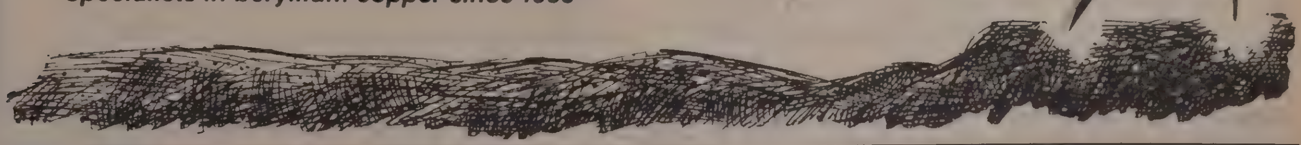
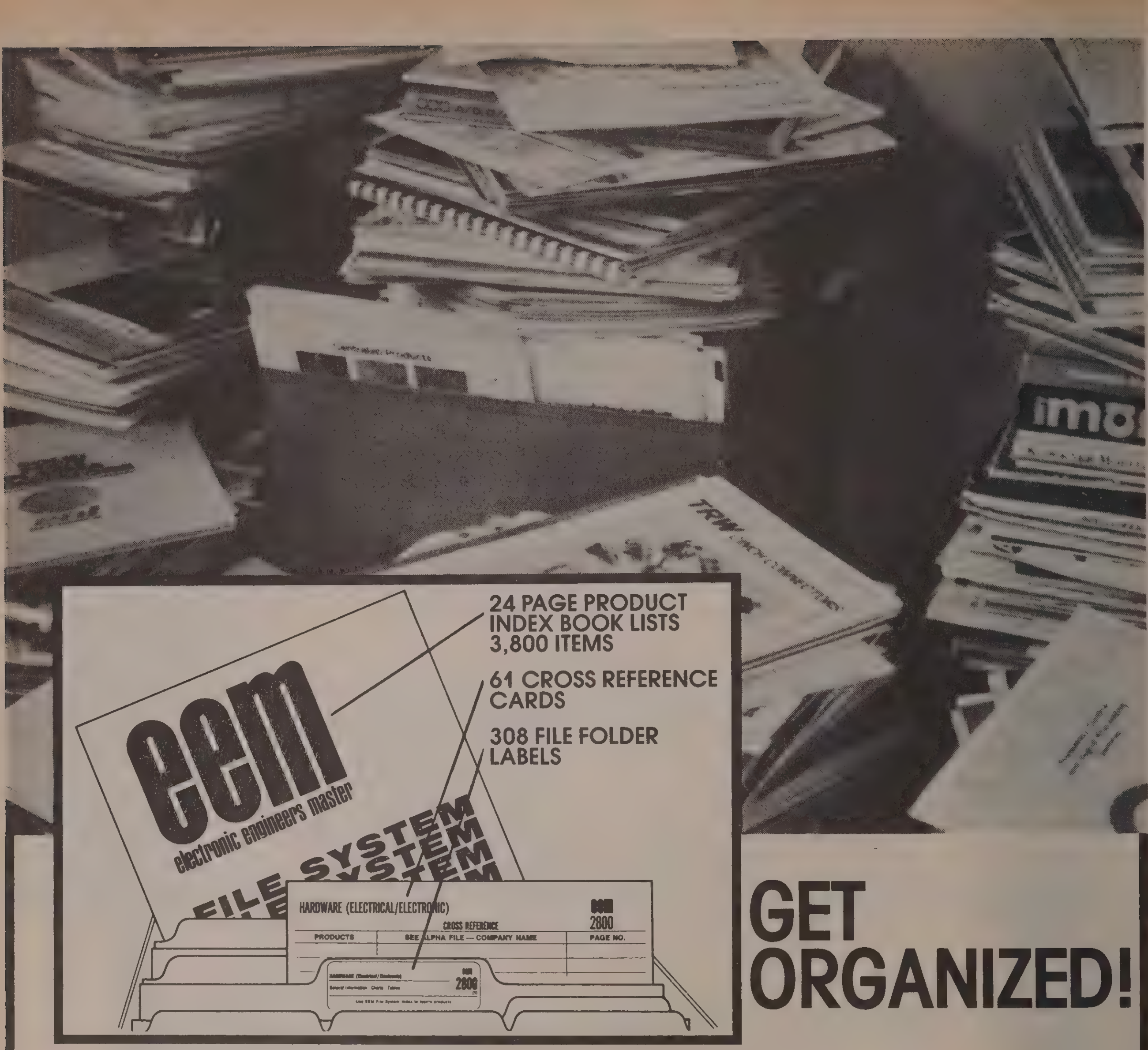
Specialists in beryllium copper since 1938




24 PAGE PRODUCT INDEX BOOK LISTS 3,800 ITEMS
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GET ORGANIZED!

Are your catalog files organized? Can you find any given catalog in a matter of seconds? If your answer is "Yes," you probably already have the EEM File System. But, if you said "No," you really ought to look into this simple system. It will save hours of time and tons of aggravation.

The EEM File System was invented over twenty-five years ago to help people who specify, buy, or work with electronic products and equipment. It is upgraded on a constant basis to reflect the current state of the art. It's easy to use and easy to customize to your particular needs.

You say you want to file catalogs by type of product? That's easy to do with The System. But, what are you going to do when there are multiple products in one catalog? Take Mallory for example. There are all kinds of products in the Mallory Short Form Catalog. With the EEM File System all you do is file the catalog under "M" for Mallory and refer to it on all of the cross reference cards that apply.

There are thousands of EEM File Systems in everyday use in engineering and procurement offices all over the world. Shouldn't you be using this proven system?

The EEM File System is shipped in one neat package. The package contains everything you need to set up your very own filing system. Best of all, it's easy to get and very affordable. Send a check or money order for $25.00 and EEM will pay the postage and sales tax. If you must use a purchase order, please add $5.00 for postage and handling. An invoice will accompany your System.

Don't waste any more time. Get organized now!

EEM FILE SYSTEM,
645 stewart ave., garden city, ny 11530

CO-NETIC & NETIC magnetic shielding material

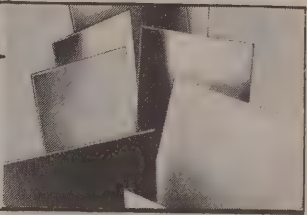
A complete stock of CO-NETIC (high permeability) and NETIC (high saturation) shielding alloys is available in foil and sheet form. Our engineering department will gladly assist you in the development of shield designs to meet your prototype or production requirements. Request catalog MG-5, material and fabrication guide.

MAGNETIC SHIELD DIVISION

Perfection Mica Company
750 North Thomas Drive
Bensenville, Illinois 60106 U.S.A.
(312) 766-7800 TWX (910) 256-4815

sheet stock: (standard—30″ x 120″) Shipped immediately from stock.

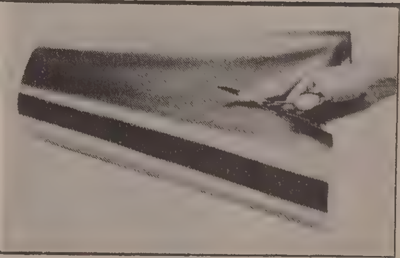
STD. THK. (Inch)	NETIC S3-6 ALLOY SHEET	CO-NETIC AA STRESS ANNEALED	CO-NETIC AA PERFECTION ANNEALED
.014 .020 .025 .030 .040 .050 .062	High saturation capability. .040 NETIC not stocked. Also stock .095″	High permeability characteristics. Stress annealed for ease of fabrication. Must be final annealed for maximum attenuation characteristics. Also stocked in .100″.	High permeability characteristics. Perfection Annealed material has been fully hydrogen annealed for optimum magnetic properties. No further annealing after fabrication is necessary if severe forming is avoided.



foil stock: (standard coils—50 and 100 linear ft.)

STD. THK. (Inch)	NETIC PERFECTION ANNEALED WIDTH (Inch)	CO-NETIC PERFECTION ANNEALED WIDTH (Inch)
.002	—	4
.004	4	4
.004	15	15
.006	—	4
.006	—	15
.010	—	4
.010	—	15

Standard foils shipped immediately from stock. All sizes available with double-faced pressure sensitive tape and release coated liner. Foils can be slit to a minimum width of 1/4″, with or without backing. Width tolerance ±.010. Backed and slit foils shipped one week after receipt of order. All foil is Perfection Annealed for maximum attenuation.



physical & magnetic data:

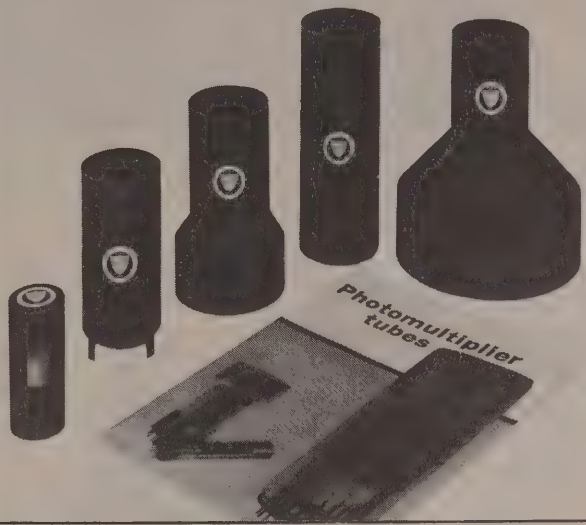
	CO-NETIC AA PERFECTION ANNEALED	CO-NETIC AA STRESS ANNEALED	NETIC S3-6
Specific Gravity	8.74	8.74	7.86
Coefficient of expansion per °C x 10⁻⁶	12.6	12.6	13.7
Tensile strength in PSI x 10³	64	85	42
Yield strength PSI x 10³	18.5	33	27
Hardness, Rockwell B	50±5	70±5	50±5
Elongation in 2 inches, percent	27	32	38
Melting point (°F)	2650	2650	2790
Thermal conductivity (cal/sec/cm²/cm/°C) at 20°C	.138	.138	.118
Curie Temp. (°F)	850	850	1420

	CO-NETIC AA PERFECTION ANNEALED	CO-NETIC AA STRESS ANNEALED	NETIC S3-6
Electrical Resistivity ohms/cir mil foot	330	330	60
Microhm centimeters	55	55	11
Thickness tolerance	±10%	±10%	±10%
Saturation Induction (Gauss)	8000	8000*	21,400
Initial Permeability	30,000	30,000*	200
Permeability at 200 gauss	135,000	135,000*	500
Maximum Permeability	450,000	450,000*	4000
Induction at μmax.	3000	3000*	8000
Coercive force, H_C, oersteds	.015	.015*	1.0

* Magnetic Properties after Hydrogen Anneal.

magnetic shields for photomultiplier tubes

Magnetic shields shipped from stock for 90% of photomultiplier tubes.



MAGNETIC SHIELD DIVISION

Perfection Mica Company
750 North Thomas Drive
Bensenville, Illinois 60106 U.S.A.
(312) 766-7800 TWX (910) 256-4815

CO-NETIC magnetic shields improve the amplification characteristics of photomultiplier tubes by providing significant attenuation of magnetic fields. Effective shielding is ensured over a wide range of field intensities. When grounded, the shields provide protection against electrostatic interference.

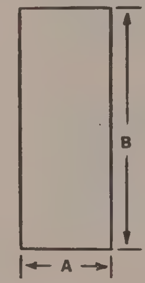
CO-NETIC shields are highly resistant to shock and vibration. The shields have minimal retentivity and do not require periodic re-annealing.

Request catalog PM-4, which lists recommended shields for over 650 photomultiplier tubes.

MAGNETIC SHIELD DIMENSIONS

Part No.	Drawing	A	B	C	D	E	F	G	Notes
06P25	1	⅝	2½						
07P13V1	2	¾	1⅜		13/16	½	¼		a
10P25	1	1	2½						
10P40	1	1	4						
11P42X18	5	1⅛	4¼	1⅞	2 15/16	1 5/16	¼		d
12P31V1	2	1¼	3⅛		1 11/16	1⅛	⅝		a
12P35	1	1¼	3½						
12P45	1	1¼	4½						
13P23V1	2	1⅜	2⅜		1¼	1⅛	⅝		a
13P28V1	2	1⅜	2 13/16		1 9/16	1⅛	⅝		a
13P32V1	2	1⅜	3¼		1 15/16	1⅛	⅝		a
13P52V1	2	1⅜	5¼		3 15/16	1⅛	⅝		a
15P27	1	1½	2¾						
15P40	1	1½	4						
15P50	1	1½	5						
17P30	1	1¾	3						
17P33V1	2	1¾	3⅜		2 11/16	⅞	¾		a
17P45	1	1¾	4½						
17P53V1	4	1¾	5⅜		2¾	2⅝	¼	2 1/16	b
20P50	1	2	5						
21P45V1	3	2 3/16	4½		½	½	¼		c
21P55V1	3	2 3/16	5½		½	½	¼		c
22P40	1	2¼	4						
22P50	1	2¼	5						
22P60	1	2¼	6						
22P70	1	2¼	7						
23P55X32	6	2⅜	5 9/16		3⅜	11/16		1½	
23P61X37	6	2⅜	6⅛	3¾	¼	3¾		2⅛	
23P68X57	6	2⅜	6⅞	5¾	3	1⅞		2	
23P101X57	6	2⅜	10⅛	5¾	½	2¾		6⅞	
25P40	1	2½	4						
25P50	1	2½	5						
25P60	1	2½	6						
25P70	1	2½	7						
27P73V1	2	2¾	7⅜		3⅝	4⅜	3		a
30P67X57	6	3	6¾	5¾	3¼	1½		2	
32P80	1	3¼	8						
32P100X55	6	3¼	10	5½	3½	1		5½	
35P70	1	3½	7						

1



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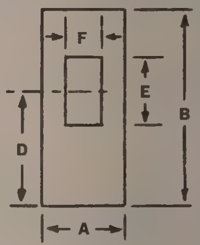

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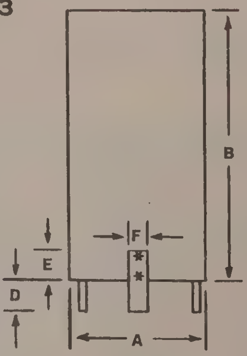

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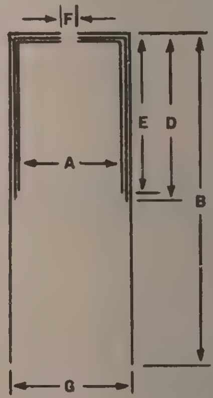


NOTES:

Unless otherwise noted:

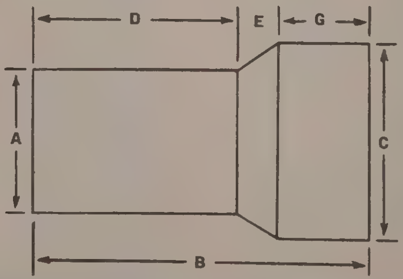
Dimensions — All ID

Material — .040″ Thick Co-Netic AA

Finish — Black baked enamel; texture outside, flat inside.

- a — Upper end closed.
- b — Dimensions D & E are measured from the outside of the outer shell. Dimension G is the maximum OD. Material — Three layers, separable; outer .049 Netic S3-6, two inner .031 Co-Netic AA Finish — Netic S3-6, black oxide; Co-Netic AA, none.
- c — Has three tabs, spaced 120° apart, to grip the metal collar of the PM tube.
- d — Material — .031″ Co-Netic AA.

6



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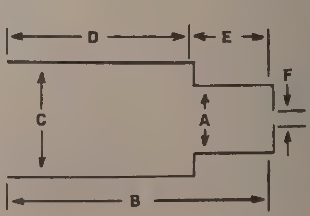

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MAGNETIC SHIELD DIVISION

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(312) 766-7800 TWX (910) 256-4815

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Lab Kit contains assorted CO-NETIC and NETIC shielding materials, double-faced pressure sensitive tape for shield construction and

20 millivolts/gauss A.C. magnetic pickup probe .... all for	$99.50
Probe only, 20 mV/gauss, axial	$49.50
Probe only, 60 mV/gauss, axial (shown) or transverse	$79.50

Request Lab Kit catalog LK-2, Probe catalog EP-3.

COMPONENT SHIELDS

Full time engineering staff available for consultation on shielding problems. Magnetic Shield Division is also the preferred source for custom shields to your specifications. Extensive standard and special tooling provide fast shipment. Call for design assistance or send print for prompt quotation.

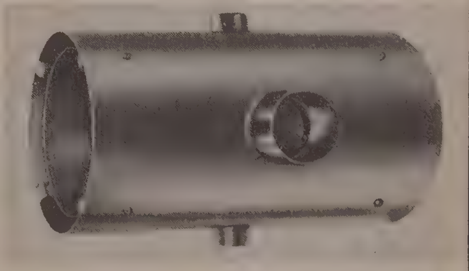
INTER-8 WEAVE CABLE

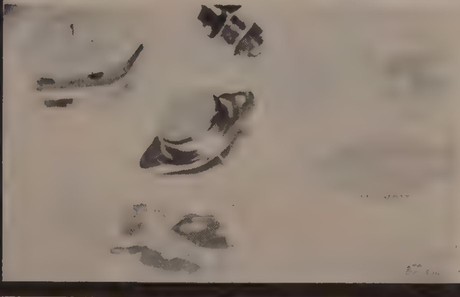
Our patented, woven configuration of four signal leads provides superior attenuation over a twisted pair. Attenuation improvement of unshielded INTER-8 WEAVE cable is −20 db for radiation and −12 db for pickup. An additional −20 db is obtained with our braided CO-NETIC jacket. Available in #24 AWG, unshielded or shielded. Request catalog WC-1

ZERO GAUSS CHAMBERS

Zero gauss chambers provide the ultimate in magnetic shielding. Magnetic Shield Division's general-purpose zero gauss chamber offers a significant reduction in both static and time varying fields found in laboratory and research environments. Degaussing coils can be furnished, and a Helmholtz coil system can be incorporated to generate known fields. Three concentrically spaced CO-NETIC chambers with closed ends and removable covers are provided. Placement of openings is optional. Attenuation in excess of −60 db is typical.

Request catalog ZG-2





MICA INSULATORS

Available in sheet, wafer, flakes and ground form. Clear, natural and built-up sheet stock thicknesses from .002" to .062". Save tooling expense on a wide variety of fabricated parts, including semi-conductor insulators in .002" to .003" thickness with .002" hole tolerances. Excellent heat resistance and high dielectric strength provide improved breakdown protection and increased efficiency of electronic components. Request catalog K-14.

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES

TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 84/85 EDITION OF EEM

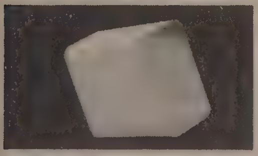
Abbreviations/Acronyms .... **1A**•1137, **1B**•1035, **2**•1014, **3**•1014
ASCII Code .... **3**•1103
Batteries, Product Selection Guide .... **3**•1399
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide .... **2**•1003
Capacitors, Basic Formulas .... **1A**•1093
Capacitors, Miniglossary .... **1A**•1069
Capacitors, Product Selection Guide .... **1A**•1003
Circuit Boards (Printed), Product Selection Guide .... **2**•1089
Coils, Chokes, & Inductors, Product Selection Guide .... **1A**•1219
Connectors, Miniglossary .... **2**•1264
Connectors, Terminals, & Sockets, Product Selection Guide .... **2**•1097
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide .... **1A**•1309
Delay Lines, Product Selection Guide .... **1A**•1445
Discrete Semiconductors, Product Selection Guide .... **1A**•2087
Displays, Readouts, Lamps, & Lights, Product Selection Guide .... **1B**•1021
EBCDIC Code .... **3**•1153
Encapsulation, Miniglossary .... **2**•1082
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide .... **2**•1801
Filters, Product Selection Guide .... **1A**•1577
Instruments, Graphic Recording, Product Selection Guide .... **3**•1381
Instruments, Panel Meters, Product Selection Guide .... **3**•1321
Instruments, Test & Measuring, Product Selection Guide .... **3**•1182
Interconnection Systems, Product Selection Guide .... **2**•1873
Keyboards & Keypads, Product Selection Guide .... **1B**•1759
Microwave Components, Product Selection Guide .... **1A**•1685
Military Qualified Products Lists .... **1B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide .... **1B**•1121
Opto Semiconductors, Miniglossary .... **1B**•1218
Oscilloscopes, Product Selection Guide .... **3**•1361
Panel Hardware, Product Selection Guide .... **2**•1757
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide .... **1A**•2017
Power Supplies, Miniglossary .... **3**•1455
Power Supplies, AC, Product Selection Guide .... **3**•1815
Power Supplies, DC, Product Selection Guide .... **3**•1439
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide .... **1B**•1255
Relay Contact Forms .... **1B**•1317
Relays, Electromechanical, Miniglossary .... **1•B**1292
Relays, Product Selection Guide .... **1B**•1289
Resistor Color Codes .... **1A**•1791
Resistors, Product Selection Guide .... **1A**•1789
Servo Components, Miniglossary .... **3**•1935
Solenoids, Product Selection Guide .... **1B**•1481
Switches, Product Selection Guide .... **1B**•1499
Thyristors/High Power Diodes, Miniglossary .... **1A**•1652
Transducers & Encoders, Product Selection Guide .... **1B**•1827
Transformers, Product Selection Guide .... **1A**•2115
Wire & Cable, Product Selection Guide .... **2**•1935

MAGNETIC SHIELDS and MμShield Materials

World's most complete source of custom shields for PM, Cathode Ray, and Storage Tubes; Seamless Tubing Shields; and Magnetic Shielding Materials

Custom Fabricated Shields

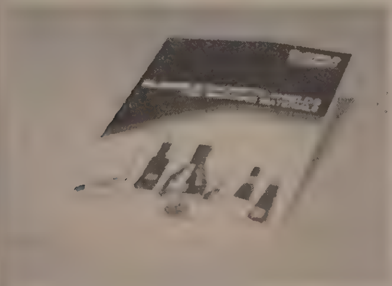
MμShield offers 35 years experience in the design and production of magnetic shields for research and industry. We can help you with prototype design and provide custom shields in any quantities. Metal forming and heat treating expertise insures shields of unsurpassed quality with guaranteed listed field reductions. Your inquiries are invited.



Seamless Tubing Shields

MμShield Company is the only source of **seamless** tubing magnetic shields for lasers, electron microscopes, cables, and seamless rectangular shields for bubble memory devices. Our special technology eliminates the non-uniformity of permeability from tubing shields having welded seams.

Send For Free Designer's Guide and MμShield Catalog



A "must have" magnetic shielding reference for the design engineer. Technical information, design aids, descriptions of shielding materials, and MμShield's special heat treating and processing services are presented.

HI-PERM SHIELDING MATERIALS
Sheets, Coils, Tubes in Stock

1. **High Saturation Shielding**
   Permeability range from 200 to 50,000. Saturation Point between 18,000 and 20,000 gauss.
2. **Medium Permeability Shielding**
   Normally used as a buffer. Permeability range from 12,500 to 150,000. Saturation Point 15,000 gauss approx.
3. **High Permeability Shielding**
   Permeability from 80,000, at B-40, to 350,000.
   Saturation Point 7,500 gauss approx.

All materials heat treated for maximum permeability.

COILS .002", .005", .010" thicknesses. 5½", 7", 15" widths.
Minimum order 2'.
SHEETS .015" to .060" thicknesses. Full sheet 30" x 10'.
Minimum order 30" x 36".
TUBES 0.10" to 4.50" I.D. Wall thicknesses from .010" to .060".
Any lengths to 20'.

Shielding Materials Kit
Contains assortment of materials for making experimental magnetic shields, and a shielding characteristics chart.

Heat Treating Service

Customers may use our Special Heat Treating and Processing Service to give their own fabrications optimum permeability and low shock characteristics. Permeability of MμShield materials is guaranteed.

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DIVISION OF BOMCO, INC.
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MALDEN, MA 02148-6890 617/321-4410

WIRE MESH SHIELDING MATERIAL

TECHNICAL DATA

TECKNIT is a reliable source for a wide variety of EMI shielding materials. One of the most popular is supplied in the form of wire mesh. Almost any metal which can be drawn into a wire can be used by TECKNIT to provide the most effective EMI shielding to fit a specific application.

STANDARD WIRE MATERIALS

"X" CODE	MATERIAL
1	Monel 0.0045" dia.
2	Aluminum Alloy 0.005" dia.
3	Brass, Silver-plated 0.0045" dia.
4	Tin-coated, Copper-clad steel 0.0045" dia.
5	Tin-plated Phosphor/Bronze 0.0045" dia.

TECKNIT wire shielding materials are produced in a variety of styles and configurations to meet any application. Some are wire mesh alone and others have elastomer cores and some are preformed gaskets. The variety is nearly infinite.

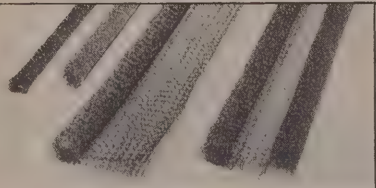
Many factors beyond price affect the design of EMI shielding. These include physical, environmental and electrical factors. If for example, an enclosure cover will be opened seldomly and the equipment is operating in air at room temperature, a simpler shield may suffice. But, if a physical seal is needed, another style of shield will be needed.

For sheet metal enclosures, round or finned strips are preferable to allow for minor misalignments. Rectangular strips are generally used for cast or machined enclosure covers. A double knitted shape compressed to 75% of original height provides the optimum shielding in most cases and is superior to a single shape. The single shape decreases shielding 5 to 10 dB.

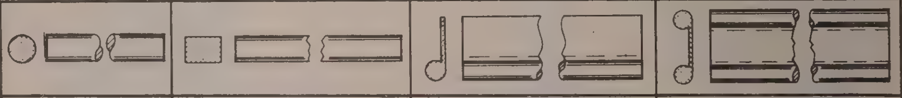
A most effective EMI shield can be applied to any wiring harness by using TECKNIT wire mesh strip which applies like tape over the harness to shield against static discharge and grounding.

Brief descriptions of a broad range of TECKNIT products appear on the following pages. For complete catalog data or technical assistance call TECKNIT. TECKNIT can custom design an effective EMI shielding product for any application.

WIRE MESH GASKET MATERIAL

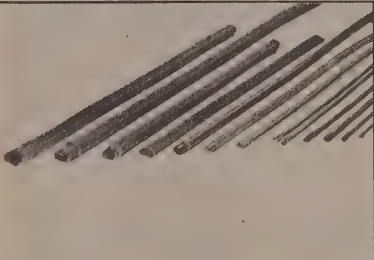


TECKNIT STRIPS provide Total Shielding Effectiveness up to 120 dB from 1.0 kHz to 10.0 GHz. Compression for round forms should be from 5 to 25 psi and 10 to 60 psi for rectangular shapes. A sampling of standard parts appears to the right. The "X" refers to metal used. See list in heading. Data sheet A-200.

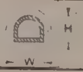


ROUND		RECTANGULAR			ROUND WITH FIN			DOUBLE CORE		
DIA."	PT #20-X	H"	W"	PT #20-X	DIA."	W"	PT #20-X	DIA."	W"	PT #20-X
0.063	1110	0.063	0.063	0105	0.063	0.375	2111	0.063	0.500	5103
0.094	1111	0.094	0.094	0107	0.094	0.375	2115	0.063	0.875	5107
0.125	1101	0.125	0.063	0104	0.125	0.375	2101	0.125	0.500	5108
0.156	1112	0.125	0.156	0102	0.125	0.750	2121	0.125	0.750	5109
0.188	1102	0.188	0.063	0111	0.156	0.500	2122	0.125	0.875	5110
0.250	1103	0.188	0.188	0114	0.156	0.750	2124	0.125	1.000	5111
0.313	1113	0.250	0.063	0115	0.188	0.438	2125	0.188	0.625	5112
0.375	1114	0.250	0.094	0116	0.188	0.875	2128	0.188	0.750	5113
0.438	1115	0.250	0.250	0119	0.250	1.000	2131	0.188	0.875	5114
0.500	1116	0.313	0.063	0120	0.313	0.625	2132	0.188	1.000	5115
		0.313	0.125	0122	0.313	0.875	2134	0.250	0.750	5116
		0.313	0.313	0125	0.375	0.625	2135	0.250	0.875	5117
		0.375	0.063	0126	0.375	1.000	2138	0.250	1.000	5118
		0.375	0.188	0129	0.438	1.000	2141	0.375	1.000	5119
		0.375	0.375	0131	0.500	1.000	2144	0.375	1.250	5120

WIRE MESH OVER ELASTOMER BASE



Regular wire mesh double-knitted over elastomer. Used for openings where compression set and low closing forces are primary considerations. Five standard shapes. A sampling is shown to the right. Data sheet A-210.

				NEOPRENE SPONGE CORE		SILICONE SPONGE CORE	
SHAPE	D"	W"	H"	SN/CU/FE	MONEL	SN/CU/FE	MONEL
RECT-ANGULAR		0.156	0.219	21-43915	21-13915	21-43948	21-13948
		0.156	0.281	21-43916	21-13916	21-43949	21-13949
		0.156	0.406	21-43917	21-13917	21-43950	21-13950
		0.219	0.219	21-43918	21-13918	21-43951	21-13951
		0.219	0.406	21-43920	21-13920	21-43953	21-13953
ROUND	0.094			NA	NA	21-00076	NA
	0.156			21-43900	21-13900	21-43933	21-13933
	0.219			21-43901	21-13901	21-43934	21-13934
	0.281			21-43902	21-13902	21-43935	21-13935
ROUND WITH FIN	0.156	0.531		21-43907	21-13907	21-43940	21-13940
	0.156	0.656		21-43908	21-13908	21-43941	21-13941
	0.156	0.781		21-43909	21-13909	21-43942	21-13942
	0.219	0.531		21-43910	21-13910	21-43943	21-13943
	0.219	0.656		21-43911	21-13911	21-43944	21-13944
	0.219	0.781		21-43912	21-13912	21-43945	21-13945
	0.281	0.781		21-43913	21-13913	21-43946	21-13946
	0.281	1.031		21-43914	21-13914	21-43947	21-13947
				HOLLOW CORE		HOLLOW CORE	
ROUND	0.531			NA	NA	21-00070	21-00072
	0.406			NA	NA	21-00071	21-00073
"D" 		0.531	0.531	NA	NA	21-00074	21-900075

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WIRE MESH SHIELDING MATERIAL

WIRE MESH SHIELDING TAPE

Applies to any harness just as plastic tape would. Provides an excellent shield against static or grounding charges with minimum bulk and excellent physical protection.

DESCRIPTION

Double layer strip of knitted tin-coated copper-clad steel wire. Provides more EMI shielding than any comparable material or tape.

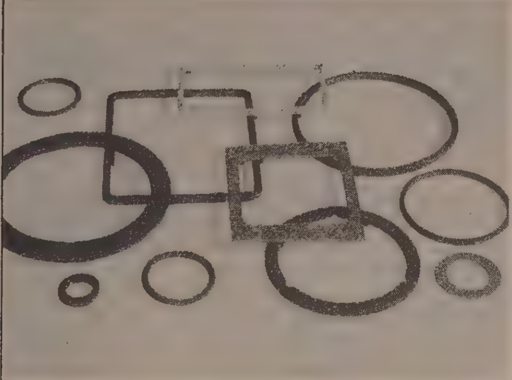
APPLICATIONS

Particularly effective as primary or secondary shielding for electrical or electronic cables and harnesses. Closely conforms to irregular shapes adding very little to overall diameter and weight.

SPECIFICATIONS

Supplied in 25 & 50 ft. or continuous spools from 1000 to 2500 ft. Standard width: 1.00.″ Thickness: 0.02″. Weight: 8.0 oz/100 ft. Pull strength: 50 lbs. Elongation: 100%. Necking: 47% at 25# (75% at 50#). Corrosion resistance and Solderability: Excellent. Data sheet A-230.

DIE-COMPRESSED MESH GASKETS



Made from compressed knitted wire with no joints or splices for the ultimate in EMI shielding. Smallest practical size is 3/16″ OD with 1/16″ ID.

DESCRIPTION

Manufactured to custom specifications. Most types are rings, but other shapes are available and can be supplied with mounting holes or recesses. The material is die-compressed from knitted wire to form desired shape.

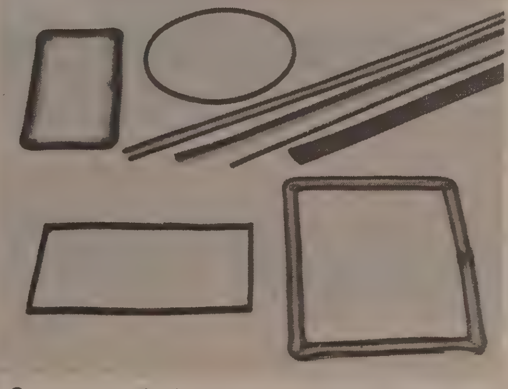
APPLICATIONS

For CATV, microwave ovens, waveguide flanges, shaft seals and the like. Any size providing maximum thickness does not exceed 0.063″ and gasket height is 0.25″ or less. Typically supplied as rings up to 3″ diameter. Max. OD: 12″.

SPECIFICATIONS

Available in four metals: Tin-plated Phosphor/Bronze (best performance), Monel, Silver-plated Brass & Tinned Copper-clad Steel. EMI effectiveness from 200 kHz to 10 GHz with a peak of 130+ dB at 1 MHz (3″ ring). Data sheet A-300.

CUSTOM MESH GASKETS



Custom made from any standard wire mesh shape and assembled to fit specific applications. May be mesh alone or in combination with other sealants.

DESCRIPTION

Made from any TECKNIT strip material with or without elastomer core (See previous page.) Available with fiberglass cores for microwave oven applications.

APPLICATIONS

Ultra-conformal nature of these gaskets allows them to be used wherever EMI shielding is a must. May be held in place by rivets, clips, spotwelds or adhesives.

SPECIFICATIONS

Shielding ability the same as the materials these gaskets are made from as detailed in previous products. For custom applications contact TECKNIT. Data sheet A-310.

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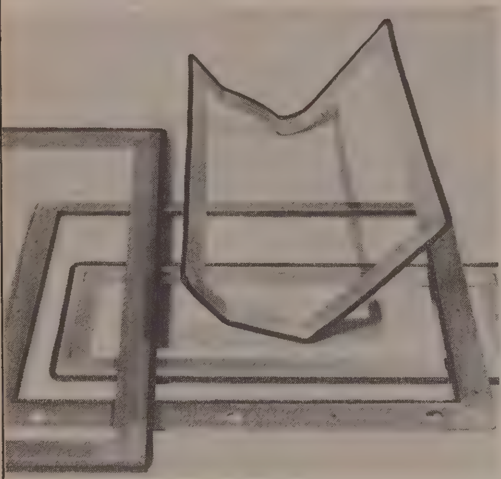
WIRE MESH SHIELDING MATERIAL

WIRE MESH WITH ELASTOMER SEAL

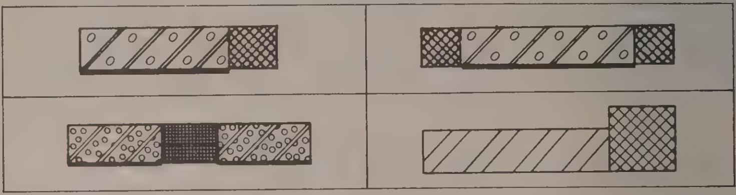


DESCRIPTION

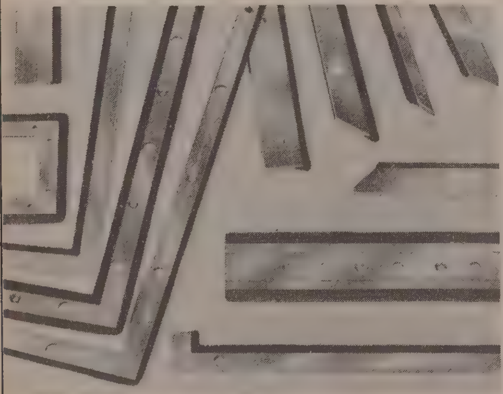
Regular wire mesh EMI gaskets in combination with elastomer gaskets for sealing against air or moisture leaks. The illustrations to the right are but four normal combinations. Others are available. Can be supplied with solid stops to prevent EMI seal flattening.

SPECIFICATIONS

Specifications follow those of the other TECKNIT EMI materials. Elastomer specs depend on type used. Solid silicone may be used over a range of −62° to +260°C. Ask TECKNIT for complete details and recommendations. Data sheet A-431.



WIRE MESH WITH ALUMINUM STRIP

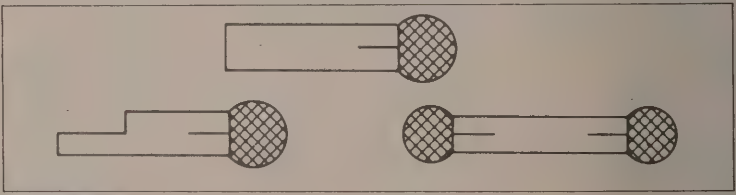


DESCRIPTION

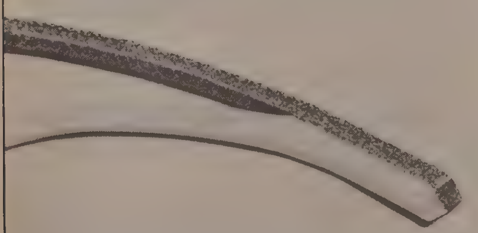
Available in lengths up to 15 feet or custom assembled. Regular TECKNIT wire mesh EMI gasket material applied to sold aluminum extrusions in virtually any imaginable shape. The drawings to the right show three normal shapes.

SPECIFICATIONS

Normally supplied with Monel or Tinned Copper-clad Steel wire mesh attached to 6063-T1 aluminum alloy extrusions. Neoprene and silicone sponge cores available. Temp. range with silicone sponge is −75° to +205°C. Data sheet A-510.



COMPOSITE WIRE MESH AND SILICONE RUBBER STRIP

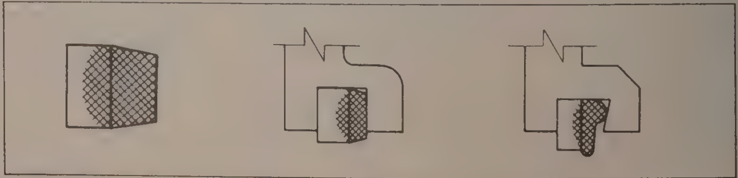


DESCRIPTION

Monel wire mesh partially imbedded in cured silicone rubber for both military and hi-rel commercial applications. Ideal for installation in cast or machined grooves in enclosures and/or doors. The small cross section saves space and weight. Drawings show three possible cross sections.

SPECIFICATIONS

Wire mesh is Monel per QQ-N-281, Class A or AMS-4730. Sealant is Silicone rubber ZZ-R-765, Class 2A, Grade 50. Color: Gray. Brittle point: −73°C. Composite peel strength: 5.25 N/cm (31 bf/in.) min. Temp.: −62° to +260°C. Data sheet A-800.



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METAL FIBERS AND SCREENS

WIRE SCREEN IMPREGNATED WITH ELASTOMER

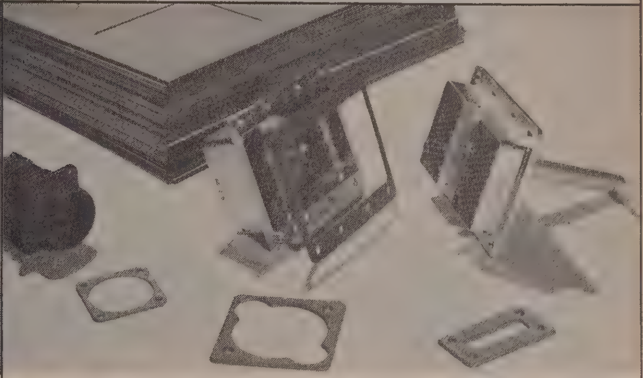
DESCRIPTION

TECKNIT DUOLASTIC solves the dual problem of sealing against liquids and providing an EMI shield. Made of woven aluminum wire screen impregnated with neoprene or silicone fluid sealing material. Both mating surfaces contact the screen as the sealant makes the joint pressure tight.

SPECIFICATIONS

Provides 75-100 dB shielding to 1 GHz. Oper.: −40° to +100°C (Neoprene), −62° to +260°C (Silicone). Thickness: 0.016″ & 0.020″. Max. Size: 8″ wide x 50′ long. Data sheet B-420.

THIN GASKETS OF SINTERED METAL FIBER



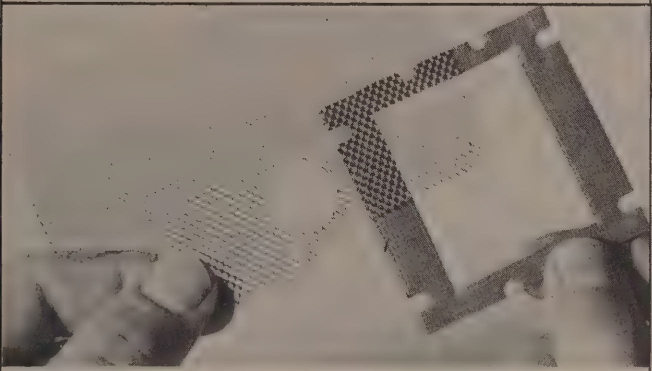
DESCRIPTION

Made of felt/metal fiber in sheet form. Unfilled for normal use. Filled with silicone elastomer to seal against fluids. Supplied in sheets 12″ x 15″ x 0.031″ or 0.063″ thick.

SPECIFICATIONS

Operate: −40° to +200°C. Shielding at 20 psi: (E field) 105 dB (10 kHz) to 65 dB (1.0 GHz), Max. 110 dB (1.0 MHz). Metal Fibers: Steel alloy 347 (Fed Std. 66). Data sheet B-450.

EXPANDED METAL GASKETS



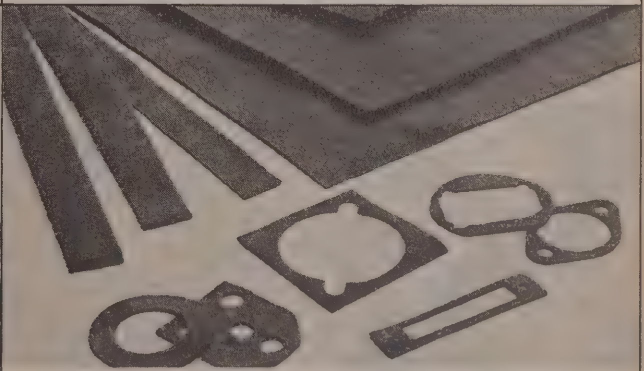
DESCRIPTION

Made in sheets up to 7.5″ wide x 10′ long of Monel or Aluminum. Plain metal for simple EMI shielding or impregnated with silicone for fluid sealing.

SPECIFICATIONS

Oper.: −62° to +260°C with silicone. Closing force 50 psi. Shield: 75 to 100 dB to 1.0 GHz. Two thicknesses: 0.051″ & 0.081″ filled or unfilled. Data sheet B-480.

NICKEL FIBER-FILLED SILICONE ELASTOMER



DESCRIPTION

CONMAX is a composite of randomly oriented nickel fibers uniformly dispersed in a silicone elastomer. May be die cut for EMI gaskets that shield to 135 dB (1 MHz) and withstand 150 psi closure force. Data sheet B-830.

SPECIFICATIONS

Oper.: −54° to +232°C.

Standard sheets

Size (in.)	Pt. No.
0.020 x 12 x 12	83-10106
0.030 x 12 x 18	83-10117
0.040 x 12 x 18	83-10118
0.060 x 12 x 18	83-10119
0.093 x 12 x 18	83-10120
0.125 x 12 x 18	83-10121

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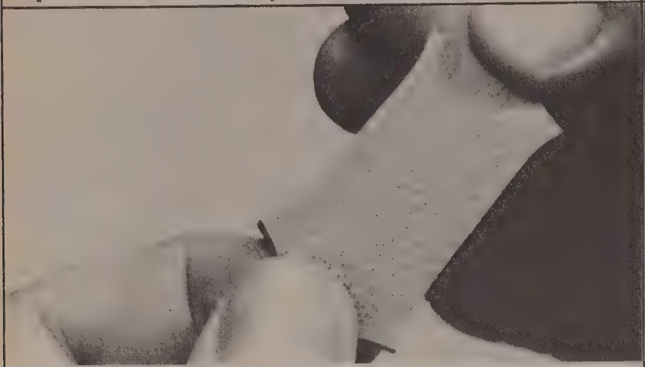
ORIENTED WIRE SHIELDING MATERIAL

IN SILICONE RUBBER (ELASTOMET®)



DESCRIPTION

Monel or Aluminum wires oriented, embedded and bonded in a solid silicone elastomer to provide excellent EMI shielding and sealing in strips or sheets (up to 9″ x 9″).

SPECIFICATIONS

Std. strips 3″ wide up to 11′ long. Wires are convoluted to provide springing action and distributed 960/sq. in. Oper.: −55° to +200°C. Data sheet C-820.

3″ x 11′ strips thick (in.)	Pt. No. 82-	3″ x 11′ strips thick (in.)	Pt. No. 82-
0.030	55303	0.125	55312
0.045	55304	0.156	55315
0.063	55306	0.187	55318
0.093	55309	0.250	55325

IN SOFT SILICONE SPONGE (ELASTOFOAM®)

DESCRIPTION

Monel or Aluminum wires oriented, embedded and bonded in a soft closed cell silicone sponge elastomer. For closures with irregular surfaces and/or frequent access. In strips or die cut gaskets.

SPECIFICATIONS

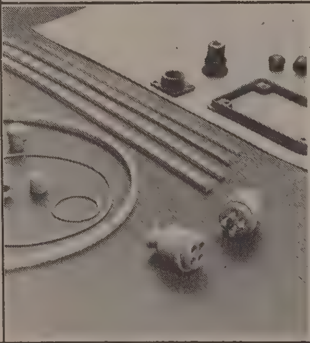
Oper.: −55° to +170°C. Thickness (in.): .062 to .500 Width (in.): .125 to 1.000. Convoluted wire to provide spring action 960/sq. in. Max. compression: 20% (Mechanical stops recommended to prevent overcompression. Data sheet C-880.

CONDUCTIVE ELASTOMERS

EXTRUDED SILVER-FILLED SILICONE

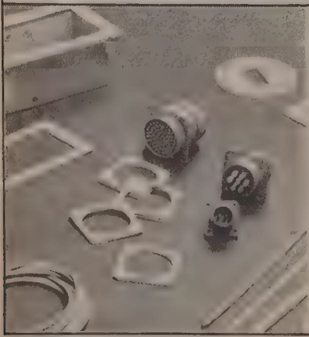
CONSIL-E is a solid continuously extruded silver plated particle filled silicone elastomer material that provides excellent EMI shielding in six standard forms: solid round, tubular, solid "D", finned tubular, solid "U" and solid rectangular in strips to specification. Operate from −51° to +177°C. Data sheet D-180.

MOLDED SILVER-FILLED SILICONE



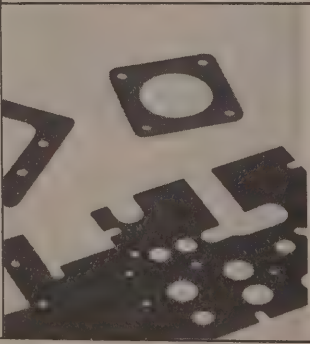
CONSIL-II is a solid silicone elastomer filled with silver coated particles providing high conductivity and broadband shielding (>75 dB). Available in strips, sheets, molded shapes and die cut flat gaskets. Operate from −51° to +177°C. Maximum length for strips is 18″. Data sheet D-840.

PURE SILVER-FILLED SILICONE



CONSIL-R is similar to CONSIL-E & -II except the particles are pure silver for minimum resistance (0.006 Ohm/cm). Available in extrusions or as strips, sheets, molded shapes and die cut gaskets. Operate from −51° to +177°C. Data sheet D-850.

CARBON-FILLED SILICONE



SC-CONSIL provides similar performance to other TECKNIT CONSIL products at lower cost. It is available in strips, sheets (up to 12″ x 18″), extrusions and as molded parts. Particularly suitable as door gaskets for microwave ovens in extruded form. Operate from −54° to +227°C Data sheet D-860.

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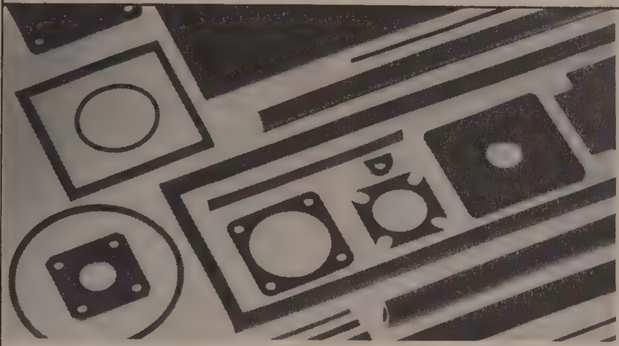
SILVER-COPPER FILLED SILICONE ELASTOMER

CONSIL-C



DESCRIPTION

A silicone elastomer filled with silver plated copper particles to provide broadband shielding effectiveness with excellent moisture sealing for enclosure joints and seams. CONSIL-C is available in sheets up to 12" x 18" and die cut flat gaskets. Standard rectangular, round and solid "D" shapes are available in a wide range of sizes. Hollow strip forms are available on special order.

APPLICATION

CONSIL-C is used for seals for missiles, missile control systems, waveguides and connectors. Recommended compression is 5% at 50 to 200 psi closure force depending on cross section. Typical performance at 10 GHz is 90 dB with a 100 pound closure force. The material is gray with a smooth texture. Data sheet D-870.

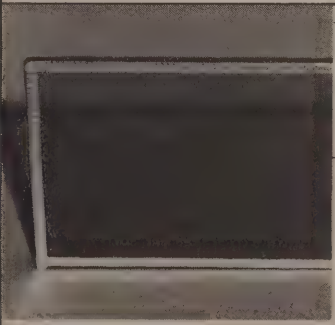
SPECIFICATIONS

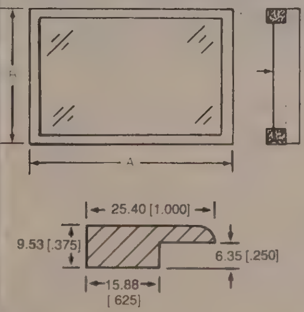
PERFORMANCE CHARACTERISTICS

	CONSIL-C COMPOUND			
	871	872	873	874
Hardness, Shore A Durometer ASTM D-2240	63 ±5	70 ±5	80 ±5	70 ±5
Volume Resitivity (maximum) QA-1039	.004 Ohm-cm	.004 Ohm-cm	.009 Ohm-cm	.004 Ohm-cm
Specific Gravity ASTM D-297	3.65 ±.15	3.65 ±.15	3.35 ±.15	3.65 ±.15
Tensile Strength (minimum) ASTM D-412	1.35 MPa [200 PSI]	1.87 MPa [275 PPI]	3.45 MPa [500 PPI]	1.55 MPa [225 PSI]
Tear Strength (minimum) ASTM D-624	6.3 kN/m [36 PPI]	6.3 kN/m [36 PSI]	6.3 kN/m [36 PSI]	4.2 kN/m [24 PPI]
Elongation to Break (minimum) ASTM D-412	200%	200%	60%	120%
Temperature Range	−85° to +125°C	−85° to +125°C	−55° to +125°C	−85° to +125°C
Thermal Conductivity Btu-in/hr-ft² — °F COLORA Test Method	16	16	12	16
Total Shielding Effectiveness				
H-Field (10 kHz to 10 MHz)	65 dB	—	—	70 dB
E-Field (1 MHz to 100 MHz)	125 dB	—	—	130 dB
Plane Wave (1 GHz to 10 GHz)	100 dB	—	—	100 dB
Form Available	Molded Sheets and Strips	Molded Sheets and Strips	Molded Sheets and Strips	Extruded Strips

HIGH PERFORMANCE EMC WINDOWS

TECKSHIELD-F





DESCRIPTION

These windows provide optimum optical transmission and excellent EMI shielding in severe interference environments. They are used in "TEMPEST" Visual Display Units (VDU) as well as in printers and enclosures requiring large viewing apertures. A special blackened mesh is laminated between two sheets of flat glass. The edge termination is complete around the perimeter connecting the mesh to the outer TECKNIT DUOGASKET. Full lamination prevents moisture intrusion and improves optical performance. Options include an outer aluminum frame, polarizers, glare reducers and color filters. Maximum size is 14" x 18" with a standard thickness of 0.205". Data sheet PIN-0005.

SPECIFICATIONS

MATERIAL DESCRIPTION

Standard Optical Medium	Glass per Federal Specification DD-G-451, Type I, Class I
Optical Medium Options	
Color	Contact factory.
Surface Finish	P-50, recommended viewing distance 1.25 cm [½ inch] or less P-85, recommended viewing distance 2.5 cm [1 inch] or less. High efficiency coating (less than 1% reflection).
Standard Mesh Screen	Screen mesh per TECKNIT® specification 92-00580, blackened
Open Area	60%
Surface Resistivity (Maximum)	20 milliohms per square
Optional Mesh Screen	Screen mesh per TECKNIT® specification 92-00583, blackened
Open Area	45%
Surface Resistivity (Maximum)	10 milliohms per square
Standard Interface Gasket	Duogasket. **TECKNIT** P/N 43-63985
Optional Frame	Aluminum alloy 6063-T6 per QQ-A-200/9, chromate conversion coated per MIL-C-5541, class 1. Painted when specified.

PERFORMANCE CHARACTERISTICS

Shielding Effectiveness Minimum)	Magnetic	10 kHz	60 dB
	Electric	100 MHz	120 dB
	Plane Wave	1 GHz	60 dB
Temperature	−55°C to 80°C		

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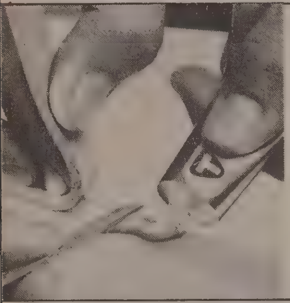
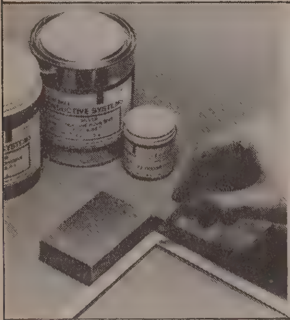
CONDUCTIVE SYSTEMS

SILVER-FILLED SILICONE RTV



The CON/RTV-I system is a pure silver loaded, one component RTV silicone adhesive/sealant. Ready for use without mixing. Cures quickly (Tack free 2 min.) (Handle in 2 hrs.) at room temperature to form seal or bond gaskets to surface. Supplied in 2 oz. tube. Shelf life sealed, 4 mos. Oper.: −60° to +175°C. Resistivity: 0.01 Ohm/cm. Data sheet G-721.

SILVER, NICKEL OR CARBON FILLED

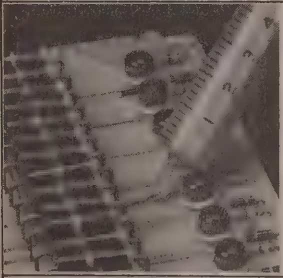


Two part RTV adhesive/sealants in choice of: silver plated, nickel or carbon particles dispersed in a silicone rubber medium which cures to 80% full strength at room temperature in 24 hrs. In 1, 8 or 16 oz. packages with a shelf life as sealed of 6 mos. and a pot life (covered) of 4 hrs. Store at +5° to +30°C. Resistivity (Ohm/cm): Silver (0.01), Nickel (0.10), Carbon (100). Data sheet G-722.

SILVER-FILLED FLEXIBLE RESIN

One part silver/acetate or silver/silicone caulking material with silver coated particles for best conductivity. Better than any carbon or copper system at lower cost. Apply silver/acetate with brush, silver silicone with spatula or caulking gun. Supplied in 1 lb. packages. Set up: 4 hrs. Tack free: 15 min. Data Sheet G-723.

SILVER-FILLED EPOXY

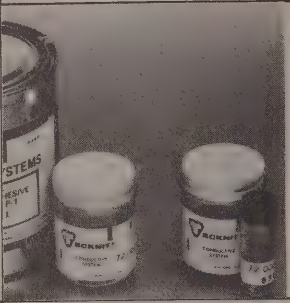


Two part system of epoxy resin and hardener. Choice of flexible cure with silver plated particles or rigid cure with pure silver particles. Low resistivity: 0.02 Ohm/cm (Flex.), .001 Ohm/cm (Rigid). Cure time: Room 24 hrs.; +99°C 30 min. Light creamy paste. Apply with caulking gun. Ideal for waveguides. Data sheet G-724.

SILVER-FILLED SILICONE GREASE

One part system for use on high current sliding electrical contacts. Supplied in handy tubes or jar with indefinite shelf life. Operate: −54° to +232°C with a drop point of +220°C (min.). Prevents contact corrosion. Use on ball & socket joints of insulators to prevent EMI. Data sheet G-725.

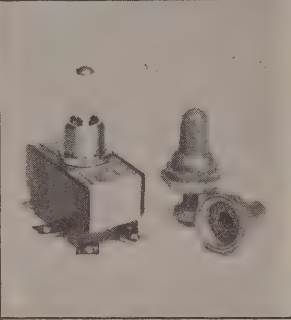
CONDUCTIVE ACRYLIC & LATEX



Provides excellent EMI shielding with attractive finish. Acrylics are sprayable in variety of colors: Silver-gray, beige, gray & black. Latex (beige) can be applied with spray, dip or brush. Available as beige emulsion. All 4H pencil hard. Translucent insulating dielectric sprayable overcoat also available. Data sheet G-730.

SHIELDING COMPONENTS

EMC SWITCH SEALS

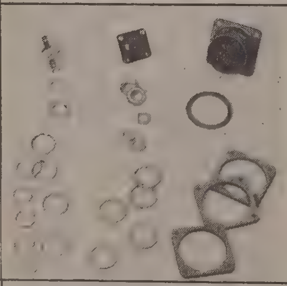


Provides positive physical and EMI seal for standard toggle switches. Replaces standard mounting hardware. Monel wire mesh shield with silicone rubber boot in 3 standard sizes. Also available as shaft seal for ⅛″ & ¼″ shafts. Data sheet H-902.

FUZZ BUTTON

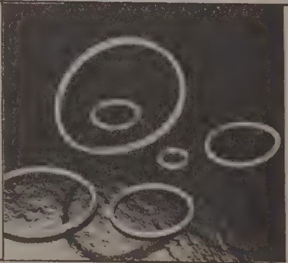
Resilient, low-impedance, multipath contact elements for use as connectors in switches, earphones and the like. Available in diameters from .030″ to .745″ and heights from .030″ to .750″ in a wide choice of materials such as gold plated copper/silver, monel, silver plated brass, etc. Resistivity 5-7 Ohms when loaded. Data sheet H-920.

EMI CONNECTOR GASKETS



Standard EMI shielding gaskets to fit most round (flanged) MIL and commercial connectors. Available in all regular TECKNIT EMI gasket materials such as DUOLASTIC, TECKFELT, etc. Complete list of all standard sizes and types is in data sheet H-903.

CONDUCTIVE "O-SEALS"



Resilient rings of CONSIL-II silicone elastomer in round or rectangular cross section. Combine high electrical conductivity with pressure seal .For use only on static seals (No relative motion). Used on MIL and commercial connector shells and as replacement for MIL MS-29513 items. Data sheet H-904.

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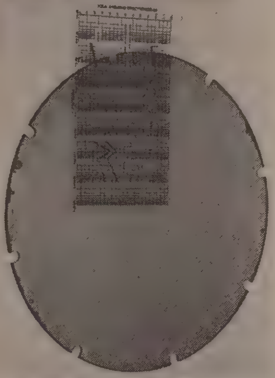
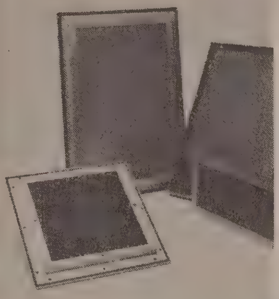
SHIELDING WINDOWS AND VENTS

ELECTRICALLY CONDUCTIVE & TRANSPARENT



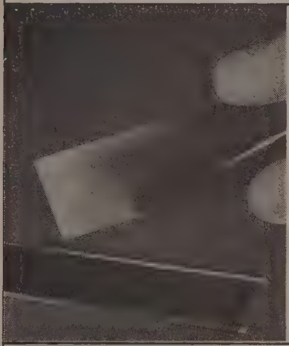
For use in applications requiring EMI shielding in flat or curved surfaces up to 24″ x 30″. For CRT, instrument and viewing use. Substrate may be any transparent material such as glass or plastic. The ECTC coating prevents EMI energy from entering or leaving the device. Standard mounting is by means of an aluminum frame for continuity. Data sheet EMC-700.

ALUMINUM HONEYCOMB AIR VENT PANELS



TECKCELL panels provide the maximum EMI shielding with minimum air flow restriction and at lowest possible cost because of standardized construction. Available in a wide variety of standard sizes to fit openings from 2″ x 2″ to 18″ x 18″. A chromate finish is standard on the aluminum frames. Many custom sizes can be supplied. Available with rainshield and foam filter. Data sheet F-600.

TRANSPARENT CONDUCTIVE COATING ON POLYESTER FILM



TECKFILM. For application to any transparent panel in sizes up to 24″ x 24″. Only .005″ thick and colorless. Vacuum deposited gold with a protective ceramic overcoat. Haze is 5% or less. Shielding effectiveness is 140 dB at 1 kHz decreasing to 25 dB at 10 GHz. Easy to apply to any clean flat surface. Data sheet E-701.

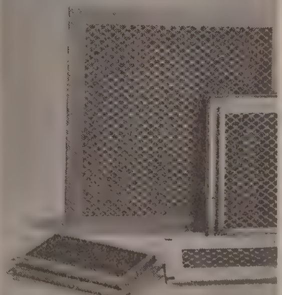
STEEL HONEYCOMB AIR VENT PANELS

These TECKCELL panels provide excellent magnetic shielding but at a reduced EMI capability compared to aluminum TECKCELL. Tin plating provides better EMI shielding, but cadmium plating is also available. Standard sizes fit openings from 2″ x 2″ to 18″ x 18″. Custom sizes, rainshields and foam filters are available. Data sheet F-620.

LAMINATED SHIELDING SCREEN

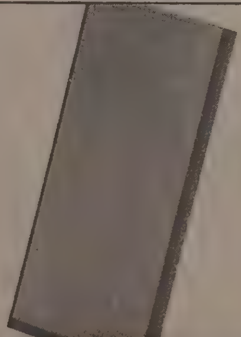
Laminate consists of ultrafine Monel wire knitted mesh between transparent acrylic sheets of any desired color and up to any practical size. An EMI gasket contacts the inner mesh at the outer edges of the panel perimeter to provide complete current path. Available with polarizers and nonglare surfaces. Effective from 1 kHz to 100 MHz. Data sheet E-710.

DUST ARRESTING ALUMINUM AIR VENT PANELS



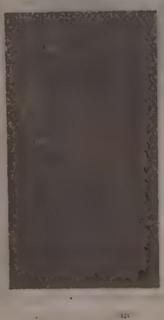
TECKSCREEN panels have a permanent all-metal filter medium, frame and interface EMI gasket. Both faces of the panel have a protective expanded metal grille. Basic construction is aluminum with a chromate finish. Sizes same as standard TECKCELL vents. May be used with most standard cooling fans. Data sheet F-630.

CAST EMC WINDOWS



Custom designed cast acrylic windows in any color with fine wire knitted mesh EMI shielding cast in place. Thicknesses: .062″ & .125″. Sizes up to 18″ x 22″. Mesh is Tinned copper-clad steel or monel. An outer EMI seal must be used to provide current path. Effective from 1 kHz to 10 GHz. Data sheet E-711.

THIN DUST/EMI FILTER PANELS



TECKAIRE® panels are ultra thin and feature a viscous (water soluble hydrocarbon oil) coating for trapping dust. Frame is only .188″ thick including EMI gasket. May be EMI self-gasketed for minimum surface projection (.180″) with decreased opening size. All made to custom requirements with excellent EMI shielding. Data sheet F-640.

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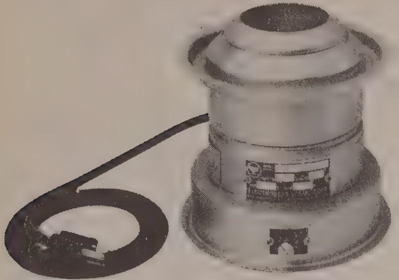
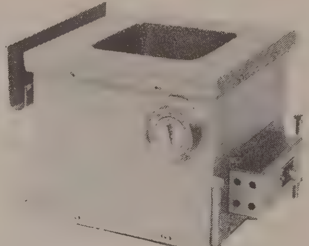
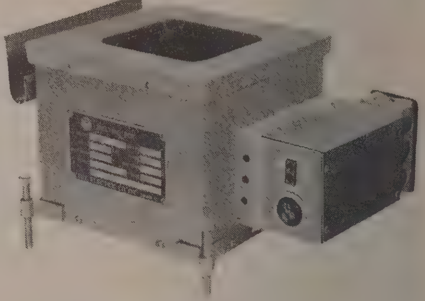
DEE ® SOLDER POTS

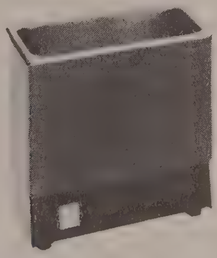
• Round, square and rectangular models from the most reliable name in solder pots — DEE Electric (an Electrovert Company) • Rugged and dependable for heavy-duty uses • High thermal conductivity guarantees rapid heating, uniform solder bath temperature, and stable temperature control • Interior of heavy-duty cast iron crucible is smooth and free of all welds, heating elements and thermocouples • All pots are fully insulated. A very low watt density ceramic heating element encircles the crucible • Capacities from 1 lb. 4 oz. to 2 lbs. 12 oz. • Heating elements and other Dee manufactured components are warranteed for 18 months.





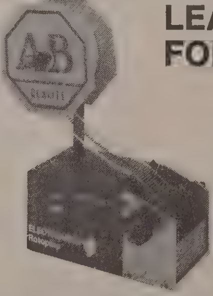


ULTRASONIC CLEANERS



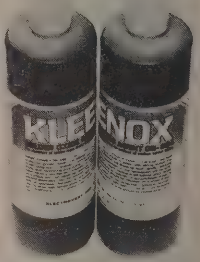
• Durable and reliable with self-contained generator and transducer elements bonded to bottom of stainless steel tank • ½, ¾, 1 and 1½ gal. capacity models with accessories • Solid state circuitry provides stable temperature in cleaning tank and stable output frequency that automatically and continually adjust to changes in solution level • Available 110/120 and 220/240 VAC, 50/60 Hz • Automatic timers and heaters available.

LEAD FORMING



• Rotoprep™ is a high speed unit for ⅛ to ½ watt size axial components . . . on tape and reel, or with optional attachments, card feed • Speed control can be adjusted from 0 to 33,000 parts per hour • Can be easily and quickly adjusted • To set up production run, simply loosen 2 set screws and manually position ratchets and tape quides. • Electrically operated from any standard 115 VAC, 50/60 Hz outlets. 230 VAC, 50/60 Hz optional.

KLEENOX® SOLDER RECOVERING AGENT



• A liquid solder-oxide reducing agent makes possible the recovery of 60 to 80% pure solder from molten baths • Applied after each 8 hour shift • One tablespoon will activate the bath within 5 minutes, separating the solder from the dross.

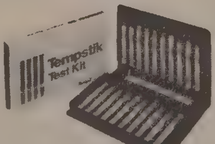
LEV CHEK SOLDERWAVE GAUGE

• A simple, effective diagnostic tool for monitoring flux coverage, wave shape, wave turbulence and conveyor leveling in wave solder systems • Permits "topside" observation of "wave-to-board" contact.

DESOLDERING TOOL

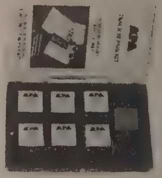
• Offers full industrial performance at an "economy" price • Features all metal precision construction • Suction is precisely regulated for efficient solder removal without damage to delicate circuitry • Self-cleaning.

TEMPIL STICK KIT



• An invaluable tool for accurate temperature measurements • To use, simply mark surface to be heated. Mark will melt when specified temperature is reached • Wide variety of temperature ratings is available.

PCB REPAIR KIT



• Repair PCB circuitry quickly, easily • Includes everything you need to repair or replace PCB circuitry, including plated through-holes • Complete ready-to-use with circuitry, tools, materials and instruction manual.

SOLDER SERVICE KITS*

1. Flux Hydrometer: for testing flux specific gravity from 0.800 to 1.000 in 0.005 graduations **2.** Illuminating Magnifying Lens: 5X power; with batteries and carrying case **3.** Thermometer: (8″) calibrated from —150 to 1000°F. **4.** Tempil Stik: rated at 175°F. **5.** Surface Pyrometer: for spot checking surface preheat. Rated 50 to 1000°F. **6.** 18″ Titanium Board Stiffener: to support large PC boards during wavesoldering. Prevents warping **7.** Safety Glasses: laminated safety eyeglasses **8.** Insulated Gloves: 1 pair, heavy duty **9.** Wavesolder Tool Kit: Allen key set (5/64″ to 1/4″); open end wrench (5/16″ and 3/8″); lug wrench for solder drain valve (Electrovert Systems); stainless steel spatula; and nozzle scraper.

* Items 1 through 9 sold together as a kit, or separately. Hydrometer tips, floats, and bulbs also sold separately.

NEED MORE INFORMATION?

USE ONE OF THE NEW

EEMEDIATE ACTION CARDS

INSIDE THE BACK COVER OF
VOLUMES 1A, 1B & 2

SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
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QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES

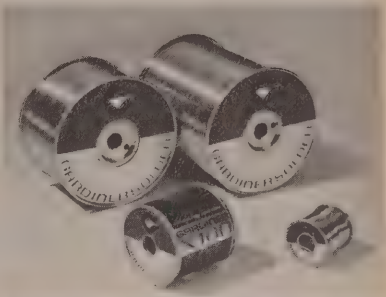
TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 84/85 EDITION OF EEM

Abbreviations/Acronyms ..... **1A**•1137, **1B**•1035, **2**•1014, **3**•1014
ASCII Code ..... **3**•1103
Batteries, Product Selection Guide ..... **3**•1399
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide ..... **2**•1003
Capacitors, Basic Formulas ..... **1A**•1093
Capacitors, Miniglossary ..... **1A**•1069
Capacitors, Product Selection Guide ..... **1A**•1003
Circuit Boards (Printed), Product Selection Guide ..... **2**•1089
Coils, Chokes, & Inductors, Product Selection Guide ..... **1A**•1219
Connectors, Miniglossary ..... **2**•1264
Connectors, Terminals, & Sockets, Product Selection Guide ..... **2**•1097
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide ..... **1A**•1309
Delay Lines, Product Selection Guide ..... **1A**•1445
Discrete Semiconductors, Product Selection Guide ..... **1A**•2087
Displays, Readouts, Lamps, & Lights, Product Selection Guide ..... **1B**•1021
EBCDIC Code ..... **3**•1153
Encapsulation, Miniglossary ..... **2**•1082
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide ..... **2**•1801
Filters, Product Selection Guide ..... **1A**•1577
Instruments, Graphic Recording, Product Selection Guide ..... **3**•1381
Instruments, Panel Meters, Product Selection Guide ..... **3**•1321
Instruments, Test & Measuring, Product Selection Guide ..... **3**•1182
Interconnection Systems, Product Selection Guide ..... **2**•1873
Keyboards & Keypads, Product Selection Guide ..... **1B**•1759
Microwave Components, Product Selection Guide ..... **1A**•1685
Military Qualified Products Lists ..... **1B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide ..... **1B**•1121
Opto Semiconductors, Miniglossary ..... **1B**•1218
Oscilloscopes, Product Selection Guide ..... **3**•1361
Panel Hardware, Product Selection Guide ..... **2**•1757
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide ..... **1A**•2017
Power Supplies, Miniglossary ..... **3**•1455
Power Supplies, AC, Product Selection Guide ..... **3**•1815
Power Supplies, DC, Product Selection Guide ..... **3**•1439
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide ..... **1B**•1255
Relay Contact Forms ..... **1B**•1317
Relays, Electromechanical, Miniglossary ..... **1**•**B**1292
Relays, Product Selection Guide ..... **1B**•1289
Resistor Color Codes ..... **1A**•1791
Resistors, Product Selection Guide ..... **1A**•1789
Servo Components, Miniglossary ..... **3**•1935
Solenoids, Product Selection Guide ..... **1B**•1481
Switches, Product Selection Guide ..... **1B**•1499
Thyristors/High Power Diodes, Miniglossary ..... **1A**•1652
Transducers & Encoders, Product Selection Guide ..... **1B**•1827
Transformers, Product Selection Guide ..... **1A**•2115
Wire & Cable, Product Selection Guide ..... **2**•1935

GARDINER SOLDERING PRODUCTS

GARDINER SOLID & FLUX CORED WIRE SOLDERS



Solid Wire Solder: Uniform in diameter and alloy and are equal to flux cored solders in purity and quality. All standard diameters.
WW-300 Rosin Cored Wire Solder: Available in any solder alloy, many wire sizes and flux core percentages. Conforms to Fed. Spec.: QQ-S-571, Type R.
XM-200 Mildly Activated Rosin Cored Wire Solder: For use with easily solderable metals whose surface tarnish is not easily removed. Meets Fed. Spec.: QQ-S-571, Type RMA.
X-45 Highly Active Rosin Cored Wire Solder: Meets Fed. Spec.: QQ-S-571, Type RA.
X-55 Activated Rosin Cored Wire Solder: For super-critical electronic circuits. Activator leaves only pure rosin residue. Conforms to Fed. Spec.: QQ-S-571, Type RA.

X-90 Super Activated Rosin Cored Wire Solder: For use when activated Rosins fail to remove heavily oxided films on metals.

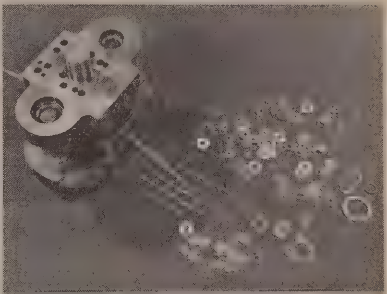
OR-300 Organic Flux Cored Wire Solder: Developed to overcome problems inherent with difficult-to-solder metals.

OR-350 Organic Flux Cored Wire Solder (Water Soluble Residues)- A halide-free solid flux core developed for soldering electronic devices compatible with water.

OR-400 Organic Flux Cored Wire Solder: For difficult-to-solder metals which cannot be soldered with activated Rosin fluxes.

OR-500 Organic Flux Cored Wire Solder: For difficult-to-solder parts due to mass or a heavily oxidized coating.

X-100 Activated Rosin Cored Wire Solder: Conforms to Fed. Spec.: QQ-S-571, Type RA.
Mildly Activated and Activated Solder Pastes: Available in any solder alloy and in particle sizes from 200 to 325 mesh, Mildly Activated and Activated Rosin Flux Pastes adhere to Fed. Spec.: QQ-S-571, Type RMA or Type RA.
GSP-5800 Organic and GSP-6800 Inorganic Chloride Solder Pastes: Available in all solder alloys and in any particle sizes from 200 to 325 mesh. Flux residues are water-soluble.



GARDINER SOLDER PREFORMS

Solid or Flux Cored Solder Preforms: Rings, washers, discs, sleeves, pellets or segments in any alloy, flux type and percentage, for reliable, automated electronic soldering.

GARDINER PURE-A-LOY BAR SOLDERS & ANODES

PURE-A-LOY Cast and Extruded Bar Solders: Purest, electronic solder commercially available. Exceeds QQ-S-571 and ASTM specifications.
PURE-A-LOY Extruded Anodes: Advantages: 1. Uniform oxidation and maximum life anodes. 2. Faster plating. 3. Less sludging and necking. 4. Bright, dense and uniform plated coating.

GARDINER FLUXES & RELATED PRODUCTS

Series GF-1000 Water-white Rosin Flux: Removable residue. Meets Mil-F-14256, Type R.
Series GF-1100 Water-white Rosin Flux: Same as GF-1000 but much faster drying action.
Series GF-1200 Mildly Activated Rosin Flux: Conforms to Mil-F-14256, Type RMA.
Series GF-1400 Super Mildly Activated Rosin Flux: Conforms to MIL-F-14256, Type RMA while nearly matching power of Mil-approved RA flux.
Series GF-2000 Activated Rosin Flux: Highly stable flux having an excellent wetting action.
Series GF-2100 Activated Rosin Flux: For foaming application in automated soldering.
Series GF-2200 Activated Rosin Flux: Designed for the very-hard-to-handle soldering jobs.
Series GF-2300 Activated Rosin Flux: For automatic soldering.
Series GF-2400 Mildly Activated Non-Halogen Rosin Flux: Designed for foaming application.
Series GF-2500 Activated Rosin Flux: Rosin Flux used in Gardiner X-45 cored wire solder.
Series GF-2600 Activated Rosin Foam Flux: Meets Federal Specification Mil-F-14256.
Series GF-2700 Activated Rosin Liquid Flux: Meets the Mil-F-14256 amendment of 1975.
Series GF-2800 Activated Rosin Flux: Conforms to QQ-S-571, amendment of June 1975.
Series GF-5100 Aquasolv Organic Flux: Water soluble, easily removable.
Series GF-5300 Aquasolv Organic Flux: For automated soldering of printed circuit assemblies and printed circuit cards using the Hydro-squeegee Process. Residues are completely removed.
Series GF-5400 Aquasolv Organic Flux: For electronic components compatible with water.
Series GF-5500 Aquasolv Organic Flux: For reflow soldering of plated circuit boards.
Series GF-8000 Surf-Klean Copper Cleaner: For removal of thick tarnish films.
Series GF-8500 Surf-Seal: For printed circuit boards during extended storage.
GFT-3000 Rosin Flux Thinner: For GF-2000 Activated Rosin Flux.
GFT-3100 Rosin Flux Thinner: For GF-1000 WW Rosin Flux.
GFT-3200 Rosin Flux Thinner: For organic fluxes GF-5132 and GF-5425.
GFT-3300 Rosin Flux Thinner: For GF-2100F.
GFT-3400 Rosin Flux Thinner: For GF-2300 and GF-2400 Activated Rosin Fluxes.
GFT-3500 Rosin Flux Thinner: For GF-2400F and GF-2600F Activated Rosin Fluxes.
GFT-3600 Rosin Flux Thinner: For GF-1100 and GF-2200.
GFT-3700 Rosin Flux Thinner: For GF-2700F.
GFT-3800 Rosin Flux Thinner: For GF-2200.
GFT-3900 Rosin Flux Thinner: For GF-2800F.
GFR-4000 Rosin Flux Remover: May be used in a vapor degreaser.
GFR-4060 Rosin Flux Remover: Similar to 4000 but a little more active.
GFR-4100 Rosin Flux Remover: Dissolves rosin residues, ionic soils, greases and oils.
GFR-4300 Rosin Flux Remover: For cleaning polycarbonate resins.
GFR-4420 Rosin Flux Remover: Dissolves rosin residues, ionic soils, greases and oils.

Gardiner Solder Analysis Program

Analysis of solders-in-use is necessary for avoiding problems of tin depletion and foreign metal contamination.

Gardiner Test Laboratory now offers a selection of three groups of solder analyses. Each group is designed specifically to control the level of soluble metals introduced during the soldering process. Issued to the customer with each analysis is a typed laboratory report with a brief assessment of contamination.

GARDINER SOLDER COMPANY • DIVISION GARDINER METAL COMPANY
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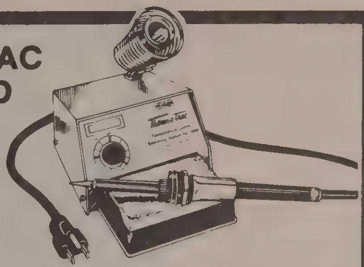
50 YEARS

HEXACON

the most respected name in soldering

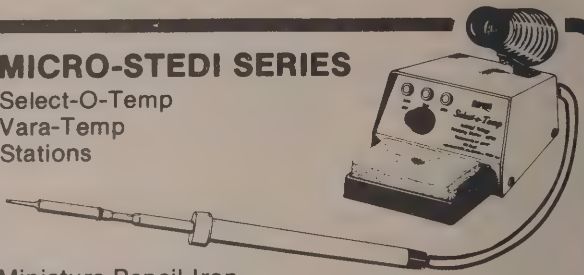
THERM-O-TRAC CONTROLLED HEAT SOLDERING STATIONS

Original Electronic Switching



MICRO-STEDI SERIES

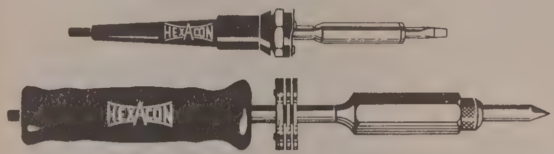
Select-O-Temp
Vara-Temp
Stations



Miniature Pencil Iron

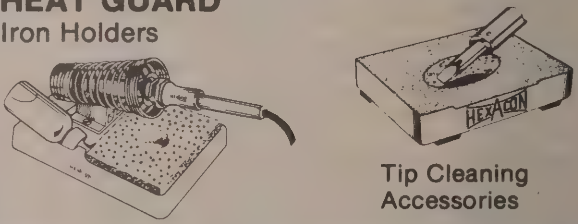
HEXACON IRONS

Most Dependable and Cost Effective



HEAT GUARD

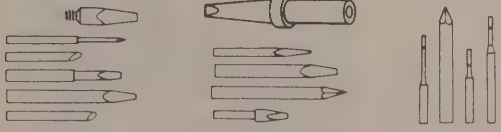
Iron Holders



Tip Cleaning Accessories

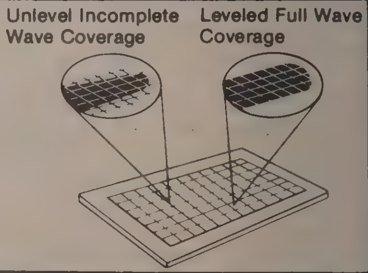
XTRADUR AND DUROTHERM

Long-Life Stainless Steel Non-Freezing Tips



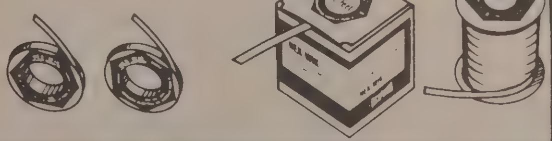
LEV CHECK SOLDER WAVE GAUGE

Diagnostic Tool Designed to Monitor Quality of Wave Soldering



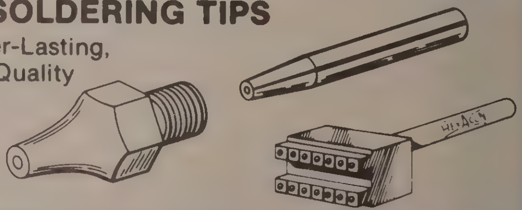
HEX-WIK SOLDER REMOVER

Copper and Premium Tinned



DE-SOLDERING TIPS

Longer-Lasting,
High Quality



HEXACON ELECTRIC CO.

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PROBLEM SOLVING TECHNOLOGY FOR EVERY SOLDERING NEED.

More than eighty years experience in the solder industry stand behind every Kester product. The Kester name means product purity . . . technological superiority . . . the highest standards of business practice . . . experienced, qualified personnel . . . and competitive prices. The complete line of Kester solders, fluxes and related chemicals are manufactured in five plants, assuring fast shipment at the lowest cost.

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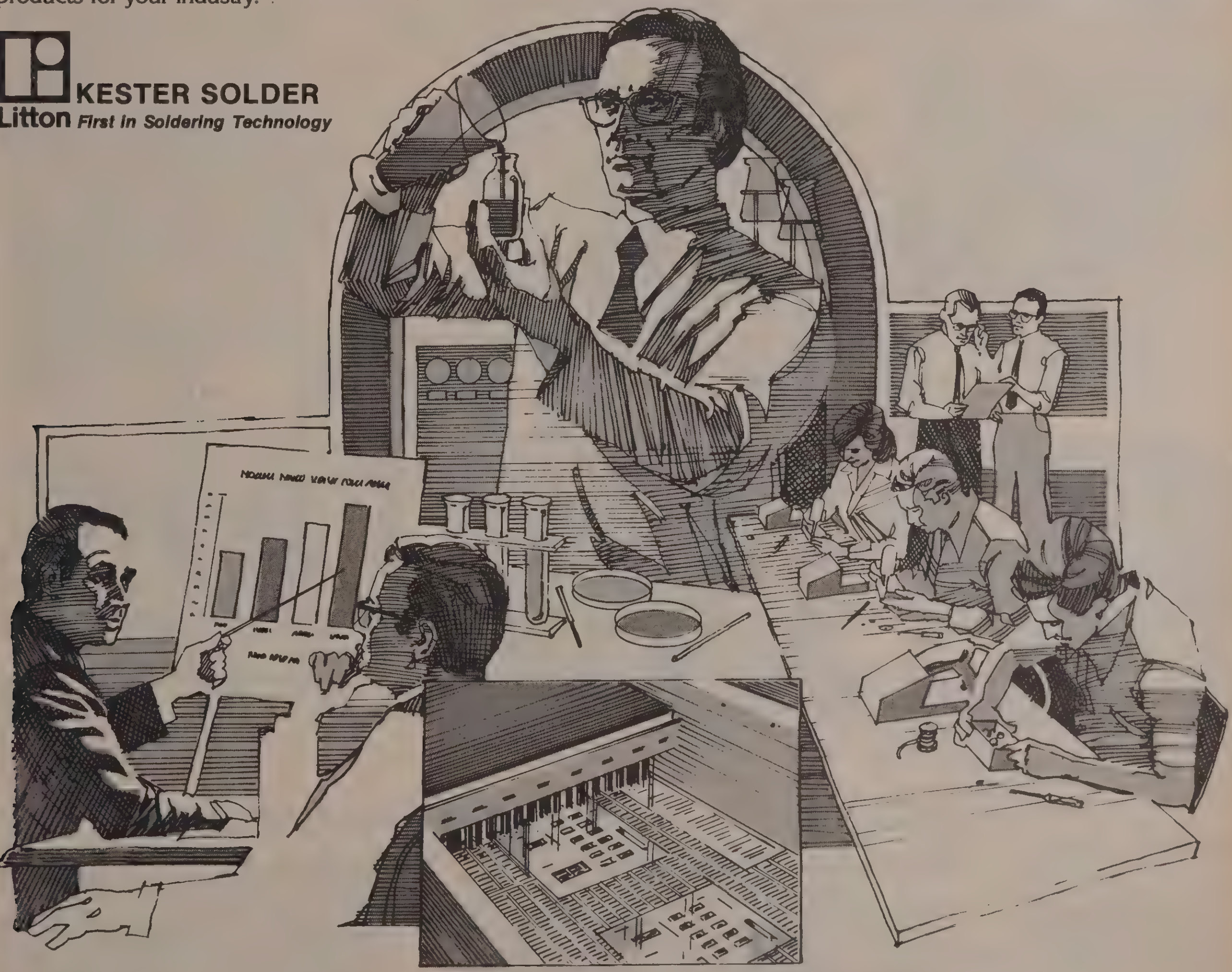
Litton ***First in Soldering Technology***



KESTER® SOLDER

THE SOLDER CONNECTION

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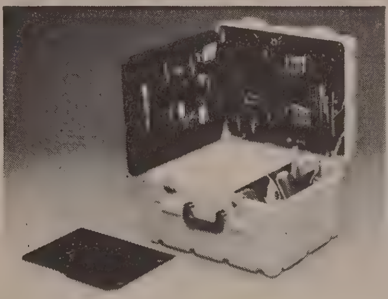
EEM PRODUCT SELECTION GUIDES

There are 33 Guides in this edition of EEM. See page 2 (1A•2, 1B•2, 2•2, 3•2) of each volume to locate the Product Selection Guides that pertain to your needs.

World Famous Tool Kits from Jensen

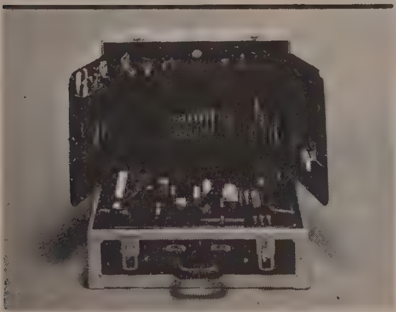
For electronics, computers, telecommunications, and drafting

JTK-87 Field Engineer's Kit in choice of five combination lock style cases.

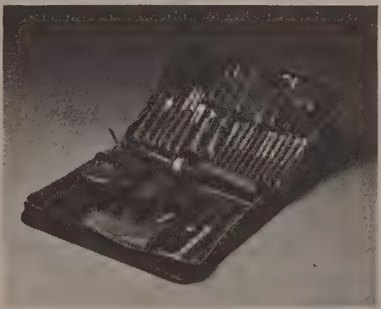


JTK-87LCST Two-pallet kit with special circuit board compartment.

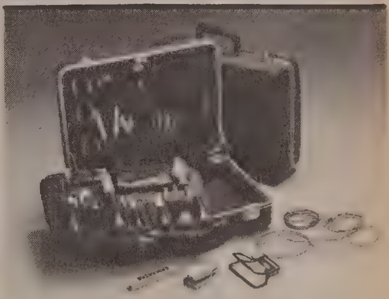
JTK-17ST Field Engineer's Kit in super-tough two-pallet case.



JTK-99 Service Technician's Kit in three styles of rugged wing pallet cases.

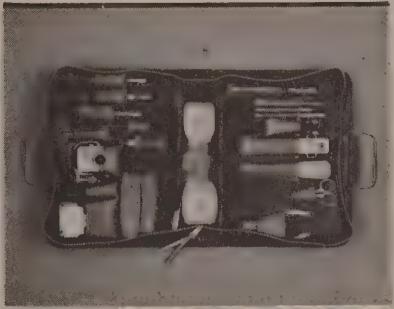


JTK-65 Computer Terminal Printer Maintenance Kit in zipper case with or without handles.



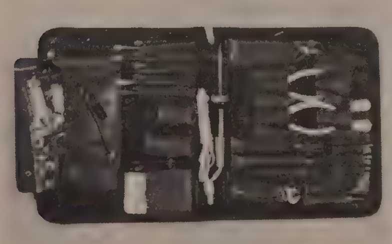
JTK-66 Computer Technician's Kit in two-pallet injection molded case.

JTK-54 Central Office Telecommunications Kit in two-pallet attache' case.



JTK-44 Telecommunications Kit for outside plant, cable TV, Telecommunication servicing.

JTK-81 Designer Draftsman Kit. More than 50 drawing aids in a deluxe attache' case.



JTK-16 Service Technician's Kit in padded zipper cases: vinyl, Cordura nylon, or leather, with or without handles.

Custom Kits Complete custom tool kit service featuring any type of specialized tools or tool case you need.

Free Catalog

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TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 84/85 EDITION OF EEM

Abbreviations/Acronyms	**1A**•1137, **1B**•1035, **2**•1014, **3**•1014
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YOU CAN'T SEE IT

BUT IT CAN DESTROY YOUR BEST DESIGN

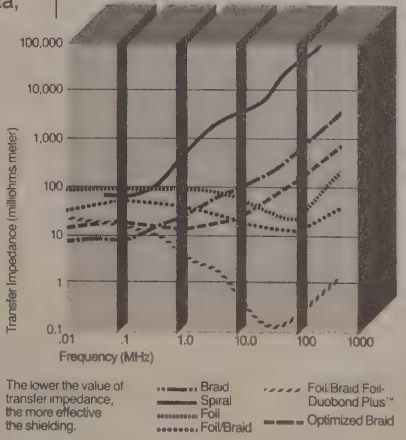
The next time your performance is measured by the success of your system's design, take a closer look at the critical link: will the shielded cable you select maintain signal integrity? At Belden, we're working to protect this critical link.

Shield Effectiveness
With the convergence of data, audio and video transmissions, one of the greatest challenges is to preserve the integrity of each signal. This evolution of technology, coupled with the need to comply with FCC regulations has created a growing demand for sophisticated cable shielding.

Belden responds to these demands with innovative shielding and shield effectiveness test methods to supply you with high quality, dependable electronic wire and cable.

How you control interference with shielded cable is a critical link to successful system design.

Transfer Impedance Test Results



The lower the value of transfer impedance, the more effective the shielding.

Test Methods Protect Your System
To help you define interference problems, Belden's Technical Research Center evaluates the development, implementation and refinement of shields and shield effectiveness testing. Our Transfer Impedance Test is but one of many rigorous tests employed by Belden engineers. The procedures we use help you select the proper shielded cable that results in cost-effective system performance.

Effective Assistance
Belden has recently published a *Cable Shield Performance and Selection Guide*. It's free, and it helps you define your interference problem, acquaints you with current FCC regulations, and familiarizes you with the trade-offs associated with different shield designs and Belden's various test procedures for measuring shielding effectiveness. Shield performance results are detailed from each test to properly guide your cable selection.

Contact Belden today for your free personal copy. Belden Electronic Wire and Cable, P.O. Box 1980, Richmond, IN 47375. Phone: 317-983-5200.

There is no equal.

See Belden's listing on pages **2**•1946–1985 in EEM

COOPER INDUSTRIES **BELDEN**

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ABBREVIATIONS FOR WIRE & CABLE PRODUCT SELECTION GUIDE

CODE/EQUALS		CODE/EQUALS		CODE/EQUALS		CODE/EQUALS	
AP	Aluminized Polyester	FPE	Foamed Polyethylene	NYL	Nylon	RUB	Rubber
BC	Bare Copper	FRSR	Fire Resistant Silicone Rubber	PCA	Polychloroalkene	SBR	Synthetic Rubber
BCB	Bare Copper Braid	GLS	Glass	PE	Polyethylene	SHLD	Shielded
BCCS	Bare Copper Coated Steel	IRPVC	Irradiated PVC	POE	Polyethylene	SPC	Silver Plated Copper
BTC	Braided Tinned Copper	KYN	Kynar	POP	Polypropylene	TC	Tinned Copper
DRN	Drain Wire	MYL	Mylar (DuPont™)	PVC	Polyvinylchloride	TEF	Teflon
EPR	Synthetic Rubber	NEO	Neoprene	REEL	Cord on Reel	TFG	Teflon/Fiberglass
FLR	Filler	NPC	Nickel Plated Copper	RTCL	Retractile Cord	XLP	Cross Linked Polyethylene

HOOK UP WIRE

	EEM Page 2•	Specifications				Conductor			Insulation*			Conformance			
		Op. Temp. °C		Volts Max.			AWG/Strand								
Manufacturer		Min.	Max.	Vdc	V (rms)	Type*	Min.	Max.	Prim.	Sec.	Jkt.	UL #	CSA #	MIL-W-#	Comment
Alpha	1940	**	**	**	**	**	**	**	**	**	**	**	**	**	
American Insul. Wire	1942	−80	200	**	**	BC/TC	26/X	2/X	**	**	**	Yes	Yes	Yes	
Belden	1946	**	**	**	**	**	**	**	**	**	**	**	**	**	
Brim	1988	−90	250	50k	15k	SPC	26-7/34	10-37/26	Spec.	TEF	**	—	—	16878D	
	1988	**	1093		600	NPC	22-19/34	18-19/30	**	—	—	—	—	Yes	Shld. avail.
	1989	−90	260	300	**	SPC	38-7/46	30-7/38	TEF	—	—	—	—	No	
	1989	−40	80	600	**	BC	38-7/46	20-259/44	PVC	—	—	—	—	No	Ultra flex.
Carol	2013	−40	80	1000	**	TC	24S	16S	PVC					76B	
	2013	−40	80	1000	**	TC	24-7/32	12-65/30	PVC					76B	
	2013	−50	105	600	**	TC	24-7/32	14-19/27	PVC					16878B	
	2014	−50	105	600	**	BC	18-16/30	8-19str	PVC			AWM	AWM	—	
	2014	−40	80	300	**	TC	24S	16-26/30	PVC			1007	TR64	—	
	2014	−40	105	600	**	TC	24-7/32	10-105/30	PVC			1015	TEW	—	
	2014	−40	80	300	**	TC	24-7/32	16-26/30	PVC			1061	—	—	
	2015	−20	60	**	15k	TC	20-41/36	18-65/36	RUB						Test leads
	2015	−20	60	**	5000	BC	18-65/36	—	PVC						Ultra flex.
Consolidated	2058	−40	80	300	**	TC	24-7/32	16-26/30	PVC			1007	TR64		
	2058	−30	105	600	**	TC	22-7/30	8-133/30	PVC			1015	TEW105		
	2059	−55	105	600	**	TC	26-7/34	12-19/25	IRPVC			1430	XLPC	16878	
	2059	−55	125	600	**	TC	22-7/30	10-65/28	XLP			3171	1251		
	2060	−40	125	**	**	SPC	30S	24S	KYN			1422			Backpanels
	2060	−40	90	1000	**	TC	30-7/38	6-133/27	PVC					76B	Series
	2062	−60	200	600	**	SPC	32-7/40	10-37/26	TEF			1213		16878	Series
	2063	−65	399	600	**	NPC	18-19/30	8-133/29	TEF	GLS	TFG			25038	
	2071	−20	80	**	40k	TC	22-7/30	18-41/36	EPR	—	PVC	3239			Test leads
Cooner	2079	−40	80	300	**	TC	18-7/9/36	1/0-7/7/86/36	PVC			1662		QQW343	Grnd. cbl.
	2081	−40	90	200	**	BC	38-16/50	30-40/46	PVC	SHLD	PVC				Ultra flex. micro
Daburn	2087	−60	250	**	50k	SPC	26-7/34	12-19/25	TEF					16878	Test leads
Dearborn	2098	−65	200	1000	**	SPC	32-7/40	8-133/29	TEF					16878	
	2099	−10	125	600	**	TC	28-7/36	4/0-2107/30	XLP			Yes	Yes		Series
	2100	−60	260	**	40k	NPC	22-7/30	2-259/26	FRSR			3239			HV wire
	2100	−40	125	**	**	SPC	30S	24S	KYN						Backpanels
	2101	−10	125	600	**	TC	28-7/36	16-19/29	XLP			1429		16878	
Judd	2104	−55	105	3000	**	TC	32	2	PCA			Yes	Yes	16878	Series
	2105	−55	125	3000	**	TC	32	12	XLP			Yes	Yes	16878	Series
National Wire	2117	−40	80	300	**	TC	28-7/36	16-19/29	PVC			1061	S-R	16878	
	2117	−40	105	600	**	TC	24-7/32	10-49/27	PVC			1015	Yes	16878	
	2117	−40	90	600	**	TC	24-7/32	10-49/27	PVC			1015	TR-32	16878	Series
	2118	−54	105	600	**	TC	32-7/40	6-133/27	PVC			Yes	Yes	16878	Series
Omega	2135	**	**	**	**	**	**	**	**	**	**	**	**	**	Thermocouple
Rowe	2143	−90	200	300	**	**	**	**	FRSR	—	FRSR	Yes	Yes	**	High temp.

CABLE, MULTICONDUCTOR

Manufac-turer	EEM Page 2•	Type		Specifications			Conductors					Shielding*		Insulation			Conformance
				Op. Temp. °C		Vdc Max.	Number		Type*	AWG/Strand		Y/N Type	Drn. Wire	Prim.	Sec.	Jkt.	UL/CSA/MIL, etc.
		Rnd.	Flt.	Min.	Max.		Min.	Max.		Min.	Max.						
Alpha	1940	X	X	**	**	**	**	**	Var.	**	**	**	**	**	**	**	**
American Insul. Wire	1942	X	X	−40	105	1000	**	**	Var.	26**	10**	**	**	Var.	Var.	Var.	**
AMP	1944	—	X	−20	105	300	9	60	TC	28-7/36	—	No	No	PVC	—	—	UL2651
Belden	1949	X	—	−20	60	300	2	50	BC, TC	22S	14-19/27	No	No	PVC	—	PVC	UL (Various)
	1954	TP	—	−40	80	300	1Pr	27Pr	TC	22S	22-7/30	No	No	PVC	—	PVC	UL (Various)
	1956	X	—	−50	105	600	2	50	BC, TC	22S	12-19/25	AP	Yes	PVC	—	PVC	UL/CSA
	1962	TP	—	−50	105	300	1Pr	50Pr	BC, TC	28S	22S	AP	Yes	PVC	—	PVC	UL/CSA
	1965	ISTP	—	−40	80	300	1Pr	37Pr	TC	22S	20-7/28	AP	Yes	PVC	AP	PVC	UL/CSA
Brim	1991	X	—	−55	105	600	2	30	TC	28-7/36	—	BTC	No	PVC	MYL	PVC	MIL-W-16878D
	1991	X	—	−40	90	200	2	5	BC	38-16/50	30-40/46	BC	No	PVC	—	PVC	Ultra flex.
	1992	X	—	−55	105	100	1	4	TC	26-7/34	14-19/27	BTC	No	PVC	NYL	PVC	MIL-W-16878D
	1992	TP	—	−40	80	300	5Pr	60Pr	TC	24-7/32	—	BTC	No	PVC	MYL	PVC	UL1061
	1992	X	—	−55	105	1000	5	30	TC	18-19/30	—	BTC	No	PVC	MYL	PVC	MIL-W-16878D
	1993	ISTP	—	−55	105	300	3Pr	27Pr	TC	22S	22-7/30	AP	Yes	POE	AP	PVC	**
Carol	1997	X	—	−20	60	300	2	4	TC	22S	12-65/30	BTC	No	PVC	—	PVC	UL2096
	1998	X	—	−20	60	300	2	6	TC	22S	12-65/30	SPTC	No	PVC	—	PVC	UL2095
	1998	X	—	−20	60	300	2	4	TC	24-7/32	12-65/30	AP	Yes	POE	AP	PVC	UL**
	1999	X	—	−20	60	350	10	—	TC	Special quad**		AP	Two	PVC	AP	PVC	See specs.
	2004	X	—	−20	80	**	3	20	TC	Comb.		No	No	POE	—	PVC	See specs.
	2005	TP	—	−20	60	300	1Pr	51Pr	TC	22S	18-16/30	No	No	PVC	—	PVC	UL**
	2008	TP	—	−20	80	300	5Pr	60Pr	TC	24-7/32	20-19/32	No	No	PVC	—	PVC	UL2343/CSA SR-PVC
	2008	TP	—	−20	80	300	5Pr	60Pr	TC	24-7/32	20-19/32	BTC	No	PVC	MYL	PVC	UL2343/CSA SR-PVC
Consoli-dated	2021	X	—	−20	80	**	2	60	TC	22-7/30	14-19/27	No	No	PVC	—	PVC	UL (See specs.)
	2022	X	—	−20	90	600	2	37	BC	16-26/30	14-19/27	No	No	PVC/NYL	MYL	PVC	UL/NEC (See specs).
	2023	TP	—	−20	80	300	1Pr	51Pr	TC	22S	18-16/30	No	No	PVC	—	PVC	UL2508 & 2095
	2029	X	—	−20	80	300	2	50	TC	22-7/30	—	AP	Yes	PVC	AP	PVC	UL2464/CSA-SR-PVC, RS232C
	2032	X	—	−20	80	300	2	60	TC	24-7/32	20-19/32	BTC	No	PVC	MYL	PVC	UL2343 & 2725
	2041	ISTP	—	−40	105	**	2Pr	27Pr	TC	22S	18-16/30	AP	Yes	POP	AP	PVC	UL2493 & 2725
	2054	TP	—	−30	105	300	2Pr	51Pr	TC	22-7/30	18-16/30	AP	Yes	PVC	AP	PVC	UL2464/CSA TR-64
	2054	ISTP	—	−30	105	300	2Pr	51Pr	TC	22-7/30	18-16/30	AP	Yes	PVC	IAP	PVC	UL2464/CSA TR-64
	2055	SMP	—	−60	80	300	6Pr	100Pr	BC	22S	19S	AL	No	POE	BT	POE	Instr. cable
Cooner	2080	X	—	−40	90	200	2	5	BC	38-16/50	30-40/46	BC	No	PVC	—	PVC	Ultra flex.
Daburn	2085	—	X	−40	105	300	9	64	TC	28-7/36	—	No	No	PVC	—	—	UL2651
	2088	X	—	−20	80	300	2	60	TC	24-7/32	—	AP	Yes	PVC	AP	PVC	UL1061/CSA
	2088	TP	—	−20	80	300	1Pr	51Pr	TC	24-7/32	—	AP	Yes	PVC	AP	PVC	UL2464/CSA SR-PVC
Dearborn	2096	X	—	−20	80	300	2	50	TC	24-7/32	—	AP	Yes	PVC	AP	PVC	UL2464/CSA SR-PVC
	2096	TP	—	−20	80	300	1Pr	50Pr	TC	24-7/32	—	AP	Yes	PVC	AP	PVC	UL2464/CSA SR-PVC
	2097	X	—	−20	80	300	2	100	TC	24**	16**	No	No	PVC	—	PVC	UL2464/CSA/OSHA
	2098	X	—	−65	200	600	1	4	SPC	24-19/36	16-19/29	BSPC	No	TEF	—	TEF	MIL-W-16878D
	2101	ISTP	—	−40	80	300	1Pr	27Pr	TC	22-7/30	18-16/30	AP	Yes	PVC	AP	PVC	**
Judd	2105	X	—	−55	125	3000	**	**	TC	30**	10**	**	**	PCA	**	PCA	UL/CSA/MIL-W-16878E
	2105	X	—	−55	125	3000	**	**	TC	28**	10**	**	**	POE	**	POE	UL/CSA/MIL-W-16878E
National Wire	2119	X	—	−40	105	600	5	60	TC	24-7/32	20-7/28	No	No	PVC	—	PVC	UL/CSA/MIL
	2119	X	—	−40	105	600	5	60	TC	24-7/32	20-7/28	BTC	No	PVC	MYL	PVC	UL/CSA/MIL
	2120	TP	—	−40	105	600	5Pr	60Pr	TC	24-7/32	20-7/28	No	No	PVC	—	PVC	UL/CSA/MIL
	2120	TP	—	−40	105	600	5Pr	60Pr	TC	24-7/32	20-7/28	BTC	No	PVC	MYL	PVC	UL/CSA/MIL
	2121	X	—	−40	105	600	7	102	TC	22-7/28	12-19/25	No	No	PVC	—	PVC	UL/CSA/MIL
	2121	X	—	−40	105	600	7	102	TC	22-7/28	12-19/25	BTC	No	PVC	MYL	PVC	UL/CSA/MIL
	2123	X	—	−40	105	300	2	60	TC	28-7/36	18-19/30	No	No	PVC	—	PVC	UL/MIL
	2123	X	—	−40	105	300	2	60	TC	28-7/36	18-19/30	BTC	Opt	PVC	MYL	PVC	AP shield optional
	2125	TP	—	−40	80	300	2Pr	27Pr	TC	28-7/36	18-19/30	No	No	PVC	—	PVC	UL/MIL
	2125	TP	—	−40	80	300	2Pr	27Pr	TC	28-7/36	18-19/30	BTC	Opt	PVC	MYL	PVC	AP shield optional
	2129	—	X	−20	105	300	10	64	TC	28-7/36	—	No	No	PVC	—	—	0.050″ centers
Saxton	2144	X	—	−40	80	300	2	30	TC	22-7/30	12-19/25	No	No	PVC	—	PVC	UL AWM-E-26174
	2144	TP	—	−40	80	300	2Pr	27Pr	TC	22S	22-7/30	No	No	PVC	—	PVC	UL AWM-E-26174
	2144	X	—	−40	80	300	3	50	TC	24-7/32	22-7/30	AP	Yes	PVC	AP	PVC	UL/CSA
	2145	ISTP	—	−40	80	300	2Pr	27Pr	TC	22S	18-16/30	AP	Yes	POP	AP	PVC	UL AWM-E-26174

For manufacturers' sales offices, see yellow pages

COAXIAL, SINGLE CONDUCTOR, RG TYPES & SIMILAR

Manufacturer	EEM Page 2•	Specifications: Op. Temp. °C		Specifications: Volts Max.		Nom. Imped. Ohms	Conductor/Shielding	AWG/Strand		Shield Matl.	Insulation*		Conformance
		Min.	Max.	Vdc	V (rms)		Type*	Min.	Max.		Prim.	Jkt.	UL/CSA/MIL
Alpha	1940	**	**	**	**	**	**	**	**	**	**	**	**
American Insul. Wire	1942	**	80	—	Var.	**	Var.	30	11	Var.	Var.	Var.	**
Belden	1946	**	80	—	—	50	Var.	26-7/34	11-7/19	Var.	PE/CPE	PVC	UL1354/MIL-C-17
	1947	**	60	—	—	75	Var.	23S	18-7/26	Var.	PE/CPE	PVC	UL1354/MIL-C-17
	1948	**	80	—	—	75	BCCS	23S	—	BCB	PE	PVC	UL20020 (Dual Coax)
	1948	**	60	—	—	93	Var.	30S	22S	Var.	SSPE/CPE	PVC	UL1354, 1478/MIL-C-17
Carol	2011	**	**	—	—	50	BC	26-7/34	11-19/24	Var.	PE/FPE	Var.	**
	2011	**	**	—	—	75	Var.	22S	14**	Var.	PE/FPE	Var.	**
	2011	**	**	—	—	93	BC	22**	—	BCB	SSPE	PVC	UL/MIL**
Consolidated	2042	−55	90	—	14000	50	Var.	20S	2**	Var.	PE/FPE	PVC	UL1354
	2043	−55	90	—	10000	75	Var.	21S	18-7/26	Var.	PE	PVC	UL1354
	2043	−55	90	—	1000	93	Var.	24-7/32	22S	BC	PE	PVC	UL1478
	2044	−60	250	—	7000	Var.	SPC	30-7/38	5**	Var.	TEF	Var.	**
	2046	−40	200	—	—	Var.	Var.	26**	13**	Var.	Var.	Var.	UL (See pgs. 2048-2049)
JSC	2103	**	**	—	—	Var.	Var.	22S	13-7/21	Var.	PE/FPE	PVC	**
Rowe	2143	−40	200	—	100k	**	SPC	20-19/32	10**	TC	Comb.	**	HV Cable (See specs.)
Saxton	2147	**	80	30	—	50	Var.	26-7/34	13-7/21	Var.	PE/FPE	PVC	UL1354/MIL-C-17
	2147	**	80	30	—	75	Var.	23S	14-7/22	Var.	PE/FPE	PVC	UL1354/MIL-C-17
	2147	**	60	30	—	93	BC	22S	—	BCB	FPE	PVC	UL1478/IBM5252750
	2148	**	**	**	**	Var.	Var.	23C	13-7/21	Var.	PE/FPE	Var.	UL & MIL-C-17

DATA CABLES FOR COMPUTERS & COMMUNICATION

Manufacturer	EEM Page 2•	Type *	Specifications: Op. Temp. °C		Specifications: Vdc Max.	Conductors: Number		Conductors: Type *	AWG/Strand		Shielding*: Y/N Type	Drn. Wire	Insulation*			Conformance
			Min.	Max.		Min.	Max.		Min.	Max.			Prim.	Sec.	Jkt.	UL/CSA/MIL
Alpha	1940	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
American Insul. Wire	1942	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Belden	1962	TP	−40	80	300	1Pr	50Pr	TC	24-7/32	22S	AP	Yes	PVC	AP	PVC	UL/CSA
	1971	COAX	−20	60	30	1	—	TC	.0855"S	—	AP+BTC	No	POE	AP	PVC	UL (Ethernet)
	1971	ISTP	−40	80	30	4Pr	5Pr	TC	20-7/30	—	AP+BTC	Yes	POE	AP	PVC	UL (Ethernet)
	1972	TP	−20	60	30	1Pr	27Pr	TC	24-7/32	22S	AP+AP	Yes	POE	AP	PVC	UL
	1974	RMC	−40	80	30	3	37	TC	28-7/36	24-7/32	AP	Yes	POE	AP	PVC	UL
	1976	TP	−40	80	30	2Pr	25Pr	TC	28-7/36	24-7/32	AP	Yes	POE	AP	PVC	UL2919
	1978	ISTP	−20	60	**	2Pr	25Pr	TC	24-7/32	—	AP+BTC	Yes	POE	AP	PVC	UL2493
	1979	RMC	−40	80	300	3	50	TC	28-7/36	22-7/30	AP+BTC	No	SR-PVC	AP	PVC	UL2464
	1982	TP	−40	80	300	2Pr	25Pr	TC	28-7/36	22-7/30	AP+BTC	No	SR-PVC	AP	PVC	UL2464
Brim	1992	TP	−40	80	300	5Pr	60Pr	TC	24-7/32	—	BTC	No	PVC	MYL	PVC	UL1061
Carol	2008	TP	−40	80	300	5Pr	60Pr	TC	24-7/32	20-19/32	BTC	No	PVC	MYL	PVC	UL2343/CSA SR-PVC
Consolidated	2030	ISTP	−20	80	300	3Pr	27Pr	TC	24-7/32	—	AP+BTC	Yes	POP	MYL	PVC	UL2493/EIA RS-422B
	2039	TP	−20	80	300	1Pr	51Pr	TC	24-7/32	22S	AP	Yes	PVC	—	PVC	UL2464/CSA SR-PVC
Daburn	2088	TP	−20	80	300	1Pr	51Pr	TC	24-7/32	—	AP	Yes	PVC	—	PVC	UL2464/CSA SR-PVC
Dearborn	2101	ISTP	**	**	**	1Pr	27Pr	TC	22-7/30	18-16/30	AP	Yes	PVC	—	PVC	**
L-Com	2106	Assembled data cables														
Natl. Elec. Cable	2114	Assembled data cables														
Natl. Wire	2127	ISTP	−20	80	30	4Pr	50Pr	TC	24-7/32	—	AP+BTC	Yes	PVC	AP	PVC	UL AWM 2835
Saxton	2145	ISTP	−20	80	300	4Pr	27Pr	TC	24-7/32	18-16/30	AP	Yes	POP	AP	PVC	UL AWM-E-26174
	2149	CRT terminal cables														

CABLES & CORDS, POWER

Manufacturer	EEM Pg. 2•	Specifications				Type *	Conductors		Style *	Max. Length Feet	Insulation*			Conformance UL/CSA/MIL/OTH.
		Op. Temp. °C		Max. Volts			AWG/#-Stranding							
		Min.	Max.	Vdc	V(rms)		Min.	Max.			Prim.	Sec.	Jkt.	
Alpha Wire	1940	See specs.												
American Insul. Wire	1942	See specs.												
Belden	1946	See specs.												
Brim Electronics	1990	−20	60	600	300	BC	18/2-41x34	10/4-104x30	RTCL	25	**	**	**	UL/CSA
Carol Cable	2016	−37	60	600	**	BC	18/2-41x34	6/4-133x27	REEL	250	SBR	FLR	NEO	UL/CSA
	2016	−37	60	600	**	BC	18/2-16x30	6/4-133x27	REEL	250	SBR	FLR	SBR	UL/CSA
	2017	−20	60	300	**	BC	18/2-41x34	10/4-105x30	REEL	250	PVC	FLR	PVC	UL/CSA
	2018	Cord sets												
Consolidated Elctrn. Wire & Cable	2064	−20	60	600	**	BC	18/5-16x30	10/10-104x30	REEL	**	SBR	FLR	NEO	UL/CSA
	2065	−20	90	600	**	BC	16/2-26x30	10/12-19x32	REEL	**	PVC	FLR	PVC	UL/CSA
	2067	Shielded and unshielded cord sets												
	2072	−30	70	600	**	BC	18/2-41x34	12/7-65x30	RTCL	25	SBR	**	NEO	UL/CSA
Daburn	2086	−20	60	300	**	BC	18/2-41x34	12/7-65x30	RTCL	20	SBR	**	NEO	UL/CSA
Natl. Elec. Cable	2114	Custom power cords												
Panel Components	2140	International power cord sets												

TELEPHONE & KEYBOARD/ COMPUTER CORD SETS

Manufacturer	EEM Pg. 2•
Brim Electronics	1991
Daburn	2085
GSI Corp.	2102
L-Com	2106
Mura	2109
Natl. Elec. Cable	2114
Shogyo Intl.	2150
Virginia Plastics	2151

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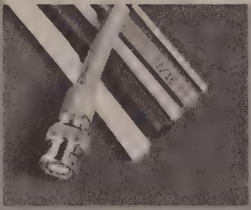

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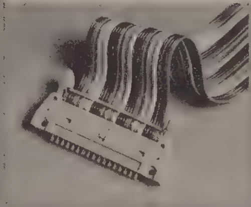

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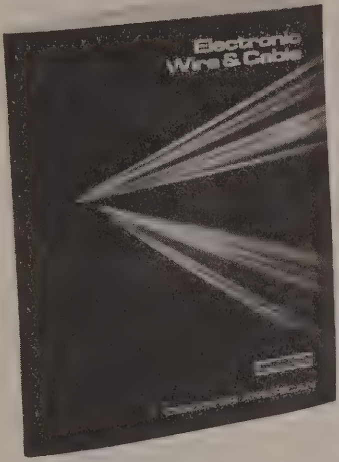

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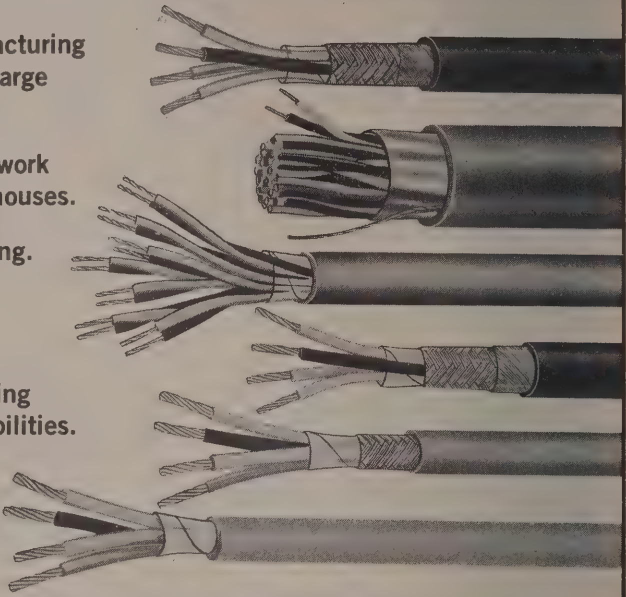

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Product Description	Maximum Voltage Rating	Maximum Operating Temp. °C	Size Range AWG	Conductor Material	Insulation Materials	Jacket Materials	Shielding*
Audio & Sound Cable	90-600	60-105	14-22	BC, TC	PE, PVC	PVC	Optional
Coaxial Cable	—	60-80	11-30	BC, TC, SC, CW	PE, FPE, SSP	PVC, NVC	Yes
Control Cable	600-1000	60-90	10-18	BC, TC	PVC, PE, RUB XLP, EPR	PVC, NEO Hypalon	Optional
Communication Cable	200-600	60-105	12-26	TC	PE, PVC, PP	PVC	Optional
Computer & P.O.S. Cable	200-300	80-105	22-26	TC	PP, PVC, PE	PVC	Yes
Fire Alarm Cable	300	105	12-22	BC, TC	PVC	PVC	Optional
Hook-up Wire (UL, CSA, MIL)	300-2500	80-200	2-26	BC, TC	PE, PVC, XLP Silicone	Nylon Laq. Glass Braid	—
Instrumentation Cable	300-600	60-105	12-26	BC, TC	PE, PP, PVC RUB, XLP, EPR	PVC, NEO Hypalon	Optional
Plenum Cable	300-600	200	12-24	BC	FEP	FEP	Optional
Portable & Flex. Cord	300-600	60-105	10-18	BC, TC	PVC, RUB, NEO HYP, EPR, XLP	PVC, RUB NEO, HYP	Optional

LEGEND:
BC = Bare Copper
CW = Bare Copper Covered Steel
EPR = Ethylene Propylene Rubber
FEP = Florinated Ethylene Propylene
FPE = Cellular (foam) polyethylene
HYP = Hypalon (DuPont™)
NVC = Non-Contaminating PVC
NEO = Neoprene
RUB = Rubber
PE = Polyethylene
PP = Polypropylene
PVC = Polyvinyl Chloride
SC = Silver Coated Copper
SSP = Semi-solid polyethylene
TC = Tinned Copper
XLP = Cross-linked Polyethylene

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COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A

AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire guage

B

BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction code
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C

CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D

D/A digital to analog
DAC digital to analog converter
DC direct curent
DIL dual in-line
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E

EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EPROM electrically programmable ROM
ESR equivalent series resistance

F

FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G

GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H

HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I

IC integrated circuit
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J

JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K

kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L

LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LSI large scale integration
LVDT linear velocity displacement transformer

M

MATV master antenna television
μF microforad
MHz megahertz
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N

NBS National Bureau of Standards
NIM nuclear instrumentation module
NOR not OR

O

OEM original equipment manufacturer
OR a logical operator

P

pF picofarad
PC printed circuit
PCB printed circuit board
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PPI plan position indicator
PROM programmable read only memory
PUT programmable unijunction transistor

Q

QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R

RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S

SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic

T

TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TTL transistor-transistor logic
TTY teletypewriter

U

UHF ultra high frequency (300 MHz to 3 GHz)
UL Underwriters Laboratory
UPS uninterruptible power supply

V

VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W

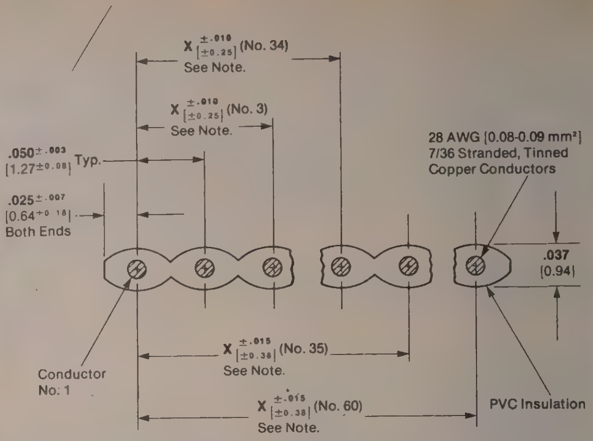
WPS word processing software

Y

YIG yttrium iron garnet

AMP Ribbon Cable

AMP
CAL
100 FT



Note: Tolerance of dimensions between conductors 1 and 3 thru 34 is ±.010 [±0.25]; tolerance between conductors 1 and 35 thru 60 is ±.015 [±0.38].

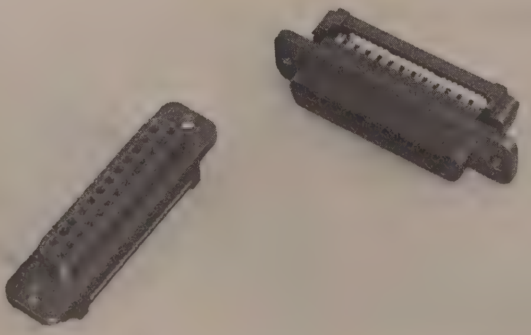
Temperature Rating: −20°C to +105°C
Voltage Rating: 300 volts per UL Style 2651
Insulation Resistance: 10,000 megohms per 10 ft. [3.05 m] (minimum)
Insulation Color: Gray, with dark blue stripe on conductor no. 1 only

No. of Conductors	100′ [30.48 m] Reel Part No.	100′ [30.48 m] Reel Marked every fifth conductor Part No.	300′ [91.44m] Reel Part No.
9	2-499116-1	499998-1	1-499660-7
10	499116-7	499998-2	499660-2
14	499116-1	499998-3	499660-8
15	2-499116-0	499998-4	1-499660-8
16	499116-2	499998-5	499660-4
18	1-499116-7	499998-6	1-499660-4
20	499116-3	499998-7	499660-3
24	1-499116-1	499998-8	1-499660-1
25	1-499116-8	499998-9	1-499660-5
26	499116-4	1-499998-0	499660-5
30	1-499116-2	1-499998-1	1-499660-2
34	499116-8	1-499998-2	499660-1
36	1-499116-6	1-499998-3	1-499660-3
37	1-499116-9	1-499998-4	1-499660-6
40	499116-5	1-499998-5	499660-6
44	1-499116-0	1-499998-6	1-499660-0
50	499116-6	1-499998-7	499660-7
60	499116-9	1-499998-8	499660-9

Features: ■ Recognized under the component program of Underwriters Laboratories Inc. File No. E53793, UL Style ® 2651 ■ 100 feet [30.48 m] and 300 feet [91.44 m] lengths without splices ■ Available with evey fifth conductor marked in 100 foot lengths ■ Can be readily "ripped" or slit to obtain less no. of conductors ■ Symmetrical geometry for ease of registration while terminating on either side of cable ■ Manufacturing methods provide cable stability for consistently reliable terminations ■ Dark blue color stripe on number one conductor for easy cable orientation ■ Compatible with all slotted beam connector technologies on .050 [1.27] centers

HDF-20 Low Profile Connectors

(for Round Conductor Flat Ribbon Cable)



Features: ■ Low profile design; .335 [8.51] max. from top of connector flange to back of cover ■ One-step termination of housing assembly and cover ■ Terminates flat ribbon cable with 30 AWG [0.05 mm²] solid, 28 AWG [0.08-0.09 mm²] solid or stranded and 26 AWG [0.12-0.15 mm²] solid conductors ■ Mates with any standard AMPLIMITE subminiature HD-20 or military (D type) connector ■ Plug and receptacle assemblies, all-plastic or with front metal shell, in 9, 15, 25 and 37 positions ■ Two-piece construction; UL recognized black thermoplastic, 94V-0 rated ■ Right-angle (90°) cable terminations ■ Contact centerline transition from .109 [2.77] at connector interface to .100 [2.54] (.050 [1.27] staggered) at cable termination ■ Duplex plated AMP-LATCH insulation displacement crimp contacts ■ No cable preparation required, except for cutting the cable end square ■ End-termination and daisy chain applications ■ Convenient circuit probe testing after cable termination

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J. V. Electronics (617) 273-4300
Land Electronics Supply Co., Inc. (617) 592-2220
March Electronics (617) 899-4220
Pilgrim Electronics (617) 251-8746
Powell Electronics/NE (617) 366-6100
QPL Electronics (617) 891-0460
Rush Industries (617) 729-5800
Semtex Industrial Corp. (617) 935-2466
Vantage Electronics Corporation (617) 894-8690
You Do It Electronics (617) 449-1005

MICHIGAN
Northern Wire & Cable, Inc. (313) 589-0510
RM Electronics Co., Inc. (616) 531-9300
RS Electronics (313) 525-1155
RS Electronics (616) 241-3483
S-F Electronic Supply, Inc. (616) 459-0216
Shand Electronics, Inc. (313) 743-8940

MINNESOTA
Electronic Center, Inc. (612) 371-5200
Gopher Electronics Co. (612) 483-3322
Stark Elec. Supply, Inc. (612) 332-1325

MISSISSIPPI
Hooper Electronic Supply (601) 762-9383

MISSOURI
Electronic Supply Co., Inc. (816) 931-0250
Franklin Electronics (314) 993-5333
Lectronix Inc. (314) 946-6424
Olive Electronics, Inc. (314) 426-4500
Van Sickle Radio Electronics, Inc. (314) 621-5000

NEBRASKA
Scott Electronics Supply Corp. (402) 466-8221

NEVADA
CRW, Inc. (702) 451-5490

NEW HAMPSHIRE
C & H Electronics (603) 882-1133
Yankee Electronic Supply, Inc. (603) 625-9746

NEW JERSEY
Alatec Products (201) 227-8140
Federated Purchaser (201) 272-0505
Kappe Industries, Inc. (201) 790-1999
Route Electronics 22, Inc. (201) 379-7710
State Electronics (201) 887-2550
William Electronics (201) 985-3700

NEW MEXICO
Electronic Parts Co. (505) 293-6161

NEW YORK
Ancar Electronics Supply (914) 592-7100
Brooklyn Electronics (212) 748-1300
Chief Electronics (914) 471-1300
Davis Electronics Corporation (516) 483-9200
Delmar Electronics, Inc. (516) 420-1234
Genesee Radio & Parts Co., Inc (716) 873-9661
Grimmer's Electronics (518) 374-8480
Harrison Radio Corporation (516) 293-7990
Help Electronics, Inc. (607) 729-3528
March Electronics (516) 486-6511
Masline Electronics (716) 546-5373
Peerless Radio Corporation (516) 593-2121
Rochester Radio Supply Co. (716) 454-7800
Rome Electronics, Inc. (315) 337-5400
Summit Distributors, Inc. (716) 884-3450
Wise Components, Inc. (914) 939-8600

NORTH CAROLINA
Hammond Electronics (919) 275-6391
Powell Electronics (919) 467-1212
Southeastern Electronics (919) 828-2311

OHIO
Akron Electronic Supply Co., (216) 762-8818
E.S.C.O., Inc (513) 226-1133
Hughes-Peters, Inc. (614) 294-5351
Hughes-Peters, Inc. (513) 351-2000
LRP Electronics, Inc. (419) 228-1220
REM Electronics Supply Co., Inc. (216) 373-1300
Repco Electronics (216) 248-8900
Schuster Electric Company, Inc. (216) 425-8134
Servex Electronic Distributing, Inc. (614) 383-3117
Stotts-Friedman Company, Inc. (513) 298-5555
Target Electronics Corp. (216) 248-7930
Thompson Electronics (614) 228-6191
U.R.I. Electronics (513) 761-4030
Whitehead Electronics (614) 224-1186

OKLAHOMA
Combined Technology Companies (918) 582-8242
Electro-Enterprise (405) 478-1752
Electronic Supply Company (405) 232-5215
Radio, Inc. (918) 587-9123

PENNSYLVANIA
Allegheny Electronics (814) 946-0871
Almo Electronics Corporation (215) 698-4000
Arch Electronics Co. (215) 563-4660
Barbey Electronics (215) 376-6116
Delphi Wire and Cable (215) 534-3900
Kass Electronics Distributors (215) 449-2300
Leff Radio Parts Co. (412) 351-5000
P. A. Peters, Inc. (215) 434-5237
Peak Electronics Corporation (215) 293-9000
Powell Electronics, Inc. (215) 365-1900
Tri-Com, Inc. (215) 521-3080

RHODE ISLAND
Jabbour Electronics (401) 728-4600
Major Electronic Supply (401) 725-7400

SOUTH CAROLINA
Dixie Electronics, Inc. (803) 779-5332
Hammond Electronics (803) 233-4121
Wholesale Industrial Electronics (803) 722-2634

TENNESSEE
Curle Electronics (615) 266-4727
Electra Distributing Co. (615) 329-3971

TEXAS
Douglas Electronics (512) 883-5103
Electronic Packaging Components, Inc. (713) 447-5800
Electrotex (713) 526-3456
ESI Supply (915) 694-9657
Geophysical Supply Co. (713) 666-4100
Ideal Industrial Electronic Supply, Inc. (915) 779-6647
Industrial Electronics, Inc. (817) 731-7321
Kent Electronics Corporation (713) 780-7770
Kent Electronics Corporation (214) 669-2600
Kent Electronics Corporation (512) 834-1900
LBI Electro-optics (214) 358-4251
Powerline Products, Inc. (713) 461-9791
Solid State Electronics Co. (214) 438-5700
Swieco, Inc. (817) 335-6521
Target Electronics Industries, Inc. (214) 350-6853
Texas Connector Corp. (817) 246-0109
Texas International Cable (512) 366-3648
Wallace Electronics Co., Inc. (214) 340-0400

UTAH
Central Utah Electronics Supply (801) 373-7522
Kimball Electronics, Inc. (801) 328-2075

VERMONT
S.A.I. Semispecialists of America (802) 775-7126

VIRGINIA
Avec Electronics Corporation (804) 359-6071
Mexitronics (703) 342-4444
Priest Electronics, Inc. (804) 855-0105
Sterling Electronics (804) 226-2190

WASHINGTON
Connector World Supply (206) 767-6773
Interface Electronics Corporation (206) 872-5800
Pacific Electronics (206) 575-1050
Radar Electronic Co. Inc. (206) 282-2511

WEST VIRGINIA
State Electric Supply Co. (304) 523-7491

WISCONSIN
Electronics Industries (414) 235-8930
Fedco Electronics, Inc. (414) 922-6490
Industrial Electronics Corporation of Wisconsin (414) 276-1212
Marsh Electronics (414) 475-6000
Superior Electronic Parts Company (608) 257-1477

AMP ⋈ DISTRIBUTOR MARKETING
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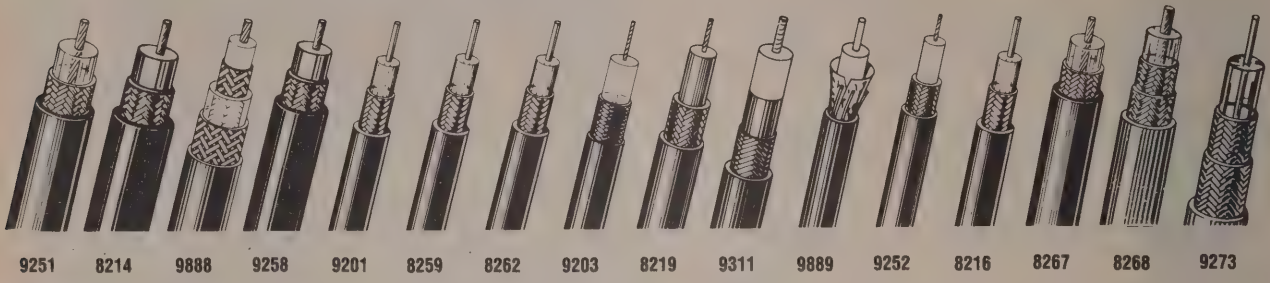
COOPER INDUSTRIES **BELDEN**

COAXIAL CABLES
50 ohm

50 Ohm Coaxial Cables



Belden Part No. UL Style No.	RG Type	Center Conductor AWG	Center Conductor Material	Center Conductor DCR per M' (ohms)	Dielectric Material	Dielectric Core O.D.	Shields Type	Shields Coverage	Shields DCR per M' (ohms)	Jacket Material	Jacket O.D.	N.V.P.	Nom. Cap.	Nom. Att. MHz	Nom. Att. db/100 ft.	Impedance	Temp. Rating
9251† UL1354 MIL-C-17D	8A/U	13 (7x21)	BC	1.87Ω	PE	.285	1 BC Braid	97%	1.2Ω	Black NC- PVC	.405	66%	29.5	100 400 900	2.2 4.7 6.9	52	80°C
8214† UL1354	8/U	11 (7x19)	BC	1.15Ω	CPE	.285	1 BC Braid	97%	1.1Ω	Black PVC	.405	78%	26.0	100 400 900	1.8 4.2 6.7	50	80°C
9888☐	8/U	11 (7x19)	BC	1.17Ω	CPE	—	2 BC Braid	98%	2.1Ω	Black PE	.480	78%	26.0	100 400 900	1.8 4.2 6.7	50	80°C
9258 UL1354	8/X	16 (19x29)	BC	4.3Ω	CPE	.155	1 BC Braid	95%	3.3Ω	Black or White PVC	.242	78%	26.0	100 400 900	3.7 8.0 12.8	50	80°C
9201	58/U	20 (solid)	BC	10.1Ω	PE	.116	1 BC Braid	78%		Black PVC	.195	66%	28.5	100 400 900	4.5 10.0 16.0	53	60°C
8259 JAN-C-17A	58A/U	20 (19x.0071)	TC	10.8Ω	PE	.116	1 TC Braid	96%	4.1Ω	Black PVC	.195	66%	30.8	100 400 900	4.9 11.5 20.0	50	60°C
8262☐ MIL-C-17D	58C/U	20 (19x.0071)	TC	10.8Ω	PE	.116	1 TC Braid	95%	4.1Ω	Black NC- PVC	.195	66%	30.8	100 400 900	4.9 11.5 20.0	50	80°C
9203☐ MIL-C-17E	58/U	20 (19x.0071)	TC	10.8Ω	PE	.116	1 TC Braid	95%	4.1Ω	Black NC- PVC	.195	66%	30.8	100 400 900	4.9 11.5 20.0	50	80°C
8219 UL1354	58A/U	20 (19x32)	TC	8.8Ω	CPE	.114	1 TC Braid	96%	4.1Ω	Black or White PVC	.195	78%	26.0	100 400 900	4.5 9.0 13.8	50	60°C
9311 UL1354	58A/U	20 (19x32)	TC	8.8Ω	CPE	.114	1 TC Braid Duobond II	56% 100%	17.0Ω	Black PVC	.195	78%	26.0	100 400 900	4.5 9.0 13.8	50	60°C
9889 UL1354	58/U	18 (solid)	BC	24.6Ω	CPE	—	1 Duofoil	100%	82.0Ω	Black PVC	5.49	78%	26.0	100 400 900		50	60°C
9252 UL1354 MIL-C-17D	122/U	22 (27x36)	TC	17.1Ω	PE	.096	1 TC Braid	97%	5.2Ω	Black NC- PVC	.160	66%	30.8	100 400 900	7.0 15.2 25.0	50	80°C
8216 UL1354 MIL-C-17D	174/U	26 (7x34)	BCCS	97.0Ω	PE	.060	1 TC Braid	88%	10.3Ω	Black PVC	.101	66%	30.8	100 400 900	8.9 17.5 28.2	50	60°C
8267†☐ UL1354 MIL-C-17D	213/U	13 (7x21)	BC	1.87Ω	PE	.285	1 BC Braid	97%	1.2Ω	Black NC- PVC	.405	66%	30.8	100 400 900	2.2 4.7 8.0	50	80°C
8268†☐ UL1354 MIL-C-17D	214/U	13 (7x.029)	SCC	1.73Ω	PE	.285	2 SCC Braid	98%	.7Ω	Black NC- PVC	.425	66%	30.8	100 400 900	2.2 4.7 8.0	50	80°C
9273 UL1354 MIL-C-17D	223/U	19 (solid)	SCC	8.05Ω	PE	.116	2 SCC Braid	97%	2.5Ω	Black NC- PVC	.212	66%	30.8	100 400 900	4.5 9.2 14.3	50	80°C

Standard lengths: 100 ft. (30.5m), 500 ft. (152.4m), 1000 ft. (304.8m) ☐ 500 ft. (152.4m), 1000 ft. (304.8m) only † Passes the VW-1 vertical wire flame test.

Coaxial cable legend

AL — Aluminum
BC — Bare Copper
BCCS — Bare Copper Covered Steel
CC — Coated Copper
CPE — Cellular Polyethylene
NC-PVC — Non Contaminating Polyvinyl Chloride
Nom. Att. — Nominal Attenuation
NVP — Nominal Velocity of Propagation
OD — Overall Dimension
PE — Polyethylene
PVC — Polyvinyl Chloride
SCC — Silver Coated Copper
SPCCS — Silver Plated Copper Covered Steel
SSPE — Semi-Solid Polyethylene
TC — Tinned Copper

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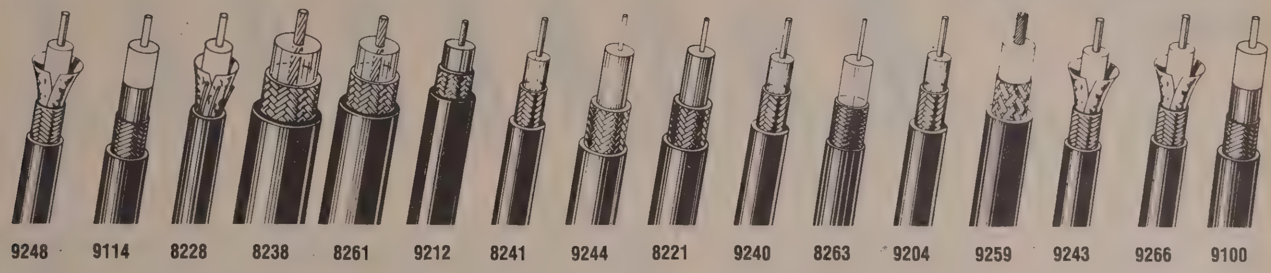
COAXIAL CABLES
75 ohm

COOPER INDUSTRIES BELDEN

75 Ohm Coaxial Cables



Belden Part No.		Center Conductor			Dielectric		Shields			Jacket				Nom. Att.			
UL Style No.	RG Type	AWG	Material	DCR per M′ (ohms)	Material	Core O.D.	Type	Coverage	DCR per M′ (ohms)	Material	O.D.	N.V.P.	Nom. Cap. pF/ft.	MHz	db/100 ft.	Impedance	Temp. Rating
9248† UL1354	6/U	18 (solid)	BC	7.5Ω	CPE	.180	1-TC 1-Duofoil	61% 100%	5.2Ω	Black PVC	.270	78%	17.3	100 500 900	2.1 5.0 6.9	75	80°C
9114	6/U	18 (solid)	BCCS	45.5Ω	CPE	.180	1-AL Braid 1-Duo-bond II	40% 100%	45.5Ω	Black PVC	.275	78%	17.3	100 500 900	2.1 5.0 6.9	75	80°C
8228	6/U	18 (solid)	BC	7.5Ω	CPE	.180	— 1-Duofoil	100%	19.5Ω	Black PVC	.242	78%	17.3	100 500 900	2.1 5.0 6.9	75	60°C
8238 JAN-C-17A	11/U	18 (7x26)	TC	6.06Ω	PE	.285	1 BC Braid	97%	1.24Ω	Black PVC	.405	66%	20.5	100 400 900	2.0 4.2 6.8	75	80°C
8261†☐ MIL-C-17D	11A/U	18 (7x26)	TC	6.06Ω	PE	.285	1 BC Braid	97%	1.24Ω	Black NC-PVC	.405	66%	20.5	100 400 900	2.0 4.2 6.8	75	80°C
9212† MIL-C-17E	11/U	18 (7x26)	TC	6.06Ω	PE	.285	1 BC Braid	97%	1.24Ω	Black NC-PVC	.405	66%	20.5	100 400 900	2.0 4.2 6.9	75	80°C
8241 UL1354 JAN-C-17A	59/U	22 (solid)	BCCS	55.0Ω	PE	.146	1 BC Braid	95%	2.7Ω	Black PVC	.242	66%	21.0	100 400 900	3.4 7.1 10.9	73	80°C
9244☐ UL1354	59/U	22 (solid)	BCCS	55.0Ω	PE	.146	1 BC Braid	86%	4.5Ω	Black PVC	.242	66%	21.0	100 400 900	3.4 7.1 10.9	73	80°C
8221	59/U	22 (solid)	BCCS	55.0Ω	CPE	.146	1 BC Braid	95%	2.6Ω	Grey, White Black PVC	.242	78%	16.3	100 400 900	2.9 5.9 8.8	80	80°C
9240☐	59/U	20 (solid)	BCCS	61.5Ω	CPE	.146	1 BC Braid	80%	5.0Ω	Black PVC	.242	78%	17.3	100 500 900	2.6 6.2 8.4	75	80°C
8263†☐ MIL-C-17D	59B/U	23 (solid)	BCCS	47.0Ω	PE	.146	1 BC Braid	95%	2.6Ω	Black NC-PVC	.242	66%	20.5	100 400 900	3.4 7.0 11.1	75	80°C
9204†☐ MIL-C-17E	59/U	23 (solid)	BCCS	47.0Ω	PE	.146	1 BC Braid	95%	2.6Ω	Black NC-PVC	.242	66%	20.5	100 400 900	3.5 7.5 12.0	75	80°C
9259 UL1354	59/U	22 (7x30)	BC	15.0Ω	CPE	.146	1 BC Braid	95%	2.6Ω	Black PVC	.242	78%	17.3	100 400 900	3.0 6.6 10.1	75	60°C
9243☐	59/U	22 (solid)	BCCS	61.5Ω	CPE	.146	1 AL Braid 1-Duofoil	67% 100%	14.0Ω	Black PVC	.242	78%	17.3	100 500 900	2.6 6.2 8.4	75	80°C
9266☐	59/U	20 (solid)	BCCS	61.5Ω	CPE	.146	1 TC Braid 1-Duofoil	61% 100%	6.8Ω	Black PVC	.242	78%	17.3	100 500 900	2.6 6.2 8.4	75	80°C
9100☐☐	59/U	20 (solid)	CCS	61.5Ω	CPE	.146	1 AL Braid 1-Duo-Bond II	40% 100%	17.0Ω	Black PVC	.242	78%	17.3	100 500 900	2.6 6.2 8.4	75	80°C

Standard lengths: 100 ft. (30.5m), 500 ft. (152.4m) and 1000 ft. (304.8m) ☐ 500 ft. (152.4m), 1000 ft. (304.8m) only
☐☐ 500 ft. (152.4m), 1000 ft. (304.8), 2000 ft. (609.6m) only † Passes the VW-1 vertical wire flame test.

Coaxial cable legend
AL — Aluminum
BC — Bare Copper
BCCS — Bare Copper Covered Steel
CC — Coated Copper
CPE — Cellular Polyethylene
NC-PVC — Non Contaminating Polyvinyl Chloride
Nom. Att. — Nominal Attenuation
NVP — Nominal Velocity of Propagation
OD — Overall Dimension
PE — Polyethylene
PVC — Polyvinyl Chloride
SCC — Silver Coated Copper
SPCCS — Silver Plated Copper Covered Steel
SSPE — Semi-Solid Polyethylene
TC — Tinned Copper

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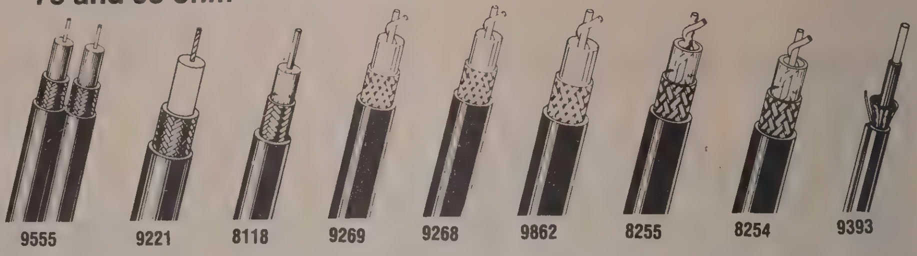
Eastern Regional Sales Office, 100 Pennsylvania Ave., Suite 450, Framingham, MA 01701 Phone: 617-872-7846

BELDEN

COOPER INDUSTRIES

COAXIAL CABLES
75 and 93 ohm



75 Ohm Coaxial Cables

Belden Part No.		Center Conductor			Dielectric		Shields			Jacket				Nom. Att.			
UL Style No.	RG Type	AWG	Mat-erial	DCR per M' (ohms)	Mat-erial	Core O.D.	Type	Coverage	DCR per M' (ohms)	Mat-erial	O.D.	N.V.P.	Nom. Cap.	MHz	db/ 100 ft.	Imped-ance	Temp. Rating
9555 Dual coax UL20020	59/U	23 (solid)	BCCS	47,0Ω	PE	.146	1 BC Braid	95%	2.6Ω	Black PVC	.242 x.485	66%	20.5	100 400 900	3.5 7.5 12.0	75	80°C
9221☐ UL1375 miniature coax		30 (7x38)	TC	100.0Ω	CPE	.058	1 TC Braid	89%	8.5Ω	Black PVC	.097	78%	17.3	100 400 900	9.2 24.5 44.0	75	60°C
8218 miniature coax		27 (7x35)	BCCS	112.0Ω	PE	.100	1 TC Braid	93%	6.5Ω	Black PVC	.150	66%	20.5	100 400 900	5.7 12.1 19.0	75	60°C

93 Ohm Coaxial Cables

9269†☐ UL1478	62 A/U	22 (solid)	BCCS	41.2Ω	SSPE	.146	1 BC Braid	95%	2.6Ω	Black PVC (Indoor)	.242	84%	13.5	100 400 900	2.7 5.4 8.3	93	60°C
9268†☐ UL1478	62 A/U	22 (solid)	BCCS	41.2Ω	SSPE	.146	1 BC Braid	95%	2.6Ω	Black PVC (Out-door)	.260	84%	13.5	100 400 900	2.7 5.4 8.3	93	60°C
9862†☐ MIL-C-17D UL1478	62 A/U	22 (Solid)	BCCS	41.2Ω	SSPE	.146	1 BC Braid	95%	2.6Ω	Black NC-PVC	.242	84%	13.5	100 400 900	2.7 5.4 8.3	93	60°C
8255†☐ MIL-C-17D UL1354	62 B/U	24 (7x32)	BCCS	53.4Ω	SSPE	.146	1 BC Braid	95%	2.6Ω	Black NC-PVC	.242	84%	13.5	100 400 900	2.9 6.1 10.1	93	80°C
8254 JAN-C-17A	62/U	22 (Solid)	BCCS	55.0Ω	SSPE	.146	1 BC Braid	95%	2.6Ω	Black PVC	.242	84%	13.5	100 400 900	2.7 5.4 8.3	93	80°C
9393 UL1354 Miniature coax	—	30 (Solid)	CC	114.0Ω	CPE	.064	— 1 Belfoil + Drain-wire	100%	55Ω	Red PVC	.100 x.115	78%	14.0	100 400	8.8 17.5	93	60°C

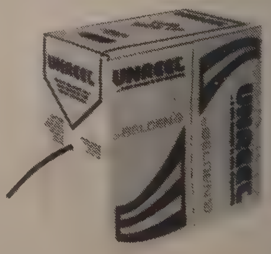
Standard lengths: 100 ft. (30.5m), 500 ft. (152.4m), 1000 ft. (304.8m) ☐ 500 ft. (152.4m), 1000 ft. (304.8m) only † Passes the VW-1 vertical wire flame test.

Coaxial cable legend
AL — Aluminum
BC — Bare Copper
BCCS — Bare Copper Covered Steel
CC — Coated Copper
CPE — Cellular Polyethylene
NC-PVC — Non Contaminating Polyvinyl Chloride
Nom. Att. — Nominal Attenuation
NVP — Nominal Velocity of Propagation
OD — Overall Dimension
PE — Polyethylene
PVC — Polyvinyl Chloride
SCC — Silver Coated Copper
SPCCS — Silver Plated Copper Covered Steel
SSPE — Semi-Solid Polyethylene
TC — Tinned Copper

Belden "UNREEL®" Dispensers

- Easy to use.
- Light in weight.
- Faster than standard reels.
- Easy to store and transport.
- No snagging, twisting and kinking.
- Not liable to backlash.
- Continuous feed-out system.
- Efficient throw away Packaging.

Belden cables are available in unique "UNREEL" dispenser packs. "UNREEL" overcomes the problems associated with spools and reels. "UNREEL" is economical: so easy to use, it saves up to 30% of your time on every job, compared to conventional spool and non spool fed systems. To order, add the letter "U" before desired length. Example Belden Part No. 8451 Length U-1000.



MULTI-CONDUCTOR CABLES
Unshielded Cables

COOPER INDUSTRIES **BELDEN**

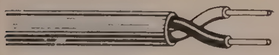
Applications:
- Control systems
- Processing equipment
- Audio (not paired)

Multi-conductor Unshielded Cables

PVC CONTROL & AUDIO CABLES

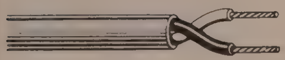
22 GAGE
SOLID CONDUCTORS .64 mm diam.

PRODUCT DESCRIPTION: *Bare copper, polyethylene insulated conductors cabled, rose gray PVC jacket.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg Lb ea	No. of Cond	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
	**8795** **2092** **300V** **60C**	U-500 U-1000 1000	U-152.4 U-304.8 304.8	8.0 15.5 15.6	2 *Color code: Red, Green*	.016	.41	.022	.56	.160	4.06
	8794 **2093** **300V** **60C**	U-500 U-1000 1000	U-152.4 U-304.8 304.8	9.0 17.5 18.5	3 *Color code: Green, Red, Yellow*	.016	.41	.022	.56	.168	4.27
	9794 **2094** **300V** **60C**	U-500 U-1000 1000	U-152.4 U-304.8 304.8	10.5 19.0 19.5	4 *Color code: Green, Red, Yellow, Black*	.016	.41	.025	.64	.190	4.83

22 GAGE
STRANDED CONDUCTORS (7x30) .76 mm diam.

PRODUCT DESCRIPTION: *tinned copper, PVC insulated twisted pair, PVC jacket.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg Lb ea	No. of Cond	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
	**8442** UL LISTED **Wires, Misc.** **90V Max.** **80C**	100 Chrome	30.5	1.8	2 *Color code: Black, Red*	.015	.38	.025	.64	.165	4.19
		U-500 Chrome Lt. Beige	U-152.4	7.9							
		500 Chrome Lt. Beige	152.4	7.4							
		U-1000 Chrome Lt. Beige	U-304.8	14.4							
		1000 Chrome Lt. Beige	304.8	15.0							

BELDEN
COOPER INDUSTRIES

MULTI-CONDUCTOR CABLES
Unshielded Cables

PVC CONTROL & AUDIO CABLES (cont'd.)

22 GAGE
STRANDED CONDUCTORS (7x30) .76 mm diam. (cont'd.)

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, conductors cabled. Chrome PVC jacket*

Description	Trade & U.L. Style Number	Standard Lengths		Std Pkg. Lb ea	No. of Cond.	Insulation Thickness		Jacket Thickness		Nominal O.D.	
		ft.	m			Inch	mm	Inch	mm	Inch	mm
	8443† ЯU **2576** **150V** **80C**	25 100 250 U-500 500 U-1000 1000	7.6 30.5 76 2 U-152 4 152.4 U-304.8 304.8	.5 2.1 4.7 9 0 8.9 17.5 18.1	3	.010	.25	.032	.81	.164	4.17
						Color code Black Red Green					
	8444† ЯU **2576** **150V** **80C**	25 100 250 U-500 500 U-1000 1000	7.6 30.5 76.2 U-152.4 152.4 U-304.8 304.8	.6 2.4 5.8 11.2 10.9 21.5 22.2	4	.010	.25	.032	.81	.182	4.62
						Color code chart No. 1, Technical Information Section.					
	8445† ЯU **2576** **150V** **80C**	25 100 250 U-500 500 U-1000 1000	7.6 30.5 76.2 U-152.4 152.4 U-304.8 304.8	.7 2.8 6.7 13.0 13.7 25.1 25.9	5	.010	.25	.032	.81	.194	4.93
						Color code chart No. 1, Technical Information Section.					
	9430† ЯU **2576** **150V** **80C**	U-500 500 U-1000 1000	U-152.4 152.4 U-304.8 304.8	16.6 17.3 32.2 33.1	7	.010	.25	.032	.81	.214	5.44
						Color code chart No. 1, Technical Information Section.					
	9421† ЯU **2576** **150V** **80C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	4.1 18.5 19.1 35.9 36.7	8	.010	.25	.032	.81	.229	5.82
						Color code chart No. 1, Technical Information Section.					
	9423† ЯU **2576** **150V** **80C**	100 U-500 500 U-1000 1000	30 5 U-152.4 152.4 U-304.8 304.8	4 5 20.4 21.1 39.9 40.8	9	010	25	.032	.81	244	6 20
						Color code chart No. 1, Technical Information Section.					
	8456† ЯU **2576** **150V** **80C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	5.1 23.4 24.2 45.8 48.8	10	.010	.25	.032	.81	.264	6.71
						Color code chart No. 1, Technical Information Section.					
	8457† ЯU **2576** **150V** **80C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	5.6 25.6 26.3 50.1 53.1	12	.010	.25	.032	.81	.264	6.71
						Color code chart No. 1, Technical Information Section.					
	8458† ЯU **2576** **150V** **80C**	100 500 1000	30.5 152.4 304.8	7.8 36.0 75.8	15	.010	.25	.040	1.02	.330	8.38
						Color code chart No. 2 or No. 2R, Technical Information Section.					
	9431† ЯU **2576** **150V** **80C**	100 500 1000	30.5 152.4 304.8	8.8 42.2 87.8	20	.010	.25	.040	1.02	.345	8.76
						Color code chart No. 2 or No. 2R, Technical Information Section.					

†Passes the VW-1 vertical wire flame test   *2R Same as ICEA except ring band striping*

MULTI-CONDUCTOR CABLES
Unshielded Cables

BELDEN
COOPER INDUSTRIES

PVC CONTROL & AUDIO CABLES (cont'd.)

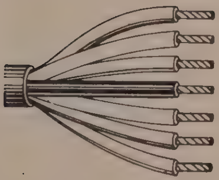
22 GAGE
STRANDED CONDUCTORS (7x30) .76 mm diam. (cont'd.)

PRODUCT DESCRIPTION: *Tinned copper. PVC insulated conductors cabled. Chrome PVC jacket. Color code chart No. 2 or No. 2R, Technical Information Section*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg Lb ea	No. of Cond.	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
	8459† ЯU **2576** 150V 80C	100 500 1000	30.5 152.4 304.8	10.9 54 5 110.0	25	.010	.25	.040	1.02	370	9.40
	9432† ЯU **2576** 150V 80C	100 500 1000	30.5 152.4 304.8	12 3 62 9 126 8	30	.010	.25	.040	1.02	.400	10.16
	9433† ЯU **2576** 150V 80C	100 500 1000	30.5 152.4 304.8	16 7 84 5 165.7	40	.010	.25	.040	1 02	.455	11.56
	9434† ЯU **2576** 150V 80C	500 1000	152.4 304.8	102 1 199 8	50	.010	.25	.045	1.14	500	12 70

20 GAGE
STRANDED CONDUCTORS (10 x 30) .94 mm diam.

PRODUCT DESCRIPTION: *Tinned copper. PVC insulated conductors cabled. Chrome PVC jacket. Color code chart No. 1, Technical Information Section*



Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg Lb ea	No. of Cond.	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
	9444† ЯU **2464** 300V 80C	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	3.3 15.5 16 2 30.1 31.0	4	.013	.33	.032	.81	.217	5.51
	9445† ЯU **2464** 300V 80C	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	4 5 18 5 19 2 36 0 36 8	5	.013	.33	.032	.81	.239	6.07
	9439† ЯU **2464** 300V 80C	100 U-500 500 U-1000 1000	30.5 U-152 4 152.4 U-304 8 304.8	5 2 23 7 24.5 46 4 49 4	7	.013	.33	.032	.81	.260	6.60
	9455† ЯU **2464** 300V 80C	100 500 1000	30.5 152.4 304.8	6 8 32 1 67 7	9	.013	.33	.035	.89	.317	8.05
	9457† ЯU **2464** 300V 80C	100 500 1000	30.5 152 4 304.8	8 2 39 4 82 3	12	.013	.33	.035	.89	.338	8.58
	9458† ЯU **2464** 300V 80C	100 500 1000	30.5 152.4 304 8	11 3 53 2 104 5	15	.013	.33	.040	1.02	.389	9.88

Color code chart No. 2. Technical Information Section

†*Passes the VW-1 vertical wire flame test*

2R Same as ICEA except ring band striping

COOPER INDUSTRIES **BELDEN**

MULTI-CONDUCTOR CABLES
Unshielded Cables

PVC CONTROL & AUDIO CABLES (cont'd.)

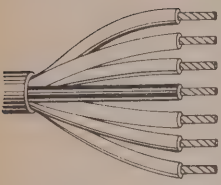
19 GAGE
SOLID CONDUCTORS .91 mm diam.

Description	Trade & U L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb ea	No. of Cond.	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
	8487† 80C	U-500 500 U-1000 1000	U-152.4 152.4 U-304.8 304.8	12.5 9.3 24.5 19.8	3	.015	.38	.025	.64	192	4 88

PRODUCT DESCRIPTION: *Bare copper, PVC insulated, conductors cabled. Chrome PVC jacket.*
Color coding: Brown, Gray, Tan.
Suggested working voltage: 300

18 GAGE
STRANDED CONDUCTORS (16 x 30) 1.19 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, conductors cabled. Chrome PVC jacket.*



Description	Trade & U L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb ea	No. of Cond.	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
Color code chart No. 1, Technical Information Section.	**8489**† ЯU **2598** 300V 60C	100 250 U-500 500 U-1000 1000	30.5 76.2 U-152.4 152.4 U-304.8 304.8	4.9 11 5 22 7 23 4 44 3 48.3	4	.018	.46	.032	.81	264	6 71
Color code chart No. 1, Technical Information Section.	**8465**† ЯU **2598** 300V 60C	100 250 U-500 500 U-1000 1000	30.5 76.2 U-152.4 152.4 U-304.8 304.8	6.1 15 3 28 0 29 2 56.0 59.8	5	.018	.46	.037	.94	.286	7.26
Color code chart No. 1, Technical Information Section	**8467**† ЯU **2598** 300V 60C	100 250 500 1000	30.5 76.2 152.4 304.8	8.0 39 6 38.2 80 2	7	.018	.46	.037	.94	.324	8.23
Color code chart No. 1, Technical Information Section.	**8469**† ЯU **2598** 300V 60C	100 250 500 1000	30.5 76.2 152.4 304.8	10 1 25.3 51 1 101.7	9	.018	.46	.037	.94	.379	9.63
Color code chart No. 2 or No. 2R, Technical Information Section.	**8466**† ЯU **2598** 300V 60C	100 250 500 1000	30.5 76.2 152.4 304.8	12.6 31 3 64.1 126 1	12	.018	.46	.040	1.02	.412	10.46
Color code chart No. 2 or No. 2R, Technical Information Section.	**8468**† ЯU **2598** 300V 60C	100 500 1000	30.5 152.4 304.8	17 6 87 1 117 3	15	.018	.46	.045	1.14	.505	12.83
Color code chart No. 2 or No. 2R, Technical Information Section.	**8619**† ЯU **2598** 300V 60C	100 500 1000	30.5 152.4 304.8	20 0 99 3 193 6	19	.018	.46	.045	1.14	.505	12.83
Color code chart No. 2 or No. 2R, Technical Information Section.	**9626**† ЯU **2598** 300V 60C	100 500 1000	30.5 152.4 304.8	27 1 134 6 270 2	25	.018	.46	.060	1.52	.600	15.24

†Passes the VW-1 vertical wire flame test

2R Same as ICEA except ring band striping.

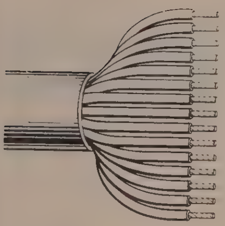
MULTI-CONDUCTOR CABLES
Unshielded Cables

BELDEN
COOPER INDUSTRIES

PVC CONTROL & AUDIO CABLES (cont'd.)

16 GAGE
STRANDED CONDUCTORS (19 x 29) 1.42 mm diam.

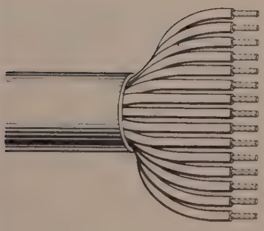
PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, conductors cabled. Chrome PVC jacket.* ***Suggested working voltage: 600***



Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond.	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
Color code chart No. 2, Technical Information Section.	**8620**† 80C	100 500 1000	30.5 152.4 304.8	8.2 39.2 81.5	4	.031	.79	.045	1.14	.375	9.53
Color code chart No. 2, Technical Information Section.	**9620**† 80C	100 500 1000	30.5 152.4 304.8	10.2 53.0 103.0	5	.031	.79	.045	1.14	.405	10.29
Color code chart No. 2 or No. 2R, Technical Information Section.	**8621**† 80C	100 500 1000	30.5 152.4 304.8	14.1 67.1 136.1	7	.031	.79	.045	1.14	.455	11.56
Color code chart No. 2 or No. 2R, Technical Information Section.	★**9721**† 80C	100 500 1000	30.5 152.4 304.8	15.9 78.8 154.5	8	.031	.79	.045	1.14	.495	12.57
Color code chart No. 2 or No. 2R, Technical Information Section.	**9621**† 80C	100 500 1000	30.5 152.4 304.8	18.0 86.5 170.0	9	.031	.79	.045	1.14	520	13 21
Color code chart No. 2 or No. 2R, Technical Information Section.	**8622**† 80C	100 500 1000	30.5 152.4 304.8	23.2 114.9 230.8	12	.031	.79	.060	1.52	.610	15.49
Color code chart No. 2 or No. 2R, Technical Information Section	**8623**† 80C	100 500 1000	30.5 152.4 304.8	30.1 146.9 286.8	15	.031	.79	.060	1.52	.670	17.02
Color code chart No. 2 or No. 2R, Technical Information Section.	**8624**† 80C	100 500 1000	30.5 152.4 304.8	36.3 173.3 350.8	19	.031	.79	.065	1.65	.700	17.78
Color code chart No. 2 or No. 2R, Technical Information Section	**9622**† 80C	100 500 1000	30.5 152.4 304.8	50.3 229.1 460.0	25	.031	.79	.065	1.65	.850	21.59

14 GAGE
STRANDED CONDUCTORS (19 x 27) 1.80 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, conductors cabled. Chrome PVC jacket.* ***Suggested working voltage: 600***



Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond.	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
Color code chart No. 2, Technical Information Section	**8627**† 80C	100 500 1000	30.5 152.4 304.8	14.2 70.0 137.0	4	.047	1.19	.045	1.14	.495	12.57
Color code chart No. 2, Technical Information Section	**9623**† 80C	100 500 1000	30.5 152.4 304.8	17.7 94.1 189.2	5	.047	1.19	.060	1.52	.545	13.84
Color code chart No 2, Technical Information Section	**8628**† 80C	100 500 1000	30.5 152.4 304.8	24.3 120.2 241 4	7	.047	1.19	.060	1.52	.615	15.62
Color code chart No. 2, Technical Information Section	**8629**† 80C	100 500 1000	30.5 152.4 304.8	40 9 202.7 397.2	12	.047	1.19	.065	1.65	800	20 32

★New Item †*Passes the VW-1 vertical wire flame test* *2R Same as ICEA except ring band striping*

Western Regional Sales Office, 2955 E. Main St., Suite 300, Irvine, CA 92714 Phone: 714-474-1200 • **Central Regional Sales Office,** P.O. Box 1980, Richmond, IN 47375 Phone: 317-983-5200 • **South Central Regional Sales Office,** 14651 Dallas Pkwy, Suite 144, Dallas, TX 75240 Phone: 214-788-4300
Eastern Regional Sales Office, 100 Pennsylvania Ave., Suite 450, Framingham, MA 01701 Phone: 617-872-7846

COOPER INDUSTRIES **BELDEN**

MULTI-CONDUCTOR CABLES
Paired, Unshielded Cables

Applications:
- Sound systems
- Control systems

Paired, Unshielded Cables

SOUND AND CONTROL CABLES

22 GAGE
SOLID CONDUCTORS .64 mm diam.

PRODUCT DESCRIPTION: *Tinned copper. PVC insulated. twisted pairs. chrome PVC jacket. For color coding, please refer to chart 3, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths		Std Pkg Lb ea	No. of Pairs	Insulation Thickness		Jacket Thickness		Nominal O D	
		ft.	m			Inch	mm	Inch	mm	Inch	mm
	8740 UL LISTED **Wires, Misc. 90V Max. 80C**	100 U-500 U-1000	30.5 U-152.4 U-304.8	3.1 6.9 13.0	1	.015	.38	.025	.64	.150	3.81
	8741† ЯU **2464** **300V 80C**	100 U-500 U-1000 1000	30.5 U-152.4 U-304.8 304.8	3.0 13.1 25.0 25.0	2	.015	.38	.032	.81	.209	5.31
	8742† ЯU **2464** **300V 80C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	3.9 17.6 18.3 34.2 35.2	3	.015	.38	.032	.81	.244	6.20
	8757† ЯU **2464** **300V 80C**	U-500 500 U-1000 1000	U-152.4 152.4 U-304.8 304.8	22.3 23.1 41 5 46.6	4	.015	.38	.032	.81	.259	6.58
	9158† ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	5.9 27.0 56.4	5	.013	.33	.040	1.02	.307	7.80
	8743† ЯU **2576** **150V** **80C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	5.5 25.5 25 6 49 9 51.5	6	.010	.25	.035	.89	.305	7.75
	9160† ЯU **2464** **300V 80C**	500 1000	152.4 304.8	37.9 79.3	8	.013	.33	.040	1.02	.346	8.79
	8744† ЯU **2576** **150V** **80C**	100 500 1000	30.5 152.4 304.8	8.0 36.7 77.0	9	.010	.25	.037	.94	.354	8.99

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†Passes the VW-1 vertical wire flame test

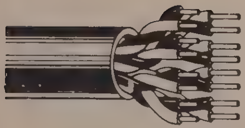
MULTI-CONDUCTOR CABLES
Paired, Unshielded Cables

COOPER INDUSTRIES
BELDEN

SOUND AND CONTROL CABLES (cont'd.)

22 GAGE
SOLID CONDUCTORS .64 mm diam. (cont'd.)

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, twisted pairs, chrome PVC jacket. For color coding, please refer to chart 3, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std Pkg Lb ea	No. of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
	**8753†** **ЯU** **2576** 150V 80C	100 500 1000	30.5 152.4 304.8	9.7 48.9 112.8	11	.010	.25	.037	.94	.369	9.37
	8754† **ЯU** **2576** 150V 80C	100 500 1000	30.5 152.4 304.8	10.5 53.8 105.6	13	.010	.25	.037	.94	.394	10.01
	8745† **ЯU** **2576** 150V 80C	100 500 1000	30.5 152.4 304.8	12.3 63.0 124.0	15	.010	.25	.040	1.02	.405	10.29
	8755† **ЯU** **2576** 150V 80C	100 500 1000	30.5 152.4 304.8	15.7 76.7 151.5	19	.010	.25	.040	1.02	.460	11.68
	8756† **ЯU** **2576** 150V 80C	500 1000	152.4 304.8	88.0 172.2	23	.010	.25	.040	1.02	.495	12.57
	8746† **ЯU** **2576** 150V 80C	250◆ 500◆ 1000◆ 2000◆	76.2 152.4 304.8 609.6	54.8 107.7 216.3 405.4	27	.010	.25	.045	1.14	.535	13.59

22 GAGE
STRANDED CONDUCTORS (7x30) .76 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, twisted pair, PVC jacket.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Std Pkg Lb ea	No. of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm
	8442 UL LISTED **Wires, Misc.** **90V Max.** **80C**	100 Chrome	30.5	1.8	1	.015	.38	.025	.64	.165	4.19
		U-500 Chrome Lt. Beige	U-152.4	7.9	*Color Code Black, Red*						
		500 Chrome Lt. Beige	152.4	7.4							
		U-1000 Chrome Lt. Beige	U-304.8	14.4							
		1000 Chrome Lt. Beige	304.8	15.0							

Passes the VW-1 vertical wire flame test

◆ *Spools are one piece, but length may vary + 20% –0 from length shown.*

COOPER INDUSTRIES **BELDEN**

MULTI-CONDUCTOR CABLES
Overall Beldfoil Shielded Cables

Applications:
- Sound
- Broadcast
- Audio
- Instrumentation

Multi-conductor Overall Beldfoil Shielded Cables

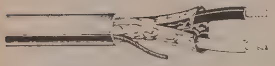
SOUND, BROADCAST, AUDIO & INSTRUMENTATION CABLES

28 GAGE
SOLID CONDUCTORS
.32 mm diam.

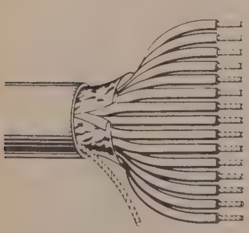
BELDFOIL
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ft.	Nominal Capacitance * pF/m	Nominal Capacitance ** pF/ft.	Nominal Capacitance ** pF/m
PRODUCT DESCRIPTION: *solid copper. GEOSOL™ insulated (solderable—no stripping required). twisted pair. BELDFOIL aluminum-polyester shield. 30 AWG solid tinned copper covered steel drain. wire. White PVC jacket. Maximum operating temperature 105 C. 100% shield coverage.* *Ideal for Instrumentation and Audio Console Work where Subminiaturization is Required* *The BELDFOIL shield combines high cable reliability with ease of termination* ***Suggested working voltage: 100***	**8640†** **105C**	250 U-500 500	76.2 U-152.4 152.4	1.5 3.2 2.6	2	Solid [.32]	.0025	.064	.020	.51	.090	2.29	Blk. Red	55	180	105	344

24 GAGE
STRANDED CONDUCTORS
(7 x 32) .61 mm diam.



BELDFOIL
100% Shield Coverage



BELDFOIL
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ft.	Nominal Capacitance * pF/m	Nominal Capacitance ** pF/ft.	Nominal Capacitance ** pF/m
PRODUCT DESCRIPTION: *tinned copper. polyethylene insulated. twisted pair. BELDFOIL aluminum-polyester shield. 24 AWG stranded tinned copper drain wire chrome PVC jacket. 100% shield coverage.* *The BELDFOIL shield combines high cable reliability with ease of termination*	**8641** UL **2092** **300V** **60C**	100 U-500 500 U-1000 1000 2000	30.5 U-152.4 152.4 U-304.8 304.8 609 6	2.0 7.7 7.4 14.4 15.1 28.6	2	(7x32) [.61]	.016	.41	.025	.64	.168	4.27	Blk. Clear	22	72		138
PRODUCT DESCRIPTION: *tinned copper. PVC insulated. conductors cabled. BELDFOIL aluminum-polyester shield with #24 AWG drain wire. chrome PVC jacket*	**9533†** UL **2464** **300V 80C** CSA **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	2.2 9.4 9.1 17.8 18.5	3	(7x32) [.61]	.010	.25	.035	.89	.168	4.27	Chart 1, Technical Information Section	30	98.4		
PRODUCT DESCRIPTION: *tinned copper. PVC insulated. conductors cabled. BELDFOIL aluminum-polyester shield with #24 AWG drain wire. chrome PVC jacket*	**9534†** UL **2464** **300V 80C** CSA **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	2.4 10.9 11.8 21.3 22.1	4	(7x32) [.61]	.010	.25	.035	.89	.190	4.83	Chart 1, Technical Information Section	30	98 4		
PRODUCT DESCRIPTION: *tinned copper. PVC insulated. conductors cabled. BELDFOIL aluminum-polyester shield with #24 AWG drain wire. chrome PVC jacket*	**9535†** UL **2464** **300V 80C** CSA **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	2.7 22.4 13.0 24.1 24.5	5	(7x32) [.61]	.010	.25	.035	.89	.195	4.95	Chart 1, Technical Information Section	30	98.4		

**Capacitance between conductors*
***Capacitance between 1 conductor and other conductor connected to shield*
†Passes the VW-1 vertical wire flame test

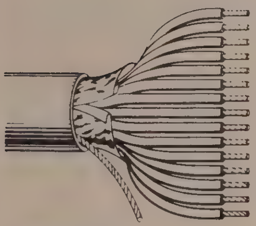
MULTI-CONDUCTOR CABLES
Overall Beldfoil® Shielded Cables

COOPER INDUSTRIES **BELDEN**

SOUND, BROADCAST AUDIO & INSTRUMENTATION CABLES (cont'd.)

24 GAGE
STRANDED CONDUCTORS
(7 x 32) .61 mm (cont'd.)

PRODUCT DESCRIPTION: *tinned copper, PVC insulated, conductors cabled, BELDFOIL aluminum-polyester shield with #24 AWG drain wire, chrome PVC jacket*



BELDFOIL
100% Shield Coverage

Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft.	** pF/m
9536† **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	3.0 14.1 15.7 27.2 28.1	6	(7x32) [.61]	.010	.25	.035	.89	.215	5.46	Chart 1, Technical Information Section	30	98.4		
9537† **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	3.2 15.0 15.7 29.0 30.5	7	(7x32) [.61]	.010	.25	.035	.89	.215	5.46	Chart 1, Technical Information Section	30	98.4		
9538† **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	3.8 16.8 17.5 32.6 33.5	8	(7x32) [.61]	.010	.25	.035	.89	.230	5.84	Chart 1, Technical Information Section	30	98.4		
9539† **2464** **300V 80C** **S-R PVC**	100 U-500 500 U 1000 1000	30.5 152.4 152.4 304.8 304.8	4.2 19.2 19.7 37.5	9	(7x32) [.61]	.010	.25	.035	.89	.250	6.35	Chart 1, Technical Information Section	30	98.4		
9540† **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	4.5 19.3 20.9 38.9 39.9	10	(7x32) [.61]	.010	.25	.035	.89	.250	6.35	Chart 1, Technical Information Section	30	98.4		
9541† **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 152.4 152.4 304.8 304.8	5.9 26.8 27.6 52.6 55.6	15	(7x32) [.61]	.010	.25	.035	.89	.290	7.37	Chart 2 or 2R, Technical Information Section	30	98.4		
9542† **2464** **300V 80C** **S-R PVC**	100 U-500 500 1000	30.5 152.4 152.4 304.8	7.2 33.5 34.4 70.0	20	(7x32) [.61]	.010	.25	.035	.89	.320	8.13	Chart 2 or 2R, Technical Information Section	30	98.4		
9543† **2464** **300V 80C** **S-R PVC**	100 500 1000	30.5 152.4 304.8	8.9 44.8 89.1	25	(7x32) [.61]	.010	.25	.040	1.02	.360	9.14	Chart 2 or 2R, Technical Information Section	30	98.4		

**Capacitance between conductors*

***Capacitance between 1 conductor and other conductor connected to shield*

†Passes the VW-1 vertical wire flame test

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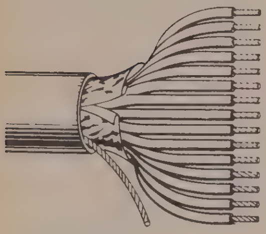
BELDEN
COOPER INDUSTRIES

MULTI-CONDUCTOR CABLES
Overall Beldfoil® Shielded Cables

SOUND, BROADCAST, AUDIO & INSTRUMENTATION CABLES (cont'd.)

24 GAGE
STRANDED CONDUCTORS (cont'd)
(7 x 32) .61 mm (cont'd.)

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, conductors cabled, BELDFOIL aluminum-polyester shield with 24 AWG drain wire, chrome PVC jacket.*


BELDFOIL
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft.	** pF/m
	9544† UL **2464** 300V 80C CSA S-R PVC	100 500 1000	30.5 152.4 304.8	10.2 51.2 102.4	30	24 (7x32) [.61]	.010	.25	.040	1.02	.380	9.65	Chart 2 or 2R, Technical Information Section	30	98.4		
	9545† UL **2464** 300V 80C CSA S-R PVC	100 500 1000	30.5 152.4 304.8	14.1 67.0 136.1	40	24 (7x32) [.61]	.010	.25	.040	1.02	.430	10.92	Chart 2 or 2R, Technical Information Section	30	98.4		
	9546† UL **2464** 300V 80C CSA S-R PVC	100 500 1000	30.5 152.4 304.8	17.2 84.7 171.4	50	24 (7x32) [.61]	.010	.25	.045	1.14	.490	12.45	Chart 2 or 2R, Technical Information Section	30	98.4		

24 GAGE
STRANDED CONDUCTORS (19 x 36) .64 mm diam.

BELDFOIL
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft.	** pF/m
	9452 75C	100 U-500 500 U-1000 1000	30.5 U-152.4 152 4 U-304.8 304.8	1.4 6.3 5.9 11.5 11.3	2	(19 x 36) [.64]	.008	.20	.020	.51	.135	3.43	Blk. Red	30	98	58	190

PRODUCT DESCRIPTION: *tinned copper, polypropylene insulated, twisted pair, noise reducing tape, 24 AWG stranded tinned copper drain wire, BELDFOIL aluminum-polyester shield, BLACK PVC jacket. 100% shield coverage.*

Balanced pair instrumentation cable featuring short lay cabling to minimize pick-up of electromagnetic interference and special conductive textile tape to minimize microphonic noise

Suggested working voltage: 200.

22 GAGE
SOLID CONDUCTORS .64 mm diam.

BELDFOIL
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft.	** pF/m
	8450† 105C	100 250 U-500 500 U-1000	30.5 76.2 U-152.4 152.4 U-304.8	1 5 3.3 6 5 5.9 11 5	2	Solid [.64]	.006	.15	.018	.46	.118	3.00	Blk. Red	40	131	76	249

PRODUCT DESCRIPTION: *Tinned copper, polypropylene insulated, twisted pair, 22 AWG solid tinned copper drain wire, BELDFOIL aluminum-polyester shield, paper wrap. Black or gray PVC jacket 100% shield coverage.*

Belden's Miniature Type Broadcast Audio and Instrumentation Cables occupy ½ to ⅔ less space than standard cables. The BELDFOIL shield combines high cable reliability with ease of termination

Suggested working voltage: 200.

**Capacitance between conductors*

***Capacitance between 1 conductor and other conductor connected to shield* †*Passes the VW-1 vertical wire flame test*

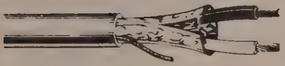
MULTI-CONDUCTOR CABLES
Overall Beldfoil® Shielded Cables

COOPER INDUSTRIES **BELDEN**

SOUND, BROADCAST AUDIO & INSTRUMENTATION CABLES (cont'd.)

22 GAGE

STRANDED CONDUCTORS (7 x 30) .76 mm diam. (cont'd.)



BELDFOIL
100% Shield Coverage

Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m
8451† **105C**	100 250 U-500 500 U-1000	30.5 76.2 U-152.4 152.4 U-304.8	1.7 3.5 7.4 7.0 13.8	2	(7x30) [.76]	.008	.20	.020	.51	.135	3.43	Blk. Red	34	111	67	220

PRODUCT DESCRIPTION: *Tinned copper, polypropylene insulated, twisted pair, 22 AWG stranded tinned copper drain wire, BELDFOIL aluminum-polyester shield, paper wrap. Black or gray PVC jacket 100% shield coverage*

Belden's Miniature Type Broadcast Audio and Instrumentation Cables occupy ½ to ⅔ less space than standard cables The BELDFOIL shield combines high cable reliability with ease of termination PVC jacket.

Suggested working voltage: 200

Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m
8761 UL **2092** **300V** **60C**	U-500 500 U-1000 1000 2000 5000	U-152.4 152.4 U-304.8 304.8 609.6 1524.0	9.0 8.7 16.9 17.7 33.9 88.1	2	(7x30) [.76]	.016	.41	.025	64	.175	4.45	Blk. Clear	24	79	47	154

PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, twisted pair, BELDFOIL aluminum-polyester shield, 22 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.*

The BELDFOIL shield combines high cable reliability with ease of termination

Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m
9451 † **105C**	U-500 500 T-1000 U-1000	U-152.4 152.4 T-304.8 U-304.8	7.0 7.0 14.3 12.9	2	(7x30) [.76]	.008	.20	.017	.43	.135	3.43	Blk. Red	34	111	67	220

PRODUCT DESCRIPTION: *The jacket and shield are bonded so both can be removed on automatic stripping equipment* ***Suggested working voltage: 200***

Tinned copper, polypropylene insulated, twisted pair, 22 AWG stranded tinned copper drain wire, BELDFOIL aluminum-polyester shield, paper wrap, Gray PVC jacket. 100% shield coverage.

Belden's Miniature Type Broadcast Audio and Instrumentation Cables occupy ½ to ⅔ less space than standard cables The BELDFOIL shield combines high cable reliability with ease of termination

STRANDED CONDUCTORS (7 x 30). 76 mm diam.

BELDFOIL
100% Shield Coverage

Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m
9770 † **105C**	250 U-500 500 U-1000 1000	76.2 U-152.4 152.4 U-304.8 304.8	4.8 8.7 8.9 16.5 18.0	3	(7x30) [.76]	.008	.20	.020	.51	.145	3.68	Blk. Red Wht	32	102	60	191

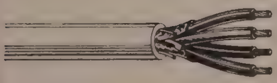
PRODUCT DESCRIPTION: *Tinned copper, polypropylene insulated, conductors cabled, BELDFOIL aluminum-polyester shield, 22 AWG stranded tinned copper drain wire, brown PVC jacket. 100% shield coverage.*

Suggested working voltage: 200.

Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m
8771 UL **2093** **300V** **60C**	250 U-500 500 U-1000 1000	76.2 U-152.4 152.4 U-304.8 304.8	5.5 10.5 10.5 20.0 21.2	3	(7x30) [.76]	.016	.41	.025	.64	.183	4.65	Blk. Red Clear	23	75	41	134

PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, conductors cabled, BELDFOIL aluminum-polyester shield, 22 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage. Chrome PVC jacket.*

STRANDED CONDUCTORS (19 x 34) .79 mm diam.



BELDFOIL
100% Shield Coverage

Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m
8729 UL **2094** **300V** **60C**	U-500 500 U-1000 1000	U-152.8 152.8 U-304.8 304.8	20.8 21.5 40.6 41.6	4	(19x34) [.79]	.016	.41	.053	1.35	.265	6.73	Red Blk Grn Clear	22	72	42	138

PRODUCT DESCRIPTION: *tinned copper, polyethylene insulated, conductors cabled, BELDFOIL aluminum-polyester shield, 3—23 AWG solid tinned copper coated steel and 1—25 AWG stranded tinned copper coated steel drain wires, white PVC jacket. Belden U.S. Patent 3,673,315 and Belden Canadian Patent 875,187. 100% shield coverage*

†Passes the VW-1 vertical wire flame test.

**Capacitance between conductors*

***Capacitance between 1 conductor and other conductors connected to shield*

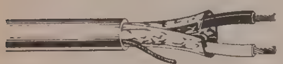
COOPER INDUSTRIES

BELDEN

MULTI-CONDUCTOR CABLES
Overall Beldfoil Shielded Cables

SOUND, BROADCAST, AUDIO & INSTRUMENTATION CABLES (cont'd.)

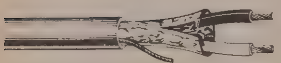
20 GAGE
STRANDED CONDUCTORS (7 x 28) .97 mm diam.



BELDFOIL
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths		Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness		Jacket Thickness		Nominal O.D.		Color Coding	Nominal Capacitance			
		ft.	m				Inch	mm	Inch	mm	Inch	mm		* pF/ft.	* pF/m	** pF/ft.	** pF/m
PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, twisted pair. BELDFOIL aluminum-polyester shield, 20 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.*	**8762** **2092** **300V** **60C**	100	30.5	2 6	2	(7x28) [.97]	.016	.41	.028	.71	.204	5.18	Blk. Clear	27	89	49	161
		250	76.2	6.3													
		U-500	U-152 4	12 2													
		500	152.4	12 8													
		U-1000	U-304 8	23.4													
		1000	304 8	24 3													
		2000	609 6	49.8													
PRODUCT DESCRIPTION: *Tinned copper PVC insulated, twisted pair. BELDFOIL aluminum-polyester shield, 22 AWG stranded tinned copper drain wire, beige PVC jacket. 100% shield coverage.*	**9154**† **2464** **300V** **80C**	U-500	U-152.4	11.0	2	(7x28) [.97]	.013	.33	.031	.79	.198	5.03	Blk. Red	60	197	100	328
		500	152.4	12.5													
		U-1000	U-304.8	22.0													
		1000	304.8	23.0													
PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, conductors cabled. BELDFOIL aluminum-polyester shield, 20 AWG stranded tinned copper drain wire, PVC jacket. 100% shield coverage*	**8772** **2093** **300V** **60C**	U-500 Chrome	U-152.4	14 6	3	(7x28) [.97]	.016	.41	.028	.71	.208	5.28	Blk. Red Clear	27	89	51	167
		500 Chrome Lt. Beige	152.4	15.3													
		U-1000 Chrome	U-304.8	28.5													
		1000 Chrome Lt. Beige	304.8	29 0													

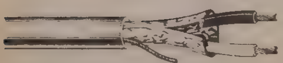
18 GAGE
STRANDED CONDUCTORS (16 x 30) 1.19 mm diam.



BELDFOIL
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths		Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness		Jacket Thickness		Nominal O.D.		Color Coding	Nominal Capacitance			
		ft.	m				Inch	mm	Inch	mm	Inch	mm		* pF/ft.	* pF/m	** pF/ft.	** pF/m
PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, twisted pair. BELDFOIL aluminum-polyester shield, 20 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.* *The BELDFOIL shield combines high cable reliability with ease of termination.*	**8760** **2092** **300V** **60C**	250	76.2	7.5	2	(16x30) [1.19]	.018	.46	.028	.71	.222	5.64	Blk. Clear	27	89	49	161
		U-500	U-152.4	14 0													
		500	152.4	15 0													
		U-1000	U-304.8	27 0													
		1000	304.8	28.5													
		2000	609.6	58 3													
		5000	1524.0	135 6													
PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, conductors cabled. BELDFOIL aluminum-polyester shield, 20 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.*	**8770** **2093** **300V** **60C**	U-500	U-152.4	18.0	3	(16x30) [1.19]	.018	.46	.028	.71	.236	5.99	Blk. Red Clear	24	79	48	157
		500	152.4	38.6													
		U-1000	U-304,8	36.0													
		1000	304.8	37 0													
PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, conductors cabled. BELDFOIL aluminum-polyester shield overall, 20 AWG stranded tinned copper drain wire. chrome PVC jackets. 100% shield coverage.*	**9418**† **2464** **300V 80C** **S-R PVC**	100	30.4	5.2	4	(19x30) [1.19]	.010	.25	.035	.89	.245	6.22	Blk. Red Wht. Grn.	60	200	110	360
		U-500	U-152.4	23.5													
		500	152.4	24.2													
		U-1000	U-304.8	46.1													
		1000	304.8	46.9													

16 GAGE
STRANDED CONDUCTORS (19 x 29) 1.42 mm diam.



BELDFOIL
100% Shield Coverage

Description	Trade & UL Style Number	Standard Lengths		Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness		Jacket Thickness		Nominal O.D.		Color Coding	Nominal Capacitance			
		ft.	m				Inch	mm	Inch	mm	Inch	mm		* pF/ft.	* pF/m	** pF/ft.	** pF/m
PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, twisted pair. BELDFOIL aluminum-polyester shield, 18 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.* *The BELDFOIL shield combines high cable reliability with ease of termination.*	**8719** **2106** **600V** **60C**	U-500	U-152.4	23.3	2	(19x29) [1.42]	.032	.81	.032	.81	.304	7.72	Blk. Clear	24	79	47	154
		500	152.4	24.2													
		U-1000	U-304.8	45.7													
		1000	304.8	49.7													
		2000	609.6	101.4													
		5000	1524.0	247.8													
PRODUCT DESCRIPTION: *Polyethylene insulated, conductors cabled. BELDFOIL aluminum-polyester shield, 18 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.*	**8618** **2107** **600V** **60C**	U-500	U-152.4	29.0	3	(19x29) [1.42]	.031	.79	.031	.79	.318	8.08	Blk. Red Clear	26	85	60	164
		500	152.4	30.1													
		1000	304.8	64.8													

*Capacitance between conductors

**Capacitance between 1 conductor and other conductor connected to shield

†Passes the VW-1 vertical wire flame test

MULTI-CONDUCTOR CABLES
Overall Beldfoil® Shielded Cables

COOPER INDUSTRIES **BELDEN**

SOUND, BROADCAST, AUDIO & INSTRUMENTATION CABLES (cont'd.)

14 GAGE
STRANDED CONDUCTORS (19 x 27) 1.80 mm diam.

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	* pF/ft	* pF/m	** pF/ft.	** pF/m
BELDFOIL **100% Shield Coverage**	**8720** **2106** **600V** **60C**	U-500 500 1000 2000	U-152.4 152.4 304.8 609.6	31.5 32.0 68.0 132.7	2	(19x27) [1.80]	.032	.81	.035	.89	.340	8.64	Blk. Clear	24	79	47	154

PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, twisted pair, BELDFOIL aluminum-polyester shield. 16 AWG stranded tinned copper drain wire, chrome PVC jacket. 100% shield coverage.*

The BELDFOIL shield combines high cable reliability with ease of termination

12 GAGE
STRANDED CONDUCTORS (19 x 25) 2.29 mm diam.

Description	Trade & UL Style Number	Standard Lengths ft.	Standard Lengths m	Std. Pkg. Lb. ea.	No. of Cond	(Stranding) [Diam. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Color Coding	* pF/ft	* pF/m	** pF/ft.	** pF/m
BELDFOIL **100% Shield Coverage**	**8718** **2106** **600V** **60C**	U-500 500 1000 2000	U-152.4 152.4 304.8 609.6	47.0 51.0 100.0 199.9	2	(19x25) [2.29]	.037	.94	.040	1.02	.400	10.16	Blk., Clear	25	82	49	161

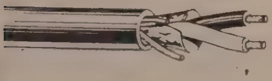
PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, twisted pair, BELDFOIL aluminum-polyester shield. 14 AWG stranded tinned copper drain wire, chrome PVC jacket 100% shield coverage.*

The BELDFOIL shield combines high cable reliability with ease of termination

THERMOCOUPLE EXTENSION WIRE

PVC INSULATED AND JACKETED (TWISTED SHIELDED)

PRODUCT DESCRIPTION: *Solid conductor (see type designation chart for conductor type). PVC insulated conductors cabled. BELDFOIL® aluminum polyester shield. Nylon ripcord to facilitate stripping. PVC jacket.*

Description	Type	Trade & U.L. Style Number	Standard Length ft.	Standard Length m	Weight	No. of Cond.	AWG (Stranding) [Dia. in mm]	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O. D. Inch	Nominal O. D. mm	Cond. Color Coding
	JX	**NEW 9661**	500 1000	152 4 304.8	21.8 42.2	2 (JPX)	16 (Solid) [1.29]	017	.43	.037	.94	.250	6.35	See Type Chart Below
	KX	**NEW 9662**	500 1000	152.4 304.8	22.2 42.8	2 (KPX)	16 (Solid) [1.29]	.017	.43	.037	.94	.250	6.35	See Type Chart Below
	EX	**NEW 9663**	500 1000	152 4 304 8	22.2 42.9	2 (EPX)	16 (Solid) [1.29]	017	.43	.037	.94	250	6.35	See Type Chart Below
	TX	**NEW 9664**	500 1000	152 4 304 8	22.3 43.0	2 (TPX)	16 (Solid) [1.29]	017	.43	.037	.94	.250	6.35	See Type Chart Below

THERMOCOUPLE EXTENSION WIRE TYPE DESIGNATIONS

ASA TYPE	Alloys Positive	Alloys Negative	Insulation Colors Positive	Insulation Colors Negative	Jacket Color
EX	Chromel	Constantan	Purple	Red	Purple
JX	Iron	Constantan	White	Red	Black
KX	Chromel	Alumel	Yellow	Red	Yellow
TX	Copper	Constantan	Blue	Red	Blue

**Capacitance between conductors*

***Capacitance between 1 conductor and other conductor connected to shield*

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BELDEN
COOPER INDUSTRIES

MULTI-CONDUCTOR CABLES
Paired, Overall Beldfoil® Shielded Cables

Applications:
- Instrumentation
- Computer
- Point of sale

Paired, Overall Beldfoil Shielded Cables

28 GAGE
SOLID CONDUCTORS .32 mm diam.

BELDFOIL
100% Shield Coverage

Description	Trade & U.L.Style Number	Standard Length ft.	Standard Length m	Std. Pkg. Lb. ea.	No. of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft	** pF/m
BELDFOIL 100% Shield Coverage	**8640**† **105C**	250 U-500 500	76.2 U-152.4 152.4	1.5 3.2 2.6	1	.0025	.064	.020	.51	.090	2.29	55	180	105	344

PRODUCT DESCRIPTION:
Solid copper. GEOSOL™ insulated (solderable–no stripping required), twisted pair, BELDFOIL aluminum-polyester shield. 30 AWG solid tinned copper covered steel drain wire, white PVC jacket. Maximum operating temperature 105°C.
Ideal for Instrumentation and Audio Console Work where Subminiaturization is Required. The BELDFOIL shield combines high cable reliability with ease of termination
Color code. Black, Red ***Suggested working voltage: 100***

24 GAGE
STRANDED CONDUCTORS (19 x 36) .64 mm diam.

BELDFOIL
100% Shield Coverage

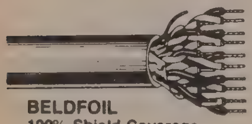
Description	Trade & U.L.Style Number	Standard Length ft.	Standard Length m	Std. Pkg. Lb. ea.	No. of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft	** pF/m
BELDFOIL 100% Shield Coverage	**9452** **75C**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	1.4 6.3 5.9 11.5 11.3	1	.008	.020	.20	.51	.135	3.43	30	98	58	190

PRODUCT DESCRIPTION:
Tinned copper, polypropylene insulated, twisted pair, noise reducing tape. 24 AWG stranded tinned copper drain wire, BELDFOIL aluminum-polyester shield, black PVC jacket. Balanced pair instrumentation cable featuring short lay cabling to minimize pick-up of electromagnetic interference and special conductive textile tape to minimize microphonic noise
Color code Black, Red ***Suggested working voltage: 200***

INSTRUMENTATION, COMPUTER & P.O.S. CABLES

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam.

BELDFOIL
100% Shield Coverage



BELDFOIL
100% Shield Coverage

Description	Trade & U.L.Style Number	Standard Length ft.	Standard Length m	Std. Pkg. Lb. ea.	No. of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft	** pF/m
BELDFOIL 100% Shield Coverage	**8641** **2092** **300V** **60C**	100 U-500 500 U-1000 1000 2000	30.5 U-152.4 152.4 U-304.8 304 8 609.6	2.0 7.7 7.4 14.4 15 1 28.6	1	.016	.41	.025	.64	.168	4.27	22	72	42	138

PRODUCT DESCRIPTION:
Tinned copper, polyethylene insulated, twisted pair, BELDFOIL aluminum-polyester shield 24 AWG stranded tinned copper drain wire, chrome PVC jacket.
The BELDFOIL shield combines high cable reliability with ease of termination
Color code: Black, Clear

Description	Trade & U.L.Style Number	Standard Length ft.	Standard Length m	Std. Pkg. Lb. ea.	No. of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft	** pF/m
BELDFOIL 100% Shield Coverage	**9501**† **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	1.7 7.7 7.4 14.3 15.0	1	.010	.25	.032	.81	.156	3.96	41	135	75	246

PRODUCT DESCRIPTION:
Tinned copper, PVC insulated, twisted pairs, overall BELDFOIL aluminum-polyester shield, 24 AWG stranded tinned copper drain wire, chrome PVC jacket.
For color coding, please refer to chart 3, Technical Information Section.

Description	Trade & U.L.Style Number	Standard Length ft.	Standard Length m	Std. Pkg. Lb. ea.	No. of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft	** pF/m
	9502† **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	2.6 15.1 15.5 28.9 29.7	2	.010	.25	.032	.81	.222	5.64	30	98	50	164

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, twisted pairs, overall BELDFOIL aluminum-polyester shield, 24 AWG stranded tinned copper drain wire, chrome PVC jacket. For color coding, please refer to chart 3, Technical Information Section.*

Capacitance between conductors.
Capacitance between 1 conductor and other conductor connected to shield.

†Passes the VW-1 vertical flame test.

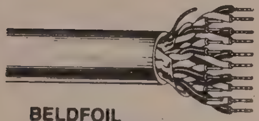
MULTI-CONDUCTOR CABLES
Paired, Overall Beldfoil® Shielded Cables

COOPER INDUSTRIES **BELDEN**

INSTRUMENTATION, COMPUTER & P.O.S. CABLES (cont'd.)

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam. (cont'd.)

PRODUCT DESCRIPTION:
Tinned copper, PVC insulated, twisted pairs, overall BELDFOIL aluminum-polyester shield, 24 AWG stranded tinned copper drain wire, chrome PVC jacket. For color coding, please refer to chart 3, Technical Information Section.



Description	Trade & U.L.Style Number	Standard Length ft.	Standard Length m	Std. Pkg Lb ea	No. of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance • pF/ft.	Nominal Capacitance • pF/m	Nominal Capacitance •• pF/ft.	Nominal Capacitance •• pF/m
BELDFOIL **100% Shield Coverage**	**9503†** **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	3.3 14.4 15.0 27.7 28.6	3	.010	.25	.032	.81	.232	5.89	30	96	50	164
	9504† **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	3.9 17.8 18.6 34.7 35.7	4	.010	.25	.032	.81	.265	6.73	30	98	50	164
	9505† **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	4.9 22.0 22.9 43.0 47.0	5	.010	.25	.035	.89	.295	7.49	30	98	50	164
	9506† **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	5.2 23.7 24.4 46.3 50.2	6	.010	.25	.035	.89	.295	7.49	30	98	50	164
	9507† **2464** **300V 80C** **S-R PVC**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	5.6 26.0 26.8 51.0 54.9	7	.010	.25	.035	.89	.300	7.62	30	98	50	164
	9508† **2464** **300V 80C** **S-R PVC**	100 500 1000	30.5 152.4 304.8	6.4 30.6 64.8	8	.010	.25	.035	.89	.330	8.38	30	98	50	164
	9509† **2464** **300V 80C** **S-R PVC**	100 500 1000	30.5 152.4 304.8	7.0 33.4 70.3	9	.010	.25	.035	.89	.340	8.64	30	98	50	164

Capacitance between conductors
Capacitance between 1 conductor and other conductor connected to shield. *†Passes the VW-1 vertical wire flame test*

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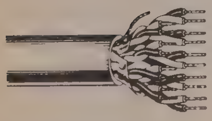
BELDEN
COOPER INDUSTRIES

MULTI-CONDUCTOR CABLES
Paired, Overall Beldfoil® Shielded Cables

INSTRUMENTATION, COMPUTER & P.O.S. CABLES (cont'd.)

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam. (cont'd.)

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, twisted pairs, overall BELDFOIL aluminum-polyester shield, 24 AWG stranded tinned copper drain wire, chrome PVC jacket. For color coding, please refer to chart 3, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Length ft.	Standard Length m	Std. Pkg Lb. ea	No of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O D Inch	Nominal O D mm	Nominal Capacitance * pF/ft	* pF/m	** pF/ft	** pF/m
 **BELDFOIL** 100% Shield Coverage	**9510**† ЯU **2464** 300V 80C SP S-R PVC	100 500 1000	30.5 152.4 304.8	8.1 40.5 81.0	10	.010	.25	.040	1.02	.380	9.65	30	98	50	164
	9515† ЯU **2464** 300V 80C SP S-R PVC	100 500 1000	30.5 152 4 304.8	11.7 55.0 108.0	15	010	.25	.040	1.02	.425	10.80	30	98	50	164
	9519† ЯU **2464** 300V 80C SP S-R PVC	100 500 1000	30 5 152 4 304.8	13.6 67.1 131.1	19	010	.25	040	1 02	.460	11.68	30	98	50	164
	9525† ЯU **2464** 300V 80C SP S-R PVC	100 500 1000	30 5 152 4 304 8	17.2 85 4 166 9	25	010	25	.045	1.14	.515	13.08	30	98	50	164
	9550† ЯU **2464** 300V 80C SP S-R PVC	100 500 1000	30 5 152.4 304 8	30.5 154.8 313.5	50	010	25	050	1.27	.700	17 78	30	98	50	164

For color coding information write for Technical Bulletin T 8-4

22 GAGE
SOLID CONDUCTORS .64 mm diam.

Description	Trade & U.L. Style Number	Standard Length ft.	Standard Length m	Std. Pkg Lb. ea	No of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O D Inch	Nominal O D mm	Nominal Capacitance * pF/ft	* pF/m	** pF/ft	** pF/m
BELDFOIL 100% Shield Coverage	**8450**† 105C	100 250 U-500 500 U-1000	30.5 76.2 U-152.4 152.4 U-304.8	1.5 3.3 6.5 5.9 11.5	1	006	15	.018	.46	.118	3.00	40	131	76	249

PRODUCT DESCRIPTION:
Tinned copper, polypropylene insulated, twisted pair, 22 AWG tinned solid copper drain wire, BELDFOIL aluminum-polyester shield, paper wrap, gray or black PVC jacket. 100% shield coverage. Belden's Miniature Type Broadcast Audio and Instrumentation Cables occupy ½ to ⅔ less space than standard cables. The BELDFOIL shield combines high cable reliability with ease of termination.
Color code. Black, Red

Suggested working voltage: 200

*Capacitance between conductors
**Capacitance between 1 conductor and other conductor connected to shield.

†Passes the VW-1 vertical wire flame test

MULTI-CONDUCTOR CABLES
Individually Shielded Pair Cables

COOPER INDUSTRIES **BELDEN**

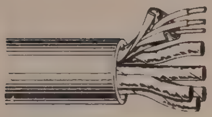
Applications:
- Audio systems
- Process control systems

Individually Shielded Pair Cables

Send for Technical Bulletin T/8-7

SHIELDED AUDIO, CONTROL AND DATA CABLES

22 GAGE
SOLID CONDUCTORS .64 mm diam.



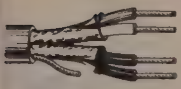
BELDFOIL®- ISO-SHIELD™
100% Individually Shielded Pairs

PRODUCT DESCRIPTION: *22 AWG tinned copper, PVC insulated, twisted pairs, each pair and its drain wire under BELDFOIL aluminum-polyester shield, overall chrome PVC jacket. Color code chart 3 in Technical Information Section. Insulation resistance between shields. 100 megohms M nom Capacitance between adjacent shields 150pF ft nom Voltage breakdown between adjacent shields 1500 volts nom. Working voltage between adjacent shields 50 volts max. PVC insulation is used for ease of stripping and soldering. Recommended for audio frequency applications requiring excellent circuit isolation*

Trade & U.L. Style Number	Standard Length ft.	Standard Length m	Std Pkg. Lb. ea.	No of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance * pF/ft.	Nominal Capacitance * pF/m	Nominal Capacitance ** pF/ft.	Nominal Capacitance ** pF/m
8767 † ЯU **2464** **300V 80C**	100 U-500 500 1000	30.5 U-152.4 152.4 304.8	4.9 22.9 23.2 48.1	3	.013	.33	.037	.94	.279	7.09	40	131	77	252
8768 † ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	8.8 44.5 88.4	6	.013	.33	.037	.94	.379	9.63	40	131	77	252
8764† ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	13.1 65.5 127.9	9	.013	.33	.040	1.02	.425	10.80	40	131	77	252
8765† ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	15.0 74.6 146.1	11	.013	.33	.040	1.02	.470	11.94	40	131	77	252
8766† ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	19.0 115.8 185.6	15	.013	.33	.045	1.14	.525	13.34	40	131	77	252

SHIELDED AUDIO AND DATA CABLES

22 GAGE
STRANDED CONDUCTORS (7 x 30) .76 mm diam.



BELDFOIL
100% Individually Shielded Pairs

Trade & U.L. Style Number	Standard Length ft.	Standard Length m	Std Pkg. Lb. ea.	No of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance * pF/ft.	Nominal Capacitance * pF/m	Nominal Capacitance ** pF/ft.	Nominal Capacitance ** pF/m
8723 80C	100 U-500 500 U-1000 1000 5000	30.5 U-152.4 152.4 U-304.8 304.8 1524.0	2.4 10.5 10.8 21.0 21.7 107.8	2	.008	.20	.019	48	.165	4.19	35	115	62	203

PRODUCT DESCRIPTION:
Tinned copper, polypropylene insulated, black and red under a BELDFOIL aluminum-polyester shield, green and white under a BELDFOIL aluminum-polyester shield, 24 AWG stranded tinned copper common drain wire, chrome PVC jacket, pairs cabled on common axis to reduce diameter. ⊖
Color code: Red, Black, Green, White. ***Suggested working voltage: 400.***

**Capacitance between conductors*
***Capacitance between 1 conductor and other conductors connected to shield.*
⊖Technical Bulletin T/8-21 & T/8-9.

†Passes the VW-1 vertical wire flame test

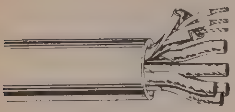
BELDEN
COOPER INDUSTRIES

MULTI-CONDUCTOR CABLES
Individually Shielded Pair Cables

SHIELDED AUDIO CONTROL AND DATA CABLES (cont'd.)

22 GAGE
STRANDED CONDUCTORS (7 x 30) .76 mm diam. (cont'd)

PRODUCT DESCRIPTION:
Tinned copper, polypropylene insulated, twisted pairs, each pair and its stranded tinned copper drain wire (22 AWG on 22 AWG and 20 AWG series, 20 AWG on 18 AWG series) under BELDFOIL aluminum-polyester shield, overall chrome PVC jacket. For color coding, please refer to chart 3, Technical Information Section.

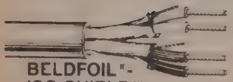


Description	Trade & U.L.Style Number	Standard Length ft.	Standard Length m	Std Pkg Lb ea	No. of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft.	** pF/m
	8777 † **2493** 60C	100 U-250 250 U-500 500 1000 5000	30.5 U-76.2 76.2 U-152.4 152.4 304.8 1524.0	5.4 12.9 13.5 24.7 25.5 52.2 256.6	3	.010	.25	.048	1.22	.301	7.65	30	98	55	180
BELDFOIL®- ISO-SHIELD™ **100% Individually Shielded Pairs**	**8778** † **2493** 60C	100 250 500 1000	30.5 76.2 152.4 304.8	10.3 23.6 48.6 95.1	6	.010	.25	.048	1.22	.401	10.19	30	98	55	180
	8774 † **2493** 60C	100 250 500 1000	30.5 76.2 152.4 304.8	13.4 30.6 65.1 127.1	9	.010	.25	.048	1.22	.443	11.26	30	98	55	180
	8775 † **2493** 60C	100 250 500 1000	30.5 76.2 152.4 304.8	30.1 35.4 74.2 145.8	11	.010	.25	.048	1.22	.486	12.34	30	98	55	180
	9768 † **2493** 60C	100 250 500 1000	30.5 76.2 152.4 304.8	15.7 37.0 77.5 152.1	12	.010	.25	.048	1.22	.486	12.34	30	98	55	180
	8776 † **2493** 60C	100 250 500 1000	30.5 76.2 152.4 304.8	20.9 52.8 103.5 208.1	15	.010	.25	.065	1.65	.580	14.73	30	98	55	180
	9769 † **2493** 60C	100 250 500 1000	30.5 76.2 152.4 304.8	25.0 60.2 117.5 228.1	17	.010	.25	.065	1.65	.615	15.62	30	98	55	180
	8769 † **2493** 60C	100 250 500 1000	30.5 76.2 152.4 304.8	26.7 64.4 125.7 244.4	19	.010	.25	.065	1.65	.625	15.88	30	98	55	180
	8773 † **2493** 60C	100 250 ♦ 500 ♦ 1000 ♦	30.5 76.2 152.4 304.8	35.8 87.6 176.2 338.4	27	.010	.25	.070	1.78	.745	18.92	30	98	55	180
	9767 † **2493** 60C	100 250 ♦ 500 ♦ 1000 ♦	30.5 76.2 152.4 304.8	44.2 112.4 228.8 487.6	37	.010	.25	.075	1.91	.850	21.6	30	98	55	180

250, 500 & 1000 ft. lengths + 20% 0 length tolerance

20 GAGE
STRANDED CONDUCTORS (7 x 28) .94 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, PVC insulated, twisted pairs, each pair BELDFOIL aluminum-polyester shielded, #22 AWG stranded tinned copper drain wire, chrome PVC jacket. Color code: 1 pair Red, Black, 1 pair Green, White.*



Description	Trade & U.L.Style Number	Standard Length ft.	Standard Length m	Std Pkg Lb ea	No. of Pairs	Insulation Thickness Inch	Insulation Thickness mm	Jacket Thickness Inch	Jacket Thickness mm	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft.	** pF/m
BELDFOIL®- ISO-SHIELD™ **100% Shield Coverage**	**9402** † **2464** 300V 80C	U-500 1000	U-152.4 304.8	22.3 48.1	2	.010	.25	.035	.89	.300	7.62	55	180	95	312

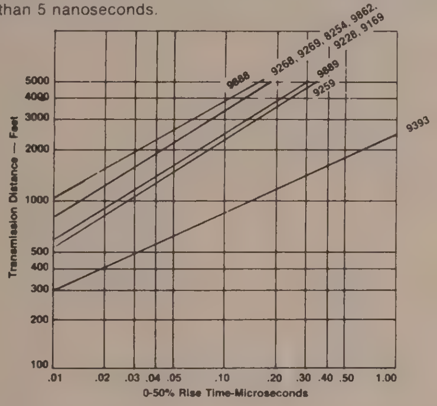
*Capacitance between conductors
**Capacitance between 1 conductor and other conductor connected to shield.

†Passes the VW-1 vertical wire flame test.
♦ Spools are one piece, but length may vary + 20% –0 from length shown.

Coaxial Computer Cables

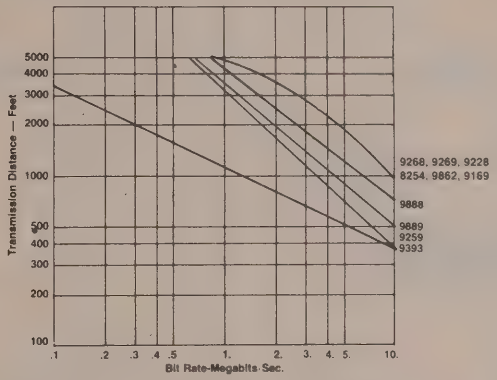
RISE TIME

Cables are terminated in their characteristic impedance. Signal source electrical characteristics: 50 ohms and 10% to 90% rise time less than 5 nanoseconds.

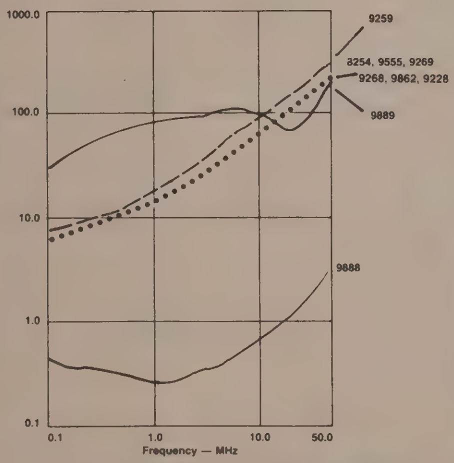


BIT RATE

Charts assume 5% peak to peak time jitter as determined by eye pattern measurements of pseudorandom NRZ code.



TRANSFER IMPEDANCE (Milliohms/Meter)

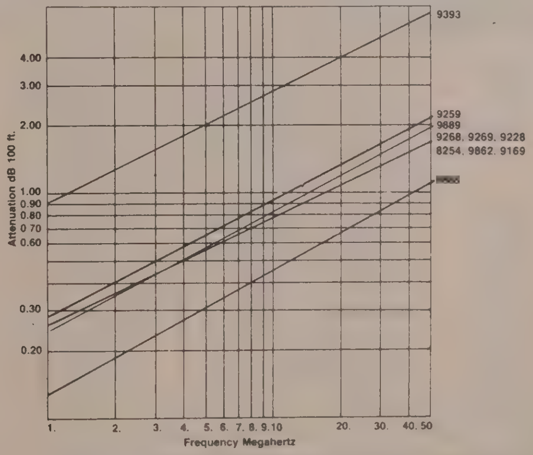


SINUSOIDAL FREQUENCY ATTENUATION CHART

Locate the line on the chart which represents the desired cable

Locate the frequency on the bottom horizontal scale

Read up to the desired line and then across to the vertical scale on the left to find attenuation figure for that frequency.



Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt. Lb. ea.	Nom. D.C.R. Center Cond	Nom. D.C.R. Shield	Jacket	Nominal O.D Inch	Nominal O.D mm	Nom Imp (ohms)	Nom Vel of Prop	Nominal Capacitance pF ft	Nominal Capacitance pF m
					50 ohm							
9889• 1354 **58/U TYPE**	500 1000 2000	152.4 304.8 609.6	15.0 28.6 58.4	18 (Solid) [1.02] bare copper 7.5Ω/M' 24.6Ω/km	1 DUOFOIL• with 4/24 AWG tinned copper drain wires 25Ω M' 82Ω km'	Black PVC	.216	5.49	50	78%	26	85.3
							100% shield coverage					
					50 ohm							
9888† **80C** **8/U TYPE**	500 1000	152.4 304.8	72.8 142.6	11 (7x19) [2.74] bare copper 1.17Ω/M' 3.8Ω km	2 bare copper Inner .12Ω/M' 3.9Ω km Outer 2.1Ω/M' 6.9Ω km 98% shield coverage	Black polyethylene	480	12.19	50	78%	26.0	85

† Passes the VW-1 vertical wire flame test.

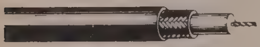
• Belden U.S. Patent 3,927,247   Canadian Putent 825,188

Western Regional Sales Office, 2955 E. Main St., Suite 300, Irvine, CA 92714 Phone: 714-474-1200 • **Central Regional Sales Office,** P.O. Box 1980, Richmond, IN 47375 Phone: 317-983-5200 • **South Central Regional Sales Office,** 14651 Dallas Pkwy, Suite 144, Dallas, TX 75240 Phone: 214-788-4300
Eastern Regional Sales Office, 100 Pennsylvania Ave., Suite 450, Framingham, MA 01701 Phone: 617-872-7846

BELDEN
COOPER INDUSTRIES

COMPUTER CABLES
Coaxial Cables

COAXIAL COMPUTER CABLES (cont'd.)

Trade & U L Style Number	Standard Lengths		Pkg. Wt. Lb. ea.	Nom. D.C.R.		Jacket	Nominal O.D.		Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance	
	ft.	m		Center Cond.	Shield		Inch	mm			pF/ ft.	pF/ m
				**75 ohm**								
9259 1354 60C **59/U TYPE**	50 100 U-500 500 U-1000 1000	15.2 30.5 U-152.4 152.4 U-304.8 304.8	2.0 4.0 17.0 18.0 33.5 35.0	22 (7x30) [.76] bare copper 15.0Ω/M' 49.2Ω/km	1 bare copper 2 6Ω/M' 8.5Ω/km 95% shield coverage	Black PVC	.242	6.15	75	78%	17.3	56.8
				75 ohm								
9555 **20020** **80C** **DUAL** **RG 59/U** **TYPE**	100 500 1000	30.5 152.4 304.8	8.4 40.5 84.5	23 (Solid) [.57] bare copper covered steel 52Ω/M' 170.6Ω/km	1 bare copper 2.6Ω/M' 8.5Ω/km 95% shield coverage	Black PVC	.242 x .485	6.15 x 12.32	75	66%	20.5	67.3
				93 ohm								
9269† **1478 60C** **62 A/U** **TYPE**	100 250 U-500 500 U-1000 1000 2000	30.5 76.2 U-152.4 152.4 U-304.8 304.8 609.6	3.5 8.8 17.0 17.5 33.5 34.0 71.5	22 (Solid) [.64] bare copper covered steel 41.2Ω/M' 135.2Ω/km	1 bare copper 2.6Ω/M' 8.5Ω/km 95% shield coverage	Black PVC Indoor	.242	6.15	93	84%	13.5	44.3
9268† **1478 60C** **62 A/U** **TYPE**	U-500 500 U-1000 1000 2000	U-152.4 152.4 U-304.8 304.8 609.6	20.2 20.9 39.4 42.3 71.5	22 (Solid) [.64] bare copper covered steel 41.2Ω/M' 135.2Ω/km	1 bare copper 2.6Ω/M' 8.5Ω/km 95% shield coverage	Black PVC Outdoor	.260	6.60	93	84%	13.5	44.3
9862† **1354 60C** **M17/30-RG 62** **MIL-C-17F**	U-500 500 U-1000 1000 2000	U-152.4 152.4 U-304.8 304.8 609.6	17.4 18.13 39.4 42.3 71.5	22 (Solid) [.64] bare copper covered steel 41.2Ω/M' 135.2Ω/km	1 bare copper 2.6Ω/M' 8.5Ω/km 95% shield coverage	Black Non-contaminating PVC	242	6.15	93	84%	13.5	44.3
9228 **80C** **RG 61** **TYPE**	500 1000 2000 5000	152 4 304 8 609 6 1524.0	18 5 35.5 74.3 184.0	22 (Solid) [.64] bare copper covered steel 41.2Ω/M' 135.2Ω/km	1 bare copper 2.6Ω/M' 8.5Ω/km 95% shield coverage	Black polyethylene Flooded Direct Burial	.242	6.15	93	84%	13.5	44.3
9169 **80C** **M17/90-RG71** **MIL-C-17F**	500 1000	152 4 304 8	24 8 45 5	22 (Solid) [.64] bare copper covered steel 41.2Ω/M' 135.2Ω/km	2 - 1 bare copper 1 tinned copper each shield 95% coverage	Black polyethylene Direct Burial	245	6 22	93	84%	13.5	44.3
8254 **80C** **62/U** **JAN C 17A**	100 U-500 5000 U-1000 1000	305. U-152.4 152.4 U-304.8 304.8	4.1 18.5 19.1 35.9 36.8	22 (Solid) [.64] bare copper covered steel 55Ω/M' 180.5Ω/km	1 bare copper 2.6Ω/M' 8.5Ω/km 95% shield coverage	Black PVC	.242	6.15	93	84%	13.5	44.3
				93 ohm								
9393† **1354 60C**	100 500 1000	305. 152.4 304.8	.5 2.9 5.1	30 (Solid) coated copper [.25] 114Ω/M' max. 372.7Ω/km max.	BELDFOIL® & drain wire 55Ω/M' max. 180.4Ω/km max. 100% shield coverage	Red PVC	.100 x .115	2.79 x 2.92	93	78%	14.0	45.9

† Passes the VW-1 vertical wire flame test.

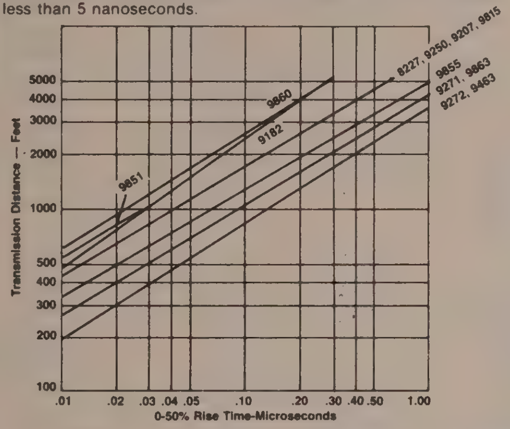
COMPUTER CABLES
Twinaxial Cables

COOPER INDUSTRIES **BELDEN**

Twinaxial 2 & 3 Pair Data Cables

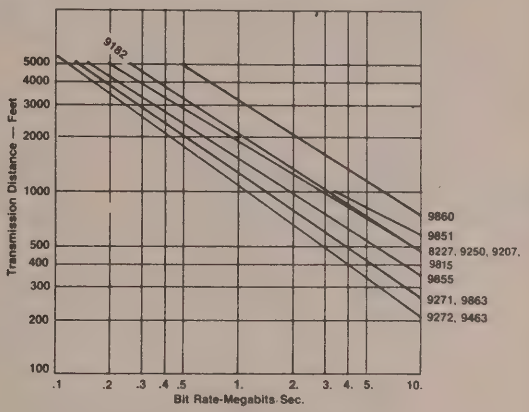
RISE TIME

Cables are terminated in their characteristic impedance. Signal source electrical characteristics: 50 ohms and 10% to 90% rise time less than 5 nanoseconds.

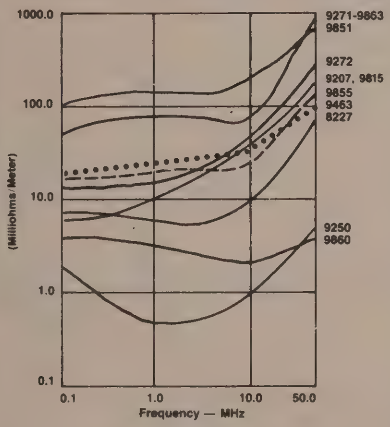


BIT RATE

Charts assume 5% peak to peak time jitter as determined by eye pattern measurements of pseudorandom NRZ code.



TRANSFER IMPEDANCE



ATTENUATION CHART

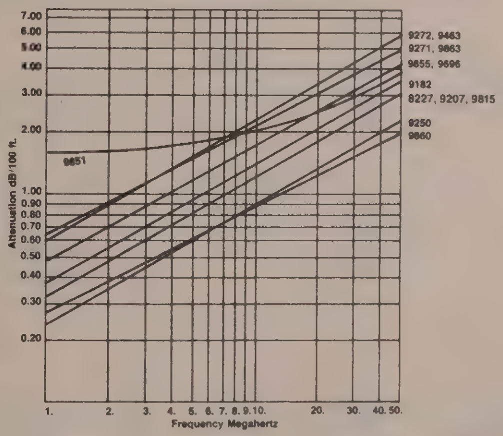
Locate the line on the chart which represents the desired cable.

Locate the frequency on the bottom horizontal scale.

Read up to the desired line and then across to the vertical scale on the left to find attenuation figure for that frequency.

6 dbv LENGTH LIMIT — DC LINE LOSSES

6 dbv limit is the cable length for which 50% of the DC input volume appears across the load if the cable is terminated in its characteristic impedance.



Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt. Lb. ea.	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	Jacket	Nominal O.D. Inch	Nominal O.D. mm	Nom. Vel. of Prop.	Nominal Capacitance pF/ft.	Nominal Capacitance pF/m	6 dbv Length Limit in Thousands of ft
78 ohm													
	9272† **2092** **60C 300V**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	4.3 19.0 19.8 36.7 37.7	2 Cond. 20 (7x28) [.97] tinned copper 9.5Ω/M' 31.2Ω/km	1 tinned copper braid 3.4Ω/M' 11.2Ω/km 93% shield coverage	Blue PVC	.242	6.15	66%	19.7	64.6	4.1
	9463† **2582** **60C 150V**	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	3.7 18.0 19.0 33.0 37.6	2 Cond. 20 (7x28) [.97] tinned copper 9.5Ω/M' 31.2Ω/km	BELDFOIL® with 57% tinned copper braid 4.05Ω/M' 13.29Ω/km 100% shield coverage	Blue PVC	.243	6.17	66%	19.7	64.6	4.1
95 ohm													
 22 B/U TYPE	**9250†** **80C**	100 500 1000	30.5 152.4 304.8	13.5 64.6 127.3	2 Cond. 18 (7x.0152) [1.16] bare copper, one conductor has tinned center strand 6.55Ω/M' 21.5Ω/km	2 tinned .88Ω/M' 2.9Ω/km 96% shield coverage	Black Non-contaminating PVC	.420	10.67	66%	16.0	52.5	7.2

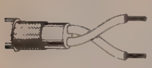
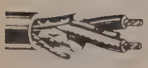
† Passes the VW-1 vertical wire flame test.

COOPER INDUSTRIES

BELDEN

COMPUTER CABLES
Twinaxial Cables

TWINAXIAL 2 & 3 PAIR DATA CABLES (cont'd.)

Description	Trade & U.L. Style Number	Standard Lengths		Pkg. Wt. Lb. ea.	Nom. D.C.R.		Jacket	Nominal O.D.		Nom. Vel. of Prop.	Nominal Capacitance		6 dbv Length Limit in Thousands of ft.
		ft.	m		Center Cond.	Shield		Inch	mm		pF/ ft.	pF/ m	
100 ohm													
	**8227†** 2498 80C 300V	500 1000 2000	152.4 304.8 609.6	30.3 62.4 127.3	2 Cond. 20 (7x28) [.97] 1 tinned copper 1 bare copper 9.5Ω/M' 31.2Ω/km	1 tinned copper 2.7Ω/M' 8.86Ω/km 85% braid coverage	Black PVC	.330	8.38	66%	15.5	50.9	5.3
	9207† 2498 80C 300V	100 U-500 500 1000 2000	30.5 U-152.4 152.4 304.8 609.6	7.1 32.9 33.8 68.8 140.0	2 Cond 20 (7x28) [.97] 1 cond. tinned 1 cond. bare 9.5Ω/M' 31.2Ω/km	1 tinned copper braid 2.0Ω/M' 6.56Ω/km 95% braid coverage	Black PVC	330	8 38	66%	15 5	50 9	5 3
	NEW 9815 **Direct Burial**	100 U-500 500 1000 2000	30.5 U-152.4 152.4 304.8 609.6	7.1 32.9 33.8 68.8 140.0	2 Cond. 20 (7x28) [.97] 1 cond. tinned 1 cond. bare 9.5Ω/M' 31.2Ω/km	1 tinned copper braid 2.0Ω/M' 6.56Ω/km 95% braid coverage	Black Polyethylene Direct Burial	.330	8.38	66%	15 5	50.9	5.3
	9855† 2582 60C 150V	100 250 U-500 500 1000	30.5 76.2 U-152.4 152.4 304.8	2.4 5.9 22.0 25.9 52.2	2 Pair 22 (Solid) [.64] tinned copper 16.5Ω/M' 54.1Ω/km	BELDFOIL* with solid tinned copper drain wire & 58% tinned copper braid 4.2Ω/M' 13.8Ω/km 100% shield coverage	Black PVC	.315	8.00	66%	15 5	50.9	3 0
							COLOR CODE: One pair, Red, Blue and one pair, Black, Yellow.						
	9696 2919 80C 30V	100 500 U-500 1000	30.5 76.2 U-76.2 304.8	4.6 20.6 21.5 44.2	2 Pair 22 (Solid) [.64] bare copper 16.5Ω/M' 54.1Ω/km	BELDFOIL with solid tinned copper drain wire & 58% tinned copper braid 4.2Ω/M' 13.8Ω/km 100% shield coverage	Black PVC	.296	7.52	66%	15.5	50.9	3.0
							COLOR CODE: One pair, Blue, White with Blue Stripe and one pair, Orange, White with Orange Stripe.						
124 ohm													
	9860† 2448 60C 30V	500 1000 2000	152.4 304.8 609.6	53.0 104.0 209.6	2 Cond. 16 (Solid) [1.29] bare copper 4.2Ω/M' 13.8Ω/km	1 DUOFOIL* tape 94% tinned copper braid 1.3Ω/M' 4.3Ω/km 100% shield coverage	Black PVC	.440	11.18	78%	Between Cond. 10 9 Shield ungrn'd	35.8	14.8
	9271 2092 60C 300V	100 U-500 500 U-1000 1000	30.5 U-152.4 152.4 U-304.8 304.8	3.0 13.0 14.2 25.5 27.0	2 Cond. 25 (7x33) [.53] tinned copper 31.8Ω/M' 104.3Ω/km	BELDFOIL with stranded tinned copper drain wire 12Ω/M' 39.4Ω/km 100% shield coverage	Blue PVC	242	6 15	66%	12 2	40.0	1 9
	9863 2094 60C 300V	100 500 1000	30.5 152.4 304.8	8.4 40.0 79.9	6 Cond. 25 (7x33) [.53] tinned copper (3 pair) 31.8Ω/M' 104.3Ω/km	BELDFOIL with stranded tinned copper drain wire over each pair 12Ω/M' 39.4Ω km 100% shield coverage	Blue PVC	.430	11.43	66%	12.2	40.0	1.9
150 ohm													
	9182† 2668 60C 30V	U-500 500 1000	U-152.4 152.4 304.8	21.1 21.7 47.0	2 Cond. 22 (19x34) [.79] tinned copper 14Ω/M' 46Ω/km	DUOFOIL with stranded tinned copper drain wire 6.3Ω/M' 20.7Ω/km 100% shield coverage	Black PVC	.350	8.89	78%	8.8	28.9	5.4
200 ohm													
	**9851†** 2777 60C 300V	100 500 1000	30.5 152 4 304.8	2.3 10 5 20.1	29 (Solid) [.29] (1 pair) Silver-plated Copper-coated steel .202Ω/M' 622Ω km	BELDFOIL with stranded tinned copper drain wire 25Ω M' 82Ω km 100% shield coverage	Chrome PVC	.245	6.22	76%	6.7	22.0	.5

† Passes the VW-1 vertical wire flame test.

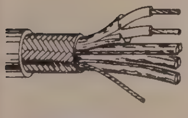
COMPUTER CABLES
Local Area Network Cables and Assemblies

BELDEN COOPER INDUSTRIES

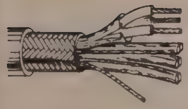
Description	Trade & Number	Standard Lengths ft	Standard Lengths m	Wt	AWG (Stranding) [Dia. in mm] D C R	No of Shields and Material D C R	Insulation & Nominal Core O D Inch	Insulation & Nominal Core O D mm	Nominal O D Inch	Nominal O D mm	Nom. Imp	Nom. Vel. of Prop	Nominal Capacitance pF ft	Nominal Capacitance pF m
TRUNK/COAXIAL CABLES														
 ETHERNET™	**9880†** **1478** **30V** **60C**	500 1000 1640	152 4 304 8 500 0	61 2 120 5 201 5	.0855 (Solid) tinned copper [2.17] 1.42Ω M' 4.66Ω km	Aluminum Polyester shield bonded to dielectric + 92% tinned copper braid + Duofoil + 92% tinned copper braid 1 52Ω M' 5 0Ω km	Cellular Polyethylene 247	6 27	405	10 28	50	78%	26	85
							PRODUCT DESCRIPTION: *Tinned copper conductor. Cellular Polyethylene dielectric. aluminum polyester foil shield. 92% overall tinned copper braid. Duofoil shield. 92% overall tinned copper braid. yellow PVC jacket*							
 6/U Type **100% Sweep Tested**	**9248†** **1354** **30V** **80C**	U-500 500 U-1000 1000	U-152 4 152 4 U-304 8 304 8	15.6 16.4 30.3 33.3	18 (Solid) [95] bare copper 7 5Ω M' 24 6Ω km	Duofoil + 61% tinned copper braid 5.2Ω M' 17 1Ω km 100% shield coverage	Cellular Polyethylene 180	4 57	270	6 86	75	78%	17 3	56 8
								Black PVC jacket						

TRANSCEIVER/DROP CABLES

PRODUCT DESCRIPTION: *Tinned copper, polyethylene insulated, twisted pairs, each pair is individually shielded with a BELDFOIL® aluminum-polyester shield (aluminum foil out). 20 AWG tinned copper drain wire, 94% coverage tinned copper braid overall, blue PVC jacket.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt. Lb. ea.	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	No. of Pairs	Nominal O D. Inch	Nominal O D. mm	Nom Imp (ohms)	Nom Vel. of Prop	Nominal Capacitance pF ft.	Nominal Capacitance pF m	Nominal Capacitance pF ft.	Nominal Capacitance pF m	6 dbv Length Limit in Thousands of ft
 **ETHERNET™**	**9891†** **2919** **30V** **80C**	100 500 1000	30.5 152.4 304.8	11.3 48.5 95.0	3 Pair 22 (7x30) [.76] 14.7Ω/M' 48.2Ω/km 1 pair 20 (7x28) [.96] 9.3Ω/M' 30.4Ω/km	4 BELDFOIL shielded pairs +94% braid overall 3.0Ω/M' 10.0Ω/km	4	.390 *Blue PVC jacket.*	9.9	78 (3 Pairs) *(20 AWG pair PVC insulated)*	66	19.7	64.6	34.7	113.8	2.6
	9892† **2919** **30V** **80C**	100 500 1000	30.5 152.4 304.8	11.0 56.3 110.6	20 (7x28) [.96] 9.3Ω/M' 30.4Ω/km	4 BELDFOIL shielded pairs +94% braid overall 3.0Ω/M' 10.0Ω/km	4	.420 *Blue PVC jacket.*	10.7	78 (3 Pairs) *(One pair PVC insulated)*	66	19.7	64.6	34.7	113.8	4.2
	9893† **2919** **30V** **80C**	100 500 1000	30.5 152.4 304.8	15.7 77.5 151.9	20 (7x28) [.96] 9.3Ω/M' 30.4Ω/km	5 BELDFOIL shielded pairs + 94% braid overall 3.0Ω/M' 10.0Ω/km	5	.500 *Blue PVC jacket.*	12.7	78 (4 Pairs) *(One pair PVC insulated)*	66	19.7	64.6	34.7	113.8	4.2

PRODUCT DESCRIPTION: *Tinned copper, polypropylene insulated, three twisted pairs and one triplet, each individually shielded with BELDFOIL aluminum polyester shield, foil out. Overall Duofoil shield with 24 AWG stranded tinned copper drain wire. 90% coverage tinned copper braid overall, fawn gray PVC jacket.*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt. Lb. ea.	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	No. of Pairs	Nominal O D. Inch	Nominal O D. mm	Nom Imp (ohms)	Nom Vel. of Prop	Nominal Capacitance pF ft.	Nominal Capacitance pF m	Nominal Capacitance pF ft.	Nominal Capacitance pF m	6 dbv Length Limit in Thousands of ft
	**NEW** **9898** **2919** **30V** **80C**	100 500 1000	30.5 152.4 304.8	4.9 23.1 46.7	1 Triplet 24 (7x32) 24Ω/M' 78.7Ω/km	BELDFOIL	1 Triplet	.260 Fawn Gray PVC Jacket Overall Duofoil	6.60	— *(Triplet is PVC insulated)*	—	—	—	—	—	—
					3 Pair 28 (7x36) 64.9Ω/M' 213.0Ω/km	BELDFOIL on pairs + BELDFOIL + 90% braid overall	3			78	66	19.7	64.6	34.7	113.8	.6

ETHERNET™ is a Trademark of Xerox
†Passes VW-1 Vertical Flame Test

**Capacitance between conductors*
***Capacitance between 1 conductor and other conductor connected to shield*

COOPER INDUSTRIES **BELDEN**

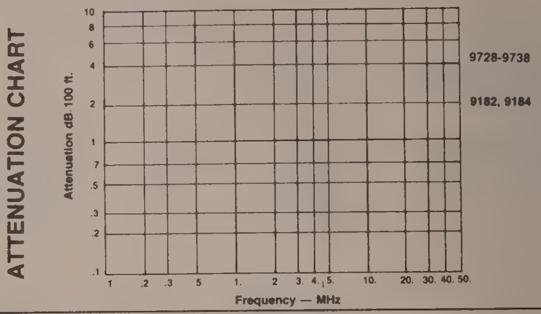
COMPUTER CABLES
Datalene Insulated Cables

Datalene™ Insulated Cables MEETS EIA RS-422 TYPE REQUIREMENTS

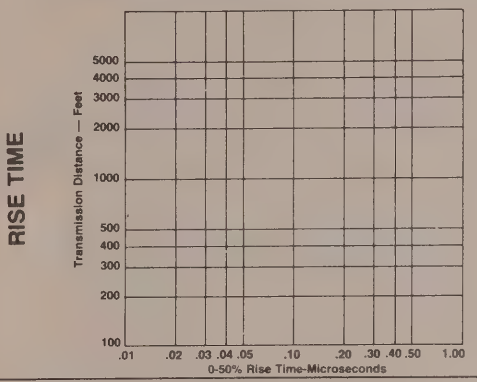
INDIVIDUALLY SHIELDED PAIRS

DATALENE — insulated line of shielded pair electronic cables are designed for precision computer and data communications applications. DATALENE insulation features are low dielectric constant, and a dissipation factor for high-speed, low-distortion data handling. Physical properties include good crush resistance and light weight.

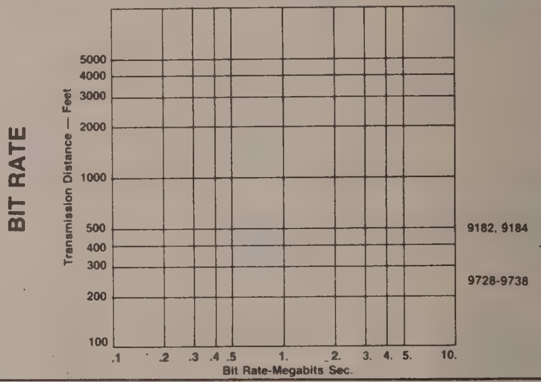
6 dbv LENGTH LIMIT — DC LINE LOSSES
6 dbv limit is the cable length for which 50% of the DC input volume appears across the load if the cable is terminated in its characteristic impedance.



Cables are terminated in their characteristic impedance. Signal source electrical characteristics: 50 ohms and 10% to 90% rise time less than 5 nanoseconds.



Charts assume 5% peak to peak time jitter as determined by eye pattern measurements of pseudorandom NRZ code.



Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt. Lb. ea.	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	No. of Pairs	Nominal O.D. Inch	Nominal O.D. mm	Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance * pF/ft.	* pF/m	** pF/ft.	** pF/m	6 dbv Length Limit in Thousands of ft.
22 GAGE STRANDED CONDUCTORS (19 x 34) .79 mm diam. Duofoil® Shield																
 100% Shield Coverage	**9182**† UL **2668** **30V** **60C**	U-500 500 1000	U-152.4 152.4 304.8	21.1 21.7 47.0	22 (19x34) [.79] tinned copper 14Ω/M' 46Ω/km	DUOFOIL with stranded tinned copper drain wire 6.3Ω/M' 20.7Ω/km	1	.350	8.89	150	78%	8.8	28.9	15.0	49.2	5.3
							Black PVC jacket.									
22 GAGE SOLID CONDUCTORS — .64 mm diam. Overall Duofoil Shield																
 100% Shield Coverage	**9184**† UL **2668** **30V** **60C**	500 1000	152.4 304.8	28.8 55.5	22 (Solid) [.64] tinned copper 16.1Ω/M' 52.8Ω/km	DUOFOIL with stranded tinned copper drain wire 6.3Ω/M' 20.7Ω/km	2	.385	9.78	150	78%	8.8	28.9	15.0	49.2	4.6
							Black PVC jacket. Conductor color code: Black yellow, Red blue.									
24 GAGE STRANDED CONDUCTORS (7 x 32) .61 mm diam.							**PRODUCT DESCRIPTION:** *Tinned copper, Datalene insulated, twisted pairs, individually shielded, drain wire 24 AWG stranded, tinned copper BELDFOIL® aluminum-polyester shield, overall chrome PVC jacket. 300V.*									
	9729† UL **2493** **60C**	100 500 1000	30.5 152.4 304.8	5.1 23.6 50.1	24 (7x32) [.61] tinned copper 24Ω/M' 78.7Ω/km	BELDFOIL with 24 AWG stranded tinned copper drain wire 18Ω/M' 59.1Ω/km	2	.335	8.51	100	78%	12.5	41.0	22.0	72.5	2.1
							Chrome PVC jacket. *For color coding, please refer to chart 3, Technical Information Section.*									

†*Passes the VW-1 vertical flame test.* **Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*

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COMPUTER CABLES
Datalene Insulated Cables

BELDEN
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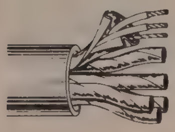
DATALENE™ INSULATED INDIVIDUALLY SHIELDED PAIRS

24 GAGE (cont'd.)
STRANDED CONDUCTORS (7 x 32) .61 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, Datalene insulated, twisted pairs, individually shielded, drain wire 24 AWG stranded, tinned copper BELDFOIL® aluminum-polyester shield, overall chrome PVC jacket. 300V. For color coding, see chart 3, Technical Information Section.*



100% Individually Shielded Pairs

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt. Lb. ea.	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	No. of Pairs	Nominal O.D. Inch	Nominal O.D. mm	Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance * pF/ft.	Nominal Capacitance * pF/m	Nominal Capacitance ** pF/ft.	Nominal Capacitance ** pF/m	6 dbv Length Limit in Thousands of ft.
	9730† 2493 60C	100 500 1000	30.5 152.4 304.8	5.2 24.6 52.6	24 (7x32) [.61] tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	3 *Chrome PVC jacket.*	.345	8.89	100	78%	12.5	41.0	22.0	72.5	2.1
	9728† 2493 60C	100 500 1000	30.5 152.4 304.8	8.50 29.00 58.07	24 (7x32) [.61] tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	4 *Chrome PVC jacket.*	.404	10.26	100	78%	12.5	41.0	22.0	72.5	2.1
	9731† 2493 60C	100 500 1000	30.5 152.4 304.8	10.0 48.9 94.8	24 (7x32) [.61] tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	6 *Chrome PVC jacket.*	.476	12.09	100	78%	12.5	41.0	22.0	72.5	2.1
	9732† 2493 60C	100 500 1000	30.5 152.4 304.8	14.0 68.8 142.4	24 (7x32) [.61] tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	9 *Chrome PVC jacket.*	.570	14.48	100	78%	12.5	41.0	22.0	72.5	2.1
	9733† 2493 60C	100 500 1000	30.5 152.4 304.8	18.2 82.8 153.1	24 (7x32) [.61] tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	11 *Chrome PVC jacket.*	.610	15.49	100	78%	12.5	41.0	22.0	72.5	2.1
	9734† 2493 60C	100 500 1000	30.5 152.4 304.8	18.5 84.4 161.8	24 (7x32) [.61] tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	12 *Chrome PVC jacket.*	.630	16.00	100	78%	12.5	41.0	22.0	72.5	2.1
	9735† 2493 60C	100 500 1000	30.5 152.4 304.8	21.9 99.8 203.6	24 (7x32) [.61] tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	15 *Chrome PVC jacket.*	.700	17.78	100	78%	12.5	41.0	22.0	72.5	2.1
	9736† 2493 60C	100 500 1000	30.5 152.4 304.8	23.8 111.7 225.2	24 (7x32) [.61] tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	17 *Chrome PVC jacket.*	.730	18.54	100	78%	12.5	41.0	22.0	72.5	2.1
	9737† 2493 60C	100 500 1000	30.5 152.4 304.8	25.1 122.3 238.6	24 (7x32) [.61] tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	19 *Chrome PVC jacket.*	.750	19.05	100	78%	12.5	41.0	22.0	72.5	2.1
	9738† 2490 60C	100 500 1000	30.5 152.4 304.8	36.5 185.4 401.0	24 (7x32) [.61] tinned copper 24Ω/M' 78.7Ω/km	18Ω/M' 59.1Ω/km	27 *Chrome PVC jacket.*	.875	22.23	100	78%	12.5	41.0	22.0	72.5	2.1

†Passes the VW-1 vertical flame test. **Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield*

BELDEN
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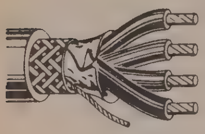
COMPUTER CABLES
Datalene Insulated Cables

DATALENE™ INSULATED MULTI-CONDUCTOR OVERALL SHIELD

28 GAGE
STRANDED CONDUCTORS (7 x 36) .38 mm diam.

PRODUCT DESCRIPTION: *Tinned copper. Datalene insulated multi-conductor cable with overall BELDFOIL* aluminum polyester plus 65% tinned copper braid shield. 28 AWG stranded, tinned copper drain wire, chrome PVC jacket. For color coding, please see chart 2R. Technical Information Section.*



Description	Trade & U.L. Style Number	Standard Lengths ft	Standard Lengths m	Pkg. Wt. Lb ea	Nom. D.C.R. Cond	Nom. D.C.R. Shield	No. of Cond	Nominal O.D. Inch	Nominal O.D. mm	Nom. Vel. of Prop.	Nominal Capacitance * pF/ft	* pF/m	** pF/ft	** pF/m
	NEW 9788• RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	2.3 10.8 20.0	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	3	.195	4.95	78%	12	39.4	22	72.2
	NEW 9789 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	2.6 12.3 23.1	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	4	.210	5.33	78%	12	39.4	22	72.2
	NEW 9790 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.0 13.8 26.1	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	5	.225	5.72	78%	12	39.4	22	72.2
	NEW 9791• RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.2 14.7 27.9	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	6	.235	5.97	78%	12	39.4	22	72.2
	NEW 9792 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.3 14.9 28.4	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	7	.235	5.97	78%	12	39.4	22	72.2
	NEW 9793 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.6 16.5 31.5	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	8	.250	6.35	78%	12	39.4	22	72.2
	NEW 9795 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.8 17.7 35.9	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	9	.260	6.60	78%	12	39.4	22	72.2
	NEW 9796 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.1 19.0 38.5	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	10	.280	7.11	78%	12	39.4	22	72.2
	NEW 9797• RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.9 23.0 47.2	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	15	.310	7.87	78%	12	39.4	22	72.2
	NEW 9798• RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	6.9 34.5 68.6	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	25	.385	9.78	78%	12	39.4	22	72.2
	NEW 9799• RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	8.3 42.7 83.4	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	37	.420	10.67	78%	12	39.4	22	72.2

*Capacitance between conductors. **Capacitance between 1 conductor and other conductors connected to shield.

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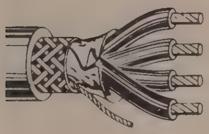
DATALENE™ INSULATED MULTI-CONDUCTOR OVERALL SHIELD (cont'd.)

24 GAGE
STRANDED CONDUCTORS (7 x 36) .61 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, Datalene insulated multi-conductor cable with overall BELDFOIL* aluminum polyester plus 65% tinned copper braid shield. 28 AWG stranded, tinned copper drain wire, chrome PVC jacket. For color coding, please see chart 2, Technical Information Section*

Description	Trade & U L Style Number	Standard Lengths ft	Standard Lengths m	Pkg. Wt. Lb ea	Nom. D.C.R. Cond	Nom. D.C.R. Shield	No. of Cond	Nominal O.D Inch	Nominal O.D mm	Nom Vel of Prop	Nominal Capacitance * pF ft	* pF m	** pF ft	** pF m
	NEW 9925• RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	2.92 14.1 26.8	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	3	.215	5.46	78%	12	39.4	22	72.2
	NEW 9927 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.47 15.9 30.4	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	4	.230	5.84	78%	12	39.4	22	72.2
	NEW 9929 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.72 17.2 32.9	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	5	.246	6.25	78%	12	39.4	22	72.2
	NEW 9931• RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.32 20.1 40.7	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	6	.265	6.73	78%	12	39.4	22	72.2
	NEW 9932 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.45 20.8 42.0	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	7	.265	6.73	78%	12	39.4	22	72.2
	NEW 9933 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.90 22.9 46.3	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	8	.280	7.11	78%	12	39.4	22	72.2
	NEW 9934 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.39 25.6 52.4	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	9	.300	7.62	78%	12	39.4	22	72.2
	NEW 9935 RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.84 27.57 56.4	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	10	.320	8.13	78%	12	39.4	22	72.2
	NEW 9936• RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	7.26 34.8 73.1	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	15	.360	9.14	78%	12	39.4	22	72.2
	NEW 9937• RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	11.2 53.0 104.0	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	25	.445	11.30	78%	12	39.4	22	72.2
	NEW 9938• RU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	14.5 71.4 139.8	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	37	.500	12.10	78%	12	39.4	22	72.2

Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.* **•AVAILABLE IN THE 3rd QUARTER 1984

BELDEN
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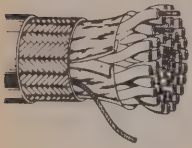
COMPUTER CABLES
Datalene Insulated Cables

DATALENE™ INSULATED MULTI-PAIR OVERALL SHIELDED

28 GAGE
STRANDED CONDUCTORS (7 x 36) .38 mm diam.

PRODUCT DESCRIPTION: *Tinned copper. Datalene insulated multi-paired cable with overall BELDFOIL® aluminum polyester plus 65% tinned copper braid shield. 28 AWG stranded, tinned copper drain wire. chrome PVC jacket. For color coding. please see chart 5, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths		Pkg. Wt. Lb. ea.	Nom. D.C.R.		No. of Pairs	Nominal O.D.		Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance				6 dbv Length Limit in Thousands of ft.
		ft.	m		Cond.	Shield		Inch	mm			* pF/ft.	* pF/m	** pF/ft.	** pF/m	
	NEW 8132• UL 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.4 15.8 30.2	28 (7x36) [.38] 64.9Ω/M′ 212.9Ω/km	—	2	.260	6.60	120	78%	11.0	36	20	66	.9
	NEW 8133• UL 2919 30V 80C	100 500 1000	30.5 152.4 304.8	3.8 17.2 35.5	28 (7x36) [.38] 64.9Ω/M′ 212.9Ω/km	—	3	.270	6.86	120	78%	11.0	36	20	66	.9
	NEW 8134 UL 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.4 20.4 41.2	28 (7x36) [.38] 64.9Ω/M′ 212.9Ω/km	—	4	290	7.37	120	78%	11.0	36	20	66	.9
	NEW 8135 UL 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.5 20.9 43	28 (7x36) [.38] 64.9Ω/M′ 212.9Ω/km	—	5	.300	7.62	120	78%	11.0	36	20	66	.9
	NEW 8136• UL 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.1 24 49.3	28 (7x36) [.38] 64.9Ω/M′ 212.9Ω/km	—	6	.330	8.38	120	78%	11.0	36	20	66	.9
	NEW 8137 UL 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.2 24.3 49.9	28 (7x36) [.38] 64.9Ω/M′ 212.9Ω/km	—	7	.330	8.38	120	78%	11.0	36	20	66	.9
	NEW 8138 UL 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.7 27.1 57.7	28 (7x36) [.38] 64.9Ω/M′ 212.9Ω/km	—	8	350	8.89	120	78%	11.0	36	20	66	.9
	NEW 8140 UL 2919 30V 80C	100 500 1000	30.5 152.4 304.8	6.7 33.9 67.8	28 (7x36) [.38] 64.9Ω/M′ 212.9Ω/km	—	10	.405	10.29	120	78%	11.0	36	20	66	.9
	NEW 8142• UL 2919 30V 80C	100 500 1000	30.5 152.4 304.8	7.3 37.7 73.5	28 (7x36) [.38] 64.9Ω/M′ 212.9Ω/km	—	12½ 12 pair + 1 single	.415	10.54	120	78%	11.0	36	20	66	.9
	NEW 8145 UL 2919 30V 80C	100 500 1000	30.5 152.4 304.8	9.7 45.4 92.7	28 (7x36) [.38] 64.9Ω/M′ 212.9Ω/km	—	15	.465	11.81	120	78%	11.0	36	20	66	.9
	NEW 8148• UL 2919 30V 80C	100 500 1000	30.5 152.4 304.8	10.4 51.3 99.5	28 (7x36) [.38] 64.9Ω/M′ 212.9Ω/km	—	18	.490	12.45	120	78%	11.0	36	20	66	.9
	NEW 8155• UL 2919 30V 80C	100 500 1000	30.5 152.9 304.8	12.6 62.3 125.5	28 (7x36) [.38] 64.9Ω/M′ 212.9Ω/km	—	25	.565	14.35	120	78%	11.0	36	20	66	.9

*Capacitance between conductors. **Capacitance between 1 conductor and other conductors connected to shield.

•AVAILABLE IN THE 3rd QUARTER 1984

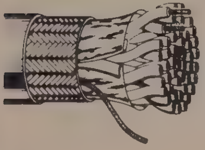
COMPUTER CABLES
Datalene Insulated Cables

COOPER INDUSTRIES **BELDEN**

DATALENE™ INSULATED MULTI-PAIR OVERALL SHIELDED (cont'd.)

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam.

PRODUCT DESCRIPTION: *Tinned copper, Datalene insulated multi-paired cable with overall BELDFOIL* aluminum polyester plus 65% tinned copper braid shield. 28 AWG stranded, tinned copper drain wire, chrome PVC jacket. For color coding, please see chart 5, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths		Pkg. Wt.	Nom. D.C.R.		No. of Pairs	Nominal O.D.		Nom. Imp.	Nom. Vel. of Prop.	Nominal Capacitance				6 dbv Length Limit in Thousands of ft
		ft.	m	Lb. ea.	Cond.	Shield		Inch	mm	(ohms)		* pF/ ft.	* pF/ m	** pF/ ft.	** pF/ m	
	NEW 8102• ᴿU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	4.4 20.7 41.9	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	2	.290	7.37	100	78%	12.5	41	22	72.5	2.1
	NEW 8103• ᴿU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.0 23.5 48.2	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	3	.305	7.75	100	78%	12.5	41	22	72.5	2.1
	NEW 8104 ᴿU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	5.7 27.2 57.9	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	4	.330	8.38	100	78%	12.5	41	22	72.5	2.1
	NEW 8105 ᴿU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	6.1 28.9 61.4	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	5	.340	8.67	100	78%	12.5	41	22	72.5	2.1
	NEW 8106• ᴿU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	7.0 35.2 70.3	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	6	.370	9.40	100	78%	12.5	41	22	72.5	2.1
	NEW 8107 ᴿU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	7.2 36.3 72.6	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	7	.370	9.40	100	78%	12.5	41	22	72.5	2.1
	NEW 8108 ᴿU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	9.1 43.3 84.6	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	8	.410	10.41	100	78%	12.5	41	22	72.5	2.1
	NEW 8110 ᴿU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	10.8 53.5 103.9	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	10	.460	11.68	100	78%	12.5	41	22	72.5	2.1
	NEW 8112• ᴿU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	11.9 58.9 114.7	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	12½ 12 pr. + 1 single	.480	12.19	100	78%	12.5	41	22	72.5	2.1
	NEW 8115 ᴿU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	14.1 69.8 140.5	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	15	.540	13.72	100	78%	12.5	41	22	72.5	2.1
	NEW 8118• ᴿU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	16.1 79.6 160.2	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	18	.570	14.48	100	78%	12.5	41	22	72.5	2.1
	NEW 8125• ᴿU 2919 30V 80C	100 500 1000	30.5 152.4 304.8	22.4 104 200.9	28 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	25	.650	16.51	100	78%	12.5	41	22	72.5	2.1

*Capacitance between conductors. **Capacitance between 1 conductor and other conductors connected to shield. •AVAILABLE IN THE 3rd QUARTER 1984

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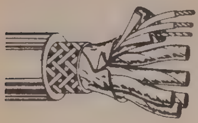
BELDEN
COOPER INDUSTRIES

COMPUTER CABLES
Datalene Insulated Cables

DATALENE™ INSULATED MULTI-PAIR INDIVIDUAL AND OVERALL SHIELDED

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam.

PRODUCT DESCRIPTION: *Tinned copper. Datalene insulated twisted pairs. Each pair has 24 AWG stranded tinned copper drain wire. Overall BELDFOIL* aluminum polyester plus 65% tinned copper shield. Chrome PVC jacket. For color coding, please see chart 3, Technical Information Section*

Description	Trade & U L Style Number	Standard Lengths		Pkg. Wt	Nom. D.C.R.		No. of Pairs	Nominal O.D.		Nom. Imp. (ohms)	Nom. Vel. of Prop.	Nominal Capacitance				6 dbv Length Limit in Thousands of ft.
		ft.	m	Lb. ea.	Cond.	Shield		Inch	mm			* pF/ft.	* pF/m	** pF/ft.	** pF/m	
	**NEW** **8162** ЯU 2493 60C	100 500 1000	30.5 152.4 304.8	6.5 33.0 65.5	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	Individual 18Ω/M' 59.1Ω/km O.A.	2	.376	9.55	100	78%	12.5	41	22	72.5	2.1
	NEW **8163** ЯU 2493 60C	100 500 1000	30.5 152.4 304.8	7.6 38.1 76.2	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	Individual 18Ω M' 59.1Ω/km Overall 4 4Ω M' 14.4Ω km	3	.396	10.06	100	78%	12.5	41	22	72.5	2.1
	NEW **8164** ЯU 2493 60C	100 500 1000	30.5 152.4 304.8	9.5 44.3 90.6	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	Individual 18Ω/M' 59.1Ω/km	4	.430	10.92	100	78%	12.5	41	22	72.5	2.1
	NEW **8165** ЯU 2493 60C	100 500 1000	30.5 152.4 304.8	10.4 51.3 99.6	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	Individual 18Ω/M' 59.1Ω/km	5	.460	11.68	100	78%	12.5	41	22	72.5	2.1
	NEW **8166** ЯU 2493 60C	100 500 1000	30.5 152.4 304.8	11.5 57 110.4	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	Individual 18Ω/M' 59.1Ω/km	6	.496	12.60	100	78%	12.5	41	22	72.5	2.1
	NEW **8167** ЯU 2493 60C	100 500 1000	30.5 152.4 304.8	11.9 58.8 114.6	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	Individual 18Ω/M' 59.1Ω/km	7	.496	12.60	100	78%	12.5	41	22	72.5	2.1
	NEW **8168** ЯU 2493 60C	100 500 1000	30.5 152.4 304.8	15.0 74.3 149.6	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	Individual 18Ω/M' 59.1Ω/km	8	.575	14.61	100	78%	12.5	41	22	72.5	2.1
	NEW **8170** ЯU 2493 60C	100 500 1000	30.5 152.4 304.8	19.8 90.8 174.6	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	Individual 18Ω M' 59.1Ω/km	10	.650	16.51	100	78%	12.5	41	22	72.5	2.1
	NEW **8175** ЯU 2493 60C	100 500 1000	30.5 152.4 304.8	24.6 115.2 234.4	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	Individual 18Ω/M' 59.1Ω/km	15	.720	18.29	100	78%	12.5	41	22	72.5	2.1
	NEW **8178** ЯU 2493 60C	100 500 1000	30.5 152.4 304.8	27.5 134.3 262.7	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	Individual 18Ω/M' 59.1Ω/km	18	.770	19.56	100	78%	12.5	41	22	72.5	2.1
	NEW **8185** ЯU 2493 60C	100 500 1000	30.5 152.4 304.8	39.1 187.5 427	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	Individual 18Ω/M' 59.1Ω/km	25	.935	23.75	100	78%	12.5	41	22	72.5	2.1

**Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*

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COMPUTER CABLES
S-R PVC Cables

COOPER INDUSTRIES **BELDEN**

S-R PVC MULTI-CONDUCTOR OVERALL SHIELDED

28 GAGE
STRANDED CONDUCTORS (7 x 36) .38 mm diam.

PRODUCT DESCRIPTION: *Tinned copper SR-PVC insulated, multi-conductor cable with overall BELDFOIL® aluminum polyester plus 65% tinned copper braid shield, chrome PVC jacket. For color coding, see chart 2R, Technical Information Section*

Description	Trade & U.L. Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt Lb ea	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	No of Cond	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance * pF ft	Nominal Capacitance * pF m	Nominal Capacitance ** pF ft	Nominal Capacitance ** pF m
	NEW 9628• ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	1.8 7.9 16.2	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	14.2Ω/M 46.6Ω/km	3	.165	4.19	28.0	91.9	51.0	167.4
	NEW 9629• ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	2.2 9.7 19.5	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	9.4Ω/M 30.9Ω/km	4	.178	4.52	28.0	91.9	51.0	167.4
	NEW 9630• ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	2.4 10.8 21.8	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	5	.188	4.78	28.0	91.9	51.0	167.4
	NEW 9631• ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	2.7 11.9 24.1	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	10.2Ω/M ' 33.5Ω/km	6	.198	5.03	26.0	85.4	47.0	154.3
	NEW 9632• ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	2.7 12.2 24.7	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	10.2Ω/M ' 33.5Ω/km	7	.198	5.03	26.0	85.4	47.0	154.3
	NEW 9633• ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.1 14.2 26.9	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	10.4Ω/M ' 34.1Ω/km	8	.208	5.28	26.0	85.4	47.0	154.3
	NEW 9634• ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.4 15.5 29.6	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	9	.220	5.59	26.0	85.4	47.0	154.3
	NEW 9635• ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.6 16.8 32.2	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	7.0Ω/M ' 23.0Ω/km	10	.235	5.97	26.0	85.4	47.0	154.3
	NEW 9636• ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.5 21.2 42.9	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	15	.260	6.60	26.0	85.4	47.0	154.3
	NEW 9637• ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304 8	6.1 29.0 59.7	28 (7x36) [.38] 64.9Ω'M' 212.9Ω/km	—	25	.305	7.75	26.0	85.4	47.0	154.3
	NEW 9638• ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	7.8 39.4 78.4	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	37	.345	8 76	26 0	85 4	47 0	154 3
	NEW 9639• ЯU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	11.0 51.7 101.3	28 (7x36) [.38] 64.9Ω/M' 212.9Ω/km	—	50	.400	10 16	26 0	85 4	47 0	154 3

*Capacitance between conductors.
**Capacitance between 1 conductor and other conductors connected to shield.

• ALL ITEMS ON THIS PAGE AVAILABLE IN THE 3rd QUARTER 1984

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COOPER INDUSTRIES

BELDEN

COMPUTER CABLES
S-R PVC Cables

S-R PVC MULTI-CONDUCTOR OVERALL SHIELDED (cont'd.)

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam.

PRODUCT DESCRIPTION: *Tinned copper SR-PVC insulated, multi-conductor cable with overall BELDFOIL® aluminum polyester plus 65% tinned copper braid shield, chrome PVC jacket. For color coding, see chart 2R, Technical Information Section.*

Description	Trade & U L Style Number	Standard Lengths ft	Standard Lengths m	Pkg Wt Lb. ea.	Nom D C R Cond	Nom D C R Shield	No. of Cond	Nominal O D. Inch	Nominal O D. mm	Nominal Capacitance * pF/ft	Nominal Capacitance * pF/m	Nominal Capacitance ** pF/ft.	Nominal Capacitance ** pF/m
	NEW 9608• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	2.5 12.2 22.9	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	3	.190	4.83	35	115	65	180
	NEW 9609• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	2.9 13.7 25.9	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	9.8Ω/M' 32.2Ω/km	4	.200	5.08	35	115	65	180
	NEW 9610• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.3 15.2 30.2	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	5	.210	5.33	35	115	65	180
	NEW 9611• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.8 17.7 34.0	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	6	.225	5.72	30	98.4	55	180
	NEW 9612• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.0 18.6 35.8	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	7	.225	5.72	30	98.4	55	180
	NEW 9613• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.4 20.7 39.9	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	8	.240	6.10	30	98.4	55	180
	NEW 9614• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.8 22.7 43.9	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	9	.255	6.48	30	98.4	55	180
	NEW 9615• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	5.1 23.9 48.3	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	10	.270	6.86	30	98.4	55	180
	NEW 9616• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	6.7 32.1 65.5	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	15	.300	7.62	30	98.4	55	180
	NEW 9617• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	9.9 49.7 99.0	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	25	.370	9.40	30	98.4	55	180
	NEW 9618• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	13.1 65.6 131.1	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	37	.410	10.41	30	98.4	55	180
	NEW 9619• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	17.7 87.5 171.9	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	50	.485	12.32	30	98.4	55	180

**Capacitance between conductors* ***Capacitance between 1 conductor and other conductors connected to shield.*

• ALL ITEMS ON THIS PAGE AVAILABLE IN THE 3rd QUARTER 1984

COMPUTER CABLES
S-R PVC Cables

COOPER INDUSTRIES **BELDEN**

S-R PVC MULTI-CONDUCTOR OVERALL SHIELDED

22 GAGE
STRANDED CONDUCTORS (7 x 30) .76 mm diam.

PRODUCT DESCRIPTION: *Tinned copper SR-PVC insulated, multi-conductor cable with overall BELDFOIL* aluminum polyester plus 65% tinned copper braid shield, chrome PVC jacket. For color coding, see chart 2R, Technical Information Section.*

Description	Trade & U.L. Style Number	Standard Lengths ft	Standard Lengths m	Pkg Wt Lb ea	Nom. D.C.R. Cond.	Nom. D.C.R. Shield	No. of Cond	Nominal O.D. Inch	Nominal O.D. mm	Nominal Capacitance * pF/ft	Nominal Capacitance * pF/m	Nominal Capacitance ** pF/ft	Nominal Capacitance ** pF/m
	NEW 9939 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.03 14.6 27.8	22 (7x30) [.76] 15Ω/M 49.2Ω/km	6.2Ω/M 20.4Ω/km	3	.202	5.13	37	122	67	220
	NEW 9940• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3.44 16.7 32.0	22 (7x30) [.76] 15Ω/M 49.2Ω/km	5.0Ω/M 16.4Ω/km	4	.215	5.46	37	122	67	220
	NEW 9941• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.13 19.2 37.0	22 (7x30) [.76] 15Ω/M 49.2Ω/km	7.1Ω/M 23.3Ω/km	5	.230	5.84	37	122	67	220
	NEW 9942 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.61 21.7 41.9	22 (7x30) [.76] 15Ω/M 49.2Ω/km	7.9Ω/M 25.9Ω/km	6	.245	6.22	35	115	63	207
	NEW 9943• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.87 22.9 44.3	22 (7x30) [.76] 15Ω/M 49.2Ω/km	7.9Ω/M 25.9Ω/km	7	.245	6.22	35	115	63	207
	NEW 9944• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	5.41 25.5 49.6	22 (7x30) [.76] 15Ω/M 49.2Ω/km	6.0Ω/M 19.7Ω/km	8	.260	6.60	35	115	63	207
	NEW 9945• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	5.93 28.2 56.8	22 (7x30) [.76] 15Ω/M 49.2Ω/km	5.1Ω/M 16.7Ω/km	9	.280	7.11	35	115	63	207
	NEW 9946• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	6.49 30.8 62.9	22 (7x30) [.76] 15Ω/M 49.2Ω/km	4.6Ω/M 15.1Ω/km	10	.300	7.62	35	115	63	207
	NEW 9947• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	8.65 41.7 87.0	22 (7x30) [.76] 15Ω/M 49.2Ω/km	4.1Ω/M 13.5Ω/km	15	.335	8.51	35	115	63	207
	NEW 9948 2464 300V 80C	100 500 1000	30.5 152.4 304.8	12.6 64.3 126.5	22 (7x30) [.76] 15Ω/M 49.2Ω/km	—	25	.410	10.41	35	115	63	207
	NEW 9949 2464 300V 80C	100 500 1000	30.5 152 4 304 8	17.8 88.5 178.9	22 (7x30) [.76] 15Ω/M 49.2Ω/km	—	37	460	11.68	35	115	63	207
	NEW 9950• 2464 300V 80C	100 500 1000	30.5 152.4 304.8	23.7 116.2 233 4	22 (7x30) [.76] 15Ω/M 49.2Ω/km	—	50	.555	14.10	35	115	63	207

**Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.*

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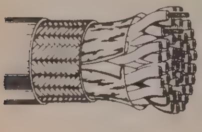
BELDEN
COOPER INDUSTRIES

COMPUTER CABLES
S-R PVC Cables

S-R PVC MULTI-PAIR OVERALL SHIELDED

28 GAGE
STRANDED CONDUCTORS (7 x 36) .38 mm diam.

PRODUCT DESCRIPTION: *Tinned copper S-R PVC insulated, multi-paired cable with overall BELDFOIL* aluminum polyester plus 65% tinned copper braid shield, chrome PVC jacket. For color coding, please see chart 3, Technical Information Section.*

Description	Trade & U L Style Number	Standard Lengths		Pkg Wt	Nom D C R		No of Pairs	Nominal O D		Nominal Capacitance			
		ft	m	Lb ea	Cond.	Shield		Inch	mm	* pF ft	* pF m	** pF ft	** pF m
	NEW 8362• UR 2464 300V 80C	100 500 1000	30.5 152 4 304 8	3.1 14 3 27 1	28 (7x36) [.38] 64 9Ω M' 212.9Ω km	7.0Ω M' 23.0Ω km	2	230	5.34	21	69	35	115
	NEW 8363• UR 2464 300V 80C	100 500 1000	30.5 152.4 304 8	3 5 16 0 30.5	28 (7x36) [38] 64 9Ω M' 212 9Ω km	7.0Ω M' 23.0Ω km	3	240	6.10	21	69	35	115
	NEW 8364• UR 2464 300V 80C	100 500 1000	30.5 152.4 304.8	3 9 18 2 36 9	28 (7x36) [.38] 64 9Ω M' 212.9Ω km	5.3Ω M' 17.4Ω km	4	250	6.35	21	69	35	115
	NEW 8365• UR 2464 300V 80C	100 500 1000	30.5 152.4 304 8	4 1 18 7 37.8	28 (7x36) [38] 64.9Ω M' 212.9Ω km	5.6Ω/M' 18.4Ω km	5	260	6 60	21	69	35	115
	NEW 8366• UR 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.4 20 7 42 7	28 (7x36) [.38] 64 9Ω M' 212.9Ω km	—	6	270	6.86	21	69	35	115
	NEW 8367• UR 2464 300V 80C	100 500 1000	30 5 152.4 304.8	4.5 21.3 43.8	28 (7x36) [38] 64 9Ω M' 212.9Ω km	—	7	270	6.86	21	69	35	115
	NEW 8368• UR 2464 300V 80C	100 500 1000	30.5 152.4 304.8	5.0 23 5 48 3	28 (7x36) [.38] 64.9Ω M' 212.9Ω/km	—	8	.290	7 37	21	69	35	115
	NEW 8370• UR 2464 300V 80C	100 500 1000	30.5 152.4 304 8	6.0 28 3 60 2	28 (7x36) [38] 64 9Ω M' 212.9Ω/km	—	10	.330	8.38	21	69	35	115
	NEW 8372• UR 2464 300V 80C	100 500 1000	30.5 152.4 304 8	6.5 30 9 65.3	28 (7x36) [.38] 64.9Ω M' 212.9Ω/km	—	12½ 12 pr + 1 single	.340	8.64	21	69	35	115
	NEW 8373• UR 2464 300V 80C	100 500 1000	30.5 152.4 304 8	8.3 42.7 83.4	28 (7x36) [.38] 64 9Ω M' 212.9Ω/km	—	18	385	9.17	21	69	35	115
	NEW 8375• UR 2464 300V 80C	100 500 1000	30.5 152.4 304.8	7.6 38 1 76 3	28 (7x36) [38] 64.9Ω M' 212.9Ω/km	—	15	.370	9.40	21	69	35	115
	NEW 8385• UR 2464 300V 80C	100 500 1000	30.5 152 4 304.8	11.8 58 0 113.1	28 (7x36) [.38] 64.9Ω M' 212.9Ω/km	—	25	.455	11.56	21	69	35	115

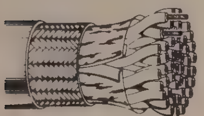
*Capacitance between conductors **Capacitance between 1 conductor and other conductors connected to shield.*

• ALL ITEMS ON THIS PAGE AVAILABLE IN THE 3rd QUARTER 1984

S-R PVC MULTI-PAIR OVERALL SHIELDED (cont'd.)

24 GAGE
STRANDED CONDUCTORS (7 x 32) .61 mm diam.

PRODUCT DESCRIPTION: *Tinned copper S-R PVC insulated multi-paired cable with overall BELDFOIL® aluminum polyester plus 65% tinned copper braid shield, chrome PVC jacket. For color coding, see chart 3, Technical Information Section*

Description	Trade & U.L. Style Number	Standard Lengths ft	Standard Lengths m	Pkg Wt Lb ea.	Nom D C R Cond	Nom D C R Shield	No of Pairs	Nominal O D Inch	Nominal O D mm	Nominal Capacitance * pF ft	Nominal Capacitance * pF m	Nominal Capacitance ** pF ft	Nominal Capacitance ** pF m
	**NEW** **8332•** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	3.9 17.9 34.3	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	2	.250	6.35	30	98	50	164
	NEW **8333•** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	4.9 20.6 41.7	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	3	.265	6.73	30	98	50	164
	NEW **8334•** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	5.0 23.4 47.3	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	4	.288	7.32	30	98	50	164
	NEW **8335•** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	5.6 26.5 54.3	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	5	.295	7.49	30	98	50	164
	NEW **8336•** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	6.4 30.1 61.5	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	6	.311	7.90	30	98	50	164
	NEW **8337•** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	6.8 32.3 65.9	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	7	.311	7.90	30	98	50	164
	NEW **8338•** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	7.5 35.7 75.0	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	8	.335	8.51	30	98	50	164
	NEW **8340•** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	8.8 44.3 88.6	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	10	.385	9.78	30	98	50	164
	NEW **8342•** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	10.6 54.3 106.9	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	12½ 12 pair + 1 single	.405	10.29	30	98	50	164
	NEW **8345•** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	13.3 63.3 128.7	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	15	.445	11.30	30	98	50	164
	NEW **8348•** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	14.9 75.4 147.7	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	18	.480	12.19	30	98	50	164
	NEW **8355•** ЯU **2464** **300V 80C**	100 500 1000	30.5 152.4 304.8	19.2 95.2 191.4	24 (7x32) [.61] 23.7Ω/M' 77.8Ω/km	—	25	.550	13.97	30	98	50	164

**Capacitance between conductors. **Capacitance between 1 conductor and other conductors connected to shield.*

• ALL ITEMS ON THIS PAGE AVAILABLE IN THE 3rd QUARTER 1984

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COOPER INDUSTRIES

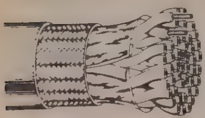
BELDEN

COMPUTER CABLES
S-R PVC Cables

S-R PVC MULTI-PAIR INDIVIDUAL OVERALL SHIELDED

22 GAGE
STRANDED CONDUCTORS (7 x 30) .76 mm diam.

PRODUCT DESCRIPTION: *Tinned copper S-R PVC insulated multi-paired cable with overall BELDFOIL® aluminum polyester 65% tinned copper braid shield. chrome PVC jacket. For color coding. see chart 3 Technical Information Section*

Description	Trade & U L Style Number	Standard Lengths ft.	Standard Lengths m	Pkg. Wt Lb ea.	Nom. D C R. Cond	Nom. D C R. Shield	No of Pairs	Nominal O.D Inch	Nominal O.D mm	Nominal Capacitance * pF ft	Nominal Capacitance * pF m	Nominal Capacitance ** pF ft	Nominal Capacitance ** pF m
	**NEW 8302** RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	4.6 21.5 43.4	22 (7x30) [.76] 15Ω M' 49.2Ω km	—	2	.282	7.16	40	131	72	236
	NEW 8303 RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	5.4 25.7 52.7	22 (7x30) [.76] 15Ω M' 49.2Ω km	—	3	.296	7.52	35	115	63	207
	NEW 8304• RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	6.5 30.4 65.2	22 (7x30) [.76] 15Ω M' 49.2Ω km	—	4	.320	8.13	35	115	63	207
	NEW 8305 RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	7.0 33.5 70.7	22 (7x30) [.76] 15Ω M' 49.2Ω km	—	5	.322	8.18	35	115	63	207
	NEW 8306 RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	7.9 38.0 76.6	22 (7x30) [.76] 15Ω M' 49.2Ω km	—	6	.348	8.84	35	115	63	207
	NEW 8307• RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	8.4 40.6 84.7	22 (7x30) [.76] 15Ω M' 49.2Ω km	—	7	.348	8.84	35	115	63	207
	NEW 8308• RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	9.9 50.0 100.0	22 (7x30) [.76] 15Ω M' 49.2Ω km	—	8	.384	9.75	35	115	63	207
	NEW 8310• RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	12.1 61.2 124.4	22 (7x30) [.76] 15Ω M' 49.2Ω km	—	10	.440	11.18	35	115	63	207
	NEW 8312 RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	13.6 71.2 139.5	22 (7x30) [.76] 15Ω M' 49.2Ω km	—	12½ 12 pr + 1 single	.455	11.56	35	115	63	207
	NEW 8315• RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	16.2 79.9 156.8	22 (7x30) [.76] 15Ω M' 49.2Ω km	—	15	.502	12.75	35	115	63	207
	NEW 8318 RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	19.2 95.3 191.6	22 (7x30) [.76] 15Ω M' 49.2Ω km	—	18	.535	13.59	35	115	63	207
	NEW 8325 RU 2464 300V 80C	100 500 1000	30.5 152.4 304.8	23.5 120.8 239.6	22 (7x30) [.76] 15Ω M' 49.2Ω km	—	25	.620	15.75	35	115	63	207

Capacitance between conductors.* ***Capacitance between 1 conductor and other conductors connected to shield.* **• AVAILABLE IN THE 3rd QUARTER 1984

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TECHNICAL INFORMATION

COOPER INDUSTRIES **BELDEN**

BELDEN COLOR CODE CHARTS

COLOR CODE CHART NO. 1

Conductor	Color
1st	Black
2nd	White
3rd	Red
4th	Green
5th	Brown
6th	Blue
7th	Orange
8th	Yellow
9th	Purple
10th	Gray
11th	Pink
12th	Tan

18 Gage conductors in cables 8446 through 8449 are Black and White.

ICEA COLOR CODE CHART No. 2 & 2R (Insulated Cable Engineers Association)

2R—These Cables feature a ring band striping. 2—These Cables feature a spiral stripe.

Conductor	Color	Conductor	Color	Conductor	Color	Conductor	Color
1st	Black	14th	Green/White	27th	Blue/Blk/Wht	40th	Red/Wht/Grn
2nd	White	15th	Blue/White	28th	Blk/Red/Grn	41st	Grn/Wht/Blue
3rd	Red	16th	Black/Red	29th	Wht/Red/Grn	42nd	Org/Red/Grn
4th	Green	17th	White/Red	30th	Red/Blk/Grn	43rd	Blue/Red/Grn
5th	Orange	18th	Orange/Red	31st	Grn/Blk/Org	44th	Blk/Wht/Blue
6th	Blue	19th	Blue/Red	32nd	Org/Blk/Grn	45th	Wht/Blk/Blue
7th	White/Black	20th	Red/Green	33rd	Blue/Wht/Org	46th	Red/Wht/Blue
8th	Red/Black	21st	Orange/Green	34th	Blk/Wht/Org	47th	Grn/Org/Red
9th	Green/Black	22nd	Blk/Wht/Red	35th	Wht/Red/Org	48th	Org/Red/Blue
10th	Orange/Black	23rd	Wht/Blk/Red	36th	Org/Wht/Blue	49th	Blue/Red/Org
11th	Blue/Black	24th	Red/Blk/Wht	37th	Wht/Red/Blue	50th	Blk/Org/Red
12th	Black/White	25th	Grn/Blk/Wht	38th	Blk/Wht/Grn		
13th	Red/White	26th	Org/Blk/Wht	39th	Wht/Blk/Grn		

COLOR CODE CHART NO. 3 FOR PAIRED CABLES

Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination
1	Black paired with Red	11	Red paired with Yellow	21	White paired with Brown	31	Purple paired with White
2	Black paired with White	12	Red paired with Brown	22	White paired with Orange	32	Purple paired with Dark Green
3	Black paired with Green	13	Red paired with Orange	23	Blue paired with Yellow	33	Purple paired with Light Blue
4	Black paired with Blue	14	Green paired with White	24	Blue paired with Brown	34	Purple paired with Yellow
5	Black paired with Yellow	15	Green paired with Blue	25	Blue paired with Orange	35	Purple paired with Brown
6	Black paired with Brown	16	Green paired with Yellow	26	Brown paired with Yellow	36	Purple paired with Black
7	Black paired with Orange	17	Green paired with Brown	27	Brown paired with Orange	37	Gray paired with White
8	Red paired with White	18	Green paired with Orange	28	Orange paired with Yellow		
9	Red paired with Green	19	White paired with Blue	29	Purple paired with Orange		
10	Red paired with Blue	20	White paired with Yellow	30	Purple paired with Red		

COLOR CODE CHART NO. 4 FOR PAIRED CABLES

Pair No.	Color	Pair No.	Color	Pair No.	Color	Pair No.	Color
1st	White/Blue	8th	Red/Green	14th	Black/Brown	20th	Yellow/Slate
2nd	White/Orange	9th	Red/Brown	15th	Black/Slate	21st	Violet/Blue
3rd	White/Green	10th	Red/Slate	16th	Yellow/Blue	22nd	Violet/Orange
4th	White/Brown	11th	Black/Blue	17th	Yellow/Orange	23rd	Violet/Green
5th	White/Slate	12th	Black/Orange	18th	Yellow/Green	24th	Violet/Brown
6th	Red/Blue	13th	Black/Green	19th	Yellow/Brown	25th	Violet/Slate
7th	Red/Orange						

COLOR CODE CHART NO. 5

Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination	Pair No.	Color Combination
1	White - Blue Stripe Blue - White Stripe	8	Red - Green Stripe Green - Red Stripe	14	Black - Brown Stripe Brown - Black Stripe	20	Yellow - Gray Stripe Gray - Yellow Stripe
2	White - Orange Stripe Orange - White Stripe	9	Red - Brown Stripe Brown - Red Stripe	15	Black - Gray Stripe Gray - Black Stripe	21	Purple - Blue Stripe Blue - Purple Stripe
3	White - Green Stripe Green - White Stripe	10	Red - Gray Stripe Gray - Red Stripe	16	Yellow - Blue Stripe Blue - Yellow Stripe	22	Purple - Orange Stripe Orange - Purple Stripe
4	White - Brown Stripe Brown - White Stripe	11	Black - Blue Stripe Blue - Black Stripe	17	Yellow - Orange Stripe Orange - Yellow Stripe	23	Purple - Green Stripe Green - Purple Stripe
5	White - Gray Stripe Gray - White Stripe	12	Black - Orange Stripe Orange - Black Stripe	18	Yellow - Green Stripe Green - Yellow Stripe	24	Purple - Brown Stripe Brown - Purple Stripe
6	Red - Blue Stripe Blue - Red Stripe	13	Black - Green Stripe Green - Black Stripe	19	Yellow - Brown Stripe Brown - Yellow Stripe	25	Purple - Gray Stripe Gray - Purple Stripe
7	Red - Orange Stripe Orange - Red Stripe						

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BREEZE
ILLINOIS INC.

the wire protectors

BREEZE-ILLINOIS, INCORPORATED
Designs and Manufactures
Interconnector assemblies
that are Shielded Against
EMI, EMP, RFI, Nuclear
Radiation, Compromising
Emanations (TEMPEST),
Mechanical Stressing,
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Breeze-Illinois, Inc. has over 50 years experience in the manufacture of quality interconnection systems including design, development, manufacturing and evaluation for wide-ranging applications in industry, NASA, and the military. The company specializes in protected cable assemblies. These systems include all types of electrical and optical systems, pneumatic links and hybrid combinations. They are produced under the Breeze-Illinois trade names of:

- **Bi-LINK™** Complete interconnector systems custom designed to fulfill the requirements of specific customer applications.
- **BiSHIELD™** Cable assemblies designed to customer specifications or Breeze-Illinois standards to fulfill specific protection requirements.
- **Bi-PRO™** Metallic and non-metallic flexible convoluted conduit wire-ways that protects transfer media against all outside influences.
- **Bi-OPTIC™** Fiber optic interconnectors and hybrid systems using combinations of fiber optics and conventional transfer media.
- **Bi-TEST™** Precision test cables specifically constructed to fulfill the rigid requirements of test environments.
- **Bi-SHELL™** Backshell terminations and other hardware that pertains to the termination of protective wire coverings.

Interconnectors are our only product line. We offer quality components off-the-shelf or we can study your systems requirements and prepare trouble-free, reliable and efficient interconnections for you. We will prepare proposals, write reports, build prototypes and make complete test and evaluation studies.

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The name Breeze-Illinois is synonymous with wiring protection.

Our experience in manufacturing our own hardware such as coupling nuts, backshell assemblies, junction boxes, branches and connectors has established the name Breeze as the standard in the protected cable assembly field. We are highly competitive and best qualified to construct custom designed assemblies for our customers—from one assembly to thousands of copies. If you wish to assemble your own interconnectors, we manufacture individual components and can supply many off-the-shelf items for your interconnector needs. We also braid textiles such as Nylon and Dacron to wire bundles from your simplest design to your most complicated system.

We have a nationwide network of sales representatives anxious to serve you—Call or write us today.

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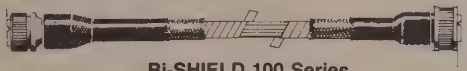
FOR **PROTECTED** *INTERCONNECTOR ASSEMBLIES*

Bi-SHIELD™ Cable Assemblies

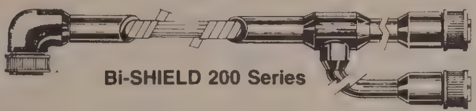
Custom Designed Interconnector Assemblies for Every Application

Breeze-Illinois' complete line of cable assemblies offer shielding, environmental and mechanical protection covering all applications. Custom designs and unique combinations are our specialty and are too numerous to list. Basic series configurations are shown below. Let us know your requirement. Our engineers will help design in the protection that is right for your system.



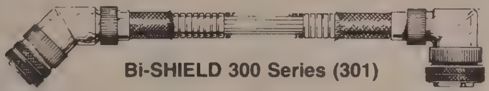
Bi-SHIELD 100 Series

For cost effective, light weight, service flexing applications.



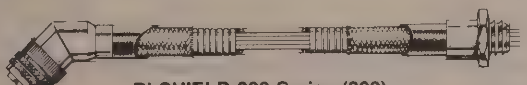
Bi-SHIELD 200 Series

Bi-SHIELD 200 series. Environmental protected cables through molded and blown on elastomer jackets or extruded jackets.



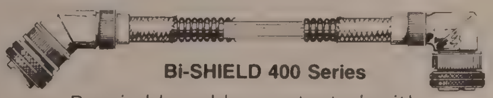
Bi-SHIELD 300 Series (301)

Repairable cables protected with Bi-PRO metallic convoluted conduit for high shielding levels



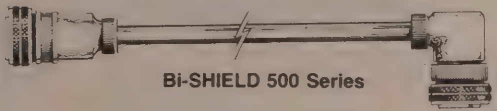
Bi-SHIELD 300 Series (302)

Cables protected with Bi-PRO metallic convoluted conduit for high shielding levels and environmental protection.



Bi-SHIELD 400 Series

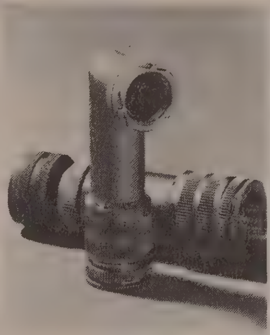
Repairable cables protected with Bi-PRO non-metallic conduit for good environmental protection.



Bi-SHIELD 500 Series

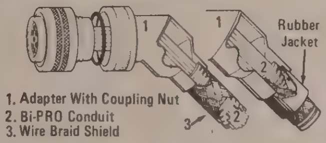
Cables constructed from commercial bulk cable and state of the art backshell adapters.

Bi-SHELL™ Cable Terminations



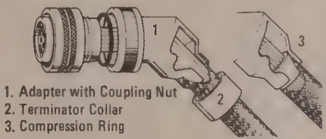
Superior Backshell Designs As Versatile as They are Varied

Pictured here is the unique field maintainable and repairable shielded backshell, the Bi-SHELL 60. It allows repeated assembly/disassembly with no degradation to its shielding capabilities or mechanical integrity. Breeze will design custom backshells for specific applications or problem situations. Call today for more information. We have service representatives close to you.


1
1
Rubber Jacket
2
3
2
1. Adapter With Coupling Nut
2. Bi-PRO Conduit
3. Wire Braid Shield

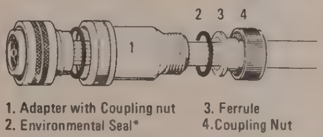
Bi-SHELL 10/11

Designed for flexible, hermetically sealed conduit inner-cores.


1
3
2
1. Adapter with Coupling Nut
2. Terminator Collar
3. Compression Ring

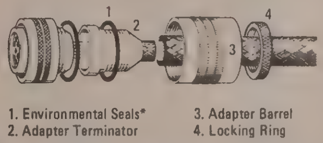
Bi-SHELL 20/21

A 360 degree braid terminating method for metallic braided wire bundles of single or multiple layers.


2 3 4
1
1. Adapter with Coupling nut
2. Environmental Seal*
3. Ferrule
4. Coupling Nut

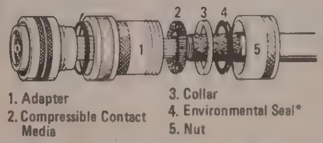
Bi-SHELL 355/540

A threaded backshell/adapter for modular conduit cable assemblies.


1
2
4
3
1. Environmental Seals*
2. Adapter Terminator
3. Adapter Barrel
4. Locking Ring

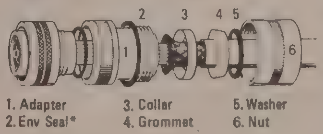
Bi-SHELL 50

Field installable and serviceable backshell designed for use in conjunction with shielded (braided) wire bundles.


2 3 4
1
5
1. Adapter
2. Compressible Contact Media
3. Collar
4. Environmental Seal*
5. Nut

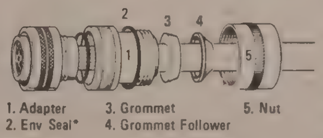
Bi-SHELL 60

Field installable and serviceable backshell designed to be easily removed and reassembled.


2 3 4 5
1
6
1. Adapter
2. Env Seal*
3. Collar
4. Grommet
5. Washer
6. Nut

Bi-SHELL 70

This protected adapter interfaces commercial cable to connectors providing both EMI and environmental protection.


2 3 4
1
5
1. Adapter
2. Env Seal*
3. Grommet
4. Grommet Follower
5. Nut

Bi-SHELL 80

An environmental adapter that interfaces commercial jacketed cable to connectors with no compromise to the level of environmental protection.

Tel. (309) 695-2511 **BREEZE** ILLINOIS INC Main & Agard Streets, Wyoming, IL 61491

BRIM WIRE — CABLE — TUBING — HARDWARE
ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

BRIM CHV CORONA RESISTANT HIGH VOLTAGE TEFLON* CABLE

BRIM CHV eliminates the need for bulky, thick insulation, as used with silicone rubber high voltage cables, and provides high temperature resistance not available with polyethylene insulated high voltage cables, plus the added benefit of retarding and detering corona discharges. Even under severe stress, including mechanical strain, moisture, corona or chemical, or high temperature conditions, there is no cracking of the insulation. Cable construction meets and exceeds MIL-W-16878D.

OPERATING VOLTAGE: Voltage capabilities are based on the thickness of the jacket.

OPERATING TEMPERATURE: −90°C to +250°C

DESCRIPTION: Silver plated copper conductor, per QQ-W-343, special corona retarding insulation, TFE tape wrap insulation, & a color coded jacket overall.

STD. COLORS: Red, White, Black, Green, Blue, Yellow, Orange, Brown, Purple, Gray. Stripped colors are also available.

STD. P-U: 250′, 500′, 1000′.

* DuPont

BRIM
ELECTRONICS, INC.

Brim No.	AWG	Strand.	Volt Rating		Nom. O.D.
			DC	AC	
CHV26-2	26	7/34	10000	2500	.068″
CHV26-2.5	26	7/34	12500	3800	.078″
CHV26-3	26	7/34	15000	4500	.088″
CHV26-3.5	26	7/34	17500	5400	.098″
CHV26-4	26	7/34	20000	6000	.108″
CHV26-5	26	7/34	25000	7500	.128″
CHV26-6.5	26	7/34	32500	10000	.158″
CHV26-8	26	7/34	40000	12000	.188″
CHV24-2	24	19/36	10000	2500	.074″
CHV24-2.5	24	19/36	12500	3800	.084″
CHV24-3	24	19/36	15000	4500	.094″
CHV24-3.5	24	19/36	17500	5400	.104″
CHV24-4	24	19/36	20000	6000	.114″
CHV24-5	24	19/36	25000	7500	.134″
CHV24-6.5	24	19/36	32500	10000	.164″
CHV24-8	24	19/36	40000	12000	.194″
CHV24-10	24	19/36	50000	15000	.234″
CHV22-2	22	19/34	10000	2500	.081″
CHV22-2.5	22	19/34	12500	3800	.091″
CHV22-3	22	19/34	15000	4500	.101″
CHV22-3.5	22	19/34	17500	5400	.111″
CHV22-4	22	19/34	20000	6000	.121″
CHV22-5	22	19/34	25000	7500	.141″
CHV22-6.5	22	19/34	32500	10000	.171″
CHV22-8	22	19/34	40000	12000	.201″
CHV22-10	22	19/34	50000	15000	.241″
CHV20-2	20	19/32	10000	2500	.089″
CHV20-2.5	20	19/32	12500	3800	.099″
CHV20-3	20	19/32	15000	4500	.109″
CHV20-3.5	20	19/32	17500	5400	.119″
CHV20-4	20	19/32	20000	6000	.129″
CHV20-5	20	19/32	25000	7500	.149″
CHV20-6.5	20	19/32	32500	10000	.179″
CHV20-8	20	19/32	40000	12000	.208″
CHV20-10	20	19/32	50000	15000	.248″
CHV18-2	18	19/30	10000	2500	.099″
CHV18-2.5	18	19/30	12500	3800	.109″
CHV18-3	18	19/30	15000	4500	.119″
CHV18-3.5	18	19/30	17500	5400	.129″
CHV18-4	18	19/30	20000	6000	.139″
CHV18-5	18	19/30	25000	7500	.159″
CHV18-6.5	18	19/30	32500	10000	.189″
CHV18-8	18	19/30	40000	12000	.219″
CHV18-10	18	19/30	50000	15000	.259″
CHV16-2	16	19/29	10000	2500	.106″
CHV16-2.5	16	19/29	12500	3800	.116″
CHV16-3	16	19/29	15000	4500	.126″
CHV16-3.5	16	19/29	17500	5400	.136″
CHV16-4	16	19/29	20000	6000	.146″
CHV16-5	16	19/29	25000	7500	.166″
CHV16-6.5	16	19/29	32500	10000	.196″
CHV16-8	16	19/29	40000	12000	.226″
CHV16-10	16	19/29	50000	15000	.266″
CHV14-2	14	19/27	10000	2500	.121″
CHV14-2.5	14	19/27	12500	3800	.131″
CHV14-3	14	19/27	15000	4500	.141″
CHV14-3.5	14	19/27	17500	5400	.151″
CHV14-4	14	19/27	20000	6000	.161″
CHV14-5	14	19/27	25000	7500	.181″
CHV14-6.5	14	19/27	32500	10000	.211″
CHV14-8	14	19/27	40000	12000	.241″
CHV14-10	14	19/27	50000	15000	.281″
CHV12-2	12	19/25	10000	2500	.139″
CHV12-2.5	12	19/25	12500	3800	.149″
CHV12-3	12	19/25	15000	4500	.159″
CHV12-3.5	12	19/25	17500	5400	.169″
CHV12-4	12	19/25	20000	6000	.179″
CHV12-5	12	19/25	25000	7500	.199″
CHV12-6.5	12	19/25	32500	10000	.229″
CHV12-8	12	19/25	40000	12000	.259″
CHV12-10	12	19/25	50000	15000	.299″
CHV10-2	10	37/26	10000	2500	.155″
CHV10-2.5	10	37/26	12500	3800	.165″

CONSTRUCTION VARIATIONS AVAILABLE TO ORDER.

BRIM HIGH TEMPERATURE LEAD WIRE

These small diameter high temperature lead wires allow unique constructions. The basic wire conforms to MIL-W-3861-stranded nickel plated copper; when shielded, nickel plated copper shielding is per MIL-N-46026A. Rated for 100 Volts RMS.*

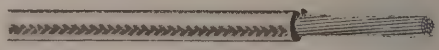
Type 1: 800°F High Temperature Rating — Suitable for aircraft, or missile lead wire for operations between 500°F to 800°F. Cond. insulation: Fiberglass braid, impregnated with a silicone varnish, over a stranded nickel plated conductor.

Type 2: 1500°F High Temperature Rating — Suitable as a radiation resistant aircraft, or missile lead wire for operations between 800°F to 1500°F. Cond. insulation: Inorganic braid over a stranded nickel plated copper conductor.

Type 3: 2000°F High Temperature Rating — Suitable as a radiation resistant aircraft or missile lead wire for operations between 1500°F to 2000°F. Cond. Insulation: special formulated ceramic braid over a stranded nickel plated copper conductor, and a nickel plated braided shield overall.

* For dry locations.

UNSHIELDED



Brim No.		AWG	Strand.	Nom. O.D.	Std. P-U
Type 1	Type 2				
2101/22	2102/22	22	19/34	.070″	500′, 1000′
2101/20	2102/20	20	19/32	.075″	500′, 1000′
2101/18	2102/18	18	19/30	.085″	500′, 1000′

SHIELDED

Brim No. Type 3	AWG	Strand.	Nom. O.D.	Std. P-U
2103/22	22	19/34	.108″	500′, 1000′
2103/20	20	19/32	.112″	500′, 1000′
2103/18	18	19/30	.122″	500′, 1000′

600 VRMS is available to order. CONSTRUCTION VARIATIONS ARE AVAILABLE TO ORDER

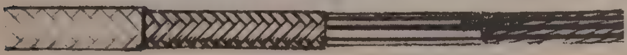
WRITE FOR FREE CATALOG

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886

BRIM WIRE — CABLE — TUBING — HARDWARE
ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

TFE & FEP TEFLON SHIELDED CABLES • BRIMCROM • BRIMFLYX • STAINLESS STEEL TUBULAR BRAID

TEFLON IMPREGNATED BRAID OVER SHIELD PER MIL-W-16878

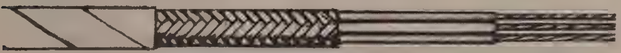


DESCRIPTION: One to five twisted conductors of Type E extruded TFE* insulation (.010″ wall), over a stranded silver plated copper conductor. If shielded, braided silver plated shield with a min. coverage of 90% over the conductor(s). When jacketed, either a fused double reversed TFE tape wrap jacket, a Teflon* impregnated fiberglass braided jacket, or an extruded FEP jacket. Cables are fungus, solvent, flame, acid, alkali, and oil resistant. Rated for 600 Volts. Stranding: 26 AWG — 7 strands, 24 AWG to 16 AWG — 19 strands. Color code: 1-White, 2-Black, 3-Red, 4-Green, 5-Yellow. Jacket color: White. OPER. TEMP.: TFE −65°C to +250°C. FEP: −65°C to +200°C.

Brim No.	No. Cond.	AWG	Nom. O.D.
1751	1	26	.070″
1751/2	2	26	.115″
1752	1	24	.080″
1752/2	2	24	.124″
1752/3	3	24	.131″
1752/4	4	24	.144″
1752/5	5	24	.155″
1753	1	22	.085″
1753/2	2	22	.137″
1753/3	3	22	.144″
1753/4	4	22	.158″
1753/5	5	22	.170″
1754	1	20	.095″
1754/2	2	20	.154″
1754/3	3	20	.163″
1754/4	4	20	.179″
1754/5	5	20	.195″
1755	1	18	.105″
1755/2	2	18	.172″
1755/3	3	18	.183″
1755/4	4	18	.200″
1755/5	5	18	.222″
1756	1	16	.114″
1756/2	2	16	.187″
1756/3	3	16	.200″
1756/4	4	16	.220″

STD. P-U: 250′, 500″, 1000′

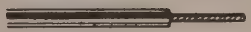
TEFLON TAPE WRAP JACKET OVER SHIELD



Brim No.	No. Cond.	AWG	Nom. O.D.
1761	1	26	.076″
1761/2	2	26	.119″
1762	1	24	.084″
1762/2	2	24	.128″
1762/3	3	24	.135″
1762/4	4	24	.155″
1762/5	5	24	.162″
1763	1	22	.090″
1763/2	2	22	.142″
1763/3	3	22	.150″
1763/4	4	22	.163″
1763/5	5	22	.183″
1764	1	20	.099″
1764/2	2	20	.158″
1764/3	3	20	.170″
1764/4	4	20	.190″
1764/5	5	20	.204″
1765	1	18	.109″
1765/2	2	18	.178″
1765/3	3	18	.198″
1765/4	4	18	.215″
1765/5	5	18	.230″
1766	1	16	.116″
1766/2	2	16	.201″
1766/3	3	16	.213″
1766/4	4	16	.230″

STD. P-U: 250′, 500″, 1000′

BRIMCROM™



MICROMINIATURE TEFLON* HOOK-UP WIRE

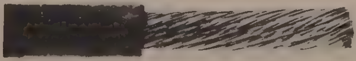
Conductors are silver plated copper dip coated with TFE Teflon* insulation. Rated for 300 Volts, −90°C to +260°C. BRIMCROM is highly flexible, chemically inert, weather resistant, nonflammable. Suitable wherever high temperatures and lack of space are absolutely critical, such as aircraft, missiles, medical, and microminiaturized electronic components, and system designs. STD. P-U: 1000′

Brim No.	AWG	Strand.	Nom. Wall	Nom. O.D.
1729/30	30	7/38	.0035″	.0188″
1729/32	32	7/40	.0030″	.0153″
1729/34	34	7/42	.0027″	.0129″
1729/36	36	7/44	.0020″	.0101″
1729/38	38	7/46	.0019″	.0086″

STD. COLORS: WHITE, RED, BLACK, GREEN. * DuPont
OTHER COLORS AVAILABLE TO ORDER. OTHER CONSTRUCTION AVAILABLE TO ORDER.

TWO AND THREE CONDUCTOR LAMINATED RIBBON CABLES USING BRIMCROM CONDUCTORS ARE AVAILABLE TO ORDER.

BRIMFLYX™ ULTRA-FLEXIBLE WIRE



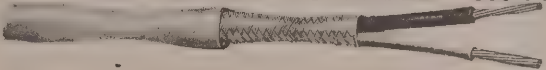
DESCRIPTION: Soft bare copper conductor, insulated with a special flexible PVC formulation to minimize kinking & allow for ultra-low bending torque.

Designed for use where wires encounter continuous flexing, such as in data processing equipment, mercury thermostats, magnetic drums, and rotating servo platforms.
OPER. TEMP.: −40°C to +80°C

Brimflyx No.	AWG	Strand.	Nom. Wall	Max. Volt.	Nom. O.D.
1250/38	38	7/46	.005″	200	.015″
1250/36	36	7/44	.005″	200	.016″
1250/34	34	10/44	.005″	200	.017″
1250/32	32	18/44	.007″	300	.023″
1250/30	30	28/44	.010″	600	.031″
1250/29	29	51/46	.010″	600	.032″
1250/28	28	41/44	.010″	600	.035″
1250/27	27	48/44	.010″	600	.037″
1250/26	26	66/44	.010″	600	.042″
1250/24	24	105/44	.015″	600	.058″
1250/22	22	168/44	.015″	600	.064″
1250/20	20	259/44	.010″	600	.061″

STD. COLORS: WHITE, BLACK, RED, GREEN. STD. P-U: 1000 FT. OTHER COLORS ARE AVAILABLE TO ORDER.

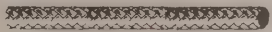
FEP TEFLON CABLES — SHIELDED — 600 VOLTS



Brim No.	No. Cond.	AWG	Strand.	Nom. O.D.	Std. P-U
1791	1	24	19/36	.087″	500′, 1000′
1791/2	2	24	19/36	.130″	500′, 1000′
1791/3	3	24	19/36	.136″	500′, 1000′
1791/4	4	24	19/36	.153″	500′, 1000′
1792	1	22	19/34	.092″	500′, 1000′
1792/2	2	22	19/34	.148″	500′, 1000′
1792/3	3	22	19/34	.155″	500′, 1000′
1792/4	4	22	19/34	.168″	500′, 1000′
1793	1	20	19/32	.100″	500′, 1000′
1793/2	2	20	19/32	.163″	500′, 1000′
1793/3	3	20	19/32	.172″	500′, 1000′
1793/4	4	20	19/32	.193″	500′, 1000′
1794	1	18	19/30	.110″	500′, 1000′
1794/2	2	18	19/30	.182″	500′, 1000′
1794/3	3	18	19/30	.200″	500′, 1000′
1794/4	4	18	19/30	.217″	500′, 1000′
1795	1	16	19/29	.118″	500′, 1000′
1795/2	2	16	19/29	.203″	500′, 1000′
1795/3	3	16	19/29	.215″	500′, 1000′
1795/4	4	16	19/29	.233″	500′, 1000′

OTHER COLOR CODES, JACKET COLORS OR CABLE CONSTRUCTIONS ARE AVAILABLE TO ORDER. * DuPont

STAINLESS STEEL TUBULAR BRAID



Shielded braid mfg. with type 304 soft drawn stainless steel. Used where higher temperatures and/or higher mechanical strength is needed.

Brim No.	Nom. I.D. When Rounded	Total No. of Wires	Construction	AWG of Indiv. Wires	AWG Equiv.	Nom. CMA
1150-1/32″	1/32″	48	16-3	#36	#19	1200
1150-1/16″	1/16″	48	24-2	#36	#19	1200
1150-5/64″	5/64″	72	24-3	#36	#17	1800
1150-7/64″	7/64″	96	24-4	#36	#16	2400
1150-1/8″	1/8″	120	24-5	#36	#15	3000
1150-3/16″	3/16″	192	24-8	#36	#13	4800
1150-7/32″	7/32″	240	24-10	#36	#12	6000
1150-1/4″	1/4″	312	24-13	#36	#11	7800
1150-3/8″	3/8″	336	48-7	#36	#11	8400
1150-7/16″	7/16″	384	48-8	#36	#10	9600
1150-1/2″	1/2″	432	48-9	#36	#10	10800
1150-5/8″	5/8″	528	48-11	#36	# 9	13200
1150-3/4″	3/4″	720	48-15	#36	# 8	18000
1150-1″	1″	336	48-7	#30	# 5	33600
1150-1½″	1½″	480	48-10	#30	# 3	48000

STD. P-U: 100 FT. OTHER CONSTRUCTIONS AVAILABLE TO ORDER.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 WRITE FOR FREE CATALOG

BRIM ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886
WIRE — CABLE — TUBING — HARDWARE

UL & CSA POWER RECTRACTILE CORDS

RETRACTED LENGTHS: 1 ft., 2 ft., 3 ft., 4 ft. EXTENDED LENGTHS: 6 ft., 12 ft., 18 ft., 25 ft. BRIM retractile cords are long lasting, and useful where cords must change their length or position. Our cords will extend to approximately six times their retracted length, and will return to their original shape and length, when they are released. Retractile cords eliminate tangles, twists, knots. OPER. TEMP.: −20°C to +60°C. COND. COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green, 5-Orange, 6-Blue, 7-Yellow. VOLTAGE RATING: SVO SJO and SJO types — 300V; SO, and SO types — 600V.

BRIM CAT NO. Retracted Lengths 4 Ft.	3 Ft.	2 Ft.	1 Ft.	No. Cond.	Size	Strand.	UL/CSA Type	Amps	Nom. Coil O.D.	Nom. Cord O.D.
151-4	151-3	151-2	151-1	2	18	41/34	SVO	7	7/8″	.255″
151/3-4	151/3-3	151/3-2	151/3-1	3	18	41/34	SVO	7	1″	.275″
152-4	152-3	152-2	152-1	2	18	41/34	SJO	7	1 3/16″	.315″
152/3-4	152/3-3	152/3-2	152/3-1	3	18	41/34	SJO	7	1 3/8″	.345″
152/4-4	152/4-3	152/4-2	152/4-1	4	18	41/34	SJO	5.6	1 7/16″	.380″
152/5-4	—	152/5-2	—	5	18	41/34	SJO	5.6	1 5/8″	.440″
152/7-4	—	152/7-2	—	7	18	41/34	SJO	5	1 7/8″	.500″
152/15-4	—	—	—	15	18	41/34	SJO	7	2 1/8″	.575″
156/3-4	156/3-3	156/3-2	156/3-1	3	18	41/34	SO	7	1 9/16″	.405″
156/4-4	156/4-3	156/4-2	156/4-1	4	18	41/34	SO	5.6	1 5/8″	.435″
153-4	153-3	153-2	153-1	2	16	65/34	SJO	10	1 3/8″	.355″
153/3-4	153/3-3	153/3-2	153/3-1	3	16	65/34	SJO	10	1 7/16″	.385″
153/4-4	153/4-3	153/4-2	153/4-1	4	16	65/34	SJO	8	1 1/2″	.440″
157/3-4	157/3-3	157/3-2	157/3-1	3	16	65/34	SO	10	1 13/16″	.470″
157/4-4	157/4-3	157/4-2	157/4-1	4	16	65/34	SO	8	1 7/8″	.500″
157/5-4	157/5-3	157/5-2	157/5-1	5	16	65/34	SO	5.6	2″	.545″
157/6-4	—	157/6-2	—	6	16	65/34	SO	8	2 1/8″	.550″
157/7-4	—	157/7-2	—	7	6/16 1/14	65/34 41/30	SO	8 12	2 1/4″	.600″
154-4	154-3	154-2	154-1	2	14	41/30	SO	15	2 1/16″	.535″
154/3-4	154/3-3	154/3-2	153/3-1	3	14	41/30	SO	15	2 1/8″	.560″
154/4-4	154/4-3	154/4-2	154/4-1	4	14	41/30	SO	12	2 1/4″	.605″
155-4	155-3	155-2	155-1	2	12	65/30	SO	20	2 1/4″	.605″
155/3-4	155/3-3	155/3-2	155/3-1	3	12	65/30	SO	20	2 3/8″	.635″
155/4-4	155/4-3	155/4-2	155/4-1	4	12	65/30	SO	16	2 7/16″	.675″
155/6-4	—	—	—	6	2/12 4/18	65/30 41/34	+	17 6	2 1/4″	.605″
155/7-4	—	155/7-2	—	7	12	65/30	SO	16	2 5/8″	.775″
158/4-4	—	—	—	4	10	104/30	SO	20	2 3/4″	.745″

STD. PKG.: 6 + To UL SPECS, but not UL listed.
Other constructions available to order. When UL Type show, cord is also CSA Approved.

RETRACTILE TEST LEAD WIRE: 1 FT. & 2 FT.

Stretch these coiled test lead wire/cords repeatedly without fear of kinks. 1 ft. extends to appx. 6 ft., 2 ft. to appx. 12 ft. One cond. 20 AWG flexible stranded soft T.C., rubber insulation, for 1000V, 4 AMPS working. STD. COLORS: Black. Red. OPER. TEMP.: −20°C to +60°C.

Brim No.	Cord Lgth.	AWG	Strand.	Nom. Coil O.D.	Nom. Cond. O.D.
114	12″	20	41/36	3/4″	.165″
115	24″	20	41/36	3/4″	.165″

STD. PKG.: 6 TPR test lead wire available to order.

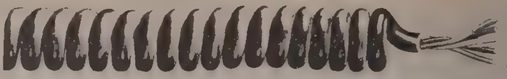
RETRACTILE COMMUNICATION CORDS UL APPROVED

RETRACTED LENGTHS: 2, 3, 4 ft.
EXTENDED LENGTHS: 12, 18, and 25 ft. OPER. TEMP.: −20°C to +60°C

DESCRIPTION: Cords are composed of multicond. 23 AWG 21/36 tinned soft copper for a longer flex life. Cords are jacketed in either TPR, or special vinyl-"Byron"-formulation, for a long service life. These cords are suitable for communication equipment, such as ham operations, head sets, radio equipment, telephone car carriers, etc. 120V working. 1 AMP carrying capacity. Nom. cond. resistance .022 ohms per linear foot, .185 ohms per retracted foot.
† Stocked in Bryon only. STD. PKG.: 6

BRIM CAT. NO. Retracted Lengths 4 Ft.	3 Ft.†	2 Ft.†	No. Cond.	Nom. Coil O.D.	Nom. Cord O.D.
132-4	132-3	132-2	2	5/8″	.210″
132/3-4	132/3-3	132/3-2	3	3/4″	.220″
132/4-4	132/4-3	132/4-2	4	7/8″	.250″
132/5-4	132/5-3	132/5-2	5	1″	.275″
132/6-4	132/6-3	132/6-2	6	1 1/8″	.300″
132/7-4	132/7-3	132/7-2	7	1 3/16″	.310″
132/8-4†	132/8-3	132/8-2	8	1 1/4″	.340″
132/10-4†	132/10-3	132/10-2	10	1 3/8″	.380″
132/12-4†	132/12-3	132/12-2	12	1 1/2″	.390″
132/15-4	132/15-3	132/15-2	15	1 5/8″	.400″

COND. COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green, 5-Orange, 6-Blue, 7-Yellow, 8-Brown, 9-Wh/Blk., 10-Red/Blk., 11-Green/Blk., 12-Orange/Blk., 13-Blue/Blk., 14-Yel./Blk., 15-Red/Wh.



UL APPROVED RETRACTILE POWER CORD SETS

RETRACTED: 18″. EXTENDS TO APPX.: 9 ft. 300V

SVO and SJO Neoprene jacketed cord sets with a molded plug on one end, other end, jacket stripped and cond. exposed for easy termination. For mobile office equipment and tools.
OPER. TEMP.: −20°C to +60°C. STD. PKG.: 6

Brim No.	No. Cond.	AWG	Strand.	UL Ty.	Coil O.D.	Cord O.D.
120	2	18	41/34	SVO	7/8″	.255″
120/3	3	18	41/34	SVO	1″	.275″
121	2	18	41/34	SJO	1 3/16″	.315″

Brim No.	No. Cond.	AWG	Strand.	UL Ty.	Coil O.D.	Cord O.D.
121/3	3	18	41/34	SJO	1 3/8″	.345″
122	2	16	65/34	SJO	1 3/8″	.355″
122/3	3	16	65/34	SJO	1 7/16″	.385″

COND. COLOR CODE: 1-Black, 2-White, 3-Green

MINIATURE COMMUNICATIONS CORDS

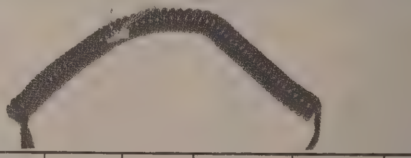
RETRACTED LENGTH: 1 and 2 ft. EXTENDED LENGTH: 5 and 10 ft.
Miniature in size, suitable for compact equipment. Black "Bryon" jacket overall. OPER. TEMP.: −20°C to +60°C. All cond. 28 AWG 19/40T.C.

Brim No.	Cord Length	No. Cond./ AWG	Strand.	Nom. Coil O.D.	Nom. Cord O.D.
118†	2 Ft.	2/28	19/40	1/2″	.135″
118A†	1 Ft.	2/28	19/40	1/2″	.135″
119†	2 Ft.	4/28	19/40	1/2″	.150″
119A†	1 Ft.	4/28	19/40	1/2″	.150″
125	2 Ft.	5/28	19/40	5/8″	.175″
126	2 Ft.	8/28	19/40	11/16″	.195″
127	2 Ft.	9/28	19/40	11/16″	.205″
127/11	2 Ft.	11/28	19/40	3/4″	.210″
127/13	2 Ft.	13/28	19/40	3/4″	.220″
127/15	2 Ft.	15/28	19/40	7/8″	.240″
127/17	2 Ft.	17/28	19/40	7/8″	.255″

† Also available in TPR insulation to order. STD. PKG.: 6

BRIM MINIATURE SHIELDED COMMUNICATION CORDS

1 FT., RETRACTED FOR 5 FT., EXTENDED
Miniature in size. Suitable for compact equipment, such as FCC* required shielded cords for computers or other interfaced devices. All conductors are 28 AWG 19/40 TC, with an aluminum mylar foil shield (foil out), a spiral TC shield, & then a Black Bryon VW-1 vinyl jacket overall. 18″ & 2″ straight ends, cut blunt. Long lasting. OPER. TEMP.: −20°C to +60°C



BRIM No.	Cord Length	No. of Cond.	AWG	Cond. Strand.	Coil O.D.	Cord O.D.
170/2-1	1 Ft.	2	28	19/40	19/32″	.175″
170/4-1	1 Ft.	4	28	19/40	21/32″	.200″
170/5-1	1 Ft.	5	28	19/40	23/32″	.205″
170/6-1	1 Ft.	6	28	19/40	3/4″	.215″
170/7-1	1 Ft.	7	28	19/40	25/32″	.230″
170/8-1	1 Ft.	8	28	19/40	13/16″	.240″
170/9-1	1 Ft.	9	28	19/40	7/8″	.245″
170/10-1	1 Ft.	10	28	19/40	7/8″	.250″

MODULAR PLUGS ARE AVAILABLE FOR SOME OF THESE CABLES.
STD. PKG.: 25 * FCC DOCKET NO. 20780.

PREPARED RETRACTILE COMMUNICATION CORDS

DESCRIPTION: Cords are the same as our standard Neoprene insulated commercial retractile communication cords, except 12″ retracted — extending to approx. 6 ft., and each end is prepared, stripped and tinned as indicated. 100V. STD. PKG.: 6

Brim No.	Size	Strand.	Coil O.D.	Cord O.D.	Prepared
111	3#23ga.	21/36	3/4″	.230″	1 END: Jck. removed 1 1/2″, Cond. stripped and tinned. O.E.: jacket removed 1 1/2″.
112	4#23ga.	21/36	7/8″	.255″	1 END: Jck. removed 1″, Cond. stripped and tinned. O.E.: jacket removed 1 1/2″.
113	5#23ga.	21/36	1″	.275″	BOTH ENDS: jacket removed 4 1/8″, Cond. stripped and tinned.

SHIELDED RETRACTILE COMMUNICATION CORDS

RETRACTED LENGTHS: 1, 2 and 4 ft.
EXTENDED LENGTHS: 6, 12, and 25 ft.

DESCRIPTION: Single and multi-cond. spiral shielded communication cables, jacketed in TPR or "Bryon" plastic. Shielded conductors are individually shielded. Shield can be pigtailed for soldering. Safe and reliable as a mike cord.
OPER. TEMP.: −20°C. to +60°C.

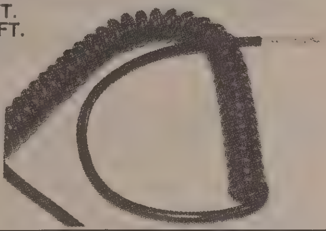
BRIM CAT. NO. Retracted Lengths 4 Ft.	2 Ft.†	1 Ft.†	No. Cond.	Size	Strand.	Nom. Coil O.D.	Nom. Cord O.D.	Volt. Rating	Capacitance MMF/Ft. Linear	Ret'rd
141-4	—	—	1	23	21/36	5/8″	.160″	100	56	440
143-4	143-2	143-1	3	2-23 23(S)	21/36	7/8″	.250″	100	56	450
144-4†	144-2	144-1	2	23(S)*	21/36	7/8″	.250″	100	56	450
145-4	145-2	145-1	4 4	2-23 2-23(S)*	21/36	1 1/8″	.290″	100	56	450

*Individual conductors are shielded and jacketed. † Stocked in Bryon only. STD. PKG.: 6
The nom. coil and cord. O.D.'s for TPR cables are slightly smaller.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 WRITE FOR FREE CATALOG

BRIM WIRE — CABLE — TUBING — HARDWARE
ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

BRIM OVERALL SHIELDED RETRACTILE COMMUNICATION CORDS — UL APPROVED



RETRACTED LENGTHS: 1, 2, 4 FT.
EXTENDED LENGTHS: 5, 10, 20 FT.
DESCRIPTION: 1 to 6 color coded conductors of 23 AWG 21/36 TC, spiral wrapped TC shield over the conductors, Black "BRYON" jacket overall. UL approved for 1 AMP & 120V max.
OPER. TEMP.: −20°C to +60°C.
STD. PKG.: 6

BRIM CAT. No. Retracted Lengths 4 ft.	2 ft.	1 ft.	No. Cond.	Nom. Coil O.D.	Nom. Cord O.D.
135-4	135-2	135-1	1	5/8″	.175″
135/2-4	135/2-2	135/2-1	2	11/16″	.220″
135/3-4	135/3-2	135/3-1	3	3/4″	.230″
135/4-4	135/4-2	135/4-1	4	7/8″	.260″
135/5-4	135/5-2	135/5-1	5	1″	.285″
135/6-4	135/6-2	135/6-1	6	1 1/8″	.310″

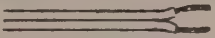
HI-FI STEREO CABLE

DESCRIPTION: Stranded tinned copper conductors, special soft PVC insulation, twisted, shielded or unshielded. Designed for low hum & noise pickup. Very flexible.
OPER. VOLTAGE: 200V OPER. TEMP.: −40°C to +80°C.

BRIM No.	Cond.	AWG	Strand.	Nom. Wall	Nom. O.D.
UNSHIELDED					
1542	2	32	7/40	.010″	.047″
1543	3	32	7/40	.010″	.053″
1544	4	32	7/40	.010″	.061″
SHIELDED					
1545	1	32	7/40	.010″	.040″
1546	2	32	7/40	.010″	.067″
1547	3	32	7/40	.010″	.073″
1548	4	32	7/40	.010″	.081″
1551*	2	32	7/40	.010″	.080″

STD. P-U: 500′, 1000′ * Individually shielded.
COLOR CODE: 1-White, 2-Red, 3-Black, 4-Green.

MINIATURE ZIP CORD



DESCRIPTION: 2 conductors of 28 AWG stranded tinned copper, insulated with 80°C PVC, extruded into a parallel or miniature zip cord. Polarity identification.

BRIM No.	AWG	Strand.	Cond.	Nom. O.D.	STD. P-U
1528	28	7/36	2	.040 x .082″	1000′
1529	29	16/40	2	.040 x .082″	1000′

STD. COLORS: White, Black.

MINIATURE CABLES — SHIELDED, UNSHIELDED, JACKETED, UNJACKETED

DESCRIPTION: 2 to 4 conductors of MIL-W-16878D Type B, twisted, shielded or unshielded, jacketed or unjacketed.

BRIM No.	AWG	No. Cond.	Strand	Nom. Wall	Nom. O.D.
UNSHIELDED, CLEAR PVC JACKET					
1610/2	28	2	7/36	.010″	.090″
1610/3	28	3	7/36	.010″	.096″
1610/4	28	4	7/36	.010″	.105″
SHIELDED, UNJACKETED					
1615/2	28	2	7/36	.010″	.093″
1615/3	28	3	7/36	.010″	.099″
1615/4	28	4	7/36	.010″	.108″
SHIELDED, CLEAR PVC JACKET					
1618/2	28	2	7/36	.010″	.113″
1618/3	28	3	7/36	.010″	.119″
1618/4	28	4	7/36	.010″	.128″

STD. P-U: 500′, 1000′
COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green.

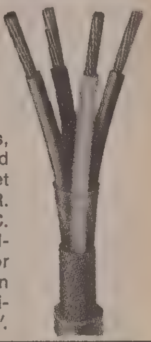
MINIATURE UNSHIELDED HI-FI & STEREO CABLE

DESCRIPTION: 2 to 4 conductors of MIL-W-16878D Type B, twisted, no jacket.
OPERATING VOLTAGE: 600V.
OPERATING TEMPERATURE: −55°C to +105°C.

BRIM No.	AWG	Cond.	Strand.	Wall	Nom. O.D.
1605/2	30	2	7/38	.010″	.058″
1605/3	30	3	7/38	.010″	.064″
1605/4	30	4	7/38	.010″	.072″

STD. P-U: 500′, 1000′. COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green.

MINIATURE SHIELDED CONTROL AND INSTRUMENTATION CABLES — 600V MIL-W-16878D TYPE B



DESCRIPTION: Stranded tinned copper conductors, .010″ wall PVC, cabled, mylar binder, braided tinned copper shield, 90% min. coverage, gray PVC jacket overall. All material pass UL VW-1 test. OPER. VOLT.: 600 Volts. OPER. TEMP.: −55°C to +105°C. PVC is resistant to acid, fungus, oils, moisture, solvents, flame. Used as an interconnecting cable for electronic equipment, control and instrumentation cable telemetry and remote control cable for sensitive recording instruments. STD. P-U: 500′, 1000′.

Brim No.	Conductor No.	AWG	Strand.	Nom. Wall	Nom. Jck.	Nom. O.D.
1202/2	2	B-28	7/36	.010″	.010″	.120″
1202/3	3	B-28	7/36	.010″	.012″	.130″
1202/4	4	B-28	7/36	.010″	.012″	.140″
1202/6	6	B-28	7/36	.010″	.015″	.170″
1202/8	8	B-28	7/36	.010″	.015″	.175″
1202/10	10	B-28	7/36	.010″	.018″	.210″
1202/12	12	B-28	7/36	.010″	.018″	.215″
1202/15	15	B-28	7/36	.010″	.020″	.230″
1202/20	20	B-28	7/36	.010″	.022″	.260″
1202/25	25	B-28	7/36	.010″	.025″	.270″
1202/30	30	B-28	7/36	.010″	.028″	.301″

COLOR CODE: 1-White, 2-Black, 3-Red, 4-Green, 5-Orange, 6-Lt. Blue, 7-Wh/Black, 8-Red/Black, 9-Green/Blk, 10-Orange/Blk, 11-Blue/Blk, 12-Black/Wh, 13-Red/Wh, 14-Green/Wh, 15-Blue/Wh, 16-Black/Red, 17-White/Red, 18-Orange/Red, 19-Blue/Red, 20-Red/Green, 21-Org./Green, 22-Blk/Wh/Red, 23-Wh/Blk/Red, 24-Red/Blk/Wh, 25-Grn/Blk/Wh, 26-Org/Blk/Wh, 27-Blu/Blk/Wh, 28-Blk/Red/Grn, 29-Wh/Red/Grn, 30-Red/Blk/Grn.

BRIM MINIFLYX™ SUBMINIATURE ULTRA-FLEXIBLE INSTRUMENTATION CABLES

DESCRIPTION: Ultra-flexible stranded bare copper conductors, .005″ wall of soft flexible PVC, braided shield, White .010″ soft flexible PVC jacket overall. Suitable as an instrumentation cable where Ultra-flexibility & subminiaturization are essential, in low voltage applications. For example: biomedical instruments, missiles, computer, miniature relays, disc drives, servo systems, recorders.
OPERATING TEMPERATURE: −40°C to +90°C.
OPERATING VOLTAGE: 200 Volts.

BRIM No.	No. Cond.	AWG	Strand.	Nom. Wall	Nom. Jck.	Nom. O.D.	Std. P-U
1210/2	2	30	40/46	.005″	.010″	.073″	1000′
1210/3	3	30	40/46	.005″	.010″	.076″	1000′
1210/4	4	30	40/46	.005″	.010″	.082″	1000′
1210/5	5	30	40/46	.005″	.010″	.088″	1000′
1211/2	2	32	65/50	.005″	.010″	.069″	1000′
1211/3	3	32	65/50	.005″	.010″	.072″	1000′
1211/4	4	32	65/50	.005″	.010″	.077″	1000′
1211/5	5	32	65/50	.005″	.010″	.083″	1000′
1212/2	2	34	40/50	.005″	.010″	.065″	1000′
1212/3	3	34	40/50	.005″	.010″	.068″	1000′
1212/4	4	34	40/50	.005″	.010″	.072″	1000′
1212/5	5	34	40/50	.005″	.010″	.078″	1000′
1213/2	2	36	25/50	.005″	.010″	.061″	1000′
1213/3	3	36	25/50	.005″	.010″	.063″	1000′
1213/4	4	36	25/50	.005″	.010″	.067″	1000′
1213/5	5	36	25/50	.005″	.010″	.072″	1000′
1214/2	2	38	16/50	.005″	.010″	.057″	1000′
1214/3	3	38	16/50	.005″	.010″	.059″	1000′
1214/4	4	38	16/50	.005″	.010″	.063″	1000′
1214/5	5	38	16/50	.005″	.010″	.067″	1000′

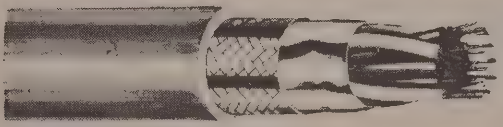
COLOR CODE: 1-White, 2-Black, 3-Red, 4-Green, 5-Yellow.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 WRITE FOR FREE CATALOG

BRIM WIRE — CABLE — TUBING — HARDWARE ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

BRAIDED TC SHIELDED CONTROL — INSTRUMENTATION — MICROPHONE CABLES

UL SHIELDED COMPUTER AND CONTROL CABLES

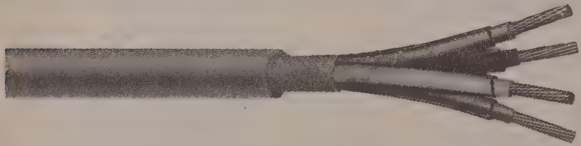


DESCRIPTION: Each conductor UL Type 1061, 24 AWG 7/32 T.C., UL VW-1. Conductors are paired, cabled, mylar wrap, braided tinned copper shield, chrome PVC jacket overall. Color coded. Shielding coverage a minimum of 85%. Cable meets UL Styles 2343 & 2344. Suitable as a control cable, computer cable, shielded audio cable. OPERATING VOLTAGE: 300V UL. OPERATING TEMPERATURE: −40°C to +80°C. STD. P-U: 500′, 1000′.

Brim No.	No. of Pairs	AWG	Strand.	Nom. Wall	Nom. Jack.	Nom. O.D.
1886/5	5	24	7/32	.009″	.062″	.355″
1886/7	7	24	7/32	.009″	.062″	.375″
1886/12	12	24	7/32	.009″	.062″	.460″
1886/15	15	24	7/32	.009″	.062″	.510″
1886/19	19	24	7/32	.009″	.062″	.530″
1886/27	27	24	7/32	.009″	.062″	.620″
1886/37	37	24	7/32	.009″	.062″	.690″
1886/48	48	24	7/32	.009″	.062″	.775″
1886/60	60	24	7/32	.009″	.062″	.845″

See color code for paired cables.
OTHER CONSTRUCTIONS AVAILABLE TO ORDER.

MIL-W-16878D TYPE BN SHIELDED CABLES

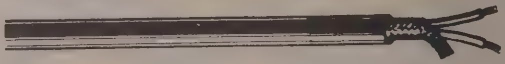


DESCRIPTION: One to four conductors, stranded tinned copper, Tyne BN insulation — .010″ wall PVC, clear nylon jacket — conductors are cabled, braided tinned copper shield, white PVC jacket overall. Cable components meet UL VW-1 vertical flame test requirements, and is resistant to oils, acids, solvents, alkalis, moisture, fungus. OPERATING VOLTAGE: 600V. OPERATING TEMPERATURE: −55°C to +105°C. STD. P-U: 500′, 1000′.

Brim No.	No. Cond.	AWG-Strand.	PVC Wall	Nylon Jack.	Nom. Jack.	Nom. O.D.
1450	1	26-7/34	.010″	.003″	.010″	.087″
1450/2	2	26-7/34	.010″	.003″	.014″	.138″
1450/3	3	26-7/34	.010″	.003″	.014″	.142″
1450/4	4	26-7/34	.010″	.003″	.016″	.162″
1451	1	24-19/36	.010″	.003″	.010″	.092″
1451/2	2	24-19/36	.010″	.003″	.016″	.155″
1451/3	3	24-19/36	.010″	.003″	.016″	.162″
1451/4	4	24-19/36	.010″	.003″	.017″	.172″
1452	1	22-19/34	.010″	.003″	.010″	.100″
1452/2	2	22-19/34	.010″	.003″	.016″	.170″
1452/3	3	22-19/34	.010″	.003″	.016″	.180″
1452/4	4	22-19/34	.010″	.003″	.019″	.194″
1453	1	20-19/32	.010″	.003″	.010″	.108″
1453/2	2	20-19/32	.010″	.003″	.019″	.190″
1453/3	3	20-19/32	.010″	.003″	.019″	.200″
1453/4	4	20-19/32	.010″	.003″	.021″	.216″
1454	1	18-19/30	.010″	.003″	.012″	.122″
1454/2	2	18-19/30	.010″	.003″	.021″	.210″
1454/3	3	18-19/30	.010″	.003″	.021″	.225″
1454/4	4	18-19/30	.010″	.003″	.023″	.250″
1455	1	16-19/29	.010″	.003″	.016″	.137″
1455/2	2	16-19/29	.010″	.003″	.023″	.236″
1455/3	3	16-19/29	.010″	.003″	.023″	.242″
1455/4	4	16-19/29	.010″	.003″	.025″	.267″
1456	1	14-19/27	.010″	.004″	.020″	.150″
1456/2	2	14-19/27	.010″	.004″	.027″	.266″

COLOR CODE: 1-White, 2-Black, 3-Red, 4-Green.

SHIELDED MICROPHONE CABLE



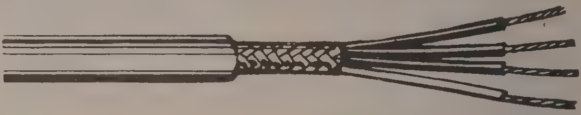
DESCRIPTION: 2 Cond. stranded tinned copper .016″ wall polyethylene, fillers, mylar wrap, tinned copper shield, .030″ Hi-gloss Black PVC jacket overall. OPER. VOLT.: 1000V.

COLOR CODE: 1-Black, 2-Red.

OPERATING TEMPERATURE: −20°C to +80°C. Nom. Cap./ft. between one cond. remaining cond. connected to shield: 1884/24—38MMF, 1884/22 — 31MMF.

BRIM No.	No. Cond.	AWG-Strand	Shield	Nom. Wall	Nom. O.D.
1884/24	2	24-10/34	Spiral	.016″	.190″
1884/22	2	22-16/34	Braid	.025″	.240″

MICROPHONE — REMOTE-CONTROL CABLE



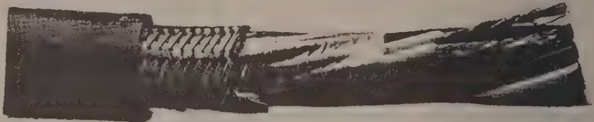
DESCRIPTION: Each conductor stranded TC .014″ wall polyethylene, cabled with fillers, mylar wrap, braided TC shield, chrome PVC jacket overall. OPER. VOLT.: 1000V.

OPERATING TEMPERATURE: −20°C to +80°C.

BRIM No.	No. Cond.	AWG	Strand	Nom. Wall	Nom. Jack.	Nom. O.D.
1883/2	2	20	26/34	.014″	.030″	.245″
1883/3	3	20	26/34	.014″	.035″	.250″
1883/4	4	20	26/34	.014″	.035″	.260″
1883/5	5	20	26/34	.014″	.035″	.275″
1883/6	6	20	26/34	.014″	.035″	.295″
1883/8	8	20	26/34	.014″	.035″	.325″
1883/10	10	20	26/34	.014″	.035″	.370″
1883/12	12	20	26/34	.014″	.035″	.380″
1883/15	15	20	26/34	.014″	.035″	.405″
1883/20	20	20	26/34	.014″	.035″	.445″

STD. P-U: 500′, 1000′

HEAVY DUTY SHIELDED CONTROL CABLES MIL-W-16878D TYPE C-18 1000V



DESCRIPTION: MIL-W-16878D Ty C-18, 19/30 TC conductors, twisted, mylar wrap braided tinned copper shield — 90% minimum coverage — chrome PVC jacket overall. Color coded. Cable resistant to acids, oils, moisture, solvents, alkalis, fungus. Cable meets UL VW-1 vertical flame test requirements. OPERATING VOLTAGE: 1000V. OPERATING TEMPERATURE: −55°C to +105°C. Suitable as an interconnecting cable for electronic equipment, instrumentation, control, telemetry data, and remote control of sensitive recording instruments. STD. P-U: 500′, 1000′.

Brim No.	No. Cond.	AWG	Strand.	Nom. Wall	Nom. Jack.	Nom. O.D.
3019/5	5	C-18	19/30	.016″	.025″	.302″
3019/10	10	C-18	19/30	.016″	.035″	.407″
3019/15	15	C-18	19/30	.016″	.040″	.472″
3019/20	20	C-18	19/30	.016″	.045″	.531″
3019/30	30	C-18	19/30	.016″	.055″	.651″

OTHER CONSTRUCTIONS AVAILABLE TO ORDER.

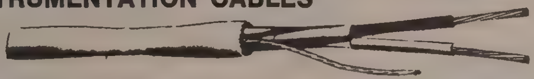
COLOR CODE FOR 3019 SERIES: 1-Black, 2-White, 3-Red, 4-Green, 5-Orange, 6-Blue, 7-White/Black, 8-Red/Black, 9-Green/Black, 10-Orange/Black, 11-Blue/Black, 12-Black/White, 13-Red/White, 14-Green/White, 15-Blue/White, 16-Black/Red, 17-White/Red, 18-Orange/Red, 19-Blue/Red, 20-Red/Green, 21-Orange/Green, 22-Black/White/Red, 23-White/Black/Red, 24-Red/Black/White, 25-Green/Black/White, 26-Orange/Black/White, 27-Blue/Black/White, 28-Black/Red/Green, 29-White/Red/Green, 30-Red/Black/Green.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 WRITE FOR FREE CATALOG

BRIM WIRE — CABLE — TUBING — HARDWARE
ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

ALUMINUM MYLAR FOIL SHIELDED CABLES

ALUMINUM MYLAR FOIL SHIELDED CABLE — INSTRUMENTATION CABLES



DESCRIPTION: Stranded TC conductors, polyethylene insulation, conductors twisted, an aluminum mylar foil shield, foil out, TC drain wire, gray PVC jacket overall. Color coded. Suitable as a light weight shielded instrumentation cable. Shield provides 100% coverage, and drain wire provides quick and easy grounding. OPERATING VOLTAGE: 400V.
OPERATING TEMPERATURE: −20°C to +60°C.
COLOR CODE 1-Black, 2-Red, 3-White, 4-Green.

BRIM No.	No. Cond.	AWG	Strand	Nom. Wall	Nom. Jck.	Nom. O.D.
1639	2	24	7/32	.015″	.020″	.155″
1639/3	3	24	7/32	.015″	.020″	.172″
1639/4	4	24	7/32	.015″	.020″	.195″
1640*	2	22	7/30	.015″	.020″	.165″
1640/3	3	22	7/30	.015″	.020″	.182″
1640/4	4	22	7/30	.015″	.020″	.205″
1641	2	20	10/30	.015″	.020″	.184″
1641/3	3	20	10/30	.015″	.020″	.202″
1641/4	4	20	10/30	.015″	.020″	.221″
1642	2	18	16/30	.017″	.020″	.215″
1642/3	3	18	16/30	.017″	.020″	.233″
1642/4	4	18	16/30	.017″	.020″	.258″
1643	2	16	26/30	.017″	.020″	.250″
1643/3	3	16	26/30	.017″	.020″	.273″
1644	2	14	41/30	.017″	.025″	.295″
1644/3	3	14	41/30	.017″	.025″	.315″

STD. P-U: 500′, 1000′

ALUMINUM MYLAR FOIL SHIELDED CABLES — MINIATURE CABLE

DESCRIPTION: 2 conductors 22 AWG SOLID or STRANDED TC, .008″ wall of polypropylene, aluminum mylar foil shield, foil out, TC drain wire, chrome PVC jacket overall. Suitable for miniature instrumentation.
OPERATING VOLTAGE: 200V.
OPERATING TEMPERATURE: −40°C to +105°C.
COLOR CODE: 1-Red, 2-Black.

BRIM No.	No. Cond.	AWG	Strand	Nom. Wall	Nom. Jck.	Nom. O.D.
1636	2	22	1	.008″	.018″	.117″
1637	2	22	7/30	.008″	.020″	.134″

STD. P-U: 500′, 1000′

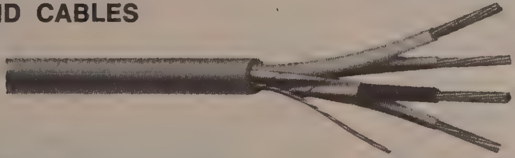
MULTIPLE PAIRED COMMUNICATION CABLES

DESCRIPTION: 22 AWG SOLID TC conductors, .008″ wall polypropylene, or .010″ wall PVC, color coded, conductors are twisted into pairs, the pairs are cabled, an aluminum mylar foil shield over all pairs, foil out, a stranded TC drain wire, chrome PVC jacket overall. Suitable for communication telephone and sound systems, control and instrumentation cable. OPERATING VOLTAGE: 200V. OPERATING TEMPERATURE: −40°C to +105°C.

Brim No.	No. Pairs	AWG	Insula.	Nom. Wall	Nom. Jck.	Nom. O.D.
1633/38	38	22-1	Polyprop.	.008″	.045″	.575″
1633/51	51	22-1	PVC	.010″	.050″	.696″

STD. P-U: 500′, 1000′ SEE FIGURE 1

SOUND CABLES



DESCRIPTION: Four conductors, stranded TC, .009″ wall polypropylene, two conductors inside an aluminum mylar foil shield, foil out, a stranded TC drain wire and two conductors outside of shield, chrome PVC jacket overall. Polypropylene insulation is used because of its mechanical toughness and excellent high frequency properties. OPERATING VOLTAGE: 300V. OPERATING TEMPERATURE: −40°C to +105°C. COLOR CODE: Shielded: 1-Black, 2-Red. Unshielded: 3-Green, 4-White.

Brim No.	No. Cond.	AWG/ Strand.	No. Shld.	Nom. Wall	Nom. Jck.	Nom. O.D.
1620/4	4	20-7/28	2	.009″	.020″	.185″
1622/4	4	22-7/30	2	.009″	.020″	.167″
1624/4	4	24-7/32	2	.009″	.020″	.150″

STD. P-U: 500′, 1000′.

ALUMINUM MYLAR FOIL SHIELDED CABLES

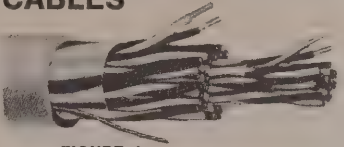


FIGURE 1

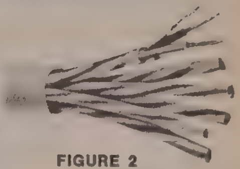


FIGURE 2

INDIVIDUALLY SHIELDED PAIRS — 22 and 18 AWG — POLYETHYLENE

DESCRIPTION: 22 AWG 7/30 TC or 18 AWG 16/30 TC, wall of polyethylene insulated conductors, conductors are twisted into pairs, an aluminum mylar foil shield with a stranded TC drain wire over each pair, the shielded pairs are cabled, chrome PVC jacket overall. Color coded. Nom. Cap. between conductors: 25PF/Ft. Nom. Cap. between one conductor and remaining conductor connected to shield: 45PF/Ft. Suitable for audio, R.F. data and pulse applications requiring superior circuit isolation.
OPERATING VOLTAGE: 300V.
OPERATING TEMPERATURE: −20°C to +60°C.

22 AWG 7/30

Brim No.	No. Pairs	No. Cond.	Nom. Wall	Nom. Jck.	Nom. O.D.
1630/3	3	6	.010″	.025″	.255″
1630/6	6	12	.010″	.030″	.345″
1630/9	9	18	.010″	.035″	.410″
1630/11	11	22	.010″	.040″	.460″
1630/15	15	30	.010″	.045″	.535″
1630/19	19	38	.010″	.050″	.575″
1630/27	27	54	.010″	.055″	.690″

18 AWG 16/30

Brim No.	No. Pairs	No. Cond.	Nom. Wall	Nom. Jck.	Nom. O.D.
1632/3	3	6	.016″	.035″	.375″
1632/6	6	12	.016″	.045″	.555″
1632/9	9	19	.016″	.055″	.620″
1632/11	11	22	.016″	.060″	.745″
1632/15	15	30	.016″	.065″	.820″
1632/19	19	38	.016″	.075″	.870″
1632/27	27	54	.016″	.085″	.995″

STD. P-U: 500′, 1000′. CONSTRUCTION VARIATIONS TO ORDER.
SEE FIGURE 2

INDIVIDUALLY SHIELDED PAIRS — 22 AWG STRANDED — POLYPROPYLENE

DESCRIPTION: 22 AWG 7/30 TC conductors, .010″ wall polypropylene, conductors are twisted into pairs, pairs are cabled, an aluminum mylar foil shield with a stranded TC drain wire over each twisted pair, chrome PVC jacket overall. Jacket passes UL VW-1 vertical flame test. For audio, pulse, data, and RF applications requiring superior circuit isolation. Polypropylene is used for its mechanical toughness and high frequency properties. OPER. VOLT.: 300V. OPER. TEMP.:− 55°C to +105°C. STD. P-U: 500′, 1000′.

Brim No.	No. Pairs	No. Cond.	Strand.	Nom. Wall	Nom. Jck.	Nom. O.D.
1638/3	3	6	7/30	.010″	.025″	.250″
1638/6	6	12	7/30	.010″	.030″	.340″
1638/9	9	18	7/30	.010″	.035″	.405″
1638/11	11	22	7/30	.010″	.040″	.455″
1638/15	15	30	7/30	.010″	.045″	.530″
1638/19	19	38	7/30	.010″	.050″	.570″
1638/27	27	54	7/30	.010″	.055″	.685″

SEE FIGURE 2

INDIVIDUALLY SHIELDED PAIRS — 22 AWG SOLID

DESCRIPTION: 22 AWG SOLID T.C. conductors, .013″ wall PVC, conductors are twisted into pairs, an aluminum mylar foil shield with a TC drain wire over each pair, the pairs are cabled, chrome PVC jacket overall. Color coded. Suitable for audio, pulse, R.F., data applications requiring superior circuit isolation. OPER. VOLT.: 300V. OPERATING TEMPERATURE: −20°C to +60°C. SEE FIGURE 2

Brim No.	No. Pairs	No. Cond.	AWG/ Strand.	Nom. Wall	Nom. Jck.	Nom. O.D.
1635/3	3	6	22-1	.013″	.035″	.275″
1635/6	6	12	22-1	.013″	.037″	.395″
1635/9	9	18	22-1	.013″	.040″	.440″
1635/11	11	22	22-1	.013″	.040″	.485″
1635/15	15	30	22-1	.013″	.045″	.540″
1635/19	19	38	22-1	.013″	.055″	.660″
1635/27	27	54	22-1	.013″	.070″	.800″

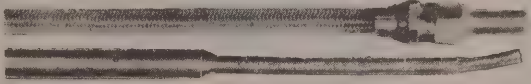
STD. P-U: 500′, 1000′. CONSTRUCTION VARIATIONS TO ORDER.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 WRITE FOR FREE CATALOG

BRIM WIRE — CABLE — TUBING — HARDWARE ELECTRONICS, INC. FAIR LAWN, N.J. 201-796-2886

HEAT SHRINKABLE TUBINGS: BRIFLON™ TEFLON • TEFZEL — SILICONE RUBBER TUBING

SH200, SH250, SH254 & SHTF tubings have excellent resistance to weathering, chemicals (oils, fuels, solvents, acids, alkalis, fluids), & fungus, are non-corrosive, low water absorption (.01%), will not burn nor support combustion, have hi dielectric strength (850V/MIL dry), low dielectric constant, & a very low coefficient of friction. Hi mechanical strength yet flexible. (Low temp. flexibility −67°C). Their excellent electrical characteristics remain stable throughout their electrical range. Longitudinal change with full shrinkage: FEP −15%: TFE −20%. Color: Natural (FEP-transparent; TFE-translucent).



SH200 (FEP) MIL-I-23053/11

SH200: an extruded modified FEP (Fluorinated-Ethylene-Propylene) Teflon* tubing, with a continuous Oper. Temp. of +205°C (400°F). SH200 completely shrinks at 350°F (partial shrinkage possible at 200°F). Shrinkage ratio — 1.3:1. It melts at 525-563°F so it can be used to encapsulate. Now many sensitive components, parts, devices, etc. can be protected with Teflon*. Fills void between the hi temp. of TFE, and low temp. of PVC and polyolefin tubings.

Briflon No.	Min. Exp. I.D.	Max. Rec. Dimen.** I.D	Max. Rec. Dimen.** Wall	±Wall Toler.
SH200-24	.031″	.027″	.008″	.002″
SH200-22	.036″	.032″	.008″	.002″
SH200-20	.045″	.039″	.008″	.002″
SH200-18	.060″	.049″	.008″	.002″
SH200-16	.075″	.061″	.009″	.002″
SH200-14	.092″	.072″	.009″	.002″
SH200-12	.115″	.089″	.009″	.002″
SH200-10	.141″	.114″	.010″	.003″
SH200-9	.158″	.124″	.010″	.003″
SH200-8	.180″	.143″	.010″	.003″
SH200-7	.197″	.158″	.011″	.004″
SH200-6	.225″	.180″	.011″	.004″
SH200-5	.248″	.198″	.011″	.004″
SH200-4	.290″	.226″	.011″	.004″
SH200-3	.310″	.249″	.011″	.004″
SH200-2	.365″	.280″	.012″	.004″
SH200-1	.400″	.311″	.012″	.004″
SH200-0	.440″	.349″	.012″	.004″
SH200-3/8″	.500″	.383″	.015″	.004″
SH200-7/16″	.580″	.448″	020″	.004″
SH200-1/2″	.666″	.510″	.020″	.004″
SH200-5/8″	.830″	.637″	.025″	.004″
SH200-3/4″	1.000″	.764″	.030″	.004″
SH200-7/8″	1.170″	.891″	.035″	.004″
SH200-1″	1.330″	1.020″	.035″	.004″
SH200-1 1/4″	1.660″	1.270″	.035″	.004″
SH200-1 1/2″	2.000″	1.520″	.035″	.004″

STD. P-U: 100′, 4 foot minimum lengths. * DuPont.

** All dimensions are based on full recovery.

OTHER SIZES IN TFE AND FEP, AND COLORS ARE AVAILABLE TO ORDER. ETCHING FOR BONDING IS AVAILABLE TO ORDER.

SH254 4:1 SHRINKABLE TFE

SH254 tubing can recover to approximately 1/4 of its expanded size when heated to its "gel" point (621°F-625°F). Because of its exceptional shrinkage capability, its recommended that the outside diameter of the object to be shrunk down upon should not be more than 50% of the expanded I.D. of the size of the tubing used. Conforms to AMS 3584 and MIL-I-23053/12 — except for its 4:1 shrink ratio. SH254 is non-flamable, non-corrosive, and offers all of the other outstanding electrical, chemical, and mechanical properties of Teflon*. * DuPont

Briflon No.	Max. Exp. I.D.	Max. Rec. Dimin.** I.D.	Max. Rec. Dimin.** Wall	±Wall Toler.
SH254-5/64″	.078″	.025″	.009″	.002″
SH254-1/8″	.125″	.037″	.010″	.002″
SH254-3/16″	.187″	.050″	.012″	.003″
SH254-1/4″	.250″	.063″	.012″	.003″
SH254-5/16″	.312″	.079″	.012″	.003″
SH254-3/8″	.375″	.096″	.012″	.003″
SH254-7/16″	.438″	.112″	.012″	.003″
SH254-1/2″	.500″	.144″	.015″	.004″
SH254-9/16″	.562″	.155″	.015″	.004″
SH254-5/8″	.625″	.178″	.015″	.004″
SH254-11/16″	.687″	.198″	.015″	.004″
SH254-3/4″	.750″	.224″	.015″	.004″
SH254-7/8″	.875″	.244″	.015″	.004″
SH254-1″	1.000″	.278″	.015″	.004″
SH254-1 1/4″	1.250″	.347″	.015″	.004″

STD. P-U: 100′, in 4 foot lengths. Std. Color: Natural (Clear)

SH250 (TFE) MIL-I-23053/12

SH250: an extruded modified TFE (PolyTetraFluoroEthylene) Teflon* tubing, with a continuous Operating Temperature of +250°C (550°F). SH250 will shrink when heated to 621°F. Shrinkage ratio — 2:1. Used wherever hi-temperature protection required. Applications: Protective covers in corrosive environments, protection for electronic components, cable jacketing, covers on immersion heaters, heat exchangers, light duty bearing surfaces, roll covers.

Briflon No.	Min. Exp. I.D.	Max. Rec. Dimen.** I.D.	Max. Rec. Dimen.** Wall	±Wall Toler.
SH250-30	.034″	.015″	.009″	.002″
SH250-28	.038″	.018″	.009″	.002″
SH250-26	.046″	.022″	.009″	.002″
SH250-24	.050″	.027″	.010″	.002″
SH250-22	.055″	.032″	.010″	.002″
SH250-20	.060″	.039″	.010″	.003″
SH250-19	.065″	.043″	.012″	.003″
SH250-18	.076″	.049″	.012″	.003″
SH250-17	.085″	.054″	.012″	.003″
SH250-16	.093″	.061″	.012″	.003″
SH250-15	.110″	.067″	.012″	.003″
SH250-14	.120″	.072″	.012″	.003″
SH250-13	.140″	.080″	.012″	.003″
SH250-12	.150″	.089″	.012″	.003″
SH250-11	.170″	.101″	.012″	.003″
SH250-10	.191″	.112″	.012″	.003″
SH250-9	.205″	.124″	.015″	.004″
SH250-8	.240″	.141″	.015″	.004″
SH250-7	.270″	.158″	.015″	.004″
SH250-6	.302″	.178″	.015″	.004″
SH250-5	.320″	.198″	.015″	.004″
SH250-4	.370″	.224″	.015″	.004″
SH250-3	.390″	.249″	.015″	.004″
SH250-2	.430″	.278″	.015″	.004″
SH250-1	.450″	.311″	.015″	.004″
SH250-0	.470″	.347″	.015″	.004″
SH250-3/8″	.560″	.399″	025″	.006″
SH250-1/2″	.750″	.524″	.025″	.006″
SH250-5/8″	.930″	.655″	.025″	.008″
SH250-3/4″	1.125″	.786″	.030″	.008″
SH250-1″	1.500″	1.036″	.035″	.008″

STD. P-U: 100′, Sizes 26-14: 3 foot minimum lengths. 13-1″ 1 foot minimum length.

SHTF SHRINKABLE TFE/FEP

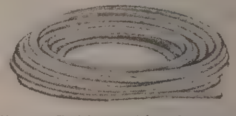
SHTF is made with a combination of TFE and FEP Teflons*. The inner wall is made of FEP and the outer wall of TFE. When the tubing is heated, the TFE begins to shrink down tightly over the FEP. The FEP inner wall melts and flows-squeezes-into and around the item covered, creating a solid or near solid encapsulation. The fit is so tight that it is safe against most environmental hazards, involving pull or vibrations. It can be used as a strain relief, or moisture-proof covering for wires, connectors, terminals, splices, electronic devices, etc. SHTF is non-flamable, non-corrosive, and offers all of the other outstanding electrical, chemical, and mechanical properties of Teflon*. Color: Natural (Transparent). OPERATING TEMPERATURE: −85°F to +450°F.

Briflon No.	Min. Exp. I.D.	Max. Rec. Dimen.** I.D.	Max. Rec. Dimen.** Wall	Std. P-U+
SHTF-1	.065″	.000″**	.015″	100′
SHTF-2	.115″	.045″	.015″	100′
SHTF-3	.130″	.060″	.015″	100′
SHTF-4	.180″	.065″	.015″	100′
SHTF-5	.190″	:070″	.015″	100′
SHTF-6	.240″	.150″	.020″	100′
SHTF-7	.350″	.210″	.025″	100′
SHTF-8	.480″	.315″	.032″	100′
SHTF-9	.700″	.440″	.055″	100′
SHTF-10	1.000″	.700″	.045″	100′

** Fully closes off. +In random lengths of 1 foot to 3 feet. * DuPont

OTHER SIZES AND COLORS AVAILABLE TO ORDER.

BRIMFLEX BSR SILICONE RUBBER TUBING — MIL-R-5847 200°C



BRIMFLEX BSR Silicone Rubber tubing is an extremely elastic and stable high temperature and low temperature tubing. Besides being extremely flexible, it has excellent mechanical strength (tear resistance, tensile strength, elongation, and weather resistance), and outstanding dielectric strength, and corona resistance. BSR meets MIL-R-5847 and Fed. Spec. ZZ-R-765, Class 2b, STD. COLOR: WHITE. OPERATING VOLTAGE: 28 AWG-5/8″ — 300V, 3/4″-1″ — 600V.

Brimflex No.	Size	Nom. I.D.	Nom. Wall	Std. P.U.
BSR-28	28	.015″	.016″	1000′
BSR-26	26	.018″	.016″	1000′
BSR-24	24	.022″	.016″	1000′
BSR-22	22	.027″	.016″	1000′
BSR-20	20	.034″	.016″	1000′
BSR-19	19	.038″	.016″	1000′
BSR-18	18	.042″	.016″	1000′
BSR-17	17	.047″	.016″	1000′
BSR-16	16	.053″	.016″	1000′
BSR-15	15	.059″	.016″	500′
BSR-14	14	.066″	.016″	500′
BSR-13	13	.076″	.016″	500′
BSR-12	12	.085″	.016″	500′
BSR-11	11	.095″	.016″	500′
BSR-10	10	.106″	.016″	500′
BSR-9	9	.118″	.020″	500′
BSR-8	8	.133″	.020″	500′
BSR-7	7	.148″	.020″	250′
BSR-6	6	.166″	.020″	250′
BSR-5	5	.186″	.020″	250′
BSR-4	4	.208″	.020″	250′
BSR-3	3	.233″	.020″	250′
BSR-2	2	.262″	.020″	250′
BSR-1	1	.294″	.020″	250′
BSR-0	0	.329″	.025″	250′
BSR-3/8″	3/8″	.382″	.025″	250′
BSR-7/16″	7/16″	.446″	.025″	250′
BSR-1/2″	1/2″	.508″	.025″	100′
BSR-5/8″	5/8″	.636″	.030″	100′
BSR-3/4″	3/4″	.760″	.050″	100′
BSR-7/8″	7/8″	.895″	.050″	100′
BSR-1″	1″	1.010″	.055″	100′

SHRINKABLE E-TFE TEFZEL* TUBING — MIL-I-23053/14

Designed for ruggedness. Excellent chemical resistance and high dielectric qualities which exist over a wide temperature range. Superior to Teflon* in its mechanical strength. Shrink Ratio-1.5:1. Shrinks quickly on application of only 300°F (150°C). Because of its quick shrinking ability at a relatively low temperature, many heat sensitive components and materials (solder joints, plastics, wood, metal) can now be easily protected. It is also heat sealable, chemically inert, self-extinguishing (non-flamable in air). Dielectric Strength: 400V/MIL. Uses: cable jacketing, wire markers, terminal covers, temperature probes, immersion tubing, heat exchanger coils, sight glasses, roll covers, chafe guards, component insulation. STD. COLOR: Translucent.

Brimflex No.	Min. Expd. I.D.	Recovered Dimen. I.D. Max.	Recovered Dimen. Wall	±Wall† Toler.
SH150-1/8″	.125″	.083″	.010″	.002″
SH150-3/16″	.188″	.125″	.011″	.002″
SH150-1/4″	.250″	.166″	.013″	.003″
SH150-3/8″	.375″	.250″	.013″	.003″
SH150-1/2″	.500″	.345″	.013″	.003″
SH150-3/4″	.750″	.500″	.018″	.004″
SH150-1″	1.000″	.665″	.022″	.004″

Brimflex No.	AWG**	Rec. M.M.	STD. P-U
SH150-1/8″	12	2.11	100′, 1000′
SH150-3/16″	8	3.18	100′, 1000′
SH150-1/4″	6	4.62	100′, 1000′
SH150-3/8″	2	6.35	100′, 1000′
SH150-1/2″	00	8.76	100′, 1000′
SH150-3/4″	0000	12.70	100′, 500′
SH150-1″	350MCM	16.89	100′, 500′

STD. LENGTHS: 4 foot lengths with random lengths of 1 foot minimum. † If full recovery allowed.

E-TFE TEFZEL* SPAGHETTI TUBING IS AVAILABLE TO ORDER. ** O.D. of closest equivalent wire. * DuPont SHRINKABLE PVC TUBING per MIL-I-23053/2 IS AVAILABLE.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 WRITE FOR FREE CATALOG

BRIM ELECTRONICS, INC. WIRE — CABLE — TUBING — HARDWARE

FAIR LAWN, N.J. 201-796-2886

BRIMFLEX™ SHRINKABLE TUBINGS — SPIRAL WRAP TUBINGS

BRIFLEX™ SHRINKABLE PVC TUBINGS: MIL-I-23053/2B & HEAVY WALL PVC TUBING

SHRINKABLE IRRADIATED POLYOLEFIN: MIL-I-23053/5 — SPIRAL WRAP TUBING

BRIMFLEX™ POLYVINYLCHLORIDE SHRINKABLE TUBING — MIL-I-23053/2B & UL VW-1

SHRINK RATIO: 2:1 (50%) — OPERATING TEMPERATURE: −20°C to +105°C
BRIMFLEX™ SH105 is a flexible all purpose shrinkable PVC tubing that shrinks 50% of its expanded size when exposed to temperatures below 200°F (within one minute). SH105 meets MIL-I-23053/2B, Class 2, and conforms to MIL-I-631D, Grade C. Longitudinal shrinkage: approximately 20%. SH105 is self-extinguishing, resistant to fungus, most oils, and chemicals, sunlight, moisture, and is non-corrosive. SH105 is suitable for insulating wires, cables, and electronic components, that vary in shapes, and dimensions. Produces a smooth snug flexible fit, in most applications — even around sharp bends. Dielectric Strength: 700V/MIL min., ASTM-D922. Tensile Strength: 2000PSI min. Suggested Storage Temperature: under 70°F for up to 10 months. UL Approved SH105 is available to order.
STD. COLORS: Black, Clear, Red, White. Other colors available to order.

Brimflex No.	Min. Exp. I.D.	Recovered Dimen.*		±Wall Toler.	AWG**	Rec. M.M.	Std. P-U
		I.D. Max.	Wall				
SH105-3/64″	.046″	.023″	.020″	.003″	24-22	0.59	1000′
SH105-1/16″	.063″	.031″	.020″	.003″	22-20	0.80	100′, 500′, 1000′
SH105-3/32″	.093″	.046″	.020″	.003″	18-16	1.19	100′, 500′, 1000′
SH105-1/8″	.125″	.063″	.020″	.003″	14	1.59	100′, 500′, 1000′
SH105-3/16″	.187″	.093″	.020″	.003″	12-10	2.39	100′, 500′, 1000′
SH105-1/4″	.250″	.125″	.025″	.005″	8	3.18	100′, 500′, 1000′
SH105-5/16″	.312″	.156″	.025″	.005″	7	3.97	100′, 250′, 500′
SH105-3/8″	.375″	.187″	.025″	.005″	5	4.77	100′, 250′, 500′
SH105-1/2″	.500″	.250″	.025″	.005″	2	6.35	100′, 250′, 500′
SH105-3/4″	.750″	.375″	.030″	.005″	00	9.52	100′, 250′, 500′
SH105-1″	1.000″	.500″	.035″	.005″	0000	12.70	100′, 250′, 500′
SH105-1½″	1.500″	.750″	.040″	.005″	450MCM	19.05	25′, 50′, 100′
SH105-2″	2.000″	1.000″	.045″	.006″	750MCM	25.40	25′, 50′, 100′
SH105-3″	3.000″	1.500″	.068″	.007″	1750MCM	38.10	— — 100′
SH105-4″	4.000″	2.000″	.073″	.008″	2750MCM	50.80	— — 100′

* If full recovery allowed. ** O.D. of closest equivalent wire.

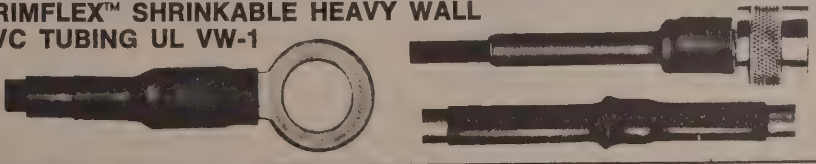
SHRINKABLE IRRADIATED POLYOLEFIN TUBING — ALL PURPOSE — MIL-I-23053/5

Flexible, yet greater electrical, chemical, and abrasion resistance, and greater mechanical strength than that of shrinkable PVC tubing. It not only insulates, it can also encapsulate, giving a watertight fit. Won't crack or peel. Its non-corrosive, has excellent resistance to soldering irons, oils, solvents, acids, alkalis, fuels, hydraulic fluids, fungus. Shrink Ratio-2:1 (50%). Shrinks when exposed to 250°F. Longitudinal shrinkage: 5%. Dielectric Strength: 1300V/MIL. Colored tubing is self-extinguishing; clear tubing is slow burning. Uses: Strain relief, jacketing material, component insulation. OPERATING TEMPERATURE: −55°C to +135°C. Meets MIL-I-23053/5, Class 1, 2. MIL-I-7444B, AMS 3636B, AMS 3637A, ASTM D876, ASTM D150, ASTM D257, ASTM D2671, ASTM D792.

Brimflex No.	Min. Exp. I.D.	Recovered Dimen.*		±Wall Toler.	AWG**	Rec. M.M.	Std. P-U
		I.D. Max.	Wall				
SH135-3/64″	.046″	.023″	.016″	.003″	24-22	0.59	100′, 500′, 1000′
SH135-1/16″	.063″	.031″	.016″	.003″	22-20	0.80	100′, 500′, 1000′
SH135-3/32″	.093″	.046″	.020″	.003″	18-16	1.19	100′, 500′, 1000′
SH135-1/8″	.125″	.063″	.020″	.003″	14	1.59	100′, 500′, 1000′
SH135-3/16″	.187″	.093″	.020″	.003″	12-10	2.39	100′, 500′, 1000′
SH135-1/4″	.250″	.125″	.025″	.003″	8	3.18	100′, 500′, 1000′
SH135-3/8″	.375″	.187″	.025″	.003″	5	4.77	50′, 100′, 200′
SH135-1/2″	.500″	.250″	.025″	.003″	2	6.35	50′, 100′, 200′
SH135-3/4″	.750″	.375″	.030″	.005″	00	9.52	25′, 50′, 100′
SH135-1″	1.000″	.500″	.035″	.006″	0000	12.70	25′, 50′, 100′
SH135-1½″	1.500″	.750″	.040″	.006″	450MCM	19.05	25′, 50′, 100′
SH135-2″	2.000″	1.000″	.045″	.007″	750MCM	25.40	25′, 50′, 100′
SH135-3″	3.000″	1.500″	.050″	.008″	1750MCM	38.10	10′, 25′, 50′
SH135-4″	4.000″	2.000″	.055″	.009″	2750MCM	50.80	10′, 25′, 50′

STD. COLORS: Black, Clear, Red, White. Other colors are available to order.
* If full recovery allowed. ** O.D. of closest equivalent wire.

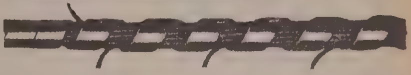
BRIMFLEX™ SHRINKABLE HEAVY WALL PVC TUBING UL VW-1



Brmflex No.	Min. Exp. I.D.	Recovered Dimen.*		±Wall Toler.	AWG**	Rec. M.M.	Std. P-U
		I.D. Max.	Wall				
SH110-1/8″	.125″	.063″	.032″	0.05″	14	1.59	1000′
SH110-3/16″	.187″	.093″	.032″	0.05″	12-10	2.39	1000′
SH110-1/4″	.250″	.125″	.032″	0.05″	8	3.18	1000′
SH110-5/16″	.312″	.156″	.032″	0.05″	6	3.97	500′
SH110-3/8″	.375″	.187″	.032″	0.05″	4	4.77	500′
SH110-1/2″	.500″	.250″	.032″	0.05″	2	6.35	250′

* If full recovery allowed. ** O.D. of closest equivalent wire.

SPIRAL WRAP TUBINGS FOR HARNESSING



Easily twists on and off. Can be repeatedly flexed without cracking or breaking. Expandable. Holds wire, and cable bundles securely, and allows leadoffs or additions at any point. Bends around sharp corners, and protection against sharp edges. Available in 4 types of insulations: Polyethylene, Rulan (a flame retardent type of polyethylene), Nylon, Teflon. All are resistant to organic solvents, alkalis, and acids (nylon satisfactory except for strong acids). OSHA and UL approved for harnessing cables.

Brimflex No.	Covers Max. Wire Group	Nom. O.D.	Nom. Wall
POLYETHYLENE (CLEAR)*			**−105°F to +215°F**
PSW-1/8″	1/16″ to 1/2″	1/8″	.032″
PSW-3/16″	1/8″ to 1″	3/16″	.032″
PSW-1/4″	3/16″ to 2″	1/4″	.045″
PSW-3/8″	5/16″ to 3″	3/8″	.052″
PSW-1/2″	3/8″ to 4″	1/2″	.062″
PSW-3/4″	5/8″ to 5″	3/4″	.065″
PSW-1″	3/4″ to 6″	1″	.095″
RULAN (WHITE)**			**−8°F to +200°F**
RSW-1/8″	1/16″ to 1/2″	1/8″	.032″
RSW-1/4″	3/16″ to 2″	1/4″	.045″
RSW-3/8″	5/16″ to 3″	3/8″	.052″
RSW-1/2″	3/8″ to 4″	1/2″	.062″
RSW-3/4″	5/8″ to 5″	3/4″	.065″
NYLON (NATURAL)***			**−121°F to +300°F**
NSW-1/8″	1/16″ to 1/2″	1/8″	.015″
NSW-1/4″	3/16″ to 2″	1/4″	.025″
NSW-3/8″	5/16″ to 3″	3/8″	.035″
NSW-1/2″	3/8″ to 4″	1/2″	.035″
TEFLON (NATURAL)****			**−450°F to +500°F**
TSW-1/8″	1/16″ to 1/2″	1/8″	.030″
TSW-3/16″	1/8″ to 1″	3/16″	.030″
TSW-1/4″	3/16″ to 2″	1/4″	.030″
TSW-3/8″	5/16″ to 2½″	3/8″	.030″
TSW-1/2″	3/8″ to 3″	1/2″	.030″
TSW-3/4″	5/8″ to 4″	3/4″	.032″
TSW-1″	3/4″ to 5″	1″	.040″

STD. P-U 1/8″ to 1/4″ — 100′, 1000′; 3/8″ to 1/2″ — 100′, 500′; 3/4″ and 1″ — 100′

* MIL-E-16400, MIL-P-3803, MIL-I-631D, MIL-E-5400F, Fed. Spec. L-P-390, ASTM D1248-65T.
** UL-70, ASTM D635, MIL-E-5400F.
*** MIL-P-20693A, MIL-P-17091B, L-P-4100.
**** MIL-I-22129C, AMS3653C, AMS3655.

BLACK NYLON AND POLYETHYLENE SPIRAL WRAP FOR ULTRAVIOLET RAY PROTECTION IS AVAIABLE.

SHRINK RATIO: 2:1 (50%) — OPERATING TEMPERATURE: −20°C to +105°C
SH110 meets or exceeds the performance requirements of MIL-I-23053/2B, Class 2 but for its dimensions — its heavier wall. SH110 is a Heavy Wall Shrinkable PVC tubing, yet its flexible, and will shrink at temperatures below 200°F (within one minute). Provides outstanding dielectric and mechanical protection without damage to enclosed or adjacent components, even around sharp bends. Longitudinal shrinkage: approximately 20%. SH110 is self-extinguishing, resistant to fungus, moisture, sunlight, and most oils, and chemicals. Dielectric Strength: 600V/MIL min,. ASTM-D922. Suitable as a heavy duty all-purpose shrinkable tubing that is less expensive, almost as flexible, and has a higher temperature ability than that of Shrinkable Neoprene tubing. Suggested Storage Temperature: Under 70°F for up to 10 months.

SEMI-RIGID POLYOLEFIN SHRINKABLE TUBING IS AVAILABLE TO ORDER.
CUT AND PRINTED WIRE MARKERS ARE AVAILABLE TO ORDER.

BRIM ELECTRONICS, INC., DEPT. EM, P.O. BOX 336E, FAIR LAWN, NJ 07410 (201) 796-2886 WRITE FOR FREE CATALOG

EEM PRODUCT SELECTION GUIDES

There are 33 Guides in this edition of EEM. See page 2 (1A•2, 1B•2, 2•2, 3•2) of each volume to locate the Product Selection Guides that pertain to your needs.

CAROL CAROL CABLE COMPANY, INC., COLUMBIA ELECTRONIC CABLES DIVISION **CAROL**

DEPT. EM, 249 ROOSEVELT AVE., PAWTUCKET, RI 02862 / TEL: (401) 724-9605 / TELEX: 92-7750
LOS ANGELES, CA 90058 / PHONE: (213) 583-9825 / TELEX: 67-7417
HOT LINE: 800-556-7662

AUDIO AND COMMUNICATIONS CABLE

AUDIO CABLE BRAID SHIELDED DRAIN WIRE PVC JACKET

UL LISTED 2095

Stock Color: Black jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, conductors cabled, tinned copper braid shield, tinned copper drain wire, PVC jacket overall. **Specifications:** −20°C to +80°C. **Entire cable passes VW-1 Vertical Flame Test. Applications:** Shielded cable for recording studios, radio transmitters, sound systems, broacast use. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Size of Drain Wire	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Approx. Percent Shield Cov.	Sug. Working Voltage	Nom. O.D. (Inches)
C2676	2	22	Solid	22-Solid	.015	.025	88	300V	.195
C2677	2	22	16/34	24-7/32	.015	.025	88	300V	.210

COLOR CODE OF CONDUCTORS

Conductor	Color
1	Black
2	Red

AUDIO CABLE BRAID SHIELDED PVC JACKET

*UL LISTED 2096

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, conductors cabled, tinned copper braid shield, PVC jacket overall. **Specifications:** −20°C to +60°C. **Entire cable passes VW-1 Vertical Flame Test. Applications:** Shielded cable for recording studios, radio transmitters, sound systems and electronic circuits where shielding is required. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

COLOR CODE OF CONDUCTORS

Conductor	Color
1	Black
2	Red
3	White
4	Green

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Approx. Percent Shield Coverage	Sug. Working Voltage	Nom. O.D. (Inches)
SOLID CONDUCTORS								
C2695	2	20	Solid	.015	.025	75	200V	205
C2696	2	18	Solid	.015	.025	75	200V	.220
STRANDED CONDUCTORS								
C2679	2	22	7/30	.015	.025	75	200V	.200
C2678*	3	22	7/30	.015	.025	75	200V	.210
C2680	4	22	7/30	.015	.025	75	200V	.225
C2681	2	20	10/30	.015	.025	75	200V	.215
C1332	3	20	10/30	.015	.025	75	200V	.225
C2683	4	20	10/30	.015	.025	75	200V	.245
C2686	2	18	16/30	.018	.025	75	300V	.245
C2687	3	18	16/30	.018	.025	75	300V	.260
C2688	4	18	16/30	.018	.025	75	300V	.280
C2689	2	16	26/30	.018	.025	75	300V	.270
C2690	3	16	26/30	.018	.025	75	300V	.285
C2691	2	14	41/30	.020	.030	75	250V	.320
C2692	3	14	41/30	.020	.030	75	250V	.335
C2693	2	12	65/30	.020	.030	75	250V	.360
C2694	3	12	65/30	.020	.030	75	250V	.380

SAFETY

In this catalog you will find more products which are Underwriters Laboratories, Inc. Listed. The UL voltage rating is the maximum voltage prescribed by UL for a particular application. For those applications where UL labled cable is not required, cable can be used in electronic applications up to Carol Electronic Cables' suggested working voltage, provided that the user has determined that the power source is sufficiently current limited.

This is the result of an ongoing program to maximize the number of wire and cable products which meet or exceed the highest standards of safety in the industry.

User safety is the concern of Carol Electronic Cables product design.

The Carol Electronic Cables line includes a full range of COMPUTER CABLES. For technical data, ask for our new Computer Cable Catalog.

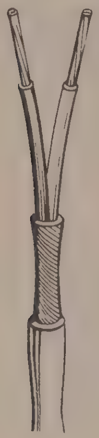
Carol's engineering and manufacturing capabilities are ready to serve your special cable needs. Ask us to quote on your requirements — and to demonstrate how our plants can be turned around to meet your delivery needs.

Columbia Electronic Cables Division of Carol Cable Company, Inc. has warehouses and redistribution centers in New Bedford, Massachusetts; River Grove (Chicago), Illinois; and Los Angeles, California.

AUDIO AND COMMUNICATIONS CABLE

AUDIO CABLE SPIRAL SHIELDED PVC JACKET

***UL LISTED 2095**



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, conductors cabled, tinned copper spiral wrapped shield. PVC jacket overall. **Specifications:** −20°C to +60°C. **Entire cable passes VW-1 Vertical Flame Test. Applications:** Cable for recording studios, radio transmitters, sound systems and electronic circuits where shielding is required. Spiral shield allows ease of pigtail soldering. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

COLOR CODE OF CONDUCTORS

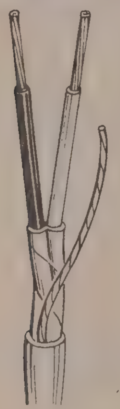
Conductor	Color	Conductor	Color
1	Black	4	Green
2	Red	5	Yellow
3	White	6	Blue

† White/Red ‡ White/Black

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Approx. Percent Shield Coverage	Sug. Working Voltage	Nom. O.D. (Inches)
SOLID CONDUCTORS								
C2884*	2	22	Solid	.015	.025	94	350V	.175
C2885	3	22	Solid	.015	.025	76	350V	.180
STRANDED CONDUCTORS								
C2882*	2	22	7/30	.015	.025	85	200V	.185
C1335	3	22	7/30	.015	.025	85	200V	.190
C1337	4	22	7/30	.015	.025	85	200V	.210
C1341	6	22	7/30	.015	.025	85	200V	.245
C2888*	2	20	10/30	.015	.025	85	200V	.200
C2893	3	20	10/30	.015	.025	85	200V	.210
C2769	4	20	10/30	.015	.025	85	200V	.225
C2770	6	20	10/30	.015	.025	85	200V	.265
C2892†	2	18	16/30	.020	.025	85	300V	.240
C2768	3	18	16/30	.020	.025	85	300V	.250
C2894	4	18	16/30	.020	.025	85	300V	.275
C2895‡	2	16	26/30	.020	.025	85	300V	.265
C2896	3	16	26/30	.020	.025	85	300V	.280
C2897	2	14	41/30	.020	.025	85	250V	.290
C2898	3	14	41/30	.020	.030	85	250V	.320
C2899	2	12	65/30	.020	.030	85	250V	.345
C2900	3	12	65/30	.020	.030	85	250V	.365

AUDIO CABLE MYLAR*/ALUMINUM FOIL SHIELDED PVC JACKET

UL LISTED



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded polyethylene insulation, conductors cabled, wrapped with Flexfoil® mylar supported aluminum foil shield with foil facing to outside, stranded tinned copper drain wire, PVC jacket overall. For description of Flexfoil® see page 2•2001. **Specifications:** −20°C to +60°C. **Jacket only passes VW-1 Vertical Flame Test. Applications:** 100% shielded cable for recording studios, broadcast sound systems and electronic circuits where RF shielding is required. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

COLOR CODE OF CONDUCTORS

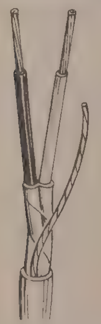
Conductor	Color	Conductor	Color
1	Black	3	Red
2	Clear	4	Green

(Other put-ups also available).

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Size of Drain Wire	Nom. Insulation Thickness (Inches)	Nom. Jacket Thick. (Inches)	Percent Shield Cov.	Sug. Working Voltage	Nom. O.D. (In.)
C2513	2	24	7/32	24	.015 (UL-2092)	.025	100	300V	.160
C2514	2	22	7/30	22	.015 (UL-2092)	.025	100	300V	.170
C2526	3	22	7/30	22	.015 (UL-2093)	.025	100	300V	.180
C2523	4	22	7/30	22	.015 (UL-2094)	.025	100	300V	.195
C2540	2	20	10/30	22	.015 PVC	.031	100	300V	.205
	UL LISTED (STYLE 2464) INSULATION — 1 conductor black, 1 conductor red								
C2524	2	20	10/30	20	.015 (UL-2092)	.025	100	300V	.185
C2525	3	20	10/30	20	.015 (UL-2093)	.028	100	300V	.205
C2534	2	18	16/30	20	.018 (UL-2092)	.028	100	300V	.225
C2535	3	18	16/30	20	.018 (UL-2093)	.028	100	300V	.240
C2536	2	16	26/30	18	.030 (UL-2106)	.030	100	600V	.310
C2537	3	16	26/30	18	.030 (UL-2107)	.030	100	600V	.325
C2538	2	14	41/30	16	.032 (UL-2106)	.035	100	600V	.350
C2539	2	12	65/30	14	.037 (UL-2106)	.040	100	600V	.410

* T.M. DuPont

MINIATURE AUDIO CABLE MYLAR*/ALUMINUM FOIL SHIELDED PVC JACKET



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color coded polypropylene insulation, conductors cabled, wrapped with Flexfoil® mylar supported aluminum foil shield with foil facing to outside, stranded tinned copper drain wire, PVC jacket overall. For description of Flexfoil® see page 2•2001. **Specifications:** −20°C to +60°C. **Jacket only passes VW-1 Vertical Flame Test. Applications:** 100% shielded cable for recording studios, broadcast and sound systems. Requires ½ to ⅔ less space than standard broadcast cables. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

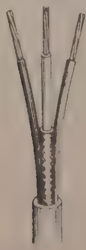
Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Size of Drain Wire	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Percent Shield Coverage	Sug. Working Voltage	Nom. O.D. (Inches)
C2515	2	22	Solid	22	.010	.018	100	200V	.135
C2516	2	22	7/30	22	.010	.020	100	200V	.145
C2517	3	22	7/30	22	.010	.020	100	200V	.155

* T.M. DuPont

COLOR CODE OF CONDUCTORS

Conductor	Color
1	Black
2	Red
3	White

SPECIAL SHIELDED AUDIO & COMMUNICATION CABLE PVC JACKET



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, tinned copper braid shield over one conductor, 3 conductors cabled, PVC jacket overall. **Specifications:** −20°C to +60°C. **Entire cable passes VW-1 Vertical Flame Test. Applications:** Special cable for audio and communications use. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-up also available.)

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Approx. Percent Shield Coverage	Sug. Working Voltage	Nom. O.D. (Inches)
C1334	3	1-22 shielded 2-22 unshielded	7/30	.015	.025	82	350V	.200

COLOR CODE OF CONDUCTORS

Conductor	Color	Conductor	Color
SHIELDED		UNSHIELDED	
1	White	1	Black
		2	Red

CAROL **CAROL CABLE COMPANY, INC.,** COLUMBIA ELECTRONIC CABLES DIVISION **CAROL**

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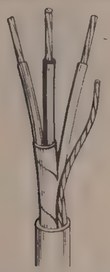
HOT LINE: 800-556-7662

AUDIO AND COMMUNICATIONS CABLE

SPECIAL SHIELDED AUDIO & COMMUNICATION CABLE PVC JACKET



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded polyethylene insulation, Flexfoil® aluminum foil/polyester shield over 2 conductors with foil facing to outside, No. 20 stranded TC drain wire, PVC jacket overall. For description of Flexfoil® see page **2•2001. Specifications:** −20°C to +60°C. Suggested working voltage 350V. **Applications:** Special cable for audio and communications use. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

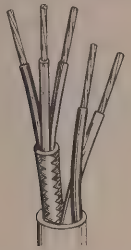
Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Percent Shield Coverage	Nom. O.D. (Inches)	Nom. Cap.* PF/Ft.	Nom. Cap.** PF/Ft.
C1333	3	2-20 shielded 1-20 unshielded	10/30	.015	.028	100	.210	26	48

* Capacitance between conductors.
** Capacitance between one conductor and other conductor connected to shield.

COLOR CODE OF CONDUCTORS

Conductor	Color	Conductor	Color
SHIELDED		UNSHIELDED	
1	Black	1	Clear
2	Red		

SPECIAL SHIELDED AUDIO & COMMUNICATION CABLE PVC JACKET



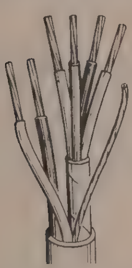
Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, tinned copper braid shield over three cabled conductors, 2 unshielded twisted conductors laid parallel, PVC jacket overall. **Specifications:** −20°C to +60°C. **Applications:** Special cable for audio and communications use, recommended for coin-operated phonographs. **Put-up:** 100′, 250′, 500′ and 1000′ spools. (Other put-ups also available.)

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Approx. Percent Shield Coverage	Sug. Working Voltage	Nom. O.D. (Inches)
C1342	5	3-22 shielded 2-22 unshielded	7/30	.015	.020	75	200V	.200 x.300

COLOR CODE OF CONDUCTORS

Conductor	Color	Conductor	Color
SHIELDED		UNSHIELDED	
1	Black	1	Black
2	White	2	Red
3	Red		

SPECIAL SHIELDED AUDIO & COMMUNICATION CABLE PVC JACKET



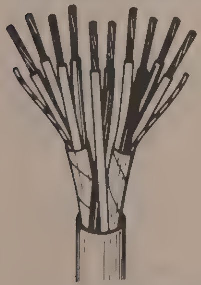
Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, 4 conductors cabled, Flexfoil® aluminum/polyester shield over 4 cabled conductors, 22 gauge TC drain wire, 2 conductors unshielded, PVC jacket overall. For description of Flexfoil® see page **2•2001. Specifications:** −20°C to +60°C. **Entire cable passes VW-1 Vertical Flame Test. Applications:** Special cable for audio and communications use. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available).

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Percent Shield Coverage	Sug. Working Voltage	Nom. O.D. (Inches)
C1345	6	4-24 shielded 2-22 unshielded	7/32 7/30	.015	.025	100	350V	.230

COLOR CODE OF CONDUCTORS

Conductor	Color	Conductor	Color	Conductor	Color
	SHIELDED			UNSHIELDED	
1	Black	3	Red	1	Blue
2	Green	4	Yellow	2	White

SPECIAL SHIELDED AUDIO & COMMUNICATION CABLE PVC JACKET



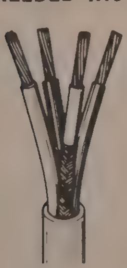
Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded insulation, cabled in 2 quads, each quad with 24 gauge tinned copper drain wire, Flexfoil® shield over each quad, plus 2 unshielded conductors, PVC jacket overall. Foil facing to inside. For description of Flexfoil® see page **2•2001. Specifications:** −20°C to +60°C. **Entire cable passes VW-1 Vertical Flame Test. Applications:** Special cable for audio and communications use. **Put-up:** 100′, and 500′ spools. (Other put-ups also available).

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Percent Shield Coverage	Sug. Working Voltage	Nom. O.D. (Inches)
C4086	10	4-24 shielded 4-24 shielded 2-22 unshielded	7/32 7/32 7/30	.012 .012 .015	.030	100 100 —	350V	.270

COLOR CODE OF CONDUCTORS

Conductor	Color	Conductor	Color	Conductor	Color
1st QUAD		2nd QUAD		UNSHIELDED	
1	Gray	1	Red	1	White
2	White	2	Brown	2	Blue
3	Blue	3	Yellow		
4	Green	4	Orange		

SHIELDED INSTRUMENTATION & COMMUNICATION QUAD CABLE PVC JACKET



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, tinned copper braid shield over one conductor, conductors cabled, PVC jacket overall. **Specifications:** −20°C to +60°C. **Applications:** Special cable for audio, communications and instrumentation use. **Put-up:** 100′, 250′ and 500′ spools. (Other put-ups also available.)

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Percent Shield Coverage	Sug. Working Voltage	Nom. O.D. (Inches)
C1336	4	1-20 shielded 3-20 unshielded	10/30	.015	.025	82	300V	.220

COLOR CODE OF CONDUCTORS

Conductor	Color	Conductor	Color
SHIELDED		UNSHIELDED	
1	White	1	Black
		2	Red
		3	Green

CAROL CAROL CABLE COMPANY, INC., COLUMBIA ELECTRONIC CABLES DIVISION **CAROL**

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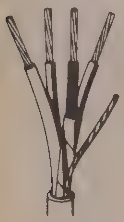
AUDIO AND COMMUNICATIONS CABLE

SHIELDED INSTRUMENTATION & COMMUNICATION QUAD CABLE PVC JACKET



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded polypropylene insulation, each pair shielded with Flexfoil® aluminum/polyester shield, stranded tinned copper drain wire, cables paired on common axis to reduced O.D., PVC jacket overall. Foil facing to outside. Drain wire 24 gauge, 7/32. For description of Flexfoil®, see page **2•2001**. **Specifications:** −20°C to +60°C. **Applications:** Special cable for audio, communications and instrumentation use. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

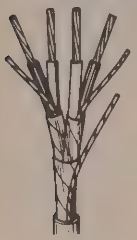
Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Percent Shield Coverage	Sug. Working Voltage	Nom. O.D. (Inches)	Nom. Cap.* PF/Ft.	Nom. Cap.** PF/FT.
C1352	4	22	7/30	.010	.025	100	400V	.185	28	51

* Capacitance between conductors.
** Capacitance between one conductor and other conductor connected to shield.

COLOR CODE OF CONDUCTORS

No. 1 pair	Black, red
No. 2 pair	Green, white

SHIELDED INSTRUMENTATION & COMMUNICATION QUAD CABLE PVC JACKET



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded polypropylene insulation, cabled in pairs, each pair Flexfoil® aluminum/polyester shielded, with stranded tinned copper drain wire, overall Flexfoil® aluminum foil/polyester shields and stranded, 24 gauge, 7/32, tinned copper drain wire, cabled on common axis to reduce O.D., PVC jacket overall. For description of Flexfoil® see page **2•2001**. **Specifications:** −20°C to +60°C. **Applications:** Special cable for audio, communications and instrumentation use. **Put-up:** 500′ and 1000′ spools. Other put-ups also available.

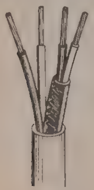
Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Percent Shield Coverage	Sug. Working Voltage	Nom. O.D. Inches	Nom. Cap.* PF/Ft.	Nom. Cap.** PF/Ft.
C1353	4	22	7/30	.010	.025	100	400V	.200	28	51

* Capacitance between conductors.
** Capacitance between one conductor and other conductor connected to shield.

COLOR CODE OF CONDUCTORS

No. 1 pair	Black, red
No. 2 pair	Green, white

SHIELDED INSTRUMENTATION & COMMUNICATION QUAD CABLE PVC JACKET UL LISTED 2094

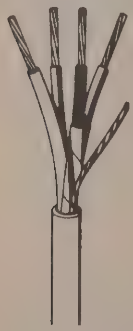


Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded polyethylene insulation, tinned copper braid shield over one pair, PVC jacket overall. **Specifications:** −20°C to +60°C. Suggested working voltage 300V. **Applications:** Special cable for audio, communications and instrumentation use. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.) **Color code of conductors:** Each pair black/clear.

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (In.)	Nom. Jacket Thick. (In.)	Approx. Percent Shield Coverage	Sug. Working Voltage	Nom. O.D. (In.)	Nom. Cap.* PF/Ft.	Nom. Cap.** PF/Ft.
C1338	4	2-22 shielded 2-22 unshielded	7/30	.015	.030	62	350V	.188 x .295	.23	42

* Capacitance between conductors.
** Capacitance between one conductor and other conductor connected to shield.

SHIELDED INSTRUMENTATION & COMMUNICATION MULTIPLE QUAD CABLE PVC JACKET



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors. Cat. No. C1340 color-coded polypropylene insulation, Cat. No. C1331 color-coded PVC insulation, Cat. No. C1343 color-coded polyethylene insulation. Flexfoil® aluminum foil/polyester shield (foil facing to outside) over 2 conductors, stranded tinned copper drain wire (Cat. No. C1340, 24 gauge; Cat. Nos. C1331 and C1343, 22 gauge), one shielded pair and 2 singles cabled on common axis to reduce O.D., PVC jacket overall. For description of Flexfoil® see page **2•2001**. **Specifications:** −20°C to +60°C. Suggested working voltage—Cat. No. C1340, 200V; Cat. Nos. C1331 and C1343, 350V. **Cat. No. C1331, entire cable passes VW-1 Vertical Flame Test. Cat. Nos. C1340 and C1343, Jacket only passes VW-1 Vertical Flame Test. Applications:** Special cable for audio, communications and instrumentation use. **Put-up:** 100′, 250′, 500′ and 1000′ spools. Other put-ups also available.)

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Percent Shield Coverage	Nom. O.D. (Inches)	Nom. O.D. Cap.* PF/Ft.	Nom. Cap.** PF/Ft.
C1340	4	2-22 shielded 2-22 unshielded	7/30	.010	.020	100	.185	28	50
C1331	4	2-20 shielded 2-20 unshielded	10/30	.015	.025	100	.215	—	—
C1343†	4	2-20 shielded 2-18 unshielded	10/30 16/30	.018 .018	.030	100	.256	25	45

* Capacitance between conductors.
** Capacitance between one conductor and other conductor connected to shield.
† UL Listed (Style 2094) 300V

COLOR CODE OF CONDUCTORS

SHIELDED
1 pair Black, Red

UNSHIELDED Green, White
No. 1 Green
No. 2 White

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HOT LINE: 800-556-7662

AUDIO AND COMMUNICATIONS CABLE

AUDIO/DATA SHIELDED MULTIPLE PAIR CABLE PVC JACKET

UL LISTED 2464

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, cabled in pairs, overall Flexfoil® aluminum foil/polyester shield, stranded tinned copper drain wire. PVC jacket overall. For description of Flexfoil®, see page **2•2001. Specifications:** −20°C to +80°C. UL listed 2464-300V. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

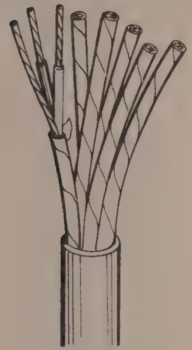
SEE COLOR CODE NO. 1 PAGE 2•2004

Catalog Number	No. of Pairs	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)	Nom. Cap.* PF/Ft.
C1670	2	4	22	Solid	.015	.030	.227	35
C1671	6	12	22	Solid	.015	.030	.305	35
C1672	9	18	22	Solid	.015	.030	.358	35
C1673	15	30	22	Solid	.015	.035	.450	35
C1674	19	38	22	Solid	.015	.035	.500	35
C1675	27	54	22	Solid	.015	.040	.595	35

* Capacitance between conductors.

AUDIO/DATA INDIVIDUALLY SHIELDED MULTIPLE PAIR CABLE PVC JACKET

UL LISTED 2493



Stock Color: Chrome gray jacket. **Construction:** Stranded tinned copper conductors, color-coded polypropylene insulation, cabled in pairs, each pair and its stranded drain wire under Flexfoil® aluminum foil/polyester shield, PVC jacket overall. For description of Flexfoil®, see page **2**•2001. **Specifications:** Jacket: +60°C. Conductors: +105°C. Suggested working voltage: 22 gauge — 300V; 20 gauge — 300V; 18 gauge — 300V. 100 Megohms/M insulation resistance between shields. 115 PF/FT. capacitance between adjacent shields. 1500V voltage breakdowns between adjacent shields. 50V working voltage between adjacent shields. 22 gauge and 20 gauge series — 22 gauge drain wire; 18 gauge series — 20 gauge drain wire. **Jacket only passes VW-1 Vertical Flame Test. Applications:** For audio RF and pulse applications requiring superior circuit isolation. The use of polypropylene insulation results in excellent high frequency properties and mechanical durability. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available).

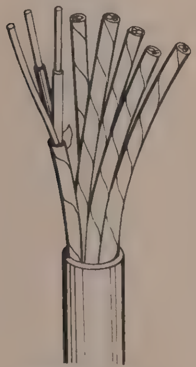
SEE COLOR CODE NO. 1 PAGE 2•2004

Catalog Number	No. of Pairs	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)	Nom. Cap.* PF/Ft.	Nom. Cap.** PF/Ft.
C6040	3	6	22	7/30	.010	.045	.295	30	55
C6041	6	12	22	7/30	.010	.045	.375	30	55
C6042	9	18	22	7/30	.010	.045	.430	30	55
C6043	11	22	22	7/30	.010	.045	.465	30	55
C6059	12	24	22	7/30	.010	.045	.480	30	55
C6044	15	30	22	7/30	.010	.060	.565	30	55
C6060	17	34	22	7/30	.010	.060	.590	30	55
C6045	19	38	22	7/30	.010	.060	.620	30	55
C6046†	27	54	22	7/30	.010	.060	.700	30	55
C6052	3	6	20	10/30	.013	.045	.340	30	55
C6053	6	12	20	10/30	.013	.045	.435	30	55
C6054	9	18	20	10/30	.013	.045	.500	30	55
C6055	11	22	20	10/30	.013	.060	.580	30	55
C6056	12	24	20	10/30	.013	.060	.595	30	55
C6057	13	26	20	10/30	.013	.060	.625	30	55
C6058	15	30	20	10/30	.013	.060	.655	30	55
C6047	3	6	18	16/30	.016	.045	.400	30	55
C6048	6	12	18	16/30	.016	.045	.495	30	55
C6049	9	18	18	16/30	.016	.060	.590	30	55
C6050	12	24	18	16/30	.016	.070	.705	30	55
C6051	15	30	18	16/30	.016	.070	.785	30	55

† Cat. No. C6046 is available cut to specified length. Maximum length is 1000′.
* Capacitance between conductors.
** Capacitance between one conductor and other conductor connected to shield.

AUDIO/DATA INDIVIDUALLY SHIELDED MULTIPLE PAIR CABLE PVC JACKET

UL LISTED 2464



Stock Color: Chrome gray jacket. **Construction:** Solid tinned copper conductors, color-coded PVC insulation, cabled in pairs, each pair and its solid drain wire under Flexfoil® aluminum foil/polyester shield, PVC jacket overall. For description of Flexfoil®, see page **2**•2001. **Specifications:** −20°C to +80°C. Recommended operating voltage 300V. 100 Megohms/M insulation resistance between shields. 115 PF/Ft. capacitance between adjacent shields. 1500V voltage breakdowns between adjacent shields. 50V working voltage between adjacent shields. **Entire cable passes VW-1 Vertical Flame Test. Applications.** For audio RF and pulse applications requiring superior circuit isolation. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

Catalog Number	No. of Pairs	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Sug. Working Voltage	Nom. O.D. (Inches)
C6035	3	6	22	Solid	.015	.035	300V	.280
C6036	6	12	22	Solid	.015	.035	300V	.370
C6037	9	18	22	Solid	.015	.040	300V	.435
C6039	11	22	22	Solid	.015	.040	300V	.475
C6038	15	30	22	Solid	.015	.045	300V	.555

* Capacitance between conductors.
** Capacitance between one conductor and other conductor connected to shield.

SEE COLOR CODE NO. 1 PAGE 2•2004

CLEARFLEX® Audio cable with clear insulation that matches cable colors to interior wall colors. Extra-flexible insulation for easy handling and reduced installation cost.

DURAFOAM® Patented (U.S. & Canada) 300 ohm foam transmission line. Isolated conductors and dielectric provide unmatched performance over full TV and FM spectrum. Unconditionally guaranteed for 15 years in normal atmospheric conditions.

DURA-COLOR® RG 59/U type cable. Aluminum foil/polyester shield provides 100% RF shielding. Sweep tested for 82 channels. Low loss, uses standard "F" fittings, non-contaminating.

FLEXFOAM® Complete microphone cable line, capacitance up to 35% less than standard cables. Cable lengths can be increased by as much as 50% and still provide adequate signal. Foam polyethylene dielectric and extra-flexible, glossy jackets or unparalleled limpness.

FLEXFOIL® Laminated aluminum foil/polyester shielding material. Provides 100% shielding, easy termination and reduced cable diameter. Construction eliminates metal to metal contact, providing isolation between adjacent shields in cable assembly. Polyester film for extra insulation and strength.

FLEXLIFE® Special jacketing material gives high gloss appearance, top flexibility and life.

PERMAFOAM® Transmission cables with low loss foam polyethylene dielectrics and permaline jackets for extra life.

PERMALINE® High molecular weight polyethelene jacketing material contains a small percentage of carbon black. Non-contaminating, high resistance to weather, salt air, chemical fumes, fungus, acids. Excellent moisture resistance. Usable in direct burial installations.

STAPLE-PRUF® Audio cables, jacketing material fills in space between conductors. Cable can absorb shock of staple guns. Fill prevents staple cutting into cable and shorting out conductors.

SUPERFLEX® RG type cables, foam polyethylene dielectric for low loss. Flexlife jackets for outstanding appearance, flex and life.

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HOT LINE: 800-556-7662

AUDIO AND COMMUNICATIONS CABLE

AUDIO CABLE UNSHIELDED UNPAIRED MULTI-CONDUCTOR PVC JACKET

Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors (Cat. Nos. C2754 and C2755 are bare copper), color-coded PVC insulation, PVC jacket overall, conductors cabled. **Specifications:** −20°C to +80°C. **Entire cable passes VW-1 Vertical Flame Test. Applications:** PA systems, unbalanced intercom systems, interconnecting cables, remote control circuits, telephones, low-voltage, relay control cables. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

SEE COLOR CODE NO. 1 PAGE 2•2004

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Sug. Working Voltage	Nom. O.D. (Inches)	Color Code
SOLID CONDUCTORS UL LISTSED (Wires, Misc.) 90V Max.								
C4008	2	22	Solid	.012	.025	200V	.150	Black/Red
C4310	3	22	Solid	.012	.025	200V	.160	Black/White/Red
C4311	2	20	Solid	.015	.025	350V	.175	Black/Red
C2754	2	19	Solid	.015	.025	350V	.180	Brown/Tan
C2755	3	19	Solid	.015	.025	350V	.190	Brown/Grey/Tan
STRANDED CONDUCTORS UL LISTED (Wires, Misc.) 90V Max.								
C6348	2	22	7/30	.012	.025	350V	.160	Black/Red
UL LISTED (2464) 300V Max.								
C4062	3	22	7/30	.010	.030	300V	.170	Black/Red/Green
C4063	4	22	7/30	.010	.030	300V	.180	1
C4064	5	22	7/30	.010	.030	300V	.195	1
C4066	6	22	7/30	.010	.030	300V	.210	1
C4088	7	22	7/30	.010	.030	300V	.210	1
C4065	8	22	7/30	.010	.030	300V	.230	1
C4070	9	22	7/30	.010	.030	300V	.245	1
C4071	10	22	7/30	.010	.030	300V	.265	1
C4067	12	22	7/30	.010	.030	300V	.270	1
C4073	15	22	7/30	.010	.030	300V	.290	2
C4069	18	22	7/30	.010	.030	300V	.315	2
C4075	20	22	7/30	.010	.030	300V	.330	2
C4076	25	22	7/30	.010	.030	300V	.365	2
C4077	30	22	7/30	.010	.040	300V	.400	2
C4078	40	22	7/30	.010	.040	300V	.450	2
C4079	50	22	7/30	.010	.040	300V	.500	2
C4087	60	22	7/30	.010	.040	300V	.535	2
UL LISTED (2464) 300V Max.								
C6351	2	20	10/30	.015	.030	300V	.200	Black/Red
C6352	3	20	10/30	.015	.030	300V	.210	1
C6353	4	20	10/30	.015	.030	300V	.230	1
C6355	5	20	10/30	.015	.030	300V	.250	1
C6356	7	20	10/30	.015	.030	300V	.270	1
C6357	9	20	10/30	.015	.035	300V	.320	1
C6358	15	20	10/30	.015	.040	300V	.405	2
C2830	2	18	16/30	.018	.030	300V	.230	Black/Red
C2831	3	18	16/30	.018	.030	300V	.245	1
C2404	4	18	16/30	.018	.030	300V	.255	1
C2405	2	16	26/30	.020	.030	300V	.265	Black/White
C2406	3	16	26/30	.020	.030	300V	.280	1
C2409	2	14	41/30	.030	.030	300V	.335	Black/White
C2410	2	12	65/30	.030	.030	300V	.375	Black/White

First color in stripe combination is body color. Second or third colors are stripes. Example: White / Black / Red. Other striped combinations available to order.

TELEPHONE & AUDIO CABLE UNSHIELDED STAPLE-PRUF SOLID FILL PVC JACKET

Stock Color: Beige jacket. **Construction:** Bare copper conductors, color-coded polyethylene insulation, parallel, solid fill PVC jacket overall. **Specifications:** −20°C to +60°C. UL listed Wires, Misc.) 90V max. **Applications:** Telephone systems, speaker extensions, intercoms and other signaling devices and applications where cable is to stapled. Solid fill construction fills the space between the conductors and absorbs the shock of staples preventing the staples from cutting into the conductors. **Put-up:** 500′ and 1000′ spools. (Other put-ups also available.)

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
C4408	2	22	Solid	.010	.025	.140
C4410	3	22	Solid	.010	.025	.150
C4412	4	22	Solid	.010	.025	.160

COLOR CODE OF CONDUCTORS

Conductor	Color
1	Red
2	Green
3	Yellow
4	Black

AUDIO CABLE UNSHIELDED TWO-CONDUCTOR CLEARFLEX® PVC JACKET

Stock Color: Clear. **Construction:** One conductor tinned copper, one conductor bare copper for polarity identification, clear PVC insulation, conductors cabled, Clearflex® PVC jacket overall. For description of Clearflex®, see page **2•2001**. **Specifications:** −20°C to +60°C. **Applications:** Telephone systems, speaker and audio systems, rear audio speaker extensions, crystal clear insulation and outer jacket will match background color of wall or other installations. **Put-up:** 500′ and 1000′ spools. (Other put-ups also available.)

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
C6365	2	20	10/30	.016	.020	.180
C6367	2	18	16/30	.016	.025	.210

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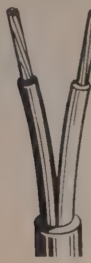
CAROL

AUDIO AND COMMUNICATIONS CABLE

AUDIO CABLE UNSHIELDED 2 CONDUCTOR PERMALINE® JACKET



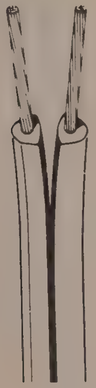
Stock Color: Black jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, Permaline (high molecular weight polyethylene) jacket overall, conductors cabled. **Specifications:** −20°C to +60°C. **Applications:** Speaker extensions paging systems, PA systems and other audio applications requiring 2 conductors. Permaline jacket resists severe weather conditions. See page 2•2001. for further information on Permaline. **Put-up:** 500′ and 1000′ spools. (Other put-ups also available.)

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
C5460	2	18	16/30	.018	.020	.210

COLOR CODE OF CONDUCTORS

Conductor	Color
1	Black
2	Red

AUDIO CABLE LOW ENERGY SAFETY CONTROL WIRE



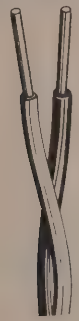
Stock Color: Black*. **Construction:** Bare copper solid conductors, PVC insulation, conductors parallel, rip-type construction, ridge on one conductor for polarity. **Specifications:** +105°C. N.F.P.A.-N.E.C. approved UL Power Limited Fire Protective signaling circuit cable. **Applications:** Burglar alarm, fire detection, audio signal circuit wiring. **Put-up:** 500′ spools. (Other put-ups also available.)

Catalog Number	Number of Conductors	Conductor Size	Conductor Stranding	Nom. O.D. (Inches)
24012*	2	18	Solid	.105 x .205
24013**	3	18	Solid	.105 x .285
24014*	2	16	Solid	.115 x .220
24015**	3	16	Solid	.115 x .320

* Consult factory for production requirements on other colors.
** Power limited circuit cable.

Stock Color: Clear. **Construction:** One conductor tinned copper, one conductor bare copper for polarity identification, PVC insulation, identifying ridge on one conductor, conductors laid parallel, rip-type construction for easy separation of conductors when split apart. **Specifications:** −20°C to +60°C. **Applications:** Intercom systems, interconnecting cables, telephones, remote control circuits, fire and burglar alarm systems: **Put-up:** 100′, 250′, 500′ and 1000′ spools. 100′ spools packaged in attractive counter display cartons. UL Listed 125V XT.

AUDIO CABLE UNSHIELDED UNJACKETED MULTI-CONDUCTOR



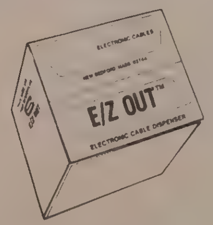
Stock Color: See table below. **Construction:** Solid conductors bare copper, stranded conductors, 1 tinned, 1 bare color coded PVC insulation (except Cat. No. C2744 which has both conductors the same color, brown or white, ridge on one conductor for polarity, ridged conductor tinned copper), conductors cabled. **Specifications:** −20°C to +60°C. **Entire cable passes VW-1 Vertical Flame Test. Applications:** Intercom systems, interconnecting cables, telephones, remote control circuits, fire and burglar alarm systems. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Sug. Working Voltage	Nom. O.D. (Inches)	Color Code
SOLID CONDUCTORS UL LISTSED (Wires, Misc.) 90V							
C2702	2	22	Solid	.015	350V	.112	1 & 2
C2703	3	22	Solid	.015	350V	.120	1, 2 & 3
C2704	2	19	Solid	.015	350V	.130	1 & 2
C2744	2	19	Solid	.025	600V	.170	1 or 4
C2705	3	19	Solid	.015	350V	.145	1, 2 & 3
STRANDED CONDUCTORS 1 conductor tinned UL listed (Wires, Misc.) 90V							
C6310	2	22	7/30	.024	300V	.156	1 or 4
C6311	2	20	10/30	.024	300V	.172	1 or 4
C6931	2	18	16/30	.020	450V	.175	4 & 5
C6312	2	18	16/30	.024	300V	.192	1 or 4
C6932	2	16	26/30	.025	600V	.215	4 & 5

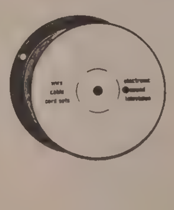
COLOR CODE OF CONDUCTORS

Conductor	Color
1	Brown
2	Tan
3	Gray
4	White
5	Black

reels



™E/Z Out Carton



spools

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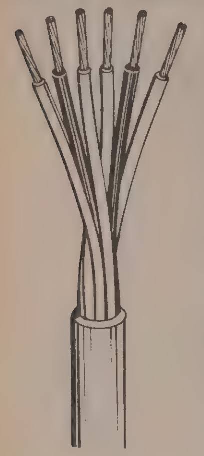
HOT LINE: 800-556-7662

AUDIO AND COMMUNICATIONS CABLE

AUDIO & COMMUNICATION UNSHIELDED COMBINATION GAUGE CABLE PVC JACKET



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, conductors cabled, PVC jacket overall. **Specifications:** −20°C to +80°C. Suggested working voltage: 20 and and 22 gauge — 200V, 16 and 18 gauge — 400V. **Entire cable passes VW-1 Vertical Flame Test. Applications:** Special cable for audio and communications use where RF shielding is not required. **Put-up:** 100′ and 500′ spools. (Other put-ups also available.)

COLOR CODE OF CONDUCTORS

Conductor	Color	Conductor	Color
20 ga. 1	Blue	7	Purple
16 ga. 1	Green	16 ga. 1	Black
16 ga. 2	Orange	2	White
18 ga. 1	Black	20 ga. 1	Gray
2	White	22 ga. 1	Red
22 ga. 1	Red	2	Green
2	Green	3	Orange
3	Brown	4	Yellow
4	Blue	5	Blue
5	Orange	6	Purple
6	Yellow	7	Brown

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
C6977	3	1-20 2-16	10/30 26/30	.015 .020	.025	.250

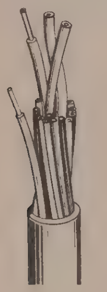
UL LISTED (2576) 150V

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
C4081	6	4-22 2-18	7/30 16/30	.010 .018	.030	.230
C4082	7	5-22 2-18	7/30 16/30	.010 .018	.030	.251
C4083	8	6-22 2-18	7/30 16/30	.010 .018	.030	.260
C4084	9	7-22 2-18	7/30 16/30	.010 .018	.030	.270

UL LISTED (2464) 300V

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
C4085	10	2-16 1-20 7-22	26/30 10/30 7/30	.019 .015 .010	.040	.295

SPECIAL AUDIO/INTERCOM COMBINATION CABLE PVC JACKET



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded polyethylene insulation, conductors cabled, PVC jacket overall. **Specifications:** −20°C to +60°C. Suggested working voltage: 22 gauge — 200V, 18 gauge — 400V. **Applications:** Special cable for TSL type intercom systems or other applications requiring small diameter low capacity, multiconductor audio/control cable. **Put-up:** 250′, 500′ and 1000′ spools. (Other put-ups also available).

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
C4790	20	17-22 3-18	Solid Solid	.010 .018	.035	.325

First color in stripe combination is body color. Second or third colors are stripes. Example: White/Black/Red. Other striped combinations available to order.

COLOR CODE OF CONDUCTORS

Conductor	Color	Conductor	Color	Conductor	Color
18 ga. 1	Black	22 ga. 5	Yellow	22 ga. 12	Red/Black
2	Red	6	Purple	13	White/Black
3	White	7	Gray	14	White/Red
22 ga. 1	Green	8	Pink	15	White/Green
2	Orange	9	Tan	16	White/Yellow
3	Blue	10	Red/Green	17	White/Blue
4	Brown	11	Red/Yellow		

COLOR CODE No. 1

No. of Pairs	Color Coding	No. of Pairs	Color Coding
1	Black paired with Red	15	Green paired with Blue
2	Black paired with White	16	Green paired with Yellow
3	Black paired with Green	17	Green paired with Brown
4	Black paired with Blue	18	Green paired with Orange
5	Black paired with Yellow	19	White paired with Blue
6	Black paired wth Brown	20	White paired with Yellow
7	Black paired with Orange	21	White paired with Brown
8	Red paired with White	22	White paired with Orange
9	Red paired with Green	23	Blue paired with Yellow
10	Red paired with Blue	24	Blue pared with Brown
11	Red paired with Yellow	25	Blue paired with Orange
12	Red paired with Brown	26	Brown paired with Yellow
13	Red paired with Orange	27	Brown paired with Orange
14	Green paired with White		

COLOR CODE No. 2

COLOR CODE CHART 1

Per IPCEA Conductor	Color				
1	Black	5	Brown	9	Purple
2	White	6	Blue	10	Gray
3	Red	7	Orange	11	Pink
4	Green	8	Yellow	12	Tan

COLOR CODE CHART 2

Per IPCEA Conductor	Color	Per IPCEA Conductor	Color
1	Black	32	Orange/Black/Green
2	White	33	Blue/White/Orange
3	Red	34	Black/White/Orange
4	Green	35	White/Red/Orange
5	Orange	36	Orange/White/Blue
[illegible]	Blue	37	White/Red/Blue
7	White/Black	38	Black/White/Green
8	Red/Black	39	White/Black/Green
9	Green/Black	40	Red/White/Green
10	Orange/Black	41	Green/White/Blue
11	Blue/Black	42	Orange/Red/Green
12	Black/White	43	Blue/Red/Green
13	Red/White	44	Black/White/Blue
14	Green/White	45	White/Black/Blue
15	Blue/White	46	Red/White/Blue
16	Black/Red	47	Green/Orange/Red
17	White/Red	48	Orange/Red/Blue
18	Orange/Red	49	Blue/Red/Orange
19	Blue/Red	50	Black/Orange/Red
20	Red/Green	51	White/Black/Orange
21	Orange/Green	52	Red/Orange/Black
22	Black/White/Red	53	Green/Red/Blue
23	White/Black/Red	54	Orange/Black/Blue
24	Red/Black/White	55	Blue/Black/Orange
25	Green/Black/White	56	Black/Orange/Green
26	Orange/Black/White	57	White/Orange/Green
27	Blue/Black/White	58	Red/Orange/Green
28	Black/Red/Green	59	Green/Black/Blue
29	White/Red/Green	60	Orange/Green/Blue
30	Red/Black/Green		
31	Green/Black/Orange		

COLOR CODE No. 3

No. of Pairs PER IPCEA	Color Coding	No. of Pairs PER IPCEA	Color Coding
1	Black paired with Red	27	Brown paired with Orange
2	Black paired with White	28	Purple paired with Red
3	Black paired with Green	29	Purple paired with White
4	Black paired with Blue	30	Purple paired with Green
5	Black paired with Yellow	31	Purple paired with Blue
6	Black paired with Brown	32	Purple paired with Brown
7	Black paired with Orange	33	Purple paired with Yellow
8	Red paired with White	34	Purple paired with Orange
9	Red paired with Green	35	Purple paired with Slate
10	Red paired with Blue	36	Purple paired with Black
11	Red paired with Yellow	37	Slate paired with Red
12	Red paired with Brown	38	Slate paired with White
13	Red paired with Orange	39	Slate paired with Green
14	Green paired with White	40	Slate paired with Blue
15	Green paired with Blue	41	Slate paired with Brown
16	Green paired with Yellow	42	Slate paired with Yellow
17	Green paired with Brown	43	Slate paired with Orange
18	Green paired with Orange	44	Slate paired with Black
19	White paired with Blue	45	White/Black paired w. Red
20	White paired with Yellow	46	White/Black paired w. Green
21	White paired with Brown	47	White/Black paired w. Blue
22	White paired with Orange	48	White/Black paired w. Brown
23	Blue paired with Yellow	49	White/Black paired w. Yellow
24	Blue paired with Brown	50	White/Black paired w. Orange
25	Blue paired with Orange	51	White/Black paired w. Purple
26	Brown paired with Yellow		

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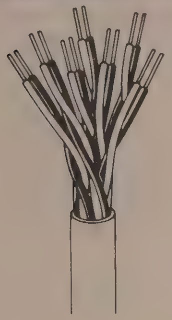
AUDIO AND COMMUNICATIONS CABLE

AUDIO CABLE UNSHIELDED PAIRED MULTI-CONDUCTOR PVC JACKET



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, conductors paired with a short lay twist for conductor balance providing a circuit free from cross talk, pairs cabled, PVC jacket overall. **Specifications:** −20°C to +80°C. Suggested working voltage: See below. **Entire cable passes VW-1 Vertical Flame Test. Applications:** Heavy-duty intercom and audio cable for intercom systems, signal systems, annunciators, nurse's call systems, multiple speaker systems, control circuit cables. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

Catalog Number	No. of Pairs	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
SOLID CONDUCTORS UL LISTED (Wires, Misc.) 90V Max.							
C4008	1	2	22	Solid	.012 200V	.025	.150
UL LISTED (2464) 300V							
C4010	2	4	22	Solid	.015 300V	.030	.245
C4014	3	6	22	Solid	.015 300V	.030	.260
C4015	4	8	22	Solid	.015 300V	.030	.283
C4016	5	10	22	Solid	.015 300V	.030	.305
UL LISTED (Wires, Misc.) 90V Max.							
C4017	6	12	22	Solid	.012 200V	.025	.280
C4018	7	14	22	Solid	.012 200V	.025	.295
C4019*	8	16	22	Solid	.015 300V	.030	.375
C4020	9	18	22	Solid	.012 200V	.030	.335
C4022	11	22	22	Solid	.012 200V	.030	.370
C4024	13	26	22	Solid	.012 200V	.035	.410
C4026	15	30	22	Solid	.012 200V	.035	.430
C4028	16	32	22	Solid	.012 200V	.035	.440
C4029	19	38	22	Solid	.012 200V	.035	.460
C4031	23	46	22	Solid	.012 200V	.040	.525
C4030	27	54	22	Solid	.012 200V	.040	.565
C4032	41	82	22	Solid	.012 200V	.045	.685
C4038	51	102	22	Solid	.012 200V	.060	.765
STRANDED CONDUCTORS UL LISTED (2464) 300V							
C6010	2	4	22	7/30	.015 300V	.030	.260
C6014	3	6	22	7/30	.015 300V	.030	.275
C6015	4	8	22	7/30	.015 300V	.030	.298
UL LISTED (2576) 150V							
C6017	6	12	22	7/30	.010 150V	.030	.288
C6019	9	18	22	7/30	.010 150V	.030	.344
C6023	12	24	22	7/30	.010 150V	.030	.387
C6026	15	30	22	7/30	.010 150V	.035	.435
C6027	19	38	22	7/30	.010 150V	.035	.470
C6028	23	46	22	7/30	.010 150V	.040	.530
C6030	27	54	22	7/30	.010 150V	.040	.570
C6032	31	62	22	7/30	.010 150V	.050	.635
C6033	41	82	22	7/30	.010 150V	.060	.730
C6025	51	102	22	7/30	.010 150V	.060	.780
UL LISTED (2464) 300V							
C6113	3	6	20	10/30	.015 300V	.030	.260
C6114	6	12	20	10/30	.015 300V	.030	.335
C6115	9	18	20	10/30	.015 300V	.035	.423
C6116	15	30	20	10/30	.015 300V	.040	.555
C6101	1	2	18	16/30	.018 300V	.030	.230
C6118	2	4	18	16/30	.018 300V	.035	.287
C6103	3	6	18	16/30	.018 300V	.035	.330
C6119	4	8	18	16/30	.018 300V	.035	.370
C6120	5	10	18	16/30	.018 300V	.035	.360
C6106	6	12	18	16/30	.018 300V	.035	.440
C6121	8	16	18	16/30	.018 300V	.040	.450
C6109	9	18	18	16/30	.018 300V	.040	.545
C6110	12	24	18	16/30	.018 300V	.050	.640
C6111	15	30	18	16/30	.018 300V	.060	.750
C6112	19	38	18	16/30	.018 300V	.060	.795

*UL Listed 2464

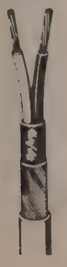
COLOR CODE No. 3

No. of Pairs PER IPCEA	Color Coding	No. of Pairs PER IPCEA	Color Coding
1	Black paired with Red	27	Brown paired with Orange
2	Black paired with White	28	Purple paired with Red
3	Black paired with Green	29	Purple paired with White
4	Black paired with Blue	30	Purple paired with Green
5	Black paired with Yellow	31	Purple paired with Blue
6	Black paired with Brown	32	Purple paired with Brown
7	Black paired with Orange	33	Purple paired with Yellow
8	Red paired with White	34	Purple paired with Orange
9	Red paired with Green	35	Purple paired with Slate
10	Red paired with Blue	36	Purple paired with Black
11	Red paired with Yellow	37	Slate paired with Red
12	Red paired with Brown	38	Slate paired with White
13	Red paired with Orange	39	Slate paired with Green
14	Green paired with White	40	Slate paired with Blue
15	Green paired with Blue	41	Slate paired with Brown
16	Green paired with Yellow	42	Slate paired with Yellow
17	Green paired with Brown	43	Slate paired with Orange
18	Green paired with Orange	44	Slate paired with Black
19	White paired with Blue	45	White/Black paired w. Red
20	White paired with Yellow	46	White/Black paired w. Green
21	White paired with Brown	47	White/Black paired w. Blue
22	White paired with Orange	48	White/Black paired w. Brown
23	Blue paired with Yellow	49	White/Black paired w. Yellow
24	Blue paired with Brown	50	White/Black paired w. Orange
25	Blue paired with Orange	51	White/Black paired w. Purple
26	Brown paired with Yellow		

First color in stripe combination is body color. Second or third colors are stripes. Example: White/Black/Red. Other striped combinations available to order.

MICROPHONE CABLE

MICROPHONE CABLE TWO CONDUCTOR SPIRAL SHIELD FLEXLIFE® JACKET



Stock Color: Silver gray jacket. **Construction:** Tinned copper conductors, color-coded polyethylene insulation, cabled with fillers, mylar wrap, spiral tinned copper shield. High gloss Flexlife packet. (See page 2•2001. for description of Flexlife). **Specifications:** −20°C to +60°C. **Applications:** For use with low impedance microphones. Flexlife jacket provides extreme flexibility, high abrasion resistance and outstanding appearance. **Put-up:** 100′, 250′, 500′ and 1000′ spools. (Other put-ups also available.)

Catalog Number	Type	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. Cap.* PF/Ft.	Sug. Working Voltage	Nom. O.D. (Inches)
C1323	Low Imped.	2	22	16/34	.025	.025	31	1000V	.230
C1328	Min. low Imped.	2	24	10/34	.016	.030	38	1000V	.190

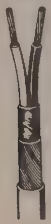
* Between one conductor and remaining conductor connected to shield.

COLOR CODE OF CONDUCTORS

Conductor	Color
1	White
2	Black

MICROPHONE CABLE

MICROPHONE CABLE TWO CONDUCTOR NOISE RESISTANT SPIRAL SHIELD FLEXLIFE® JACKET



Stock Color: Silver gray jacket. **Construction:** Tinned copper conductors, color-coded polyethylene insulation, cabled with fillers, .010″ of conductive PVC, spiral tinned copper shield, high gloss Flexlife jacket. (See page **2•2001** for description of Flexlife). **Specifications:** −20°C to +60°C. **Applications:** For use with low impedance microphones. Noise resistant. Withstands rough handling without shield breakdown. Will outlast conventional microphone cables. Flexlife jacket provides extreme flexibility, high abrasion resistance and outstanding appearance. **Put-up:** 100′, 250′, 500′ and 1000′ spools. (Other put-ups also available.)

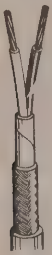
Catalog Number	Type	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. Cap.* PF/Ft.	Nom. O.D. (Inches)
C1324	Low Imped.	2	22	16/34	.025	.020	35	.230

* Between one conductor and remaining conductor connected to shield.

COLOR CODE OF CONDUCTORS

Conductor	Color
1	White
2	Black

MICROPHONE CABLE TWO CONDUCTOR BRAIDED SHIELD FLEXLIFE® JACKET



Stock Color: Silver gray jacket. **Construction:** Tinned copper conductors, color-coded polyethylene insulation, cabled with fillers, mylar wrap, braided tinned copper shield, high gloss Flexlife jacket. (See page **2•2001** for description of Flexlife). **Specifications:** −20°C to +60°C. **Applications:** For use with low impedance microphones. Flexlife jacket provides extreme flexibility, high abrasion resistance and outstanding appearance. **Put-up:** 100′, 250′, 500′ and 1000′ spools. (Other put-ups also available.)

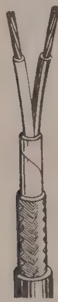
Catalog Number	Type	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. Cap.* PF/Ft.	Sug. Working Voltage	Nom. O.D. (Inches)
C1322	Low Imped.	2	22	16/34	.025	.025	31	1000V	.235

* Between one conductor and remaining conductor connected to shield.

COLOR CODE OF CONDUCTORS

Conductor	Color
1	White
2	Black

MICROPHONE CABLE TWO CONDUCTOR BRAIDED SHIELD HEAVY-DUTY FLEXLIFE® JACKET



Stock Color: Red or black jacket. **Construction:** Tinned copper conductors, color-coded polyethylene insulation, cabled with filler, mylar wrap, braided tinned copper shield, high gloss Flexlife jacket. (See page **2•2001** for description of Flexlife.) **Specifications:** −20°C to +60°C. **Applications:** For low impedance microphones. Heavy duty studio type designed to withstand rough usage. Bright red jacket is a visual aid to safety. Flexlife jacket provides extreme flexibility, high abrasion resistance and outstanding appearance. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

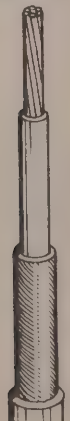
Catalog Number	Type	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. Cap.* PF/Ft.	Sug. Working Voltage	Nom. O.D. (Inches)
C3302	Low Imped.	2	18	41/34	.025	.035	45	1000V	.295

* Between one conductor and remaining conductor connected to shield.

COLOR CODE OF CONDUCTORS

Conductor	Color
1	White
2	Black

MICROPHONE CABLE ONE CONDUCTOR SPIRAL SHIELD FLEXLIFE® JACKET



Stock Color: Silver gray jacket. (Cat. No. C1359 available in black jacket.) **Construction:** Single conductor 3 strands tinned copper, 4 strands tinned copperweld, white foam polyethylene dielectric, spiral tinned copper shield, high gloss Flexlife jacket. (See page **2•2001** for description of Flexlife). **Specifications:** −20°C to +60°C. **Applications:** For use with high impedance microphones and hi-fi interconnecting cables. Flexfoam dielectric (foam polyethylene) provides as much as 35% lower capacitance than the best standard solid polyethylene dielectric microphone cables. Flexfoam cables are the most flexible plastic microphone cable available, with limpness almost equal to rubber and with better abrasion resistance. **Put-up:** 100′, 250′, 500′ and 1000′ spools. (Other put-ups also available.)

Catalog Number	Type	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. Cap.* PF/Ft.	Nom. O.D. (Inches)
C1359	Min.	1	25	7/33	.016	.012	29	.090
C1369	Lapel	1	25	7/33	.030	.020	19	.135
C1389	Crystal	1	25	7/33	.050	.025	15	.185
C1395	Crystal	1	25	7/33	.075	.030	13	.250

* Between conductor and shield.

MICROPHONE CABLE

MICROPHONE CABLE ONE CONDUCTOR BRAIDED SHIELD FLEXLIFE® JACKET

Same as previous page except braided tinned copper shield.

Catalog Number	Type	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. Cap.* PF/Ft.	Nom. O.D. (Inches)
C1379	Lapel	1	25	7/33	.030	.020	19	.145
C1399	Crystal	1	25	7/33	.050	.025	16	.200

* Between conductor and shield.

MICROPHONE CABLE ONE CONDUCTOR SPIRAL SHIELD FLEXLIFE® JACKET

Stock Color: Silver gray jacket. **Construction:** Single conductor 3 strands tinned copper, 4 strands tinned copperweld, solid polyethylene insulation, spiral tinned copper shield, high gloss Flexlife jacket. (See page **2•2001** for description of Flexlife). **Specifications:** −20°C to +60°C. **Applications:** For use with high impedance microphones and hi-fi interconnecting cables. Flexlife jacket provides extreme flexibility, high abrasion resistance and outstanding appearance. **Put-up:** 100′, 250′, 500′ and 1000′ spools. (Other put-ups also available.)

Catalog Number	Type	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. Cap.* PF/Ft.	Sug. Working Voltage	Nom. O.D. (Inches)
C1314	Crystal	1	25	7/33	.040	.020	25	5000V	.155
C1366	Lapel	1	25	7/33	.030	.020	33	4000V	.130

* Between conductor and shield.

MICROPHONE CABLE BRAIDED SHIELD RUBBER OR NEOPRENE JACKET

Stock Color: Black jacket. **Construction:** Tinned copper conductors, color-coded rubber insulation, clear mylar wrap, filled where required, braided tinned copper shield, cotton wrap, rubber or Neoprene jacket. **Specifications:** −20°C to +60°C. Recommended operating voltage 600V. **Applications:** Catalog Numbers C1300, C1301, C1311. For use with high impedance microphones, broadcast and studio use, communication and audio systems. **Put-up:** 100′, 250′, 500′ and 1000′ spools. (Other put-ups also available.)

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. Cap.* PF/Ft.	Nom. O.D. (Inches)
C1311	1	20	26/34	.025	.030	55	.190
C1300	1	20	26/34	.040	.035	42	.230
C1301	1	18	41/34	.040	.035	46	.240
† C1201	1	18	41/34	.040	.035	46	.240

* Between one conductor and remaining (if any) conductor connected to shield.

† Neoprene jacket

COLOR CODE OF CONDUCTORS

Conductor	Color
1	Black
2	White

INSTRUMENTATION AND CONTROL CABLE

CONTROL CABLE MULTI-CONDUCTOR SHIELDED NEOPRENE OR RUBBER JACKET

Stock Color: Black jacket. **Construction:** Tinned copper conductors, color-coded rubber insulation, cabled, filled where required, clear mylar wrap, tinned copper braided shield, cotton wrap, neoprene jacket or rubber jacket. **Specifications:** −20°C to +60°C. Suggested working voltage 450V. **Applications:** Control circuits, video and audio interconnecting cables, broadcast and studio use. Precision engineered to prevent cross-talk and eliminate hum pick-up. Neoprene and rubber jackets are resistant to impact and abrasion and have extra limpness. For outside installations, neoprene is recommended being resistant to oil, ozone, moisture and sunlight. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

COLOR CODE OF CONDUCTORS

Cond.	Color	Cond.	Color
1	Black	11	White/Black
2	White	12	White/Red
3	Red	13	White/Green
4	Green	14	White/Yellow
5	Blue	15	White/Blue
6	Brown	16	White/Brown
7	Yellow	17	White/Purple
8	Orange	18	White/Gray (slate)
9	Gray (slate)	19	Black/Red
10	Purple	20	Black/Yellow

First color in stripe combination is body color. Second or third colors are stripes. Example: White/Black/Red. Other solid colors and striped combinations available to order.

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
NEOPRENE JACKET						
C1202	2	18	41/34	.020	.035	.295
C1203	3	18	41/34	.020	.035	.305
C1204	4	18	41/34	.020	.035	.330
C1206	6	18	41/34	.020	.035	.370
C1208	8	18	41/34	.020	.035	.420
C1210	10	18	41/34	.020	.035	.480
C1212	12	18	41/34	.020	.065	.555
C1215	15	18	41/34	.020	.065	.640
C1220	20	18	41/34	.020	.065	.730
C1602	2	16	65/34	.025	.035	.335
C1603	3	16	65/34	.025	.035	.355
C1604	4	16	65/34	.025	.035	.385
C1606	6	16	65/34	.025	.040	.445
C1608	8	16	65/34	.025	.040	.510
C1610	10	16	65/34	.025	.040	.575
C1612	2	14	41/30	.030	.040	.395
C1613	3	14	41/30	.030	.040	.425
C1614	4	14	41/30	.030	.040	.455
C1616	6	14	41/30	.030	.040	.515
C1622	2	12	65/30	.030	.040	.440
C1623	3	12	65/30	.030	.040	.465
C1624	4	12	65/30	.030	.040	.505
C1632	2	10	105/30	.030	.040	.495
C1633	3	10	105/30	.030	.040	.520
RUBBER JACKET						
C1303	2	18	41/34	.020	.035	.295
C1302	2	20	26/34	.020	.035	.270
C1304	3	20	26/34	.020	.035	.285
C1305	4	20	26/34	.020	.035	.305
C1308	5	20	26/34	.020	.035	.330
C1310	6	20	26/34	.020	.035	.345
C1312	7	20	26/34	.020	.035	.360
C1313	8	20	26/34	.020	.035	.385
C1315	10	20	26/34	.020	.035	.440
C1316	12	20	26/34	.020	.065	.525
C1317	15	20	26/34	.020	.065	.595
C1325	20	20	26/34	.020	.065	.660

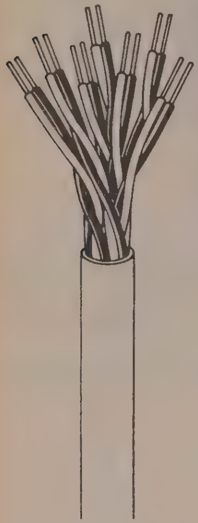
CAROL CAROL CABLE COMPANY, INC., COLUMBIA ELECTRONIC CABLES DIVISION **CAROL**
DEPT. EM, 249 ROOSEVELT AVE., PAWTUCKET, RI 02862 / TEL: (401) 724-9605 / TELEX: 92-7750
LOS ANGELES, CA 90058 / PHONE: (213) 583-9825 / TELEX: 67-7417
HOT LINE: 800-556-7662

INSTRUMENTATION AND CONTROL CABLE

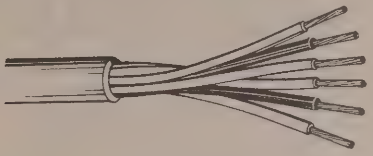
UL 2343

UNSHIELDED COMPUTER & CONTROL CABLE MULTI-CONDUCTOR AND PAIRED CABLES

CSA SR-PVC 80°C



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, semi-rigid PVC insulation to UL Style 1061, CSA Type SR-PVC. Cabled in pairs. Clear mylar wrap, nylon ripcord. PVC jacket overall. Nominal insulation thickness, .010 inches. **Specifications:** 80°C, 300V* passes VW-1 Vertical Flame Test. **Color Code:** Multiconductor, Chart VI; Paired, Chart VII. **Applications:** For use in Data Transmission, Control Circuits and Signal Application in Computers and Industrial Equipment. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)



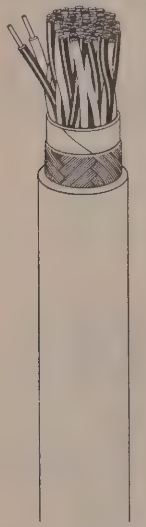
Columbia No.		No. of Cond. or Pairs	Cond. Size	Cond. Strand.	Nom. Jacket Thick.	Nom. O.D.	
Multi-Cond.	Paired					Multi-Cond.	Paired
C0200	C0230	5	24	7/32	.060	.243	.308
C0201	C0231	7	24	7/32	.060	.258	.343
C0202	C0232	12	24	7/32	.060	.308	.410
C0203	C0233	15	24	7/32	.060	.333	.444
C0204	C0234	19	24	7/32	.060	.346	.484
C0205	C0235	27	24	7/32	.060	.396	.555
C0206	C0236	37	24	7/32	.060	.434	.629
C0207	C0237	48	24	7/32	.060	.486	.700
C0208	C0238	60	24	7/32	.060	.524	.766
C0210	C0240	5	22	7/30	.060	.261	.335
C0211	C0241	7	22	7/30	.060	.273	.374
C0212	C0242	12	22	7/30	.060	.333	.453
C0213	C0243	15	22	7/30	.060	.361	.491
C0214	C0244	19	22	7/30	.060	.376	.539
C0215	C0245	27	22	7/30	.060	.433	.619
C0216	C0246	37	22	7/30	.060	.476	.703
C0217	C0247	48	22	7/30	.060	.535	.786
C0218	C0248†	60	22	7/30	.060	.578	.905
C0220	C0250	5	20	19/32	.060	.288	.384
C0221	C0251	7	20	19/32	.060	.306	.433
C0222	C0252	12	20	19/32	.060	.575	.530
C0223	C0253	15	20	19/32	.060	.409	.578
C0224	C0254	19	20	19/32	.060	.427	.636
C0225	C0255	27	20	19/32	.060	.496	.734
C0226	C0256†	37	20	19/32	.060	.548	.880
C0227	C0257†	48	20	19/32	.060	.618	.990
C0228	C0258†	60	20	19/32	.060	.669	1.065

* The inner conductors only, are rated UL at 300V.
† Paired jacket thickness for .080 not .060.

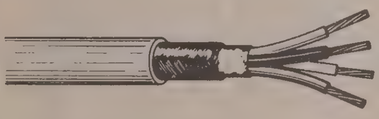
UL 2343

SHIELDED COMPUTER & CONTROL CABLE MULTI-CONDUCTOR AND PAIRED CABLES

CSA SR-PVC 80°C



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, semi-rigid PVC insulation to UL Style 1061, CSA Type SR-PVC. Cabled in pairs. Clear mylar wrap, nylon ripcord. Braided, tinned copper shield. PVC jacket overall. Nominal insulation thickness, .010 inches. **Specifications:** 80°C, 300V* passes VW-1 Vertical Flame Test. **Color Code:** Multiconductor, Chart VI; Paired, Chart VII. **Applications:** For use in Data Transmission, Control Circuits and Signal Application in Computers and Industrial Equipment. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)



Columbia No.		No. of Cond. or Pairs	Cond. Size	Cond. Strand.	Nom. Jacket Thick.	Nom. O.D.	
Multi-Cond.	Paired					Multi-Cond.	Paired
C0300	C0330	5	24	7/32	.060	.266	.331
C0301	C0331	7	24	7/32	.060	.281	.372
C0302	C0332	12	24	7/32	.060	.331	.433
C0303	C0333	15	24	7/32	.060	.356	.464
C0304	C0334	19	24	7/32	.060	.375	.507
C0305	C0335	27	24	7/32	.060	.426	.584
C0306	C0336	37	24	7/32	.060	.464	.658
C0307	C0337	48	24	7/32	.060	.516	.743
C0308	C0338	60	24	7/32	.060	.553	.811
C0310	C0340	5	22	7/30	.060	.284	.364
C0311	C0341	7	22	7/30	.060	.296	.404
C0312	C0342	12	22	7/30	.060	.356	.482
C0313	C0343	15	22	7/30	.060	.390	.521
C0314	C0344	19	22	7/30	.060	.406	.568
C0315	C0345	27	22	7/30	.060	.457	.648
C0316	C0346	37	22	7/30	.060	.501	.747
C0317	C0347	41	22	7/30	.060	.564	.827
C0318	C0348	60	22	7/30	.060	.608	.947
C0320	C0350	5	20	19/32	.060	.311	.414
C0321	C0351	7	20	19/32	.060	.330	.462
C0322	C0352	12	20	19/32	.060	.405	.559
C0323	C0353	15	20	19/32	.060	.432	.608
C0324	C0354	19	20	19/32	.060	.450	.679
C0325	C0355	27	20	19/32	.060	.526	.777
C0326	C0356†	37	20	19/32	.060	.577	.923
C0327	C0357†	48	20	19/32	.060	.647	1.030
C0328	C0358†	60	20	19/32	.060	.698	1.100

* The inner conductors only, are rated UL at 300V.
† Paired jacket thickness for .080 not .060.

MULTI-CONDUCTOR COLOR CODE CHART VI

No.	Color	No.	Color	No.	Color	No.	Color	No.	Color	No.	Color
1	Black	11	White/Black	21	White/Black/Red	31	White/Brown/Green	41	White/Orange/Yellow	51	White/Green/Violet
2	Brown	12	White/Brown	22	White/Black/Orange	32	White/Brown/Blue	42	White/Orange/Green	52	White/Green/Gray
3	Red	13	White/Red	23	White/Black/Yellow	33	White/Brown/Violet	43	White/Orange/Blue	53	White/Blue/Violet
4	Orange	14	White/Orange	24	White/Black/Green	34	White/Brown/Gray	44	White/Orange/Violet	54	White/Blue/Gray
5	Yellow	15	White/Yellow	25	White/Black/Blue	35	White/Red/Orange	45	White/Orange/Gray	55	White/Violet/Gray
6	Green	16	White/Green	26	White/Black/Violet	36	White/Red/Yellow	46	White/Yellow/Green	56	White/Black/Brown/Red
7	Blue	17	White/Blue	27	White/Black/Gray	37	White/Red/Green	47	White/Yellow/Blue	57	White/Black/Brown/Orange
8	Violet	18	White/Violet	28	White/Brown/Red	38	White/Red/Blue	48	White/Yellow/Violet	58	White/Black/Brown/Yellow
9	Gray	19	White/Gray	29	White/Brown/Orange	39	White/Red/Violet	49	White/Yellow/Gray	59	White/Black/Brown/Green
10	White	20	White/Black/Brown	30	White/Brown/Yellow	40	White/Red/Gray	50	White/Green/Blue	60	White/Black/Brown/Blue

PAIRED CONDUCTOR COLOR CODE CHART VII

No.	Color	No.	Color	No.	Color	No.	Color	No.	Color	No.	Color
1	White with Black	11	Black with Red	21	Brown with Green	31	Orange with Yellow	41	Green with Violet	51	White/Black with Green
2	White with Brown	12	Black with Orange	22	Brown with Blue	32	Orange with Green	42	Green with Gray	52	White/Black with Blue
3	White with Red	13	Black with Yellow	23	Brown with Violet	33	Orange with Blue	43	Blue with Violet	53	White/Black with Violet
4	White with Orange	14	Black with Green	24	Brown with Gray	34	Orange with Violet	44	Blue with Gray	54	White/Black with Gray
5	White with Yellow	15	Black with Blue	25	Red with Orange	35	Orange with Gray	45	Violet with Gray	55	White/Brown with Black
6	White with Green	16	Black with Violet	26	Red with Yellow	36	Yellow with Green	46	White/Black with Black	56	White/Brown with Brown
7	White with Blue	17	Black with Gray	27	Red with Green	37	Yellow with Blue	47	White/Black with Brown	57	White/Brown with Red
8	White with Violet	18	Brown with Red	28	Red with Blue	38	Yellow with Violet	48	White/Black with Red	58	White/Brown with Orange
9	White with Gray	19	Brown with Orange	29	Red with Violet	39	Yellow with Gray	49	White/Black with Orange	59	White/Brown with Yellow
10	Black with Brown	20	Brown with Yellow	30	Red with Gray	40	Green with Blue	50	White/Black with Yellow	60	White/Brown with Green

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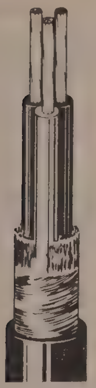
INSTRUMENTATION AND CONTROL CABLE

CONTROL CABLE MULTI-CONDUCTOR UNSHIELDED RUBBER JACKET



Stock Color: Black jacket. **Construction:** Tinned copper conductors color-coded rubber insulation, cabled, filled where required, mylar wrap, or cotton wrap, rubber jacket. **Specifications:** −20°C to +60°C. Suggested working voltage 350V. **Applications:** Control circuits, broadcast and studio use, traffic and fire alarm control, temperature control systems, other multiple control applications. Resistant to impact and abrasion. Extra limpness. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

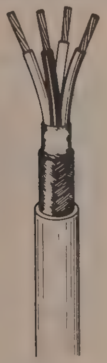
First color in stripe combination is body color. Second or third colors are stripes. Example: White/Black/Red. Other solid colors and striped combinations available to order.

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
C3602	2	20	26/34	.020	.035	.240
C3603	3	20	26/34	.020	.035	.255
C3604	4	20	26/34	.020	.035	.275
C3605	5	20	26/34	.020	.035	.300
C3606	6	20	26/34	.020	.035	.315
C3607	7	20	26/34	.020	.035	.325
C3608	8	20	26/34	.020	.035	.360
C3610	10	20	26/34	.020	.035	.410
C3612	12	20	26/34	.020	.035	.435
C3615	15	20	26/34	.020	.035	.505
C3620	20	20	26/34	.020	.035	.570

COLOR CODE OF CONDUCTORS

Cond.	Color	Cond.	Color	Cond.	Color	Cond.	Color	Cond.	Color
1	Black	5	Blue	9	Gray (slate)	13	White/Green	17	White/Purple
2	White	6	Brown	10	Purple	14	White/Yellow	18	White/Gray (slate)
3	Red	7	Yellow	11	White/Black	15	White/Blue	19	Black/Red
4	Green	8	Orange	12	White/Red	16	White/Brown	20	Black/Yellow

INSTRUMENTATION & CONTROL CABLE MULTI-CONDUCTOR SHIELDED PVC JACKET



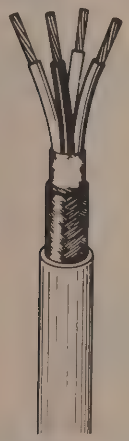
Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded MIL-W-16878 Type B, PVC insulation, cabled, mylar wrap, tinned copper braid shield 90% coverage, PVC jacket overall. **Specifications:** −55°C to +105°C. Suggested working voltage 600V. **Applications:** Interconnecting cables for electronic equipment, telemetry data, remote control of recording instruments. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
C6500	2	28	7/36	.010	.012	.125
C6501	3	28	7/36	.010	.012	.135
C6502	4	28	7/36	.010	.012	.145
C6503	6	28	7/36	.010	.015	.170
C6504	8	28	7/36	.010	.015	.185
C6505	10	28	7/36	.010	.018	.210
C6506	12	28	7/36	.010	.018	.215
C6507	15	28	7/36	.010	.020	.240
C6508	20	28	7/36	.010	.022	.260

COLOR CODE OF CONDUCTORS

Cond.	Color	Cond.	Color	Cond.	Color	Cond.	Color	Cond.	Color
1	Black	5	Orange	9	Green/Black	13	Red/White	17	White/Red
2	White	6	Blue	10	Orange/Black	14	Green/White	18	Orange/Red
3	Red	7	White/Black	11	Blue/Black	15	Blue/White	19	Blue/Red
4	Green	8	Red/Black	12	Black/White	16	Black/Red	20	Red/Green

CONTROL CABLE MULTI-CONDUCTOR SHIELDED PVC JACKET



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded polyethylene insulation, cabled, filled where required, mylar wrap, tinned copper braid shield, PVC jacket overall. **Specifications:** −20°C to +60°C. Suggested working voltage 600V. **Jacket only passes VW-1 Vertical Flame Test. Applications:** Low capacity cable for control circuits, video and audio interconnecting cables, broadcast and studio use. Precision engineered to prevent cross-talk and eliminate hum pick-up. Low capacitance, light weight. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

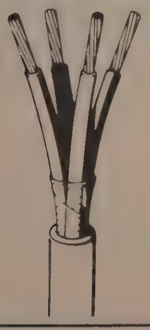
Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
C1642	2	20	26/34	.015	.040	.250
C1643	3	20	26/34	.015	.045	.270
C1644	4	20	26/34	.015	.045	.290
C1645	5	20	26/34	.015	.045	.310
C1646	6	20	26/34	.015	.045	.325
C1648	8	20	26/34	.015	.045	.350
C1650	10	20	26/34	.015	.045	.390
C1652	12	20	26/34	.015	.045	.405
C1655	15	20	26/34	.015	.045	.440
C1660	20	20	26/34	.015	.045	.480

First color in stripe combination is body color. Second or third colors are stripes. Example: White/Black/Red. Other solid colors and striped combinations available to order.

COLOR CODE OF CONDUCTORS

Cond.	Color	Cond.	Color	Cond.	Color	Cond.	Color	Cond.	Color
1	Black	5	Blue	9	Gray (slate)	13	White/Green	17	White/Purple
2	White	6	Yellow	10	Purple	14	White/Yellow	18	White/Gray (slate)
3	Red	7	Brown	11	White/Black	15	White/Blue	19	Black/Red
4	Green	8	Orange	12	White/Red	16	White/Brown	20	Black/Yellow

CONTROL CABLE MULTI-CONDUCTOR UNSHIELDED PVC JACKET



Stock Color: Chrome gray jacket. **Construction:** Tinned copper conductors, color-coded PVC insulation, mylar binder overall (no mylar binder on Cat. Nos. C2404, C2420, C2421, C2422), JVC jacket, conductors cabled. **Specifications:** −20°C to +60°C. Suggested working voltage — 18 gauge — 400V; 16 gauge — 12 gauge — 600V. **Entire cable passes VW-1 Vertical Flame Test. Applications:** Interconnecting cables for electronic equipment, control circuits, broadcast and studio use, temperature control systems. **Put-up:** 100′, 500′ and 1000′ spools. (Other put-ups also available.)

UL LISTED

Catalog Number	No.' of Cond.	Cond. Size	Cond. Strand.	Nominal Insulation Thickness (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
C2404*	4	18	16/30	.018 (UL-2273)	.030	.265
C2420*	5	18	16/30	.018 (UL-2274)	.037	.300
C2421*	7	18	16/30	.018 (UL-2276)	.037	.324
C2422*	9	18	16/30	.018 (UL-2278)	.037	.379
C2412	12	18	16/30	.018 (UL-2281)	.040	.430
C2423	15	18	16/30	.018 (UL-2284)	.045	.485
C2424	19	18	16/30	.018 (UL-2288)	.045	.510
C2433	25	18	16/30	.018 (UL-2598)	.060	.625

*** Color Code Chart 1, P. 2•2004**

First color in stripe combination is body color. Second or third colors are stripes. Example: White/Black/Red. Other striped combinations available to order.

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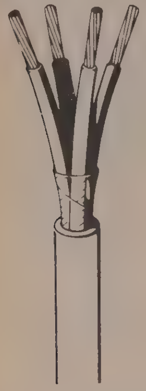
INSTRUMENTATION AND CONTROL CABLE

CONTROL CABLE MULTI-CONDUCTOR UNSHIELDED PVC JACKET (Cont'd)



COLOR CODE OF CONDUCTORS

Cond.	Color	Cond.	Color
1	Black	14	Green/White
2	White	15	Blue/White
3	Red	16	Black/Red
4	Green	17	White/Red
5	Orange	18	Orange/Red
6	Blue	19	Blue/Red
7	White/Black	20	Red/Green
8	Red/Black	21	Orange/Green
9	Green/Black	22	Black/White/Red
10	Orange/Black	23	White/Black/Red
11	Blue/Black	24	Red/Black/White
12	Black/White	25	Green/Black/White
13	Red/White		

Per IPCEA Color Code.

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nominal Insulation Thickness (Inches)	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
C2425	4	16	19/29	.030	.045	.375
C2434	5	16	19/29	.030	.045	.410
C2426	7	16	19/29	.030	.045	.445
C2435	9	16	19/29	.030	.045	.510
C2427	12	16	19/29	.030	.060	.610
C2428	15	16	19/29	.030	.060	.675
C2429	19	16	19/29	.030	.065	.725
C2436	25	16	19/29	.030	.065	.830
C2430	4	14	19/27	.045	.045	.480
C2437	5	14	19/27	.045	.060	.555
C2431	7	14	19/27	.045	.060	.605
C2438	9	14	19/27	.045	.065	.715
C2432	12	14	19/27	.045	.065	.800
C2439	15	14	19/27	.045	.080	.920
C2440	4	12	65/30	.045	.045	.540
C2442	7	12	65/30	.045	.060	.675
C2444	10	12	65/30	.045	.080	.900

First color in stripe combination is body color. Second or third colors are stripes. Example: White/Black/Red. Other striped combinations available to order.

UL POWER-LIMITED FIRE PROTECTIVE SIGNAL CIRCUIT CABLE

MULTIPLE CONDUCTOR

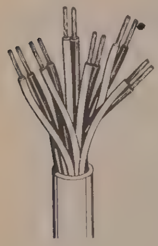
Stock Color: Red. **Construction:** Solid bare copper conductor, color-coded PVC insulation, conductor cabled, PVC jacket overall. **Specifications:** +105°C suggested working voltage 300V. **Entire cable passes VW-1 Flame Test. Applications:** These cables are for use in power limited circuits in accordance with NEC article 760 and as a power limited circuit cable in accordance with article 725 class 2 and class 3 circuits. These cables pass the UL 70,000 BTU flame and tray cable test collateral to IEEE 383 flame test and are suitable for tray cable installation. All cables are listed with the California State Fire Marshal. **Put-up:** 500′ and 1000′.

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insul. Thick. (Inches)	Nom. Jacket Thick. (Inches)	Sug. Working Voltage	Nom. O.D. (Inches)
C0400	6	22	Solid	.013	.037	300V	.229
C0401	8	22	Solid	.013	.037	300V	.245
C0402	10	22	Solid	.013	.043	300V	.290
C0421	2	19	Solid	.017	.037	300V	.210
C0422	4	19	Solid	.017	.037	300V	.240
C0403	2	18	Solid	.017	.037	300V	.222
C0404	4	18	Solid	.017	.037	300V	.253
C0405	5	18	Solid	.017	.037	300V	.273
C0406	6	18	Solid	.017	.043	300V	.308
C0407	7	18	Solid	.017	.043	300V	.308
C0408	9	18	Solid	.017	.043	300V	.353

COLOR CODE OF CONDUCTORS

(1) Black
(2) Red
(3) White
(4) Green
(5) Orange
(6) Blue
(7) Brown
(8) Yellow
(9) Purple
(10) Gray

MULTIPLE PAIRS



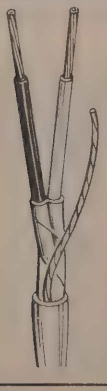
Stock Color: Red. **Construction:** Solid bare copper conductor, color-coded PVC insulation, conductors twisted into pairs, pairs cabled, PVC jacket overall. **Specification:** +105°C suggested working voltage 300V. **Entire cable passes VW-1 Flame Test. Applications:** These cables are for use in power limited circuits in accordance with NEC article 760 and as a power limited circuit cable in accordance with article 725 class 2 and class 3 circuits. These cables pass the UL 70,000 BTU flame and tray cable test collateral to IEEE 383 flame test and are suitable for tray cable installation. All cables are listed with the California State Fire Marshal. **Put-Up:** 500′ and 1000′.

Catalog Number	No. of Pairs	No. of Cond.	Cond. Size	Cond. Strand	Nom. Insul. Thick. (Inches)	Sug. Working Voltage	Nom. Jacket Thick. (Inches)	Nom. O.D. (Inches)
C0409	3	6	22	Solid	.013	300V	.037	.245
C0410	4	8	22	Solid	.013	300V	.043	.284
C0411	6	12	22	Solid	.013	300V	.043	.325
C0412	12	24	22	Solid	.013	300V	.055	.447
C0413	15	30	22	Solid	.013	300V	.055	.488
C0414	2	4	18	Solid	.017	300V	.043	.320

COLOR CODE OF CONDUCTORS

(1) Black with Red
(2) Black with White
(3) Black with Green
(4) Black with Blue
(5) Black with Yellow
(6) Black with Brown
(7) Black with Orange
(8) Red with White
(9) Red with Green
(10) Red with Blue
(11) Red with Yellow
(12) Red with Brown
(13) Red with Orange
(14) Green with White
(15) Green with Blue

SHIELDED CABLES



Stock Color: Red. **Construction:** Solid bare copper conductor, color-coded PVC insulation, conductors cabled, wrapped with Flexfoil® mylar supported aluminum foil shield with foil facing outside, drain wire, PVC jacket overall. **Specifications:** +105°C suggested working voltage 300V. **Entire cable passes VW-1 Flame Test. Applications:** These cables are for use in power limited circuits in accordance with NEC article 760 and as a power limited circuit cable in accordance with article 725 class 2 and class 3 circuits. These cables pass the UL 70,000 BTU flame and tray cable test collateral to IEEE 383 flame test and are suitable for tray cable installation. All cables are listed with the California State Fire Marshal. **Put-up:** 500′ and 1000′.

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand	Size of Drain (Solid)	Nom. Insul. Thick. (Inches)	Percent Shield Coverage	Nom. Jacket Thick. (Inches)	Sug. Working Voltage	Nom. O.D. (Inches)
C0415	2	19	Solid	22	.017	100	.037	300V	.215
C0416	3	19	Solid	22	.017	100	.037	300V	.225
C0417	2	18	Solid	20	.017	100	.037	300V	.225
C0418	3	18	Solid	20	.017	100	.037	300V	.235

COLOR CODE OF CONDUCTORS
(1) Black (2) Red (3) White
*pair †no shield ‡shielded

C0419	2*	18	Solid	20	.017	100	.043	300V	.235 x .370
C0420	2† 4‡	18 22	Solid	 22	.017 .013	100	.037	300V	.274

COLOR CODE OF CONDUCTORS
18 AWG — (1) Black (2) Red
22 AWG — (1) White (2) Green (3) Orange (4) Blue

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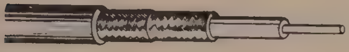
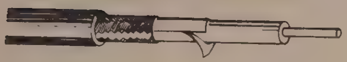
COAXIAL CABLES
RG TYPE



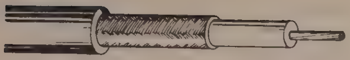
6A/U

Catalog Number	Jacket	Shield	Shield Coverage	PE Dielectric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft.	
										MHz	dB
C1168	PVC	2BC	MIL	PE	21 BCW	.336	75	66	20.5	100	2.9



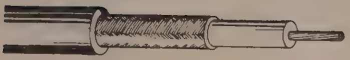
6/U

Catalog Number	Jacket	Shield	Shield Coverage	PE Dielectric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft.	
										MHz	dB
C5775	PVC	1AF 1AB	MIL	FOAM	18 BC	.270	75	78	17.3	100	2.1



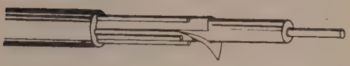
8/U

Catalog Number	Jacket	Shield	Shield Coverage	PE Dielectric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft.	
										MHz	dB
C1109	PVC	1BC	Comm'l	FOAM	13(7/21)BC	.405	50	78	26	100	2.9
C1113	PE	1BC	Comm'l	FOAM	13(7/21)BC	.405	50	78	26	100	2.9
C1154	PVC	1BC	MIL	PE	13(7/21)BC	.405	52	66	29.5	100	2.1
C1198	PVC	1BC	MIL	FOAM	11(19/24)BC	.405	50	78	26	100	1.8
C5013	PE	1BC	Comm'l	FOAM	13(7/21)BC	.405	50	78	26	100	2.9
C5015	PE	1BC	MIL	FOAM	11(19/24)BC	.405	50	78	26	100	1.7



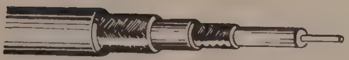
11/U

Catalog Number	Jacket	Shield	Shield Coverage	PE Dielectric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft.	
										MHz	dB
C1160	PVC	1BC	MIL	PE	18(7/26)TC	.405	75	66	20.5	100	2.15
C5025	PE	1BC	MIL	FOAM	14 BC	.405	75	78	17.3	100	1.5



11/U

Catalog Number	Jacket	Shield	Shield Coverage	PE Dielectric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft.	
										MHz	dB
C5026	PVC	1AFD	MIL	FOAM	14 BC	.380	75	78	17.3	100	1.5

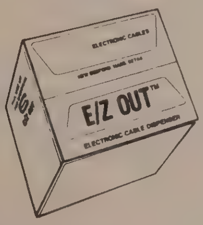


11/U

Catalog Number	Jacket	Shield	Shield Coverage	PE Dielectric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft.	
										MHz	dB
C5027	2PE	2BC	MIL	FOAM	14 BC	.475	75	78	17.3	100	1.5

FOR CONSTRUCTION CODE SEE NEXT PAGE

reels



™E/Z Out Carton

spools

CAROL CAROL CABLE COMPANY, INC., COLUMBIA ELECTRONIC CABLES DIVISION **CAROL**
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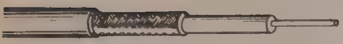
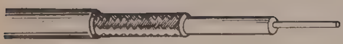
LOS ANGELES, CA 90058 / PHONE: (213) 583-9825 / TELEX: 67-7417
HOT LINE: 800-556-7662

COAXIAL CABLES
RG TYPE



58/U
58A/U*
58C/U**

Catalog Number	Jacket	Shield	Shield Coverage	PE Dielec-tric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft. MHz	dB
C1116	PVC	1TC	Comm'l	FOAM	20 BC	.195	55	78	22	100	3.6
C1117	PVC	1TC	Comm'l	PE	20 BC	.195	53.5	66	28.5	100	4.6
**C1155	NCV	1TC	MIL	PE	20(19/STR) TC	.195	50	66	30.8	100	5.3
C1166	PCV	1TC	MIL	PE	20 BC	.195	53.5	66	28.5	100	4.5
*C1178	PCV	1TC	MIL	PE	20(19)TC	.195	50	66	30.8	100	5.3
*C1188	PCV	1TC	MIL	FOAM	20(19)TC	.195	50	78	26	100	4.8
C5045	PE	1TC	MIL	FOAM	20 BC	.195	53.5	78	22	100	4.8



59/U
59A/U*

Catalog Number	Jacket	Shield	Shield Coverage	PE Dielec-tric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft. MHz	dB
C1102	PE	1BC	MIL	FOAM	20 BCW	.242	75	78	17.3	100	2.6
C1103	PVC	1BC	MIL	FOAM	22 STR BC	.242	75	78	17.3	100	2.6
C1104	PVC	1BC	MIL	PE	22 BCW	.242	73	66	21	100	3.4
*C1106	NCV	1BC	MIL	PE	.023 BCW	.242	75	66	20.5	100	3.4
C1110	PVC	1BC	Comm'l	PE	22 BCW	.242	73	66	21	100	3.5
C1112	PVC	1BC	Comm'l	FOAM	22 BCW	.242	80	78	16.3	100	3.0
C1135	PVC	1BC	MIL	FOAM	22 BCW	.242	80	78	16.3	100	2.9
C5035	PE	1BC	MIL	FOAM	22 BCW	.242	80	78	16.3	100	2.9

* CAT. NOS. C5770, C5780, C5713 & C5714

59/U

Catalog Number	Jacket	Shield	Shield Coverage	PE Dielec-tric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft. MHz	dB
C5750	PVC	1AF	MIL	PE	22 BCW	.242	75	66	20.5	100	3.2
C5755	PVC	1AF	MIL	FOAM	22 BCW	.242	80	78	17.5	100	2.7
C5760	PVC	1AF	MIL	FOAM	18 BC	.242	75	78	17.5	100	2.1
*C5770	PVC	1AF-1AB	MIL	FOAM	22 BCW	.242	80	78	16.3	100	2.7
*C5780	PVC	1AF-1AB	MIL	FOAM	20 BCW	.242	75	78	17.3	100	2.6

59/U

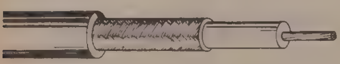
Catalog Number	Jacket	Shield	Shield Coverage	PE Dielec-tric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft. MHz	dB
C5710	PVC	1BAF	MIL	PE	22 BCW	.242	73	66	21	100	3.2
C5711	PVC	1BAF	MIL	FOAM	22 BCW	.242	80	78	16.3	100	2.7
C5712	PVC	1BAF	MIL	FOAM	18 BC	.242	75	78	17.3	100	2.1
*C5713	PVC	1BAF 1AB	MIL	FOAM	22 BCW	.242	80	78	16.3	100	2.7
*C5714	PVC	1BAF 1AB	MIL	FOAM	20 BCW	.242	75	78	17.3	100	2.6

62/U
62A/U*

Catalog Number	Jacket	Shield	Shield Coverage	PE Dielec-tric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft. MHz	dB
*C1162	NCV	1BC	MIL	SSPE	22 BCW	.242	93	84	13.5	100	3.1
C1163	PVC	1BC	MIL	SSPE	22 BCW	.242	93	84	13.1	100	3.1

174/U

Catalog Number	Jacket	Shield	Shield Coverage	PE Dielec-tric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft. MHz	dB
C1156	PVC	1TC	MIL	PE	26(7/34)BCW	.100	50	60	30.8	100	8.8



213/U

Catalog Number	Jacket	Shield	Shield Coverage	PE Dielec-tric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft. MHz	dB
C1176	NCV	1BC	MIL	PE	13(7/21)BC	.405	50	60	30.8	100	2.10

CONSTRUCTION CODE

MIL = Military
Comm'l = Commercial
PE = Polyethylene
FOAM = Foam Polyethylene
PVC = Polyvinyl Chloride

NVC = Non-Contaminating Vinyl
SPE = Semi-Solid Polyethylene
BRD = Braid
BC = Bare Copper
BCW = Bare Copperweld
TC = Tinned Copper

STR = Stranded
SCC = Silver Covered
SCCW = Silver Covered Copperweld
AF = Aluminum Foil & Drain Wire
BAF = Bonded Aluminum Foil & Drain
AB = Aluminum Braid

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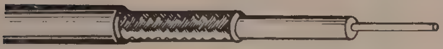
COAXIAL CABLES

Mini 8/U



Catalog Number	Jacket	Shield	Shield Coverage	PE Dielec-tric	Center Cond.	Nom. O.D.	Nom. Imp.	Nom. % of Vel. Prop.	Nom. Cap.	Nom. Attn. Per 100 ft. MHz	dB
C1107	JVC	1BC	Comm'l	FOAM	16(19/28)BC	.242	50	78	28	100	4.3
C1108	JVC	1BC	MIL	FPE	16(19/28)BC	.242	50	78	28	100	4.0

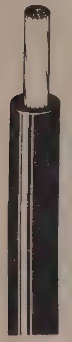
CONSTRUCTION CODE

MIL = Military
Comm'l = Commercial
PE = Polyethylene
FOAM = Foam Polyethylene
PVC = Polyvinyl Chloride
NVC = Non-Contaminating Vinyl
SPE = Semi-Solid Polyethylene
BRD = Braid

BC = Bare Copper
BCW = Bare Copperweld
TC = Tinned Copper
STR = Stranded
SCC = Silver Covered
SCCW = Silver Covered Copperweld
AF = Aluminum Foil & Drain Wire
BAF = Bonded Aluminum Foil & Drain
AB = Aluminum Braid

HOOK-UP AND LEAD WIRE

MIL-W-76B PVC TYPE MW UNCOVERED PVC UNSHIELDED



Stock Colors: See table below. **Construction:** Tinned copper (solid or extra flexible) conductor, color-coded **medium wall** PVC insulation. **Specifications:** −40°C to +80°C, 1000V. Resistant to acids, oil, alkalis, flame, moisture and fungus. **Applications:** Internal wiring of electronic and electrical equipment. **Put-Up:** 100′ and 1000′ spools. (Other put-ups also available.)

Stock Colors	Ordering Suffix	Stock Colors	Ordering Suffix
1 Brown	08	12 Pink	13
2 Red	03	13 Dark Blue	07
3 Orange	04	14 White/Black	31
4 Yellow	05	15 White/Red	33
5 Green	06	16 White/Green	36
6 Light Blue	16	17 White/Yellow	35
7 Violet (purple)	19	18 White/Blue	37
8 Gray (slate)	10	19 White/Brown	38
9 White	02	20 White/Orange	34
10 Black	01	21 White/Gray	40
11 Tan	88	22 White/Violet	39

Catalog Number	Type Designation	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Voltage Rating	Nom. O.D. (Inches)	Stock Colors
C7600	MW-C24(7)U	24	7/32	.016	1000V	.058	1-22
C7601	MW-C24(1)U	24	Solid	.016	1000V	.054	1-22
C7602	MW-C22(7)U	22	7/30	.016	1000V	.064	1-22
C7603	MW-C22(1)U	22	Solid	.016	1000V	.059	1-22
C7604	MW-C20(10)U	20	10/30	.016	1000V	.070	1-22
C7605	MW-C20(1)U	20	Solid	.016	1000V	.066	1-22
C7606	MW-C18(16)U	18	16/30	.016	1000V	.080	1-22
C7607	MW-C18(1)U	18	Solid	.016	1000V	.074	1-13
C7608	MW-C16(26)U	16	26/30	.016	1000V	.092	1-22
C7609	MW-C16(1)U	16	Solid	.016	1000V	.083	1-10
C7610	MW-C14(41)U	14	41/30	.016	1000V	.106	1-22
C7611	MW-C12(65)U	12	65/30	.016	1000V	.127	1-10

First color in stripe combination is body color. Second or third colors are stripes. Example: White/Black/Red. Other solid colors and striped combinations available to order.

MIL-W-16878 VINYL TYPE B UNCOVERED PVC UNSHIELDED

Stock Colors: See table **above. Construction:** Tinned copper conductor, color-coded **light wall** PVC insulation. **Specifications:** −50°C to +105°C, 600V. Resistant to acids, oil, alkalis, flame, moisture and fungus. **Applications:** Internal wiring of electronic and electrical equipment. **Put-up:** 100′ and 1000′ spools. (Other put-ups also available.)

SEE COLOR CODE ABOVE

Catalog Number	Type Desig.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Voltage Rating	Nom. O.D. (Inches)	Stock Colors
C7503	B-24	24	7/32	.010	600V	.044	1-10, 14-22
C7507	B-22	22	7/30	.010	6C0V	.050	1-10, 14-22
C7508	B-22	22	19/34	.010	600V	.052	9, 14-22
C7509	B-20	20	7/28	.010	600V	.058	1-10, 14-22
C7510	B-20	20	19/32	.010	600V	.060	9, 14-22
C7511	B-18	18	7/26	.010	600V	.068	1-10, 14-22
C7512	B-18	18	19/30	.010	600V	.070	9, 14-22
C7513	B-16	16	19/29	.010	600V	.077	1-10
C7514	B-14	14	19/27	.010	600V	.091	1-10

First color in stripe combination is body color. Second or third colors are stripes. Example: White/Black/Red. Other solid colors and striped combinations available to order.

The Carol Electronic Cables line includes a full range of COMPUTER CABLES. For technical data, ask for our new Computer Cable Catalog.

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Columbia Electronic Cables Division of Carol Cable Company, Inc. has warehouses and redistribution centers in New Bedford, Massachusetts; River Grove (Chicago), Illinois; and Los Angeles, California.

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HOT LINE: 800-556-7662

HOOK-UP AND LEAD WIRE

90°C 600V MTW/AWM 105°C 600V AMW LIGHT WALL

Stock Colors: See table below. **Construction:** Bare copper conductor color-coded PVC insulation. **Specifications:** Meets the requirements of NMTBA and is listed by Underwriters' Laboratories, Inc. (UL) as MTW. Also listed by Canadian Standards Associations (CSA) as AWM. UL type AWM: 105°C in air, 60°C in water, 60°C in oil — 600 volts. UL and NMTBA type MTW: 90°C in air, 60°C in water, 60°C in oil — 600V. **Labels:** UL file numbers E-57033 and E-18621 CSA file number 26256. **Applications:** 600V wire for appliance and machine wiring. **Put-up:** 500′ spools. (Other put-ups also available.)

Catalog Number	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Voltage Rating	Current Amperes* Condt. or Race.	Current Amperes* Cont. Encl.	Nom. O.D. (Inches)	Stock Colors
76502	18	16 x 30	2/64	600V	7	7	.110	1-10
76512	16	26 x 30	2/64	600V	10	10	.122	1-11
76812	14	19 strand	2/64	600V	15	20	.136	1-14
76822	12	19 strand	2/64	600V	20	25	.155	1-11
76832	10	19 strand	2/64	600V	30	40	.180	1-8
76843	8	19 strand	3/64	600V	40	55	.246	1-4

Stk. Col.	Ord. Suf.	Stk. Col.	Ord. Suf.	Stk Col.	Ord. Suf.	Stk. Col.	Ord. Suf.	Stk. Col.	Ord. Suf.
1 Black	01	4 Blue	07	7 Yellow	05	10 Gray	10	13 Tan	88
2 White	02	5 Green	06	8 Brown	08	11 Pink	13	14 Lt. Green	14
3 Red	03	6 Orange	04	9 Purple	19	12 Lt. Blue	16		

UL LISTED STYLE NO. 1007 CSA TR-64 UNSHIELDED

Stock Colors: See table below. **Construction:** Tinned copper conductor, color-coded PVC insulation. **Specifications:** −40°C to +80°C, 300V. Resistant to acids, oil, alkalis, flame, moisture and fungus. **Entire cable passes VW-1 Vertical Flame Test. Applications:** Internal wiring of electronic and electrical equipment. **Put-up:** 100′ and 1000′ spools. (Other put-ups also available.)

Stock Colors	Ordering Suffix	Stock Colors	Ordering Suffix
1 White	02	11 White/Black	31
2 Black	01	12 White/Red	33
3 Red	03	13 White/Green	36
4 Green	06	14 White/Yellow	35
5 Yellow	05	15 White/Blue	37
6 Light Blue	16	16 White/Brown	38
7 Brown	08	17 White/Orange	34
8 Orange	04	18 White/Gray	40
9 Gray (slate)	10	19 White/Violet	39
10 Violet(purple)	19		

Catalog Number	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Voltage Rating	Nom. O.D. (Inches)	Stock Colors
SOLID CONDUCTORS						
C2003	24	Solid	.016	300V	.054	1-10
C2004	22	Solid	.016	300V	.060	1-19
C2028	20	Solid	.016	300V	.066	1-19
C2052	18	Solid	.016	300V	.074	1-19
C2053	16	Solid	.016	300V	.085	1-19
STRANDED CONDUCTORS						
C2015	24	7/32	.016	300V	.058	1-19
C2016	22	7/30	.016	300V	.064	1-19
C2040	20	10/30	.016	300V	.072	1-19
C2064	18	16/30	.016	300V	.082	1-19
C2065	16	26/30	.016	300V	.094	1-19

First color in stripe combination is body color. Second or third colors are stripes. Example: White/Black/Red. Other solid colors and striped combinations available to order.

UL LISTED STYLE NO. 1015 CSA TYPE TEW UNSHIELDED

Stock Colors: See table below. **Construction:** Tinned copper conductor, color-coded PVC insulation. **Specifications:** −40°C to +105C°, 600V. Resistant to acids, oil, alkalies, flame, moisture and fungus. **Entire cable passes VW-1 Vertical Flame Test. Applications:** Internal wiring of electronic and electrical equipment. **Put-up:** 100′ and 1000′ spools. (Other put-ups also available.)

Stock Colors	Ordering Suffix	Stock Colors	Ordering Suffix
1 White	02	6 Light Blue	16
2 Black	01	7 Brown	08
3 Red	03	8 Orange	04
4 Green	06	9 Gray (slate)	10
5 Yellow	05	10 Violet(purple)	19

Catalog Number	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Voltage Rating	Nom. O.D. (Inches)	Stock Colors
SOLID CONDUCTORS						
C2117	22	Solid	.031	600V	.088	1-10
C2118	20	Solid	.031	600V	.094	1-10
C2119	18	Solid	.031	600V	.102	1-10
STRANDED CONDUCTORS						
C2100	24	7/32	.031	600V	.086	1-10
C2101	22	7/30	.031	600V	.092	1-10
C2102	20	10/30	.031	600V	.100	1-10
C2103	18	16/30	.031	600V	.110	1-10
C2104	16	26/30	.031	600V	.122	1-10
C2105	14	41/30	.031	600V	.136	1-10
C2106	12	65/30	.031	600V	.159	1-10
C2107	10	105/30	.031	600V	.183	1-10

Other solid colors and striped combinations available to special order.

UL LISTED STYLE NO. 1061 SEMI-RIGID UNSHIELDED

Stock Colors: See table below. **Construction:** Tinned copper conductor, color-coded semi-rigid PVC insulation. **Specifications:** −40°C to +80°C, 300V. Resistant to acids, oil, alkalis, flame, moisture and fungus. **Applications:** Internal wiring of computers and business machines. Semi-rigid insulation is formulated to resist deformation under load. **Put-Up:** 100′ and 1000′ spools. (Other put-ups also available.)

Stock Colors	Ordering Suffix	Stock Colors	Ordering Suffix
1 White	02	6 Light Blue	16
2 Black	01	7 Brown	08
3 Red	03	8 Orange	04
4 Green	06	9 Gray (slate)	10
5 Yellow	05	10 Violet(purple)	19

Catalog Number	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Voltage Rating	Nom. O.D. (Inches)	Stock Colors
SOLID CONDUCTORS						
C2114	24	Solid	.010	300V	.040	1-10
C2115	22	Solid	.010	300V	.046	1-10
C2116	20	Solid	.010	300V	.052	1-10
STRANDED CONDUCTORS						
C2110	24	7/32	.010	300V	.044	1-10
C2111	22	7/30	.010	300V	050	1-10
C2112	20	7/28	.010	300V	.058	1-10
C2120	18	16/30	.010	300V	.068	1-10
C2121	16	26/30	.010	300V	.080	1-10

CSA approval upon request. Consult factory for price and availability. 100,000 ft. minimum per color.

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HOOK-UP AND LEAD WIRE

TEST LEAD UNSHIELDED RUBBER INSULATION

Stock Color: Black or red. (Other colors available on special order.) **Construction:** Extra flexible stranded tinned soft annealed copper conductor, color-coded rubber insulation. **Specifications:** −20°C to +60°C. All breakdown voltages and suggested working voltages are AC RMS values. **Applications:** Test lead wire for use in multimeters, analyzers, oscillators, and other applications requiring extra flexible insulated wire. **Put-up:** 250′, 500′ and 1000′ spools.

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Break-down Voltage*	Sug. Working Voltage	Nominal O.D. (Inches)
C1326	1	20	41/36	.040	6,000V	1,500V	.125
C1319	1	20	41/36	.047	12,000V	3,000V	.140
C1321	1	18	65/36	.045	20,000V	5,000V	.140
C1327†	1	18	65/36	.045	20,000V	5,000V	.140
C1318	1	18	65/36	.088	29,000V	10,000V	.230

* For intermittent duty only.
† Manufactured per MIL-W-13169.

TEST LEAD UNSHIELDED FLEXLIFE® PVC INSULATION

Stock Colors	Ordering Suffix
1 Black	01
2 Red	03
3 Green	06

Stock Color: See table below. (Other colors available on special order.) **Construction:** Extra flexible stranded tinned soft annealed copper conductor, color-coded extra flexible, high gloss Flexlife® plastic insulation. For description of Flexlife®, see page **2**•2001. **Specifications:** −20°C to +60°C, 5000V. Insulation resistant to acids, oil, alkalis, flame, moisture and fungus. All breakdown voltages and suggested working voltages are AC RMS values. **Applications:** Test lead wire for use in multimeters, analyzers, oscillators, and other applications requiring extra flexible insulated wire. Flexlife plastic insulation is durable and has a high-gloss finish. **Put-up:** 250′ and 500′ spools.

Catalog Number	No. of Cond.	Cond. Size	Cond. Strand.	Nom. Insul. Thick. (Inches)	Break-down Voltage*	Sug. Working Voltage	Nom. O.D. (Inches)
C1320	1	18	65/36	.045	20,000V	5,000V	.140

* For intermittent duty only.
Other solid colors and striped combinations available to special order.

The Carol Electronic Cables line includes a full range of COMPUTER CABLES. For technical data, ask for our new Computer Cable Catalog.

Carol's engineering and manufacturing capabilities are ready to serve your special cable needs. Ask us to quote on your requirements — and to demonstrate how our plants can be turned around to meet your delivery needs.

Columbia Electronic Cables Division of Carol Cable Company, Inc. has warehouses and redistribution centers in New Bedford, Massachusetts; River Grove (Chicago), Illinois; and Los Angeles, California.

PORTABLE CORDAGE GENERAL WIRE AND CABLE

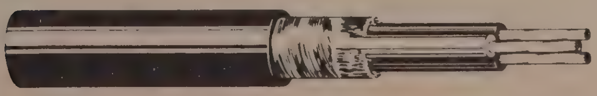
NEOPRENE JACKETED SERVICE CORD (SO)

Listed by Underwriters' Laboratories, Inc. and Canadian Standards Association

ALL SO, SJO AND SVO SERVICE CORDS SURFACE PRINTED FOR IDENTIFICATION

ALL SPOOLS AND COILS INDIVIDUALLY BOXED

(For description see next page)



Catalog Number	AWG Size	Ins. Thick.	Strand.	Nom. O.D.	Current Amps	Weight Lbs./M.′	†Put-up Spools	Std. Ctn.
HEAVY DUTY 600 VOLT OIL RESISTANT — TYPE SO BLACK								
02763	18/2	2/64	16/30	.375	10	92	250′	250′
02769	18/3	2/64	16/30	.390	10	104	250′	250′
02770	18/4	2/64	16/30	.420	7	120	250′	250′
02722	16/2	2/64	26/30	.400	13	96	250′	250′
02765	16/3	2/64	26/30	.420	13	124	250′	250′
02766	16/4	2/64	26/30	.450	10	156	250′	250′
02723*	14/2	3/64	41/30	.527	18	168	250′ coils	250′
02762*	14/3	3/64	41/30	.557	18	200	250′ coils	250′
02768*	14/4	3/64	41/30	.602	15	224	250′ coils	250′
02724*	12/2	3/64	65/30	.597	25	216	250′ coils	250′
02725*	12/3	3/64	65/30	.632	25	260	250′ coils	250′
02726*	12/4	3/64	65/30	.662	20	292	250′ coils	250′
02767*	10/2	3/64	105/30	.637	30	260	250′ coils	250′
02728*	10/3	3/64	105/30	.687	30	332	250′ coils	250′
02727*	10/4	3/64	105/30	.742	25	388	250′ coils	250′

CAROL

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HOT LINE: 800-556-7662

CAROL

PORTABLE CORDAGE GENERAL WIRE AND CABLE

SO, SJO, CSJO AND SVO

Copper: Bare soft annealed. Class K & Class M stranding per ASTM-B-174. **Insulation of Inner Conductor:** Synthetic Rubber (SBR) per ICEA Pub. No. S-19-81 (Latest Edition); N.E.M.A. Publication No. WC-3 (Latest Edition); and UL Subject 62, Class 3. **Temperature Range:** 60°C (140°F) to −37°C (−35°F). **Color Code Conductors:** 2 conductor — black, white; 3 conductor — black, white, green; 4 conductor — black, white, green, red. **Foundation:** Conductors twisted together with fillers to make a round core: separator over core. **Jacket:** Black Neoprene 60°C (140°F) to −37°C (−35°F) per ICEA Pub. No. S-19-81 (Latest Edition); N.E.M.A. Pub. No. WC-3 (Latest Edition); ASTM D-752; and UL Subject 62, Class 15. **Jacket Marking:** All sizes surface printed* showing gauge, number of conductors, and type. **Use:** For heavy (SO) and light (SJO) service such as tools, power extensions, motor and welding leads, portable machinery, floor polishers and sanders, battery chargers, portable stage lights, garage portable lights, sound equipment, washing machines, refrigerators, sewing machines, and other electrical equipment. Type SVO — For vacuum cleaners, home food mixers, office equipment, and other light duty requirements. **Environment:** For use in areas where exposed to oil, ozone, grease, chemicals or solvents. **Put-up:** As shown — long length reels also available. **Water Resistant Types SJT & ST:** CEC also offers water-resistant Thermoplastic jacketed cords manufactured to UL standards and so listed. Consult factory for prices and delivery.

HEAVY DUTY POWER CABLE
600 VOLT OIL RESISTANT — TYPE SO BLACK

01811*‡	8/2	.050	133/29	.700	40	332	250′ reels	250′
01812*‡	8/3	.050	133/29	.750	40	418	250′ reels	250′
01827*‡	8/4	.050	133/29	.820	35	564	250′ reels	250′
01826*‡	6/2	.060	133/27	.820	55	428	250′ reels	250′
01825*‡	6/3	.060	133/27	.885	55	588	250′ reels	250′
01824*‡	6/4	.060	133/27	.975	45	720	250′ reels	250′

STATIONARY SERVICE
300 VOLT OIL RESISTANT — TYPE SJO BLACK

01310	18/2	2/64	16/30	.300	10	56	250′	1000′
01311	18/3	2/64	16/30	.325	10	72	250′	250′
01344	18/4	2/64	16/30	.355	7	96	250′	250′
01312	16/2	2/64	26/30	.325	13	69	250′	1000′
01342	16/3	2/64	26/30	.350	13	92	250′	250′
01343	16/4	2/64	26/30	.385	10	116	250′	250′
01358	14/2	2/64	41/30	.355	18	92	250′	250′
01360	14/3	2/64	41/30	.385	18	112	250′	250′
01364	14/4	2/64	41/30	.415	15	136	250′	250′

CONSTANT SERVICE
300 VOLT OIL RESISTANT — TYPE C-SJO BLACK

01335	18/2	2/64	41/34	.300	10	56	250′	250′
01336	18/3	2/64	41/34	.325	10	72	250′	250′
01337	18/4	2/64	41/34	.355	7	92	250′	250′
01309	16/2	2/64	65/34	.325	13	68	250′	250′
01338	16/3	2/64	65/34	.350	13	95	250′	250′
01339	16/4	2/64	65/34	.385	10	120	250′	250′

300 VOLT OIL RESISTANT — TYPE SVO BLACK

13002	18/2	1/64	41/34	.245	10	41	250′	1000′
13003	18/3§	1/64	41/34	.255	10	50	250′	1000′

§ Two conductor cord with 3rd conductor for grounding only.
† Long length reels also available. Consult factory.
‡ Not UL listed but made to accepted commercial manufacturing standards.

* AWG sizes 14 through 6 may be indent marked P-123-MSHA to indicate flame resistance in compliance with the requirements of the Mine Safety and Health Administration.

S AND SJ
RUBBER JACKETED SERVICE CORD (SBR)

Listed by Underwriters' Laboratories, Inc.
and Canadian Standards Association

ALL S, SJ AND SV SERVICE CORDS SURFACE PRINTED FOR IDENTIFICATION

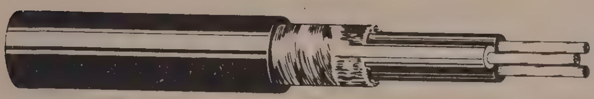
ALL SPOOLS AND COILS INDIVIDUALLY BOXED

Copper: Bare soft annealed. Class K and Class M stranding per ASTM-B-174. **Insulation:** Synthetic Rubber (SBR) per ICEA Pub. No. S-19-81 (Latest Edition); N.E.M.A. Pub. No. WC-3 (Latest Edition); and UL Subject, Class 3. **Temperature Range:** 60°C (140°F) to −37°C (−35°F). **Color Code Conductors:** 2 conductor — black, white. 3 conductor — black, white, green. 4 conductor — black, white, green, red. **Foundation:** Conductors twisted together with fillers to make a round core: separator over core. **Jacket:** Black Synthetic Rubber (SBR) 60°C (140°F) to −37°C (−35°F) per ICEA Pub. No. S-19-81 (Latest Edition); N.E.M.A. Pub. No. WC-3 (Latest Edition); and UL Subject 62, Class 6. **Jacket Marking:** All sizes surface printed showing gauge, number of conductors, and type. **Use:** For heavy (S) and light (SJ) service such as tools, power extensions, motor and welding leads, portable machinery, floor polishers and sanders, battery chargers, portable stage lights, garage portable lights, sound equipment, washing machines, refrigerators, sewing machines, and other electrical equipment. Type SV — For vacuum cleaners, home food mixers, office equipment, and other light duty requirements. **Environment:** Useful cord life is reduced where exposed to oil, ozone, grease, chemicals or solvents. Cords to be used in such environments are Neoprene SO or polyvinyl chloride STO. **Put-up:** As shown — long length reels also available.

Catalog Number	AWG Size	Ins. Thick.	Strand.	Nom. O.D.	Current Amps	Weight Lbs./M.′	†Put-up Spools	Std. Ctn.
HEAVY DUTY 600 VOLT — TYPE S BLACK								
02707	18/2	2/64	16/30	.375	10	81	250′	250′
02708	18/3	2/64	16/30	.390	10	94	250′	250′
02709	18/4	2/64	16/30	.420	7	128	250′	250′
02710	16/2	2/64	26/30	.400	13	96	250′	250′
02711	16/3	2/64	26/30	.420	13	108	250′	250′
02712	16/4	2/64	26/30	.450	10	152	250′	250′
02713	14/2	3/64	41/30	.527	18	148	250′ coils	250′
02714	14/3	3/64	41/30	.557	18	180	250′ coils	250′
02715	14/4	3/64	41/30	.602	15	208	250′ coils	250′
02716	12/2	3/64	65/30	.597	25	200	250′ coils	250′
02717	12/3	3/64	65/30	.632	25	236	250′ coils	250′
02718	12/4	3/64	65/30	.662	20	272	250′ coils	250′
02719	10/2	3/64	105/30	.637	30	260	250′ coils	250′
02720	10/3	3/64	105/30	.687	30	300	250′ coils	250′
02721	10/4	3/64	105/30	.742	25	360	250′ coils	250′
HEAVY DUTY POWER CABLE 600 VOLT — TYPE S BLACK								
01801‡	8/2	.050	133/29	.700	40	292	250′ reels	250′
01802‡	8/3	.050	133/29	.750	40	388	250′ reels	250′
01803‡	8/4	.050	133/29	.820	35	472	250′ reels	250′
01804‡	6/2	.060	133/27	.820	55	416	250′ reels	250′
01805‡	6/3	.060	133/27	.885	55	548	250′ reels	250′
01806‡	6/4	.060	133/27	.975	45	700	250′ reels	250′
STATIONARY SERVICE 300 VOLT — TYPE SJ BLACK								
01302	18/2	2/64	16/30	.300	10	54	250′	1000′
01303	18/3	2/64	16/30	.325	10	70	250′	250′
01304	18/4	2/64	16/30	.355	7	92	250′	250′
01305	16/2	2/64	26/30	.325	13	66	250′	1000′
01306	16/3	2/64	26/30	.350	13	89	250′	250′
01307	16/4	2/64	26/30	.385	10	112	250′	250′
01361	14/2	2/64	41/30	.355	18	87	250′	250′
01362	14/3	2/64	41/30	.385	18	106	250′	250′
01366	14/4	2/64	41/30	.415	15	144	250′	250′

PORTABLE CORDAGE GENERAL WIRE AND CABLE

CSJ AND SV



CONSTANT SERVICE
300 VOLT — TYPE CSJ BLACK

01301	18/2	2/64	41/34	.300	10	55	250′	250′
01308	18/3	2/64	41/34	.325	10	72	250′	250′
01352	18/4	2/64	41/34	.355	7	94	250′	250′
01349	16/2	2/64	65/34	.325	13	68	250′	250′
01350	16/3	2/64	65/34	.350	13	95	250′	250′
01351	16/4	2/64	65/34	.385	10	116	250′	250′

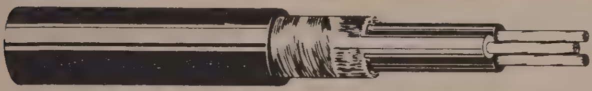
300 VOLT — TYPE SV BLACK AND GRAY

13532	18/2	1/64	41/34	.245	10	39	250′	1000′
13533	18/3§	1/64	41/34	.255	10	46	250′	1000′

† Long length reels also available. Consult factory.
‡ Not UL listed but made to accepted commercial manufacturing standards.
* Available in black only.
§ Two conductor cord with 3rd conductor for grounding only.

SVT AND SJT
THERMOPLASTIC JACKETED SERVICE CORD (PVC)

Copper: Bare soft drawn annealed, Class K and Class M stranding per ASTM-B-174. **Insulation:** Polyvinyl chloride, resistant to oils, water, acids, alkalis and ozone. 60°C — UL Class 11. Black, gray, and white SVT. **Temperature Range:** 60°C (140°F) to −20°C (−4°F). **Color Code Conductors:** 2 conductor — black, white. 3 conductor — black, white, green. **Foundation:** Conductors twisted together with fillers to make a round core: separator over core. **Jacket:** 60°C. Black, gray or white (SVT) or black (SJT) UL Class 11, non marking 60°C (140°F) to −20°C (−4°F) polyvinyl chloride, resistant to oil, water, acid, alkali, ozone and abrasion. Jacket meets specifications per ASTM-D-1047. SVT jacket ribbed to help cord remain clean.



Catalog Number	AWG Size	Ins. Thick.	Strand.	Nom. O.D.	Current Amps	Weight Lbs./M′	†Put-up Spools	Std. Ctn.
RIBBED JACKET 60°C 300 VOLT — TYPE SVT BLACK/GRAY/WHITE								
86002	18/2	1/64	41/34	.245	10	37	250′	1000′
86003	18/3§	1/64	41/34	.255	10	39	250′	1000′
SURFACE PRINTED 60°C 300 VOLT — TYPE SJT BLACK								
86012	18/2	2/64	16/30	.300	10	48	250′	1000′
86013	18/3	2/64	16/30	.325	10	68	250′	250′
86022	16/2	2/64	26/30	.325	13	64	250′	1000′
86033	16/3	2/64	26/30	.350	13	83	250′	250′

* Wire furnished with UL labels only. CSA labels available at nominal charge. Consult factory.
† Long length reels also available. Consult factory.
‡ UL listed only.
§ Two conductor with 3rd conductor for grounding only.

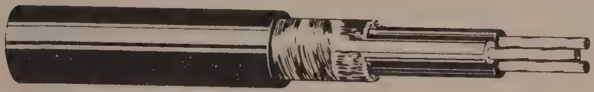
STO AND SJTO
THERMOPLASTIC JACKETED SERVICE CORD (PVC)

Listed by Underwriters' Laboratories, Inc.

ALL STO AND SJTO SERVICE CORDS INDENT PRINTED FOR IDENTIFICATION

ALL SPOOLS AND COILS INDIVIDUALLY BOXED

(See next page for description)



Catalog Number	AWG Size	Ins. Thick.	Strand.	Nom. O.D.	Current Amps	Weight Lbs./M.′	†Put-up Spools	Std. Ctn.
HEAVY DUTY 600 VOLT OIL RESISTANT — TYPE STO GRAY								
86712	18/2	2/64	16/30	.375	10	76	250′	250′
86713	18/3	2/64	16/30	.390	10	84	250′	250′
86714	18/4	2/64	16/30	.420	7	108	250′	250′
86722	16/2	2/64	26/30	.400	13	88	250′	250′
86723	16/3	2/64	26/30	.420	13	104	250′	250′
86724	16/4	2/64	26/30	.450	10	128	250′	250′
86732*	14/2	3/64	41/30	.527	18	142	250 coils′	250′
86733*	14/3	3/64	41/30	.557	18	163	250′ coils	250′
86734*	14/4	3/64	41/30	.602	15	216	250′ coils	250′
86742*	12/2	3/64	65/30	.597	25	200	250′ coils	250′
86743*	12/3	3/64	65/30	.632	25	232	250′ coils	250′
86744*	12/4	3/64	65/30	.662	20	276	250′ coils	250′
86752*	10/2	3/64	105/30	.637	30	236	250′ coils	250′
86753*	10/3	3/64	105/30	.687	30	284	250′ coils	250′
86754*	10/4	3/64	105/30	.742	25	344	250′ coils	250′
300 VOLT OIL RESISTANT — TYPE SJTO GRAY								
86212	18/2	2/64	16/30	.300	10	48	250′	1000′
86213	18/3	2/64	16/30	.325	10	68	250′	250′
86214	18/4	2/64	16/30	.355	7	78	250′	250′
86222	16/2	2/64	26/30	.325	13	64	250′	1000′
86223	16/3	2/64	26/30	.350	13	83	250′	250′
86224	16/4	2/64	26/30	.385	10	94	250′	250′
86232	14/2	2/64	41/30	.355	18	80	250′	250′
86233	14/3	2/64	41/30	.385	18	106	250′	250′
86234	14/4	2/64	41/30	.415	15	120	250′	250′

CAROL

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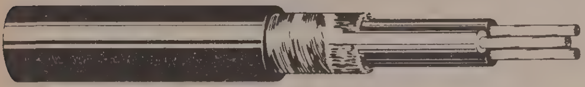
CAROL

PORTABLE CORDAGE GENERAL WIRE AND CABLE

STO AND SJTO



Copper: Bare soft drawn annealed, Class K stranding per ASTM-B-174. **Insulation:** Polyvinyl chloride, resistant to oils, water, acids, alkalis and ozone, per UL Subject 62, Class 11. **Temperature Range:** 60°C (140°F) to −20°C (−4°F). **Color Code Conductors:** 2 conductor — black, white. 3 conductor — black, white, green. 4 conductor — black, white, green, red. **Foundation:** Conductors twisted together with fillers to make a round core: separator over core. **Jacket:** Gray or yellow non-marking 60°C (140°F) to −20°C (−4°F) polyvinyl chloride, resistant to oil, water, acid, alkali, ozone, and abrasion — jacket meets specifications per ASTM-D-1047, and UL Subject 62, Class 11. **Jacket Marking:** All sizes indent printed showing gauge, number of conductors, and type. Gauges 14-12-10 only also indent printed P-123-MSHA to indicate flame resistance in compliance with the requirements of the Mine Safety and Health Administration. **Use:** For Heavy (STO) and Light (SJTO) service such as tools, motors, floor polishers and sanders, power extensions, battery chargers, portable stage lights, garage portable lights, sound equipment, washing machines and refrigerators. Useful cord life is reduced when exposed to temperature extremes. Cord to be used in such environments is Neoprene SO. **Environment:** Resistant to oils, water, acids, alkalis and ozone. **Put-up:** As shown — long length reels also available. **Water Resistant Types SJT & ST:** CEC also offers water-resistant Thermoplastic jacketed cords manufactured to UL standards and so listed. Consult factory for prices and delivery.

HEAVY DUTY 600 VOLT OIL RESISTANT — TYPE STO YELLOW

86662	18/2	2/64	16/30	.375	10	76	250′	250′
86663	18/3	2/64	16/30	.390	10	84	250′	250′
86664	18/4	2/64	16/30	.420	7	108	250′	250′
86672	16/2	2/64	26/30	.400	13	88	250′	250′
86673	16/3	2/64	26/30	.420	13	104	250′	250′
86674	16/4	2/64	26/30	.450	10	128	250′	250′
86682*	14/2	3/64	41/30	.527	18	142	250 coils′	250′
86683*	14/3	3/64	41/30	.557	18	163	250′ coils	250′
86684*	14/4	3/64	41/30	.602	15	216	250′ coils	250′
86692*	12/2	3/64	65/30	.597	25	200	250′ coils	250′
86693*	12/3	3/64	65/30	.632	25	232	250′ coils	250
86694*	12/4	3/64	65/30	.662	20	276	250′ coils	250′
86702*	10/2	3/64	105/30	.637	30	236	250′ coils	250′
86703*	10/3	3/64	105/30	.687	30	284	250′ coils	250′
86704*	10/4	3/64	105/30	.742	25	344	250′ coils	250′

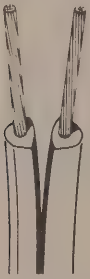
300 VOLT OIL RESISTANT — TYPE SJTO YELLOW

86162	18/2	2/64	16/30	.300	10	48	250′	250′
86163	18/3	2/64	16/30	.325	10	68	250′	250′
86164	18/4	2/64	16/30	.355	7	78	250′	250′
86172	16/2	2/64	26/30	.325	13	64	250′	250′
86173	16/3	2/64	26/30	.350	13	83	250′	250′
86174	16/4	2/64	26/30	.385	10	94	250′	250′
86182	14/2	2/64	41/30	.355	18	80	250′	250′
86183	14/3	2/64	41/30	.385	18	106	250′	250′
86184	14/4	2/64	41/30	.415	15	120	250′	250′

† Long length reels also available. Consult factory.

* Indent marked P-123-MSHA to indicate flame resistance in compliance with the requirements of Mine Safety and Health Administration.

TYPE SPT LAMP AND POWER CORD

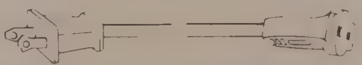


Plastic lamp cord with polarity ridge over one conductor. Rip type construction. UL Listed. For fans, lamps, radios, TV, stereo speakers, signs, etc. Specify Brown, White, Gray or Black.

Columbia No.	No. of Cond.	AWG (Strand.)	Type	Current Amps	Nom. O.D. (Inches)
02301	2	18 (41/34)	SPT-1	10	.105 x .205
02303	2	16 (65/34)	SPT-2	13	.155 x .296

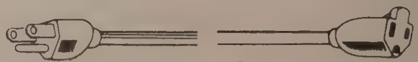
CORDSETS

HEAVY-DUTY VINYL EXTENSION CORDS



2 conductor — vinyl — **UL Listed** for indoor use with 2-wire double insulated equipment. Meets OSHA† requirements for indoor use with 2-wire double insulated equipment.

Catalog Number	Cord Type	Length	Color	Type Package	Rating
03011	18/2 SJT	10′	Orange	Cuff	10A-125V
03026	18/2 SJT	25′	Orange	Cuff	10A-125V
03051	18/2 SJT	25′	Orange	Sleeve	10A-125V
06108	16/2 SJT	8′	Gray	Sleeve	13A-125V
03118	16/2 SJT	10′	Orange	Cuff	13A-125V
03126	16/2 SJT	25′	Orange	Sleeve	13A-125V
03151	16/2 SJT	50′	Orange	Sleeve	13A-125V



3 conductor — vinyl — **UL Listed** — meets OSHA† requirements for outdoor and indoor use.

03226	18/3 SJTW-A	25′	Black	Cuff	10A-125V
03318	16/3 SJTW-A	10′	Orange	Sleeve	13A-125V
03327	16/3 SJTW-A	25′	Orange	Sleeve	13A-125V
03354	16/3 SJTW-A	50′	Orange	Sleeve	13A-125V
03302	16/3 SJTW-A	100′	Orange	Sleeve	10A-125V
03328	14/3 SJTW-A	25′	Orange	Sleeve	15A-125V
03356	14/3 SJTW-A	50′	Orange	Box	15A-125V
03304	14/3 SJTW-A	100′	Orange	Box	13A-125V
06853	12/3 SJTW-A	50′	Orange	Box	15A-125V
06801	12/3 SJTW-A	100′	Orange	Box	15A-125V

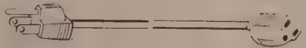
†Occupational Safety and Health Act.

CAROL CAROL CABLE COMPANY, INC., COLUMBIA ELECTRONIC CABLES DIVISION **CAROL**
DEPT. EM, 249 ROOSEVELT AVE., PAWTUCKET, RI 02862 / TEL: (401) 724-9605 / TELEX: 92-7750
LOS ANGELES, CA 90058 / PHONE: (213) 583-9825 / TELEX: 67-7417
HOT LINE: 800-556-7662

HEAVY-DUTY RUBBER EXTENSION CORDS

2 conductor — rubber — **UL Listed** for indoor use.

06010	18/2 SJ	10′	Black	Cuff	10A-125V
06015	18/2 SJ	15′	Black	Cuff	10A-125V
06025	18/2 SJ	25′	Black	Cuff	10A-125V
06050	18/2 SJ	50′	Black	Sleeve	10A-125V
06110	16/2 SJ	10′	Black	Sleeve	13A-125V
06125	16/2 SJ	25′	Black	Sleeve	13A-125V
06150	16/2 SJ	50′	Black	Sleeve	13A-125V
06100	16/2 SJ	100′	Black	Sleeve	10A-125V



3 conductor — rubber — **UL Listed** — meets OSHA† requirements for indoor use.

00288	18/3 SJ	10′	Black	Hanked	10A-125V
06515	18/3 SJ	15′	Black	Cuff	10A-125V
06525	18/3 SJ	25′	Black	Cuff	10A-125V
06610	16/3 SJ	10′	Black	Cuff	13A-125V
06625	16/3 SJ	25′	Black	Sleeve	13A-125V
06650	16/3 SJ	50′	Black	Sleeve	13A-125V
06600	16/3 SJ	100′	Black	Sleeve	10A-125V

Super Flex® FLAT PARALLEL EXTENSION CORDS Single outlet, UL listed

2 conductor — Orange — **UL Listed.**

03427	16/2 SPT	25′	Orange	Cuff	13A-125V
03452	16/2 SPT	50′	Orange	Sleeve	13A-125V
03402	16/2 SPT	100′	Orange	Sleeve	10A-125V

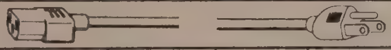
3 conductor — Orange — **UL Listed.**

Catalog Number	Cord Type	Length	Color	Type Package	Rating
03727	16/3 SPT	25′	Orange	Cuff	13A-125V
03752	16/3 SPT	50′	Orange	Sleeve	13A-125V
03703	16/3 SPT	100′	Orange	Sleeve	10A-125V
03826	14/3 SPT	25′	Orange	Sleeve	15A-125V
03851	14/3 SPT	50′	Orange	Sleeve	15A-125V
03801	14/3 SPT	100′	Orange	Sleeve	13A-125V
03926**	12/3 SPT	25′	Orange	Sleeve	15A-125V
03951**	12/3 SPT	50′	Orange	Sleeve	15A-125V
03901**	12/3 SPT	100	Orange	Sleeve	15A-125V

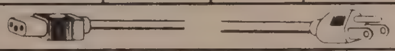
BUSINESS MACHINE CORD SETS

UL Listed, CSA Certified.

Catalog Number	Cord Type	Length	Color	Type Package	Rating



04507*	18/3 SVT	8′	Gray	Hanked	10A-125V
04510‡	18/3 SVT	8′	Gray	Hanked	10A-125V

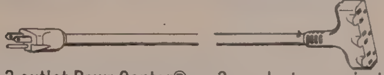


04509*	18/3 SVT	8′	Gray	Hanked	10A-125V
04511‡	18/3 SVT	8′	Gray	Hanked	10A-125V

* New Polarity as mandated by CSA Electrical Bulletin 895B and UL 817, Para. 54.8.

‡ This cord set is made with non-standard polarization and has a caution label applied to the cord stating this fact. "This cord is for replacement only and it is not intended for new original equipment."

HEAVY-DUTY OUTDOOR POWR-CENTERS® — with 3 grounded outlets — 3 conductor — UL listed



Heavy duty 3 outlet Powr-Center® — 3 conductor — vinyl — meets OSHA† requirements for outdoor and indoor use.

00591	14/3 ST	25′	Orange	1	Sleeve	15A-125V
00592	14/3 ST	50′	Orange	1	Box	15A-125V
00593	14/3 ST	100′	Orange	1	Box	13A-125V
00595	12/3 ST	25′	Orange	1	Box	15A-125V
00596	12/3 ST	50′	Orange	1	Box	15A-125V
00597	12/3 ST	100′	Orange	1	Box	15A-125V

UL Listed — Safety Orange® — heavy duty outdoor Powr-Center® adapter cord-set — **UL Listed** — Safety Orange.

00594	12/3 ST	2′	Orange	1	Sleeve	15A-125V

POWER SUPPLY CORDS, general purpose

Right angle cap, free end split 1¼″, stripped ⅝″, grounding conductor — **UL Listed** —

04103	16/3 SPT	3′	Gray	Bulk	13A-125V
04104	16/3 SPT	4′	Gray	Bulk	13A-125V
04105	16/3 SPT	5′	Gray	Bulk	13A-125V
04106	16/3 SPT	6′	Gray	Bulk	13A-125V
04108	16/3 SPT	8′	Gray	Bulk	13A-125V

2 CONDUCTOR POWER SUPPLY CORDS — Hanked

Outer jacket stripped 1½″, conductors stripped ⅝″ — **UL Listed** —

00252	18/2 SV	9′	Black	Hanked	10A-125V
00327	18/2 SVT	6′	Gray	Hanked	10A-125V
04516	18/2 SJ	6′	Black	Hanked	10A-125V
04549	18/2 SJT	9′	Gray	Hanked	10A-125V

3 CONDUCTOR POWER SUPPLY CORDS — Hanked

SV and SVT cords — outer jacket stripped 1½″, conductors stripped ⅝″.
SJ and SJT cords — outer jacket stripped 2″, conductors stripped ⅝″.
S cords — outer jacket stripped 2″, conductors stripped ¾″ — **UL Listed**
Meets OSHA† requirements.

00328	18/3 SV	6′	Black	Hanked	10A-125V
00329	18/3 SV	8′	Black	Hanked	10A-125V
00330	18/3 SVT	6′	Gray	Hanked	10A-125V
00331	18/3 SVT	8′	Gray	Hanked	10A-125V
04916	18/3 SJ	6′	Black	Hanked	10A-125V
00314	18/3 SJ	8′	Black	Hanked	10A-125V
04919	18/3 SJ	9′	Black	Hanked	10A-125V
00317	18/3 SJ	12′	Black	Hanked	10A-125V
04936	18/3 SJT	6′	Gray	Hanked	10A-125V
04939	18/3 SJT	9′	Gray	Hanked	10A-125V
04926	16/3 SJ	6′	Black	Hanked	13A-125V
00324	16/3 SJ	8′	Black	Hanked	13A-125V
04929	16/3 SJ	9′	Black	Hanked	13A-125V
04932	16/3 SJ	12′	Black	Hanked	13A-125V
04946	16/3 SJT	6′	Gray	Hanked	13A-125V

** Connector rated at 15A.

† Occupational Saftey and Health Act.

NEED MORE INFORMATION?

USE ONE OF THE NEW

EEMEDIATE ACTION CARDS

INSIDE THE BACK COVER OF
VOLUMES 1A, 1B & 2

SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
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AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?

Consolidated electronic wire & cable (312) 455-8830

MULTI-CONDUCTOR COMMUNICATIONS CABLE

pvc jacketed unshielded cable Ⓐ Ⓑ

Catalog No.	Gauge & Strands	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
22 gauge RU listed style 2335						
5400	**22** (7 x 30)	2	.010	.020	.140	1
5401	**22** (7 x 30)	3	.010	.020	.150	1
5406	**22** (7 x 30)	4	.010	.020	.160	1
5411	**22** (7 x 30)	5	.010	.020	.175	1
5416	**22** (7 x 30)	6	.010	.020	.200	1
5421	**22** (7 x 30)	7	.010	.020	.210	1
5426	**22** (7 x 30)	8	.010	.020	.215	1
5431	**22** (7 x 30)	9	.010	.020	.225	1
5432	**22** (7 x 30)	10	.010	.020	.235	1
5434	**22** (7 x 30)	12	.010	.020	.250	2
5438	**22** (7 x 30)	15	.010	.020	.268	2
5440	**22** (7 x 30)	20	.010	.025	.300	2
5442	**22** (7 x 30)	25	.010	.035	.350	2
5446	**22** (7 x 30)	30	.010	.035	.375	2
5448	**22** (7 x 30)	40	.010	.035	.435	2
5450	**22** (7 x 30)	50	.010	.045	.500	2
5460	**22** (7 x 30)	60	.010	.045	.530	2
20 gauge RU listed style 2095						
5640	**20** (10 x 30)	2	.015	.025	.180	2
5641	**20** (10 x 30)	3	.015	.025	.190	1
5642	**20** (10 x 30)	4	.015	.025	.190	1
5643	**20** (10 x 30)	5	.015	.025	.222	1
5644	**20** (10 x 30)	7	.015	.025	.240	1
5645	**20** (10 x 30)	9	.015	.030	.300	1
5646	**20** (10 x 30)	12	.015	.030	.320	1
18 gauge RU listed style 2464						
5468	**18** (16 x 30)	3	.018	.030	.240	1
5470	**18** (16 x 30)	4	.018	.032	.265	1
5471	**18** (16 x 30)	5	.018	.037	.295	1
5472	**18** (16 x 30)	7	.018	.037	.324	1
5473	**18** (16 x 30)	9	.018	.037	.379	1
5474	**18** (16 x 30)	12	.018	.040	.412	2
5475	**18** (16 x 30)	15	.018	.045	.465	2
5476	**18** (16 x 30)	19	.018	.045	.505	2
5477	**18** (16 x 30)	25	.018	.060	.600	2
16 gauge RU listed style 2463						
5466	**16** (19 x 29)	3	.030	.045	.360	2
5480	**16** (19 x 29)	4	.030	.045	.375	2
5488	**16** (19 x 29)	5	.030	.045	.405	2
5481	**16** (19 x 29)	7	.030	.045	.455	2
5489	**16** (19 x 29)	9	.030	.045	.510	2
5482	**16** (19 x 29)	12	.030	.060	.600	2
5483	**16** (19 x 29)	15	.030	.060	.650	2
5484	**16** (19 x 29)	19	.030	.065	.715	2
5490	**16** (19 x 29)	25	.030	.065	.820	2
14 gauge RU listed style 2463						
5464	**14** (19 x 27)	3	.045	.045	.465	2
5485	**14** (19 x 27)	4	.045	.045	.495	2
5491	**14** (19 x 27)	5	.045	.060	.560	2
5486	**14** (19 x 27)	7	.045	.060	.630	2
5492	**14** (19 x 27)	9	.045	.065	.750	2
5487	**14** (19 x 27)	12	.045	.065	.770	2
5493	**14** (19 x 27)	15	.045	.080	.900	2

†See color code chart on page 2•2075

PVC JACKETED UNSHIELDED CABLE

Construction

- Stranded tinned copper conductors
- Color coded polyvinylchloride insulation
- Conductors cabled
- Gray polyvinylchloride outer jacket

Characteristics

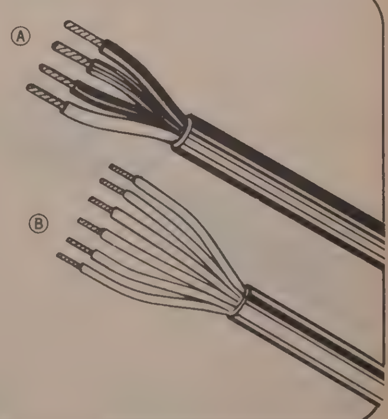
Temperature: —20 °to + 80 °C (UL + 80 °C)

Voltage Rating:

UL 2335	200 Volts	22AWG
UL 2095	300 Volts	20AWG
UL 2464	300 Volts	18AWG
UL 2463	600 Volts	16AWG
UL 2463	600 Volts	14AWG

Applications

- Control Systems & Networks
- Audio & Intercom
- Sound Systems
- Equipment Interconnect



(312) 445-8830 **Consolidated** electronic wire & cable

MULTI-CONDUCTOR COMMUNICATIONS CABLE

TRAY CABLES TYPE TC(CTB) (THWN/THHN/TFFN CONDUCTORS)

Construction

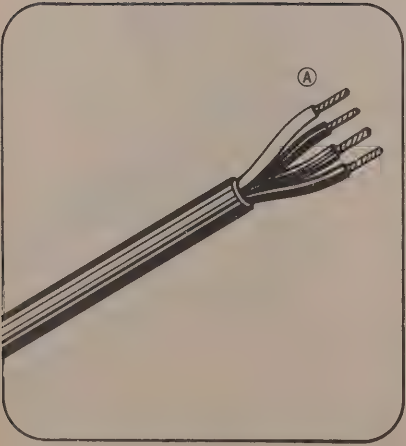
- Stranded bare copper conductors
- Color coded polyvinylchloride insulation with nylon jacket over each conductor
- Conductors cabled
- Fillers where necessary
- Overall polyester tape
- Black flame-retardant polyvinylchloride outer jacket

Characteristics

- Temperature Range: −20°C to +90°C
- Tray Cable Type CTB THHN THWN (TFFN)
- Working Voltage: 600 Volts
- UL Standard 83 (62)
- UL Standard 1277
- NEC Articles 310, 318, 340
- Resists abrasion, oil, chemicals and highly flame retardant

Applications

- Industrial Power
- Control Circuits

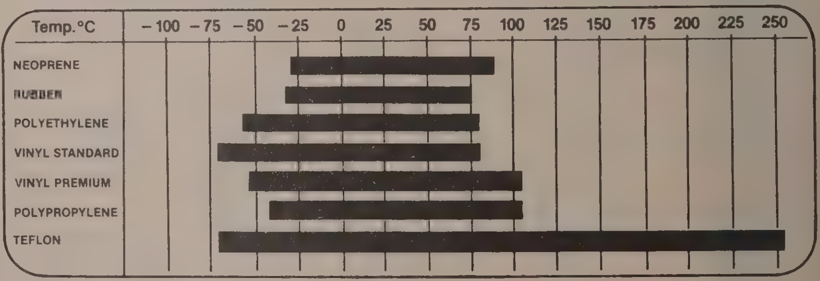


power and control cable UL listed Ⓐ

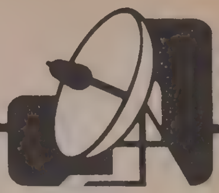
Catalog No.	Gauge and Strand	No. Cond.	Nom. O.D.	Catalog No.	Gauge and Strand	No. Cond.	Nom. O.D.
16 gauge				**12 gauge**			
7502	**16** (26 x 30)	2	.200 x .310	**7702**	**12** (19 x 25)	2	.252 x .404
7503	**16** (26 x 30)	3	.315	**7703**	**12** (19 x 25)	3	.385
7504	**16** (26 x 39)	4	.340	**7704**	**12** (19 x 25)	4	.420
7505	**16** (26 x 30)	5	.370	**7705**	**12** (19 x 25)	5	.460
7507	**16** (26 x 30)	7	.400	**7707**	**12** (19 x 25)	7	.500
7509	**16** (26 x 30)	9	.460	**7709**	**12** (19 x 25)	9	.615
7510	**16** (26 x 30)	10	.500	**7712**	**12** (19 x 25)	12	.685
7512	**16** (26 x 30)	12	.515	**7716**	**12** (19 x 25)	16	.760
7514	**16** (26 x 30)	14	.575	**7719**	**12** (19 x 25)	19	.943
7516	**16** (26 x 30)	16	.605	**7726**	**12** (19 x 25)	26	1.000
7519	**16** (26 x 30)	19	.635	**7730**	**12** (19 x 25)	30	1.030
7526	**16** (26 x 30)	26	.735	**7737**	**12** (19 x 25)	37	1.110
7530	**16** (26 x 30)	30	.775				
7537	**16** (26 x 30)	37	.880				
14 gauge				**10 gauge**			
7602	**14** (19 x 27)	2	.233 x .366	**7802**	**10** (19 × 23)	2	.270 x .450
7603	**14** (19 x 27)	3	.345	**7803**	**10** (19 × 23)	3	.460
7604	**14** (19 x 27)	4	.375	**7804**	**10** (19 × 23)	4	.505
7605	**14** (19 x 27)	5	.410	**7805**	**10** (19 × 23)	5	.585
7607	**14** (19 x 27)	7	.445	**7807**	**10** (19 × 23)	7	.635
7609	**14** (19 x 27)	9	.515	**7809**	**10** (19 × 23)	9	.740
7612	**14** (19 x 27)	12	.610	**7812**	**10** (19 × 23)	12	.875
7615	**14** (19 x 27)	16	.680				
7619	**14** (19 x 27)	19	.710	Also available in heavier gauges. Consult factory.			
7626	**14** (19 x 27)	26	.825				
7630	**14** (19 x 27)	30	1.110				

†See color code chart 8 on page **2•2075**

insulation temperature operating ranges—nominal



Consolidated
electronic wire & cable (312) 455-8830



MULTI-CONDUCTOR COMMUNICATIONS CABLE

pvc jacketed unshielded paired cable Ⓐ

Catalog No.	Gauge & Strands	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
22 gauge stranded UL listed style 2508						
5151	22 (7 x 30)	1	.010	.020	.140	3
5152	22 (7 x 30)	2	.010	.020	.210	3
5153	22 (7 x 30)	3	.010	.020	.230	3
5155	22 (7 x 30)	5	.010	.020	.280	3
5156	22 (7 x 30)	6	.010	.020	.290	3
5159	22 (7 x 30)	9	.010	.020	.345	3
5161	22 (7 x 30)	11	.010	.025	.370	3
5165	22 (7 x 30)	15	.010	.030	.460	3
5164	22 (7 x 30)	19	.010	.030	.485	3
5167	22 (7 x 30)	27	.010	.035	.560	3
5171	22 (7 x 30)	31	.010	.040	.595	3
5181	22 (7 x 30)	41	.010	.040	.665	3
5191	22 (7 x 30)	51	.010	.045	.740	3
22 gauge solid UL listed style 2508						
5201	22 (solid)	1	.010	.020	.140	3
5205	22 (solid)	2	.010	.020	.210	3
5211	22 (solid)	3	.010	.020	.230	3
5221	22 (solid)	5	.010	.020	.280	3
5226	22 (solid)	6	.010	.020	.290	3
5231	22 (solid)	7	.010	.020	.300	3
5241	22 (solid)	9	.010	.025	.345	3
5251	22 (solid)	11	.010	.025	.370	3
5271	22 (solid)	15	.010	.030	.415	3
5286	22 (solid)	27	.010	.035	.535	3
5289	22 (solid)	31	.010	.040	.595	3
5292	22 (solid)	41	.010	.040	.665	3
5297	22 (solid)	51	.010	.045	.740	3
18 gauge stranded UL listed style 2095						
5601	18 (16 x 30)	1	.016	.020	.200	2
5603	18 (16 x 30)	3	.016	.035	.362	3
5606	18 (16 x 30)	6	.016	.045	.495	3
5609	18 (16 x 30)	9	.016	.055	.595	3
5612	18 (16 x 30)	12	.016	.055	.650	3
5615	18 (16 x 30)	15	.016	.060	.715	3
5619	18 (16 x 30)	19	.016	.070	.785	3
5627	18 (16 x 30)	27	.016	.070	.930	3

†See color code chart on page 2•2075

PVC JACKETED UNSHIELDED CABLE

Construction

- Solid or stranded tinned copper conductors
- Color coded polyvinylchloride insulation
- Conductors twisted into pairs
- Gray polyvinylchloride outer jacket

Characteristics

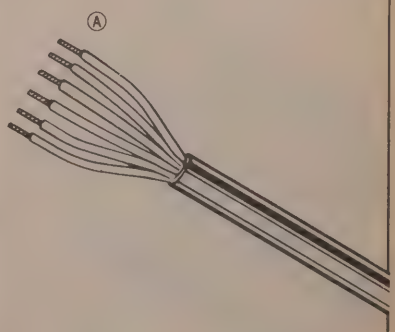
Temperature: —20 °to + 80 °C (UL +80 °C)

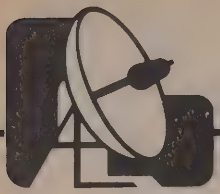
Voltage Rating:

UL 2508	300 Volts	22AWG
UL 2095	300 Volts	18AWG

Applications

- Control Systems
- Audio & Intercom Systems
- Sound Systems
- Equipment Interconnect





(312) 455-8830 **Consolidated** electronic wire & cable

MULTI-CONDUCTOR COMMUNICATIONS CABLE

Construction

- Solid or stranded tinned or bare copper conductors Color coded polyvinylchloride insulation
- Conductors twisted into pairs where applicable
- Gray polyvinylchloride outer jacket where applicable

Characteristics

- Temperature Range: −20°C to +80°C (UL +80°C)

Voltage Rating:

UL 1007	300V	UL 2508	300V
UL 2092	300V	UL 2463	600V
UL 2095	300V	UL 2464	300V
UL 2335	150V		

Applications

- Alarm Controls
- Intercom
- Audio
- Sound Systems

pvc jacketed unshielded paired cable UL style 2095 Ⓐ

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code
5601	18 (16 x 30) Tin	1	.016	.020	.200	2
5603	18 (16 x 30) Tin	3	.016	.035	.362	3
5606	18 (16 x 30) Tin	6	.016	.045	.495	3
5609	18 (16 x 30) Tin	9	.016	.055	.595	3
5612	18 (16 x 30) Tin	12	.016	.055	.650	3
5615	18 (16 x 30) Tin	15	.016	.060	.715	3
5619	18 (16 x 30) Tin	19	.016	.070	.785	3
5627	18 (16 x 30) Tin	27	.016	.070	.930	3

pvc jacketed two conductor unshielded cable UL listed Ⓑ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Color Chart Code	U.L.
5557	19 (solid) Bare	2	.015	.025	.182	300	Brown, Tan	—
5579	22 (7 x 30) Tin	2	.012	.020	.155	150	Black, Red	2335
5580	20 (10 x 30) Tin	2	.015	.025	.190	300	Black, White	2508
5581	18 (16 x 30) Tin	2	.015	.030	.220	300	Black, White	2092
5582	16 (26 x 30) Tin	2	.015	.020	.240	300	Black, White	2508
5583	14 (19 x 27) Tin	2	.020	.035	.310	400	Black, White	2508
5597	12 (19 x 25) Tin	2	.030	.040	.385	600	Black, White	2463

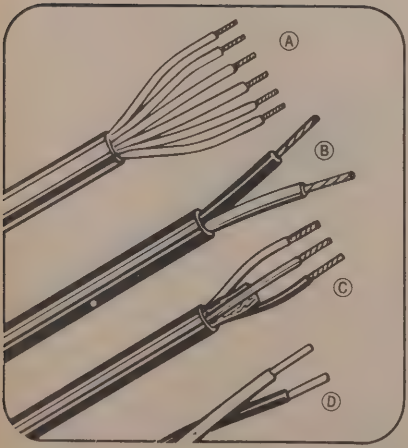
pvc unjacketed cable UL style 1007 Ⓓ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Wall O.A.	Color Chart Code
5584	22 (solid) Tin	2	.015	.115	Brown, Tan
5585	18 (16 x 30) Tin	2	.018	.175	Black, White
5586	16 (26 x 30) Tin	2	.020	.200	Black, White
5556	19 (solid) Bare	2	.015	.115	Brown, Tan
5561	19 (solid) Tin	3	.015	.132	Brown, Tan, Grey

pvc jacketed three conductor unshielded cable UL listed ©

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Color Chart Code	U.L.
5401	22 (7 x 30) Tin	3	.010	.020	.140	150	1	2335
5641	20 (10 x 30) Tin	3	.015	.025	.180	300	1	2095
5468	18 (16 x 30) Tin	3	.018	.030	.240	400	1	2464
5466	16 (26 x 30) Tin	3	.030	.045	.360	600	2	2463
5464	14 (19 x 27) Tin	3	.030	.045	.395	600	2	2463

†See color code chart on page 2•2075



Consolidated
electronic wire & cable

(312) 455-8830

MULTI-CONDUCTOR COMMUNICATIONS CABLE

pvc jacketed shielded single conductor cable ЯU listed Ⓐ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap pF/Ft	Shield Type	U.L.
1720	**25** (7 x 33)	P.E.	030	.020	.135	400	19	Spiral	1150
1721	**24** (7 x 32)	P.E.	.032	.025	.140	400	29	Spiral	1150
1461	**22** (16 x 34)	P.E.	.028	.020	.130	400	36	Spiral	1107
1457	**22** (16 x 34)	P.E.	.050	.020	.185	600	25	Spiral	1150
5551	**22** (16 x 34)	P.E.	.028	.020	.130	400	36	Spiral	1107
1459	**20** (26 x 34)	P.E.	.023	.032	.175	400	40	Braid	1546
5160	**13** (45 x 30)	P.E.	.020	.038	.305	400	—	Spiral	—

rubber jacketed shielded single conductor cable Ⓐ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap pF/Ft	Shield Type	U.L.
1460	**20** (26 x 34)	Rubber	.047	.043	.240	600	33	Braid	—

neoprene jacketed shielded single conductor cable Ⓐ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap pF/Ft	Shield Type	U.L.
1701	**18** (41 x 34)	Rubber	.040	.035	.235	600	55	Braid	—
1700	**20** (26 x 34)	Rubber	.040	.045	.230	600	45	Spiral	—

pvc jacketed mylar/aluminum shielded two conductor cable ЯU listed Ⓑ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap. pF/Ft	Color Code	Shield Type	U.L.
5593	**24** (7 x 32)	P.E.	.010	.020	.150	200	30	Blk, Wht	Al. Mylar	2552
***5570**	**22** (7 x 30)	P.E.	.010	.016	.135	200	34	Blk, Red	Al. Mylar	2552
5588	**22** (solid)	P.E.	.010	.016	.125	200	34	Blk, Red	Al. Mylar	2552
5572	**22** (7 x 30)	P.E.	.015	.025	.170	300	30	Blk, Red	Al. Mylar	2552
5573	**20** (10 x 30)	P.E.	.015	.025	.200	300	27	Blk, Wht	Al. Mylar	2548
5574	**18** (16 x 30)	P.E.	.018	.028	.225	300	27	Blk, Wht	Al. Mylar	2092
5575	**16** (26 x 30)	P.E.	.018	.020	.250	300	32	Blk, Wht	Al. Mylar	2092
5589	**14** (41 x 30)	P.E.	.032	.035	.340	600	24	Blk, Wht	Al. Mylar	2106
5596	**12** (19 x 25)	P.E.	.027	.040	.400	600	35	Blk, Wht	Al. Mylar	2106

*Available in black or gray outer jacket, specify when ordering.

pvc jacketed spiral serve shielded two conductor cable ЯU listed Ⓒ Ⓓ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap. pF/Ft	Color Code	Shield Type	U.L.
5587	**24** (7 x 32)	P.E.	.018	.020	.130x.260	300	35	Red, Wht	Spiral	2629
1458	**22** (16 x 34)	P.E.	.023	.023	.225	400	32	Blk, Clr	Spiral	2092
5511	**22** (solid)	PVC	.015	.020	.170	300	38	Blk, Red	Spiral	2095
5568	**22** (7 x 30)	PVC	.012	.020	.160	300	40	Blk, Red	Spiral	2552
5543	**20** (10 x 30)	PVC	.012	.020	.180	300	47	Blk, Red	Spiral	2552
5538	**18** (16 x 30)	PVC	.012	.020	.205	300	53	Red, Wht	Spiral	2552

Capacitance per foot is between conductors.

SHIELDED CABLES

Construction

- Solid or stranded tinned copper conductors
- Color coded polyethylene (PE), polyvinylchloride (PVC), or rubber insulation
- Conductors cabled
- Shield Types:
  (A) Braided Tin Copper
  (B) Spiral Tin Copper Serve
  (C) Mylar Aluminum Foil Wrap and Tin Copper Drain
- Outer Jacket Types:
  (A) Gray PVC
  (B) Black Neoprene
  (C) Black Rubber

Characteristics

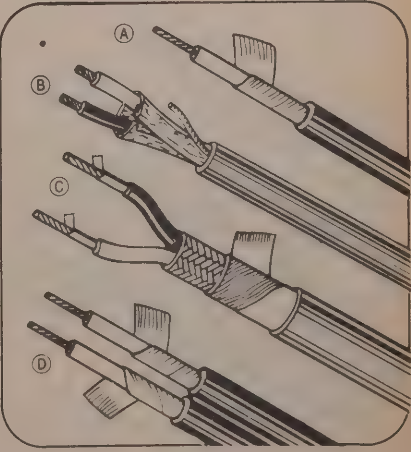
- Temperature Range: −20°C to +80°C (UL +80°C)

Voltage Rating:

UL 1107	400V	UL 2106	600V
UL 1150	600V	UL 2548	300V
UL 1546	400V	UL 2552	300V
UL 2092	300V	UL 2629	300V
UL 2095	300V		

Applications

- Audio
- Broadcast/Studio
- Instrumentation
- Sound



(312) 455-8830 **Consolidated** electronic wire & cable

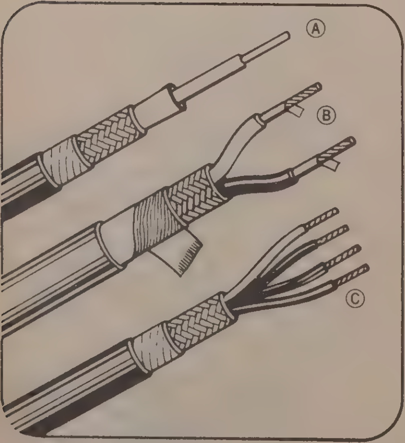
MULTI-CONDUCTOR COMMUNICATIONS CABLE

Construction
- Stranded tinned copper conductors
- Color coded polyethylene (PE), PVC, or rubber insulation
- Conductors cabled
- Shield Types:
  - (A) Braided Tin Copper
  - (B) Spiral Tin Copper
  - (C) Mylar Aluminum foil and Stranded Tin Copper Drain
- Outer Jacket Types:
  - (A) Gray Polyvinylchloride (PVC) Jacket
  - (B) Black Neoprene Jacket
  - (C) Black Rubber Jacket

Characteristics
Temperature Range:
−20°C to +80°C (UL to 60°C)

Voltage Rating:
UL 1107 400V UL 2095 300V
UL 2725 300V UL 1150 600V
UL 1546 400V

Applications
- Audio
- Broadcast/Studio
- Instrumentation
- Sound



shielded single conductor cable RU listed Ⓐ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap pF/Ft	Shield Type	U.L.
PVC jacketed									
1720	**25** (7 x 33)	P.E.	.030	.020	.135	400	19	Spiral	1150
1721	**24** (7 x 32)	P.E.	.032	.025	.140	400	29	Spiral	1150
1461	**22** (16 x 34)	P.E.	.028	.020	.130	400	36	Spiral	1107
1457	**22** (16 x 34)	P.E.	.050	.020	.185	600	25	Spiral	1150
5551	**22** (16 x 34)	P.E.	.028	.020	.130	400	36	Spiral	1107
1459	**20** (26 x 34)	P.E.	.023	.032	.175	400	40	Braid	1546
5160	**13** (45 x 30)	P.E.	.020	.038	.305	400	—	Spiral	—
rubber jacketed									
1460	**20** (26 x 34)	Rubber	.047	.043	.240	600	33	Braid	—
neoprene jacketed									
1701	**18** (41 x 34)	Rubber	.040	.035	.235	600	55	Braid	—
1700	**20** (26 x 34)	Rubber	.040	.045	.230	600	45	Spiral	—

braid-shielded two conductor cable RU listed Ⓑ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap. pF/Ft	Color Code	Shield Type	U.L.
PVC jacketed										
1722	**20** (26 x 34)	P.E.	.015	.020	.230	300	32	Blk, Clr	Braid	2725
5541	**18** (16 x 30)	PVC	.015	.020	.260	300	53	Red, Wht	Braid	2095
rubber jacketed										
1462	**20** (26 x 34)	Rubber	.022	.043	.268	300	30	Blk, Wht	Braid	—
1456	**18** (41 x 34)	Rubber	.022	.035	.295	400	80	Blk, Wht	Braid	—
neoprene jacketed										
1702	**18** (41 x 34)	Rubber	.022	.035	.295	600	35	Blk, Wht	Braid	—
1705	**16** (65 x 34)	Rubber	.025	.035	.320	600	35	Blk, Wht	Braid	—
1714	**14** (41 x 30)	Rubber	.032	.040	.395	600	30	Blk, Wht	Braid	—
1717	**12** (65 x 30)	Rubber	.032	.040	.440	600	30	Blk, Wht	Braid	—

shielded four conductor cable RU listed Ⓒ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap. pF/Ft	Color Chart Code†	Shield Type	U.L.
PVC jacketed										
1724	**20** (26 x 34)	P.E.	.015	.020	.240	400	45	4	Braid	2725
5801	**24** (7 x 32)	PVC	.010	.035	.180	300	30	4	Mylar Al.	2324
rubber jacketed										
1464	**20** (20 x 34)	Rubber	.022	.040	.295	600	35	4	Braid	—
neoprene jacketed										
1704	**18** (41 x 34)	Rubber	.022	.035	.330	600	35	4	Braid	—
1707	**16** (65 x 34)	Rubber	.025	.035	.355	600	35	4	Braid	—
1716	**14** (41 x 30)	Rubber	.032	.040	.450	600	30	4	Braid	—
1719	**12** (65 x 30)	Rubber	.032	.040	.500	600	30	4	Braid	—

neoprene jacketed spiral serve shielded two conductor cable Ⓑ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap. pF/Ft	Color Code	Shield Type	U.L.
1739	**22** (16 x 34)	Rubber	.020	.040	.260	600	35	Blk, Wht	Spiral	—

†See color code chart on page 2•2075

Consolidated electronic wire & cable (312) 455-8830

MULTI-CONDUCTOR COMMUNICATIONS CABLE

pvc jacketed mylar aluminum shielded two conductor cable ЯU listed Ⓐ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap. pF/Ft	Color Code	Shield Type	U.L.
5593	24 (7 x 32)	P.E.	.010	.020	.150	200	30	Blk, Wht	Mylar Al.	2552
*5570	22 (7 x 30)	P.E.	.010	.016	.135	200	34	Blk, Red	Mylar Al.	2552
5588	22 (solid)	P.E.	.010	.016	.125	200	34	Blk, Red	Mylar Al.	2552
5572	22 (7 x 30)	P.E.	.015	.025	.170	300	30	Blk, Red	Mylar Al.	2552
5573	20 (10 x 30)	P.E.	.015	.025	.200	300	27	Blk, Wht	Mylar Al.	2548
5574	18 (16 x 30)	P.E.	.018	.028	.225	300	27	Blk, Wht	Mylar Al.	2092
5575	16 (26 x 30)	P.E.	.018	.020	.250	300	32	Blk, Wht	Mylar Al.	2092
5589	14 (41 x 30)	P.E.	.032	.035	.340	600	24	Blk, Wht	Mylar Al.	2106
5596	12 (19 x 25)	P.E.	.027	.040	.400	600	35	Blk, Wht	Mylar Al.	2106

*Available in black or gray outer jacket, specify when ordering.

pvc jacketed spiral serve shielded two conductor cable ЯU listed Ⓑ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap. pF/Ft	Color Code	Shield Type	U.L.
5587	24 (7 x 32)	P.E.	.018	.020	.130x.260	300	35	Red, Wht	Spiral	2629
1458	22 (16 x 34)	P.E.	.023	.023	.225	400	32	Blk, Clr	Spiral	2092
5511	22 (solid)	PVC	.011	.020	.170	300	38	Blk, Red	Spiral	2095
5568	22 (7 x 30)	PVC	.012	.020	.160	300	40	Blk, Red	Spiral	2552
5543	20 (10 x 30)	PVC	.012	.020	.180	300	47	Blk, Red	Spiral	2552
5538	18 (16 x 30)	PVC	.012	.020	.205	300	53	Red, Wht	Spiral	2552

pvc jacketed mylar-aluminum shielded three conductor cable ЯU listed ©

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap. pF/Ft	Color Code	Shield Type	U.L.
5576	22 (7 x 30)	P.E.	.016	.025	.190	350	23	Blk, Wht, Red	Mylar Al.	2093
5577	20 (10 x 30)	P.E.	.016	.028	.210	450	27	Blk, Wht, Red	Mylar Al.	2093
5578	18 (16 x 30)	P.E.	.018	.028	.240	450	24	Blk, Wht, Red	Mylar Al.	2093
5590	16 (26 x 30)	P.E.	.018	.030	.260	450	29	Blk, Wht, Red	Mylar Al.	2093
5591	14 (41 x 30)	P.E.	.018	.035	.300	450	36	Blk, Wht, Red	Mylar Al.	2093

pvc jacketed tin copper shielded three conductor cable ЯU listed Ⓓ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap. pF/Ft	Color Code	Shield Type	U.L.
1723	20 (26 x 34)	P.E.	.015	.020	.220	350	45	Blk, Wht, Red	Braid	2725
5569	22 (7 x 30)	P.E.	.015	.025	.195	350	35	Blk, Wht, Red	Spiral	2096

neoprene jacketed braid shielded three conductor cable Ⓓ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Cap. pF/Ft	Color Code	Shield Type	U.L.
1463*	20 (26 x 34)	Rubber	.020	.035	.277	450	46	Blk, Wht, Red	Braid	—
1703	18 (41 x 30)	Rubber	.020	.035	.305	450	35	Blk, Wht, Red	Braid	—
1706	16 (65 x 34)	Rubber	.025	.035	.340	450	35	Blk, Wht, Red	Braid	—
1715	14 (41 x 30)	Rubber	.030	.040	.425	600	30	Blk, Wht, Red	Braid	—
1718	12 (65 x 30)	Rubber	.030	.040	.465	600	30	Blk, Wht, Red	Braid	—

* rubber outer jacket

SHIELDED CABLES

Construction

- Stranded or solid tinned copper conductors
- Color coded polyethylene, polypropylene, polyvinylchloride, or rubber insulation
- Conductors cabled
- Shield Types:
  (A) Braided Tin Copper
  (B) Special Tin Copper
  (C) Mylar Aluminum Foil Shield Wrap and Tin Copper Drain
- Outer Jacket Types:
  (A) Gray PVC
  (B) Black Neoprene
  (C) Black Rubber

Characteristics

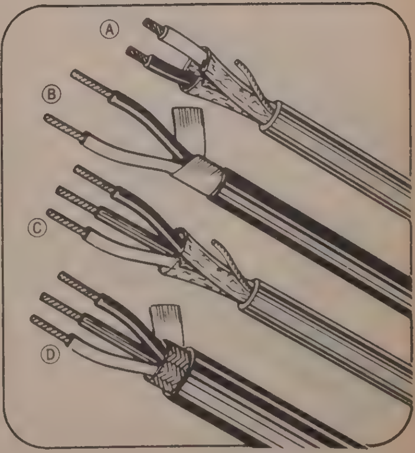
- Temperature Range: −20°C to +80°C (UL +80°C)

Voltage Rating:

UL 1107	400V	UL 2548	300V
UL 1150	600V	UL 2725	300V
UL 2324	300V		

Applications

- Audio
- Data Transmission
- Broadcast
- Sound



(312) 455-8830 **Consolidated** electronic wire & cable

MULTI-CONDUCTOR COMMUNICATIONS CABLE

SHIELDED CABLES

Construction

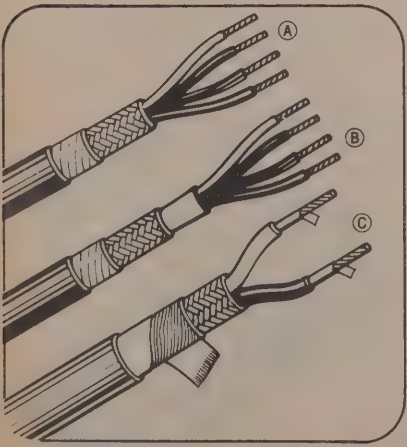
- Stranded tinned copper conductors
- Color coded polyethylene or rubber insulation
- Conductors cabled, fillers and wrap
- Braided tinned copper shield overall
- Outer Jacket Types:
  - (A) Gray or Black Polyvinylchloride (PVC) Jacket
  - (B) Black Neoprene Jacket
  - (C) Black Rubber Jacket

Characteristics

- Temperature Range: −20°C to +60°C
- Voltage Rating: 400 Volts to 600 Volts
- Polyvinylchloride: Low capacitance, low loss, light weight
- Rubber: Flexible and abrasion resistant
- Neoprene: Outdoor use, resistant to cold weather, oil, sun, ozone

Applications

- Broadcast
- Microphone
- Power supplies
- Sound



pvc jacketed tinned copper braid shield UL listed Ⓐ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	**Cap pF/Ft	Jacket Color	U.L.
1459	20 (26 x 34)	1	.023	.032	.175	400	40	Blk	1546
1722	20 (26 x 34)	2	.015	.020	.220	400	45	Gry	2725
1723	20 (26 x 34)	3	.015	.020	.235	400	45	Gry	2725
1724	20 (26 x 34)	4	.015	.020	.240	400	45	Gry	2725
1725	20 (26 x 34)	5	.015	.020	.260	400	45	Gry	2725
1726	20 (26 x 34)	6	.015	.020	.280	400	45	Gry	2725
1727	20 (26 x 34)	7	.015	.020	.290	400	45	Gry	2725
1728	20 (26 x 34)	8	.015	.020	.300	400	45	Gry	2725
1740	20 (26 x 34)	10	.015	.045	.380	400	45	Gry	2725
1741	20 (26 x 34)	12	.015	.045	.385	400	45	Gry	2725
1742	20 (26 x 34)	15	.015	.045	.415	400	45	Gry	2725
1743	20 (26 x 34)	20	.015	.045	.455	400	45	Gry	2725

rubber jacketed tinned copper braid shield Ⓑ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	**Cap pF/Ft	†Color Chart Code
1460	20 (26 x 34)	1	.047	.043	.240	600	33	4
1462	20 (26 x 34)	2	.022	.043	.268	600	35	4
1463	20 (26 x 34)	3	.022	.040	.277	600	35	4
1464	20 (26 x 34)	4	.022	.040	.295	600	35	4
1465	20 (26 x 34)	5	.022	.040	.323	600	35	4
1466	20 (26 x 34)	6	.022	.040	.349	600	35	4
1467	20 (26 x 34)	7	.022	.043	.360	600	35	4
1455	20 (26 x 34)	8	.022	.043	.386	600	35	4
1456	18 (41 x 34)	2	.022	.035	.290	400	80	4

neoprene jacketed tinned copper braid shield Ⓑ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	**Cap pF/Ft	†Color Chart Code
1701	18 (41 x 34)	1	.040	.035	.235	600	55	4
1702	18 (41 x 34)	2	.022	.035	.290	600	35	4
1705	16 (65 x 34)	2	.025	.035	.320	600	35	4
1714	14 (41 x 30)	2	.032	.040	.395	600	30	4
1717	12 (65 x 30)	2	.032	.040	.440	600	30	4
1703	18 (41 x 34)	3	.022	.035	.305	600	35	4
1706	16 (65 x 34)	3	.025	.035	.340	600	35	4
1715	14 (41 x 30)	3	.032	.040	.425	600	30	4
1718	12 (65 x 30)	3	.032	.040	.465	600	30	4
1704	18 (41 x 34)	4	.022	.035	.330	600	35	4
1707	16 (65 x 34)	4	.025	.035	.355	600	35	4
1716	14 (41 x 30)	4	.032	.040	.450	600	30	4
1719	12 (65 x 30)	4	.032	.040	.500	600	30	4
1708	18 (41 x 34)	5	.022	.035	.430	600	35	4
1709	18 (41 x 34)	8	.022	.035	.465	600	35	4
1710	18 (41 x 34)	10	.022	.035	.480	600	35	4
1711	18 (41 x 34)	12	.022	.065	.550	600	35	4
1712	18 (41 x 34)	15	.022	.065	.630	600	35	4
1713	18 (41 x 34)	20	.022	.065	.725	600	35	4

neoprene jacketed tinned copper spiral shield electronic guitar amplification cable ©

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	**Cap pF/Ft	†Color Chart Code
1700	20 (26 x 34)	1	.040	.045	.230	600	40	4
1739	22 (16 x 34)	2	.020	.040	.260	600	35	4

**Capacitance per foot is between conductors and shield.
†See color code chart on page 2•2075

Consolidated electronic wire & cable (312) 455-8830

MULTI-CONDUCTOR COMMUNICATIONS CABLE

overall shielded multiconductor cable RS 232C Ⓐ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Cap pF/Ft	Color Chart Code
22 gauge stranded ЯU listed style 2464 (SP)-SR-PVC							
5722	22 (7 x 30)	2	.010	.025	.170	30	1
5723	22 (7 x 30)	3	.010	.035	.185	30	1
5724	22 (7 x 30)	4	.010	.035	.200	30	1
5731	22 (7 x 30)	5	.010	.035	.210	30	1
5726	22 (7 x 30)	6	.010	.035	.230	30	1
5727	22 (7 x 30)	7	.010	.035	.240	30	1
5728	22 (7 x 30)	8	.010	.035	.245	30	1
5729	22 (7 x 30)	9	.010	.035	.258	30	1
5732	22 (7 x 30)	10	.010	.035	.275	30	1
5735	22 (7 x 30)	15	.010	.035	.305	30	2
5736	22 (7 x 30)	20	.010	.035	.345	30	2
5737	22 (7 x 30)	25	.010	.040	.400	30	2
5738	22 (7 x 30)	30	.010	.040	.420	30	2
5739	22 (7 x 30)	40	.010	.040	.465	30	2
5741	22 (7 x 30)	50	.010	.045	.505	30	2

†See color code chart on page **2•2075**

pvc jacketed individually shielded two pair cable ЯU listed Ⓑ

Cat. No.	Gauge and Strand	Insul. Type	Insul. Wall	Shield Ea. Pr.	Jacket Wall	O.A. Dia.	**Cap. pF/Ft.	Colors	U.L.
5594	22 (7 x 30)	(polyp)	.008	Mylar Al.	.019	.165	35	Red, Blk, Grn, Wht	2725
5592*	22 (7 x 30)	(polyp)	.008	Mylar Al.	.030	.198	35	Red, Blk, Grn, Wht	2725

*Catalog 5592-Additional overall mylar alulminum foil shield with 24 (7x32) tin copper drain wire.

pvc jacketed, one-pair shielded, one pair unshielded cable ЯU listed Ⓒ

Cat. No.	Gauge and Strand	Insul. Type	Insul. Wall	Shield	Jacket Wall	O.A. Dia.	**Cap. pF/Ft.	Colors	U.L.
5571	22 (7 x 30)	P.E.	.009	Mylar Al.	.019	.185	34	Red, Blk (s), Grn, Wht	2552
5595	20 (7 x 28)	P.E.	.015	Mylar Al.	.028	.230	42	Red, Blk (s), Grn, Wht	2548

pvc jacketed, three conductor cable two shielded, one unshielded Ⓓ

Cat. No.	Gauge and Strand	Insul. Type	Insul. Wall	Shield	Jacket Wall	O.A. Dia.	**Cap. pF/Ft.	Colors	NEC Article
5701	22 (7 x 30)	PVC	.013	Mylar Al.	.032	.199	28	Blk (s), Wht (s), Brn	725
5702	20 (7 x 28)	P.E.	.014	Mylar Al.	.028	.210	26	Blk (s), Red (s), Clr	725

**Capacitance per foot is between conductors and shield.

SHIELDED CABLES

Construction (5700 series)
- Stranded tinned copper conductors
- Color coded semi-rigid polyvinylchloride (PVC) insulation
- Conductors cabled
- Overall mylar/aluminum foil shield and stranded tinned copper drain wire
- Gray PVC outer jacket

Characteristics

Temperature Range:
–20° C to +80° C (UL +80° C)
- UL 2464 300 Volts
- CSA SR-PVC
- Meets RS 232C

Applications
- Computer
- Data

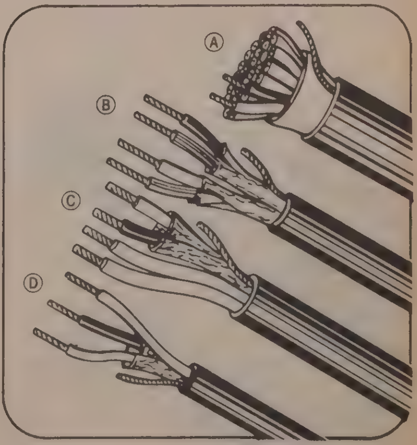
Construction (5500 & 5700 series)
- Stranded tinned copper conductors
- Color coded polyethylene (PE), polypropylene (polyp), or polylvinylchloride (PVC)
- Conductors cabled
- Shield: Mylar Aluminum Foil Shield Wrap and Tin Copper Drain
- Outer Jacket: Gray PVC Jacket

Characteristics
- **Temperature Range:**
  – 20 °C to + 80 °C (UL + 80 °C)

Voltage Rating:

UL 2548 300V UL 2552 300V
UL 2725 300V

Applications
- Audio
- Data Transmission
- Broadcast
- Sound



(312) 455-8830 **Consolidated** electronic wire & cable

MULTI-CONDUCTOR COMMUNICATIONS CABLE

SHIELDED CABLES

Construction (5524 and 4596)

- Standed tin copper conductors
- Color coded "Lo-Cap" foamed polypropylene insulation
- Conductors cables as twisted pairs
- Overall mylar aluminum foil shield, foil facing inward
- Stranded drain wire
- Black polyvinylchloride jacket

Characteristics

- Temperature: −20°C to +80°C
- UL 2772 300V
- Low dielectric constant
- Low distortion data handling
- Light weight

Applications

- Data
- Computer

Construction (5300 series)

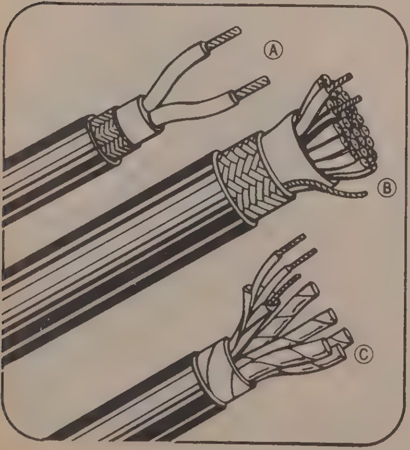
- Solid or stranded tc conductors
- Color coded "Lo-Cap" foamed polypropylene insulation
- Conductors cabled each pair mylar aluminum-foil shield with stranded tin copper drain
- Gray polyvinylchloride jacket

Characteristics

- Same as 5524 and 4596 above
- UL 2493 300V

Applications

- Data
- Computer



"low cap" overall shielded pair computer cable meets EIA RS-422B type requirements Ⓐ

Catalog No.	Gauge and Strand	Pairs	Insul. Type	Shield	Jacket	O.A. Dia.	Imp. Ohms	*Cap. pF/Ft	Colors
			22 gauge solid ЯU listed style 2772						
5524	22 (solid)	2	Low-Cap. Foam Poly	Mylar Aluminum	PVC	.420	150	8.8	Blk/Yel Red/Blu
			22 gauge stranded ЯU listed style 2772						
4596	22 (19 x 34)	1	Low-Cap. Foam Poly	Mylar Aluminum	PVC	.350	150	8.8	Blk/Yel

IEEE488 general purpose interface bus cable catalog number 5525 Ⓑ

Construction

Consists of:

Six twisted pairs of 26 AWG (7/34) tinned copper with .010″ Polyvinylchloride (PVC) insulation, color band coded.

Ten single conductors of 26 AWG (7 x 34) tinned copper with .010″ Polyvinylchloride (PVC) insulation, color band coded.

One single conductor of 24 AWG (7/32) tinned copper with .010″ Polyvinylchloride (PVC) insulation, color band coded.

Cabled together with a 26 AWG (7/34) tinned copper drain wire and overall braided tinned copper shield with 90% minimum coverage.

Overall jacket is PVC with a .035″ nominal wall thickness.

Characteristics

Temperature rating: 80°C
Voltage rating: 300V
D.C. Resistance:
  24 AWG-.784 ohms/meter
  26 AWG-1.26 ohms/meter
Capacitance (nom.):
  Pairs-38 pF/Ft
  Singles-35 pF/Ft
Characteristic Impedance (nom.):
  Pairs-75 ohms
  Singles-70 ohms

Color code

Twisted Pairs
1. Black paired with White/Black
2. Brown paired with White/Brown
3. Green paired with White/Green
4. Blue paired with White/Blue
5. Red paired with White/Red
6. Violet paired with White/Violet

Singles (10)
1. Yellow/Black
2. Yellow/Brown
3. Yellow/Red
4. Yellow/Orange
5. Yellow/Blue
6. Gray/Black
7. Gray/Brown
8. Gray/Red
9. Gray/Orange
10. Gray/Blue

Single (24 AWG)
Green/Yellow

"low cap" individually shielded pair computer cable meets EIA RS-422B type requirements Ⓒ

Catalog No.	Gauge and Strand	Pairs	Jacket	O.A. Dia.	Imp. Ohms	*Cap pF/Ft	Color Chart Code†
			24 gauge stranded ЯU listed style 2493				
5343	24 (7 x 32)	3	PVC	.350	100	12.5	3
5346	24 (7 x 32)	6	PVC	.460	100	12.5	3
5349	24 (7 x 32)	9	PVC	.570	100	12.5	3
5341	24 (7 x 32)	11	PVC	.610	100	12.5	3
5342	24 (7 x 32)	12	PVC	.630	100	12.5	3
5345	24 (7 x 32)	15	PVC	.700	100	12.5	3
5357	24 (7 x 32)	17	PVC	.730	100	12.5	3
5340	24 (7 x 32)	19	PVC	.740	100	12.5	3
5344	24 (7 x 32)	27	PVC	.920	100	12.5	3

*Capacitance between conductors
†See color code chart on page 2•2075

Consolidated (312) 455-8830
electronic wire & cable

MULTI-CONDUCTOR COMMUNICATIONS CABLE

four pair individually shielded instrumentation cable Ⓐ

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	**Cap pF/Ft	Colors
			20 gauge stranded				
5528	20 (7 x 28)	4	.015	.030	.345	27	Red Blk Grn Wht Wht/Red Wht/Blk Wht/Grn Wht/Yel

overall shielded multiconductor cable RS 232C Ⓑ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	**Cap pF/Ft	Color Chart Code†
	24 gauge stranded UL listed style 2464 SP-SR-PVC						
5710	24 (7 x 32)	2	.010	.035	.168	30	1
5711	24 (7 x 32)	3	.010	.035	.172	30	1
5712	24 (7 x 32)	4	.010	.035	.180	30	1
5713	24 (7 x 32)	5	.010	.035	.190	30	1
5714	24 (7 x 32)	6	.010	.035	.205	30	1
5715	24 (7 x 32)	7	.010	.035	.205	30	1
5716	24 (7 x 32)	8	.010	.035	.220	30	1
5717	24 (7 x 32)	9	.010	.035	.240	30	1
5718	24 (7 x 32)	10	.010	.035	.250	30	1
5719	24 (7 x 32)	15	.010	.035	.280	30	2
5720	24 (7 x 32)	20	.010	.035	.310	30	2
5725	24 (7 x 32)	25	.010	.040	.370	30	2
5730	24 (7 x 32)	30	.010	.040	.390	30	2
5740	24 (7 x 32)	40	.010	.040	.440	30	2
5750	24 (7 x 32)	50	.010	.045	.490	30	2

overall shielded multi-paired cable RS 232C Ⓑ

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	**Cap pF/Ft	Color Chart Code†
	24 gauge stranded UL listed style 2464 SP-SR-PVC						
5771	24 (7 x 32)	1	.010	.032	.156	40	3
5772	24 (7 x 32)	2	.010	.032	.222	30	3
5773	24 (7 x 32)	3	.010	.032	.232	30	3
5774	24 (7 x 32)	4	.010	.032	.265	30	3
5775	24 (7 x 32)	5	.010	.035	.295	30	3
5776	24 (7 x 32)	6	.010	.035	.295	30	3
5777	24 (7 x 32)	7	.010	.035	.300	30	3
5778	24 (7 x 32)	8	.010	.035	.330	30	3
5779	24 (7 x 32)	9	.010	.035	.340	30	3
5780	24 (7 x 32)	10	.010	.040	.380	30	3
5785	24 (7 x 32)	15	.010	.040	.425	30	3
5789	24 (7 x 32)	19	.010	.040	.450	30	3
5790	24 (7 x 32)	25	.010	.045	.515	30	3
5791	24 (7 x 32)	50	.010	.050	.700	30	3

SHIELDED CABLES

Construction (5528)

- Stranded tinned copper conductors
- Color coded polypropylene insulation
- Conductors cabled into pairs, on common axis
- Mylar aluminum foil shield and tinned copper drain wire
- Gray polyvinylchloride jacket

Characteristics

- Temperature Range: −40° C to +105° C
- Suggested Working Voltage: 400 Volts
- Meets RS 232C

Construction (5700 series)

- Stranded tinned copper conductors
- Color coded semi-rigid polyvinylchloride insulation
- Conductors cabled and twisted into pairs where applicable
- Overall mylar aluminum foil shield and stranded tinned copper drain wire
- Gray polyvinylchloride jacket

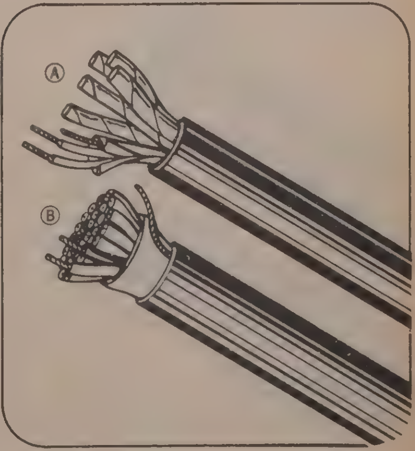
Characteristics:

Temperature Range:
−20° C to +80° C (UL +80° C)

- UL 2464 300 Volts
- CSA SR-PVC
- Meets RS 232C

Applications

- Computer
- Instrumentation
- Data



**Capacitance between conductors
†See color code chart on page 2•2075

(312) 455-8830 **Consolidated** electronic wire & cable

MULTI-CONDUCTOR COMMUNICATIONS CABLE

SHIELDED CABLES

Construction (5900 Series)
- Solid tinned copper conductors
- Color coded polyvinylchloride insulation
- Twisted into pairs
- Overall mylar aluminum foil and stranded tin copper drain
- Gray polyvinylchloride outer jacket

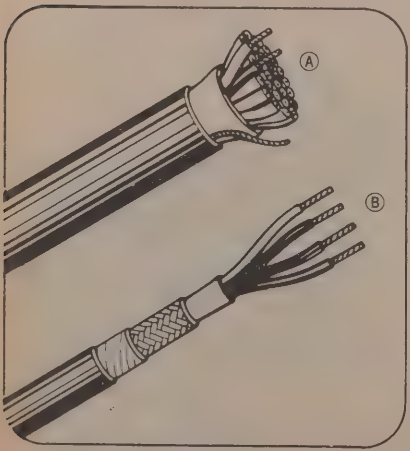
Characteristics
- Temperature Range: −20°C to +80°C (UL +80°C)
- UL 2464 300 Volts
- CSA SR-PVC

Applications
- Computer
- Instrumentation
- Data

Construction (5800 & 1700 Series)
- Stranded tinned copper conductors
- Color coded PVC insulation
- Conductors cabled, fillers and wrap
- Overall braided tinned copper shield
- Gray polyvinylchloride jacket

Characteristics
- Temperature Range: −20°C to +80°C (UL +80°C)
- UL 2343 300 Volts
- UL 2464 300 Volts
- UL 2725 300 Volts

Applications
- Computer
- Instrumentation
- Data



overall mylar aluminum foil shielded multi-paired cable

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	**Cap pF/Ft	Color Chart Code†
			22 gauge solid UL listed style 2464					
5912	22 (solid)	2	.013	.032	.224	300	35	3
5914	22 (solid)	4	.013	.032	.265	300	35	3
5916	22 (solid)	6	.013	.035	.321	300	35	3
5919	22 (solid)	9	.013	.037	.373	300	35	3
5925	22 (solid)	15	.013	.040	.437	300	35	3
5929	22 (solid)	19	.013	.040	.475	300	35	3
5937	22 (solid)	27	.013	.045	.590	300	35	3
5901	22 (solid)	38	.008	.045	.600	300	35	3
5902	22 (solid)	51	.008	.050	.700	300	35	3

shielded braided tin copper computer and control cable Ⓑ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Color Chart Code†
			24 gauge stranded UL listed style 2343				
5802	24 (7 x 32)	5	.010	.060	.266	300	5
5803	24 (7 x 32)	7	.010	.060	.281	300	5
5804	24 (7 x 32)	12	.010	.060	.331	300	5
5805	24 (7 x 32)	15	.010	.060	.356	300	5
5806	24 (7 x 32)	19	.010	.060	.375	300	5
5807	24 (7 x 32)	27	.010	.060	.426	300	5
5808	24 (7 x 32)	37	.010	.060	.464	300	5
5809	24 (7 x 32)	48	.010	.060	.516	300	5
5810	24 (7 x 32)	60	.010	.060	.553	300	5
			22 gauge stranded UL listed style 2343				
5821	22 (7 x 30)	5	.010	.060	.284	300	5
5822	22 (7 x 30)	7	.010	.060	.296	300	5
5833	22 (7 x 30)	12	.010	.060	.356	300	5
5834	22 (7 x 30)	15	.010	.060	.390	300	5
5835	22 (7 x 30)	19	.010	.060	.406	300	5
5836	22 (7 x 30)	27	.010	.060	.457	300	5
5837	22 (7 x 30)	37	.010	.060	.501	300	5
5838	22 (7 x 30)	48	.010	.060	.564	300	5
5839	22 (7 x 30)	60	.010	.060	.608	300	5
			20 gauge stranded UL listed style 2725				
1722	20 (26 x 34)	2	.015	.020	.220	300	4
1723	20 (26 x 34)	3	.015	.020	.235	300	4
1724	20 (26 x 34)	4	.015	.020	.240	300	4
1725	20 (26 x 34)	5	.015	.020	.260	300	4
1726	20 (26 x 34)	6	.015	.020	.280	300	4
1727	20 (26 x 34)	7	.015	.020	.290	300	4
1728	20 (26 x 34)	8	.015	.020	.300	300	4
1740	20 (26 x 34)	10	.015	.045	.360	300	4
1741	20 (26 x 34)	12	.015	.045	.385	300	4
1742	20 (26 x 34)	15	.015	.045	.415	300	4
1743	20 (26 x 34)	20	.015	.045	.455	300	4
			20 gauge stranded UL listed style 2343				
5841	20 (19 x 32)	19	.010	.060	.450	300	5
5842	20 (19 x 32)	27	.010	.060	.575	300	5
5843	20 (19 x 43)	37	.010	.060	.645	300	5
5844	20 (19 x 32)	48	.010	.060	.700	300	5

**Capacitance between conductors
†See color code chart on page **2•2075**

Consolidated
electronic wire & cable (312) 455-8830

MULTI-CONDUCTOR COMMUNICATIONS CABLE

UL subject 13 unshielded two conductor cable Ⓐ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
	22-12 gauge ЯU listed style 2464 Ⓢ TR-64					
5001	22 (7 x 30) TC	2	.016	.038	.200	1
5002	20 (10 x 30) TC	2	.016	.038	.214	1
5003	18 (16 x 30) TC	2	.016	.038	.230	1
5004	16 (26 x 30) TC	2	.016	.038	.260	1
5005	14 (41 x 30) TC	2	.020	.043	.324	1
5006	12 (65 x 30) TC	2	.032	.053	.410	1

UL subject 13 mylar aluminum shielded two conductor cable Ⓑ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
	22-12 gauge ЯU listed style 2464 Ⓢ TR-64					
5010	22 (7 x 30) TC	2	.016	.038	.202	1
5011	20 (10 x 30) TC	2	.016	.038	.216	1
5012	18 (16 x 30) TC	2	.016	.038	.236	1
5013	16 (26 x 30) TC	2	.016	.038	.262	1
5014	14 (41 x 30) TC	2	.022	.043	.326	1
5015	12 (65 x 30) TC	2	.032	.053	.412	1

UL subject 13 unshielded three conductor cable Ⓒ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
	22-14 gauge ЯU listed style 2464 Ⓢ TR-64					
5020	22 (7 x 30) TC	3	.016	.038	.210	2
5021	20 (10 x 30) TC	3	.016	.038	.225	2
5022	18 (16 x 30) TC	3	.016	.038	.246	2
5023	16 (26 x 30) TC	3	.016	.038	.274	2
5024	14 (41 x 30) TC	3	.022	.043	.342	2

UL subject 13 mylar aluminum shielded three conductor cable Ⓓ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
	22-14 gauge ЯU listed style 2464 Ⓢ TR-64					
5030	22 (7 x 30) TC	3	.016	.038	.212	2
5031	20 (10 x 30) TC	3	.016	.038	.227	2
5032	18 (16 x 30) TC	3	.016	.038	.248	2
5033	16 (26 x 30) TC	3	.016	.038	.276	2
5034	14 (41 x 30) TC	3	.020	.043	.344	2

†See color code chart on page 2•2075

POWER LIMITED CIRCUIT CABLE

Construction

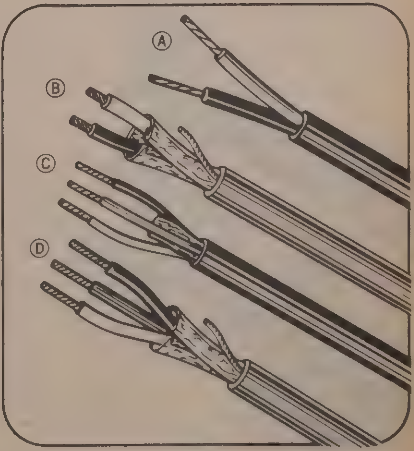
- Stranded tinned copper conductors
- Color coded polyvinylchloride insulation
- Overall mylar/aluminum foil foil shield and stranded tin copper drain wire, where applicable
- Gray polyvinylchloride outer jacket

Characteristics

- Temperature Range: −30°C to +105°C
- UL Subject 13 105°C, 300 Volts Article 725 NEC
- Appliance Wiring Material Style 2464
- Certified CSA-TR-64
- UL 70,000 BTU flame and Tray Cable Test IEEE 383
- UL Listed as Tray Cable Class 2 and 3 circuits

Applications

- Power Limited Circuit Cable



(312) 455-8830 **Consolidated** electronic wire & cable

MULTI-CONDUCTOR COMMUNICATIONS CABLE

POWER LIMITED CIRCUIT CABLE

Construction
- Stranded tinned copper conductors
- Color coded polyvinylchloride insulation, Red/Black number marked
- Conductors cabled and twisted into pairs
- Overall mylar aluminum foil shield with stranded tin copper drain or each pair isolated mylar/aluminum foil shield with stranded tin copper drain
- Gray polyvinylchloride outer jacket

Characteristics
- Temperature: −30°C to +105°C
- UL Subject 13 105°C, 300 Volts Article 725 NEC
- Appliance Wiring Material Style 2464
- Certified CSA-TR-64
- UL 70,000 BTU Flame and Tray Cable Test
- UL Listed as Tray Cable Class 2 and 3 circuits

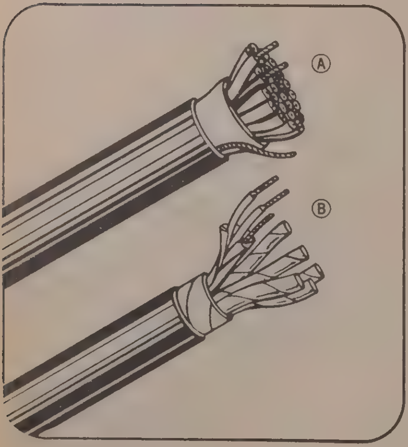
Applications
- Power Limited Circuit Cable

UL subject 13 overall shielded multi-paired cable Ⓐ

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
22 gauge stranded ЯU listed style 2464 (SP) TR-64						
5040	22 (7 x 30)	2	.016	.043	.310	Red/Black
5041	22 (7 x 30)	3	.016	.043	.326	Red/Black
5042	22 (7 x 30)	4	.016	.043	.353	Red/Black
5043	22 (7 x 30)	6	.016	.053	.425	Red/Black
5044	22 (7 x 30)	9	.016	.053	.488	Red/Black
5045	22 (7 x 30)	11	.016	.053	.536	Red/Black
5046	22 (7 x 30)	15	.016	.053	.594	Red/Black
5047	22 (7 x 30)	19	.016	.063	.631	Red/Black
5048	22 (7 x 30)	27	.016	.063	.761	Red/Black
5049	22 (7 x 30)	51	.016	.075	.950	Red/Black
18 gauge stranded ЯU listed style 2464 (SP) TR-64						
5050	18 (16 x 30)	2	.016	.043	.375	Red/Black
5051	18 (16 x 30)	3	.016	.053	.416	Red/Black
5052	18 (16 x 30)	4	.016	.053	.451	Red/Black
5053	18 (16 x 30)	6	.016	.053	.516	Red/Black
5054	18 (16 x 30)	9	.016	.053	.596	Red/Black
5055	18 (16 x 30)	11	.016	.063	.676	Red/Black
5056	18 (16 x 30)	15	.016	.063	.751	Red/Black

UL subject 13 individually shielded pair cable Ⓑ

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
22 gauge stranded ЯU listed style 2464 (SP) TR-64						
5060	22 (7 x 30)	2	.016	.043	.316	Red/Black
5061	22 (7 x 30)	3	.016	.043	.331	Red/Black
5062	22 (7 x 30)	4	.016	.043	.360	Red/Black
5063	22 (7 x 30)	6	.016	.053	.431	Red/Black
5064	22 (7 x 30)	9	.016	.053	.500	Red/Black
5065	22 (7 x 30)	11	.016	.053	.551	Red/Black
5066	22 (7 x 30)	15	.016	.053	.606	Red/Black
5067	22 (7 x 30)	19	.016	.063	.646	Red/Black
5068	22 (7 x 30)	27	.016	.063	.776	Red/Black
5069	22 (7 x 30)	51	.016	.075	.970	Red/Black
18 gauge stranded ЯU listed style 2464 (SP) TR-64						
5070	18 (16 x 30)	2	.016	.043	.316	Red/Black
5071	18 (16 x 30)	3	.016	.053	.421	Red/Black
5072	18 (16 x 30)	4	.016	.053	.456	Red/Black
5073	18 (16 x 30)	6	.016	.053	.526	Red/Black
5074	18 (16 x 30)	9	.016	.063	.628	Red/Black
5075	18 (16 x 30)	11	.016	.063	.686	Red/Black
5076	18 (16 x 30)	15	.016	.063	.766	Red/Black



Consolidated electronic wire & cable (312) 455-8830

MULTI-CONDUCTOR COMMUNICATIONS CABLE

unshielded two conductor tray cable Ⓐ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
18-12 gauge UL listed subject 1277						
5080	18 (16 x 30) TC	2	.016 PVC .005 NYLON	.048 PVC	.279	1
5081	16 (26 x 30) TC	2	.016 PVC .005 NYLON	.048 PVC	.306	1
5082	14 (41 x 30) TC	2	.022 PVC .005 NYLON	.048 PVC	.359	1
5083	12 (65 x 30) TC	2	.022 PVC .005 NYLON	.048 PVC	.399	1

shielded two conductor tray cable Ⓑ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
18-12 gauge UL listed Subject 1277						
5090	18 (16 x 30) TC	2	.016 PVC .005 NYLON	.048 PVC	.278	1
5091	16 (26 x 30) TC	2	.016 PVC .005 NYLON	.048 PVC	.304	1
5092	14 (41 x 30) TC	2	.022 PVC .005 NYLON	.048 PVC	.358	1
5093	12 (65 x 30) TC	2	.022 PVC .005 NYLON	.048 PVC	.398	1

shielded data cable Ⓒ

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
22 gauge solid, single jacket						
8006	22 (solid)	6	.012	.060	.420	6
8012	22 (solid)	12	.012	.060	.490	6
8018	22 (solid)	18	.012	.060	.560	6
8025	22 (solid)	25	.012	.060	.630	6
8050	22 (solid)	50	.012	.060	.800	6
8100	22 (solid)	100	.012	.060	1.120	6
19 gauge solid, single jacket						
8016	19 (solid)	6	.015	.060	.500	6
8112	19 (solid)	12	.015	.060	.630	6
8118	19 (solid)	18	.015	.060	.730	6
8125	19 (solid)	25	.015	.060	.820	6
8150	19 (solid)	50	.015	.060	1.120	6
8110	19 (solid)	100	.015	.060	1.520	6
22 gauge solid, double jacket						
8306	22 (solid)	6	.012	.047/.040	.480	6
8312	22 (solid)	12	.012	.047/.040	.550	6
8318	22 (solid)	18	.012	.047/.040	.620	6
8325	22 (solid)	25	.012	.047/.040	.690	6
8350	22 (solid)	50	.012	.047/.040	.860	6
8310	22 (solid)	100	.012	.047/.050	1.180	6
19 gauge solid, double jacket						
8406	19 (solid)	6	.015	.047/.040	.560	6
8412	19 (solid)	12	.015	.047/.040	.690	6
8418	19 (solid)	18	.015	.047/.040	.790	6
8425	19 (solid)	25	.015	.047/.040	.880	6
8450	19 (solid)	50	.015	.047/.040	1.180	6
8410	19 (solid)	100	.015	.047/.050	1.580	6

†See color code chart on page 2•2075

Construction (5080-5093)

- Stranded tinned copper conductors
- Color coded poly and .005″ nylon insulation
- Overall mylar/aluminum foil shield and stranded tin copper drain wire, where applicable.
- Black PVC outer jacket

Characteristics

- Temperature:—30 °C to +90 °C
- UL Subject 1277 90°C 600 Volts
- Tray Cable Articles 318, 340, 500, and 501 NEC
- UL 70,000 BTU Flame and Tray Cable Test

Construction (8006-8450)

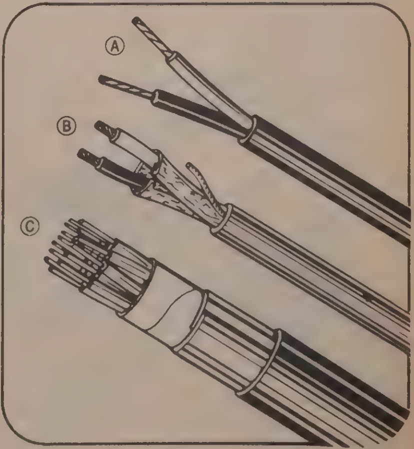
- Solid bare copper conductors
- Color coded high molecular weight polyethylene insulation, twisted into pairs
- Non-hygroscopic binder tape overall
- Overall .008″ aluminum shield
- Black polyethylene outer jacket

Characteristics

- Temperature:—60 °C to +80 °C
- Working Voltage: 300 Volts
- Resists acids, alkalis, moisture and fungus
- Capacitance 80 pF/mile

Applications

- Control
- Telemetering
- Supervisory



(312) 455-8830 **Consolidated** electronic wire & cable

MULTI-CONDUCTOR COMMUNICATIONS CABLE

TELEPHONE AND COMMUNICATIONS CABLE

Construction
- Solid bare copper conductors
- Color coded high molecular weight polyethylene insulation, twisted into pairs
- Non-hygroscopic binder tape
- Overall .008″ aluminum shield
- Black polyethylene outer jacket

Characteristics
- Temperature: −60° to +80°C
- Working Voltage: 300 Volts
- Resists acids, alkalis, moisture and fungus
- REA PE-22

Applications
- Telephone and aerial duct installations
- Telemetering

aerial and duct installation—meets REA-PE22

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	Volts (Test)	Cap *	Color Chart Code†
22 gauge solid								
6606	22 (solid)	6	.009	.060	.420	3600	.083	6
6612	22 (solid)	12	.009	.060	.490	3600	.083	6
6618	22 (solid)	18	.009	.060	.560	3600	.083	6
6625	22 (solid)	25	.009	.060	.630	3600	.083	6
6650	22 (solid)	50	.009	.060	.800	3600	.083	6
6675	22 (solid)	75	.009	.060	.980	3600	.083	6
6610	22 (solid)	100	.009	.070	1.120	3600	.083	6
6615	22 (solid)	150	.009	.070	1.320	3600	.083	6
6620	22 (solid)	200	.009	.080	1.500	3600	.083	6
6630	22 (solid)	300	.009	.090	1.810	3600	.083	6
6640	22 (solid)	400	.009	.090	2.050	3600	.083	6
19 gauge solid								
6706	19 (solid)	6	.009	.060	.500	4500	.083	6
6712	19 (solid)	12	.009	.060	.630	4500	.083	6
6718	19 (solid)	18	.009	.060	.730	4500	.083	6
6725	19 (solid)	25	.009	.060	.820	4500	.083	6
6750	19 (solid)	50	.009	.070	1.120	4500	.083	6
6775	19 (solid)	75	.009	.070	1.320	4500	.083	6
6710	19 (solid)	100	.009	.080	1.520	4500	.083	6
6715	19 (solid)	150	.009	.080	1.790	4500	.083	6
6720	19 (solid)	200	.009	.090	2.090	4500	.083	6

Construction
- Inner black polyetylene jacket
- Other construction details same as above

Characteristics
- Temperature: −60° to +80°C
- Working Voltage: 300 Volts
- Resists acids, alkalis, moisture and fungus
- Double jacket for direct burial
- REA PE-23

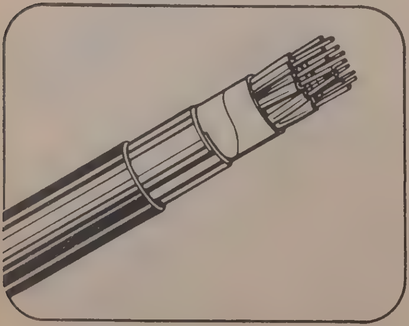
Applications
- Telephone Direct Burial Installation
- Telemetering

NOTE: Following REA Secifications available on request: PE-7-PE19-PE39-PE-54

direct burial installation—meets REA-PE23

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall Inner	Jacket Wall Outer	O.A. Dia.	Volts (Test)	Cap *	Color Chart Code†
22 gauge solid									
6006	22 (solid)	6	.009	.050	.035	.480	3600	.083	6
6012	22 (solid)	12	.009	.050	.035	.550	3600	.083	6
6018	22 (solid)	18	.009	.050	.035	.620	3600	.083	6
6025	22 (solid)	25	.009	.050	.035	.690	3600	.083	6
6050	22 (solid)	50	.009	.050	.035	.860	3600	.083	6
6075	22 (solid)	75	.009	.050	.035	1.040	3600	.083	6
6100	22 (solid)	100	.009	.050	.040	1.400	3600	.083	6
6150	22 (solid)	150	.009	.060	.040	1.560	3600	.083	6
6200	22 (solid)	200	.009	.060	.040	1.890	3600	.083	6
6300	22 (solid)	300	.009	.070	.050	2.130	3600	.083	6
6400	22 (solid)	400	.009	.070	.050	2.610	3600	.083	6
19 gauge solid									
6106	19 (solid)	6	.009	.040	.035	.560	4500	.083	6
6112	19 (solid)	12	.009	.040	.035	.690	4500	.083	6
6118	19 (solid)	18	.009	.040	.035	.790	4500	.083	6
6125	19 (solid)	25	.009	.040	.035	.880	4500	.083	6
6170	19 (solid)	50	.009	.050	.040	1.180	4500	.083	6
6175	19 (solid)	75	.009	.050	.040	1.400	4500	.083	6
6110	19 (solid)	100	.009	.050	.040	1.580	4500	.083	6
6250	19 (solid)	150	.009	.060	.050	1.890	4500	.083	6
6220	19 (solid)	200	.009	.060	.050	2.170	4500	.083	6

*MFD/mile
†See color code chart on page **2•2075**



Consolidated
electronic wire & cable (312) 455-8830

COMPUTER CABLES

remote control—teflon signaling and power limited circuits NEC article 725 class 2 ЯU listed Ⓐ Ⓒ

Catalog No.	Gauge & Strands	Cond.	Insulation	Insulation Wall	Jacket Wall	O.A. Dia.
unshielded conductors						
9874	22 (7 x 30)	2	FEP Teflon	.010	.020	.140
9876	22 (7 x 30)	4	FEP Teflon	.010	.020	.161
9878	20 (7 x 28)	2	FEP Teflon	.010	.020	.156
9875	20 (7 x 28)	4	FEP Teflon	.010	.020	.180
9870	18 (19 x 30)	2	FEP Teflon	.010	.020	.176
9872	18 (19 x 30)	4	FEP Teflon	.010	.020	.200
9882	16 (19 x 29)	2	FEP Teflon	.010	.020	.200
9890	16 (19 x 29)	4	FEP Teflon	.010	.020	.230
mylar aluminum shielded conductors						
9881	18 (19 x 30)	2	FEP Teflon	.010	.020	.188
9873	18 (19 x 30)	4	FEP Teflon	.010	.020	.200
9871	20 (7 x 28)	2	FEP Teflon	.010	.020	.164
9879	20 (7 x 28)	4	FEP Teflon	.010	.020	.195
9880	22 (7 x 30)	2	FEP Teflon	.010	.020	.154
9877	22 (7 x 30)	4	FEP Teflon	.010	.020	.169
Individually shielded paired cable — mylar aluminum foil shield						
9883	22 (7 x 30)	3/Pairs	FEP Teflon	.013	.020	.256

plenum coaxial cable—teflon NEC article 725 class 2 UL subject 13 ЯU listed Ⓑ

Cat. No.	RG Type	Cond.	Center Cond.	Insul.	Shield	Cov.	Jacket Type	O.A. Dia.	Nom Cap pF/Ft	Nom Imp Ohms
4413	58/U	1	.032C	FEP Teflon	Tin	90%	FEP Teflon	.164	29.0	50
4417	59/U	1	.0253CW	FEP Teflon	Bare	90%	FEP Teflon	.210	19.5	75
4479	62A/U	1	.0253CW	FEP Teflon	Bare	95%	FEP Teflon	.216	14.5	93
4799	59B/U "Wang"	2	.0253CW	FEP Teflon Parallel	Bare	96%	FEP Teflon	.206 x.450	17.3	75

remote control—teflon signaling and power limited circuits NEC article 760-4(d) ЯU listed Ⓐ Ⓒ

Catalog No.	Gauge & Strands	Cond.	Insulation	Insulation Wall	Jacket Wall	O.A. Dia.
unshielded conductors						
9886	18 (solid)	2	FEP Teflon	.013	.035	.205
9888	18 (solid)	4	FEP Teflon	.013	.040	.292
9884	16 (solid)	2	FEP Teflon	.013	.035	.225
mylar aluminum shielded conductors						
9887	18 (solid)	2	FEP Teflon	.013	.035	.215
9889	18 (solid)	4	FEP Teflon	.013	.040	.305
9885	16 (solid)	2	FEP Teflon	.013	.035	.235

†See color code chart on page 2•2075

Construction (Article 725)
- Solid or stranded bare copper conductors
- (FEP) Fluorinated ethylene propylene insulation
- Overall mylar aluminum foil shield and drain wire where applicable
- Documentation tape
- FEP outer jacket

Characteristics
- NEC Article 725 Class 2 150 Volts
- Temperature: – 70 °C to + 200 °c
- Air Plenum Cable-no conduit required

Applications
- Computer
- Instrumentation
- Control

Construction (Coax)
- Solid bare copper or copperweld conductors
- (FEP) Fluorinated ethylene propylene insulation, air or foam dielectric
- Braided bare copper or tinned copper shield
- FEP outer jacket

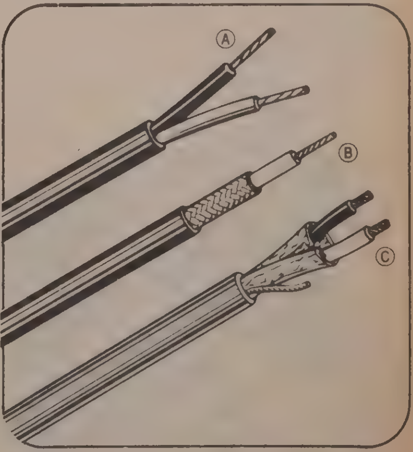
Characteristics
- Plenum Coaxial Cable-no conduit required
- UL Subject 13
- NEC Article 725-2(b)
- Temperature: – 70° to + 200 °C

Applications
- Data Processing Terminals
- Computer
- CCTV
- MATV

Construction (Article 760)
- Solid or stranded bare copper conductors
- (FEP) Fluorinated ethylene propylene insulation
- Overall mylar aluminum foil shield and drain wire where applicable
- Documentation tape
- FEP outer jacket

Characteristics
- NEC Article 760-4(b) 300 Volts
- Temperature: – 70° to + 200 °c
- Air Plenum Cable-no conduit required

Applications
- Fire and Burglar Alarms
- Fire/Smoke Detection Control
- Communication Systems



(312) 455-8830 **Consolidated** electronic wire & cable

COMPUTER CABLES

SHIELDED CABLES

Construction (5524 and 4596)

- Solid or stranded tinned copper conductors
- Color coded "Lo-Cap" foamed polypropylene insulation
- Conductors cabled into twisted pair
- Overall mylar/aluminum foil shield
- Stranded tin copper drain wire
- Black polyvinylchloride jacket

Characteristics

- Temperature: −20°C to +80°C
- UL 2772 300 Volts
- Low dielectric constant
- Low distortion data handling
- Light weight

Applications

- Data • Computer

Construction (5300 Series)

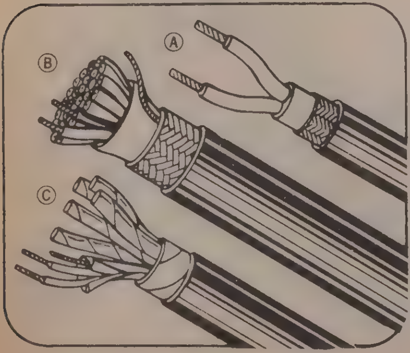
- Stranded tinned copper conductors
- Color coded "Lo-Cap" foamed polypropylene insulation
- Conductors cabled into twisted pairs
- Each pair isolated mylar/aluminum foil shield, aluminum facing inward
- Stranded tin copper drain wire each pair
- Gray polyvinylchloride jacket

Characteristics

- Temperature: −20°C to +80°C
- UL 2493 300V
- Low dielectric constant
- Low distortion data handling
- Light weight

Applications

- Data • Computer



"low cap" overall shielded pair computer cable meets EIA RS-422B type requirements Ⓐ

Catalog No.	Gauge and Strand	Pairs	Insul. Type	Shield	Jacket	O.A. Dia.	Imp. Ohms	*Cap. pF/Ft	Colors
22 gauge solid ЯU listed style 2772									
5524	22 (solid)	2	Lo-Cap. Foam Poly	Mylar Aluminum	PVC	.420	150	8.8	Red/Blu Blk/Yel
22 gauge stranded ЯU listed style 2772									
4596	22 (19 x 34)	1	Lo-Cap. Foam Poly	Mylar Aluminum	PVC	.350	150	8.8	Blk/Yel

IEEE488 general purpose interface bus cable catalog number 5525 Ⓑ

Construction

Consists of:

Six twisted pairs of 26 AWG (7/34) tinned copper with .010" Polyvinylchloride (PVC) insulation, color band coded.

Ten single conductors of 26 AWG (7/34) tinned copper with .010" Polyvinylchloride (PVC) insulation, color band coded.

One single conductor of 24 AWG (7×34) tinned copper with .010" Polyvinylchloride (PVC) insulation, color band coded.

Cabled together with a 26 AWG (7/34) tinned copper drain wire and overall braided tinned copper shield with 90% minimum coverage.

Overall jacket is PVC with a 035" nominal wall thickness

Characteristics

Temperature rating: 80°C
Voltage rating: 300V
D.C. Resistance:
24 AWG-.784 ohms/meter
26 AWG-1.26 ohms/meter
Capacitance (nom.):
Pairs-38 pF/Ft
Singles-35 pF/Ft
Characteristic Impedance (nom.):
Pairs-75 ohms
Singles-70 ohms

Color code

Twisted Pairs

1. Black paired with White/Black
2. Brown paired with White/Brown
3. Green paired with White/Green
4. Blue paired with White/Blue
5. Red paired with White/Red
6. Violet paired with White/Violet

Singles (10)

1. Yellow/Black
2. Yellow/Brown
3. Yellow/Red
4. Yellow/Orange
5. Yellow/Blue
6. Gray/Black
7. Gray/Brown
8. Gray/Red
9. Gray/Orange
10. Gray/Blue

Single (24 AWG)
Green/Yellow

"low cap" individual shielded pair computer cable with overall aluminum shield meets EIA RS-422B type requirements Ⓒ

Catalog No.	Gauge and Strand	Pairs	Jacket	O.A. Dia.	Imp. Ohms	*Cap pF/Ft	Color Chart Code†
24 gauge stranded ЯU listed style 2493							
5348	24 (7 x 32)	2	PVC	.335	100	12.5	3
5343	24 (7 x 32)	3	PVC	.350	100	12.5	3
5346	24 (7 x 32)	6	PVC	.460	100	12.5	3
5349	24 (7 x 32)	9	PVC	.570	100	12.5	3
5341	24 (7 x 32)	11	PVC	.610	100	12.5	3
5342	24 (7 x 32)	12	PVC	.630	100	12.5	3
5345	24 (7 x 32)	15	PVC	.700	100	12.5	3
5357	24 (7 x 32)	17	PVC	.730	100	12.5	3
5340	24 (7 x 32)	19	PVC	.740	100	12.5	3
5344	24 (7 x 32)	27	PVC	.920	100	12.5	3

*Capacitance between conductors
†See color code chart on page 2•2075

Consolidated
electronic wire & cable (312) 455-8830

COMPUTER CABLES

overall shielded multiconductor cable RS 232C Ⓐ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	**Cap pF/Ft	Color Chart Code†
24 gauge stranded UL listed style 2464 CSA-SR-PVC							
5710	24 (7 x 32)	2	.010	.035	.168	30	1
5711	24 (7 x 32)	3	.010	.035	.172	30	1
5712	24 (7 x 32)	4	.010	.035	.180	30	1
5713	24 (7 x 32)	5	.010	.035	.190	30	1
5714	24 (7 x 32)	6	.010	.035	.205	30	1
5715	24 (7 x 32)	7	.010	.035	.205	30	1
5716	24 (7 x 32)	8	.010	.035	.220	30	1
5717	24 (7 x 32)	9	.010	.035	.240	30	1
5718	24 (7 x 32)	10	.010	.035	.250	30	1
5719	24 (7 x 32)	15	.010	.035	.280	30	2
5720	24 (7 x 32)	20	.010	.035	.310	30	2
5725	24 (7 x 32)	25	.010	.040	.370	30	2
5730	24 (7 x 32)	30	.010	.040	.390	30	2
5740	24 (7 x 32)	40	.010	.040	.440	30	2
5750	24 (7 x 32)	50	.010	.045	.490	30	2

overall shielded multi paired cable RS 232C Ⓐ

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	**Cap pF/Ft	Color Chart Code†
24 gauge stranded UL listed style 2464 CSA-SR-PVC							
5771	24 (7 x 32)	1	.010	.032	.156	40	3
5772	24 (7 x 32)	2	.010	.032	.222	30	3
5773	24 (7 x 32)	3	.010	.032	.232	30	3
5774	24 (7 x 32)	4	.010	.032	.265	30	3
5775	24 (7 x 32)	5	.010	.035	.295	30	3
5776	24 (7 x 32)	6	.010	.035	.295	30	3
5777	24 (7 x 32)	7	.010	.035	.300	30	3
5778	24 (7 x 32)	8	.010	.035	.330	30	3
5779	24 (7 x 32)	9	.010	.035	.340	30	3
5780	24 (7 x 32)	10	.010	.040	.380	30	3
5785	24 (7 x 32)	15	.010	.040	.425	30	3
5789	24 (7 x 32)	19	.010	.040	.450	30	3
5790	24 (7 x 32)	25	.010	.045	.515	30	3
5791	24 (7 x 32)	50	.010	.050	.700	30	3
22 gauge solid UL listed style 2464							
5912	22 (solid)	2	.013	.032	.224	35	3
5914	22 (solid)	4	.013	.032	.265	35	3
5916	22 (solid)	6	.013	.035	.321	35	3
5919	22 (solid)	9	.013	.037	.373	35	3
5925	22 (solid)	15	.013	.040	.437	35	3
5929	22 (solid)	19	.013	.040	.475	35	3
5937	22 (solid)	27	.013	.045	.590	35	3
5901	22 (solid)	38	.008	.045	.600	35	3
5902	22 (solid)	51	.008	.050	.700	35	3

four pair individually shielded instrumentation cable Ⓑ

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	**Cap pF/Ft	Colors
20 gauge stranded							
5528	20 (7 x 28)	4	.015	.030	.345	27	Grn, Red, Blk, Wht Wht/Grn, Wht/Red Wht/Blk, Wht/Yel

**Capacitance between conductors
†See color code chart on page 2•2075

SHIELDED CABLES

Construction (5700 Series)

- Stranded tinned copper conductors
- Color coded semi-rigid polyvinylchloride insulation
- Conductors cabled
- Mylar/aluminum foil shield and tinned copper drain wire overall
- Gray polyvinylchloride jacket

Characteristics

- Temperature Range: −20° C to +80° C
- Suggested Working Voltage: 300 Volts
  UL 2464 CSA SR-PVC
- Meets RS 232C

Construction (5700 and 5900 Series)

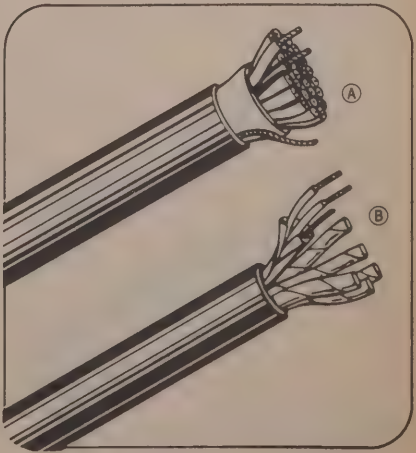
- Solid or stranded tinned copper conductors
- Color coded semi-rigid polyvinylchloride insulation
- Conductors cabled and twisted into pairs where applicable
- Overall mylar/aluminum foil shield and stranded tinned copper drain wire
- Gray polyvinylchloride jacket

Characteristics

Temperature Range: −20° C to +80° C (UL +80° C)
- UL 2464 300 Volts
- CSA SR-PVC
- Meets RS 232C

Applications

- Computer
- Instrumentation
- Data



(312) 455-8830 **Consolidated** electronic wire & cable

COMPUTER CABLES

SHIELDED CABLES

Construction (4400 series)
- Solid cw, stranded cw, or stranded copper conductors
- Solid PE, foam PE, or "FEP" teflon insulation
- Overall bare copper braid shield
- Non-contaminating black PVC or "FEP" teflon outer jacket

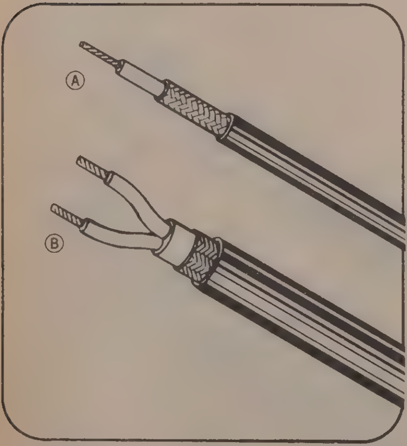
Characteristics
- Temperature Range: −20° to +80°C

Applications
- Computer
- Data Transmission

Construction (twinaxial)
- Stranded copper or bare copper conductors
- Color coded polyethylene insulation
- Shield Types:
  (A) Braided Tin Copper
  (B) Mylar Aluminum Foil Wrap and Tin Copper Drain
- Color coded PVC outer jacket

Characteristics
- Temperature Range: −20°C to +60°C (UL +60°C)
- UL 2092 UL 2582
- UL 2498 UL 2772
- No crosstalk
- Balanced line operation

Applications
- Data Transmission
- Broadcast



coaxial computer cables Ⓐ

Cat. No.	RG Type	Center Cond.	Dielectric	Shield	Shield Cov.	Nom O.D.	V.P. %	**Nom Cap pF/Ft	Nom Imp Ohms
75 ohm UL listed style 1354									
4414	59/U	**22** (7 x 30)	Foam Poly	C	95	.242	78	17.3	75
93 ohm UL listed style 1478									
4452	62/U	**22** (solid) CW	Semi-Solid Poly	C	87	.242	84	13.5	93
4453	62A/U	**22** (solid) CW	Semi-Solid Poly	C	87	.242	84	13.5	93
4456	62A/U IBM 323921	**22** (solid) CW	Semi-Solid Poly	C	96	.242	84	13.5	93
4499	62A/U Modified	**22** (solid) CW	Semi-Solid Poly	C	90	.260	80	14.5	93
4472	62B/U	**24** (7 x 32) CW	Semi-Solid Poly	C	90	.242	84	13.5	93
4479	62A/U	.0253 CW	FEP Teflon	C	96	.216	85	14.5	93

twinaxial data cables Ⓑ

Catalog No.	Center Cond.	Insulation	Shield	Jacket	Nom O.D.	Nom V.P. %	**Nom Cap pF/Ft	U.L. or RG Type
78 ohm UL listed								
4591	2/Cond. **20** (7 x 28) TC	PE	TC Braid 93% Cov.	Blu PVC	.242	66	19.7	2092
4465	2/Cond. **20** (7 x 28) TC	PE	TC Braid 90% Cov.	Blk PVC	.235	66	23.5	RG108A/U
4598	2/Cond. **20** (7 x 28) TC	PE	Mylar/alum. Foil Plus TC Braid 57% Cov.	Blu PVC	.243	66	19.7	2582
95 ohm								
4475	2/Cond. **18** (7 x 26) BC	PE	2/TC Braid 95% Cov.	Blk PVC	.420	66	16	RG22B/U
100 ohm UL listed								
4592	2/Cond. **20** (7 x 28) 1/C Tin 1/C Bare		TC Braid 95% Cov.	Blk PVC	.330	66	15.5	2498
124 ohm UL listed								
4594	2/Cond. **25** (7 x 33) TC	Foam Poly .027 Blu, Wht	Mylar/alum. Foil Plus TC Drain	.050 Blu PVC	.242	66	12.2	2092
150 ohm UL listed								
4596	2/Cond. **22** (19 x 34) TC	Foam Poly Blk, Yel	Mylar/alum. Foil Plus TC Drain	Blk PVC	.350	78	8.8	2772

** — Nominal capacitance between conductors

Consolidated
electronic wire & cable (312) 455-8830

COMPUTER CABLES

individually shielded pair cable Ⓐ

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	**Cap pF/Ft	Color Chart Code†
22 gauge stranded UL listed style 2493								
5594	22 (7 x 30)	2	.010	.020	.165	300	35	Blk, Red, Wht, Grn
5323	22 (7 x 30)	3	.010	.030	.265	300	30	3
5326	22 (7 x 30)	6	.010	.037	.355	300	30	3
5329	22 (7 x 30)	9	.010	.040	.425	300	30	3
5331	22 (7 x 30)	11	.010	.040	.455	300	30	3
5332	22 (7 x 30)	12	.010	.040	.465	300	30	3
5335	22 (7 x 30)	15	.010	.045	.525	300	30	3
5339	22 (7 x 30)	19	.010	.050	.575	300	30	3
5347	22 (7 x 30)	27	.010	.070	.705	300	30	3
22 gauge solid UL listed style 2725								
5303	22 (solid)	3	.010	.030	.250	350	30	3
5306	22 (solid)	6	.010	.037	.330	350	30	3
5309	22 (solid)	9	.010	.040	.390	350	30	3
5311	22 (solid)	11	.010	.040	.420	350	30	3
5315	22 (solid)	15	.010	.045	.485	350	30	3
20 gauge stranded UL listed style 2493								
5573	20 (10 x 30)	1	.015	.025	.200	300	35	2
5363	20 (10 x 30)	3	.013	.048	.355	300	35	3
5366	20 (10 x 30)	6	.013	.048	.470	300	35	3
5369	20 (10 x 30)	9	.013	.065	.550	300	35	3
5371	20 (10 x 30)	11	.013	.065	.580	300	35	3
5372	20 (10 x 30)	12	.013	.065	.600	300	35	3
5375	20 (10 x 30)	15	.013	.065	.650	300	35	3
18 gauge stranded UL listed style 2493								
5574	18 (16 x 30)	1	.018	.025	.200	400	50	2
5353	18 (16 x 30)	3	.016	.045	.405	400	30	3
5356	18 (16 x 30)	6	.016	.055	.575	400	30	3
5359	18 (16 x 30)	9	.016	.065	.660	400	30	3
5362	18 (16 x 30)	12	.016	.070	.765	400	30	3
5365	18 (16 x 30)	15	.016	.070	.820	400	30	3

**Capacitance between conductors
†See color code chart on page **2•2075**

twin coaxial Wang style word processing cable Ⓑ

Catalog No.	RG Type	Center Cond.	Dielectric	Shield	Shield Cov.	Jacket Type	Jacket O.D.	V.P. %	**Nom Cap pF/Ft
75 ohm — polyethylene dielectric									
4599	59B/U	2/Cond. .0253 CW	Poly .146	C	95%	IIA	.250 x .595	66	20.5
75 ohm — FEP teflon dielectric UL listed subject 13									
4799	59B/U	2/Cond. .0253 CW	FEP Teflon .135	C	95%	FEP Teflon	.206 x .450	70	19.7

IIA — Non-contaminating low temperature polyvinylchloride jacket C — Bare copper braid shield

SHIELDED CABLES

Construction (5300 series)
- Stranded or solid tinned copper conductors
- Color coded polypropylene insulation
- Conductors twisted into pairs
- Each pair isolated mylar/aluminum foil shield, aluminum facing inward
- Stranded tin copper drain wire each pair
- Gray polyvinylchloride (PVC) outer jacket

Characteristics
- Temperature −40 °C to +105 °C

Voltage

UL 2493	300V	22AWG
UL 2725	300V	22AWG
UL 2493	350V	20AWG
UL 2493	400V	18AWG

- Shields are electrically "isolated" from each other

Applications
- Audio • Data
- Broadcast • Sound
- Instrumentation

Construction (4599)
- Solid bare copperweld (cw) conductors
- Solid polyethylene insulation
- Overall bare copper braid shield
- Conductors laid parallel
- Figure "8" construction black non-contaminating PVC jacket

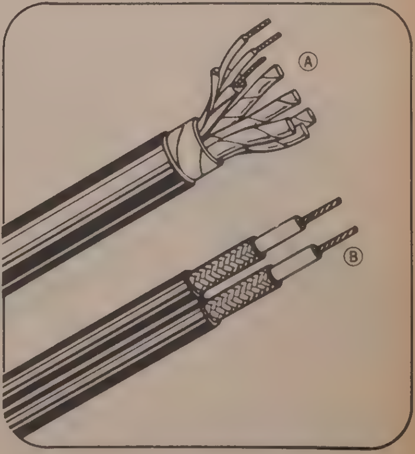
Characteristics
- Temperature −20 °C to +80 °C
- 75 Ohm Twin Coax

Applications
- Computer • Data
- Wang Word Processing Cable

Construction (4799)
- Solid bare cw conductors
- "FEP" Teflon insulation
- Overall bare copper braid shield
- Conductors laid parallel
- Figure "8" construction
- "FEP" Teflon or its equivalent outer jacket

Characteristics
- Temperature −40 °C to +200 °C
- 75 Ohm Twin Coax
- UL Listed—Subject 13
  NEC Article 725-2(b)

Applications
- Computer • Data
- Wang Word Processing Cable



(312) 455-8830 **Consolidated** electronic wire & cable

COMPUTER CABLES

SHIELDED CABLES

shielded computer and control cable

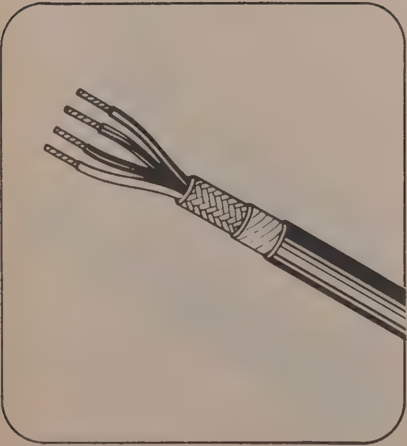
Construction
- Stranded tinned copper conductors
- Color coded polyvinylchloride insulation
- Conductors cabled, fillers and wrap
- Overall braided tinned copper shield
- Gray polyvinylchloride outer jacket

Characteristics
- Temperature Range: −20°C to +80°C (UL +80°C)
- UL 2343 300 Volts
- UL 2464 300 Volts
- UL 2725 300 Volts

Applications
- Computer
- Instrumentation
- Data

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	Color Chart Code†
24 gauge stranded UL listed style 2343							
5802	24 (7 x 32)	5	.010	.060	.266	300	5
5803	24 (7 x 32)	7	.010	.060	.281	300	5
5804	24 (7 x 32)	12	.010	.060	.331	300	5
5805	24 (7 x 32)	15	.010	.060	.356	300	5
5806	24 (7 x 32)	19	.010	.060	.375	300	5
5807	24 (7 x 32)	27	.010	.060	.426	300	5
5808	24 (7 x 32)	37	.010	.060	.464	300	5
5809	24 (7 x 32)	48	.010	.060	.516	300	5
5810	24 (7 x 32)	60	.010	.060	.553	300	5
22 gauge stranded UL listed style 2343							
5821	22 (7 x 30)	5	.010	.060	.284	300	5
5822	22 (7 x 30)	7	.010	.060	.296	300	5
5833	22 (7 x 30)	12	.010	.060	.356	300	5
5834	22 (7 x 30)	15	.010	.060	.390	300	5
5835	22 (7 x 30)	19	.010	.060	.406	300	5
5836	22 (7 x 30)	27	.010	.060	.457	300	5
5837	22 (7 x 30)	37	.010	.060	.501	300	5
5838	22 (7 x 30)	48	.010	.060	.564	300	5
5839	22 (7 x 30)	60	.010	.060	.608	300	5
20 gauge stranded UL listed style 2725							
1722	20 (26 x 34)	2	.015	.020	.220	300	4
1723	20 (26 x 34)	3	.015	.020	.235	300	4
1724	20 (26 x 34)	4	.015	.020	.240	300	4
1725	20 (26 x 34)	5	.015	.020	.260	300	4
1726	20 (26 x 34)	6	.015	.020	.280	300	4
1727	20 (26 x 34)	7	.015	.020	.290	300	4
1728	20 (26 x 34)	8	.015	.020	.300	300	4
1740	20 (26 x 34)	10	.015	.045	.360	300	4
1741	20 (26 x 34)	12	.015	.045	.385	300	4
1742	20 (26 x 34)	15	.015	.045	.415	300	4
1743	20 (26 x 34)	20	.015	.045	.455	300	4
20 gauge stranded UL listed style 2343							
5841	20 (19 x 32)	19	.010	.060	.450	300	5
5842	20 (19 x 32)	27	.010	.060	.575	300	5
5843	20 (19 x 43)	37	.010	.060	.645	300	5
5844	20 (19 x 32)	48	.010	.060	.700	300	5

†See color code chart on page 2•2075



Consolidated
electronic wire & cable

(312) 455-8830

COAXIAL AND BROADCAST CABLE

polyethylene coaxial cable

Cat. No.	RG/U No.	U.L. Style	Jacket O.D.	Jacket Type	Shields Outer	Shields Inner	Insulation Dielectric & Type	Center Conductor	V.P. %	Nom Cap pF/Ft	Max Oper Volts RMS	Nom Imp Ohms
4432	5B		.332	I	S	S	.181P	.053S	65.9	28.5	3,000	50
4433	6A		.332	IIA	C	C	.185P	21CW	65.9	20	2,700	75
4415	8	1354	.405	I		C	.285P	7/21C	65.9	29.5	4,000	52
4435	8A	1354	.405	IIA		C	.285P	7/21C	65.9	29.5	4,000	52
4439	10A		.475	IIA		C	.285P	7/21C	65.9	30.5	4,000	50
4419	11		.405	I		C	.285P	7/26TC	65.9	20.5	4,000	75
4440	11A		.405	IIA		C	.285P	7/26TC	65.9	20.5	4,000	75
4441	12A		.475	IIA		C	.285P	7/26TC	65.9	20.5	4,000	75
4443	13A		.425	IIA	C	C	.285P	7/26TC	65.9	20.5	4,000	75
4468	14A		.545	IIA	C	C	.370P	10C	65.9	30	5,500	52
4482	17A		.870	IIA		C	.680P	.188C	65.9	29.5	11,000	52
4444	21		.332	II	S	S	.185P	16N	65.9	29	2,700	53
4471	22		.405	I		TC	.285P	Two7/.0152C	65.9	16	1,000	95
4475	22B		.420	IIA	TC	TC	.285P	Two7/.0152C	65.9	16	1,000	95
4446	29		.184	IIIA		TC	.116P	20C	65.9	28.5	1,900	53.5
4469	54A		.250	IIIA		TC	.178P	7/.0152C	65.9	26.5	3,000	58
4447	55		.206	IIIA	TC	TC	.206P	20C	65.9	28.5	1,900	53.5
4448	55A		.216	IIA	S	S	.116P	.035S	65.9	29.5	1,900	50
4484	55B		.206	IIIA	TC	TC	.116P	20S	65.9	28.5	1,900	53.5
4405	58	1354	.195	I		TC	.116P	20C	65.9	28.5	1,900	53.5
4449	58A	1354	.195	I		TC	.116P	19/0071TC	65.9	29.5	1,900	52
4474	58B	1354	.195	IIA		TC	.116P	20C	65.9	28.5	1,900	53.5
4450	58C	1354	.195	IIA		TC	.116P	19/0071TC	65.9	29.5	1,900	50
4401	59	1354	.242	I-Blk		C	.146P	22CW	65.9	21	2,300	73
4402	59	1354	.242	I-Gry		C	.146P	22CW	65.9	21	2,300	73
4403	59	1354	.242	I-Wht		C	.146P	22CW	65.9	21	2,300	73
4451	59A	1354	.242	IIA		C	.146P	.0253CW	65.9	20.5	2,300	75
4470	59B	1354	.242	IIA		C	.146P	.0253CW	65.9	20.5	2,300	75
4452	62	1478	.242	I		C	.146ASP	22CW	84	13.5	750	93
4456	62A	1478	.242	IIA		C	.146ASP	22CW	84	13.5	750	93
4472	62B	1354	.242	IIA		C	.146ASP	7/32CW	84	13.5	750	93
4454	63		.405	I		C	.285ASP	22CW	84	10	1,000	125
4455	63B		.405	IIA		C	.285ASP	22CW	84	10	1,000	125
4485	71B		.250	IIIA	TC	TC	.146ASP	22CW	84	13.5	750	93
4487	79B		.475	IIA		C	.285P	22CW	84	10	1,000	125
4412	100		.242	I		C	.146P	19/.0147TC	65.9	44	2,000	35
4465	108A		.235	IIA		TC	.235P	Two7/28TC	65.9	23.5	1,000	78
4426	114		.405	I		C	.285P	33CW	65.9	6.8	1,000	185
4427	114A		.405	IIA		C	.285P	33CW	65.9	7.5	1,000	185
4457	122	1354	.160	IIA		TC	.096P	27/36TC	65.9	29.5	1,900	50
4428	130		.625	I		TC	.472P	Two7/21C	65.9	17	3.000	95
4404	164		.870	IIA		C	.680P	.1045C	65.9	21	10,000	75
4459	174	1354	.105	I		TC	.060P	7/.0063CW	65.9	30	1,500	50
4473	174A	1354	.105	IIA		C	.060P	7/.0063CW	65.9	30	1,500	50
4489	213		.405	IIA		C	.285P	7x.0296C	65.9	29.5	5,000	50
4490	214	1354	.425	IIA	S	S	.285P	7x.0296S	65.9	29.5	5,000	50
4497	215		.475	II		C	.285P	7x.029C	65.9	29.5	4,000	50
4491	216		.425	IIA	C	C	.285P	7x26TC	65.9	20.5	4,000	75
4492	217		.545	IIA	C	C	.370P	.106C	65.9	29.5	7,000	50
4493	218		.870	IIA		C	.680P	.195C	65.9	29.5	11,000	50
4408	220		1.120	IIA		C	.910P	.260C	65.9	29.5	14,000	50
4409	221		1.195	IIA		C	.910P	.260C	65.9	29.5	14,000	50
4496	223	1354	.216	IIA	S	S	.116P	.035S	65.9	29.5	1,900	50

RG COAXIAL CABLE TRANSMISSION LINE

Construction

- Stranded or solid center conductors
- Shield types: Braided bare, silver or tin coated copper
- See first page of this section for additional construction and characteristic information

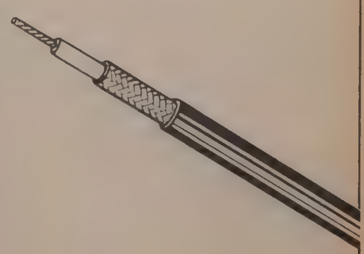
Applications

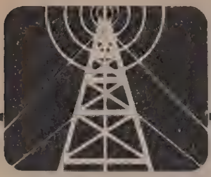
- RF Communications
- Data Transmission
- Video

Key to Abbreviations:

C — Bare Copper
S — Silver Copper
P — Polyethylene
CW — Copperweld
T — Teflon
TT — Teflon Tape
CT — Bare Coppertube
N — Nichrome
TC — Tin Copper
ASP — Air Spaced Polyethylene
SSP — Semi Solid Polyethylene
CCP — Conductive Coated Polyethylene
AST — Air Spaced Tetrafluorethylene
SCW — Silver Copperweld
SCB — Silver Plated Cadmium Bronze

MILITARY DESIGNATION	JACKET TYPE	TEMPERATURE LIMITS
TYPE I	Black Polyvinylchloride	−40°C to +80°C
TYPE II	Grey Polyvinylchloride	−25°C to +80°C
TYPE IIa	Black or Grey Polyvinylchloride	Under ¼''O.D −55°C to +90°C Over ¼ O.D −40°C to +90°C
TYPE IIIa	Black Polyethylene	−55°C to +80°C





(312) 455-8830 **Consolidated** electronic wire & cable

COAXIAL AND BROADCAST CABLE

RG COAXIAL CABLE TRANSMISSION LINE

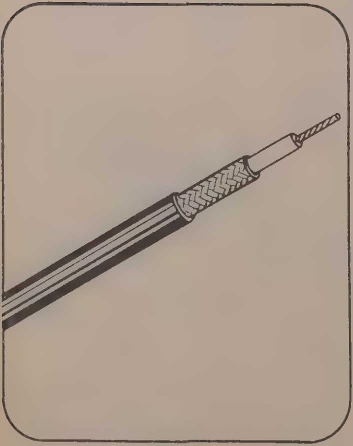
Construction
- Solid or stranded center conductors
- Shield types:
  bare copper braid
  silver plated copper braid
  single and double braids
- Teflon dielectrics

Applications
- RF Communications
- Data Transmission
- Video

Key to Abbreviations:
F-1—Solid Teflon
F-2—Taped Teflon
F-3—Air Spaced Teflon
V—High Temperature Lacquer Impregnated Fiberglass Braid with Teflon Between Shield and Jacket
VI—Polyester Fiber Impregnated with High Temperature Lacquer over Wrapped or Extruded Silicone Impregnated Fiberglass
IIA—Low Temperature Black Polyvinylchloride Non-Contaminating
FEP—Fluorinated Ethylene Propylene Copolymer, 200°C Teflon
TFE—Tetrafluoride Ethylene Propylene Copolymer, 250°C Teflon

teflon coaxial cable

Cat. No.	RG/U No.	Center Conductor	Insulation Dielectric Type	Nom Dia of Dielectric	Shields	Jacket Type	Jacket O.D.	Nom Cap pF/Ft	Max Oper Volts Rms	Nom Imp Ohms
4700	62C	.0253 Silver Covered Copper Steel	F-3	.146	Silver Covered Copper Single Braid	V	.242	14.5	750	93
4701	87A	7/.032 Silver Covered Copper	F-1	.280	Silver Coated Copper Double Braid	V	.425	29.5	5000	50
4702	94	19/.0025 Silver Covered Copper	F-2	.292	Copper Double Braid	V	.445	29.0	7000	50
4703	94A	19/.0254 Silver Plated Copper	F-2	.370	Copper Double Braid	V	.500	27.0	7000	50
4704	115	7/.028 Silver Covered Copper	F-2	.250	Silver Coated Copper Double Braid	V	.375	29.5	5000	50
4705	115A	7/.028 Silver Covered Copper	F-2	.255	Silver Coated Copper Double Braid	V	.415	29.5	5000	50
4706	116	7/.032 Silver Covered Copper	F-1	.280	Silver Coated Copper Double Braid	V with armor	.490	29.5	5000	50
4710	118A	.188 Copper	F-1	.620	Copper Single Braid	V with armor	.780		7000	50
4711	119	.102 Copper	F-1	.332	Copper Double Braid	V	.465	29.0	6000	50
4713	126	7/.0203 Karma or Equal	F-1	.185	Karma or Equal Single Braid	V	.280	29.0	3000	50
4714	140	.025 Silver Coated Copper Steel	F-1	.146	Silver Coated Copper Single Braid	V	.233	21.0	2300	75
4715	141	.039 Silver Plated Copper Weld	F-1	.116	Silver Coated Copper Single Braid	V	.190	28.5	1900	50
4716	141A	.039 Silver Covered Copper Steel	F-1	.116	Silver Coated Copper Single Braid	V	.190	28.5	1900	50
4717	142	.0359 Silver Covered Copper Steel	F-1	.116	Silver Coated Copper Double Braid	V	.206	28.5	1900	50
4718	142A	.039 Silver Covered Copper Steel	F-1	.116	Silver Coated Copper Double Braid	V	.206	28.5	1900	50
4719	142B	.039 Silver Covered Copper Steel	F-1	.116	Silver Coated Copper Double Braid	FEP	.195	.285	1900	50
4720	143	.057 Silver Covered Copper Steel	F-1	.185	Silver Coated Copper Double Braid	V	.325	28.5	3000	50
4721	143A	.059 Silver Covered Copper Steel	F-1	.185	Silver Coated Copper Double Braid	V	.325	28.5	3000	50
4722	144	7/.0179 Covered Copper Steel	F-1	.285	Silver Coated Copper Single Braid	V	.410	20.5	5000	75
4724	161	7/38 Silver Plated Cadmium Bronze	F-1	.057	Single Silver Copper	Extruded Black Nylon	.090	20.0	1000	70
4725	165	7/.032 Silver Covered Copper	F-1	.285	Silver Covered Copper Single Braid	V	.410		5000	50
4727	178	7/.0039 Silver Plated Copper Weld	F-1	.036	Silver Plated Copper Single Braid	KEL-F	.079	27.9	1000	50
4728	178A	7/.004 Silver Covered Copper Steel	F-1	.034	Silver Plated Copper Single Braid	KEL-F	.075	27.9	1000	50
4729	178B	7/.004 Silver Covered Copper Steel	F-1	.034	Silver Covered Copper Single Braid	FEP	.075		1000	50
4761	179	7/.004 Silver Covered Copper Steel	F-1	.063	Silver Covered Copper Single Braid	KEL-F	.100		1200	75
4730	179A	7/.004 Silver Covered Copper Steel	F-1	.063	Silver Plated Copper Single Braid	KEL-F	.105	20.0	1200	75
4731	179B	7/.004 Silver Covered Copper Steel	F-1	.063	Silver Covered Copper Single Braid	FEP	.105		1200	75



Consolidated
electronic wire & cable (312) 455-8830

COAXIAL AND BROADCAST CABLES

teflon coaxial cable

Cat. No.	RG/U No.	Center Conductor	Insulation Dielectric Type	Nom Dia of Dielectric	Shields	Jacket Type	Jacket O.D.	Nom Cap pF/Ft	Max Oper Volts Rms	Nom Imp Ohms
4732	180	7/.0039 Silver Covered Copper Steel	F-1	.103	Silver Plated Copper Single Braid	KEL-F	.141	15.3	1500	93
4733	180A	7/.004 Silver Covered Copper Steel	F-1	.102	Silver Plated Copper Single Braid	KEL-F	.145	14.5	1500	95
4734	180B	7/.004 Silver Covered Copper Steel	F-1	.102	Silver Covered Copper Single Braid	FEP	.145		1500	95
4735	187	7/.004 Silver Covered Copper Steel	F-1	.060	Silver Covered Copper Single Braid	Teflon	.110		1200	75
4736	187A	7/.004 Silver Covered Copper Steel	F-1	.060	Silver Covered Copper Single Braid	TFE	.110		1200	75
4737	188	7/.0067 Silver Covered Copper Steel	F-1	.060	Silver Covered Copper Single Braid	Teflon	.110		1200	50
4738	188A	7/.0067 Silver Covered Copper Steel	F-1	.060	Silver Covered Copper Single Braid	TFE	.110		1200	50
4739	195	7/.004 Silver Covered Copper Steel	F-1	.102	Silver Covered Copper Single Braid	Teflon	.155		1500	95
4740	195A	7/.004 Silver Covered Copper Steel	F-1	.102	Silver Covered Copper Single Braid	TFE	.155		1500	95
4741	196	7/.004 Silver Covered Copper Steel	F-1	.034	Silver Covered Copper Single Braid	Teflon	.080		1000	50
4742	196A	7/.004 Silver Covered Copper Steel	F-1	.034	Silver Covered Copper Single Braid	TFE	.080		1000	50
4743	209	19/.037 Silver Covered Copper	F-3	.500	Silver Covered Copper Single Braid	VI	.750		3200	50
4744	210	.0253 Silver Covered Copper Steel	F-3	.146	Silver Covered Copper Single Braid	V	.242	14.5	750	93
4745	211	.190 Copper	F-1	.620	Copper Single Braid	V	.730		7000	50
4746	211A	.190 Copper	F-1	.620	Copper Single Braid	V	.730		7000	50
4747	225	7/.0312 Silver Covered Copper	F-1	.285	Silver Covered Copper Double Braid	V	.430		5000	50
4748	226	19/.0254 Silver Covered Copper	F-2	.370	Copper Double Braid	V	.500		7000	50
4749	227	7/.0312 Silver Covered Copper	F-1	.285	Silver Covered Copper Double Braid	V with armor	.490		5000	50
4750	228	.190 Copper	F-1	.620	Copper Single Braid	V with armor	.795		7000	50
4751	228A	.190 Copper	F-1	.620	Copper Single Braid	V with armor	.795		7000	50
4762	279	19/.005 Silver Covered Copper Steel	F-1	.110	Silver Covered Copper Single Braid	V	.145	17.3	1500	75
4753	280	.1144 Copper	F-2	.327	Silver Covered Copper Double Braid	IIA	.480	27.5	4000	50
4754	281	19/.0378 Silver Covered Copper	F-2	.500	Silver Covered Copper Double Braid	VI	.750	29.5	4000	50
4756	302	.025 Silver Covered Copper Steel	F-1	.146	Silver Covered Copper Single Braid	FEP	.206	21.0	2300	75
4757	303	.039 Silver Covered Copper Steel	F-1	.116	Silver Covered Copper Single Braid	FEP	.170	28.5	1900	50
4758	304	.059 Silver Covered Copper Steel	F-1	.185	Silver Covered Copper Double Braid	FEP	.280	28.5	3000	50
4759	316	7/.0067 Silver Covered Copper Steel	F-1	.060	Silver Covered Copper Single Braid	FEP	.102		1200	50
4763	403	7/.004 Silver Covered Copper Steel	F-1	.034	Silver Covered Copper Double Braid	FEP	.116	29.3	2500	50
4764	404	7/.004 Silver Covered Copper Steel	F-1	.034	Silver Covered Copper Single Braid	FEP		31.5	2000	50

Construction

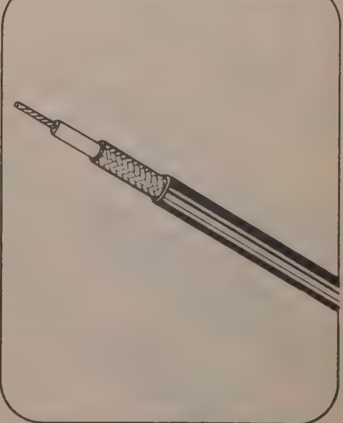
- Solid or stranded center conductors
- Shield types:
  bare copper braid
  silver plated copper braid
  single and double braids
- Teflon dielectrics

Applications

- RF Communications
- Data Transmission
- Video

Key to Abbreviations:

F-1—Solid Teflon
F-2—Taped Teflon
F-3—Air Spaced Teflon
V—High Temperature Lacquer Impregnated Fiberglass Braid with Teflon Between Shield and Jacket
VI—Polyester Fiber Impregnated with High Temperature Lacquer over Wrapped or Extruded Silicone Impregnated Fiberglass
IIA—Low Temperature Black Polyvinylchloride Non-Contaminating
FEP—Fluorinated Ethylene Propylene Copolymer, 200°C Teflon
TFE—Tetrafluoride Ethylene Propylene Copolymer, 250°C Teflon



COAXIAL AND BROADCAST CABLES

Construction (4400 Series)
- Solid CW, stranded CW, or stranded copper conductors
- Solid PE, foam PE, air or foam "FEP" teflon
- Overall bare copper braid shield
- Non-contaminating black PVC or "FEP" teflon outer jacket

Characteristics
- Temperature −20°C to +80°C

Applications
- Computer
- Data transmission

Construction (4599)
- Solid bare copperweld (cw) conductors
- Solid polyethylene insulation
- Overall bare copper braid shield
- Conductors laid parallel
- Figure "8" construction black non-contaminating PVC jacket

Characteristics
- Temperature −20°C to +80°C
- 75 Ohm Twin Coax

Applications
- Computer
- Data
- Wang Word Processing Cable

Construction (4799)
- Solid bare cw conductors
- FEP Teflon insulation
- Overall bare copper braid shield
- Conductors laid parallel
- Figure "8" construction
- "FEP Teflon or its equivalent outer jacket

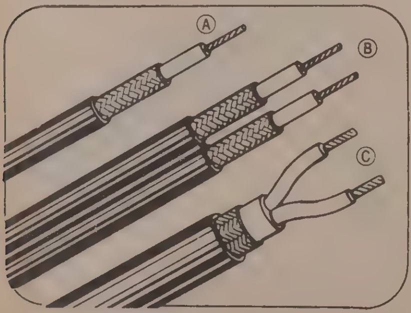
Characteristics
- Temperature −40°C to +200°C
- 75 Ohm Twin Coax
- UL Listed—Subject 13 NEC Article 725-2(b)

Applications
- Computer
- Data
- Wang Word Processing Cable

Construction (twinaxial)
- Stranded copper or bare copper conductors
- Color coded polyethylene insulation
- Shield Types:
  (A) Braided Tin Copper
  (B) Mylar Aluminum Foil Wrap and Tin Copper Drain
- Color coded PVC outer jacket

Characteristics
- Temperature Range: −20°C to +60°C (UL +60°C)
- UL 2092 UL 2582
- No crosstalk
- UL 2498 UL 2772
- Balanced line operation

Applications
- Data Transmission
- Broadcast



coaxial computer cable Ⓐ

Cat. No.	RG Type	Center Cond.	Dielectric	Shield	Shield Cov.	Nom O.D.	V.P. %	**Nom Cap pF/Ft	Nom Imp Ohms
75 ohm UL listed style 1354									
4414	59/U	**22** (7 x 30) C	Foam Poly	C	95	.242	78	17.3	75
93 ohm UL listed style 1478									
4452	62/U	**22** (solid) CW	Semi-Solid Poly	C	87	.242	84	13.5	93
4453	62A/U	**22** (solid) CW	Semi-Solid Poly	C	87	.242	84	13.5	93
4456	62A/U IBM 323921	**22** (solid) CW	Semi-Solid Poly	C	96	.242	84	13.5	93
4499	62A/U Modified	**22** (solid) CW	Semi-Solid Poly	C	90	.260	80	14.5	93
4472	62B/U	**24** (7 x 32) CW	Semi-Solid Poly	C	90	.242	84	13 5	93
4479	62A/U	**22** (solid)	FEP Teflon	C	96	.216	85	14.5	93

twin coaxial Wang style word processing cable Ⓑ

Catalog No.	RG Type	Center Cond.	Dielectric	Shield	Shield Cov.	Jacket Type	Jacket O.D.	V.P. %	**Nom Cap pF/Ft
75 ohm—polyethylene dielectric UL style 20020									
4599	59B/U	2/Cond. .0253 CW	Poly .146	C	95%	IIA	.250 x .595	66	20 5
75 ohm — FEP teflon dielectric UL listed subject 13									
4799	59B/U	2/Cond. .0253 CW	FEP Teflon .135	C	95%	FEP Teflon	.206 x .450	70	19 7

IIA — Non-contaminating low temperature polyvinylchloride jacket C — Bare copper braid shield

twinaxial data cable ©

Catalog No.	Center Cond.	Insulation	Shield	Jacket	Nom O.D.	Nom V.P. %	**Nom Cap pF/Ft	U.L. or RG Type
78 ohm UL listed								
4591	2/Cond. **20** (7 x 28) TC	PE	TC Braid 93% Cov.	Blu PVC	.242	66	19.7	2092
4465	2/Cond. **20** (7 x 28) TC	PE	TC Braid 90% Cov.	Blk PVC	.235	66	23.5	RG108A/U
4598	2/Cond. **20** (7 x 28) TC	PE	Mylar/alum. Foil Plus TC Braid 57% Cov.	Blu PVC	.243	66	19.7	2582
95 ohm								
4475	2/Cond. **18** (7 x 26) BC	PE	2/TC Braid 95% Cov.	Blk PVC	.420	66	16	RG22B/U
100 ohm UL listed								
4592	2/Cond. **20** (7 x 28) 1/C Tin 1/C Bare		TC Braid 95% Cov.	Blk PVC	.330	66	15.5	2498
124 ohm UL listed								
4594	2/Cond. **25** (7 x 33) TC	Foam Poly .027 Blu, Wht	Mylar/alum. Foil Plus TC Drain	.050 Blu PVC	.242	66	12.2	2092
150 ohm UL listed								
4596	2/Cond. **22** (19 x 34) TC	Foam Poly Blk, Yel	Mylar/alum. Foil Plus TC Drain	Blk PVC	.350	78	8.8	2772

** — Nominal capacitance between conductors

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COAXIAL AND BROADCAST CABLES

RG coaxial cable foam polyethylene dielectric Ⓐ

Cat. No.	RG/U No.	Jacket O.D.	Jacket Type	Shields	Insulation Dielectric & Type	Center Cond.	V.P. %	Nom. Cap pF/Ft	Max Oper Volts RMS	Nom Imp Ohms
4477	8	.405	1	C	.285 Foam PE	7/21C	80	24.5	1,500	50
4476	11	.405	1	C	.285 Foam PE	14C	80	16.5	1,300	75
4498	58	.195	1	C	.116 Foam PE	20C	80	28.5	1,000	53.5
4478	59	.242	1	C	.146 Foam PE	22CW	80	17.0	1,000	75

RG triaxial cable foam polyethylene dielectric Ⓑ

Cat. No.	RG/U No.	Jacket O.D.	Jacket Type	Shields Outer	Shields Inner	Insulation Dielectric & Type	Center Cond.	V.P. %	Nom. Cap pF/Ft	Max Oper Volts RMS	Nom Imp Ohms
4480	11	.475	1	C	C	.285 Foam PE	14C	80	16.5	1,300	75
4481	59	.335	1	C	C	.146 Foam PE	22CW	80	17.0	1,000	75

RG triaxial cable solid polyethylene dielectric Ⓑ

Cat. No.	RG/U No.	Jacket O.D.	Jacket Type	Shields Outer	Shields Inner	Insulation Dielectric & Type	Center Cond.	V.P. %	Nom. Cap pF/Ft	Max Oper Volts RMS	Nom Imp Ohms
4462	8	.490	1	C	C	.285P	7/21TC	65.9	29.5	5,000	52
4461	11	.460	1	C	C	.285P	7/26TC	65.9	29.5	5,000	75
4463	58A	.285	1	TC	TC	.116P	19/.0071TC	65.9	28.5	1,900	52
4460	59	.335	1	C	C	.146P	22CW	65.9	21.0	2,300	73

commercial type coaxial cables Ⓐ

Cat. No.	RG Type	Gauge & Stranding	Dielectric Type & O.D.	Shield Coverage	Nom. O.D.	Nom Imp Ohms	Jacket Color
4477	8/U	**13** (7 x 21)C	Foam PE .285″	85%	.405	50	Black
4400	8/U	**13** (7 x 21)C	Foam PE .285″	95%	.405	50	White, Black
4407	Modified 8/U	**16** (19 x 29)C	Foam PE .154″	85%	.242	50	Gray
4405	58/U	**20** Solid/C	Solid PE .116″	87%	.195	53.5	Black
4498	58/U	**20** Solid/C	Foam PE .116″	87%	.195	53.5	Black
4449	58A/U	**20** (19 x .0071)T	Solid PE .116″	90%	.195	50	Black
4401	59/U	**22** Solid/CW	Solid PE .146″	85%	.242	73	Black
4402	59/U	**22** Solid/CW	Solid PE .146″	85%	.242	73	Gray
4403	59/U	**22** Solid/CW	Solid PE .146″	85%	.242	73	White
4478	59/U	**22** Solid/CW	Foam PE .107″	87%	.242	72	Black

low noise coaxial cable ©

Cat. No.	RG Type	Gauge & Stranding	Dielectric Type & O.D.	Shield	Shield Coverage	Nom O.D. (Inch)	VP %	Cap pF/Ft	Nom Imp Ohms
4410	59/U	**22** Solid/CW	PE .146 Conductive Layer	C	93%	.242	65	21	73
4458	174/U	**26** (7 x 34)CW	PE .048 Conductive Layer	TC	88%	.101	62	39	50

* Semi Solid Dielectric; N—Nichrome; C—Copper; S—Silvered Copper; CS—Copperweld; T—Tinned Copper; F—Formvar

Construction

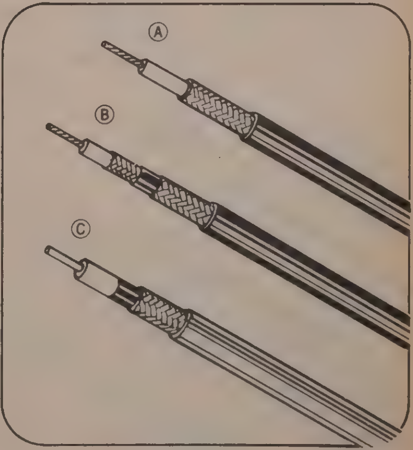
- Solid copper, solid copperweld, stranded bare and tin copper conductors
- Solid PE and foam DE insulation
- Overall inner and outer bare and tin copper braid shields where applicable
- Polyvinylchloride (PVC) outer jacket

Characteristics

- Temperature −20°C to +80°C

Applications

- Data Transmission
- Broadcast



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COAXIAL AND BROADCAST CABLES

CATV/MATV COAXIAL CABLES

Construction (siamese cables)

- Stranded tinned and bare copper conductors
- Cellular polyethylene and polyvinylchloride insulation
- Mylar aluminum foil shield with drain and copper braid shield
- "Siamese" cable construction
- Black polyvinylchloride jacket

Characteristics

- Temperature −20°C to +80°C
- Cable 100% sweep tested
- 75 Ohm impedance
- "Siamese" construction

Applications

- TV camera cable
- Broadcast
- CCTV cable

Construction (6/u)

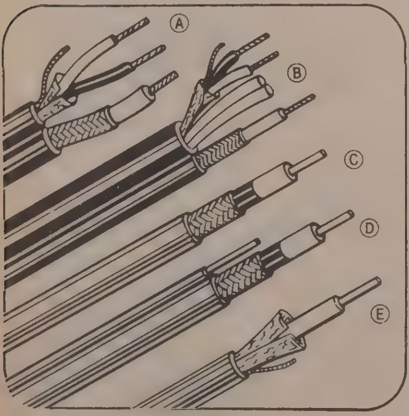
- Solid bare copper or copperweld conductors
- Cellular polyethylene insulation
- Mylar aluminum foil with drains and/or aluminum braid
- Black polyvinylchloride outer jacket

Characteristics

- Temperature −20°C to +60°C
- Cable 100% sweep tested
- 75 Ohm impedance

Applications

- Broadcast
- MATV coaxial
- CCTV coaxial
- CATV drop cable
- TV/FM lead-in cable



TV camera cable—CCTV siamese cable

Cat. No.	Gauge & Strands	Insulation & Nom O.D.	Shields & Material	Nom O.D.	Nom V.P. %	Nom Cap pF/Ft	Nom Imp Ohms	Nominal Attenuation MHz	db/ 100 Ft
4590 Ⓐ	2/Cond 22 (7 x 30) Tin Copper	PVC .054	Mylar/Aluminum Foil Shield with Drain Wire	.242 x .445		51			
	1/Coax 22 (7 x 30) Bare Copper	Cellular Polyethylene .146	Bare Copper Braid 95% Coverage		78	17.3	75	1 5 10 100	0.3 0.7 1.0 3.0
4588 Ⓑ	3/Pairs 22 (7 x 30) Tin Copper	PVC .054	Each Pair Shielded Mylar/Aluminum Foil and T.C. Drain	.314 x .576		51			
	1/Coax 22 (7 x 30) Bare Copper	Cellular Polyethylene .146	Bare Copper Braid 96% Coverage		78	17.3	75	1 5 10 100	0.3 0.7 1.0 3.0

6/U type mylar aluminum/foil and braid ©

Cat. No.	Gauge & Strands	Insulation & Nom O.D.	Shields & Material	Nom O.D.	Nom V.P. %	Nom Cap pF/Ft	Nom Imp Ohms	Nominal Attenuation MHz	db/ 100 Ft
4585	18 Solid Bare Copperweld	Cellular Polyethylene .180	Mylar/Aluminum Foil & 60% Aluminum Braid, Black PVC jacket	.262	78	17.3	75	50 100 200 500 900	1.5 2.1 3.1 5.0 6.9

All Cable 100% Sweep Tested

6/U type "conco-bond" sealed foil and braid © Ⓓ

Cat. No.	Gauge & Strands	Insulation & Nom O.D.	Shields & Material	Nom O.D.	Nom V.P. %	Nom Cap pF/Ft	Nom Imp Ohms	Nominal Attenuation MHz	db/ 100 Ft
4580	18 Solid Bare Copperweld	Cellular Polyethylene .180	Conco-Bond Sealed Aluminum Foil & 40% Aluminum Braid, Black PVC jacket	.275	78	17.3	75	50 100 200 500 900	1.5 2.1 3.1 5.0 6.9
4595	18 Solid Bare Copperweld	Cellular Polyethylene .180	Conco-Bond Sealed Aluminum Foil & 60% Aluminum Braid, Black PVC Jacket	.280 x .415	78	17.3	75	50 100 200 500 900	1.5 2.1 3.1 5.0 6.9

WITH Messenger Wire — .051" galvanized steel messenger

All Cable 100% Sweep Tested

6/U type mylar aluminum/foil and drain wires Ⓔ

Cat. No.	Gauge & Strands	Insulation & Nom O.D.	Shields & Material	Nom O.D.	Nom V.P. %	Nom Cap pF/Ft	Nom Imp Ohms	Nominal Attenuation MHz	db/ 100 Ft
4575	18 Solid Bare Copperweld	Cellular Polyethylene .180	Mylar/Aluminum Foil & 4 Drain Wires, Black, Gray or White PVC jacket	.242	78	17.3	75	50 100 200 500 900	1.5 2.1 3.1 5.0 6.9

All Cable 100% Sweep Tested

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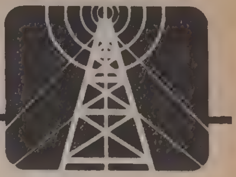


COAXIAL AND BROADCAST CABLES

59/U type mylar aluminum foil and braid Ⓐ Ⓑ

Cat. No.	Gauge & Strands	Insulation & Nom O.D.	Shields & Material	Nom O.D.	Nom V.P. %	Nom Cap pF/Ft	Nom Imp Ohms	Nominal Attenuation	
								MHz	db/ 100 Ft
4567	20 Solid Bare Copperweld	Cellular Polyethylene .146	Mylar/Aluminum Foil & 40% Aluminum Braid, Black PVC jacket	.242	78	17.3	75	50 100 200 500 900	1.8 2.6 3.8 6.2 8.4
4569	22 Solid Bare Copperweld	Cellular Polyethylene .140	Mylar/Aluminum Foil & 40% Aluminum Braid, Black PVC jacket	.242	78	16.3	80	50 100 200 500 900	1.9 2.6 4.0 6.5 9.0
4565	20 Solid Bare Copperweld	Cellular Polyethylene .146	Mylar/Aluminum Foil & 40% Aluminum Braid, Black PVC jacket WITH Messenger Wire — .051″ galvanized steel messenger	.242 x .375	78	17.3	75	50 100 200 500 900	1.8 2.6 3.8 6.2 8.4

All Cable 100% Sweep Tested

59/U type "conco-bond" sealed foil and braid Ⓐ

Cat. No.	Gauge & Strands	Insulation & Nom O.D.	Shields & Material	Nom O.D.	Nom V.P. %	Nom Cap pF/Ft	Nom Imp Ohms	Nominal Attenuation	
								MHz	db/ 100 Ft
4555	20 Solid Bare Copperweld	Cellular Polyethylene .146	Conco-Bond Sealed Aluminum Foil & 40% Aluminum Braid, Black PVC jacket	.242	78	17.3	75	50 100 200 500 900	1.8 2.6 3.8 6.2 8.4

All Cable 100% Sweep Tested

59/U type aluminum foil and drain wires Ⓒ

Cat. No.	Gauge & Strands	Insulation & Nom O.D.	Shields & Material	Nom O.D.	Nom V.P. %	Nom Cap pF/Ft	Nom Imp Ohms	Nominal Attenuation	
								MHz	db/ 100 Ft
4559	22 Solid Bare Copperweld	Cellular Polyethylene .140	Mylar/Aluminum Foil & 4 Drain Wires, Black or White PVC jacket	.242	78	16.3	80	50 100 200 500 900	1.9 2.8 4.0 6.6 8.8

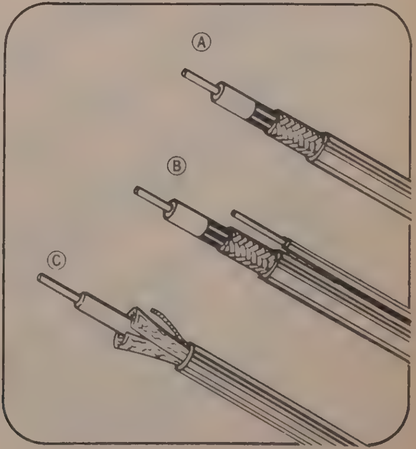
All Cable 100% Sweep Tested

CATV/MATV COAXIAL CABLES

Construction
- Solid bare copperweld conductors
- Cellular polyethylene insulation
- Mylar aluminum foil with drains and/or aluminum braid
- Black polyvinylchloride outer jacket

Characteristics
- Temperature Range: −20° to +60°C
- Cable 100% sweeptested

Applications
- Broadcast
- CATV drop cable
- CCTV coaxial
- MATV coaxial



(312) 455-8830 **Consolidated** electronic wire & cable

INSTRUMENTATION CABLES

PVC JACKETED SHIELDED CABLES

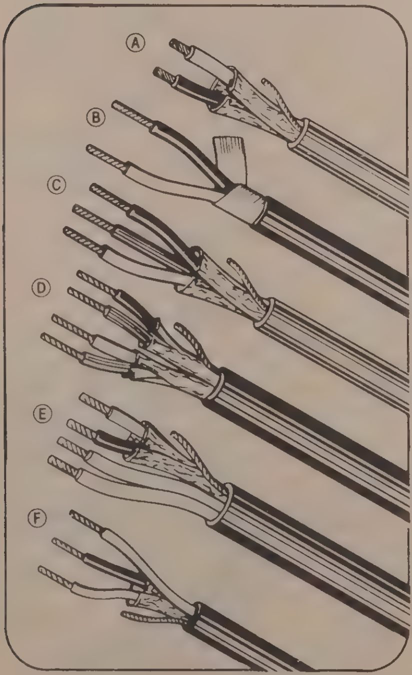
Construction
- Solid or stranded tinned copper conductors
- Color coded polyethylene (PE), polyvinylchloride (PVC)
- Conductors cabled
- Shield Types:
  - (A) Braided Tin Copper
  - (B) Spiral Tin Copper Serve
  - (C) Mylar Aluminum Foil Wrap and Tin Copper Drain
- Outer Jacket Type: Gray PVC

Characteristics
- Temperature Range: −20°C to +80°C (UL +80°C)

Voltage Rating:

UL 2092	300V	UL 2552	300V
UL 2093	300V	UL 2629	300V
UL 2106	600V	UL 2725	300V
UL 2548	300V		

Applications
- Audio • Instrumentation
- Broadcast/Studio • Sound



mylar aluminum shielded two conductor cable Ⓐ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	**Cap. pF/Ft	Color Code	Shield Type	U.L.
5593	24 (7 x 32)	P.E.	.010	.020	.150	200	30	Blk, Wht	Al. Mylar	2552
*5570	22 (7 x 30)	P.E.	.010	.016	.135	200	34	Blk, Red	Al. Mylar	2552
5588	22 (solid)	P.E.	.010	.016	.125	200	34	Blk, Red	Al. Mylar	2552
5572	22 (7 x 30)	P.E.	.015	.025	.170	300	30	Blk, Red	Al. Mylar	2552
5573	20 (10 x 30)	P.E.	.015	.025	.200	300	27	Blk, Wht	Al. Mylar	2543
5574	18 (16 x 30)	P.E.	.018	.028	.225	300	27	Blk, Wht	Al. Mylar	2098
5575	16 (26 x 30)	P.E.	.018	.020	.250	300	32	Blk, Wht	Al. Mylar	2092
5589	14 (41 x 30)	P.E.	.032	.035	.340	600	24	Blk, Wht	Al. Mylar	2106
5596	12 (19 x 25)	P.E.	.027	.040	.400	600	35	Blk, Wht	Al. Mylar	2106

*Available in black or gray outer jacket, specify when ordering.

spiral serve shielded two conductor cable UL listed Ⓑ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	**Cap. pF/Ft	Color Code	Shield Type	U.L.
5587	24 (7 x 32)	P.E.	.018	.020	.130x.260	300	35	Red, Wht	Spiral	2629
1458	22 (16 x 34)	P.E.	.023	.023	.225	400	32	Blk, Clr	Spiral	2092
5511	22 (solid)	PVC	.011	.020	.170	300	38	Blk, Red	Spiral	2095
5568	22 (7 x 30)	PVC	.012	.020	.160	300	40	Blk, Red	Spiral	2552
5543	20 (10 x 30)	PVC	.012	.020	.180	300	47	Blk, Red	Spiral	2552
5538	18 (16 x 30)	PVC	.012	.020	.205	300	53	Red, Wht	Spiral	2552

mylar aluminum shielded three conductor cable UL listed Ⓒ

Catalog No.	Gauge and Strand	Insul. Type	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	**Cap. pF/Ft	Color Code	Shield Type	U.L.
5576	22 (7 x 30)	P.E.	.016	.025	.190	350	23	Blk, Wht, Red	Mylar Al.	2093
5577	20 (10 x 30)	P.E.	.016	.028	.210	450	27	Blk, Wht, Red	Mylar Al.	2093
5578	18 (16 x 30)	P.E.	.018	.028	.240	450	24	Blk, Wht, Red	Mylar Al.	2093
5590	16 (26 x 30)	P.E.	.018	.030	.260	450	29	Blk, Wht, Red	Mylar Al.	2093
5591	14 (41 x 30)	P.E.	.018	.035	.300	450	36	Blk, Wht, Red	Mylar Al.	2093

individually shielded two-pair cable UL listed Ⓓ

Cat. No.	Gauge and Strand	Insul. Type	Insul. Wall	Shield Ea. Pr.	Jacket Wall	O.A. Dia.	**Cap. pF/Ft.	Colors	U.L.
5594	22 (7 x 30)	P.E.	.008	Mylar Al.	.019	.165	35	Red, Blk, Grn, Wht	2725
5592*	22 (7 x 30)	P.E.	.008	Mylar Al.	.030	.198	35	Red, Blk, Grn, Wht	2725

*Catalog 5592-Additional overall mylar alulminum foil shield with 24 (7x32) tin copper drain wire.

one pair shielded, one pair unshielded cable UL listed Ⓔ

Cat. No.	Gauge and Strand	Insul. Type	Insul. Wall	Shield	Jacket Wall	O.A. Dia.	**Cap. pF/Ft.	Colors	U.L.
5571	22 (7 x 30)	P.E.	.009	Mylar Al.	.019	.185	34	Red, Blk (s), Grn, Wht	2552
5595	20 (7 x 28)	P.E.	.015	Mylar Al.	.028	.230	42	Red, Blk (s), Grn, Wht	2548

three conductor cable/two shielded, one unshielded Ⓕ

Cat. No.	Gauge and Strand	Insul. Type	Insul. Wall	Shield	Jacket Wall	O.A. Dia.	**Cap. pF/Ft.	Colors	NEC Article
5701	22 (7 x 30)	PVC	.013	Mylar Al.	.032	.199	28	Blk (s), Wht (s), Brn	725
5702	20 (7 x 28)	P.E.	.014	Mylar Al.	.028	.210	26	Blk (s), Red (s), Clr	725

** Capacitance per foot is between conductors.

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INSTRUMENTATION CABLES

individually shielded pair cable Ⓐ

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	**Cap pF/Ft	Color Chart Code†
22 gauge stranded UL listed style 2493								
5594	22 (7 x 30)	2	.010	.020	.165	300	35	Blk, Red, Wht, Grn
5323	22 (7 x 30)	3	.010	.030	.265	.300	30	3
5326	22 (7 x 30)	6	.010	.037	.355	300	30	3
5329	22 (7 x 30)	9	.010	.040	.425	300	30	3
5331	22 (7 x 30)	11	.010	.040	.455	300	30	3
5332	22 (7 x 30)	12	.010	.040	.465	300	30	3
5335	22 (7 x 30)	15	.010	.045	.525	300	30	3
5339	22 (7 x 30)	19	.010	.050	.575	300	30	3
5347	22 (7 x 30)	27	.010	.070	.705	300	30	3
22 gauge solid UL listed style 2725								
5303	22 (solid)	3	.010	.030	.250	350	30	3
5306	22 (solid)	6	.010	.037	.330	350	30	3
5309	22 (solid)	9	.010	.040	.390	350	30	3
5311	22 (solid)	11	.010	.040	.420	350	30	3
5315	22 (solid)	15	.010	.045	.485	350	30	3
20 gauge stranded UL listed style 2493								
5573	20 (10 x 30)	1	.015	.025	.200	300	35	2
5363	20 (10 x 30)	3	.013	.048	.355	300	35	3
5366	20 (10 x 30)	6	.013	.048	.470	300	35	3
5369	20 (10 x 30)	9	.013	.065	.550	300	35	3
5371	20 (10 x 30)	11	.013	.065	.580	300	35	3
5372	20 (10 x 30)	12	.013	.065	.600	300	35	3
5375	20 (10 x 30)	15	.013	.065	.650	300	35	3
18 gauge stranded UL listed style 2493								
5574	18 (16 x 30)	1	.018	.025	.200	400	50	2
5353	18 (16 x 30)	3	.016	.045	.405	400	30	3
5356	18 (16 x 30)	6	.016	.055	.575	400	30	3
5359	18 (16 x 30)	9	.016	.065	.660	400	30	3
5362	18 (16 x 30)	12	.016	.070	.765	400	30	3
5365	18 (16 x 30)	15	.016	.070	.820	400	30	3

"low cap" individual shielded pair computer cable meets EIA RS-422B type requirements Ⓑ

Catalog No.	Gauge and Strand	Pairs	Jacket	O.A. Dia.	Imp. Ohms	*Cap pF/Ft	Color Chart Code†
24 gauge stranded UL listed style 2493							
5348	24 (7 x 32)	2	PVC	.335	100	12.5	3
5343	24 (7 x 32)	3	PVC	.350	100	12.5	3
5346	24 (7 x 32)	6	PVC	.460	100	12.5	3
5349	24 (7 x 32)	9	PVC	.570	100	12.5	3
5341	24 (7 x 32)	11	PVC	.610	100	12.5	3
5342	24 (7 x 32)	12	PVC	.630	100	12.5	3
5345	24 (7 x 32)	15	PVC	.700	100	12.5	3
5357	24 (7 x 32)	17	PVC	.730	100	12.5	3
5340	24 (7 x 32)	19	PVC	.740	100	12.5	3
5344	24 (7 x 32)	27	PVC	.920	100	12.5	3

*Capacitance between conductors

†See color code chart on page **2•2075**

SHIELDED CABLES

Construction

- Stranded or solid tinned copper conductors
- Color coded polypropylene or low cap insulation
- Conductors twisted into pairs
- Each pair isolated mylar/aluminum foil shield. aluminum facing inward
- Stranded tin copper drain wire each pair
- Gray polyvinylchloride (PVC) outer jacket

Characteristics

- Temperature Range: −40°C to +105°C

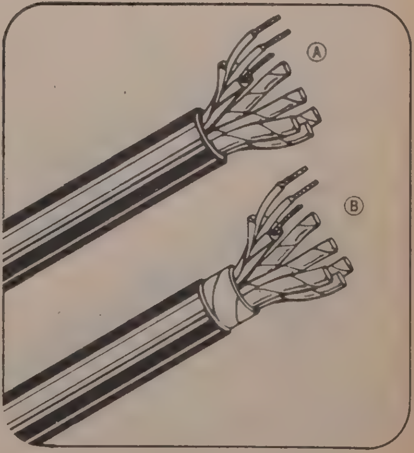
Voltage Rating:

UL 2493	300V	22AWG
UL 2725	300V	22AWG
UL 2493	350V	20AWG
UL 2493	400V	18AWG

- Shields are electrically "isolated" from each other

Applications

- Audio
- Broadcast
- Instrumentation
- Data
- Sound



(312) 455-8830 **Consolidated** electronic wire & cable

INSTRUMENTATION CABLES

SHIELDED CABLES

Construction (5528)
- Stranded tinned copper conductors
- Color coded polypropylene insulation
- Conductors cabled into pairs, on common axis
- Mylar/aluminum foil shield and tinned copper drain wire
- Gray polyvinylchloride jacket

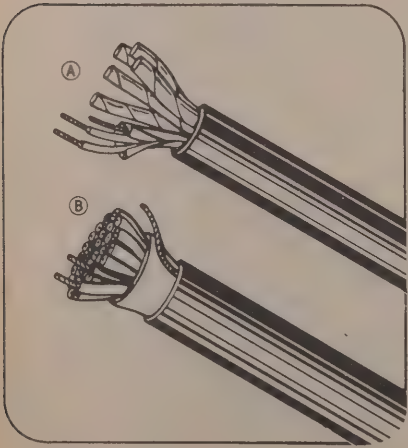
Characteristics
- Temperature: −40° to +105°C
- Suggested Working Voltage: 400 Volts

Construction (5700 & 5900 Series)
- Stranded or solid tinned copper conductors
- Color coded semi-rigid polyvinylchloride insulation
- Conductors cabled and twisted into pairs where applicable
- Overall mylar/aluminum foil shield and stranded tinned copper drain wire
- Gray polyvinylchloride jacket

Characteristics

Temperature Range:
-20°C to +80°C (UL +80°C)
- UL 2464 300 Volts
- CSA SR-PVC
- Meets RS 232C

Applications
- Computer
- Instrumentation
- Data



four pairs individually shielded instrumentation cable Ⓐ

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	**Cap pF/Ft	Colors
5528	20 (7 x 28)	4	.015	.030	.345	27	Red, Blk Grn, Wht Wht/Red Wht/Blk Wht/Grn Wht/Yel

overall shielded-multiconductor cable RS 232C Ⓑ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	**Cap pF/Ft	Color Chart Code†
24 gauge stranded UL listed style 2464 SP -SR-PVC							
5710	24 (7 x 32)	2	.010	.035	.168	30	1
5711	24 (7 x 32)	3	.010	.035	.172	30	1
5712	24 (7 x 32)	4	.010	.035	.180	30	1
5713	24 (7 x 32)	5	.010	.035	.190	30	1
5714	24 (7 x 32)	6	.010	.035	.205	30	1
5715	24 (7 x 32)	7	.010	.035	.205	30	1
5716	24 (7 x 32)	8	.010	.035	.220	30	1
5717	24 (7 x 32)	9	.010	.035	.240	30	1
5718	24 (7 x 32)	10	.010	.035	.250	30	1
5719	24 (7 x 32)	15	.010	.035	.280	30	2
5720	24 (7 x 32)	20	.010	.035	.310	30	2
5725	24 (7 x 32)	25	.010	.040	.370	30	2
5730	24 (7 x 32)	30	.010	.040	.390	30	2
5740	24 (7 x 32)	40	.010	.040	.440	30	2
5750	24 (7 x 32)	50	.010	.045	.490	30	2

overall shielded multi-paired cable RS 232C Ⓑ

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	**Cap pF/Ft	Color Chart Code†
24 gauge stranded UL listed style 2464 SP -SR-PVC							
5771	24 (7 x 32)	1	.010	.032	.156	40	3
5772	24 (7 x 32)	2	.010	.032	.222	30	3
5773	24 (7 x 32)	3	.010	.032	.232	30	3
5774	24 (7 x 32)	4	.010	.032	.265	30	3
5775	24 (7 x 32)	5	.010	.035	.295	30	3
5776	24 (7 x 32)	6	.010	.035	.295	30	3
5777	24 (7 x 32)	7	.010	.035	.300	30	3
5778	24 (7 x 32)	8	.010	.035	.330	30	3
5779	24 (7 x 32)	9	.010	.035	.340	30	3
5780	24 (7 x 32)	10	.010	.040	.380	30	3
5785	24 (7 x 32)	15	.010	.040	.425	30	3
5789	24 (7 x 32)	19	.010	.040	.450	30	3
5790	24 (7 x 32)	25	.010	.045	.515	30	3
5791	24 (7 x 32)	50	.010	.050	.700	30	3
22 gauge solid UL listed style 2464 SP -SR-PVC							
5912	22 (solid)	2	.013	.032	.224	35	3
5914	22 (solid)	4	.013	.032	.265	35	3
5916	22 (solid)	6	.013	.035	.321	35	3
5919	22 (solid)	9	.013	.037	.373	35	3
5925	22 (solid)	15	.013	.040	.437	35	3
5929	22 (solid)	19	.013	.040	.475	35	3
5937	22 (solid)	27	.013	.045	.590	35	3
5901	22 (solid)	38	.008	.045	.600	35	3
5902	22 (solid)	51	008	.050	.700	35	3

**Capacitance between conductors
†See color code chart on page 2•2075

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electronic wire & cable

INSTRUMENTATION CABLES

unshielded two conductor cable Ⓐ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
22-12 gauge UL listed style 2464 CSA TR-64						
5001	12 (7 x 30) TC	2	.016	.038	.200	1
5002	20 (10 x 30) TC	2	.016	.038	.214	1
5003	18 (16 x 30) TC	2	.016	.038	.230	1
5004	16 (26 x 30) TC	2	.016	.038	.260	1
5005	14 (41 x 30) TC	2	.020	.043	.324	1
5006	12 (65 x 30) TC	2	.032	.053	.410	1

shielded two conductor cable Ⓑ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
22-12 gauge UL listed style 2464 CSA TR-64						
5010	22 (7 x 30) TC	2	.016	.038	.202	1
5011	20 (10 x 30) TC	2	.016	.038	.216	1
5012	18 (16 x 30) TC	2	.016	.038	.236	1
5013	16 (26 x 30) TC	2	.016	.038	.262	1
5014	14 (41 x 30) TC	2	.022	.043	.326	1
5015	12 (65 x 30) TC	2	.032	.053	.412	1

UL subject 13 unshielded three conductor cable Ⓒ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
22-14 gauge UL listed style 2464 CSA TR-64						
5020	22 (7 x 30) TC	3	.016	.038	.210	2
5021	20 (10 x 30) TC	3	.016	.038	.225	2
5022	18 (16 x 30) TC	3	.016	.038	.246	2
5023	16 (26 x 30) TC	3	.016	.038	.274	2
5024	14 (41 x 30) TC	3	022	.043	342	2

UL subject 13 shielded three conductor cable Ⓓ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
22-14 gauge UL listed style 2464 CSA TR-64						
5030	22 (7 x 30) TC	3	.016	.038	.212	2
5031	20 (10 x 30) TC	3	.016	.038	.227	2
5032	18 (16 x 30) TC	3	.016	.038	.248	2
5033	16 (26 x 30) TC	3	.016	.038	.276	2
5034	14 (41 x 30) TC	3	.020	.043	.344	2

†See color code chart on page 2•2075

Construction

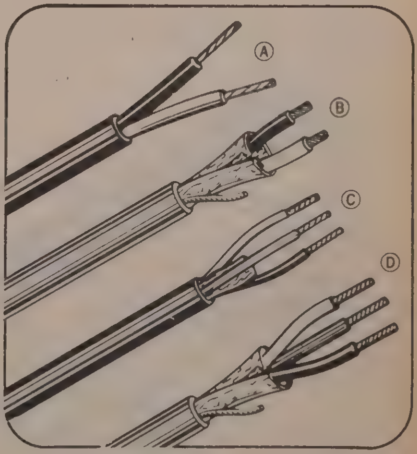
- Stranded tinned copper conductors
- Color coded polyvinylchloride insulation
- Overall mylar/aluminum foil foil shield and stranded tin copper drain wire, where applicable
- Gray polyvinylchloride outer jacket

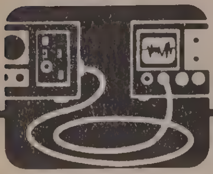
Characteristics

- Temperature: −30° to +105°C
- UL Subject 13 105°C, 300 Volts Article 725 NEC
- UL Style 2464
- Certified CSA-TR-64
- UL 70,000 BTU Flame and Tray Cable Test IEEE 383
- UL Listed as Tray Cable Class 2 and 3 circuits

Applications

- Instrumentation control and power
- Power limited circuits





(312) 455-8830 **Consolidated** electronic wire & cable

INSTRUMENTATION CABLES

mylar aluminum overall shielded multi-paired cable Ⓐ

Construction (Overall Shield)
- Stranded tinned copper conductors
- Color coded polyvinylchloride insulation, Red/Black Number marked
- Overall mylar aluminum foil shield and stranded tin copper drain wire
- Gray Polyvinylchloride jacket

Characteristics
- Temperature: −30°C to +105°C
- UL Subject 13 105°C, 300 Volts Article 725 NEC
- Appliance Wiring Style 2464
- Certified CSA-TR-64
- UL 70,000 BTU Flame and Tray Cable Test IEEE 383

Applications
- Instrumentation control and power
- Power Limited Circuit Cable

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
22 gauge stranded UL listed style 2464 (SP) TR-64						
5040	22 (7 x 30)	2	.016	.043	.310	Red/Black
5041	22 (7 x 30)	3	.016	.043	.326	Red/Black
5042	22 (7 x 30)	4	.016	.043	.353	Red/Black
5043	22 (7 x 30)	6	.016	.053	.425	Red/Black
5044	22 (7 x 30)	9	.016	.053	.488	Red/Black
5045	22 (7 x 30)	11	.016	.053	.536	Red/Black
5046	22 (7 x 30)	15	.016	.053	.594	Red/Black
5047	22 (7 x 30)	19	.016	.063	.631	Red/Black
5048	22 (7 x 30)	27	.016	.063	.761	Red/Black
5049	22 (7 x 30)	51	.016	.075	.950	Red/Black
18 gauge stranded UL listed style 2464 (SP) TR-64						
5050	18 (16 x 30)	2	.016	.043	.375	Red/Black
5051	18 (16 x 30)	3	.016	.053	.416	Red/Black
5052	18 (16 x 30)	4	.016	.053	.451	Red/Black
5053	18 (16 x 30)	6	.016	.053	.516	Red/Black
5054	18 (16 x 30)	9	.016	.053	.596	Red/Black
5055	18 (16 x 30)	11	.016	.063	.676	Red/Black
5056	18 (16 x 30)	15	.016	.063	.751	Red/Black

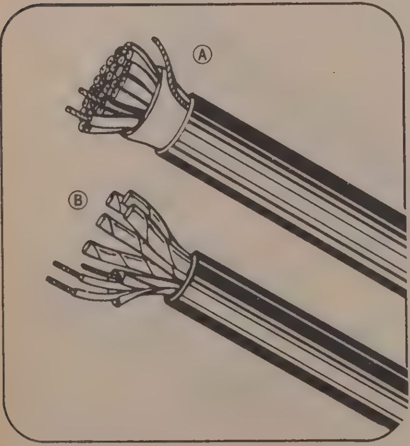
mylar aluminum individually shielded pair cable Ⓑ

Construction (Individually Shielded)
- Stranded tinned copper conductors
- Color coded polyvinylchloride insulation, Red/Black Number marked
- Conductors cabled and twisted into pairs
- Each pair isolated mylar/aluminum foil shield, aluminum facing inward
- Stranded tin copper copper drain wire each pair
- Gray polyvinylchloride jacket

Characteristics
- Temperature: −30°C to +105°C
- UL Subject 13 105°C, 300 Volts Article 725 NEC
- Appliance Wiring Style 2464
- Certified CSA-TR-64
- UL 70,000 BTU Flame and Tray Cable Test IEEE 383

Applications
- Instrumentation control and power
- Power Limited Circuit Cable

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
22 gauge stranded UL listed style 2464 (SP) TR-64						
5060	22 (7 x 30)	2	.016	.043	.316	Red/Black
5061	22 (7 x 30)	3	.016	.043	.331	Red/Black
5062	22 (7 x 30)	4	.016	.043	.360	Red/Black
5063	22 (7 x 30)	6	.016	.053	.431	Red/Black
5064	22 (7 x 30)	9	.016	.053	.500	Red/Black
5065	22 (7 x 30)	11	.016	.053	.551	Red/Black
5066	22 (7 x 30)	15	.016	.053	.606	Red/Black
5067	22 (7 x 30)	19	.016	.063	.646	Red/Black
5068	22 (7 x 30)	27	.016	.063	.776	Red/Black
5069	22 (7 x 30)	51	.016	.075	.970	Red/Black
18 gauge stranded UL listed style 2464 (SP) TR-64						
5070	18 (16 x 30)	2	.016	.043	.316	Red/Black
5071	18 (16 x 30)	3	.016	.053	.421	Red/Black
5072	18 (16 x 30)	4	.016	.053	.456	Red/Black
5073	18 (16 x 30)	6	.016	.053	.526	Red/Black
5074	18 (16 x 30)	9	.016	.063	.628	Red/Black
5075	18 (16 x 30)	11	.016	.063	.686	Red/Black
5076	18 (16 x 30)	15	.016	.063	.766	Red/Black



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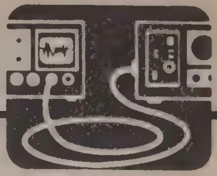


INSTRUMENTATION CABLES

unshielded two conductor tray cable Ⓐ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
			18-12 gauge UL listed 1277			
5080	18 (16 x 30) TC	2	.016 PVC .005 NYLON	.048 PVC	.279	1
5081	16 (26 x 30) TC	2	.016 PVC .005 NYLON	.048 PVC	.306	1
5082	14 (41 x 30) TC	2	.022 PVC .005 NYLON	.048 PVC	.359	1
5083	12 (65 x 30) TC	2	.022 PVC .005 NYLON	.048 PVC	.399	1

mylar aluminum shielded two conductor tray cable Ⓑ

Catalog No.	Gauge and Strand	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
			18-12 gauge UL listed 1277			
5090	18 (16 x 30) TC	2	.016 PVC .005 NYLON	.048 PVC	.278	1
5091	16 (26 x 30) TC	2	.016 PVC .005 NYLON	.048 PVC	.304	1
5092	14 (41 x 30) TC	2	.022 PVC .005 NYLON	.048 PVC	.358	1
5093	12 (65 x 30) TC	2	.022 PVC .005 NYLON	.048 PVC	.398	1

shielded multi-pair data cable Ⓒ

Catalog No.	Gauge and Strand	Pairs	Insul. Wall	Jacket Wall	O.A. Dia.	Color Chart Code†
			22 gauge solid, single jacket			
8006	22 (solid)	6	.012	.060	.420	6
8012	22 (solid)	12	.012	.060	.490	6
8018	22 (solid)	18	.012	.060	.560	6
8025	22 (solid)	25	.012	.060	.630	6
8050	22 (solid)	50	.012	.060	.800	6
8100	22 (solid)	100	.012	.060	1.120	6
			19 gauge solid, single jacket			
8016	19 (solid)	6	.015	.060	.500	6
8112	19 (solid)	12	.015	.060	.630	6
8118	19 (solid)	18	.015	.060	.730	6
8125	19 (solid)	25	.015	.060	.820	6
8150	19 (solid)	50	.015	.060	1.120	6
8110	19 (solid)	100	.015	.060	1.520	6
			22 gauge solid, double jacket			
8306	22 (solid)	6	.012	.047/.040	.480	6
8312	22 (solid)	12	.012	.047/.040	.550	6
8318	22 (solid)	18	.012	.047/.040	.620	6
8325	22 (solid)	25	.012	.047/.040	.690	6
8350	22 (solid)	50	.012	.047/.040	.860	6
8310	22 (solid)	100	.012	.047/.050	1.180	6
			19 gauge solid, double jacket			
8406	19 (solid)	6	.015	.047/.040	.560	6
8412	19 (solid)	12	.015	.047/.040	.690	6
8418	19 (solid)	18	.015	.047/.040	.790	6
8425	19 (solid)	25	.015	.047/.040	.880	6
8450	19 (solid)	50	.015	.047/.040	1.180	6
8410	19 (solid)	100	.015	.047/.050	1.580	6

†See color code chart on page 2•2075

Construction (5000 Series)

- Stranded tinned copper conductors
- Color coded polyvinylchloride and .005″ nylon insulation
- Conductors cabled
- Overall mylar/aluminum foil shield and stranded tin copper drain wire, where applicable
- Black polyvinylchloride jacket

Characteristics

- Temperature −30°C to +90°C
- UL Subject 1277 90°C 600 Volts
- UL 70,000 BTU Flame and Tray Cable Test

Construction (8000 Series)

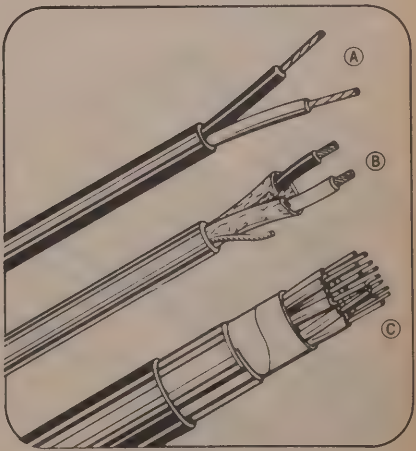
- Solid bare copper conductors
- Color coded high molecular weight polyethylene insulation, twisted into pairs
- Non-hygroscopic binder tape
- Overall .008″ aluminum shield
- Black polyethylene jacket

Characteristics

- Temperature −60°C to +80°C
- Working Voltage: 300 Volts
- Resists acids, alkalis, moisture and fungus

Applications

- Instrumentation control and power



(312) 455-8830 **Consolidated** electronic wire & cable

FIRE ALARM & TRAY CABLE

Construction (parallel)

- Solid bare copper conductors
- Red parallel construction flame retardant PVC insulation

Characteristics

- Fire Protective Signaling circuit cable — NEC Article 760
- UL subject 1424
- Voltage Rating: 300 Volts
- Temperature: −30° to +105°C
- VW-1 Vertical Flame Test
- Optional use Class 2/Class 3
- Circuits described in Article 725 NEC Code

Applications

- Power Limited Fire Protective Cable: NEC Article 760
- Power Limited Circuit Cable: NEC Article 725 Class 2 and 3

Construction (unshielded)

- Solid bare copper conductors
- Color coded flame retardant polyvinylchloride insulation
- Conductors cabled
- Red flame-retardant polyvinylchloride outer jacket

Characteristics

- Fire Protective signaling circuit cable — NEC Article 760
- UL Subject 1424
- Voltage Rating: 300 Volts
- Temperature: −30° to +105°C
- VW-1 Vertical Flame Test
- Optional use: Class 2/Class 3 Circuits (Article 725 NEC)

Applications

- Power Limited Fire Protective Cable: NEC Article 760
- Power Limited Circuit Cable: NEC Article 725 Class 2 and 3

Construction (shielded)

- Solid bare copper conductors
- Color coded flame-retardant polyvinylchloride insulation
- Conductors cabled
- Overall mylar/aluminum foil shield and tin copper drain wire
- Red flame retardant polyvinylchloride outer jacket

Characteristics

- Fire Protective signaling circuit cable — NEC Article 760
- UL Subject 1424
- Voltage Rating: 300 Volts
- Temperature: −30° to +105°C
- VW-1 Vertical Flame Test
- Optional use: Class 2/Class 3 Circuits (Article 725 NEC)

Applications

- Power Limited Fire Protection Cable: NEC Article 760
- Power Limited Circuit Cable: NEC Article 725 Class 2 and 3

PVC parallel construction NEC article 760 and 725 class 2 & 3 Ⓐ

Catalog No.	Gauge & Strands	Cond.	Insul. Wall	Insul. Type	O.A. Dia.
5650	19 (solid)	2	.030	PVC	.100 x .210
5651	18 (solid)	2	.030	PVC	.105 x .225
5652	16 (solid)	2	.030	PVC	.110 x .235
5653	14 (solid)	2	.030	PVC	.125 x .250

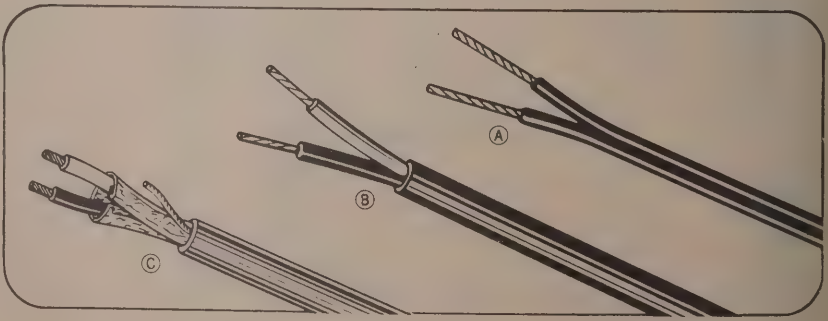
PVC unshielded cable NEC article 760 and 725 class 2 & 3 Ⓑ

Catalog No.	Gauge & Strands	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Code†
5655	18 (solid)	2	.015	.035	.200	7
5657	16 (solid)	2	.015	.035	.250	7
5658	14 (solid)	2	.015	.040	.300	7
5660	22 (solid)	4	.015	.035	.210	7
5654	19 (solid)	4	.015	.035	.230	7
5661	18 (solid)	4	.015	.035	.240	7
5662	16 (solid)	4	.015	.040	.285	7
5666	22 (solid)	6	.015	.035	.220	7
5656	19 (solid)	6	.015	.035	.268	7
5663	18 (solid)	6	.015	.040	.290	7
5664	22 (solid)	8	.015	.035	.230	7
5665	18 (solid)	8	.015	.040	.310	7
5669	22 (solid)	9	.015	.035	.265	7
5667	22 (solid)	10	.015	.035	.275	7
5668	18 (solid)	10	.015	.040	.360	7
5672	22 (solid)	12	.015	.040	.285	7
5671	22 (solid)	15	.015	.040	.310	7
5673	22 (solid)	20	.015	.040	.340	7
5674	2/C 18 + 4/C 22 (solid)	6	.015	.035	.265	7

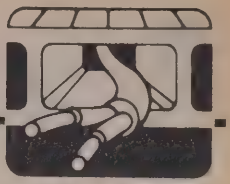
PVC shielded cable NEC article 760 and 725 class 2 & 3 Ⓒ

Catalog No.	Gauge & Strands	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Code†
5689	18 (solid)	2	.015	.030	.205	7
5690	18 (solid)	4	.015	.030	.245	7
5691	16 (solid)	2	.015	.030	.255	7
5692	16 (solid)	4	.015	.030	.290	7
5693	14 (solid)	2	.015	.040	.310	7

†See color code chart on page **2•2075**



Consolidated electronic wire & cable (312) 455-8830



remote control—teflon signaling and power limited circuits NEC article 725 class 2 UL listed

Catalog No.	Gauge & Strands	Cond.	Insulation	Insulation Wall	Jacket Wall	O.A. Dia.
unshielded conductors Ⓐ						
9874	22 (7 x 30)	2	FEP Teflon	.010	.020	.140
9876	22 (7 x 30)	4	FEP Teflon	.010	.020	.161
9878	20 (7 x 28)	2	FEP Teflon	.010	.020	.156
9875	20 (7 x 28)	4	FEP Teflon	.010	.020	.180
9870	18 (19 x 30)	2	FEP Teflon	.010	.020	.176
9872	18 (19 x 30)	4	FEP Teflon	.010	.020	.200
9882	16 (19 x 29)	2	FEP Teflon	.010	.020	.200
9890	16 (19 x 29)	4	FEP Teflon	.010	.020	.230
mylar aluminum shielded conductors Ⓑ						
9881	18 (19 x 30)	2	FEP Teflon	.010	.020	.188
9873	18 (19 x 30)	4	FEP Teflon	.010	.020	.200
9871	20 (7 x 28)	2	FEP Teflon	.010	.020	.164
9879	20 (7 x 28)	4	FEP Teflon	.010	.020	.195
9880	22 (7 x 30)	2	FEP Teflon	.010	.020	.154
9877	22 (7 x 30)	4	FEP Teflon	.010	.020	.169
Individually shielded paired cable — mylar aluminum foil shield ©						
9883	22 (7 x 30)	3/Pairs	FEP Teflon	.013	.020	.256

plenum coaxial cable—teflon NEC article 725 class 2 UL subject 13 UL listed Ⓓ

Cat. No.	RG Type	Cond.	Center Cond.	Insul.	Shield	Cov.	Jacket Type	O.A. Dia.	Nom Cap pF/Ft	Nom Imp Ohms
4413	58/U	1	.032C	FEP Teflon	Tin	95%	FEP Teflon	.164	29.0	50
4417	59/U	1	.0253CW	FEP Teflon	Bare	95%	FEP Teflon	.210	19.5	75
4479	62A/U	1	.0253CW	FEP Teflon	Bare	95%	FEP Teflon	.216	14.5	93
4799	59B/U "Wang"	2	.0253CW	FEP Teflon Parallel	Bare	95%	FEP Teflon	.206 x.450	17.3	75

remote control—teflon signaling and power limited circuits NEC article 760-4(d) UL listed

Catalog No.	Gauge & Strands	Cond.	Insulation	Insulation Wall	Jacket Wall	O.A. Dia.
unshielded conductors Ⓐ						
9886	18 (solid)	2	FEP Teflon	.013	.035	.205
9888	18 (solid)	4	FEP Teflon	.013	.040	.292
9884	16 (solid)	2	FEP Teflon	.013	.035	.225
mylar aluminum shielded conductors Ⓑ						
9887	18 (solid)	2	FEP Teflon	.013	.035	.215
9889	18 (solid)	4	FEP Teflon	.013	.040	.305
9885	16 (solid)	2	FEP Teflon	.013	.035	.235

Construction (Article 725)
- Stranded bare copper or tin copper conductors
- (FEP) Fluorinated ethylene propylene insulation
- Overall mylar aluminum foil shield and drain wire where applicable
- Documentation tape
- FEP outer jacket

Characteristics
- NEC Article 725 Class 2 150 Volts
- Temperature: −70°C to +200°c
- Air Plenum Cable — no conduit required

Applications
- Computer
- Instrumentation
- Control

Construction (Coax)
- Solid bare copper or copperweld conductors
- (FEP) Fluorinated ethylene propylene insulation
- Braided bare copper or tinned copper shield
- FEP outer jacket

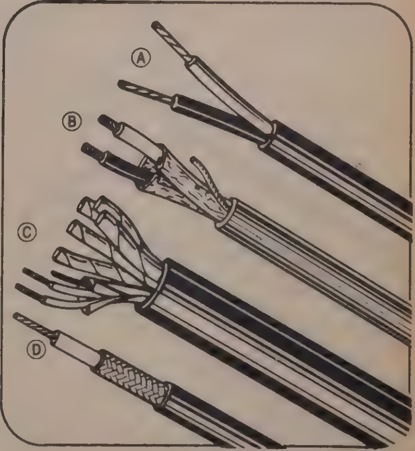
Characteristics
- Plenum Coaxial Cable — no conduit required
- UL Subject 13
- NEC Article 725-2(b)
- Temperature: −70° to +200°C

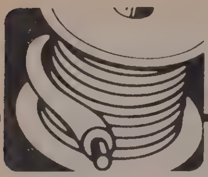
Applications
- Data Processing Terminals
- Computer
- CCTV
- MATV

Construction (Article 760)
- Solid copper conductors
- (FEP) Fluorinated ethylene propylene insulation, air or foam dielectric
- Overall mylar aluminum foil shield and drain wire where applicable
- Documentation tape
- FEP outer jacket

Characteristics
- NEC Article 760-4(b) 300 Volts
- Temperature: −70° to +200°c
- Air plenum cable — no conduit required

Applications
- Fire and Burglar Alarms
- Fire/Smoke Detection Control
- Communication Systems





(312) 455-8830 **Consolidated** electronic wire & cable

HOOK-UP WIRE

PVC INSULATED

Construction (80°C)

- Stranded or solid tinned copper conductors or stranded "Topcoat" conductor, which has copper conductors passed through tin bath bonding individual strands together
- Color coded PVC insulation
- Nominal insulation thickness .016"

Characteristics

- Temperature −40°C to +80°C
- Voltage Rating: 300 Volts
- UL Style 1007 300 Volts
  UL Style 1061 300 Volts
- Flame retardant VW-1
- CSA-TR-64-90°C-UL1007
- CSA-SR-PVC-UL1061

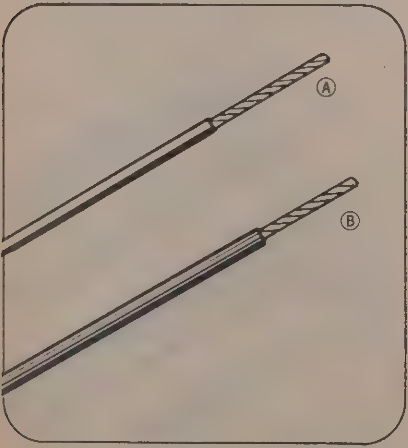
Construction (105°C)

- Stranded or solid tinned copper conductors or Stranded "Topcoat" conductor, which has copper conductors passed through tin bath bonding individual strands together
- Color coded PVC insulation
- Nominal insulation thickness .032"

Characteristics

- Temperature −30°C to +105°C
- Voltage Rating: 600 Volts
- UL Style 1015 600 Volts
- Flame-retardant VW-1
- CSA-TEW-105°C

Color Code: 0-Black, 1-Brown, 2-Red, 3-Orange, 4-Yellow, 5-Green, 6-Blue, 7-Violet 8-Gray, 9-White



80°C UL-1007 CSA-TR-64 VW-1 Ⓐ

Catalog No.	Gauge & Strands	Nom. Wall	Nom. O.D.
801	22 (solid) Tin Copper	1/64	.065
811	20 (solid) Tin Copper	1/64	.071
841	18 (solid) Tin Copper	1/64	.080
819	24 (7 x 32) Tin Copper	1/64	.059
821	22 (7 x 30) Tin Copper	1/64	.069
831	20 (10 x 30) Tin Copper	1/64	.078
846	18 (16 x 30) Tin Copper	1/64	.085
816	16 (26 x 30) Tin Copper	1/64	.095

80°C UL-1007 CSA-TR-64 VW-1 "topcoat" conductor Ⓐ

Catalog No.	Gauge & Strands	Nom. Wall	Nom. O.D.
813	24 (7 x 32) Topcoat	1/64	.059
823	22 (7 x 30) Topcoat	1/64	.069
833	20 (10 x 30) Topcoat	1/64	.078
843	18 (16 x 30) Topcoat	1/64	.085

105°c UL-1015 CSA-TEW-105 (22 AWG through 10 AWG)
105°C UL-1028 CSA-TEW-105 (8 AWG) VW-1 Ⓑ

Catalog No.	Gauge & Strands	Nom. Wall	Nom. O.D.
851	22 (solid) Tin Copper	1/32	.097
856	20 (solid) Tin Copper	1/32	.104
861	18 (solid) Tin Copper	1/32	.112
866	22 (7 x 30) Tin Copper	1/32	.102
871	20 (10 x 30) Tin Copper	1/32	.110
876	18 (16 x 30) Tin Copper	1/32	.119
890	16 (26 x 30) Tin Copper	1/32	.127
891	14 (41 x 30) Tin Copper	1/32	.141
892	12 (65 x 30) Tin Copper	1/32	.160
893	10 (105 x 30) Tin Copper	1/32	.194
894	8 (133 x 30) Tin Copper	3/64	.255

105°C UL-1015 CSA-TEW-105 VW-1 "topcoat" conductor Ⓑ

Catalog No.	Gauge & Strands	Nom. Wall	Nom. O.D.
865	22 (7 x 30) Topcoat	1/32	.102
875	20 (10 x 30) Topcoat	1/32	.110
885	18 (16 x 30) Topcoat	1/32	.119

80°C UL-1061 CSA-SR-64-PVC VW-1 Ⓐ

Catalog No.	Gauge & Strands	Nom. Wall	Nom. O.D.
896	22 (7 x 30) Tin Copper	.009	.050
897	20 (7 x 28) Tin Copper	.009	.058
898	18 (16 x 30) Tin Copper	.009	.068
899	16 (19 x 29) Tin Copper	.009	.078

Consolidated
electronic wire & cable
(312) 455-8830

HOOK-UP WIRE

irradiated PVC
Consolidated IRR/PVC Ⓐ

Catalog No.	Gauge & Stranding	Insul.	Type Designation	Insul. Wall	Nom. O.D.
MIL-W-16878 type B 600 volts					
920	**26** (7 x 34)	IRR/PVC	B-26	.010	.039
921	**24** (7 x 32)	IRR/PVC	B-24	.010	.044
927	**24** (19 x 36)	IRR/PVC	B-24	.010	.045
922	**22** (7 x 30)	IRR/PVC	B-22	.010	.050
928	**22** (19 x 34)	IRR/PVC	B-22	.010	.051
923	**20** (7 x 28)	IRR/PVC	B-20	.010	.058
929	**20** (19 x 32)	IRR/PVC	B-20	.010	.059
924	**18** (7 x 26)	IRR/PVC	B-18	.010	.068
930	**18** (19 x 30)	IRR/PVC	B-18	.010	.068
925	**16** (19 x 29)	IRR/PVC	B-16	.010	.078
MIL-W-16878 type C 1000 volts					
931	**24** (7 x 32)	IRR/PVC	C-24	.016	.058
932	**22** (7 x 30)	IRR/PVC	C-22	.016	.064
933	**20** (7 x 28)	IRR/PVC	C-20	.016	.072
934	**18** (19 x 30)	IRR/PVC	C-18	.016	.082
935	**16** (19 x 29)	IRR/PVC	C-16	.016	.092
926	**14** (19 x 27)	IRR/PVC	C-14	.016	.105
936	**12** (19 x 25)	IRR/PVC	C-12	.016	.124

irradiated PVC
Consolidated IRR/PVC Ⓐ

Catalog No.	Gauge & Strands	Insul.	Nom. Wall	Nom. O.D.	Temp.
UL style 1429 150 volts working, 300 volts peak					
920	**26** (7 x 34)	IRR/PVC	.010	.039	80°C
921	**24** (7 x 32)	IRR/PVC	.010	.044	80°C
927	**24** (19 × 36)	IRR/PVC	.010	.045	80°C
922	**22** (7 x 30)	IRR/PVC	.010	.050	80°C
928	**22** (19 × 34)	IRR/PVC	.010	.051	80°C
923	**20** (7 x 28)	IRR/PVC	.010	.058	80°C
924	**18** (7 x 26)	IRR/PVC	.010	.068	80°C
925	**16** (19 x 29)	IRR/PVC	.010	.077	80°C
UL style 1430 300 volts working, 600 volts peak					
931	**24** (7 x 32)	IRR/PVC	.016	.058	105°C
932	**22** (7 x 30)	IRR/PVC	.016	.064	105°C
933	**20** (7 x 28)	IRR/PVC	.016	.072	105°C
934	**18** (19 x 30)	IRR/PVC	.016	.082	105°C
935	**16** (19 x 29)	IRR/PVC	.016	.092	105°C
926	**14** (19 x 27)	IRR/PVC	.016	.105	105°C
936	**12** (19 x 25)	IRR/PVC	.016	.124	105°C

cross linked (XLP) polyethylene Ⓑ

Catalog No.	Gauge & Strands	Insul.	Nom. Wall	Nom. O.D.	Temp.	U.L.
UL style 3173 and 3171 CSA (CL 1251) 600 volts working						
940	**22** (7 x 30)	XLP	.030	.093	125°C	3173
941	**20** (10 x 30)	XLP	.030	.100	125°C	3173
942	**18** (16 x 30)	XLP	.030	.110	125°C	3173
943	**16** (26 x 30)	XLP	.030	.123	125°C	3173
944	**14** (41 x 30)	XLP	.030	.138	125°C	3173
945	**12** (65 x 30)	XLP	.030	.162	125°C	3173
946	**10** (65 x 28)	XLP	.030	.185	125°C	3171

Color Code: 0-Black, 1-Brown, 2-Red, 3-Orange, 4 Yellow, 5-Green, 6-Blue, 7-Violet, 8-Gray, 9-White

irradiated PVC hook-up wire
Consolidated "IRR/PVC"

Consolidated IRR/PVC is a polyvinylchloride insulation which has been cross-linked by an irradiation process. The irradiation process results in an insulation far superior to ordinary PVC.

The irradiation process allows the IRR/PVC to become extremely heat resistant and burn through. The insulation is tougher than ordinary polyvinylchloride. Therefore, the abrasion resistance is increased greatly improving IRR-PVC reliability.

The following chart lists both military and UL standards for IRR/PVC manufactured wire.

Specifications	Max. Oper. Temp.	Maximum Voltage
MIL-W-16878/1 Type B	105°C	600 Volts RMS
U.L. AWM, CSA Style 1429, XLPV	80°C	150 Volts RMS 300 Volts peak
MIL-W-16878/2 Type C	105°C	1000 Volts RMS
U.L. AWM, CSA Style 1430, REW	105°C	300 Volts RMS 600 Volts peak

Construction
- Stranded tinned copper conductors
- Irradiated (IRR/PVC) polyvinylchloride insulation

Characteristics
- Temperature Range:
- MIL-W-16878D Type B and C −55°C to +105°C
- UL Style 1429 −55°C to +80°C, CSA XLPC
- UL Style 1430 −55°C to +105°C, CSA REW

Applications
- Appliances
- Business Machines
- Computer Wiring
- Control and Instrumentation

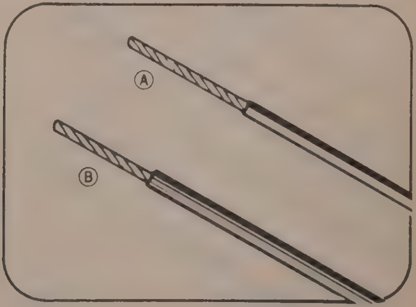
Cross-linked XLP polyethylene

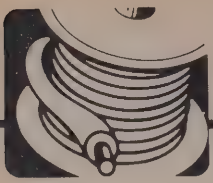
This insulation is chemically cross linked. This process increases the wire's resistance to solvents and moisture. Surges in temperature caused by overload or shorts will not cause damage to the insulation as quickly as if not cross-linked.

Construction
- Stranded tinned copper conductors
- Cross-linked (XLP) polyethylene insulation

Characteristics
- Temperature Range: −55°C to +125°C
- Working Voltage: 600 Volts
- UL 3173 600 Volts CSA - 1251
- UL 3171 600 Volts CSA - 1251

Applications
- Controls
- Motors
- Transformers





(312) 455-8830 **Consolidated** electronic wire & cable

HOOK-UP WIRE

Construction — Kynar
- Solid silver plated, OFHC copper conductor
- Color coded Kynar insulation

Characteristics
- Temperature Range: −40°C to +125°C
- UL 1422 +105°C
- Abrasion resistant
- UL 1426 +105°C
- Long flex-life

Applications
- Wire Wrap
- Computer Back Panels

Construction — LW
- Stranded tinned copper conductors
- Color coded polyvinylchloride insulation
- Nominal insulation thickness .010″

Characteristics
- Temperature Range: −40°C to +80°C
- Voltage Rating: 300 Volts

Construction — MW — PVC
- Stranded or solid tinned copper conductor
- Color coded polyvinylchloride insulation
- Nominal insulation thickness .016″

Characteristics
- Temperature Range: −40°C to +80°C
- Voltage Rating: 1000 Volts

Construction — HW
- Stranded tinned copper conductor
- Color coded heavy wall polyvinylchloride insulation

Characteristics
- Temperature Range: −40°C to +80°C
- Voltage Rating: 16AWG through 22AWG 2500 Volts
  6AWG through 14AWG 600 Volts

Construction — MW Nylon
- Stranded tinned copper conductor
- Color coded polyvinylchloride insulation
- Nominal insulation thickness .016″
- Clear nylon outer jacket

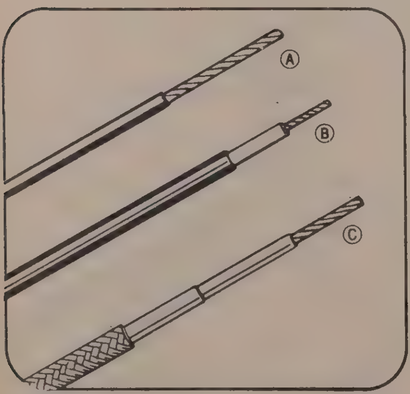
Characteristics
- Temperature Range: −40°C to +90°C
- Voltage Rating: 1000 Volts

Construction — LW — Nylon
- Stranded tinned copper conductor
- Clear nylon outer jacket
- Color coded .010″ wall polyvinylchloride insulation

Characteristics
- Temperature Range: −40°C to +90°C
- Voltage Rating: 300 Volts

Construction—MW · Shield · Nylon
- Stranded tinned copper conductors
- Color coded polyvinylchloride insulation
- Nominal insulation thickness .016″
- Tin copper braid shield
- Clear nylon outer jacket

Color Code:
0-Black 1-Brown
2-Red 3-Orange
4-Yellow 5-Orange
6-Blue 7-Violet
8-Gray 9-White



kynar insulated wire Ⓐ

Catalog No.	Gauge	Nom. Wall	Nom. O.D.	U.L.
style 1422 and 1426 UL listed VW-1				
901	30 (solid)	.005	.020	1422/1426
902	28 (solid)	.005	.023	1422/1426
903	26 (solid)	.005	.026	1422/1426
904	24 (solid)	.005	.030	1422/1426

PVC insulated wire

Catalog No.	Gauge & Stranding	Type Designation	Insul. Wall	Nom. O.D.
MIL-W-76B type LW Ⓐ				
9200	30 (7 x 38)	LW-C-30-(7)-U	.011	.034
9201	28 (7 x 36)	LW-C-28-(7)-U	.011	.037
9202	26 (7 x 34)	LW-C-26-(7)-U	.011	.041
9203	24 (7 x 32)	LW-C-24-(7)-U	.011	.046
9204	22 (7 x 30)	LW-C-22-(7)-U	.012	.054
9205	20 (10 x 30)	LW-C-20-(10)-U	.012	.060
nylon jacket MIL-W-76B type MW Ⓑ				
9001	24 (7 x 32)	MW-C-24-(7)-U	.017	.058
9002	22 (7 x 30)	MW-C-22-(7)-U	.017	.064
9003	20 (10 x 30)	MW-C-20-(10)-U	.017	.070
9004	18 (16 x 30)	MW-C-18-(16)-U	.017	.080
9005	16 (26 x 30)	MW-C-16-(26)-U	.019	.098
9006	14 (41 x 30)	MW-C-14-(41)-U	.020	.111
9007	12 (65 x 30)	MW-C-12-(65)-U	.020	.130
MIL-W-76B type MW Ⓐ				
9010	22 (solid)	MW-C-22-(1)-U	.017	.059
9011	20 (solid)	MW-C-20-(1)-U	.017	.066
9012	18 (solid)	MW-C-18-(1)-U	.017	.074
9013	16 (solid)	MW-C-16-(1)-U	.017	.085
MIL-W-76B type HW Ⓐ				
9100	22 (7 x 30)	HW-C-22-(7)-U	.034	.098
9101	20 (10 x 30)	HW-C-20-(10)-U	.034	.098
9102	18 (16 x 30)	HW-C-18-(16)-U	.034	.114
9103	16 (26 x 30)	HW-C-16-(26)-U	.034	.128
9104	14 (41 x 30)	HW-C-14-(41)-U	.048	.171
9105	12 (65 x 30)	HW-C-12-(65)-U	.048	.191
9106	10 (105 x 30)	HW-C-10-(105)-U	.048	.214
9107	8 (133 x 29)	HW-C- 8-(133)-U	.048	.261
9108	6 (133 x 27)	HW-C- 6-(133)-U	.048	.296
nylon jacket MIL-W-76B type MW Ⓑ				
9037	22 (7 x 30)	MW-C-22-(7)-J	.017	.069
9038	20 (10 x 30)	MW-C-20-(10)-J	.017	.075
9039	18 (16 x 30)	MW-C-18-(16)-J	.017	.086
9040	16 (26 x 30)	MW-C-16-(26)-J	.019	.106
9041	14 (41 x 30)	MW-C-14-(41)-J	.020	.118
9042	12 (65 x 30)	MW-C-12-(65)-J	.020	.139
shielded nylon jacket MIL-W-76B type MW Ⓒ				
9021	22 (7 x 30)	MW-C-22-(7)-SJ	.017	.095
9022	20 (10 x 30)	MW-C-20-(7)-SJ	.017	.101
9023	18 (16 x 30)	MW-C-18-(16)-SJ	.017	.112
9024	16 (26 x 30)	MW-C-16-(19)-SJ	.019	.131
nylon jacket MIL-W-76B type LW Ⓑ				
9210	30 (7 x 38)	LW-C-30-(7)-J	.011	.039
9211	28 (7 x 36)	LW-C-28-(7)-J	.011	.042
9212	26 (7 x 34)	LW-C-26-(7)-J	.011	.046
9213	24 (7 x 32)	LW-C-24-(7)-J	.011	.051
9214	22 (7 x 30)	LW-C-22-(7)-J	.012	.059
9215	20 (10 x 30)	LW-C-20-(10)-J	.012	.065

Consolidated
electronic wire & cable (312) 455-8830

HOOK-UP WIRE

PVC insulated wire

Catalog No.	Gauge & Stranding	Type Designation	Nom. O.D.
MIL-W-16878D type B Ⓐ			
9300	32 (7 x 40)	B-32	.029
9301	30 (7 x 38)	B-30	.032
9302	28 (7 x 36)	B-28	.035
9303	26 (7 x 34)	B-26	.039
9304	24 (19 x 36)	B-24	.045
9305	24 (7 x 32)	B-24	.044
9306	22 (19 x 34)	B-22	.051
9307	22 (7 x 30)	B-22	.050
9308	20 (19 x 32)	B-20	.059
9309	20 (7 x 28)	B-20	.058
9310	18 (19 x 30)	B-18	.069
9311	18 (7 x 26)	B-18	.068
9312	16 (19 x 29)	B-16	.077
MIL-W-16878D type B nylon jacket Ⓑ			
9313	32 (7 x 40)	B-32	.035
9314	30 (7 x 38)	B-30	.038
9315	28 (7 x 36)	B-28	.041
9316	26 (7 x 34)	B-26	.045
9317	24 (19 x 36)	B-24	.051
9318	24 (7 x 32)	B-24	.050
9319	22 (19 x 34)	B-22	.057
9320	22 (7 x 30)	B-22	.056
9321	20 (19 x 32)	B-20	.065
9322	20 (7 x 28)	B-20	.064
9323	18 (19 x 30)	B-18	.075
9324	18 (7 x 26)	B-18	.074
9325	16 (19 x 29)	B-16	.083
MIL-W-16878D type C Ⓐ			
9400	24 (7 x 32)	C-24	.060
9401	22 (7 x 30)	C-22	.060
9402	20 (7 x 28)	C-20	.074
9403	18 (7 x 26)	C-18	.084
9404	16 (19 x 29)	C-16	.093
9405	14 (19 x 27)	C-14	.117
MIL-W-16878D type C nylon jacket Ⓑ			
9410	24 (7 x 32)	C-24	.066
9411	22 (7 x 30)	C-22	.072
9412	20 (7 x 28)	C-20	.080
9413	18 (7 x 26)	C-18	.091
9414	16 (19 x 29)	C-16	.100
9415	14 (19 x 27)	C-14	.114
MIL-W-16878D type D Ⓒ			
9500	24 (7 x 32)	D-24	.084
9501	22 (7 x 30)	D-22	.090
9502	20 (7 x 28)	D-20	.098
9503	18 (7 x 26)	D-18	.108
9504	16 (19 x 29)	D-16	.117
9505	14 (19 x 27)	D-14	.131
9506	12 (19 x 25)	D-12	.160
9507	10 (37 x 26)	D-10	.181
9508	8 (133 x 29)	D- 8	.245
9509	6 (133 x 27)	D- 6	.290

Construction (B/PVC)
- Stranded tinned copper conductor
- Color coded polyvinylchloride insulation
- Nominal insulation thickness .010"

Characteristics
- Temperature Range: −55° to +105°C
- Voltage Rating: 600 Volts

Construction (B/Nylon)
- Stranded tinned copper conductor
- Color coded polyvinylchloride insulation
- Nominal insulation thickness .010"
- Clear nylon outer jacket

Characteristics
- Temperature Range: −55° to +115°C
- Voltage Rating: 600 Volts

Construction (C/PVC)
- Stranded tinned copper conductor
- Color coded polyvinylchloride insulation
- Nominal insulation thickness .018"

Characteristics
- Temperature Range: −55° to +105°C
- Voltage Rating: 1000 Volts

Construction (C/Nylon)
- Stranded tinned copper conductor
- Color coded polyvinylchloride insulation
- Nominal insulation thickness .018"
- Clear nylon outer jacket

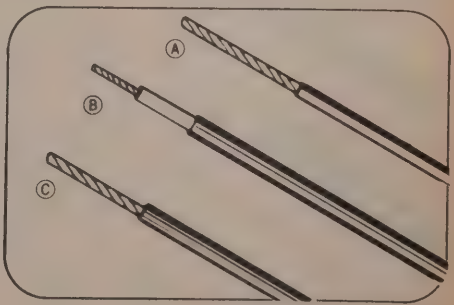
Characteristics
- Temperature Range: −55° to +115°C
- Voltage Rating: 1000 Volts

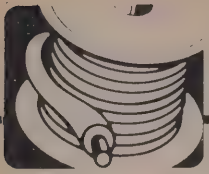
Construction (D/PVC)
- Stranded tinned copper conductor
- Color coded polyvinylchloride insulation
- Nominal insulation thickness .032"

Characteristics
- Temperature Range: −55° to +105°C
- Voltage Rating: 3000 Volts

Color Code:

0-Black	1-Brown	2-Red	3-Orange
4-Yellow	5-Green	6-Blue	7-Violet
8-Gray	9-White		





(312) 445-8830

Consolidated
electronic wire & cable

HOOK-UP WIRE

Construction — Type E
- Stranded silver-plated copper conductors
- Color-coded extruded "TFE" teflon insulation
- Nominal insulation thickness .010" 32AWG through 16AWG
- Nominal insulation thickness .012" 14AWG through 10AWG

Characteristics
- Temperature Rating: MIL-W-16878 Type "E" −60°C to +200°C
- UL Style 1213 +105°C
- Voltage Rating: MIL-W-16878 Type "E" 600 Volts

Construction — Type EE
- Stranded silver-plated copper conductors
- Color-coded extruded "TFE" teflon insulation
- Nominal insulation thickness .015" 32AWG through 18AWG
- Nominal insulation thickness .017" 16AWG through 10AWG

Characteristics
- Temperature Rating: MIL-W-16878 Type "EE" −60°C to +200°C
- UL Style 1180 +200°C
- Voltage Rating: MIL-W-16878 Type 'EE" 1000 Volts
- UL Style 1180 300 Volts

Construction—Fiberglass Braid
- Stranded silyer-plated copper conductor
- Color-coded Type "E" extruded .010" "TFE" teflon insulation
- Braided silver-plated copper shield, 90% minimum coverage
- Teflon impregnated fiberglass outer jacket

Characteristics
- Temperature Range: −65°C to +200°C
- Voltage Rating: 600 Volts

Construction—TFE Teflon Tape Jacket
- Stranded silver-plated copper conductor
- Color-coded Type "E" extruded .010" "TFE" teflon insulation
- Braided silver-plated copper shield, 90% minimum coverage
- Fused wrapped white Teflon tape outer jacket

Characteristics
- Temperature Range: −65°C to +200°C
- Voltage Rating: 600 Volts

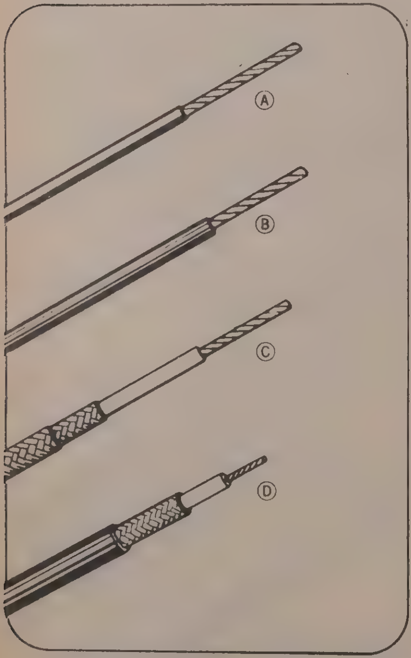
teflon insulated stranded wire

MIL-W-16878D listed 1213 type E Ⓐ

Catalog No.	Gauge & Stranding	Type Designation	Nom. O.D.	Voltage
9600	32 (7 x 40)	E-32	.032	600V
9601	30 (7 x 38)	E-30	.032	600V
9602	28 (7 x 36)	E-28	.035	600V
9603	26 (19 x 38)	E-26	.039	600V
9604	26 (7 x 34)	E-26	.039	600V
9605	24 (19 x 36)	E-24	.044	600V
9606	24 (7 x 32)	E-24	.044	600V
9607	22 (19 x 34)	E-22	.050	600V
9608	22 (7 x 30)	E-22	.050	600V
9609	20 (19 x 32)	E-20	.058	600V
9610	20 (7 x 28)	E-20	.058	600V
9611	18 (19 x 30)	E-18	.069	600V
9612	18 (7 x 26)	E-18	.069	600V
9613	16 (19 x 29)	E-16	.080	600V
9614	14 (19 x 27)	E-14	.095	600V
9615	12 (19 x 25)	E-12	.115	600V
9616	10 (37 x 26)	E-10	.131	600V

MIL-W-16878 listed 1180 type EE Ⓑ

Catalog No.	Gauge & Stranding	Type Designation	Insul. Wall	Nom. O.D.	Voltage
9620	32 (7 x 40)	EE-32	.015	.042	1000V
9621	30 (7 x 38)	EE-20	.015	.042	1000V
9622	28 (7 x 36)	EE-28	.015	.045	1000V
9623	26 (19 x 38)	EE-26	.015	.049	1000V
9624	26 (7 x 34)	EE-26	.015	.049	1000V
9625	24 (19 x 36)	EE-24	.015	.054	1000V
9626	24 (7 x 32)	EE-24	.015	.054	1000V
9627	22 (19 x 34)	EE-22	.015	.060	1000V
9628	22 (7 x 30)	EE-22	.015	.060	1000V
9629	20 (19 x 32)	EE-20	.015	.068	1000V
9630	20 (7 x 28)	EE-20	.015	.068	1000V
9631	18 (19 x 30)	EE-18	.015	.079	1000V
9632	18 (7 x 26)	EE-18	.015	.079	1000V
9633	16 (19 x 29)	EE-16	.016	.089	1000V
9634	14 (19 x 27)	EE-14	.017	.110	1000V
9635	12 (19 x 25)	EE-12	.017	.129	1000V
9636	10 (37 x 26)	EE-10	.017	.149	1000V



teflon insulated multiconductor

fiber glass braid over shield
200° 600 volt MIL-W-16878D
type E Ⓒ

Catalog No.	Gauge & Stranding	No. of Conds.	Nom. O.D.
9840	24 (19 x 36)	1	.081
9841	24 (19 x 36)	2	.126
9842	24 (19 x 36)	3	.133
9843	24 (19 x 36)	4	.144
9844	22 (19 x 34)	1	.088
9845	22 (19 x 34)	2	.137
9846	22 (19 x 34)	3	144
9847	22 (19 x 34)	4	.158
9848	20 (19 x 32)	1	.097
9849	20 (19 x 32)	2	.154
9850	20 (19 x 32)	3	.163
9851	20 (19 x 32)	4	.180
9852	18 (19 x 30)	1	.106
9853	18 (19 x 30)	2	.174
9854	18 (19 x 30)	3	.185
9855	18 (19 x 30)	4	.205
9856	16 (19 x 29)	1	.120
9857	16 (19 x 29)	2	.195
9858	16 (19 x 29)	3	.213
9859	16 (19 x 29)	4	.228

TFE tape over braided shield
200° 600 volt MIL-W-16878D
type E Ⓓ

Catalog No.	Gauge & Stranding	No. of Conds.	Nom. O.D.
9820	24 (19 x 36)	1	.084
9821	24 (19 x 36)	2	.128
9822	24 (19 x 36)	3	.135
9823	24 (19 x 36)	4	.148
9824	22 (19 x 34)	1	.090
9825	22 (19 x 34)	2	.140
9826	22 (19 x 34)	3	.148
9827	22 (19 x 34)	4	.162
9828	20 (19 x 32)	1	.099
9829	20 (19 x 32)	2	.158
9830	20 (19 x 32)	3	.167
9831	20 (19 x 32)	4	.184
9832	18 (19 x 30)	1	.109
9833	18 (19 x 30)	2	.178
9834	18 (19 x 30)	3	.189
9835	18 (19 x 30)	4	.208
9836	16 (19 x 29)	1	.123
9837	16 (19 x 29)	2	.200
9838	16 (19 x 29)	3	.218
9839	16 (19 x 29)	4	.235

COLOR CODE: 0—Black • 1—Brown • 2—Red • 3—Orange • 4—Yellow • 5—Green • 6—Blue • 7—Violet • 8—Grey • 9—White

Consolidated
electronic wire & cable

(312) 455-8830

HOOK-UP WIRE

silicone and teflon hook-up wire

Catalog No.	Gauge & Stranding	Nom. O.D.
silicone rubber insulated stranded type SF-2 600 volt 200°C ЯU listed SF-2 Ⓐ		
9900	18 (7 x 26)	.126
9901	16 (7 x 24)	.135
9902	14 (7 x 22)	.153
9903	12 (19 x 20)	.176
9904	10 (19 x 24)	.234
silicone rubber insulated stranded type SFF-2 600 volt 150°C ЯU listed SFF-2 Ⓐ		
9907	18 (16 x 30)	.123
9908	16 (26 x 30)	.135
9910	14 (41 x 30)	.153
9911	12 (65 x 30)	.173
TMGT (TAGT) high temperature 600 volt 250°C ЯU listed TMGT		
9912	18 (16 x 30)	.110
9913	16 (26 x 30)	.120
9914	14 (41 x 30)	.140
9915	12 (65 x 30)	.160
9916	10 (105 x 30)	.185
9917	8 (133 x 29)	.230
MIL-W-25038 high temperature 600 volt 399°C Ⓑ		
9920	18 (19 x 30)	.127
9921	16 (19 x 29)	.137
9922	14 (19 x 27)	.160
9923	12 (19 x 25)	.175
9924	10 (7 x 7 x 27)	.220
9925	8 (19 x 7 x 25)	.268

PVC aircraft wire

Catalog No.	Gauge & Stranding	Type Desig-nation	Nom. O.D.
MIL-W-5086 type I Ⓒ			
9700	22 (19 x 34)	AN-22	.068
9701	20 (19 x 32)	AN-20	.078
9702	18 (19 x 30)	AN-18	.088
9703	16 (19 x 29)	AN-16	.098
9704	14 (19 x 27)	AN-14	.117
9705	12 (37 x 28)	AN-12	.137
MIL-W-5086 type II Ⓓ			
9706	22 (19 x 34)	AN-22	.075
9707	20 (19 x 32)	AN-20	.085
9708	18 (19 x 30)	AN-18	.095
9709	16 (19 x 29)	AN-16	.105
9710	14 (19 x 27)	AN-14	.125
9711	12 (37 x 28)	AN-12	.143
9713	10 (37 x 26)	AN-10	.189
9714	8 (133 x 29)	AN- 8	.240
9715	6 (133 x 27)	AN- 6	.293
9716	4 (133 x 25)	AN- 4	.355
9717	2 (665 x 30)	AN- 2	.425
9718	0 (1045 x 30)	AN- 0	.525
9719	00 (1330 x 30)	AN-00	.590
MIL-C-7078 type II Ⓓ			
9720	22 (19 x 34)	AN-22	.092
9721	20 (19 x 32)	AN-20	.102
9722	18 (19 x 30)	AN-18	.112
9723	16 (19 x 29)	AN-16	.122
9724	14 (19 x 27)	AN-14	.141
9725	12 (19 x 25)	AN-12	.161

Construction — SF
- Stranded tinned copper conductor
- Color-coded extruded silicone rubber insulation
- Nominal insulation thickness .031″
- Lacquered white glass yarn braid outer jacket, .009″ thick

Characteristics
- Temperature Range: +55°C to −200°C
- Voltage Rating: 600 Volts
- UL Style SF-2 600 Volts

Construction — SFF2
- Flexible stranded tinned copper conductor
- Color-coded extruded silicone rubber insulation
- Nominal insulation thickness .031″
- Lacquered white glass yarn braid outer jacket, .009″ thick

Characteristics
- Temperature Range: −55°C to +150°C
- Voltage Rating: 600 Volts
- UL Style SFF-2 600 Volts

Construction — TMGT
- Stranded nickel-clad copper conductor
- Fused .015″ thick teflon tape insulation
- Manning glass separator
- Teflon-impregnated fiberglass glass braid outer jacket, .005″ thick

Characteristics
- Temperature Range: −65°C to +250°C
- Voltage Rating: 600 Volts
- UL Style TMGT (TAGT) 600 Volts

Construction — MIL-W-25038
- Stranded nickel-clad copper conductor
- Inorganic glass-barrier tape
- Manning glass-barrier tape
- Extruded teflon insulation
- Teflon-impregnated fiberglass outer braid jacket, .005″ thick

Characteristics
- Temperature Rating: −65°V to +399°C
- Voltage Rating: 600 Volts
- MIL-W-25038 600 Volts

Construction — 5086/I
- Stranded tinned copper conductor
- White polyvinylchloride insulation
- Clear nylon outer jacket

Characteristics
- Temperature Range: −55°C to +105°C
- Voltage Rating: 1000 Volts
- MIL-W-5086 Type I

Construction — 5086/II

Type II
AN-22 through AN-12
- Stranded tinned copper conductor
- White poyvinylchloride insulation
- White glass yarn braid
- Clear nylon jacket overall

Type II
AN-10 through AN-00
- Stranded tinned copper conductor
- White polyvinylchloride insulation
- White glass yarn braid
- Flame retardent nylon lacquered glass, yarn braid overall

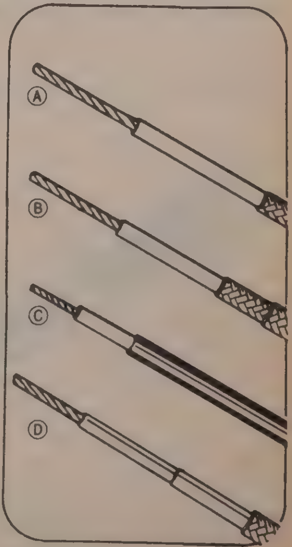
Characteristics
- Temperature Range: −55°C to +105°C
- Voltage Rating: 1000 Volts

Construction — 7078/II
- Stranded tinned copper conductor
- White polyvinylchloride insulation
- Clear nylon jacket
- Overall tinned copper braid shield, minimum braid coverage 90%
- Clear nylon outer jacket

Characteristics
- Temperature Range: −55°C to +105°C
- Voltage Rating: 600 Volts

ЯU listed, (SP) approved teflon hook-up wire
additional specifications available

U.L. Style	CSA Apprvd	Temper-ature	Min. Wall	Teflon Type	Rms Volts	Avail. Gauges	Avail. Colors
1164	No	150°	.013	TFE	300	10-28	0-9
1180	No	200°	.013	TFE	300	10-18	0-9
1198	No	150°	.020	TFE	600	10-26	0, 2, 9
1199	No	200°	.020	TFE	600	10-26	0, 2, 9
1212	No	80°	.008	TFE	NR	20-32	0-9
1213	No	105°	.008	TFE	NR	20-32	0-9
1226	No	80°	.008	FEP	NR	20-32	0-9
1227	No	105°	.008	FEP	NR	20-32	0-9
1330	No	200°	.020	FEP	600	10-26	0-9
1331	No	150°	.020	FEP	600	10-26	0-9
1330	Yes*	200°	.032	TFE	600	12-28	0, 2, 9
1331	Yes*	200°	.032	TFE	600	12-28	0, 2, 9
No	Yes*	200°	.016	TFE	300	10-28	0, 2, 9
No	Yes*	150°	.010	TFE	150	16-32	0, 2, 9



(312) 455-8830 **Consolidated** electronic wire & cable

ELECTRICAL

SO type neoprene jacketed control cable 600 volts

Construction (SO Series)

- Stranded bare copper conductors
- Color coded rubber insulation
- Cabled with fillers where necessary
- Overall wrap
- Black neoprene outer jacket

Characteristics

- Temperature Range: −20°C to +60°C
- Voltage Rating: 600 Volts

Applications

- Industrial Controls
- Remote Control Equipment and Motors

Construction (1700 Series)

- Stranded tinned copper cinductors
- Color coded rubber insulation
- Cabled with fillers and separator
- Black rubber jacket overall

Characteristics

- Temperature Range: −20°C to +60°C
- Voltage Rating: 300 Volts

Applications

- Industrial Controls
- Remote Control Equipment

18 AWG "SO" control cable

Catalog No.	Number Cond.	Gauge & Strands	Nom O.D.
7501	5	18 (16 x 30)	.495
7562	6	18 (16 x 30)	.525
7563	7	18 (16 x 30)	.565
7564	8	18 (16 x 30)	.600
7565	9	18 (16 x 30)	.640
7566	10	18 (16 x 30)	.640
7567	12	18 (16 x 30)	.660
7568	14	18 (16 x 30)	.715
7569	16	18 (16 x 30)	.760
7570	20	18 (16 x 30)	.835
7571	30	18 (16 x 30)	.995

16 AWG "SO" control

Catalog No.	Number Cond.	Gauge & Strands	Nom O.D.
7541	5	16 (26 x 30)	.525
7542	6	16 (26 x 30)	.565
7543	7	16 (26 x 30)	.605
7544	8	16 (26 x 30)	.645
7545	9	16 (26 x 30)	.720
7546	10	16 (26 x 30)	.720
7547	12	16 (26 x 30)	.740
7548	14	16 (26 x 30)	.775
7549	16	16 (26 x 30)	.825
7552	20	16 (26 x 30)	.900
7553	24	16 (26 x 30)	1.015
7554	30	16 (26 x 30)	1.070

14 AWG "SO" control

Catalog No.	Number Cond.	Gauge & Strands	Nom O.D.
7641	5	14 (41 x 30)	.685
7642	6	14 (41 x 30)	.740
7643	7	14 (41 x 30)	.795
7644	8	14 (41 x 30)	.845
7645	9	14 (41 x 30)	.905
7646	10	14 (41 x 30)	.905
7647	12	14 (41 x 30)	.930
7648	14	14 (41 x 30)	.980
7649	16	14 (41 x 30)	1.075
7650	20	14 (41 x 30)	1.180

12 AWG "SO" control

Catalog No.	Number Cond.	Gauge & Strands	Nom O.D.
7750	5	12 (65 x 30)	.730
7751	6	12 (65 x 30)	.800
7752	7	12 (65 x 30)	.860
7753	8	12 (65 x 30)	.915
7754	9	12 (65 x 30)	1.015
7755	10	12 (65 x 30)	1.015
7756	12	12 (65 x 30)	1.045
7757	14	12 (65 x 30)	1.100
7758	16	12 (65 x 30)	1.155

10 AWG "SO" control

Catalog No.	Number Cond.	Gauge & Strands	Nom O.D.
7821	5	10 (104 x 30)	.815
7822	6	10 (104 x 30)	.880
7823	7	10 (104 x 30)	.980
7824	8	10 (104 x 30)	1.050
7826	10	10 (104 x 30)	1.125

Available in heavier gauges, consult factory for price and delivery.

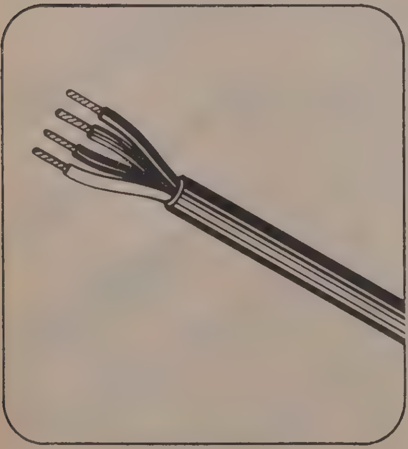
SO — Flexible bare copper conductors, rubber insulation, oil resistant neoprene jacket. Rated 600 volts, 60°C.

†See color code chart 8 on page 2•2075

rubber jacketed control cable—300 volts

Catalog No.	Gauge & Strands	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Color Code†
1733	20 (26 x 34) TC	3	.020	.035	.255	Chart 4
1734	20 (26 x 34) TC	4	.020	.035	.275	Chart 4
1735	20 (26 x 34) TC	5	.020	.035	.300	Chart 4
1736	20 (26 x 34) TC	6	.020	.035	.315	Chart 4
1737	20 (26 x 34) TC	7	.020	.035	.325	Chart 4
1738	20 (26 x 34) TC	8	.020	.035	.360	Chart 4

†See color code chart 4 on page 2•2075



Consolidated (312) 455-8830
electronic wire & cable

ELECTRICAL

power and control cable UL listed tray cable

Catalog No.	Gauge and Strand	No. Cond.	Nom. O.D.	Catalog No.	Gauge and Strand	No. Cond.	Nom. O.D.
	16 gauge				**12 gauge**		
7502	16 (26 x 30)	2	.200 x .310	7702	12 (19 x 25)	2	.252 x .404
7503	16 (26 x 30)	3	.315	7703	12 (19 x 25)	3	.385
7504	16 (26 x 39)	4	.340	7704	12 (19 x 25)	4	.420
7505	16 (26 x 30)	5	.370	7705	12 (19 x 25)	5	.460
7507	16 (26 x 30)	7	.400	7707	12 (19 x 25)	7	.500
7509	16 (26 x 30)	9	.460	7709	12 (19 x 25)	9	.615
7510	16 (26 x 30)	10	.500	7712	12 (19 x 25)	12	.685
7512	16 (26 x 30)	12	.515	7716	12 (19 x 25)	16	.760
7514	16 (26 x 30)	14	.575	7719	12 (19 x 25)	19	.943
7516	16 (26 x 30)	16	.605	7726	12 (19 x 25)	26	1.000
7519	16 (26 x 30)	19	.635	7730	12 (19 x 25)	30	1.030
7526	16 (26 x 30)	26	.735	7737	12 (19 x 25)	37	1.110
7530	16 (26 x 30)	30	.775				
7537	16 (26 x 30)	37	.880				
	14 gauge				**10 gauge**		
7602	14 (19 x 27)	2	.233 x .366	7802	10 (19 x 23)	2	.270 x .450
7603	14 (19 x 27)	3	.345	7803	10 (19 x 23)	3	.460
7604	14 (19 x 27)	4	.375	7804	10 (19 x 23)	4	.505
7605	14 (19 x 27)	5	.410	7805	10 (19 x 23)	5	.585
7607	14 (19 x 27)	7	.445	7807	10 (19 x 23)	7	.635
7609	14 (19 x 27)	9	.515	7809	10 (19 x 23)	9	.740
7612	14 (19 x 27)	12	.610	7812	10 (19 x 23)	12	.875
7615	14 (19 x 27)	16	.680				
7619	14 (19 x 27)	19	.710				
7626	14 (19 x 27)	26	.825				
7630	14 (19 x 27)	30	1.110				

Also available in heavier gauges. Consult factory.

†See color code chart 8 on page 2•2075

TRAY CABLES TYPE TC(CTB) (THWN/THHN/TFFN CONDUCTORS)

Construction
- Stranded bare copper conductors
- Color coded polyvinylchloride insulation with nylon jacket over each conductor
- Conductors cabled
- Fillers where necessary
- Overall polyester tape
- Black flame-retardant polyvinylchloride outer jacket

Characteristics
- Temperature Range: −20°C to +90°C
- Tray Cable Type CTB THHN THWN (TFFN)
- Working Voltage: 600 Volts
- UL Standard 83 (62)
- UL Standard 1277
- NEC Articles 310, 318, 340
- Resists abrasion, oil, chemicals and highly flame retardant

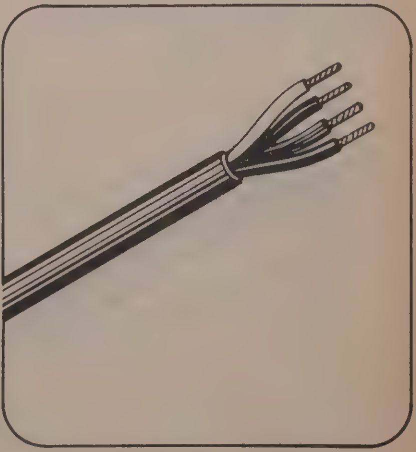
Applications
- Industrial Power
- Control Circuits

decimal equivalents table

1/64 — .015625
1/32 — .03125
3/64 — .046875
1/16 — .0625
5/64 — .078125
3/32 — .09375
7/64 — .109375
1/8 — .125
9/64 — .140625
5/32 — .15625
11/64 — .171875
3/16 — .1875
13/64 — .203125
7/32 — .21875
15/64 — .234375
1/4 — .25
17/64 — .265625
9/32 — .28125
19/64 — .296875
5/16 — .3125
21/64 — .328125
11/32 — .34375
23/64 — .359375
3/8 — .375
25/64 — .390625
13/32 — .40625
27/64 — .421875
7/16 — .4375
29/64 — .453125
15/32 — .46875
31/64 — .484375
1/2 — .5
33/64 — .515625
17/32 — .53125
35/64 — .546875
9/16 — .5625
37/64 — .578125
19/32 — .59375
39/64 — .609375
5/8 — .625
41/64 — .640625
21/32 — .65625
43/64 — .671875
11/16 — .6875
45/64 — .703125
23/32 — .71875
47/64 — .734375
3/4 — .75
49/64 — .765625
25/32 — .78125
51/64 — .796875
13/16 — .8125
53/64 — .828125
27/32 — .84375
55/64 — .859375
7/8 — .875
57/64 — .890625
29/32 — .90625
59/64 — .921875
15/16 — .9375
61/64 — .953125
31/32 — .96875
63/64 — .984375
1 — 1.

approximate metal spool capacities with 1-15/16″ drum

Overall Wire Cable Diameter	6½″ x 1½″	6½″ x 3½″	6½″ x 6″	10″ x 9″	10½″ x 10″	Overall Wire Cable Diameter	6½″ x 1½″	6½″ x 3½″	6½″ x 6½″	10″ x 9″	10½″ x 10″
.040	3,000	8,000	14,000	55,000	55,000	.150		500	1,000	3,500	4,000
.045	3,000	6,000	11,500	45,000	45,000	.175		250	500	2,500	3,000
.050	2,000	5,000	8,500	33,000	35,000	.200			500	2,000	2,500
.060	1,500	3,500	6,000	24,000	25,000	.230			250	1,500	1,500
.080	1,000	2,000	3,500	13,500	14,000	.260			250	1,000	1,000
.100	500	1,500	3,000	11,000	12,000	.300				500	500
.125	250	500	1,500	5,500	6,000	.350				250	250



(312) 455-8830 **Consolidated** electronic wire & cable

ELECTRICAL

rubber jacketed portable cord UL listed type SV, SJ, S

Catalog No.	Gauge & Strands	Cond.	O.A. Dia.	U.L.
4202	18 (41 x 34) BC	2	.250	SV
4207	18 (16 x 30) BC	2	.310	SJ
4212	18 (16 x 30) BC	3	.345	SJ
4214	18 (16 x 30) BC	4	.360	SJ
4217	16 (26 x 30) BC	2	.340	SJ
4222	16 (26 x 30) BC	3	.375	SJ
4224	16 (26 x 30) BC	4	.395	SJ
4227	18 (16 x 30) BC	2	.390	SJ
4232	18 (16 x 30) BC	3	.405	S
4234	18 (16 x 30) BC	4	.435	S
4237	16 (26 x 30) BC	2	.410	S
4242	16 (26 x 30) BC	3	.430	S
4244	16 (26 x 30) BC	4	.485	S
4247	14 (41 x 30) BC	2	.540	S
4252	14 (41 x 30) BC	3	.560	S
4254	14 (41 x 30) BC	4	.605	S
4257	12 (65 x 30) BC	2	.605	S
4262	12 (65 x 30) BC	3	.635	S
4264	12 (65 x 30) BC	4	.665	S
4267	10 (105 x 30) BC	2	.640	S
4272	10 (105 x 30) BC	3	.690	S
4274	10 (105 x 30) BC	4	.745	S

Characteristics
- Temperature Range:
  Rubber −20°C to +60°C
  Neoprene −30°C to +90°C
- UL Listed
  Type SV 300V Type SJO 300V
  Type SJ 300V Type SO 600V
  Type S 600V

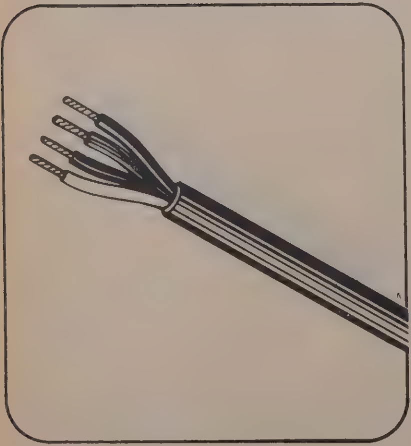
Applications
- Industrial Control
- Remote Control
- Portable Tools

Color Code Chart
UL Type SV, SJ, S, SJO and SO

1. Black	3. Green
2. White	4. Red

neoprene jacketed portable cord UL listed type SJO, SO

Catalog No.	Gauge & Strands	Cond.	O.A. Dia.	U.L.
4307	18 (16 x 30) BC	2	.310	SJO
4312	18 (16 x 30) BC	3	.345	SJO
4314	18 (16 x 30) BC	4	.360	SJO
4317	16 (26 x 30) BC	2	.340	SJO
4322	16 (26 x 30) BC	3	.375	SJO
4324	16 (26 x 30) BC	4	.395	SJO
4327	18 (16 x 30) BC	2	.390	SO
4332	18 (16 x 30) BC	3	.405	SO
4334	18 (16 x 30) BC	4	.435	SO
4337	16 (26 x 30) BC	2	.410	SO
4342	16 (26 x 30) BC	3	.430	SO
4344	16 (26 x 30) BC	4	.485	SO
4347	14 (41 x 30) BC	2	.540	SO
4352	14 (41 x 30) BC	3	.560	SO
4354	14 (41 x 30) BC	4	.605	SO
4357	12 (65 x 30) BC	2	.605	SO
4362	12 (65 x 30) BC	3	.635	SO
4364	12 (65 x 30) BC	4	.665	SO
4367	10 (105 x 30) BC	2	.640	SO
4372	10 (105 x 30) BC	3	.690	SO
4374	10 (105 x 30) BC	4	.745	SO



Consolidated electronic wire & cable (312) 455-8830

ELECTRICAL

CORD SETS

alum mylar/foil shielded 3 conductor electronic power supply cords Ⓐ

Listed

Catalog No.	Length		Gauge and Strand	Style	Color Code* Conductor	Jacket Color	Dia (Nom) Inches
	Meters	Ft					
A7030	2	6′ 5″	18 (41 x 34)	SJT	CEE	Blk	.340
A7031	3	10′	18 (41 x 34)	SJT	CEE	Blk	.340
A7032	2	6′ 5″	16 (65 x 34)	SJT	CEE	Blk	.370
A7033	3	10′	16 (65 x 34)	SJT	CEE	Blk	.370
A7034	2	6′ 5″	14 (41 x 30)	SJT	CEE	Blk	.400
A7035	3	10′	14 (41 x 30)	SJT	CEE	Blk	.400

unshielded 3 conductor power supply cords Ⓐ

Listed

Catalog No.	Length		Gauge and Strand	Style	Color Code* Conductor	Jacket Color	Dia (Nom) Inches
	Meters	Ft					
A7130	2	6′ 5″	18 (41 x 34)	SJT	CEE	Blk	.330
A7131	3	10′	18 (41 x 34)	SJT	CEE	Blk	.330
A7132	2	6′ 5″	16 (65 x 34)	SJT	CEE	Blk	.360
A7133	3	10′	16 (65 x 34)	SJT	CEE	Blk	.360
A7136	1.8	6′	18 (41 x 34)	SVT	NAS	Grey	.250
A7137	2.5	8′	18 (41 x 34)	SVT	NAS	Grey	.250
A7139	1.8	6′	18 (16 x 30)	SJT	NAS	Grey	.315
A7140	2.5	8′	18 (16 x 30)	SJT	NAS	Grey	.315
A7142	3.6	12′	18 (16 x 30)	SJ	NAS	Blk	.325
A7143	2.7	9′	16 (26 x 30)	SJ	NAS	Blk	.350
A7144	3.6	12′	16 (26 x 30)	SJ	NAS	Blk	.350
A7145	1.8	6′	18 (41 x 34)	SV	NAS	Blk	.265
A7146	2.5	8′	18 (41 x 34)	SV	NAS	Blk	.265
A7147	2.5	8′	18 (16 x 30)	SJ	NAS	Blk	.325
A7148	1.8	6′	18 (16 x 30)	SJ	NAS	Blk	.325

flat 2 conductor polarized plug parallel lamp cord Ⓑ

Listed

Catalog No.	Length		Gauge and Strand	Style	Color Code* Conductor	Jacket Color	Dia (Nom) Inches
	Meters	Ft					
A7160	1.8	6′	18 (41 x 34)	SPT-1	——	0,1,9,8	.11x.22
A7161	2.7	9′	18 (41 x 34)	SPT-1	——	0,1,9,8	.11x.22

alum mylar/foil shielded 3 conductor electronic line cords straight connector Ⓒ

Listed

Catalog No.	Length		Gauge and Strand	Style	Color Code* Conductor	Jacket Color	Dia (Nom) Inches
	Meters	Ft					
A7000	2	6′ 5″	18 (41 x 34)	SJT	CEE	Blk	.340
A7001	3	10′	18 (41 x 34)	SJT	CEE	Blk	.340
A7002	2	6′ 5″	16 (65 x 34)	SJT	CEE	Blk	.370
A7003	3	10′	16 (65 x 34)	SJT	CEE	Blk	.370

UL and CSA labeling service
All cords are labeled by tag, letter on file, or bulk pack carton labeling

Color Code Chart

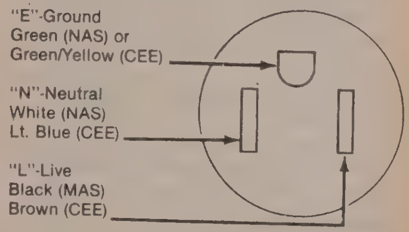
North America (NAS)*

COLOR	FUNCTION
White	N-Neutral
Black	L-Live
Green or Green/Yellow	E-Earth or Ground

European (CEE)*

COLOR	FUNCTION
Light Blue	N-Neutral
Brown	L-Live
Green/Yellow	E-Earth or Ground

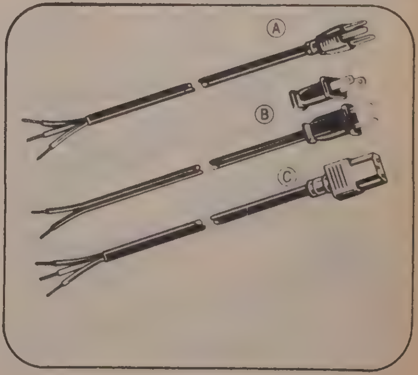
NEMA 5-15P
MALE PLUG



Electrical Ratings—Cords—
Expressed in Watts and Volt-Amps

AWG	TYPE	WATTS	EQUALS	VOLT-AMPS
18	SV	1250	=	125V x 10
18	SJ	1250	=	125V x 10
18	SJT	1250	=	125V x 10
16	SJ	1625	=	125V x 13
16	SJT	1625	=	125V x 13
14	SJ	1875	=	125V x 15
14	SJT	1875	=	125V x 15

INQUIRIES INVITED FOR CORDS USING DIFFERENT CORDAGE, OR SPECIAL LENGTHS



(312) 455-8830

Consolidated
electronic wire & cable

ELECTRICAL

CORD SETS

shielded cords

Construction

- Flexible tinned copper conductors
- PVC insulation
- Aluminum backed Mylar^T shield with drain wire
- Drain wire attached to the green (NAS) or the green/yellow (CEE) ground wire
- PVC jacket
- Molded male and/or female connector
- Free ends are prepared by removing (ROJ) Jacket 2″, stripping conductors .625″ and twisting

unshielded cords

Construction

- Flexible tinned copper conductors on thermoplastic (PVC) product, bare copper on rubber products
- Rubber or thermoplastic (PVC) jacket
- Molded male and/or female connector
- Free ends are prepared by removing jacket 2″, stripping conductors .625″ and twisting

extension cords

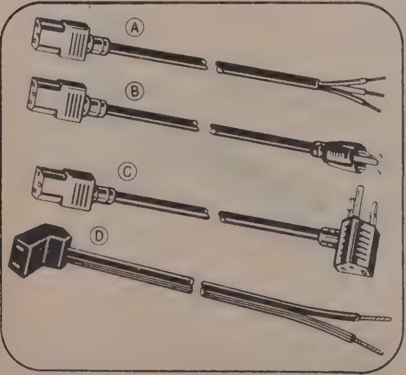
Construction

- Flexible bare tinned copper
- PVC insulation
- Heavy duty orange PVC jacket suitable for outdoor use
- OSHA and UL

cooling fan cords

Construction

- flexible parallel cord type SPT-1
- Soft molded angle connector which facilitates easy connection to most cooling fans
- Free end split 1½″, stripped ½″, and dip tinned



unshielded 3 conductor electronic line cords straight connector Ⓐ

Catalog No.	Length Meters	Ft	Gauge and Strand	Style	Color Code* Conductor	Jacket Color	Dia (Nom) Inches
			Listed				
A7100	2	6′ 5″	18 (41 x 34)	SJT	CEE	Blk	.315
A7101	3	10′	18 (41 x 34)	SJT	CEE	Blk	.315
A7102	2.3	7′ 6″	18 (41 x 34)	SVT	CEE	Blk	.250

alum mylar/foil shielded 3 conductor detachable power supply cords Ⓑ

Catalog No.	Length Meters	Ft	Gauge and Strand	Style	Color Code* Conductor	Jacket Color	Dia (Nom) Inches
			Listed				
A7020	2	6′ 5″	18 (41 x 34)	SJT	CEE	Blk	.340
A7021	3	10′	18 (41 x 34)	SJT	CEE	Blk	.340
A7022	2	6′ 5″	16 (65 x 34)	SJT	CEE	Blk	.370

unshielded 3 conductor detachable power supply cords Ⓑ

Catalog No.	Length Meters	Ft	Gauge and Strand	Style	Color Code* Conductor	Jacket Color	Dia (Nom) Inches
			Listed				
A7110	2	6′ 5″	18 (41 x 34)	SJT	CEE	Blk	.315
A7111	3	10′	18 (41 x 34)	SJT	CEE	Blk	.315
A7112	2	6′ 5″	16 (65 x 34)	SJT	CEE	Blk	.360
A7113	2.3	7′ 6″	18 (41 x 34)	SVT	NAS	Blk	.250
A7114	2.3	7′ 6″	16 (65 x 34)	SJT	NAS	Blk	.360
*A7115	3	10′	18 (16 x 30)	SJ	NAS	Blk	.315
*A7116	3	10′	16 (26 x 30)	SJ	NAS	Blk	.360
A7117	2.3	7′ 6″	18 (41 x 34)	SVT	CEE	Blk	.250
A7118	3	10′	16 (16 x 34)	SJT	CEE	Blk	.360

unshielded 3 conductor detachable power supply cords with convenience outlet in molded plug ©

Catalog No.	Length Meters	Ft	Gauge and Strand	Style	Color Code* Conductor	Jacket Color	Dia (Nom) Inches
			Listed				
A7120	2.8	8′	18 (16 x 30)	SJT	NAS	Blk	.330
A7121	4.5	15′	18 (16 x 30)	SJT	NAS	Blk	.330

heavy duty 3 conductor extension cords Ⓑ

Catalog No.	Length Ft.	Gauge and Strand	Volts	Amps	Watts
		Listed Style SJTW			
A7170	25	16 (26 x 30)	125	13	1625
A7171	50	16 (26 x 30)	125	13	1625
A7172	100	16 (26 x 30)	125	10	1250
A7173	25	14 (41 x 30)	125	15	1875
A7174	50	14 (41 x 30)	125	15	1875
A7175	100	14 (41 x 30)	125	13	1625
A7176	25	12 (65 x 30)	125	15	1875
A7177	50	12 (65 x 30)	125	15	1875
A7178	100	12 (65 x 30)	125	15	1875

listed SPT 2/C cooling fan power cords Ⓓ

Catalog No.	Length Meters	Ft.	Gauge and Strand	Volts	Amps	Watts
A7162	.6	2	18 (41 × 34)	125	10	1250
A7163	1.2	4	18 (41 × 34)	125	10	1250
A7164	1.8	6	18 (41 × 34)	125	10	1250

*Not CSA listed

Consolidated (312) 455-8830
electronic wire & cable

GENERAL PURPOSE WIRE AND CABLE

tv lead-in foam transmission cable "conco foam" Ⓐ Ⓑ

Catalog No.	Gauge & Strands	Material	Nom O.D.	Nom Imp Ohms	Nom Cap pF/Ft	Nominal Attenuation MHz	Nominal Attenuation dB/100 Ft
4532 **	22 (7 x 30) Bare Copper	Foam polyethylene, black polyethylene jacket	.140 x .385	300	5.3	100 300 500 700 900	1.4 2.8 3.8 4.8 5.6
4530 **	20 (10 x 28) Bare Copper	Foam polyethylene, black polyethylene jacket	.150 x .410	300	4.9	100 300 500 900	1.04 2.50 3.50 4.50
4535 * **	22 (7 x 30) Bare Copperweld	Foam polyethylene conductors laid parallel overall mylar/ aluminum foil and stranded tin copper drain wire, black polyethylene outer jacket	.270 x .450	300	7.8	57 85 200 500 675	1.7 2.1 3.4 5.7 6.7

* Spade terminals available with catalog 4535
** Furnished individually packed coils 50′, 75′, 100′
Furnished individually packed spools 500′, 1000′

flat twin lead 300 ohm cable Ⓒ

Catalog No.	Gauge	Conductor Strands	Nominal O.D.	Nominal Impedance Ohms	Jacket Color
4500	22	7 x 30 Bare Copper	.055 x .350	300	Polyethylene Brown
4504	20	7 x 28 Bare Copper	.080 x .400	300	Polyethylene Brown
4506	20	7 x 28 Bare Copper	.100 x .400	300	Polyethylene Brown

rotor cable flat Ⓓ

Catalog No.	Number of Conductors	Gauge	Conductor Strands	Nominal O.D.	Jacket Color
4509	4	20	7 x 28 3 Conductors Bare Copper 1 Conductor Tin Copper	.080 x .350	Polyethylene Brown
4517	5	20	7 x 28 3 Conductors Bare Copper 1 Conductor Tin Copper	.080 x .400	Polyethylene Brown

rotor cable round Ⓔ

Catalog No.	Number of Conductors	Gauge	Strands	Nominal Insulation	Nominal Jacket	Nominal O.D.
4515	4	22	7 x 30	.010	.020	.160
4518	5	22	7 x 30	.010	.020	.170
4521	8	22	7 x 30	.010	.020	.215
4524	4	20	7 x 28	.015	.030	.180
4525	5	20	7 x 28	.015	.030	.190
4538	8	6-22 2-18	7 x 30 16 x 30	.012 .016	.030	.260

Construction (Conco Foam)
- Stranded bare copper and/or copperweld conductors
- Color coded foam PE Insulation
- Mylar aluminum foil shield and tin copper drain, where applicable
- Black PE outer jacket

Characteristics
- Temperature −20°C to +60°C
- 300 Ohm cable
- Resists moisture, salt, air, chemical fumes, and sunlight
- 82 channel bandwidth
- Very low loss
- Individual packaged product

Applications
- TV/FM lead-in cable
- Transmission

Construction (flat twin lead and flat rotor)
- Stranded bare copper conductors
- Flat constructed brown polyethylene insulation

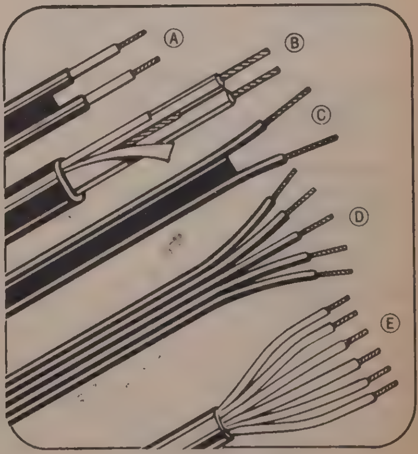
Characteristics
- Temperature −20°C to +60°C
- 300 Ohm cable

Applications
- TV/FM lead-in cable

Construction (rotor cable round)
- Stranded bare copper conductors
- Color coded PE Insulation
- Conductors cabled
- Gray polyvinylchloride jacket

Characteristics
- Temperature −20°C to +80°C
- Working Voltage: 200 Volts

Applications
- Antenna Rotor Control



(312) 455-8830 **Consolidated** electronic wire & cable

GENERAL PURPOSE WIRE AND CABLE

Construction (speaker cable)
- Stranded copper conductors, one bare, one tinned
- Conductors laid parallel, one conductor marked for polarity
- Color coded polyvinylchloride insulation
- Conductors separate easily

Characteristics
- Temperature: −20° to +80°C
- Working Voltage: 300 Volts

Applications
- Audio
- Speaker Systems
- Sound Systems

Construction (5160)
- PVC core
- Two (2) spiral wrapped tin copper conductors
- Gray Polyvinylchloride outer jacket

Characteristics
- Temperature: −20°C to +80°C
- Low impedance 8 ohm coax

Applications
- Low impedance speaker cable
- Electro-static speaker application

Construction (5587)
- Stranded tinned copper conductors
- Polyethylene primary dielectric
- Spiral wrapped tinned copper serve each conductor
- Gray polyvinylchloride jacket parallel construction

Characteristics
- Temperature: −20° to +80°C
- Working Voltage: 300 Volts

Applications
- Headset Cable
- Language Lab Cable

Construction (4077-4079)
- Stranded bare copper conductors
- Conductors laid parallel
- Color Coded Polyvinyichloride insulation

Characteristics
- Temperature: −20° to +80°C
- Working Voltage: 300 Volts
- UL SPT

Applications
- Lamps
- Stereo
- Appliances

Construction (4081-4083)
- Stranded tinned copper conductors
- Conductors laid parallel
- Black neoprene insulation

Characteristics
- Temperature: −30° to +90°C
- Voltage Rating: 300 Volts
- UL Type HPN

Applications
- Heater Cord
- Test and Ignition Cord

speaker cable heavy duty zip cord UL listed Ⓐ

Catalog No.	Gauge & Strands	Cond.	Insul. Wall	O.A. Dia.	Color Jacket	U.L.
5547	24 (7 x 32)	2	.015	.058 x .115	Brn, Clr, Gry, Wht	—
5142	22 (7 x 30)	2	.015	.060 x .120	Brn, Clr, Gry, Wht	PLT
5140	20 (10 x 30)	2	.015	.080 x .165	Brn, Clr, Gry, Wht	PLT
5148	18 (16 x 30)	2	.016	.090 x .185	Clr	—
5143	16 (26 x 30)	2	.025	.112 x .210	Clr	—
5145	14 (41 x 30)	2	.025	.120 x .230	Clr	—
5147	12 (65 x 30)	2	.030	.160 x .335	Clr	—
5149	12 (7 x 37 x 36)	2	.060	.208 x .415	Clr	"Monster"

low impedance coaxial speaker cable Ⓑ

Catalog No.	1st Cond. Strand	Cond.	Insul. Wall	2nd Cond. Strand	Insul. Wall	O.A. Dia.
5160	45 x 30	2	.020	65 x 30	.040	.310

2 conductor shielded cable UL listed style 2629 Ⓒ

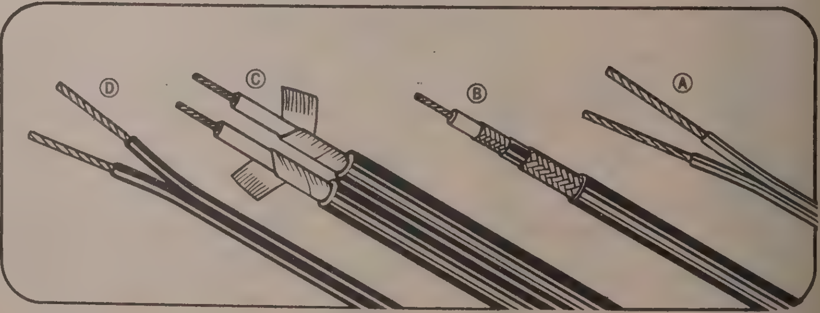
Catalog No.	Gauge & Strands	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Volts	**Cap pF/Ft	Color Code
5587	24 (7 x 32)	2	.017	.020	.130 x .260	300	35	Red, Wht

parallel plastic cord UL listed SPT Ⓓ

Catalog No.	Gauge & Strands	Cond.	Insul. Wall	O.A. Dia.	Volts	Color Jacket	U.L.
4077	18 (41 x 34)	2	.032	.115 x .215	300	Blk, Brn, Gry, Wht	SPT-1
4079	16 (65 x 34)	2	.045	.160 x .300	300	Blk, Brn, Gry, Wht	SPT-2
4078	18 (41 x 34)	2	.045	.144 x .277	300	Blk	SPT-2

parallel neoprene heater cord UL listed HPN Ⓓ

Catalog No.	Gauge & Strands	Cond.	Insul. Wall	O.A. Dia.	Volts	Color Jacket	U.L.
4081	18 (41 x 34)	2	.045	.148 x .285	300	Blk	HPN
4083	16 (65 x 34)	2	.045	.161 x .310	300	Blk	HPN



Consolidated electronic wire & cable (312) 455-8830

GENERAL PURPOSE WIRE AND CABLE

test prod wire UL listed Ⓐ

Catalog No.	Gauge & Strands	Cond.	Insul. Wall	O.A. Dia.	Working Voltage	Break-down Voltage	Color Code	U.L.
1004	**20** (41 x 36)	1	.040	.120	1,500	6,000	Blk, Red	
1001	**20** (41 x 36)	1	.047	.140	3,000	12,000	Blk, Red	
1002	**18** (65 x 36)	1	.045	.140	5,000	20,000	Blk, Red	
1006	**18** (65 x 36)	1	.088	.230	10,000	29,000	Blk, Red	
1007	**18** (65 x 36)	1	.045	.140	5,000	20, 000	Blk, Red	MIL-W-13169
1009	**18** (65 x 36)	1	.047	.145	5,000	20, 000	Blk, Red	3325, 3357

high voltage unshielded cable UL listed Ⓑ

Catalog No.	Gauge & Strands	Cond.	Insul. Wall	Jacket Wall	O.A. Dia.	Working Volts	Code Color	U.L.
4624	**22** (7 x 30)	1	.025	.020	.130	20,000	Blk	3239
4625	**22** (7 x 30)	1	.038	.020	.146	30,000	Wht	3239
4626	**22** (7 x 30)	1	.045	.020	.160	40,000	Red	3239
4616	**20** (10 x 30)	1	.035	—	.108	10,000	Wht	
4621	**20** (10 x 30)	1	.065	—	.168	20,000	Wht/Red	
4622	**18** (41 x 34)	1	.057	.020	.195	40,000	Red	
4601	**20** (7 x 28)	1	.035	—	.136	10,000	Red/Wht	
4611	**20** (7 x 28)	1	.065	—	.198	20,000	Red	

stranded tinned copper wire table—American Wire Guage (B & S)

			Diameter		Area		Weight		Tin Coating		Bare or Silver Coating	
AWG	**Stranding**	**Type Stranding**	**In.**	**mm.**	**circ. mils**	**sq. mm.**	**lbs./M**	**kg./km.**	**ohms/M**	**ohms/km.**	**ohms/M**	**ohms/km.**
32	7/40	Co or Bu	.0096	.254	100	.051	.21	.31	176	577	—	—
30	Solid	—	.010	.254	100	.051	.30	.45	113	371	104	340
	7/38	Bu	.012	.305	112	.057	.35	.52	106	348	92.6	303
28	Solid	—	.01264	.321	159	.081	.48	.72	70.8	232	65.3	214
	7/36	Co	.015	.381	175	.089	.55	.82	67.5	221	59.3	194
27	Solid	—	.0142	.361	202	.102	.61	.91	55.6	182	51.4	169
	7/35	Co or Bu	.017	.432	220	.111	.69	1.04	53.8	176	—	—
26	Solid	—	.016	.404	253	.128	.77	1.14	44.5	146	41.0	135
	7/34	Co or Bu	.019	.483	278	.141	.87	1.29	42.5	139	37.3	122
	10/36	Bu	.0193	.490	250	.127	.78	1.15	47.3	155	40.4	133
	19/38	Bu or Co	.021	.533	304	.154	.97	1.44	38.9	128	34.1	112
24	Solid	—	.0201	.511	404	.205	1.22	1.82	27.2	89.2	25.7	84.2
	7/32	Co or Bu	.024	.610	448	.227	1.38	2.05	25.7	84.2	23.1	75.9
	16/36	Bu	.024	.610	400	.201	1.25	1.64	29.5	96.8	27.5	90.2
	19/36	Co or Bu	.025	.635	475	.241	1.48	2.20	24.9	81.7	21.8	71.6
22	Solid	—	.025	.643	643	.324	1.94	2.89	16.7	54.8	16.2	53.2
	7/30	Co or Bu	.030	.762	700	.355	2.19	3.26	16.6	54.4	14.8	48.6
	19/34	Bu or Eq	.0315	.800	754	.382	2.35	3.50	15.5	50.8	13.8	45.1
20	Solid	—	.032	.813	1,020	.519	3.10	4.61	10.5	34.4	10.1	33.2
	7/28	Co or Bu	.038	.965	1,111	.562	3.49	5.19	10.3	33.8	9.33	30.6
	10/30	Bu	.037	.940	1,000	.507	3.14	4.67	11.4	37.4	10.4	34.0
	19/32	Co, Bu or Eq	.040	1.02	1,216	.616	3.84	5.71	9.48	31.1	8.53	28.0
	26/34	Bu	.039	.940	1,032	.523	3.28	4.88	11.3	37.1	—	—
19	Solid	—	.0359	.912	1,290	.653	3.90	5.80	—	—	8.05	26.4
18	Solid	—	.0403	1.024	1,620	.823	4.92	7.32	6.77	22.2	6.39	21.0
	7/26	Co or Bu	.048	1.22	1,770	.897	5.5	8.26	6.45	21.2	5.55	19.2
	16/30	Bu	.0475	1.207	1,600	.810	5.01	7.45	7.15	23.4	6.48	21.3
	19/30	Co, Bu or Eq	.050	1.27	1,900	.963	5.95	8.85	6.10	20.0	5.46	17.9
	41/34	Bu	.049	1.244	1,627	.824	5.09	7.08	7.08	23.2	6.60	21.6
16	Solid	—	.0508	1.29	2,580	1.31	7.81	11.6	4.47	14.7	4.16	13.6
	19/29	Bu or Eq	.057	1.45	2,426	1.23	7.52	11.2	4.82	15.8	4.27	14.0
	19/.0117	Bu	.0585	1.50	2,601	1.32	8.02	11.9	4.39	14.4	4.13	13.5
	26/30	Bu	.0606	1.54	2,600	1.32	8.15	12.1	4.39	14.4	3.99	13.1
	65/34	Bu	.060	1.52	2,581	1.31	8.20	11.9	4.47	14.7	4.16	13.6
14	Solid	—	.0641	1.63	4,110	2.08	12.4	18.5	2.68	8.79	2.52	8.28
	7/.0242	Bu	.073	1.85	4,100	2.08	12.7	18.9	—	—	2.61	8.56
	19/27	Co, Eq or Un	.071	1.80	3,831	1.94	12.1	18.0	3.05	10.00	2.71	8.88
	19/.0147	Cu	.074	1.88	4,106	2.08	12.7	18.9	—	—	2.61	8.56
	41/30	Bu	.077	1.96	4,100	2.08	12.9	19.2	2.81	9.22	2.53	8.30
12	Solid	—	.0808	2.05	6,530	3.31	19.8	29.5	1.69	5.54	1.59	5.21
	7/.0305	Co	.092	2.34	6,512	3.30	20.3	30.1	—	—	1.64	5.38
	19/25	Co, Eq or Un	.0905	2.299	6,088	3.08	19.4	28.9	1.87	6.13	1.70	5.59
	19/.0185	Bu	.0925	2.35	6,503	3.30	20.2	30.2	—	—	1.64	5.25
	65/30	Bu	.094	2.388	6,500	3.29	20.8	31.1	1.82	5.97	1.64	5.25
10	Solid	—	.1019	2.588	10,380	5.26	31.4	46.6	—	—	1.00	3.28
	7/.0385	Co	.116	2.95	10,376	5.25	32.0	47.6	—	—	1.00	3.28
	19/.0234	Bu	.117	2.97	10,404	5.27	32.0	47.6	—	—	.98	3.21
	37/.0169	Co	.112	2.84	9,361	4.74	29.2	43.4	—	—	1.25	4.10
	105/30	Bu	.126	3.20	10,500	5.32	33.8	49.2	1.10	3.61	.99	3.24

Construction (1000 Series)

- Stranded tinned copper conductors
- Color coded "EPR" rubber insulation

Characteristics

- Temperature Range: −30°C to +90°C

Applications

- Test Probes

Construction (4600 Series)

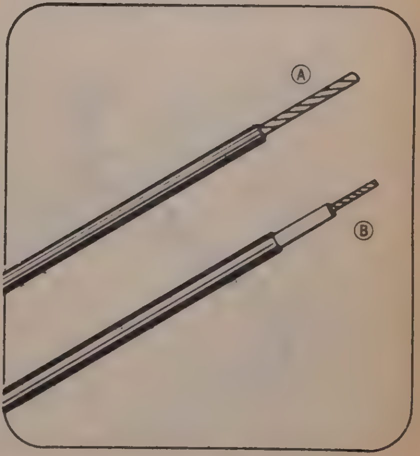
- Stranded tinned copper conductors
- Flame retardant polyethylene (Rulan) primary insulation
- Color coded polyvinylchloride outer jacket, where specified

Characteristics

- Temperature Range: −20°C to +80°C
- Working Voltage: 10,000 Volts through 40,000 Volts

Applications

- Testing High Voltage Equipment and Apparatus



(312) 445-8830 **Consolidated** electronic wire & cable

GENERAL PURPOSE WIRE AND CABLE

neoprene retractile power cables UL listed

all cords 4 feet retracted, approximately 25 feet extended

Catalog No.	Cond. AWG	Stranding	U.L. Type	Cordage O.D. (inches)	Coil O.D. (inches)	Amp Rating	Max. Working Voltage
2801	2/18	41 x 34 BC	SVO	.250	1	7	300
2802	2/18	41 x 34 BC	SJO	.310	1¼	7	300
2803	3/18	41 x 34 BC	SJO	.330	1½	7	300
2804	4/18	41 x 34 BC	SJO	.360	1½	5.6	300
2820	5/18	41 x 34 BC	NA	.440	1¾	5.6	300
2821	7/18	41 x 34 BC	NA	.500	1⅞	5.6	300
2822	2/12 4/18	65 x 30 BC 41 x 34 BC	NA	.610	2¼	17 6	600 600
2805	2/16	65 x 34 BC	SJO	.330	1½	10	300
2806	3/16	65 x 34 BC	SJO	.365	1½	10	300
2807	3/16	65 x 34 BC	SO	.470	1⅞	10	600
2808	4/16	65 x 34 BC	SJO	.395	1⅝	8	300
2809	4/16	65 x 34 BC	SO	.500	1⅞	8	600
2810	5/16	65 x 34 BC	SO	.550	1⅞	8	600
2824	6/16	65 x 34 BC	NA	.545	2	8	600
2825	6/16 1/14	65 x 34 BC 41 x 30 BC	NA	.575	2⅛	8	600
2811	2/14	41 x 30 BC	SO	.535	2	15	600
2812	3/14	41 x 30 BC	SO	.560	2⅛	15	600
2813	4/14	41 x 30 BC	SO	.605	2¼	12	600
2814	2/12	55 x 30 BC	SO	.605	2¼	20	600
2815	3/12	65 x 30 BC	SO	.635	2⅜	20	600
2816	4/12	65 x 30 BC	SO	.665	2½	16	600
2827	7/12	65 x 30 BC	NA	.775	2¾	16	300

Construction
- Stranded bare copper or tinned copper conductors
- Color coded rubber insulation
- Neoprene outer jacket
- 4-foot retracted cords—25-foot extended lengths with 6-inch straight lead on one end
- 2-foot retracted cords—12-foot extended lengths with 6-inch straight lead on one end

Characteristics
- Temperature Range: −30°C to +70°C
- Voltage Rating: SVO 300 Volts
  SJO 300 Volts
  SO 600V olts

Applications
- Industrial Control
- Remote Control
- Test Probes

neoprene and TPE retractile communication and electronic control cords

all cords 4 feet retracted, approximately 25 feet extended

Catalog No.	Cond. AWG	Stranding	U.L. Type	Cordage O.D. (Inches)	Coil O.D. (inches)	Amp Rating	Max. Working Voltage
2870	2/23	21 x 36 TC	NA	.200	¾	1	120
2871	3/23	21 x 36 TC	NA	.210	¾	1	120
2872	4/23	21 x 36 TC	NA	.240	⅞	1	120
2873	5/23	21 x 36 TC	NA	.285	1	1	120
2874	6/23	21 x 36 TC	NA	.305	1⅛	1	120
2875	7/23	21 x 36 TC	NA	.320	1¼	1	120
2850	1/24(S)	41 x 40 TC	NA	.160	⅝	1	120
2852	1/23 1/24(S)	21 x 36 TC 41 x 40 TC	NA	.200	13/16	1	120
2854	2/23 1/24(S)	21 x 36 TC 41 x 40 TC	NA	.240	⅞	1	120
2856	2/23 1/24(S)	21 x 36 TC 41 x 40 TC	NA	.270	1¼	1	120
2857	3 Tinsel	NA	NA	.201	13/16	1	100

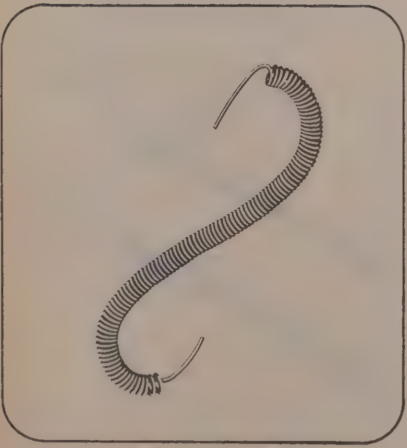
(S)—Shielded

*Conductor Color Coding: 1—Black, 2—White, 3—Red, 4—Green, 5—Blue, 6—Yellow, 7—Brown

neoprene retractile test leads

all cords 2 feet retracted, approximately 12 feet extended

Catalog No.	Cond. AWG	Cordage O.D. (Inches)	Coil O.D. (Inches)	Amp Rating	Max. Working Voltage
2830	1/20 Black	.165	¾	4	1000
2831	1/20 Red	.165	¾	4	1000



Consolidated
electronic wire & cable
(312) 445-8830

GENERAL PURPOSE WIRE AND CABLE

flat tinned copper braid ©

Catalog No.	Nominal Width	Nominal Thickness	AWG	Construction No. Ends	No. Carriers	Total Strands	Approx. AWG	CMA	Ampacity
1386	1/32	.020	36	16	16	16 x 36	24	400	7
1387	3/64	.020	36	24	24	24 x 36	23	600	7
1388	3/32	.020	36	48	16	48 x 36	19	1,200	12
1389	7/64	.020	36	72	24	72 x 36	18	1,800	14
1390	1/8	.020	36	96	24	96 x 36	18	2,400	15
1391	3/16	.020	36	120	24	120 x 36	15	3,000	23
1392	1/4	.030	36	168	24	168 x 36	14	4,200	30
1393	3/8	.030	36	288	48	288 x 36	11	7,200	50
1394	1/2	.030	36	384	48	384 x 36	10	9,600	55
1395	5/8	.035	36	528	48	528 x 36	10	13,200	61
1396	3/4	.040	36	832	48	832 x 36	7	20,800	80
1397	25/32	.040	36	832	48	832 x 36	7	20,800	80
1398	1	.045	36	912	48	912 x 36	7	22,800	84
1399	1-3/8	.050	30	336	48	336 x 30	7	33,768	105

tinned copper braid QQ-B-575 Ⓐ

Catalog No.	Nominal I.D.	AWG	Construction No. Ends	No. Carriers	Total Strands	Approx. AWG	CMA	Ampacity
1310	1/32	36	24	24	24 x 36	22	600	7
1311	1/16	36	48	24	48 x 36	19	1,200	11
1312	5/64	36	72	24	72 x 36	18	1,800	16
1314	7/64	36	96	24	96 x 36	16	2,400	19
1315	1/8	36	120	24	120 x 36	15	3,000	25
1316	5/32	36	240	24	240 x 36	12	6,000	40
1317	11/64	36	168	24	168 x 36	14	4,200	32
1318	13/64	34	192	24	192 x 34	11	7,632	46
1319	1/4	36	384	24	384 x 36	10	9,600	53
1320	9/32	30	120	24	120 x 30	9	12,060	60
1321	3/8	36	384	48	384 x 36	10	9,600	53
1322	7/16	30	240	48	240 x 30	6	24,120	90
1323	1/2	36	528	48	528 x 36	9	13,200	62
1324	9/16	30	480	48	480 x 30	3	48,240	145
1325	21/32	30	768	48	768 x 30	1	77,184	190
1326	25/32	36	864	48	864 x 36	7	21,600	88

oval tinned copper commercial braid Ⓑ

Catalog No.	Nominal I.D.	AWG	Construction No. Ends	No. Carriers	Total Strands	Approx. AWG	CMA	Ampacity
1340	1/32	34	24	24	24 x 34	20	958	9
1341	1/16	34	32	16	32 x 34	19	1,272	11
1342	7/64	34	64	16	64 x 34	16	2,544	20
1343	1/8	34	72	24	72 x 34	15	2,862	25
1344	11/64	34	120	24	120 x 34	14	4,770	32
1345	3/16	34	144	24	144 x 34	13	5,724	38
1346	1/4	34	168	24	168 x 34	12	6,678	41
1347	3/8	34	192	48	192 x 34	11	7,632	46
1348	1/2	34	336	48	336 x 34	9	13,356	62
1349	5/8	34	384	48	384 x 34	8	15,264	62
1350	11/16	34	480	48	480 x 34	7	19,080	81
1351	25/32	34	528	44	576 x 34	7	20,829	85

Construction (flat)

- Woven tinned copper in flat construction
- Each wire meets specifications at QQ — 343 Type S and ASTM-B-33
- 95% minimum shield coverage

Characteristics

- Rolled into flat form

Applications

- Shielding
- Ground Straps
- Bonding

Construction (tubular and oval)

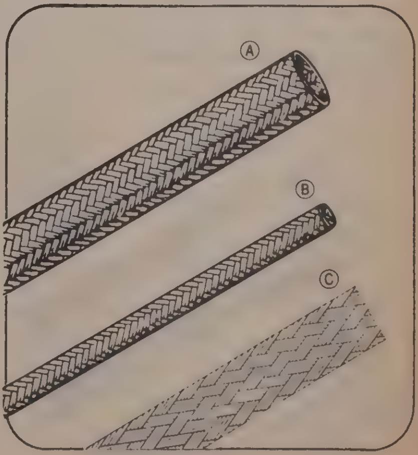
- Woven tinned copper in tubular or oval construction
- Each wire meets specifications of QQ-W-343 Type S and ASTM-B-33
- 95% minimum shield coverage

Characteristics

- Tubular, round or oval construction

Applications

- Shielding
- Ground Straps
- Bonding



(312) 455-8830 **Consolidated**
electronic wire & cable

GENERAL PURPOSE WIRE AND CABLE

AUTOMOTIVE WIRE AND CABLE

Construction (GPT)
- Stranded bare copper conductor
- Color coded polyvinylchloride insulation

Characteristics
- Temperature −20°C to +60°C
- SAE J 558a
- Low tension cable

Applications
- Automobiles • Trailers • Boats

Construction (4032)
- Stranded tinned copper conductor
- Red polyvinylchloride (PVC) jacket

Characteristics
- Temperature: −20°C to +80°C
- SAE J557
- High tension ignition cable

Applications
- Ignition Cable
- Spark Plug Cable

Construction (duplex/triplex)
- Stranded bare copper conductor
- Color-coded insulation
- Conductors laid parallel
- Gray PVC outer jacket

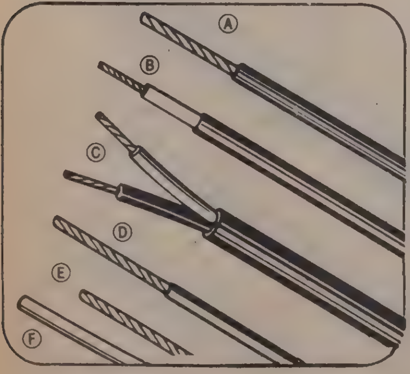
Characteristics
- Temperature: −20°C to +60°C
- SAE J558a
- Low Tension Duplex & Triplex

Applications
- Trailer Cable

Construction (1161)
- Stranded tinned copper conductor
- Brown PVC insulation
- Nominal insulation thickness .010″

Characteristics
- Temperature: −20°C to +80°C
- Voltage Rating: 300 Volts

Applications
- Antenna and Aerial Lead-in



PVC insulated primary wire SAE approved type GPT Ⓐ

Catalog No.	Gauge & Strands	Material Description	Nominal O.D.	Colors
4026	18 (16 x 30)	.023 PVC Insulation	.092	Blk, Red
4027	16 (19 x 29)	.023 PVC Insulation	.105	Blk, Blu, Brn, Grn, Red, Wht, Yel
4028	14 (19 x 27)	.030 PVC Insulation	.123	Blu, Red
4029	12 (19 x 25)	.030 PVC Insulation	.142	Blk, Blu, Grn, Red
4030	10 (19 x 23)	.035 PVC Insulation	.183	Blk
4038	8 (19 x 21)	.040 PVC Insulation	.215	Blk
4036	6 (37 x 21)	.040 PVC Insulation	.283	Blk

high-tension 7mm ignition wire Ⓑ

Catalog No.	Gauge & Strands	Nominal O.D.	Colors
4032	16 (19 x 29)	.276	Red

PVC insulated duplex and triplex cable Ⓒ

Catalog No.	Number of Conductors	Gauge & Strands	Nominal O.D.	Colors
4064	2	14 (19 x 27)	.180 x .300	Blk/Wht
4065	2	12 (19 x 25)	.210 x .360	Blk/Wht
4066	3	14 (19 x 27)	.162 x .365	Blk/Wht/Grn
4067	3	12 (19 x 25)	.180 x .420	Blk/Wht/Grn

PVC insulated antenna lead wire Ⓓ

Catalog No.	Gauge & Strands	Material Description	Nominal O.D.	Color
1161	24 (16 x 30)	Tin Copper .010 PVC Insulation	.050	Brown

stranded bare copper Ⓔ

Catalog Number	AWG	Stranding	Nom. OD.	Breaking Strength
3501	18	7 x 26	.046	67 Lbs.
3521	16	7 x 24	.057	106 Lbs.
3551	14	7 x 22	.072	167 Lbs.
3561	12	7 x 20	.092	262 Lbs.

solid bare copper Ⓕ

Catalog Number	AWG	Stranding	Nom. OD.	Breaking Strength
3801	15	Solid	.057	98 Lbs.
3811	14	Solid	.064	124 Lbs.
3786	12	Solid	.080	197 Lbs.
3791	10	Solid	.102	314 Lbs.
3796	8	Solid	.128	480 Lbs.

phosphor bronze Ⓔ

Catalog Number	AWG	Stranding	Nom. OD.	Breaking Strength
3421	16	7 x 24	.058	230 Lbs.
3451	14	7 x 22	.073	360 Lbs.
3461	12	7 x 20	.092	570 Lbs.
3465	10	7 x 18	.116	895 Lbs.
3466	8	7 x 16	.146	1400 Lbs.
3467	6	7 x 14	.184	2200 Lbs.
3468	4	7 x 12	.232	3400 Lbs.

annunciator wire Ⓓ

Catalog Number	Number of Conductors	AWG & Strands	Material Description
1450	1	18 Solid	Bare Copper .010″ Wall PVC Insulation
1145	2	18 Solid	Bare Copper .010″ Wall PVC Insulation Conductors twisted

solid enameled Ⓕ

Catalog Number	AWG	Stranding	Nom. OD.	Breaking Strength
3851	14	Solid	.064	124 Lbs.
3861	12	Solid	.082	197 Lbs.
3871	10	Solid	.102	314 Lbs.

Consolidated
electronic wire & cable
(312) 455-8830

color code charts

chart 1

1 Black
2 Red
3 Green
4 White
5 Brown
6 Blue
7 Orange
8 Yellow
9 Purple
10 Slate
11 Pink
12 Tan

chart 8

1 Black
2 Red
3 Blue
4 Orange
5 Yellow
6 Brown
7 Red/Black
8 Blue/Black
9 Orange/Black
10 Yellow/Black
11 Brown/Black
12 Black/Red
13 Blue/Red
14 Orange/Red
15 Yellow/Red
16 Brown/Red
17 Black/Blue
18 Red/Blue
19 Orange/Blue
20 Yellow/Blue
21 Brown/Blue
22 Black/Orange
23 Red/Orange
24 Blue/Orange
25 Yellow/Orange
26 Brown/Orange
27 Black/Yellow
28 Red/Yellow
29 Blue/Yellow
30 Orange/Yellow
31 Brown/Yellow
32 Black/Brown
33 Red/Brown
34 Blue/Brown
35 Orange/Brown
36 Yellow/Brown
37 Black/Brown

chart 2

1 Black
2 White
3 Red
4 Green
5 Orange
6 Blue
7 White/Black
8 Red/Black
9 Green/Black
10 Orange/Black
11 Blue/Black
12 Black/White
13 Red/White
14 Green/White
15 Blue/White
16 Black/Red
17 White/Red
18 Orange/Red
19 Blue/Red
20 Red/Green
21 Orange/Green
22 Black/White/Red
23 White/Black/Red
24 Red/Black/White
25 Green/Black/White
26 Orange/Black/White
27 Blue/Black/White
28 Black/Red/Green
29 White/Red/Green
30 Red/Black/Green
31 Green/Black/Orange
32 Orange/Black/Green
33 Blue/White/Orange
34 Black/White/Orange
35 White/Red/Orange
36 Orange/White/Blue
37 White/Red/Blue
38 Black/White/Green
39 White/Black/Green
40 Red/White/Green
41 Green/White/Blue
42 Orange/Red/Green
43 Blue/Red/Green
44 Black/White/Blue
45 White/Black/Blue
46 Red/White/Blue
47 Green/Orange/Red
48 Orange/Red/Blue
49 Blue/Red/Orange
50 Black/Orange/Red
51 White/Black/Orange
52 Red/Orange/Black
53 Green/Red/Blue
54 Orange/Black/Blue
55 Blue/Black/Orange
56 Black/Orange/Green
57 White/Orange/Green
58 Red/Orange/Green
59 Green/Black/Blue
60 Orange/Green/Blue

chart 3

PAIRED INTERCOMMUNICATING CABLES COLOR CODING

Identification is simple with Consolidated Intercom Cables because they are all color coded. See chart below.

1 Black prd. w/Red
2 Black prd. w/White
3 Black prd. w/Green
4 Black prd. w/Blue
5 Black prd. w/Yellow
6 Black prd. w/Brown
7 Black prd. w/Orange
8 Red prd. w/Green
9 Red prd. w/White
10 Red prd. w/Blue
11 Red prd. w/Yellow
12 Red prd. w/Brown
13 Red prd. w/Orange
14 Green prd. w/Blue
15 Green prd. w/White
16 Green prd. w/Brown
17 Green prd. w/Orange
18 Green prd. w/Yellow
19 White prd. w/Blue
20 White prd. w/Brown
21 White prd. w/Orange
22 White prd. w/Yellow
23 Blue prd. w/Brown
24 Blue prd. w/Orange
25 Blue prd. w/Yellow
26 Brown prd. w/Orange
27 Brown prd. w/Yellow
28 Purple prd. w/Red
29 Purple prd. w/White
30 Purple prd. w/Green
31 Purple prd. w/Blue
32 Purple prd w/Brown
33 Purple prd. w/Yellow
34 Purple prd. w/Orange
35 Purple prd. w/Slate
36 Purple prd. w/Black
37 Slate prd. w/Red
38 Slate prd. w/White
39 Slate prd. w/Green
40 Slate prd. w/Blue
41 Slate prd. w/Brown
42 Slate prd. w/Yellow
43 Slate prd. w/Orange
44 Slate prd. w/Black
45 White/Black prd. w/Red
46 White/Black prd. w/Green
47 White/Black prd. w/Blue
48 White/Black prd. w/Brown
49 White/Black prd. w/Yellow
50 White/Black prd w/Orange
51 White/Black prd w/Purple

chart 4

1 Black
2 White
3 Red
4 Green
5 Yellow
6 Blue
7 Brown
8 Orange
9 Gray (slate)
10 Purple
11 White/Black
12 White/Red
13 White/Green
14 White/Yellow
15 White/Blue
16 White/Brown
17 White/Purple
18 White/Gray (slate)
19 Black/Red
20 Black/Yellow

chart 7

1 Black
2 Red
3 Brown
4 Blue
5 Orange
6 Yellow
7 Purple
8 Pink
9 Tan
10 Black/Red
11 Black/Brown
12 Black/Blue
13 Black/Orange
14 Black/Yellow
15 Red/Brown
16 Red/Blue
17 Red/Orange
18 Red/Yellow
19 Brown/Blue
20 Brown/Orange

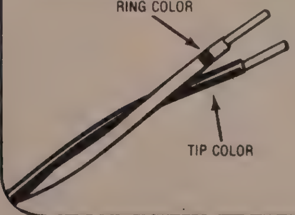
chart 5

1 Black
2 Brown
3 Red
4 Orange
5 Yellow
6 Green
7 Blue
8 Violet
9 Gray
10 White
11 White/Black
12 White/Brown
13 White/Red
14 White/Orange
15 White/Yellow
16 White/Green
17 White/Blue
18 White/Violet
19 Whole/Gray
20 White/Black/Brown
21 White/Black/Red
22 White/Black/Orange
23 White/Black/Yellow
24 White/Black/Green
25 White/Black/Blue
26 White/Black/Violet
27 White/Black/Gray
28 White/Brown/Red
29 White/Brown/Orange
30 White/Brown Yellow
31 White/Brown/Green
32 White/Brown/Blue
33 White/Brown/Violet
34 White/Brown/Gray
35 White/Red/Orange
36 White/Red/Yellow
37 White/Red/Green
38 White/Red/Blue
39 White/Red/Violet
40 White/Red/Gray
41 White/Orange/Yellow
42 White/Orange/Green
43 White/Orange/Blue
44 White/Orange/Violet
45 White/Orange/Gray
46 White/Yellow/Green
47 White/Yellow/Blue
48 White/Yellow Violet
49 White/Yellow/Gray
50 White/Green/Blue
51 White/Green Violet
52 White/Green/Gray
53 White/Blue/Violet
54 White/Blue/Gray
55 White Violet Gray
56 White/Black/Brown/Red
57 White/Black/Brown Orange
58 White/Black/Brown/Yellow
59 White/Black Brown Green
60 White/Black/Brown/Blue

chart 6

pair identification colors

This table shows the color code of a 25-pair cable. Cables with less than 25 pairs follow this sequence Cables with more than 25 pairs are layed up in groups. The basic group consists of 25 pairs color coded in the sequence noted here. The basic group is further divided into units where necessary. For example: a 50-pair cable consists of two basic 25-pair groups.



	Tip/Ring		Tip/Ring
1	White/Blue	14	Black/Brown
2	White/Orange	15	Black/Slate
3	White/Green	16	Yellow/Blue
4	White/Brown	17	YellowOrange
5	White/Slate	18	Yellow/Green
6	Red/Blue	19	Yellow/Brown
7	Red/Orange	20	Yellow/Slate
8	Red/Green	21	Violet/Blue
9	Red/Brown	22	Violet/Orange
10	Red/Slate	23	Violet/Green
11	Black/Blue	24	Violet/Brown
12	Black/Orange	25	Violet/Slate
13	Black/Green		

chart 6

group binder identification colors

This table shows the binder colors used to distinguish each 25-pair basic group in a multi-unit cable For example: in a 50-pair cable the units of the first 25-pair basic group will each have a blue-white binder The units of the second 25-pair basic group will each have an orange-white binder

	Color		Color
1	Blue-White	13	Green-Black
2	Orange-White	14	Brown-Black
3	Green-White	15	Slate-Black
4	Brown-White	16	Blue-Yellow
5	Slate-White	17	Orange-Yellow
6	Blue-Red	18	Green-Yellow
7	Orange-Red	19	Brown-Yellow
8	Green-Red	20	Slate-Yellow
9	Brown-Red	21	Blue-Violet
10	Slate- Red	22	Orange-Violet
11	Blue-Black	23	Green-Violet
12	Orange-Black	24	Brown-Violet

HOW TO READ COLOR CODE CHARTS

Locate the number of leads or pairs in the appropiate chart. Read color listings up from that point.

COONER WIRE

COONER WIRE COMPANY HAS BEEN IN THE SPECIALTY WIRE BUSINESS FOR OVER TWENTY YEARS. THESE PRODUCTS REPRESENT ONLY A SMALL PORTION OF OUR CAPABILITIES. CALL US WITH YOUR APPLICATION.

BRAIDED COPPER CABLES

Flat Constructions
Standard Braided Copper Cables

Manufactured of Bare or Tinned Copper Wire for bonds, grounds, leads, flexible connectors.

PART NUMBER	AWG SIZE	CIRC. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL WIDTH INCHES	NOMINAL THICKNESS INCHES	FEET PER POUND	POUNDS PER 1000′
NE 4243230T		307,200	30	3,072	4x(24-32-30)	1-3/8″	1/2″	1.00	1,080.0
NE 3243230T	4/0	230,400	30	2,304	3x(24-32-30)	1-1/4″	3/8″	1.26	795.0
NE 2243530T	3/0	168,000	30	1,680	2x(24-35-30)	1-1/4″	1/4″	1.75	570.0
NE 2243230T	3/0	153,600	30	1,536	2x(24-32-30)	1-1/4″	1/4″	1.88	530.0
NE 2242730T	2/0	129,600	30	1,296	2x(24-27-30)	1-1/8″	1/4″	2.25	445.0
NE 244430T	1/0	105,600	30	1,056	24-44-30	1-1/4″	1/8″	2.80	355.0
NE 488436T	1/0	100,800	36	4,032	48-84-36	1-5/8″	1/8″	2.82	354.0
NE 243230T	1	76,800	30	768	24-32-30	1″	1/8″	3.8	265.0
NE 486036T	1	72,000	36	2,880	48-60-36	1-1/4″	3/32″	4.0	250.0
NE 242730T	2	64,800	30	648	24-27-30	15/16″	1/8″	4.5	220.0
NE 242030T	3	48,000	30	480	24-20-30	3/4″	1/8″	6.0	165.0
NE 484036T	3	48,000	36	1,920	48-40-36	1″	3/32″	6.2	160.0
NE 488640T	4	39,670	40	4,128	48-86-40	1″	1/8″	7.7	130.0
NE 246736T	4	40,200	36	1,608	24-67-36	3/4″	3/32″	7.4	135.0
NE 241530T	5	36,000	30	360	24-15-30	5/8″	3/32″	8.5	118.0
NE 482236T	6	26,400	36	1,056	48-22-36	7/8″	1/16″	11.1	90.4
NE 241030T	6	24,000	30	240	24-10-30	1/2″	3/32″	12.5	80.0
NE 244036T	6	24,000	36	960	24-40-36	17/32″	3/32″	13.3	75.0
NE 481936T	7	22,800	36	912	48-19-36	13/16″	1/16″	13.0	77.0
NE 832-36T	7	20,800	36	832	(32-17-36) (16-18-36)	1″	1/16″	13.9	72.0
NE 481536T	8	18,000	36	720	(48-15-36)	5/8″	1/16″	17.1	58.8
NE 24730T	8	16,800	30	168	24-7-30	7/16″	1/16″	18.0	56.0
NE 481136T	9	13,200	36	528	48-11-36	5/8″	3/64″	22.0	46.6
NE 24530T	9	12,000	30	120	24-5-30	3/8″	1/16″	25.0	40.0
NE 24430T	10	9,600	30	96	24-4-30	5/16″	1/16″	31.0	32.0
NE 241636T	10	9,600	36	384	24-16-36	3/8″	1/16″	32.0	31.0
NE 48836T	10	9,600	36	384	48-8-36	1/2″	1/32″	31.0	32.0
NE 241336T	11	7,800	36	312	24-13-36	9/32″	3/64″	40.0	25.0
NE 48636T	12	7,200	36	288	48-6-36	3/8″	1/32″	41.3	24.2
NE 241036T	12	6,000	36	240	24-10-36	1/4″	3/64″	50.0	20.00
NE 24736T	14	4,200	36	168	24-7-36	7/32″	1/32″	71.0	14.10
NE 24536T	15	3,000	36	120	24-5-36	3/16″	1/32″	100.0	10.00
NE 24436T	16	2,400	36	96	24-4-36	5/32″	1/32″	125.0	8.00
NE 124244T	17	2,016	44	504	12-42-44	.065″ round		165.0	6.07
NE 16536T	17	2,000	36	80	16-5-36	1/8″	1/32″	150.0	6.70
NE 24336T	18	1,800	36	72	24-3-36	7/64″	1/32″	175.0	5.70
NE 16436T	18	1,600	36	64	16-4-36	3/32″	1/32″	196.0	5.10
NE 24236T	19	1,200	36	48	24-2-36	3/32″	1/32″	260.0	3.86
NE 16336T	19	1,200	36	48	16-3-36	3/32″	1/32″	260.0	3.86
NE 12940T	20	1,038	40	108	12-9-40	.049″ round		299.0	3.34
NE 16640T	20	923	40	96	16-6-40	1/16″	1/32″	325.0	3.06
NE 16236T	21	800	36	32	16-2-36	1/16″	1/32″	380.0	2.63
NE 16134T	22	635	34	16	16-1-34	.037″ round		535.0	1.87
NE 66-40T	22	634	40	66	(14-4-40) (2-5-40)	.036″ round		526.0	1.90
NE 8336T	22	600	36	24	8-3-36	.038″ round		515.0	1.94
NE 12236T	22	600	36	24	12-2-36	3/64″	1/32″	515.0	1.94
NE 24136T	22	600	36	24	24-1-36	3/64″	1/32″	515.0	1.94
NE 16340T	23	461	40	48	16-3-40	.035″ round		671.0	1.49
NE 16136T	24	400	36	16	16-1-36	.029″ round		800.0	1.25
NE 8134T	25	318	34	8	8-1-34	.030″ round		1,000.0	1.00
NE 16240T	25	308	40	32	16-2-40	.026″ round		943.0	1.06
NE 12136T	25	300	36	12	12-1-36	.028″ round		1,000.0	1.00
NE 12240T	26	231	40	24	12-2-40	.025″ round		1,250.0	.80
NE 8136T	27	200	36	8	8-1-36	.026″ round		1,600.0	.62
NE 8240T	28	154	40	16	8-2-40	.020″ round		1,950.0	.51
NE 6136T	28	150	36	6	6-1-36	.022″ round		2,100.0	.48
NE 12242T	28	150	42	24	12-2-42	.023″ round		2,440.0	.41
NE 6240T	29	113	40	12	6-2-40	.018″ round		2,800.0	.36
NE 4136T	30	100	36	4	4-1-36	.019″ round		3,000.0	.33

The suffix "T" stands for Tinned Copper Braids. If a Bare Copper Braid is desired, replace the "T" with a "B".

COONER WIRE

BRAIDED COPPER CABLES

Flat Constructions
Extra-Wide Braided Copper Cables

Manufactured of Bare or Tinned Copper Wire.

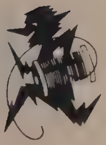
PART NUMBER	AWG SIZE	CIRC. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL WIDTH INCHES	NOMINAL THICKNESS INCHES	FEET PER POUND	POUNDS PER 1000′
NE 3483530T		504,000	30	5,040	3x(48-35-30)	2-1/4″	1/2″	.60	1,670.
NE 2483230T		307,200	30	3,072	2x(48-32-30)	2-1/8″	5/16″	.97	1,034.
NE 485230T		249,600	30	2,496	48-52-30	2-1/2″	5/32″	1.30	784.
NE 484430T	4/0	211,200	30	2,112	48-44-30	2-3/8″	5/32″	1.50	663.
NE 483530T	3/0	168,000	30	1,680	48-35-30	2-1/4″	5/32″	1.80	541.
NE 483230T	3/0	153,600	30	1,536	48-32-30	2″	5/32″	2.00	500.
NE 483830T	2/0	134,400	30	1,344	48-28-30	2″	1/8″	2.20	455.
NE 482230T	1/0	105,600	30	1,056	48-22-30	1-3/4″	1/8″	2.80	357.
NE 481830T	1	86,400	30	864	48-18-30	1-5/8″	1/8″	3.60	278.
NE 481630T	1	76,800	30	768	48-16-30	1-1/2″	1/8″	3.85	260.
NE 481430T	2	67,200	30	672	48-14-30	1-3/8″	1/8″	4.40	225.
NE 481030T	3	48,000	30	480	48-10-30	1-1/4″	1/8″	6.20	163.
NE 48830T	4	38,400	30	384	48-8-30	1″	1/16″	7.60	132.
NE 48730T	5	33,600	30	336	48-7-30	1-3/8″	1/16″	8.50	117.
NE 48530T	6	24,000	30	240	48-5-30	3/4″	1/16″	12.00	83.

The suffix "T" stands for Tinned Copper Braids. If a Bare Copper Braid is desired, replace the "T" with a "B".

Tubular Constructions
Silver-Plated Copper Wire Shielding Braids

Manufactured to QQB-575A standards with the exception that 40 micro inches of Silver Plating has been substituted for the regular Tin Plating. This substitution is necessary when the shielding is to be subjected to temperatures exceeding 200°C, of if special corrosion resistance is required.

PART NUMBER	AWG SIZE	CIRC. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL INSIDE DIAMETER	FEET PER POUND	POUNDS PER 1000′
NEQ 24136S	22	600	36	24	24-1-36	1/32″	500.0	2.0
NEQ 24236S	19	1,200	36	48	24-2-36	1/16″	250.0	4.0
NEQ 24336S	18	1,800	36	72	24-3-36	5/64″	167.0	6.0
NEQ 24436S	16	2,400	36	96	24-4-36	7/64″	122.0	8.2
NEQ 24536S	15	3,000	36	120	24-5-36	1/8″	97.0	10.3
NEQ 24836S	13	4,800	36	192	24-8-36	3/16″	61.3	16.3
NEQ 24834S	11	7,620	34	192	24-8-34	1/4″	40.2	24.9
NEQ 48636S	12	7,200	36	288	48-6-36	5/16″	41.3	24.2
NEQ 48836S	10	9,600	36	384	48-8-36	3/8″	29.0	34.5
NEQ 48634S	10	11,431	34	288	48-6-34	7/16″	25.4	39.3
NEQ 481136S	9	13,200	36	528	48-11-36	1/2″	21.0	47.7
NEQ 481536S	8	18,000	36	720	48-15-36	5/8″	16.8	59.4
NEQ 481836S	7	21,600	36	864	48-18-36	3/4″	13.6	73.5
NEQ 481032S	5	30,720	32	480	48-10-32	7/8″	10.0	100.0
NEQ 48830S	4	38,400	30	384	48-8-30	1″	7.4	135.0
NEQ 48930S	4	43,200	30	432	48-9-30	1-1/8″	6.7	150.0
NEQ 481030S	3	48,000	30	480	48-10-30	1-1/4″	6.1	165.0
NEQ 481130S	3	52,800	30	528	48-11-30	1-3/8 - 1-1/2″	5.6	180.0
NEQ 481230S	3	57,600	30	576	48-12-30	1-1/2 - 1-3/4″	5.1	195.0
NEQ 481430S	2	67,200	30	672	48-14-30	1-7/8 - 2-1/8″	4.4	225.0
NEQ 481630S	1	76,000	30	768	48-16-30	2-1/4 - 2-1/2″	3.9	225.0



Tubular Constructions
Extra-Large Tinned Copper Wire Shielding Braids

Manufactured to QQB-575A standards although these extra large sizes are not listed in the present specifications.

PART NUMBER	AWG SIZE	CIRC. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL INSIDE DIAMETER	FEET PER POUND	POUNDS PER 1000′
NEQL 48730	5	33,600	30	336	48-7-30	7/8″	8.5	118.
NEQL 48830	4	38,400	30	384	48-8-30	1″	7.4	135.
NEQL 48930	4	43,200	30	432	48-9-30	1-1/8″	6.7	150.
NEQL 481030	3	48,000	30	480	48-10-30	1-1/4″	6.1	165.
NEQL 481130	3	48,000	30	528	48-11-30	1-3/8 - 1-1/2″	6.1	165.
NEQL 481230	3	57,600	30	576	48-12-30	1-1/2 - 1-3/4″	5.1	195.
NEQL 481430	2	67,200	30	672	48-14-30	1-7/8 - 2-1/8″	4.4	225.
NEQL 481630	1	76,800	30	768	48-16-30	2-1/4 - 2-1/2″	3.9	255.

COONER WIRE

9186 INDEPENDENCE AVE., CHATSWORTH, CA 91311
TELEPHONE: (818) 882-8311

BRAIDED COPPER CABLES

Tubular Constructions Tinned Copper Wire Shielding Braids

Manufactured to Federal Specification QQB-575A.

PART NUMBER	AWG SIZE	CIRC. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL INSIDE DIAMETER	FEET PER POUND	POUNDS PER 1000′
NEQ 24136	22	600	36	24	24-1-36	1/32″	500.0	2.0
NEQ 16132	20	1,024	32	16	16-1-32	1/16″	303.0	3.3
NEQ 16234	19	1,270	34	32	16-2-34	1/16″	233.0	4.3
NEQ 24236	19	1,200	36	48	24-2-36	1/16″	250.0	4.0
NEQ 24336	18	1,800	36	72	24-3-36	5/64″	167.0	6.0
NEQ 16232	17	2,048	32	32	16-2-32	7/64″	152.0	6.6
NEQ 16434	16	2,540	34	64	16-4-34	7/64″	114.0	8.8
NEQ 24436	16	2,400	36	96	24-4-36	7/64″	122.0	8.2
NEQ 24232	15	3,072	32	48	24-2-32	1/8″	99.0	10.1
NEQ 24334	16	2,858	34	72	24-3-34	1/8″	109.0	9.2
NEQ 24536	15	3,000	36	120	24-5-36	1/8″	97.0	10.3
NEQ 241036	12	6,000	36	240	24-10-36	5/32″	47.8	20.9
NEQ 24332	14	4,608	32	72	24-3-32	11/64″	68.0	14.7
NEQ 24534	13	4,763	34	120	24-5-34	11/64″	64.1	15.6
NEQ 24736	14	4,200	36	168	24-7-36	11/64″	69.9	14.3
NEQ 24532	11	7,680	32	120	24-5-32	13/64″	40.7	24.6
NEQ 24834	11	7,620	34	192	24-8-34	13/64″	35.8	27.9
NEQ 241336	11	7,800	36	312	24-13-36	13/64″	35.7	28.0
NEQ 344-36	11	8,600	36	344	(16-14-36) (8-15-36)	1/4″	30.4	32.9
NEQ 241636	10	9,600	36	384	24-14-36	1/4″	29.0	34.5
NEQ 24530	9	12,000	30	120	24-5-30	9/32″	23.8	42.0
NEQ 24430	10	9,600	30	96	24-4-30	3/8″	31.0	32.3
NEQ 24730	8	16,800	30	168	24-7-30	3/8″	17.5	57.0
NEQ 48332	11	9,216	32	144	48-3-32	3/8″	30.9	32.4
NEQ 48534	10	9,526	34	240	48-5-34	3/8″	30.6	32.7
NEQ 48836	10	9,600	36	384	48-8-36	3/8″	29.0	34.5
NEQ 241030	6	24,000	30	240	24-10-30	7/16″	12.4	80.6
NEQ 241530	5	36,000	30	360	24-15-30	1/2″	8.5	117.0
NEQ 48432	9	12,288	32	192	48-4-32	1/2″	25.0	40.0
NEQ 48734	9	13,336	34	336	48-7-34	1/2″	21.0	47.0
NEQ 481136	9	13,200	36	528	48-11-36	1/2″	21.0	47.7
NEQ 481030	3	48,000	30	480	48-10-30	9/16″	6.6	151.0
NEQ 481630	1	76,800	30	768	48-16-30	21/36″	3.9	254.0
NEQ 48732	7	21,504	32	336	48-7-32	25/32″	13.8	72.7
NEQ 524-34	7	20,798	34	524	(48-11-34) (4-10-34)	25/32″	14.0	71.4
NEQ 481836	7	21,600	36	864	48-18-36	25/32″	13.6	73.5

Oval Constructions Tinned Copper Commercial Shielding and Bonding Cables

PART NUMBER	AWG SIZE	CIRC. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL INSIDE DIAMETHER	NOMINAL FLAT WIDTH	FEET PER POUND	POUNDS PER 1000′
NES 16134	22	635	34	16	16-1-34	1/64″	1/32″	535	1.87
NES 24134	20	953	34	24	24-1-34	1/32″	1/16″	313	3.20
NES 16234	19	1,270	34	32	16-2-34	1/16″	3/32″	233	4.30
NES 16434	16	2,540	34	64	16-4-34	7/64″	1/8″	114	8.80
NES 24334	15	2,858	34	72	24-3-34	1/8″	5/32″	109	9.20
NES 24434	14	3,810	34	96	24-4-34	5/32″	7/32″	79	12.70
NES 24534	13	4,763	34	120	24-5-34	11/64″	1/4″	63	16.00
NES 24634	13	5,715	34	144	24-6-34	3/16″	1/4″	54	18.60
NES 24734	12	6,668	34	168	24-7-34	1/4″	5/16″	43	23.30
NES 24834	12	7,620	34	192	24-8-34	5/16″	3/8″	37	26.80
NES 48734	9	13,336	34	336	48-7-34	1/2″	11/16″	22	45.60
NES 48834	8	15,241	34	384	48-8-34	5/8″	3/4″	19	52.00
NES 481034	7	19,051	34	480	48-10-34	11/16″	7/8″	15	66.50
NES 481134	7	20,956	34	528	48-11-34	25/32″	15/16″	14	72.50
NES 481234	7	22,761	34	576	48-12-34	7/8″	1″	12	79.50
NES 48830	4	38,400	30	384	48-8-30	1″	1-1/4″	7	135.00
NES 48930	4	43,200	30	432	48-9-30	1-1/8″	1-5/16″	6	150.00
NES 481030	3	48,000	30	480	48-10-30	1-1/4″	1-7/16″	6	165.00
NES 481130	3	52,800	30	528	48-11-30	1-3/8″	1-1/2″	5	180.00
NES 481230	3	57,600	30	576	48-12-30	1-1/2″	1-5/8″	5	195.00
NES 481430	2	67,200	30	672	48-14-30	1-7/8″	1-7/8″	4	225.00
NES 481630	1	76,800	30	768	48-16-30	2-1/4″	2-1/4″	4	255.00

Oval Constructions Stainless Steel Braided Cables

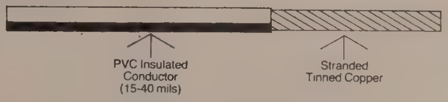
PART NUMBER	AWG SIZE	CIRC. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL INSIDE DIAMETER	NOMINAL FLAT WIDTH	FEET PER POUND	POUNDS PER 1000′
NES 16336-304S	19	1,200	36	48	16-3-36	1/32″	1/16″	250.63	3.99
NES 24236-304S	19	1,200	36	48	24-2-36	1/16″	3/32″	250.63	3.99
NES 24336-304S	18	1,800	36	72	24-3-36	5/64″	7/64″	166.67	6.00
NES 24436-304S	16	2,400	36	96	24-4-36	7/64″	1/8″	125.00	8.00
NES 24536-304S	15	3,000	36	120	24-5-36	1/8″	5/32″	100.10	9.99
NES 24736-304S	14	4,200	36	168	24-7-36	11/64″	1/4″	71.48	13.99
NES 24836-304S	13	4,800	36	192	24-8-36	3/16″	1/4″	62.58	15.98
NES 241036-304S	12	6,000	36	240	24-10-36	7/32″	1/4″	50.03	19.99
NES 241336-304S	11	7,800	36	312	24-13-36	1/4″	5/16″	38.49	25.98
NES 48736-304S	11	8,400	36	336	48-7-36	3/8″	1/2″	35.75	27.97
NES 48836-304S	10	9,600	36	384	48-8-36	7/16″	5/8″	31.46	31.97
NES 48936-304S	10	10,800	36	432	48-9-36	1/2″	11/16″	27.80	35.97
NES 481136-304S	9	13,200	36	528	48-11-36	5/8″	3/4″	22.75	43.96
NES 481536-304S	8	18,000	36	720	48-15-36	3/4″	15/16″	16.68	59.95
NES 481836-304S	7	21,600	36	864	48-18-36	7/8″	1″	13.90	71.94
NES 48730-304S	5	33,600	30	336	48-7-30	1″	1-1/4″	8.94	111.80
NES 48830-304S	4	38,400	30	384	48-8-30	1-1/4″	1-7/16″	7.83	127.78
NES 481030-304S	3	48,000	30	480	48-10-30	1-1/2″	1-5/8″	6.26	159.72

COONER WIRE

UL APPROVED GROUNDING CABLES

Round, Stranded Cables

Tinned Copper Conductor, PVC Insulation
UL Style 1662



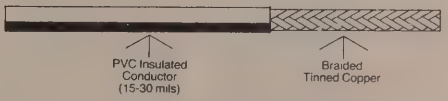
Description
Extra-flexible, cabled tinned copper strands manufactured in accordance with Military Specification QQW-343. Insulation is high grade, clear polyvinylchloride (PVC). Temperature rating: +80°C. Voltage rating: 300 V.D C

Applications
Useful as a grounding cable in computers and computer systems. More compact, less costly, and easier to handle (the jacket slides smoothly to permit ease of termination) than most grounding systems.

PART NUMBER	CONDUCTOR					NOM. WALL THICK.	MAXIMUM OVERALL DIAMETER	NOMINAL CAPACITY CAPACITY/AMPS
	AWG SIZE	CIRCULAR MIL AREA	NUMBER OF WIRES	CONSTRUCTION	NOM. DIA.			
AS 652-18	1/0	105,350	4,214	7/7/86/36 Cable	.480	.040	.650	205
AS 652-16	1	83,300	3,332	7/7/68/36 Cable	.425	.040	.540	180
AS 652-14	2	66,150	2,646	7/7/54/36 Cable	.379	.030	.453	140
AS 652-12	4	41,650	1,666	7/7/34/36 Cable	.300	.030	.374	105
AS 652-10	6	26,250	1,050	7/150/36 Cable	.210	.030	.284	85
AS 652-8	7	20,825	833	7/119/36 Cable	.187	.030	.260	60
AS 652-6	8	16,625	665	7/95/36 Cable	.167	.030	.241	55
AS 652-4	10	10,325	413	7/59/36 Cable	.132	.020	.186	40
AS 652-2	12	6,475	259	7/37/36 Cable	.104	.020	.158	25
AS 652-0	14	4,200	168	7/24/36 Cable	.084	.020	.128	20
AS 652-01	16	2,625	105	7/15/36 Cable	.067	.015	.121	16
AS 652-02	18	1,575	63	7/9/36 Cable	.052	.015	.106	12

Flat, Braided Cables

Tinned Copper Conductor, PVC Insulation
UL Style 1680



Description
Tinned copper strands braided into a flat construction and insulated with polyvinylchloride (PVC). These constructions may be fabricated of bare copper, although tinned copper is generally preferred because of its resistance to corrosive elements Other insulating materials are available on request. Temperature rating: +105°C

Applications
Useful for grounding applications requiring flexible, insulated connections.

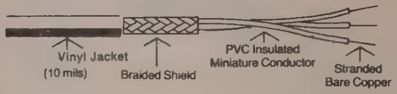
PART NUMBER	AWG SIZE	CIRC. MIL AREA	WIRE AWG SIZE	NUMBER OF WIRES	CONSTR.	NOMINAL WIDTH INCHES	NOMINAL THICKNESS INCHES	NOM. WALL THICK.	NOMINAL INSULATED DIMENSION
AS 356-832-1.0T	7	20,800	36	832	32-17-36 16-18-36	1"	1/16"	.030"	1.060"x.123"
AS 356-832-75T	7	20,800	36	832	32-17-36 16-18-36	3/4"	1/16"	.030"	.810"x.123"
AS 356-4815-625T	8	18,000	36	720	48-15-36	5/8"	1/16"	.030"	.685"x.123"
AS 356-4811-625T	8	13,200	36	528	48-11-36	5/8"	3/64"	.020"	.665"x.087"
AS 356-2416-375T	10	9,600	36	384	24-16-36	3/8"	1/16"	.020"	.415"x.102"
AS 356-488-500T	10	9,600	36	384	48-8-36	1/2"	1/32"	.020"	.540"x.061"
AS 356-2413-281T	11	7,800	36	312	24-13-36	9/32"	3/64"	.020"	.321"x..087"
AS 356-486-375T	12	7,200	36	288	48-6-36	3/8"	1/32"	.020"	.415"x.061"
AS 356-2410-250T	12	6,000	36	240	24-10-36	1/4"	3/64"	.020"	.290"x.087"
AS 356-247-218T	14	4,200	36	168	24-7-36	7/32"	1/32"	.020"	.258"x.061"
AS 356-245-187T	15	3,000	36	120	24-5-36	3/16"	1/32"	.020"	.277"x.061"
AS 356-244-156T	16	2,400	36	96	24-4-36	5/32"	1/32"	.015"	.186"x.061"
AS 356-243-125T	18	1,800	36	72	24-3-36	1/8"	1/32"	.015"	.139"x.061"

The suffix "T" stands for tinned copper constructions. If bare copper is desired, replace the "T" with a "B".

COONER WIRE

9186 INDEPENDENCE AVE., CHATSWORTH, CA 91311
TELEPHONE: (818) 882-8311

ULTRA FLEXIBLE MICROMINIATURE



DESCRIPTION:

Conductors are ultra flexible, bunched bare copper strands insulated with 5 mil walls of color coded 90°C Polyvinylchloride. Extra flexible braided shields, jackets or both can be applied over the cabled conductors.

APPLICATIONS:

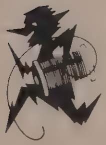
Phonograph tone arms, miniature relays, biomedical instruments, computers and other specialized applications requiring 200 volt, 90°C ultra flexible microminiature multiconductor cables.

PART NUMBER	NO. OF COND.	SINGLE CONDUCTOR DATA				NOM. DIA. OVER CABLED COND.	SHIELD		JACKET	
		AWG SIZE	STRAND CONSTR.	NOM. WALL THICK.	NOM. DIA.		CONSTR.	NOM. DIA. OVER SHIELD	WALL THICK.	NOM. O.D.
NMUF 1/30-4046S	1	30	40/46 Bunch	.005	.022	.022	12-5-44	.031		
NMUF 1/30-4046SJ	1	30	40/46 Bunch	.005	.022	.022	12-5-44	.031	.010	.051
NMUF 2/30-4046U	2	30	40/46 Bunch	.005	.022	.044				
NMUF 2/30-4046S	2	30	40/46 Bunch	.005	.022	.044	12-7-44	.053		
NMUF 2/30-4046J	2	30	40/46 Bunch	.005	.022	.044			.010	.064
NMUF 2/30-4046SJ	2	30	40/46 Bunch	.005	.022	.044	12-7-44	.053	.010	.073
NMUF 3/30-4046U	3	30	40/46 Bunch	.005	.022	.047				
NMUF 8/30-4046S	3	30	40/46 Bunch	.005	.022	.047	12-7-44	.056		
NMUF 3/30-4046J	3	30	40/46 Bunch	.005	.022	.047			.010	.067
NMUF 3/30-4046SJ	3	30	40/46 Bunch	.005	.022	.047	12-7-44	.056	.010	.076
NMUF 4/30-4046U	4	30	40/46 Bunch	.005	.022	.053				
NMUF 4/30-4046S	4	30	40/46 Bunch	.005	.022	.053	16-6-44	.062		
NMUF 4/30-4046J	4	30	40/46 Bunch	.005	.022	.053			.010	.073
NMUF 4/30-4046SJ	4	30	40/46 Bunch	.005	.022	.053	16-6-44	.062	.010	.082
NMUF 5/30-4046U	5	30	40/46 Bunch	.005	.022	.059				
NMUF 5/30-4046S	5	30	40/46 Bunch	.005	.022	.059	16-8-44	.068		
NMUF 5/30-4046J	5	30	40/46 Bunch	.005	.022	.059			.010	.079
NMUF 5/30-4046SJ	5	30	40/46 Bunch	.005	.022	.059	16-8-44	.068	.010	.088
NMUF 1/32-6550S	1	32	65/50 Bunch	.005	.020	.020	8-4-44	.029		
NMUF 1/32-6550SJ	1	32	65/50 Bunch	.005	.020	.020	8-4-44	.029	.010	.049
NMUF 2/32-6550U	2	32	65/50 Bunch	.005	.020	.040				
NMUF 2/32-6550S	2	32	65/50 Bunch	.005	.020	.040	12-7-44	.049		
NMUF 2/32-6550J	2	32	65/50 Bunch	.005	.020	.040			.010	.060
NMUF 2/32-6550SJ	2	32	65/50 Bunch	.005	.020	.040	12-7-44	.049	.010	.069
NMUF 3/32-6550U	3	32	65/50 Bunch	.005	.020	.043				
NMUF 3/32-6550S	3	32	65/50 Bunch	.005	.020	.043	16-6-44	.052		
NMUF 3/32-6550J	3	32	65/50 Bunch	.005	.020	.043			.010	.063
NMUF 3/32-6550SJ	3	32	65/50 Bunch	.005	.020	.043	16-6-44	.052	.010	.072

COONER WIRE

MULTICONDUCTOR CABLES

PART NUMBER	NO. OF COND	SINGLE CONDUCTOR DATA: AWG SIZE	STRAND CONSTR.		NOM. WALL THICK.	NOM. DIA.	NOM. DIA. OVER CABLED COND.	SHIELD: CONSTR.	NOM DIA. OVER SHIELD	JACKET: WALL THICK.	NOM. O.D.
NMUF 4/32-6550U	4	32	65/50	Bunch	.005	.020	.048				
NMUF 4/32-6550S	4	32	65/50	Bunch	.005	.020	.048	16-7-44	.057		
NMUF 4/32-6550J	4	32	65/50	Bunch	.005	.020	.048			.010	.068
NMUF 4/32-6550SJ	4	32	65/50	Bunch	.005	.020	.048	16-7-44	.057	.010	.077
NMUF 5/32-6550U	5	32	65/50	Bunch	.005	.020	.054				
NMUF 5/32-6550S	5	32	65/50	Bunch	.005	.020	.054	16-7-44	.063		
NMUF 5/32-6550J	5	32	65/50	Bunch	.005	.020	.054			.010	.074
NMUF 5/32-6550SJ	5	32	65/50	Bunch	.005	.020	.054	16-7-44	.063	.010	.083
NMUF 1/34-4050S	1	34	40/50	Bunch	.005	.018	.018	12-7-44	.027		
NMUF 1/34-4050SJ	1	34	40/50	Bunch	.005	.018	.018	12-7-44	.027	.010	.047
NMUF 2/34-4050U	2	34	40/50	Bunch	.005	.018	.036				
NMUF 2/34-4050S	2	34	40/50	Bunch	.005	.018	.036	12-7-44	.045		
NMUF 2/34-4050J	2	34	40/50	Bunch	.005	.018	.036			.010	.056
NMUF 2/34-4050SJ	2	34	40/50	Bunch	.005	.018	.036	12-7-44	.045	.010	.065
NMUF 3/34-4050U	3	34	40/50	Bunch	.005	.018	.039				
NMUF 3/34-4050S	3	34	40/50	Bunch	.005	.018	.039	12-7-44	.048		
NMUF 3/34-4050J	3	34	40/50	Bunch	.005	.018	.039			.010	.059
NMUF 3/34-4050SJ	3	34	40/50	Bunch	.005	.018	.039	12-7-44	.048	.010	.068
NMUF 4/34-4050U	4	34	40/50	Bunch	.005	.018	.043				
NMUF 4/34-4050S	4	34	40/50	Bunch	.005	.018	.043	16-6-44	.052		
NMUF 4/34-4050J	4	34	40/50	Bunch	.005	.018	.043			.010	.063
NMUF 4/34-4050SJ	4	34	40/50	Bunch	.005	.018	.043	16-6-44	.052	.010	.072
NMUF 5/34-4050U	5	34	40/50	Bunch	.005	.018	.049				
NMUF 5/34-4050S	5	34	40/50	Bunch	.005	.018	.049	16-7-44	.058		
NMUF 5/34-4050J	5	34	40/50	Bunch	.005	.018	.049			.010	.069
NMUF 5/34-4050SJ	5	34	40/50	Bunch	.005	.018	.049	16-7-44	.058	.010	.078
NMUF 1/36-2550S	1	36	25/50	Bunch	.005	.016	.016	8-5-44	.025		
NMUF 1/36-2550SJ	1	36	25/50	Bunch	.005	.016	.016	8-5-44	.025	.010	.045
NMUF 2/36-2550U	2	36	25/50	Bunch	.005	.016	.032				
NMUF 2/36-2550S	2	36	25/50	Bunch	.005	.016	.032	12-6-44	.041		
NMUF 2/36-2550J	2	36	25/50	Bunch	.005	.016	.032			.010	.052
NMUF 2/36-2550SJ	2	36	25/50	Bunch	.005	.016	.032	12-6-44	.041	.010	.061
NMUF 3/36-2550U	3	36	25/50	Bunch	.005	.016	.034				
NMUF 3/36-2550S	3	36	25/50	Bunch	.005	.016	.034	12-7-44	.043		
NMUF 3/36-6550J	3	36	25/50	Bunch	.005	.016	.034			.010	.054
NMUF 3/36-2550SJ	3	36	25/50	Bunch	.005	.016	.034	12-7-44	.043	.010	.063
NMUF 4/36-2550U	4	36	25/50	Bunch	.005	.016	.039				
NMUF 4/36-2550S	4	36	25/50	Bunch	.005	.016	.039	12-7-44	.048		
NMUF 4/36-2550J	4	36	25/50	Bunch	.005	.016	.039			.010	.059
NMUF 4/36-2550SJ	4	36	25/50	Bunch	.005	.016	.039	12-7-44	.048	.010	.068
NMUF 5/36-2550U	5	36	25/50	Bunch	.005	.016	.043				
NMUF 5/36-2550S	5	36	25/50	Bunch	.005	.016	.043	16-6-44	.052		
NMUF 5/36-2550J	5	36	25/50	Bunch	.005	.016	.043			.010	.063
NMUF 5/36-2550SJ	5	36	25/50	Bunch	.005	.016	.043	16-6-44	.052	.010	.072



PART NUMBER	NO OF COND.	SINGLE CONDUCTOR DATA: AWG SIZE	STRAND CONSTR.		NOM WALL THICK.	NOM. DIA.	NOM DIA OVER CABLED COND	SHIELD: CONSTR	NOM DIA OVER SHIELD	JACKET: WALL THICK	NOM O D
NMUF 1/38-1650S	1	38	16/50	Bunch	.005	.014	.014	8-5-44	.023		
NMUF 1/38-1650SJ	1	38	16/50	Bunch	.005	.014	.014	8-5-44	.023	.010	043
NMUF 2/38-1650U	2	38	16/50	Bunch	.005	.014	028				
NMUF 2/38-1650S	2	38	16/50	Bunch	.005	.014	028	12-6-44	037		
NMUF 2/38-1650J	2	38	16/50	Bunch	.005	.014	028			010	.048
NMUF 2/38-1650SJ	2	38	16/50	Bunch	.005	.014	.028	12-6-44	.037	.010	057
NMUF 3/38-1650U	3	38	16/50	Bunch	.005	.014	030				
NMUF 3/38-1650S	3	38	16/50	Bunch	.005	.014	.030	12-6-44	039		
NMUF 3/38-1650J	3	38	16/50	Bunch	.005	.014	.030			.010	.050
NMUF 3/38-1650SJ	3	38	16/50	Bunch	.005	.014	030	12-6-44	039	010	059
NMUF 4/38-1650U	4	38	16/50	Bunch	.005	.014	034				
NMUF 4/38-1650S	4	38	16/50	Bunch	.005	.014	034	12-7-44	043		
NMUF 4/38-1650J	4	38	16/50	Bunch	.005	.014	.034			010	.054
NMUF 4/38-1650SJ	4	38	16/50	Bunch	.005	.014	034	12-7-44	043	.010	.063
NMUF 5/38-1650U	5	38	16/50	Bunch	.005	.014	038				
NMUF 5/38-1650S	5	38	16/50	Bunch	.005	.014	038	12-7-44	047		
NMUF 5/38-1650J	5	38	16/50	Bunch	.005	.014	038			010	058
NMUF 5/38-1650SJ	5	38	16/50	Bunch	.005	.014	038	12-7-44	047	010	.067

Conductor color code: 1. White 2. Black 3. Red 4. Green 5. Yellow
U=unshielded S=shielded J=jacketed SJ=shielded and jacketed
Available in more conductors if required.

COONER WIRE

9186 INDEPENDENCE AVE., CHATSWORTH, CA 91311
TELEPHONE: (818) 882-8311

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES

TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 84/85 EDITION OF EEM

Abbreviations/Acronyms .... **1A**•1137, **1B**•1035, **2**•1014, **3**•1014
ASCII Code .... **3**•1103
Batteries, Product Selection Guide .... **3**•1399
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide .... **2**•1003
Capacitors, Basic Formulas .... **1A**•1093
Capacitors, Miniglossary .... **1A**•1069
Capacitors, Product Selection Guide .... **1A**•1003
Circuit Boards (Printed), Product Selection Guide .... **2**•1089
Coils, Chokes, & Inductors, Product Selection Guide .... **1A**•1219
Connectors, Miniglossary .... **2**•1264
Connectors, Terminals, & Sockets, Product Selection Guide .... **2**•1097
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide .... **1A**•1309
Delay Lines, Product Selection Guide .... **1A**•1445
Discrete Semiconductors, Product Selection Guide .... **1A**•2087
Displays, Readouts, Lamps, & Lights, Product Selection Guide .... **1B**•1021
EBCDIC Code .... **3**•1153
Encapsulation, Miniglossary .... **2**•1082
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide .... **2**•1801
Filters, Product Selection Guide .... **1A**•1577
Instruments, Graphic Recording, Product Selection Guide .... **3**•1381
Instruments, Panel Meters, Product Selection Guide .... **3**•1321
Instruments, Test & Measuring, Product Selection Guide .... **3**•1182
Interconnection Systems, Product Selection Guide .... **2**•1873
Keyboards & Keypads, Product Selection Guide .... **1B**•1759
Microwave Components, Product Selection Guide .... **1A**•1685
Military Qualified Products Lists .... **1B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide .... **1B**•1121
Opto Semiconductors, Miniglossary .... **1B**•1218
Oscilloscopes, Product Selection Guide .... **3**•1361
Panel Hardware, Product Selection Guide .... **2**•1757
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide .... **1A**•2017
Power Supplies, Miniglossary .... **3**•1455
Power Supplies, AC, Product Selection Guide .... **3**•1815
Power Supplies, DC, Product Selection Guide .... **3**•1439
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide .... **1B**•1255
Relay Contact Forms .... **1B**•1317
Relays, Electromechanical, Miniglossary .... **1**•**B**1292
Relays, Product Selection Guide .... **1B**•1289
Resistor Color Codes .... **1A**•1791
Resistors, Product Selection Guide .... **1A**•1789
Servo Components, Miniglossary .... **3**•1935
Solenoids, Product Selection Guide .... **1B**•1481
Switches, Product Selection Guide .... **1B**•1499
Thyristors/High Power Diodes, Miniglossary .... **1A**•1652
Transducers & Encoders, Product Selection Guide .... **1B**•1827
Transformers, Product Selection Guide .... **1A**•2115
Wire & Cable, Product Selection Guide .... **2**•1935

SHRINKABLE IRRADIATED POLYOLEFIN TUBING

This series is designed for maximum mechanical strength at stress or points of connection. It is strong, abrasion resistant and is supplied in expanded sizes. It insulates, jackets, splices, encapsulates, weatherproofs components, connectors, cables and irregular shaped objects. When exposed to heat (275°F) the tubing shrinks 50% in diameter, 5% longitudinal contraction. Controlled shrinkage to exact requirement takes place. SH275 meets or exceeds MIL-1-23053B/5 Class 1 and 2. SH290 meets or exceeds MIL-I-23053/6 available with UL approval. UL File No. E-51336. AMS 3636B, 3637A.

SPECIFICATIONS —

All Tests Made on Tubing in Recovered Dimension

Continuous Operating Temp: 135°C	Shrinkage Ratio: 2:1 (50%)
Longitudinal Change: 5% Max.	Dielectric Strength: 500 V/MIL Min.
Tensile Strength: 1500 PSI Min.	Dielectric Constant: 2.87 Max.
Ultimate Elongation: 200% Min.	Corrosive Resistance: Non-Corrosive
Special Gravity: 1.29 Max.	Resistance to Soldering Iron: Excellent
Low Temp. Flexibility (−54°C): No Cracking	Fuel, Oil, Solvent, Acid, Alkali, Hydraulic Fluid Resistance: Excellent

PACK ASSORTMENTS

DAFLEX Cat. No.	Lengths Per Pack	Tubing Size
SH275-PA1	30	1/16" thru 3/16"
SH275-PA2	16	1/4" thru 3/4"
SH275-PA3	10	1"

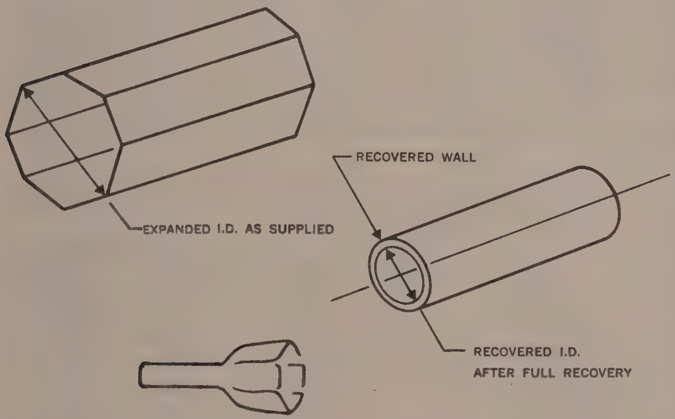
COLORS: Black, White, Clear, Red. Each pack contains an assortment of 6" lengths in mixed sizes and colors.

DAFLEX SH275 All Purpose	DAFLEX SH290 Semi-Rigid†	Equiv. I.D. AWG	Before Shrinkage As Supplied Expand I.D.	Recovered I.D.	Recovered Nom. Wall*	Standard†† Package
SH275-1/16	SH290-1/16	22-20	.063"	.031"	.016"	100', 250', 1000'
SH275-3/32	SH290-3/32	18-16	.093"	.046"	.020"	100', 250', 1000'
SH275-1/8	SH290-1/8	14	.125"	.062"	.020"	100', 250', 1000'
SH275-3/16	SH290-3/16	12-10	.187"	.093"	.020"	100', 250', 1000'
SH275-1/4	SH290-1/4	8	.250"	.125"	.025"	100', 250', 500'
SH275-3/8	SH290-3/8	4	.375"	.187"	.025"	100', 200',
SH275-1/2	SH290-1/2	2	.500"	.250"	.025"	100', 200',
SH275-3/4		3/8	.750"	.375"	.030"	100', 200',
SH275-1"		1/2	1.000"	.500"	.035"	100', 200',
SH275-1 1/2"		3/4	1.500"	.750"	.040"	12'**, 24'**
SH275-2"		1	2.000"	1.000"	.045"	12'**, 24'**
SH275-3"		1 1/2	3.000"	1.500"	.050"	12'**, 24'**
SH275-4"		2	4.000"	2.000"	.055"	12'**, 24'**

STOCK COLORS: Black, White, Red, Clear. Additional colors available. Although processed by hi-energy radiation the **Daflex SH275** and **SH290** shrinkable tubings **do not** at any time become radioactive or possess any residual radioactivity.

* Wall thickness will be less if recovery is restricted.
** 4' lengths.
† STOCK: Black 4' lengths. Colors avail.
†† Also stocked: 4', 1/2", 1", and 6" lengths.

NEW! 4:1 SHRINKABLE POLYOLEFIN TUBING



DAFLEX SH277 shrinkable irradiated polyolefin tubing recovers to 25% of its supplied size when full recovery is permitted. Material will shrink with the application of 120°C (250°F); is rated for continuous operation from −55°C to 135°C and will withstand up to 300°C (572°F) for short durations.

SH277 is flame retardant and meets or exceeds the specified properties of MIL-I-23053/5 Class 1 and 3. Its longitudinal shrinkage is a maximum of 10%. **DAFLEX SH277** can be hot stamped.

Typical applications are where tubing must fit over a large object such as the repair or replacement of cable jacketing.

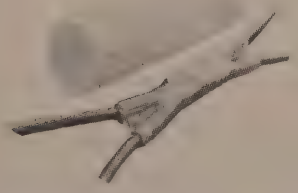
DABURN Cat. No.	Expanded I.D. Min.		Recovered* I.D. Max.		Recovered* Wall		Standard Package
	In.	MM	In.	MM	In.	MM	
SH277-1"	1.0	25.4	.250	6.5	.060	1.5	20', 60', 120' +
SH277-2"	2.0	50.8	.500	12.7	.060	1.5	20', 60', 120' +
SH277-3"	3.0	76.2	.750	19.0	.060	1.5	15', 30', 75' +
SH277-4"	4.0	101.6	1.00	25.4	.060	1.5	15', 30', 75' +

* When full recovery is allowed. † Preferred package

STANDARD COLOR: Black

STANDARD PACKAGING: SH277-1" & SH277-2" — 4 ft. lengths
SH277-3" & SH277-4" — 3 ft. lengths.

NEW! DAFLEX SHRINK/MELT IRRADIATED POLYOLEFIN TUBING (UL)



Daburn's dual wall polyolefin heat shrinkable tubing is designed to provide a tight moisture proof encapsulating seal. When 115°C is applied, the inner wall melts and flows, as the outer wall shrinks; forcing the melting wall to fill voids and interstices and to encapsulate what is covered. The result is a semi-rigid mass.

Daflex SM270 series is ideal for covering splices, cable junctions and as a shield for coarse surfaces. SM270 is flame retardant. It resists oil, hydraulic fluids, acids and alkalis.

It meets or exceeds MIL-I-23053/4, is UL approved VW-1 for 105°C.

STANDARD COLOR: Black. Clear (not flame retardant) available to order.

STANDARD LENGTH: 100', 1000', in 4' lengths, additional lengths to order.

Ordering Size Nom. I.D. Size	Minimum Expanded I.D.		Maximum Recovered† I.D.		Nominal Recovered Wall	
	Inch	MM	Inch	MM	Inch	MM
SM270-1/8	.125	3.2	.023	.06	.038	0.96
SM270-3/16	.187	4.8	.060	1.5	.043	1.09
SM270-1/4	.250	6.4	.080	2.0	.047	1.19
SM270-3/8	.375	9.5	.120	3.0	.050	1.27
SM270-1/2	.500	12.7	.157	4.0	.055	1.39
SM270-3/4	.750	19.0	.313	8.0	.065	1.65
SM270-1"	1.000	25.4	.400	10.2	.075	1.90

† When full recovery is permitted.

PROPERTIES

Tensile Strength, Min.: 1500 PSI
Elongation, Min.: 200%
Longitudinal Change, Max.: 10%
Operating Temperature: −55°C to +125°C
Shrinkage Temperature Nom.: 125°C
Fungus Resistance: Inert
Dielectric Strength, Min.: 500 V/MIL
Dielectric Constant, Max.: 3.1

DABURN

DUAL-WALL TEFLON* ENCAPSULATING SHRINKABLE TUBING

NEW DAFLON SM450 is a new dual wall shrink and melt Teflon tubing which gives a tight, moisture-proof seal. It is made from two types of Teflon. The outer wall is TFE Teflon and the inner lining is FEP Teflon. When heated to 400°F the FEP melts and at 621°F the TFE shrinks tightly. The FEP is squeezed into a solid or near solid mechanical encapsulation. DAFLON SM450 tubing protects against most environmental hazards involving pull, vibration, moisture, chemicals, etc. It may be used over wires, terminals, splices, connectors and as a strain relief and end cap. VW-1.

Operating Temperature: 450°F.

DAFLON Cat. No.	Nom. I.D. Size	Nom. Expanded I.D.	Nom. Expanded Wall	Recovered I.D.
SM450-1	1/32″	.036″ .92mm	.022″	.000″**
SM450-2	1/16″	.060″ 1.52mm	.028″	.000″**
SM450-3	1/8″	.130″ 3.30mm	.031″	.000″**
SM450-4	5/32″	.160″ 4.06mm	.032″	.000″**
SM450-5	3/16″	.190″ 4.83mm	.035″	.062″
SM450-7	1/4″	.250″ 6.35mm	.036″	.125″
SM450-9	11/32″	.350″ 8.89mm	.036″	.190″
SM450-11	7/16″	.450″ 11.43mm	.055″	.312″
SM450-13	11/16″	.700″ 17.78mm	.055″	.440″
SM450-16	1″	.950″ 24.13mm	.065″	.680″

STANDARD PACKAGE: 100′ in 1 to 3 ft. lengths. Special lengths available to order. ** Will fully close off.

DAFLON SHRINK SH-400 (FEP)

Made with Modified TEFLON‡ FEP will shrink over inserted objects upon exposure to moderate heat. Heretofore, many joints, parts, components, devices could not be protected because of hi temperature required for shrinkage. FEP TEFLON‡, which has a continuous service temperature of 400°F, will shrink at 300°F. Supplied in natural (transparent) color. Complete shrinkage at 350°F. Now, many heat sensitive products can use the permanent protection of TEFLON.* Will not burn or support flame, long lengths available. Will not split or melt. Extruded. Meets MIL-I-23053/11. VW-1.

DABURN Cat. No.	Size	I.D.	Min. Exp. I.D.	Recovered Max. I.D.	Recovered Wall Thickness*
SH400-24	24	.023″	.031″	.027″	.008″
SH400-22	22	.028″	.036″	.032″	.008″
SH400-20	20	.034″	.045″	.039″	.008″
SH400-18	18	.042″	.060″	.049″	.008″
SH400-16	16	.053″	.075″	.061″	.009″
SH400-14	14	.066″	.092″	.072″	.009″
SH400-12	12	.085″	.115″	.089″	.009″
SH400-10	10	.108″	.141″	.114″	.010″
SH400-9	9	.118″	.158″	.124″	.010″
SH400-8	8	.136″	.180″	.143″	.010″
SH400-7	7	.148″	.197″	.158″	.011″
SH400-6	6	.170″	.225″	.180″	.011″
SH400-5	5	.186″	.248″	.198″	.011″
SH400-4	4	.214″	.290″	.226″	.011″
SH400-3	3	.234″	.310″	.249″	.011″
SH400-2	2	.268″	.365″	.280″	.012″
SH400-1	1	.294″	.400″	.311″	.012″
SH400-0	0	.336″	.440″	.349″	.012″
SH400-3/8	3/8″	.375″	.500″	.383″	.015″
SH400-7/16	7/16″	.437″	.580″	.448″	.020″
SH400-1/2	1/2″	.500″	.666″	.510″	.020″
SH400-5/8	5/8″	.625″	.830″	.637″	.025″
SH400-3/4	3/4″	.750″	1.000″	.764″	.030″
SH400-7/8	7/8″	.875″	1.170″	.891″	.035″
SH400-1″	1″	1.000″	1.330″	1.020″	.035″

STANDARD PACKAGE: 100 ft., (with 4′ minimum lengths).
‡ DUPONT

All items on this page are available to cut to length or cut and marked.
* When full recovery permitted. FEP roll covers available to order.

DAFLON SHRINK SH-621 (TFE)

TFE TUBING MIL-I-23053/12 VW-1

Made of modified TEFLON‡ polytetrafluorethylene will shrink when heated to 621°F. Suitable where hi temp protection is required. Extruded. Will not support combustion, dielectric strength (20 Mil Wall) 850 V/M, low temp. brittle point −66°F, superior chemical resistance. Operating Temp: −67°C to +250°C.

DAFLON Cat. No.	Nominal Tubing Size	Minimum Expanded I.D.	Recovered Dimensions	
			Maximum I.D.	Wall Thickness
SH621-26	26	.046″	.022″	.009″
SH621-24	24	.050″	.027″	.010″
SH621-22	22	.055″	.032″	.010″
SH621-20	20	.060″	.039″	.012″
SH621-19	19	.065″	.043″	.012″
SH621-18	18	.076″	.049″	.012″
SH621-17	17	.085″	.054″	.012″
SH621-16	16	.093″	.061″	.012″
SH621-15	15	.110″	.067″	.012″
SH621-14	14	.120″	.072″	.012″
SH621-13	13	.140″	.080″	.012″
SH621-12	12	.150″	.089″	.012″
SH621-11	11	.170″	.101″	.012″
SH621-10	10	.191″	.112″	.012″
SH621-9	9	.205″	.124″	.015″
SH621-8	8	.240″	.141″	.015″
SH621-7	7	.270″	.158″	.015″
SH621-6	6	.302″	.178″	.015″
SH621-5	5	.320″	.198″	.015″
SH621-4	4	.370″	.224″	.015″
SH621-3	3	.390″	.249″	.015″
SH621-2	2	.430″	.278″	.015″
SH621-1	1	.450″	.311″	.015″
SH621-0	0	.470″	.347″	.015″
SH621-3/8	3/8″	.560″	.399″	.020″
SH621-7/16	7/16″	.655″	.462″	.020″
SH621-1/2	1/2″	.750″	.524″	.020″

STANDARD PACKAGE: 100 feet in 2 ft. lengths with 1 ft. min. lengths. Additional Sizes and Colors to Order.
WALL TOLERANCES: 26 thru 22 ±.002; 20 thru 10 ±.003; 9 thru 0 ±.004.

DAFLON 4:1 SHRINKABLE PTFE TUBING

DAFLON SH421 Shrinkable Teflon Tubing recovers to approximately 25% of its expanded size when heated to the gel point (621°F). Thus it is now possible to use shrinkable Teflon tubing, with its excellent chemical and physical properties, over objects which require more than the standard 2:1 shrinkdown ratio (see SH621).

NOTE: Tubing should be allowed to recover **at least 50%.** Conforms to MIL-I-23053/12 and AMS-3584. **Operating Temp.:** −85°F to +500°C. VW-1.

DAFLON Cat. No.	Nom. Size	Expanded Min. I.D.	Recovered	
			Max. I.D.	Nom.* Wall
SH421-5/64	5/64″	.078″	.025″	.009″
SH421-1/8	1/8″	.125″	.038″	.010″
SH421-3/16	3/16″	.187″	.050″	.012″
SH421-1/4	1/4″	.250″	.063″	.012″
SH421-5/16	5/16″	.312″	.079″	.012″
SH421-3/8	3/8″	.375″	.096″	.012″
SH421-1/2	1/2″	.500″	.144″	.015″
SH421-5/8	5/8″	.625″	.178″	.015″
SH421-3/4	3/4″	.750″	.225″	.015″
SH421-7/8	7/8″	.875″	.244″	.015″
SH421-1″	1″	1.000″	.278″	.015″
SH421-1¼″	1¼″	1.250″	.347″	.015″

STANDARD PACKAGE: 100′ in 4 ft. lengths. Tubing may be ordered cut to length.
STANDARD COLOR: Natural (Clear). * When full recovery is allowed.

DABURN No. HG1 — Heat Gun for SH162, SH265, SH267, SH275, SH277, SH290, ST275, SH300, SM270 Series.
DABURN No. HG2 — Heat Gun for SH400, SH421, SH621, SH350, SM450 Series.

DABURN ELECTRONICS & CABLE CORP. • 70 OAK STREET • NORWOOD, NJ 07648 • 201/768-5400 • TWX 710-991-9856

DABURN

TUBULAR BRAID PER MIL SPEC QQ-B-575

Tinned copper shielded braid mf'd completely round per Mil Spec QQ-B-575: Maintains its round configuration. Shielding coverage is 95% or more. Used in military applications where maximum shielding is required against electrostatic interference. Useful against mechanical abrasion and stresses for cables — as grounding cable.

DABURN No.	Nom. Inside Diam. When Rounded	Construction Total No. of Wires		AWG of Indiv. Wires	Approx. AWG Equiv.	Nom. Circular Mils	*Current Carrying Cap.
			Car-riers				
2350-1/32	1/32″	24	24	#36	#22	640	7.0 amps
2350-1/16	1/16″	48	24	#36	#19	1290	11.0 amps
2350-5/64	5/64″	72	24	#36	#17	1900	18.0 amps
2350-7/64	7/64″	96	24	#36	#16	2500	22.0 amps
2350-1/8	1/8″	120	24	#36	#15	3260	28.0 amps
2350-5/32	5/32″	240	24	#36	#12	6200	39.0 amps
2350-11/64	11/64″	168	24	#36	#14	4500	32.0 amps
2350-3/16	3/16″	192	24	#36	#13	5100	35.0 amps
2350-13/64	13/64″	312	24	#36	#11	8200	46.0 amps
2350-1/4	1/4″	384	24	#36	#10	10,400	53.0 amps
2350-9/32	9/32″	120	24	#30	# 9	12,060	60.0 amps
2350-3/8	3/8″	384	48	#36	#10	10,400	53.0 amps
2350-7/16	7/16″	240	24	#30	# 6	24,120	90.0 amps
2350-1/2	1/2″	528	48	#36	# 9	13,200	70.0 amps
2350-9/16†	9/16″	528	48	#36	# 9	13,200	70.0 amps
2351-9/16	9/16″	480	48	#30	# 3	48,240	145.0 amps
2350-21/32	21/32″	768	48	#30	# 1	77,180	190.0 amps
2350-11/16†	11/16″	720	48	#36	# 7	19,000	82.0 amps
2350-25/32	25/32″	864	48	#36	# 7	21,750	85.0 amps
2350-13/16	13/16	864	48	#36	# 7	21,750	85.0 amps
2350-7/8	7/8″	336	48	#30	# 5	33,700	100.0 amps
2350-1″	1″	384	48	#30	# 4	38,600	120.0 amps
2350-1 1/8″	1 1/8″	432	48	#30	# 4	43,330	130.0 amps
2350-1 1/4″†	1 1/4″	480	48	#30	# 3	48,150	145.0 amps
2350-1 3/8″	1 3/8″	528	48	#30	# 3	53,000	150.0 amps
2350-1 1/2″	1 1/2″	576	48	#30	# 2	57,775	165.0 amps

STANDARD SPOOL PUT-UP: 50 Ft., 100 Ft., 250 Ft. Larger Spools Available — Advise.

* Values based on copper in free air at 65°F and intended as a guide only.

† These sizes are mfg. to standards of QQ-B-575 although they are not listed in the specification.

Additional constructions and variations made to order. Also available in **silver plated copper**, bare copper, stainless steel, and nickel plated copper.

TINNED COPPER SHIELDING — FLAT BRAID

Soft annealed tinned copper woven braid, rolled flat at time of manufacture. It is extremely flexible. Used as battery grounding, bonding strap for aircraft, vehicles, marine equipment. Eliminates ignition interference and moving parts. Slides over wire and cables.

DABURN No.	Size and No. of Wires	I.D. Flat	O.D. Flat	Approx. AWG Equiv.	Nom. Circular Mils	*Current Carrying Cap.
2355-1/32	12x 2x36	1/32″	3/64″	24	400	6.0
2355-3/64	12x 2x36	3/64″	1/16″	22	600	7.0
2355-1/16	16x 3x36	1/16″	5/64″	20	1200	11.0
2355-3/32	16x 3x36	3/32″	5/32″	19	1200	11.0
2355-1/8	24x 5x36	1/8″	5/32″	18	1800	16.0
2355-3/16	24x 5x36	3/16″	7/32″	15	3000	25.0
2355-1/4	24x 7x36	1/4″	9/32	14	4200	32.0
2355-3/8	48x 4x36	3/8″	15/32″	12	7200	46.0
2355-1/2	48x 7x36	1/2″	19/32″	10	9600	53.0
2355-5/8	48x 8x36	5/8″	23/32″	10	9600	53.0
2355-3/4	48x11x36	3/4″	13/16″	7	20,800	85.0
2355-25/32	48x19x36	25/32″	27/32″	7	20,800	85.0
2355-1″	48x19x36	1″	1 1/16″	7	20,800	85.0
2355-1 3/8″	48x19x36	1 3/8″	1 7/16	7	33,700	85.0
2355-1 1/2″	48x19x36	1 1/2″	1 9/16″	3	53,064	150.0
2355-1 3/4″	48x27x30	1 3/4″	1 7/8″	00	125,425	280.0
2355-2″	48x32x30	2″	2 1/4″	000	154,368	310.0
2355-2 1/4″	48x35x30	2 1/4″	2 1/2″	000	168,840	320.0
2355-2 1/2″	48x45x30	2 1/2″	2 3/4″	000	192,000	340.0
2355-3″	48x64x30	3″	3 1/4″	0000	225,000	390.0

STANDARD SPOOL PUT-UP: 50 Ft., 100 Ft., 500 Ft., 1000 Ft.

ADDITIONAL CONSTRUCTION AND VARIATIONS MADE TO ORDER.
Oval Commercial Braid available to order.

NEW! CONTROLLED IMPEDANCE FLAT RIBBON CABLE

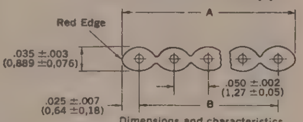
UL STYLE 2651 — 105°C — 300 VOLTS — VW-1

DESCRIPTION: Each conductor is 28 AWG, 7 strand of 36 AWG T.C. with .010″ nominal wall of extruded PVC insulation overall. Conductors are to provide .050″ ±.002″, center to center conductor spacing allowing for nominal impedance of 105 Ohms (measured ground-signal-ground). Cables are listed under UL style 2651 and meet UL VW-1 flame test. Conductors separate cleanly and one has a red stripe for polarity. Because of controlled center to center spacing, cables may be mass terminated with insulation displacement connectors designed for .050″ spacing of conductors. Crosstalk is also controllable.

AWG: 28 (7/36) T.C.
NOM. WALL: .010″ (.25mm)
CENTER TO CENTER SPACING: .050 ±.002 (1.27mm ±.05)
UL STYLE: 2651
FLAMABILITY RATING: UL VW-1
TEMPERATURE RATING: 105°C
CURRENT RATING: 1 Amp
VOLTAGE RATING: 300 V RMS
HEIGHT: .035 ±.003″ (.84mm ±.08)
COLOR: Gray with red polarity stripe
CAPACITANCE NOM.: 15 PF/FT. (G.S.G.)
IMPEDANCE: 105 Ohms nom. (G.S.G.)
STANDARD PUT-UP: 100′ (30.4[illegible]): larger packages available to order.

DIELECTRIC WITHSTAND VOLTAGE: 2000 VRMS
INSULATION RESISTANCE: 10^{10} Ohms/10 ft. min.
PROPAGATION DELAY: 1.4 ns/ft. (G.S.G.) nom.

28 AWG (7/36)
Stranded Tinned Copper



Dimensions and characteristics subject to change without notice.

DABURN Cat. No.	No. of Cond.	Nom. Width A		Nom. Span B	
		in.	mm	in.	mm
1888/9	9	.45 ±.01	11.43	.40 ±.007	10.16
1888/10	10	.50 ±.01	12.70	.45 ±.007	11.43
1888/14	14	.70 ±.01	17.80	.65 ±.007	16.51
1888/15	15	.75 ±.01	19.05	.70 ±.007	17.78
1888/16	16	.80 ±.01	20.35	.75 ±.009	19.05
1888/20	20	1.00 ±.02	25.40	.95 ±.009	24.13
1888/24	24	1.20 ±.02	30.50	1.15 ±.009	29.21
1888/25	25	1.25 ±.02	31.75	1.20 ±.009	30.48
1888/26	26	1.30 ±.02	33.00	1.25 ±.009	31.75
1888/34	34	1.70 ±.02	43.20	1.65 ±.009	41.91
1888/37	37	1.85 ±.02	47.00	1.80 ±.009	45.92
1888/40	40	2.00 ±.02	50.80	1.95 ±.011	49.53
1888/50	50	2.50 ±.02	63.50	2.45 ±.011	62.23
1888/60	60	3.00 ±.02	76.20	2.95 ±.011	74.93
1888/64	64	3.20 ±.02	81.30	3.15 ±.011	80.01

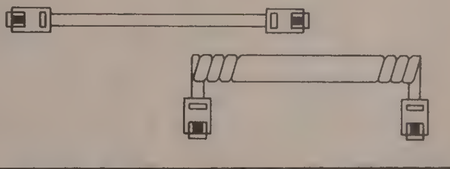
MODULAR PLUG CABLES

Each Daburn modular cord is #28 AWG 7/36 soft tinned copper, color coded, and an overall PVC jacket, modular plugs at each end. Shielded constructions use an overall aluminum/polyester shield and drain wire. Standard constructions use flat cable. Round cable is available to order.

Daburn modular cords are suitable for data equipment, interface, keyboards, audio, telephone handsets, security & alarm applications.

They resist oils, grease, acids, fumes and are abrasion resistant. They will not mar other surfaces with which they come in contact.

Note: "Half-modular" cords — lugs on one end and keyed plugs are available to order.



STRAIGHT CORDS — MODULAR PLUGS			RETRACTILE MODULAR PLUG CORDS		
DABURN Cat. No.	No. of Cond.	Length* in Ft.	DABURN Cat. No.	No. of Cond.	Length* Extended
28-04-7	4	7 Ft.	28-14-1	4	6 Ft.
28-04-14	4	14 Ft.	28-14-2	4	12 Ft.
28-04-25	4	25 Ft.	28-14-5	4	25 Ft.
28-06-7	6	7 Ft.	28-16-1	6	6 Ft.
28-06-14	6	14 Ft.	28-16-2	6	12 Ft.
28-06-25	6	25 Ft.	28-16-5	6	25 Ft.
28-08-7	8	7 Ft.	28-18-1	8	6 Ft.
28-08-14	8	14 Ft.	28-18-2	8	12 Ft.
28-08-25	8	25 Ft.	28-18-5	8	25 Ft.
SHIELDED			SHIELDED		
28-08-7S	8	7 Ft.	28-18-1S	8	6 Ft.
28-08-14S	8	14 Ft.	28-18-2S	8	12 Ft.
28-08-25S	8	25 Ft.	28-18-5S	8	25 Ft.

JACKET COLOR: Silver satin. Other colors available to order.
STANDARD PACKAGE: 25 pcs.
* Additional lengths to order.

DABURN ELECTRONICS & CABLE CORP. • 70 OAK STREET • NORWOOD, NJ 07648 • 201/768-5400 • TWX 710-991-9856

DABURN

RETRACTILE POWER & COMMUNICATION CORDS—Ⓤ & CSA

Long Lasting Service—useful wherever cords much change length or position. Extend to approximately five times its retracted length. Returns to its original shape or length when released. Eliminates tangling, twisting or knots. Cords are UL and CSA approved.

POWER CORDS

RETRACTED LENGTHS: 1, 2, 3 & 4 FT. EXTENDED LENGTHS: 5, 10, 15 & 20 FT.

UL LISTED—NEOPRENE JACKETED CORD

Operating Temperature: −20°C to +60°C

DABURN No. & Retracted Lengths				No. Cond.	Size	Strand	UL‡ & CSA Type	Amps	Volt Rating	Coil Nom. O.D.		Cord Nom.	
4 Ft.*	3 Ft.	2 Ft.	1 Ft.							in.	mm	in.	mm
986-4	986-3	986-2	986-1	2	18	41/34	SVO	7	300	7/8	22	.270	7
986/3-4	986/3-3	986/3-2	986/3-1	3	18	41/34	SVO	7	300	1	25	.275	7
989-4	989-3	989-2	989-1	2	18	41/34	SJO	7	300	1 3/16	30	.310	8
989/3-4	989/3-3	989/3-2	989/3-1	3	18	41/34	SJO	7	300	1 3/8	35	.330	9
989/4-4	989/4-3	989/4-2	989/4-1	4	18	41/34	SJO	5.6	300	1 7/16	37	.360	10
989/5-4	—	989/5-2	—	5	18	41/34	SJO	5.6	300	1 3/4	41	.440	11
989/7-4	—	989/7-2	—	7	18	41/34	SJO	5.6	300	1 7/8	48	.522	13
989/15-4	—	—	—	15	18	41/34	SVO	7	300	2 1/8	54	.575	15
990/3-4	—	990/3-2	—	3	18	41/34	SO	7	600	1 9/16	40	.405	10
990/4-4	—	990/4-2	—	4	18	41/34	SO	5.5	600	1 5/8	41	.435	11
991-4	991-3	991-2	991-1	2	16	65/34	SJO	10	300	1 3/8	35	.330	9
991/3-4	991/3-3	991/3-2	991/3-1	3	16	65/34	SJO	10	300	1 7/16	37	.365	10
991/4-4	991/4-3	991/4-2	—	4	16	65/34	SJO	8	300	1 5/8	38	.395	11
991/5-4	—	991/5-2	—	5	16	65/34	SO	8	600	2	54	.540	14
991/6-4	—	991/6-2	—	6	16	65/34	SO	8	600	2 1/8	51	.550	14
991/7-4	—	991/7-2	—	7	6/16 1/14	#16-64/34 #14-41/30	— SO	#16-8 #14-12	600	2 1/4	57	.600	15
992/3-4	—	992/3-2	—	3	16	65/34	SO	10	600	1 13/16	46	.470	12
992/4-4	—	992/4-2	—	4	16	65/34	SO	8	600	1 7/8	48	.500	13
993-4	993-3	993-2	—	2	14	41/30	SO	15	600	2	54	.535	14
993/3-4	993/3-3	993/3-2	—	3	14	41/30	SO	15	600	2 1/8	54	.560	14
993/4-4	993/4-3	993/4-2	—	4	14	41/30	SO	12	600	2 1/4	57	.605	15
994-4	994-3	994-2	—	2	12	65/30	SO	20	600	2 1/4	57	.605	15
994/3-4	994/3-3	994/3-2	—	3	12	65/30	SO	20	600	2 3/8	60	.635	16
994/4-4	994/4-3	994/4-2	—	4	12	65/30	SO	16	600	2 1/2	60	.665	17
994/6-4	—	—	—	6	2/12 4/18	#12-65/30 #18-41/34	— —	#12-17 #18-6	600	2 1/4	57	.605	15
994/7-4	—	994/7-2	—	7	12	65/30	SO	16	600	2 5/8	67	.775	20

‡ Wherever UL Type is shown, approved by CSA Testing Laboratories.
* Preferred Put-up. 6″ Tangents on all but 1-FT cords—12″ Tangents
Standard Package: 5

Conductor Color Code:
1-Black, 2-White, 3-Green, 4-Red,
5-Blue, 6-Orange, 7-Yellow.

RETRACTILE TEST LEAD WIRE

Stretch coiled kinkless test lead wire description. 12″ coil — stretches to approximately 6 feet. One conductor #20 stranded copper rubber insulation .165 O.D. Colors: Red, Black.

Coil O.D. 3/4″.

Working Voltage: 1000V, 4 Amps.

DABURN No.	Length in.	Size	Strand	Coil O.D.		Cord O.D.	
				in.	mm	in.	mm
984A	12	20	41/36	3/4	19	.165	4.2
984	24	20	41/36	3/4	19	.165	4.2

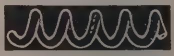
12″ Extends Approx. 5 Ft. Specify Color, Red or Black.
24″ Extends Approx. 10 Ft. Standard Package: 6

DABURN MINIATURE RETRACTILE COMMUNICATION CORDS

1, 2 Ft. Retracted—5, 10 Ft. Extended

Miniature size. Suitable for compact equipment. Black plastic jacket overall.

Operating Temp.: −20°C to +60°C
Std. Pkg.: 10



DABURN No.		Cond.	Size	Strand	Coil O.D.		Cord O.D.	
2 Ft.	1 Ft.				in.	mm	in.	mm
975/28	975/28A	2	28	19/40TC	1/2	13	.135	3.4
976/28	976/28A	3	28	19/40TC	1/2	13	.140	3.5
977/28	977/28A	4	28	19/40TC	1/2	13	.150	3.8

Avail. to Order: 36″ & 48″ Cords Extend to 15 Ft. & 20 Ft.

Ⓤ LISTED RETRACTILE POWER CORD SETS

18″ Retracted—Approx. 9 Ft. Extended—300V—UL LISTED

For portable use. Mobile and office equipment. Neoprene jacketed cord sets with molded male plug on one end, other end remove jacket and strip cond. Operating Voltage: 300 Volts.

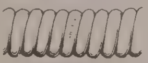
DABURN	No. Cord.	AWG Size	Amps	Strand	Type UL	Coil O.D.		Cord O.D.	
						in.	mm	in.	mm
980	2	18	7	41/34	SVO	7/8	22	.250	7
980/3	3	18	7	41/34	SVO	1	25	.275	7
981	2	18	7	41/34	SJO	1 3/16	30	.310	8
981/3	3	18	7	41/34	SJO	1 3/8	35	.350	9
982	2	16	13	65/34	SJO	1 3/8	35	.350	9
982/3	3	16	13	65/24	SJO	1 7/16	37	.365	10

Conductor Color Code: 1-Black, 2-White, 3-Green. Standard Package: 10

PLASTIC RETRACTILE COMMUNICATION CORDS—UL LISTED

Retracted Lengths 2, 3 & 4 Ft.—Extended Lengths 10, 15 & 20 Ft.

Multi-conductors stranded extra flexible #23 AWG 21/36 tinned soft copper for long flex life. "Danyon" plastic jacketed. 120 volt working, current carrying capacity 1 amp. Nom. cond. resist. .022 ohms per linear foot, .185 ohms per retracted foot. For communication equipment such as ham operations, telephone car carriers, radio equipment, head sets, etc.
Operating Temp. −20°C to +60°C
Maximum Voltage: 100V

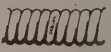


DANYON PLASTIC JACKETED

DABURN No. - Retracted Lengths			No. Cond.	Size	Strand	Nom. Coil. O.D.		Nom. Cord O.D.	
4 Ft.†	3 Ft.	2 Ft.				in.	mm	in.	mm
975D-4	975D-3	975D-2	2	23	21/36	5/8	16	.220	5.6
976D-4	976D-3	976D-2	3	23	21/36	3/4	19	.230	5.8
977D-4	977D-3	977D-2	4	23	21/36	7/8	22	.255	6.5
978D-4	978D-3	978D-2	5	23	21/36	1	25	.265	6.7
978D/6-4	978D/6-3	978D/6-2	6	23	21/36	1 1/8	29	.305	7.7
978D/7-4	978D/7-3	978D/7-2	7	23	21/36	1 3/16	30	.325	8.3
978D/8-4	978D/8-3	978D/8-2	8	23	21/36	1 1/4	32	.360	9.1
978D/10-4	978D/10-3	978D/10-2	10	23	21/36	1 3/8	35	.380	9.7
978D/12-4	978D/12-3	978D/12-2	12	23	21/36	1 1/2	38	.390	9.9
978D/15-4	978D/15-3	978D/15-2	15	23	21/36	1 5/8	41	.400	10.2

Conductor Color Code: 1-Black, 2-White, 3-Red, 4-Green, 5-Blue, 6-Yellow, 7-Brown, 8-Orange, 9-White/Black Tracer, 10-White/Red Tracer, 11-White/Green Tracer, 12-White/Blue Tracer, 13-White/Yellow Tracer, 14-White/Brown Tracer, 15-White/Orange Tracer.
† Preferred Put-up
Standard Package: 5

RETRACTILE COMMUNICATION CORDS



Retracted Lengths 2, 3 & 4 Ft.—
Extended Lengths 10, 15 & 20 Ft.

Multi-conductors stranded extra flexible #23 AWG 21/36 tinned soft copper for long life, Neoprene jacketed cable. 120 volt working, current carrying capacity 1 amp. Nom. cond. resist. .022 ohms per linear foot, .185 ohms per retracted foot.

For communication equipment such as ham operations, telephone car carriers, radio equipment, head sets. etc.

OPERATING TEMPERATURE: −20°C to +60°C **MAXIMUM VOLTAGE:** 100V

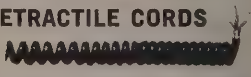
NEOPRENE JACKETED

DABURN Cat. Nos. Retracted Length 4 Ft.	No. Cond.	Size	Strand	Coil Nom. O.D.	Nom. Cord O.D.
975-4	2	23	21/36	3/4″	.200″
976-4	3	23	21/36	13/16″	.210″
977-4	4	23	21/36	7/8″	.240″
978-4	5	23	21/36	1″	.285″
978/6-4	6	23	21/36	1 1/8″	.305″
978/7-4	7	23	21/36	1 1/4″	.320″
978/15-4	15	23	21/36	1 1/2″	.470″

CONDUCTOR COLOR CODE: 1-Black, 2-White, 3-Red, 4-Green, 5-Orange, 6-Blue, 7-White/Black.

OVERALL SHIELDED PLASTIC RETRACTILE CORDS

Retracted Lengths 1, 2, 3, 4 Ft.
Extended Lengths 5, 10, 15, 20 Ft.



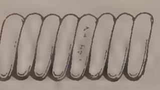
Shielded communication cords 23 AWG 21/36 soft tinned copper with 85% spiral T.C. shield coverage. Black "Danyon" plastic jacket overall. Six inch tangents on 2, 3 & 4 ft. cords. Twelve inch tangents on 12″ cords. Operating voltage 120V max. Current carrying capacity 1.0 amp. Std. pkg. 10 pcs.

	DABURN Cat. Nos. Retracted Length			No. Cond.	Nom. O.D.		Nom. Coil	
4 Ft.†	3 Ft.	2 Ft.	1 Ft.		in.	mm	in.	mm
995D-4	995D-3	995D-2	995D-1	1	.175	4.4	5/8	16
995D/2-4	995D/2-3	995D/2-2	995D/2-1	2	.220	5.6	5/8	16
995D/3-4	995D/3-3	995D/3-2	995D/3-1	3	.230	5.9	3/4	19
995D/4-4	995D/4-3	995D/4-2	995D/4-1	4	.260	7.0	7/8	22
995D/5-4	995D/5-3	995D/5-2	995D/5-1	5	.285	7.2	1	25
995D/6-4	995D/6-3	995D/6-2	995D/6-1	6	.310	7.9	1 1/8	29

SHIELDED RETRACTILE COMMUNICATION CORDS

Retracted Lengths 1, 2 & 4 Ft.—
Extended Lengths 5, 10 & 20 Ft.

Single and multi-conductors. Shielded mike cables. Neoprene or "Danyon" plastic jacketed shielded conductors are individually shielded. Shield can be pigtailed for soldering. Safe — Reliable.



Additional Shielded & Unshielded Retractile Communication Cables Stocked. Send for Your Own Copy of Our Full Catalog.

DANYON PLASTIC JACKETED

DABURN No. & Retracted Lengths			No. Cond.	Size	Strand	Nom. Coil O.D.		Nom. Cord O.D.		Volt Rating	Capacitance	
4 Ft.†	2 FT.	1 Ft.				in.	mm	in.	mm		MMF Lin. Ft.	MMF Retr. Ft.
995D-4	995D-2	995D-1	1	23(S)	21/36	5/8	16	.175	4.1	100	56	410
999D-4	999D-2	999D-1	2	2-23 (Ind. S & J)	21/36	7/8	22	.260	5.7	100	56	440
997D-4	997D-2	997D-1	3	2-23 1-23(S)	21/36	1 1/8	29	.250	6.4	100	56	450
998D-4	998D-2	998D-1	4	2-23 2-23 (Ind. S & J)	21/36	1 1/8	29	.290	7.4	100	56	450

NEOPRENE

NEOPRENE JACKETED

DABURN No. & Retracted Lengths 4 Ft.	No. Cond.	Size	Strand	Nom. Coil O.D.		Nom. Cord O.D.		Volt Rating	Capacitance	
				in.	mm	in.	mm		Lin. Ft. MMF	Retr. Ft. MMF
995-4	1	24(S)	41/40	5/8	16	.160	4.1	75	56	440
997-4	3	2-23 1-24(S)	21/36 41/40	7/8	22	.240	6.1	100 75	56	450
998-4	4	2-23 2-24(S**)	21/36 41/40	1	25	.270	6.9	100 75	56	450

** Individually shielded † Preferred Put-up Standard Package: 10 **Conductors Are Color Coded.**

DABURN ELECTRONICS & CABLE CORP. • 70 OAK STREET • NORWOOD, NJ 07648 • 201/768-5400 • TWX 710-991-9856

HI-VOLT CORONA RESISTANT TEFLON* CABLE©

Voltage Rating at Sea Level—
Voltage Rating at 80,000 feet, approximately ⅓ lower—
Minimum life expectancy: 10,000 hours

* DUPONT

SMALL SIZE: You do not need bulky, thick, insulation jacketing as used with silicone rubber and polyethylene insulations to get your hi-voltage requirements. Wire used is MIL-SPEC QQ-W-343 and MIL-W-16878. Insulation used conforms to and surpasses MIL-SPEC-W-16878.

AVOID CORONA PROBLEMS: Corona Resistant Teflon construction is specifically designed to retard and prevent corona penetration.

Temperature variations from −60°C to +250°C have no life effect on the corona resistant Teflon. In addition, there is no stress or crack failure under severe, adverse conditions including mechanical strain, moisture, corona or chemical conditions.

DESCRIPTION: Single Conductor, Stranded Silver Plated Copper, Corona Resistant Teflon* Insulation.

TEMPERATURE RATING: −90°C to +250°C.

VOLTAGE RATING: Based on insulation thickness.

AVAILABLE COLORS: White, Black, Red, Green, Yellow, Lt. Blue, Brown, Orange, Gray, Violet. (Also available in tracer colors)

PUT-UP: 250′, 500′, 1000′

ADDITIONAL SIZES AND VOLTAGES AVAILABLE

DABURN No.	AWG Size	Strand	Voltage Rating AC	Voltage Rating DC	Nom. O.D.
CRT12-2	12	19/25	2500	10,000	.142″
CRT12-2.5	12	19/25	3750	12,500	.152″
CRT12-3	12	19/25	4500	15,000	.162″
CRT12-3.5	12	19/25	5300	17,500	.172″
CRT12-4	12	19/25	6000	20,000	.182″
CRT12-5	12	19/25	7500	25,000	.202″
CRT12-6.5	12	19/25	10,000	32,500	.232″
CRT12-8	12	19/25	12,000	40,000	.262″
CRT12-10	12	19/25	15,000	50,000	.302″
CRT14-2	14	19/27	2500	10,000	.124″
CRT14-2.5	14	19/27	3750	12,500	.134″
CRT14-3	14	19/27	4500	15,000	.144″
CRT14-3.5	14	19/27	5300	17,500	.154″
CRT14-4	14	19/27	6000	20,000	.164″
CRT14-5	14	19/27	7500	25,000	.184″
CRT14-6.5	14	19/27	10,000	32,500	.214″
CRT14-8	14	19/27	12,000	40,000	.244″
CRT14-10	14	19/27	15,000	50,000	.284″
CRT16-2	16	19/29	2500	10,000	.111″
CRT16-2.5	16	19/29	3750	12,500	.119″
CRT16-3	16	19/29	4500	15,000	.129″
CRT16-3.5	16	19/29	5300	17,500	.141″
CRT16-4	16	19/29	6000	20,000	.151″
CRT16-5	16	19/29	7500	25,000	.172″
CRT16-6.5	16	19/29	10,000	32,500	.201″
CRT16-8	16	19/29	12,000	40,000	.231″
CRT16-10	16	19/29	15,000	50,000	.271″
CRT18-2	18	19/30	2500	10,000	.105″
CRT18-2.5	18	19/30	3750	12,500	.114″
CRT18-3	18	19/30	4500	15,000	.124″
CRT18-3.5	18	19/30	5300	17,500	.135″
CRT18-4	18	19/30	6000	20,000	.145″
CRT18-5	18	19/30	7500	25,000	.166″
CRT18-6.5	18	19/30	10,000	32,500	.194″
CRT18-8	18	19/30	12,000	40,000	.225″
CRT18-10	18	19/30	15,000	50,000	.265″

DABURN No.	AWG Size	Strand	Voltage Rating AC	Voltage Rating DC	Nom. O.D.
CRT20-2	20	19/32	2500	10,000	.095″
CRT20-2.5	20	19/32	3750	12,500	.105″
CRT20-3	20	19/32	4500	15,000	.115″
CRT20-3.5	20	19/32	5300	17,500	.126″
CRT20-4	20	19/32	6000	20,000	.135″
CRT20-5	20	19/32	7500	25,000	.156″
CRT20-6.5	20	19/32	10,000	32,500	.185″
CRT20-8	20	19/32	12,000	40,000	.215″
CRT20-10	20	19/32	15,000	50,000	.255″
CRT22-2	22	19/34	2500	10,000	.087″
CRT22-2.5	22	19/34	3750	12,500	.097″
CRT22-3	22	19/34	4500	15,000	.107″
CRT22-3.5	22	19/34	5300	17,500	.118″
CRT22-4	22	19/34	6000	20,000	.127″
CRT22-5	22	19/34	7500	25,000	.148″
CRT22-6.5	22	19/34	10,000	32,500	.177″
CRT22-8	22	19/34	12,000	40,000	.207″
CRT22-10	22	19/34	15,000	50,000	.247″
CRT24-2	24	19/36	2500	10,000	.081″
CRT24-2.5	24	19/36	3750	12,500	.091″
CRT24-3	24	19/36	4500	15,000	.101″
CRT24-3.5	24	19/36	5300	17,500	.112″
CRT24-4	24	19/36	6000	20,000	.121″
CRT24-5	24	19/36	7500	25,000	.142″
CRT24-6.5	24	19/36	10,000	32,500	.171″
CRT24-8	24	19/36	12,000	40,000	.201″
CRT24-10	24	19/36	15,000	50,000	.241″
CRT26-2	26	7/34	2500	10,000	.071″
CRT26-2.5	26	7/34	3750	12,500	.081″
CRT26-3	26	7/34	4500	15,000	.091″
CRT26-3.5	26	7/34	5300	17,500	.101″
CRT26-4	26	7/34	6000	20,000	.111″
CRT26-5	26	7/34	7500	25,000	.131″
CRT26-6.5	26	7/34	10,000	32,500	.161″
CRT26-8	26	7/34	12,000	40,000	.191″
CRT26-10	26	7/34	15,000	50,000	.231″

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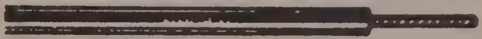
PLASTIC KINKLESS TEST LEAD WIRE

Soft formulation vinyl maximum flexibility. Temperature stability from −80°C to +115°C. Exceed requirements for MIL-I-3930A Type JP (PVC). Suitable for test leads, etc. Resistant to gasoline and oil. Excellent abrasion resistance.

DESCRIPTION: One conductor tinned copper stranded, special formulation vinyl insulation — smooth surface.

OPERATING TEMPERATURE: −80°C to +105°C, 5000V rating.

COLORS: Black, Red, Yellow, Green, White, Blue.



DABURN No.	Size	Strand	Ins	Nom. O.D.
2722/22	22	26/36	.032″	.100″
2722/20	20	26/34	.032″	.104″
2722/18	18	65/36	.032″	.112″
2722/16	16	65/34	.032″	.129″

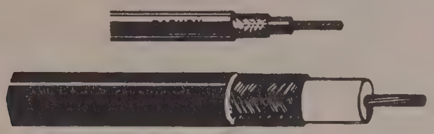
STD. PUT-UP: 100 Ft., 500 Ft., 1000 Ft.

RUBBER KINKLESS TEST LEAD WIRE: Stocked in Red, Black; #20 & #18 AWG.

DABURN

PLENUM CABLE

PER NEC 725 CLASS 2, UL SUBJECT 13 NON-CONDUIT



DABURN Cat. No.	RG Type	AWG No.	Nom. Imped.	Nom. O.D.
D59	59/u	22	75 Ohm	.225″
D62A	62A/u	22	93 Ohm	.225″

STANDARD PUT-UP: 1000 Ft.

NOTE: Daburn runs multi conductor non-conduit plenum constructions to NEC 725, 760 and 800.

TWIN-AXIAL CABLE

Suitable for computer applications — long or short haul signal transmissions; electronic cash register interconnect when high levels of noise interference may be anticipated.

1922

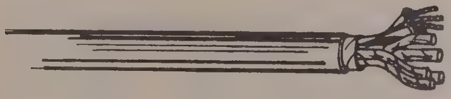
1923

DABURN Cat. No.	No. Cond.	AWG No.	Stranding	Shield Coverage	Dielectric	Nom. Imp.	Vel. Prop.	Nom. Cap./Ft.	Nom. O.D.	UL Style
1922	2	20	7/28 T.C., 7/28 B.C.	95% T.C.	Solid Poly	100	66%	15.5	.330	2498
1923	Dual 59/u	23	Solid B.C.	95% B.C.	Solid Poly	75	66%	20.5	.242 x .505	—

STANDARD PUT-UP: 500 Ft., 1000 Ft.

NOTE: #1922 is designed for IBM System 34-5250 (Cable #736221).
#1923 is designed for Wang System (Cable #420-0057).

COMPUTER CABLE MULTIPAIR FOIL SHIELD TO UL STYLE 2464



DESCRIPTION: Each conductor is #24 AWG 7/32 tinned copper, color coded, .009″ wall of semi-rigid PVC (UL Style 1061, CSA Type S-R PVC). Conductors are twisted in pairs. Overall aluminum/polyester foil shield and 7 strand tinned copper drain wire. Gray PVC jacket. To UL style 2464.

Construction is suitable for computer, communication and control applications.

Cable resists acids, alkalis, oil, solvents, moisture and fungus.

TEMPERATURE RANGE: −20°C to +80°C

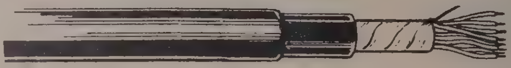
VOLTAGE RATING: 300V

FLAMMABILITY: Passes UL VW-1

DABURN Cat. No.	No. of Pairs	Nom. Jacket Wall		Nominal O.D.	
		Inches	MM	Inches	MM
2937	1	.032	.81	.162	4.08
2937/2	2	.032	.81	.220	5.59
2937/3	3	.032	.81	.240	6.10
2937/4	4	.032	.81	.275	6.99
2937/6	6	.032	.81	.290	7.37
2937/9	9	.032	.81	.360	9.14
2937/11	11	.032	.81	.375	9.53
2937/15	15	.032	.81	.430	10.92
2937/19	19	.032	.81	.445	11.30
2937/27	27	.032	.81	.515	13.08
2937/51	51	.053	1.35	.715	18.16

STANDARD PUT-UP: 100 Ft., 500 Ft., 1000 Ft.
Additional constructions to order.

MULTICONDUCTOR FOIL SHIELD TO UL STYLE 2464



DESCRIPTION: Each conductor is #24 AWG 7/32 tinned copper, color coded, .009″ wall of semi-rigid PVC (UL Style 1061, CSA Type S-R PVC). Conductors are twisted. Overall aluminum/polyester foil shield and 7 strand tinned copper drain wire. Cable is jacketed with gray PVC. To UL Style 2464.

Construction is suitable for computer, communication and control applications.

Cable resists acids, alkalis, oil, solvents, moisture and fungus.

TEMPERATURE RANGE: −20°C to +80°C

VOLTAGE RATING: 300V

FLAMMABILITY: Passes UL VW-1

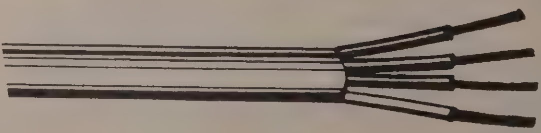
No. of Cond.	DABURN Cat. No.	Nom. Jacket Wall		Nominal O.D.	
		Inches	MM	Inches	MM
2980	2	.032	.081	.164	4.17
2980/3	3	.032	.081	.168	4.29
2980/4	4	.032	.081	.185	4.70
2980/6	6	.032	.801	.210	5.33
2980/8	8	.032	.081	.225	5.72
2980/10	10	.032	.081	.250	6.35
2980/15	15	.032	.081	.280	7.11
2980/20	20	.032	.081	.305	7.75
2980/25	25	.032	.081	.345	8.76
2980/50	50	.032	.081	.445	11.30
2980/60	60	.032	.081	.475	12.07

STANDARD PUT-UP: 100 Ft., 500 Ft., 1000 Ft.
Additional constructions to order.

"QUAD" STATION WIRE

4 Conductor #22 AWG solid B.C. color coded with beige PVC jacket overall, nom. O.D. .145″.

Suitable for telephone, speaker, intercom, remote control applications.



CAT. NO.: 3020/4SW

COLOR CODE: Red, Green, Yellow, Black.

JACKET: Beige (standard); Gray, White, Brown available to order.

STANDARD PUT-UP: 100 Ft., 500 Ft., 1000 Ft.

MIL-W-16878 INSTRUMENTATION — SHIELDED • UNSHIELDED

DESCRIPTION: One or more conductors, each conductor silver plated concentrically stranded copper wire. Type E Extruded TFE .010″ insulation. When shielded, braided silver plated copper shield over conductor(s), 90% shield coverage. When covered, either a TEFLON* impregnated fiberglass braid or a .010″ TEFLON* fused, double tape jacket overall. Fungus, solvent, moisture, flame, acid, alkali and oil resistant. Multiconductors are twisted.

TEMP. RATING: −65°C to +200°C. FOR 250°C USE N.P. CONDUCTOR.

VOLT. RATING: 600V.

TEFLON* IMPREGNATED BRAID OVER SHIELD

DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.	DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.
2444	1	26	7/34	.075″	2447	1	20	19/32	.093″
2444/2	2	26	7/34	.119″	2447/2	2	20	19/32	.154″
2445	1	24	19/36	.081″	2447/3	3	20	19/32	.163″
2445/2	2	24	19/36	.126″	2447/4	4	20	19/32	.180″
2445/3	3	24	19/36	.133″	2447/5	5	20	19/32	.195″
2445/4	4	24	19/36	.144″	2448	1	18	19/30	.097″
2445/5	5	24	19/36	.156″	2448/2	2	18	19/30	.162″
2446	1	22	19/34	.088″	2448/3	3	18	19/30	.172″
2446/2	2	22	19/34	.137″	2448/4	4	18	19/30	.192″
2446/3	3	22	19/34	.144″	2448/5	5	18	19/30	.207″
2446/4	4	22	19/34	.158″	2449	1	16	19/29	.117″
2446/5	5	22	19/34	.172″	2449/2	2	16	19/29	.196″

TEFLON* TAPE WRAP JACKET OVER SHIELD

DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.	DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.
2454	1	26	7/34	.078″	2457	1	20	19/32	.099″
2545/2	2	26	7/34	.125″	2457/2	2	20	19/32	.158″
2455	1	24	19/36	.084″	2457/3	3	20	19/32	.167″
2455/2	2	24	19/36	.128″	2457/4	4	20	19/32	.184″
2455/3	3	24	19/36	.135″	2457/5	5	20	19/32	.204″
2455/4	4	24	19/36	.148″	2458	1	18	19/30	.109″
2455/5	5	24	19/36	.162″	2458/2	2	18	19/30	.178″
2456	1	22	19/34	.090″	2458/3	3	18	19/30	.189″
2456/2	2	22	19/34	.140″	2458/4	4	18	19/30	.208″
2456/3	3	22	19/34	.148″	2458/5	5	18	19/30	.230″
2456/4	4	22	19/34	.162″	2459	1	16	19/29	.130″
2456/5	5	22	19/34	.183″	2459/2	2	16	19/29	.230″

STANDARD SPOOL PUT-UPS: 250 Ft., 500 Ft., 1000 Ft. **CONDUCTOR COLOR CODE:** 1-White, 2-Black, 3-Red, 4-Green, 5—Yellow.

SHIELDED BRAID OVERALL

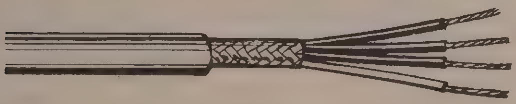
DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.	DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.
2434	1	26	7/34	.066″	2437	1	20	19/32	.082″
2434/2	2	26	7/34	.104″	2437/2	2	20	19/32	.142″
2435	1	24	19/36	.068″	2437/3	3	20	19/32	.151″
2435/2	2	24	19/36	.112″	2437/4	4	20	19/32	.168″
2435/3	3	24	19/36	.120″	2437/5	5	20	19/32	.180″
2435/4	4	24	19/36	.132″	2438	1	18	19/30	.093″
2435/5	5	24	19/36	.140″	2438/2	2	18	19/30	.162″
2436	1	22	19/34	.075″	2438/3	3	18	19/30	.172″
2436/2	2	22	19/34	.124″	2438/4	4	18	19/30	.191″
2436/3	3	22	19/34	.132″	2438/5	5	18	19/30	.210″
2436/4	4	22	19/34	.146″	2439	1	16	19/29	.103″
2436/5	5	22	19/34	.154″	2439/2	2	16	19/29	.184″

NO SHIELD — TEFLON* IMPREGNATED FIBERGLASS OVERALL

DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.	DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.
2464	1	26	7/34	.040″	2467	1	20	19/32	.058″
2464/2	2	26	7/34	.080″	2467/2	2	20	19/32	.118″
2465	1	24	19/36	.044″	2467/3	3	20	19/32	.127″
2465/2	2	24	19/36	.088″	2467/4	4	20	19/32	.144″
2465/3	3	24	19/36	.096″	2467/5	5	20	19/32	.156″
2465/4	4	24	19/36	.108″	2468	1	18	19/30	.069″
2465/5	5	24	19/36	.116″	2468/2	2	18	19/30	.138″
2466	1	22	19/34	.051″	2468/3	3	18	19/30	.148″
2466	2	22	19/34	.100″	2468/4	4	18	19/30	.167″
2466/3	3	22	19/34	.108″	2468/5	5	18	19/30	.186″
2466/4	4	22	19/34	.122″	2469	1	16	19/29	.086″
2466/5	5	22	19/34	.131″	2469/2	2	16	19/29	.172″

STANDARD SPOOL PUT-UPS: 250 Ft., 500 Ft., 1000 Ft. **CONDUCTOR COLOR CODE:** 1-White, 2-Black, 3-Red, 4-Green, 5-Yellow.
Special cable constructions and colors available.

FEP TEFLON* CABLE
FEP EXTRUDED JACKET OVER SHIELD



DESCRIPTION: Each conductor silver plated stranded copper wire, Type E extruded TFE .010″ insulation. Color coded, cabled, braided silver plated copper shield — 90% coverage, FEP white teflon jacket overall.

TEMPERATURE RATING: −65°C to +200°C

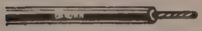
CONDUCTOR COLOR CODE: 1-White, 2-Black, 3-Red, 4-Green * Dupont

STD. PUT-UP: 500 Ft., 1000 Ft.

Additional FEP construction available to order.

DABURN No.	Conds.	AWG Size	Strand	Nom. O.D.
2480	1	24	19/36	.085″
2480/2	2	24	19/36	.130″
2480/3	3	24	19/36	.135″
2480/4	4	24	19/36	.148″
2481	1	22	19/34	.091″
2481/2	2	22	19/34	.150″
2481/3	3	22	19/34	.158″
2481/4	4	22	19/34	.172″
2482	1	20	19/32	.100″
2482/2	2	20	19/32	.168″
2482/3	3	20	19/32	.178″
2482/4	4	20	19/32	.193″
2483	1	18	19/30	.110″
2483/2	2	18	19/30	.188″
2483/3	3	18	19/30	.207″
2483/4	4	18	19/30	.222″
2484	1	16	19/29	.123″
2484/2	2	16	19/29	.220″

TEFLON* WIRE TYPE E — 600 VOLTS



SPEC. MIL-W-16878 High Temperature Rating −90°C to +200°C

Single conductor, stranded silver plated copper, .010″ TFE Teflon® insulation. Acid, alkalis, oil, flame, moisture, fungus, solvent resistant. Order nickel plated for 250°C.

DABURN Extruded Cat. No.	DABURN Wrapped Cat. No.	Size MIL Type Designation	Strand	Max Dia. Over Insul.	DABURN Extruded Cat. No.	DABURN Wrapped Cat. No.	Size MIL Type Designation	Strand	Max Dia. Over Insul.	DABURN Extruded Cat. No.	DABURN Wrapped Cat. No.	Size MIL Type Designation	Strand	Max Dia. Over Insul.
2401	—	E-32	7/40	.033″	2405S	—	E-24(1)	1	.045″	2408	2415/18	E-18	19/30	.074″
2402	—	E-30	7/38	.036″	2406	2415/22	E-22	19/34	.054″	2409	2415/16	E-16	19/29	.079″
2403	2415/28	E-28	7/36	.039″	2406-7	—	E-22	7/30	.054″	2409/14	—	E-14	19/27	.097″
2404	2415/26	E-26	7/34	.043″	2406S	—	E-22(1)	1	.048″	2409/12	—	E-12	19/25	.120″
2404S	—	E-26(1)	1	.040″	2407	2415/20	E-20	19/32	.062″	2409/10	—	E-10	37/26	.139″
2405	2415/24	E-24	19/36	.048″	2407-7	—	E-20	7/28	.062″					
2405-7	—	E-24	7/32	.048″	2407S	—	E-20(1)	1	.056″					

STD. PUT-UP: 100 Ft., 500 Ft., 1000 Ft.
COLORS: Black, Brown, Red, Orange, Yellow, Green, Blue, Purple, Gray, White, White/Black, White/Red, White/Green, White/Yellow, White/Blue, White/Brown, White/Orange, White/Gray, White/Violet. Additional special custom constuction available to order.

DABURN

LACING CORD-TAPE TO MEET MIL-T-713C TYPE P* AND MIL-T-43435 COMP. P-TYPE S NYLON FLAT BRAIDED LACING TAPE

Nylon fiber flat braided impregnated with MW microcrystaline fungicidal wax. Stays flat. Designed to create a wider contact to distribute the stress. Flexible. Won't slip when knotted. Resistant to fungus, flame, abrasion, acids, MIL-T-43435 (new) supersedes MIL-T-713 (old).

DABURN No.	Color	(New) Size	(Old) Class	Nom. Width	Nom. Thick-ness	Tensile Strength	Standard Put-Up Tubes
2035	Natural White	1	—	.200″	.014″	150 lbs.	250 yd.
2035B	Black	1	—	.200″	.014″	150 lbs.	250 yd.
2036	Natural White	2	1	.120″	.014″	80 lbs.	250 yd.
2036B	Black	2	1	.120″	.014″	80 lbs.	250 yd.
2037	Natural White	3	2*	.090″	.014″	50 lbs.	500 yd.
2037B	Black	3	2*	.090″	.014″	50 lbs.	500 yd.
2038	Natural White	4	3	.065″	.010″	30 lbs.	500 yd.
2038B	Black	4	3	.065″	.010″	30 lbs.	500 yd.
2039	Natural White	5	4	.046″	.010″	15 lbs.	500 yd.
2039B	Black	5	4	.046″	.010″	15 lbs.	500 yd.

DACRON FLAT BRAIDED LACING TAPE

Dacron fiber flat braided impregnated with non-slip fungicidal finish. Will not cut or damage insulation. Stays flat. Has all characteristics of nylon with elongation, better resistance to acids.

DABURN No.	Color	Nom. Width	Nom. Thickness	Tensile Strength	Standard Put-Up Tubes
2041	Natural White	.120″	.014″	80	250 yd.
2041B	Black	.120″	.014″	80	250 yd.
2042	Natural White	.090″	.014″	48	500 yd.
2042B	Black	.090″	.014″	48	500 yd.
2043	Natural White	.060″	.010″	35	500 yd.
2043B	Black	.060″	.010″	35	500 yd.
2044	Natural White	.046″	.010″	25	500 yd.
2044B	Black	.046″	.010″	25	500 yd.

TEFLON* FIBERGLASS FLAT BRAIDED LACING TAPE

Teflon coated fiberglass flat braided lacing tape bonded for high temp. operations (550°). Stays flat — for strength, stability. Teflon finish increases strength and abrasion resistant surface. Will not cut or damage insulation.

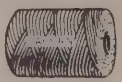
DABURN No.	Color	Nom. Width	Nom. Thickness	Test lbs.	Standard Put-Up Tubes
2045	White	.170″	.025″	150	250 yd.
2046	White	.120″	.020″	90	250 yd.
2047	White	.080″	.020″	70	500 yd.

TEFLON* FLAT BRAIDED LACING TAPE

for high temperature operations (550°F)

DABURN No.	Color	Nom. Width	Nom. Thickness	Test lbs.	Standard Put-Up Tubes
2048	Brown	.100″	.016″	35	250 yd.
2049	Brown	.075″	.010″	15	500 yd.

ROUND TWISTED NYLON LACING CORD

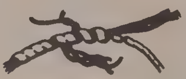


Manufactured to meet MIL-T-713A Type P specification, Composition P, Classes 3, 2, 1. Wax finish — compounded with fungicide to resist mildew. Easy to tie.

PUT-UP ON 1 LB. TUBES

DABURN No.	Color	Class	Tensile Strength	Nom. Diam.	Yds. Per Tube
2070	Natural	1	70 lbs.	.039″	600
2070B	Black	1	70 lbs.	.039″	600
2071	Natural	2	48 lbs.	.029″	800
2071B	Black	2	48 lbs.	.029″	800
2072	Natural	3	32 lbs.	.025″	1140
2072B	Black	3	32 lbs.	.025″	1140
2072/1	Natural	4	20 lbs.	.020″	2400
2072/1B	Black	4	20 lbs.	.020″	2400

SPIRAL WRAP — PLASTIC TUBING FOR HARNESSES



Available in four formulations: Polyethylene, Rulan (flame retardant polyethylene), Nylon and Teflon. Easily applied. Twists on easily. Can be flexed repeatedly without cracking or breaking. Reusable, bends around sharp corners. Expandable. **Per MIL-P-22692, MIL-I-631D, MIL-P-3803.**

POLYETHYLENE

Temp. Range: −105°F to +200°F

DABURN Cat. No.		Covers Wire Groups	Outside Diam.	Nom. Wall	Standard Package
Natural	Black*				
605-⅛″	605B-⅛″	1⁄16″ to ½″	⅛″	.031″	100′, 500′, 1000′
605-¼″	605B-¼″	3⁄16″ to 2″	¼″	.045″	100′, 500′, 1000′
605-⅜″	605B-⅜″	5⁄16″ to 3″	⅜″	.058″	100′, 500′, 1000′
605-½″	605B-½″	¾″ to 4″	½″	.058″	100′, 500′, 1000′

*** Black Polyethylene is Ultra Violent Resistant and Recommended for Outdoor Use.**

RULAN (White)

Temp. Range −10°F to +200°F

606-⅛″		1⁄16″ to ½″	⅛″	.030″	100′, 500′, 1000′
606-¼″		3⁄16″ to 1½″	¼″	.058″	100′, 500′, 1000′
606-⅜″		5⁄16″ to 2″	⅜″	.058″	100′, 1000′
606-½″		¾″ to 4″	½″	.060″	100′, 1000′

Per MIL-P-17091B, MIL-P-20693 & MIL-M-22096

NYLON

Temp. Range: −212°F to +300°F

607-⅛″	607B-⅛″	1⁄16″ to ½″	⅛″	.030″	100′, 500′, 1000′
607-¼″	607B-¼″	3⁄16″ to 2″	¼″	.025″	100′, 500′, 1000′
607-⅜″	607B-⅜″	5⁄16″ to 3″	⅜″	.035″	100′, 500′, 1000′
607-½″	607B-½″	¾″ to 4″	½″	.035″	100′, 500′, 1000′

*** Black Nylon is Recommended for Outdoor Use.**

Per MIL-I-22129

TEFLON (Natural)

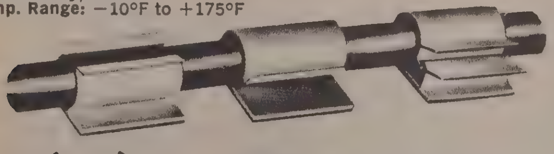
Temp. Range: −450°F to +500°F

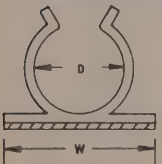
608-⅛″		1⁄16″ to ½″	⅛″	.031″	100′, 500′
608-¼″		3⁄16″ to 2″	¼″	.030″	100′, 500′
608-⅜″		5⁄16″ to 2½″	⅜″	.030″	100′, 500′
608-½″		¾″ to 3″	½″	.030″	100′, 500′

COLOR: Natural (White).

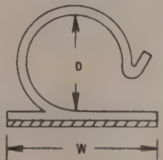
DABURN STIK KLIPS™ — SELF ADHESIVE

MATERIAL: PVC
COLOR: Gray, Black*
Temp. Range: −10°F to +175°F

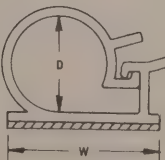




CAT. NO. 660



CAT. NO. 670



CAT. NO. 680 (LOCKING)

For fast secure mounting on smooth surfaces. No need to screw, nail or staple in place. Fastens in a flash — just peel off the protective backing and press in place on a clean, dry surface. For best results allow a few seconds for adhesive to set before applying load.

These plastic clips are insulating, strong and elastic. They have many uses, such as keeping telephone wires off the floor, holding wire, cable, tubing rods, etc. in position.

DABURN Cat. No.	D	W	Std. Pkg.
660-⅛	⅛″	¾″	100, 1000
660-¼	¼″	¾″	100, 1000
660-⅜	⅜″	¾″	100, 1000
660-½	½″	1″	100, 1000
660-¾	¾″	1″	100, 1000
670-⅛	⅛″	¾″	100, 1000
670-¼	¼″	¾″	100, 1000
670-⅜	⅜″	¾″	100, 1000
670-½	½″	1″	100, 1000
670-¾	¾″	1″	100, 1000
680-¼*	¼″	¾″	100, 1000
680-½	½″	1″	100, 1000
680-¾	¾″	1″	100, 1000

DABURN

DABURN NYLON FASTENINGS ZYTEL 101 MIL-P-20693A

BINDING HEAD

ROUND HEAD

FILLISTER HEAD

FLAT HEAD

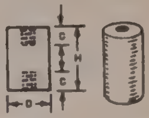
Has outstanding insulation specs., hi-resistance to heat, shock, vibration, chemical. Is light in weight, superior torque strength. Corrosion resistant, non magnetic. Continuous service temperature to 300°F. All parts made to American thread standards to Class 2A or 2B fit. B18.2 (hex nuts), B18.6 (machine screws). B1.1 (thread specs.).

DABURN No.	Size	Type	DABURN No.	Size	Type
14-40	2-56 x ¼″	Rd. Hd.	14-48A	6-32 x ½″	Bind. Hd.
14-40A	2-56 x ¼″	Fill. Hd.	14-488	6-32 x ½″	Fill. Hd.
14-40B	2-56 x ¼″	Bind. Hd.	14-48C	6-32 x ½″	Flat Hd.
14-41	2-56 x ⅜″	Rd. Hd.	14-49	6-32 x ¾″	Rd. Hd.
14-41A	2-56 x ⅜″	Fill. Hd.	14-49A	6-32 x ¾″	Fill. Hd.
14-41B	2-56 x ⅜″	Bind. Hd.	14-49B	6-32 x ¾″	Bind. Hd.
14-42	2-56 x ½″	Rd. Hd.	14-50	6-32 x 1″	Rd. Hd.
14-42A	2-56 x ½″	Fill. Hd.	14-50C	6-32 x 1″	Flat Hd.
14-42B	2-56 x ½″	Bind. Hd.	14-51	8-32 x ¼″	Rd. Hd.
14-43	4-40 x ¼″	Rd. Hd.	14-51A	8-32 x ¼″	Fill. Hd.
14-43A	4-40 x ¼″	Fill. Hd.	14-51B	8-32 x ¼″	Bind. Hd.
14-43B	4-40 x ¼″	Bind. Hd.	14-52	8-32 x ½″	Rd. Hd.
14-44	4-40 x ⅜″	Rd. Hd.	14-52A	8-32 x ½″	Fill. Hd.
14-44A	4-40 x ⅜″	Fill. Hd.	14-52B	8-32 x ½″	Bind. Hd.
14-44B	4-40 x ⅜″	Bind. Hd.	14-52C	8-32 x ½″	Flat Hd.
14-44C	4-40 x ⅜″	Flat Hd.	14-54	8-32 x ⅝″	Rd. Hd.
14-45	4-40 x ½″	Rd. Hd.	14-54A	8-32 x ⅝″	Fill. Hd.
14-45A	4-40 x ½″	Fill. Hd.	14-55	8-32 x ¾″	Rd. Hd.
14-45B	4-40 x ½″	Bind. Hd.	14-55A	8-32 x ¾″	Fill. Hd.
14-61	4-40 x 1″	Rd. Hd.	14-55B	8-32 x ¾″	Bind. Hd.
14-61C	4-40 x 1″	Flat Hd.	14-56A	8-32 x 1″	Fill. Hd.
14-46	6-32 x ¼″	Rd. Hd.	14-56C	8-32 x 1″	Flat Hd.
14-46A	6-32 x ¼″	Fill. Hd.	14-57	10-32 x ⅜″	Rd. Hd.
14-46B	6-32 x ¼″	Bind. Hd.	14-58	10-32 x ½″	Rd. Hd.
14-46C	6-32 x ¼″	Flat Hd.	14-58C	10-32 x ½″	Flat Hd.
14-47	6-32 x ⅜″	Rd. Hd.	14-59	10-32 x ⅝″	Rd. Hd.
14-47A	6-32 x ⅜″	Bind. Hd.	14-60	10-32 x 1″	Rd. Hd.
14-47B	6-32 x ⅜″	Fill. Hd.	14-60C	10-32 x 1″	Flat Hd.
14-47C	6-32 x ⅜″	Flat Hd.	14-62	¼-20 x 1″	Rd. Hd.
14-48	6-32 x ½″	Rd. Hd.	14-63	¼-20 x 2″	Rd. Hd.

STOCK COLOR: Natural. Additional sizes available to order.
STD. PKG.: 100, 1000.

DABURN STEATITE STANDOFFS
JAN-I-8 AND JAN-I-10 SPECS.

These threaded Steatite pillars are made of L5 glazed Steatite with threaded holes on both sides, for one hole mounting.



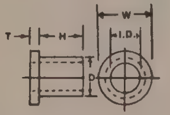
COLOR: White

DABURN No.	Conforms to NEW Type	Hgt.	Diam.	Length of Thread	Thread
10-41		¼″	¼″	All	6-32
10-41B		⅜″	¼″	5/32″	6-32
10-41A		½″	¼″	5/32″	6-32
10-44A		¾″	¼″	¼″	6-32
10-45A		1″	¼″	¼″	6-32
10-42		⅜″	⅜″	5/32″	6-32
10-42A	NL523W01-004	½″	⅜″	5/32″	6-32
10-43A	NL523W01-005	⅝″	⅜″	¼″	6-32
10-44B	NL523W01-006	¾″	⅜″	¼″	6-32
10-45B	NL523W01-008	1″	⅜″	⅜″	6-32
10-46B	NL523W01-010	1¼″	⅜″	⅜″	6-32
10-46A	NL523W01-012	1½″	⅜″	⅜″	6-32
10-46C	NL523W01-016	2″	⅜″	⅜″	6-32
10-43		½″	½″	¼″	6-32
10-44		¾″	½″	¼″	6-32
10-45		1″	½″	⅜″	6-32
10-46		1½″	½″	⅜″	6-32
10-47		2½″	½″	⅜″	6-32
10-40	NL523W02-005	⅝″	½″	3/16″	8-32
10-40A	NL523W02-006	¾″	½″	¼″	8-32
10-40B	NL523W02-008	1″	½″	⅜″	8-32
10-40C	NL523W02-010	1¼″	½″	⅜″	8-32
10-40D	NL523W02-012	1½″	½″	⅜″	8-32
10-40E	NL523W02-016	2″	½″	⅜″	8-32
10-40F	NL523W02-020	2½″	½″	⅜″	8-32
10-40G	NL523W02-024	3″	½″	⅜″	8-32
10-44C		¾″	¾″	¼″	10-32
10-45C	NL523W03-008	1″	¾″	⅜″	10-32
10-45D	NL523W03-010	1¼″	¾″	⅜″	10-32
10-45E	NL523W03-012	1½″	¾″	⅜″	10-32
10-45F	NL523W03-016	2″	¾″	⅜″	10-32
10-45G	NL523W03-020	2½″	¾″	⅜″	10-32
10-45H	NL523W03-024	3″	¾″	⅜″	10-32
10-45S	NL523W03-032	4″	¾″	⅜″	10-32
10-47B	NL523W04-012	1½″	1″	½″	¼-20
10-47D	NL523W04-016	2″	1″	⅝″	¼-20
10-47E	NL523W04-020	2½″	1″	⅝″	¼-20

STD. PKG: 100 except 10-47B, D, E, which are 50.

DABURN NYLON SPACER/BUSHINGS

Wide flanges isolates screw from mounting surface. Has hi-tensile and torque strength.
6/6 Nylon



DABURN No.	Screw Size I.D.	W	T	H	D
14-79	# 4 (.115″)	.235″	3/64″	¼″	.146″
14-79A	# 6 (.140″)	.290″	3/64″	¼″	.170″
14-79B	# 8 (.173″)	.344″	1/16″	⅜″	.205″
14-79C	#10 (.200″)	.399″	1/16″	⅜″	.260″
14-79D	¼″ (.260″)	.513″	1/16″	⅜″	.312″

COLOR: Natural. MIL-P-20693A. **STD. PKG.:** 100, 1000

DABURN NYLON FLAT WASHERS

DABURN No.	For Screw Size	I.D.	O.D.	Thickness
14-92	2	3/32″	¼″	.016″
14-93	4	⅛″	¼″	.016″
14-94	6	5/32″	5/16″	.031″
14-95	8	.170″	⅜″	.031″
14-96	10	.195″	⅜″	.031″
14-97	¼	9/32″	⅝″	.063″

COLOR: Natural 6/6 Nylon **STD. PKG.** 100, 1000

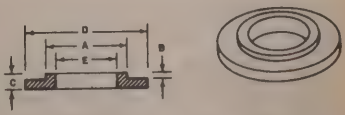
SEND FOR LITERATURE ON OUR COMPLETE LINE OF INSULATORS

DABURN NYLON HEX NUTS

DABURN No.	Size	DABURN No.	Size
14-85	2-56	14-88	8-32
14-86	4-40	14-89	10-32
14-87	6-32	14-90	¼-20

COLOR: Natural. MIL-P-20693A **STD. PKG.:** 100, 1000

DABURN NYLON SHOULDER WASHERS



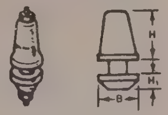
Catalog No.	E	Hole Size	D	C	B	A
14-540	.140	6	.375	.093	.031	.237
14-541	.110	4	.250	.062	.031	.187
14-542	.136	6	.250	.093	.031	.187
14-543	.136	6	.312	.093	.031	.187
14-544	.250	¼″	.500	.093	.028	.312
14-545	.172	8	.375	.093	.031	.246
14-546	.196	10	.375	.093	.031	.308
14-547	.265	17/64″	.500	.097	.031	.365
14-548	.375	⅜″	.750	.093	.031	.500
14-549	.385	⅜″	.625	.093	.031	.500

COLOR: Natural Nylon Per MIL-P-20693A **STANDARD PACKAGE:** 1000

DABURN ELECTRONICS & CABLE CORP. • 70 OAK STREET • NORWOOD, NJ 07648 • 201/768-5400 • TWX 710-991-9856

DABURN

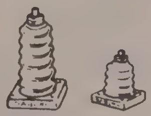
DABURN FEED-THRU INSULATORS



These are quality porcelain insulators smoothly glazed. Heavy nickel plated brass hardware used. Cushion washers supplied.

DABURN No.	Hgt. H	B	H₁	Mtg. Hole	H'dwe	Std. Pkg.
10-58	5/8"	11/16"	1/4"	5/16"	6-32	50
10-78	1"	13/16"	5/16"	7/16"	10-32	25
10-125	1¼"	7/8"	3/8"	7/16"	10-32	25
10-234	2¾"	2"	1"	1¼"	¼-20	10

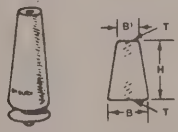
DABURN METAL BASE INSULATORS



Made of hi tensile strength, low absorption ceramic fully glazed corrugated surface. Provides longer leakage path. Metal base.

DABURN No.	Hgt. H	B	D	Mtg. Screw	H'dwe	Std. Pkg.
10-67	1⅜"	1⅞" x 1 5/16"	1½"	2 #8	10-32	25
10-176	2¾"	1¾" x 1¾"	1⅜"	4 #10	¼-20	10
10-451	4½"	2¼" x 2¼"	1¾"	4 #10	¼-20	5

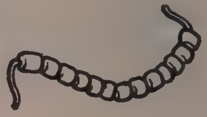
DABURN STEATITE CONE INSULATORS



Steatite cones have smooth glaze white. Come complete with brass nickel plated screws and cushion washers.

DABURN No.	Hgt. H	B	B₁	T	Mtg. Hole	Std. Pkg.
10-30	5/8"	5/8"	7/16"	6-32	5/32"	100
10-31	1"	11/16"	1/2"	8-32	3/16"	50
10-32	1½"	7/8"	5/8"	10-32	7/32"	50
10-33	2¾"	1¼"	3/4"	¼-20	9/32"	25

DABURN FISH SPINE BEADS

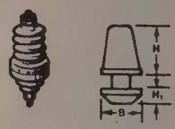


Suitable for buss and heavy lines insulation. Beads follow bends and curves because of ball and socket style interlocks. Made of Steatite. **STD. PKG.:** 100, 1000.

				Approx.	
Cat. No.	Grade	O.D.	I.D.	# Pcs. In.	100 Pcs. Cover
10-215	L-5	.312"	.125"	4	26"
10-215A	L-3	.125"	.056"	8	11"
10-215B	L-3	.172"	.068"	6	14"

Additional sizes available to order.

CORRUGATED FEED-THRU INSULATOR

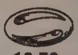


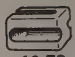
These numbers have twice the leakage path of the straight type due to the increased surface area. Brass nickel plated hardware and cushion washers supplied.

DABURN No.	Hgt. H	B	H₁	Mtg. Hole	H'dwe	Std. Pkg.
10-79	1⅜"	1¼"	11/16"	9/16"	10-32	25
10-76	2¾"	1⅝"	1"	3/4"	¼-20	10
10-52	4½"	2⅛"	1½"	1"	¼-20	5

DABURN AIRPLANE INSULATORS

Suitable for mobile and aircraft or guy wire application, compression type strain insulators. Nos. 10-73, 10-74 made of white glazed low absorption porcelain. No. 10-72 made of wet process porcelain.

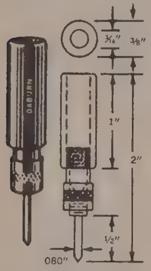

10-73
10-74


10-72

Daburn No.	Description	Std. Pkg.
10-73	2" White	100
10-74	1½" White	100
10-72	2¼" Lt. Blue	25

PHONE TIP PLUG & BINDING POSTS

SOLDERLESS JUNIOR



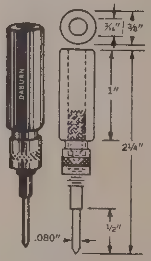
INSULATED PHONE TIP

Fits any standard phone tip jack. Brass, nickle plated body. Solderless connection for wire which fits thru body of tip and secured under knurled nut. Shock resistant plastic handle.

COLORS: Red, Black, Yellow, Green, Blue (specify).

DABURN No.		Std. Pkg.
19-15	Junior	50

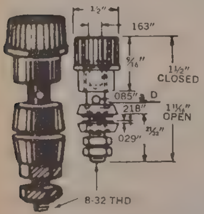
SOLDERLESS SENIOR

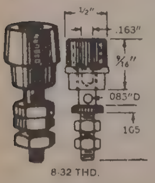


INSULATED PHONE TIP

Fits any standard phone jack. Brass, nickle plated body. Solderless connection for wire which fits thru body of tip and secured under knurled nut. Shock-resistant plastic handle.

DABURN No.		Std. Pkg.
19-09	Senior	50



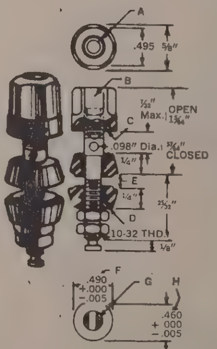


STANDARD DUTY BINDING POST

Molded nylon captive head. Brass, nickle plated stud and nuts. Rated at 15 amps. AC, capacitance 3.0 PF. Mounts in ¼" round hole in panels up to ⅛" thick.

COLORS: Red, Black (specify).

DABURN No.		Std. Pkg.
18-78	All insulated type	100
18-79	Grounded type	100



BINDING POSTS — MULTI-PURPOSE **Wrap Around**

Molded nylon body. Accepts tip plug, spade lug, banana plug, wire alligator clip and direct solder connection. Has molded-in brass inserts in head and washer. Rated at 30 amps. AC Capacitance 5. OMMFD. Banana plug receptacle .161" I.D. head non-removable from stud and washer completely insulates post from panel. For panels 1/16" to ¼" thick; drill ½" hole for mounting washers. Wire hole is at right angle to flat on insulated washer.

COLORS: Red, Black (specify).

Spring		
DABURN No.		Std. Pkg.
18-72	Fluted Head Post	100
18-75	Hex-head Post	100

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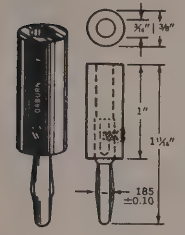
DABURN

PLUGS & JACKS

SOLDERLESS

INSULATED BANANA PLUG



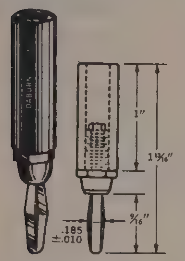
Mates with any standard banana jack. Side set screw secures wire without soldering. Plug is brass, nickel plated. Plastic handle.

COLORS: Red, Black, Yellow, Green, Blue (specify).

Spring	
DABURN No.	**Std. Pkg.**
19-46 Phosphor Bronze N.P.	50
19-46A Beryllium Copper N.P.	50

SOLDERLESS

INSULATED BANANA PLUG



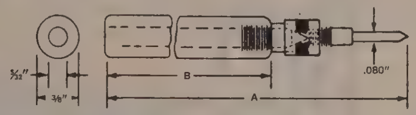
Mates with any standard banana jack. Plug is Hex Brass, nickel plated. Wire may be soldered to body or passed thru hex brass stud, flared and secured by screwing into body. Shock resistant plastic handle. **Colors:** Red, Black, Yellow, Green, Blue (specify)-

Spring	
DABURN No.	**Std. Pkg.**
19-04 Phosphor Bronze N.P.	50
19-04B Beryllium Copper S.P.	50

SOLDERLESS TEST PROD

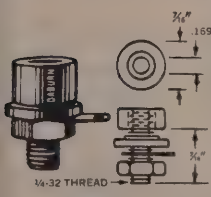
Body is brass, nickle plated with molded plastic handle. Solderless connection for wire fits thru handle and plug body and wraps under knurled nut.

COLORS: Red, Black (specify).



DABURN No.	Handle (B)	Overall Length (A)	Std. Pkg.
19-10	4"	5 3⁄16"	50
19-43	5"	6½"	50

INSULATED BANANA JACK

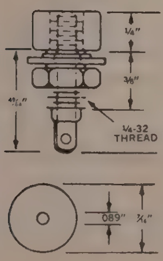


Body is brass nickel plated, mounts in 5⁄16" hole in panels up to 3⁄8" thick. Comes thru with hex nut, tinned copper lug and fibre washer. Takes all standard banana plugs. Molded plastic head.

COLORS: Red, Black, Yellow, Green, Blue (specify).

DABURN No.	Description	Std. Pkg.
19-06	Insulated Jack	50

INSULATED PHONE TIP JACK



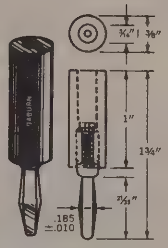
Fits all standard phone tips. Brass nickel plated body. Phosphor bronze spring provides positive contact. Comes thru complete with hex nut and fibre washer. Molded plastic head.

COLORS: Red, Black, Yellow, Green, Blue (specify).

DABURN No.		Std. Pkg.
19-07	Insulated Phone Tip Jack	50

SOLDERLESS

INSULATED BANANA PLUG



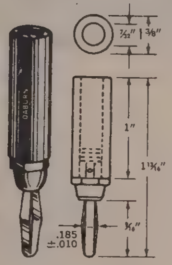
Mates with any standard banana jack. Plug is brass, nickel plated. Wire may be soldered to body or secured by solderless means, (as with our #19-04). Handle is flush fitting, shock resistant. Plastic.

COLORS: Red, Black, Yellow, Green, Blue (specify).

Spring	
DABURN No.	**Std. Pkg.**
19-65 Phosphor Bronze N.P.	50
19-65B Beryllium Copper S.P.	50

SOLDERLESS

INSULATED BANANA PLUG

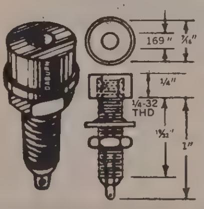


Mates with any standard banana jack. Wire may be soldered or passed through side hole and dressed around brass, nickle plated body to be secured by flush fitting shock resistant plastic handle.

COLORS: Red, Black, Yellow, Green, Blue (specify).

Spring	
DABURN No.	**Std. Pkg.**
19-63 Phosphor Bronze N.P.	50

INSULATED JACK COMBINATION

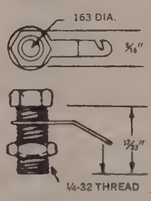


Will take senior phone tips or standard banana plugs. Body is brass, nickel plated. Mounts in 5⁄16" hole in panels up to ½" thick. Springs are phosphor bronze. Comes thru with hex nut and fiber washer.

COLORS: Red, Black, Yellow, Green, Blue (specify).

DABURN No.	Description	Std. Pkg.
19-33	Insulated Combination Jack	50

BANANA JACK



Hexed brass nickel plated hex nut and tinned copper lug. Has recessed head. Mounts in ¼" hole in panels up to 5⁄16" thick. Fits all standard banana plugs.

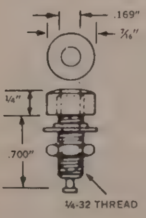
RATED: 15 amps AC

DABURN No.		Std. Pkg.
17-03	Banana Jack	100

MATE WITH 19-46, 19-44, 19-63, 19-64, 19-04, 17-40, 17-41

INSULATED BANANA JACK

TURRET TERMINAL



Body is brass nickel plated. Mounts in 5⁄16" hole in panels up to 3⁄8" thick. Molded plastic head. Takes standard banana plugs.

COLORS: Red, Black, Yellow, Green, Blue, White.

Cat. No.		Std. Pkg.
19-26	Banana Jack	100

SEND FOR LITERATURE ON OUR COMPLETE LINE OF PLUGS, JACKS & POSTS

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electronic engineers master
FILE SYSTEM
HARDWARE (ELECTRICAL/ELECTRONIC)
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SEE ALPHA FILE — COMPANY NAME
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61 CROSS REFERENCE CARDS

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GET ORGANIZED!

Are your catalog files organized? Can you find any given catalog in a matter of seconds? If your answer is "Yes," you probably already have the EEM File System. But, if you said "No," you really ought to look into this simple system. It will save hours of time and tons of aggravation.

The EEM File System was invented over twenty-five years ago to help people who specify, buy, or work with electronic products and equipment. It is upgraded on a constant basis to reflect the current state of the art. It's easy to use and easy to customize to your particular needs.

You say you want to file catalogs by type of product? That's easy to do with The System. But, what are you going to do when there are multiple products in one catalog? Take Mallory for example. There are all kinds of products in the Mallory Short Form Catalog. With the EEM File System all you do is file the catalog under "M" for Mallory and refer to it on all of the cross reference cards that apply.

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The EEM File System is shipped in one neat package. The package contains everything you need to set up your very own filing system. Best of all, it's easy to get and very affordable. Send a check or money order for $25.00 and EEM will pay the postage and sales tax. If you must use a purchase order, please add $5.00 for postage and handling. An invoice will accompany your System.

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EEM FILE SYSTEM,
645 stewart ave., garden city, ny 11530

DATAK FLEXY•MARKER™ for wire

A MAJOR ADVANCE in Marking Wire. The ULTRA-THIN FLEXY-MARKER

GENERAL SPECIFICATIONS

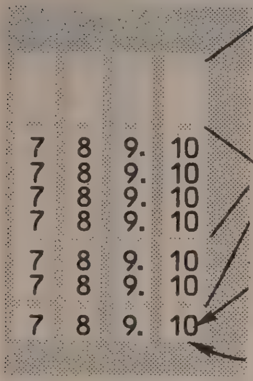
DIMENSIONS (Printed Markers): .25"W (nom.) x 1.125"L. Max. wire dia. for full wrap = 0.35". Min. wire dia. for legible marking = 0.040". See table for write-on marker dimensions.

BASE FILM: Soft, conformable .003" vinyl film.

MARKING INK: Black thermosetting. Fused into base film for permanency.

ADHESIVE: Modified acrylic. Excellent adhesion to metals and most wire insulations, including all vinyls. For reliable results on Teflon make a full wrap with overlap. Surfaces must be oil-free before application.

PRINTED MARKERS



TAB has no adhesive. Flick with a fingernail, apply marker and pull off in one easy motion.

MARKER FILM is dead-soft. Conforms perfectly even if wire is flexed.

3 PERFORATIONS are graduated in strength. You can pull off marker sections in order as you apply. Save balance for reuse.

LEGENDS are baked in. Won't fade, dissolve or wear off.

ADHESIVE bonds securely, even to vinyls. Markers won't loosen or fall off in time.

HOW SUPPLIED

FLEXY-MARKER™ wire markers are supplied in sets of 24 identical 3¼ x 5⅝ inch sheets bound into a handy pocket pad. A set has 1056 two figure markers, 768 three figure markers or 624 four figure markers per set. Each can be separated into 3 smaller markers.

COLOR ASSORTMENT. Twelve EIA and NEMA standard colors are available in an assortment called FCOLORS.

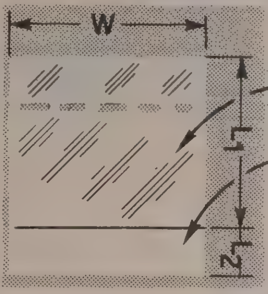
SEQUENTIAL NUMBERS AND ELECTRICAL TERMS. A number assortment from 1 to 104 (F1S104) and an assortment of miscellaneous electrical designations ((FBUS) are available.

TEMPERATURE RANGE: −55°C (−67°F) to 130°C (266°F). Marker will withstand brief excursions to a 150°C ambient but yellowing will occur after several hundred hours.

RESISTANCE TO PETROLEUM PRODUCTS: Unaffected by immersion in most lubricating and hydraulic oils.

NOTE: Your conditions may vary from our test parameters. Test this product under your conditions to determine its ultimate suitability.

WRITE-ON MARKERS



CLEAR FILM wraps around and protects write-on surface.

WRITE-ON SURFACE will accept pencil, pen or typewriter. Markings may be corrected immediately after typing or writing but become indelible after several hours.

HOW SUPPLIED

WRITE-ON WIRE MARKERS supplied in sets of 6 identical 8½" x 9¾" sheets suitable for typewriter or platen-feed printers. Markers are spaced in 1/6" multiples for easy typing. The write-on area is treated to absorb inks slowly so that corrections can be made if done at once. The write-on portion is protected by a clear vinyl overwrap when the marker is wrapped around a wire. Available in the following sizes:

CAT NO	W	L1	L2	Max. Wire Dia.	Markers/ Set
FWR1	0.50	0.5	0.1875	0.156 Inch	630
FWR2	1.25	0.5	0.1875	0.156	252
FWR3	2.00	0.5	0.1875	0.156	168
FWR4	0.50	1.20	0.300	0.375	360
FWR5	1.25	1.20	0.300	0.375	144
FWR6	2.00	1.20	0.300	0.275	96
FWR7	1.25	2.40	0.750	0.750	72
FWR8	2.00	2.40	0.750	0.750	48
FWR9	1.90	3.83	0.750	1.220	48

PRINTED WIRE MARKERS are available in the following styles as bound sets of 24 sheets:

FNOSLASH	Ø
FNO	0 (number)
F1 etc. to	1
F520	520
F1S22*	1 thru 22
F1S104**	1 thru 104
F23S66	23 thru 66
F67S104	67 thru 104
F105S36	105 thru 136
F137S68	137 thru 168
F169S00	169 thru 200
F201S32	201 thru 232
F233S64	233 thru 264
F265S96	265 thru 296
F297S28	297 thru 328
F329S60	329 thru 360
F361S92	361 thru 392
F393S24	393 thru 424
F425S456	425 thru 456
F457S88	457 thru 488
F489S20	489 thru 520
FA etc. to	A (letter)
FZ	Z
FALPHA	A thru Z
FBUS	see below †
FCOLORS	12 NEMA colors
FL1	L1
FL2	L2
FL3	L3
FL4	L4
FPH1	PH1
FPH2	PH2
FPH3	PH3
FT1	T1
FT2	T2
FT3	T3
FT4	T4
FT5	T5
FT6	T6
FT7	T7
FT8	T8
FGND	GND
FHOT	HOT
FMINUS	−
FNEG	NEG
FNEUT	NEUT
FPLUS	+
FPOS	POS
FXTRA	XTRA
F110V	110V
F115V	115V
F120V	120V
F208V	208V
F220V	220V
F240V	240V
F277V	277V
F440V	440V
F480V	480V
FAC	AC
FDC	DC
FBLK	(black)
FBRN	(brown)
FRED	(red)
FORG	(orange)
FYEL	(yellow)
FLTGRN	(lt. green)
FDKGRN	(dk. green)
FLTBLU	(lt. blue)
FDKBLU	(dk. blue)
FVIO	(violet)
FGRY	(gray)
FWHT	(white)

*contains 48 sets 1-22 **contains 24 sets 1-22 & 12 sets 23-104

†contains 8 sets A thru Z and one sheet each of POS, NEG, GND, AC, DC, 120V, 240V, HOT, NEUT, PH1, PH2, PH3, L1, L2, L3, L4, XTRA, T1, T2, T3.

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ANY F# FLEXY-MARKER SET (24 bound 3¼ x 5⅞ inch sheets) .... **$ 6.95**

ANY FWR# WRITE-ON FLEXY-MARKER SET (6 loose 8½ x 9¾ inch sheets) .... **$ 6.95**

See Sections 1700 and 2400 for DATAK Printed Circuit Sets and Panel Marking Sets

DEARBORN WIRE AND CABLE CO.

Sound, Computer and Instrumentation Cable

MULTI-CONDUCTOR OVERALL ALUMYLAR™ SHIELDED CABLE

ALUMYLAR™ SHIELD 100% COVERAGE

Color Code: Consult Factory for color charts 2 and 4.

Stock Put Ups:
100 ft.; 500 ft.; 1,000 ft.; bulk.

*Capacitance between conductors.

+Capacitance between one conductor and other conductor connected to shield.

Description —
- **Conductors:** Stranded tinned copper.
- **Insulation:** Color-coded polyvinylchloride.
- **Construction:** Conductors cabled with overall shield.
- **Shield:** Alumylar™ overall shield with #24 awg. stranded tinned copper drain wire.
- **Jacket:** Chrome polyvinylchloride.

Characteristics —
- **Temperature Range:** -20°C to +80°C.
- **Voltage Rating:** 300 Volts.
- **Resistant to:** Acids, alkalis, oil, moisture, solvents and fungus.

Features and Applications —
- Alumylar™ shield with drain wire offers ease of termination and high reliability.
- For sound, broadcast and instrumentation cable applications.

Approvals —
- Recognized under the components program of Underwriters' Laboratories, Inc.
- UL Style 2464.
- Passes VW-1 Vertical Flame Test.
- CSA S-R PVC approval.
- OSHA Acceptable. • Surface Printed.

DWC Part Number	No. of Conductors	AWG Size	No. of Strand	Dia. of Conductor In.	Dia. of Conductor MM	Insulation Thickness In.	Insulation Thickness MM	Jacket Thickness In.	Jacket Thickness MM	Nominal O.D. In.	Nominal O.D. MM	Electrical Properties PF/ ft.*	PF/ Mft.*	PF/ ft.+	PF/ Mft.+	Color Code Chart
1012402	2	24	7/32	.024	.61	.010	.25	.032	.81	.156	3.96	41	135	75	246	4
1012403	3	24	7/32	.024	.61	.010	.25	.035	.89	.168	4.27	30	98.4	42	138	2
1012404	4	24	7/32	.024	.61	.010	.25	.035	.89	.180	4.57	30	98.4	42	138	1
1012405	5	24	7/32	.024	.61	.010	.25	.035	.89	.190	4.83	30	98.4	42	138	1
1012406	6	24	7/32	.024	.61	.010	.25	.035	.89	.205	5.21	30	98.4	42	138	1
1012407	7	24	7/32	.024	.61	.010	.25	.035	.89	.205	5.21	30	98.4	42	138	1
1012408	8	24	7/32	.024	.61	.010	.25	.035	.89	.220	5.59	30	98.4	42	138	1
1012409	9	24	7/32	.024	.61	.010	.25	.035	.89	.240	6.10	30	98.4	42	138	1
1012410	10	24	7/32	.024	.61	.010	.25	.035	.89	.250	6.35	30	98.4	42	138	1
1012415	15	24	7/32	.024	.61	.010	.25	.035	.89	.280	7.11	30	98.4	42	138	2
1012420	20	24	7/32	.024	.61	.010	.25	.035	.89	.310	7.87	30	98.4	42	138	2
1012425	25	24	7/32	.024	.61	.010	.25	.040	1.02	.370	9.40	30	98.4	42	138	2
1012430	30	24	7/32	.024	.61	.010	.25	.040	1.02	.390	9.91	30	98.4	42	138	2
1012440	40	24	7/32	.024	.61	.010	.25	.040	1.02	.440	11.18	30	98.4	42	138	2
1012450	50	24	7/32	.024	.61	.010	.25	.045	1.14	.490	12.45	30	98.4	42	138	2

MULTI-PAIRED OVERALL ALUMYLAR™ SHIELDED CABLE

ALUMYLAR™ SHIELD 100% COVERAGE

Color Code: Consult Factory for color chart 4.

†Consult Factory for Color Code.

Stock Put Ups:
100 ft.; 500 ft.; 1,000 ft.; bulk.

*Capacitance between conductors.

+Capacitance between one conductor and other conductor connected to shield.

Description —
- **Conductors:** Stranded tinned copper.
- **Insulation:** Color-coded polyvinylchloride.
- **Construction:** Paired conductors with overall shield.
- **Shield:** Alumylar™ overall shield with #24 awg. stranded tinned copper drain wire.
- **Jacket:** Chrome polyvinylchloride.

Characteristics —
- **Temperature Range:** -20°C to +80°C.
- **Voltage Rating:** 300 Volts.
- **Resistant to:** Acids, alkalis, oil, moisture, solvents and fungus.

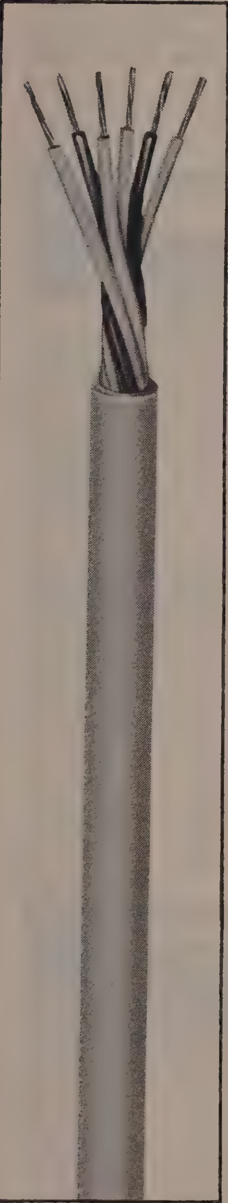
Features and Applications —
- Alumylar™ shield with drain wire offers ease of termination and high reliability.
- Designed for use in instrumentation and computer applications.

Approvals —
- Recognized under the components program of Underwriters' Laboratories, Inc.
- UL Style 2464.
- Passes VW-1 Vertical Flame Test.
- CSA S-R PVC approval.
- OSHA Acceptable. • Surface Printed.

DWC Part Number	No. of Pairs	AWG Size	No. of Strand	Dia. of Conductor In.	Dia. of Conductor MM	Insulation Thickness In.	Insulation Thickness MM	Jacket Thickness In.	Jacket Thickness MM	Nominal O.D. In.	Nominal O.D. MM	Electrical Properties PF/ ft.*	PF/ Mft.*	PF/ ft.+	PF/ Mft.+
1022401	1	24	7/32	.024	.61	.010	.25	.032	.81	.156	3.96	41	135	75	246
1022402	2	24	7/32	.024	.61	.010	.25	.032	.81	.222	5.64	30	98	52	170
1022403	3	24	7/32	.024	.61	.010	.25	.032	.81	.232	5.89	30	98	52	170
1022404	4	24	7/32	.024	.61	.010	.25	.032	.81	.265	6.73	30	98	50	164
1022405	5	24	7/32	.024	.61	.010	.25	.035	.89	.295	7.49	30	98	48	157
1022406	6	24	7/32	.024	.61	.010	.25	.035	.89	.295	7.49	30	98	—	—
1022407	7	24	7/32	.024	.61	.010	.25	.035	.89	.300	7.62	30	98	—	—
1022408	8	24	7/32	.024	.61	.010	.25	.035	.89	.330	8.38	30	98	—	—
1022409	9	24	7/32	.024	.61	.010	.25	.035	.89	.340	8.64	30	98	—	—
1022410	10	24	7/32	.024	.61	.010	.25	.040	1.02	.380	9.65	30	98	—	—
1022415	15	24	7/32	.024	.61	.010	.25	.040	1.02	.425	10.80	30	98	—	—
1022419	19	24	7/32	.024	.61	.010	.25	.040	1.02	.450	11.43	30	98	—	—
1022425	25	24	7/32	.024	.61	.010	.25	.045	1.14	.515	13.08	30	98	—	—
1022450†	50	24	7/32	.024	.61	.010	.25	.050	1.27	.700	17.78	30	98	—	—

Communication, Audio and RS232 Type Cables

● MULTI-CONDUCTOR UNSHIELDED ® & CSA APPROVED.



Description —
- **Conductors:** Stranded tinned copper.
- **Insulation:** Color-coded polyvinylchloride.
- **Construction:** Conductors are cabled.
- **Jacket:** Overall grey polyvinylchloride jacket.

Characteristics —
- **Temperature Rating:** 80°C.
- **Voltage Rating:** 300 Volts.
- **Resistant to:** Acids, alkalis, oil, moisture, solvents, and fungus.

Features and Applications —
- Designed for control & processing systems; communications, instrumentation, and audio systems.
- Internal wiring and external interconnection of electronic equipment.

Approvals —
- Recognized under the components program of Underwriters' Laboratories, Inc.
- UL Style 2464—80°C-300 Volts.
- Passes VW-1 Vertical Flame Test.
- CSA Approved.
- OSHA Acceptable.
- Surface Printed.

DWC Part No.	No. of Cond.	Awg. Size	Insul. Thick.	Jacket Thick.	Nom. O.D.	Color Code
882002	2	20	.016	.032	.176	1
882003	3	20	.016	.032	.212	1
882004	4	20	.016	.032	.217	1
882005	5	20	.016	.032	.239	1
882006	6	20	.016	.032	.242	1
882007	7	20	.016	.032	.260	1
882008	8	20	.016	.032	.285	1
882009	9	20	.016	.032	.317	1
882010	10	20	.016	.032	.318	1
882012	12	20	.016	.032	.338	1
882015	15	20	.016	.040	.389	2
882020	20	20	.016	.040	.430	1
882025	25	20	.016	.040	.417	1
881802	2	18	.016	.032	.198	1
881803	3	18	.016	.032	.242	2
881804	4	18	.016	.032	.254	1
881805	5	18	.016	.037	.286	1
881806	6	18	.016	.037	.289	1
881807	7	18	.016	.037	.324	1
881808	8	18	.016	.037	.341	1
881809	9	18	.016	.037	.379	1
881810	10	18	.016	.037	.385	1
881812	12	18	.016	.040	.412	2
881815	15	18	.016	.045	.465	2
881819	19	18	.016	.045	.505	2
881820	20	18	.016	.045	.511	1
881825	25	18	.016	.060	.600	2
881602	2	16	.031	.032	.308	2
881603	3	16	.031	.032	.329	2
881604	4	16	.031	.045	.375	2
881605	5	16	.031	.045	.405	2
881606	6	16	.031	.045	.410	1
881607	7	16	.031	.045	.455	2
881608	8	16	.031	.045	.495	2
881609	9	16	.031	.045	.500	2
881610	10	16	.031	.045	.534	1
881612	12	16	.031	.060	.610	2
881615	15	16	.031	.060	.670	2
881619	19	16	.031	.065	.700	2
881620	20	16	.031	.065	.757	1
881625	25	16	.031	.065	.850	2

DWC Part No.	No. of Cond.	Awg. Size	Insul. Thick.	Jacket Thick.	Nom. O.D.	Color Code
882402	2	24	.010	.032	.160	3
882403	3	24	.010	.032	.165	3
882404	4	24	.010	.032	.180	3
882406	6	24	.010	.032	.205	3
882408	8	24	.010	.032	.220	3
882410	10	24	.010	.032	.245	3
882415	15	24	.010	.032	.275	3
882420	20	24	.010	.032	.300	3
882425	25	24	.010	.032	.340	3
882430	30	24	.010	.032	.360	3
882440	40	24	.010	.032	.400	3
882450	50	24	.010	.032	.440	3
882460	60	24	.010	.032	.470	3
882470	70	24	.010	.032	.510	3
882480	80	24	.010	.032	.530	3
882490	90	24	.010	.032	.560	3
882400	100	24	.010	.050	.640	3
882202	2	22	.010	.032	.160	1
882203	3	22	.010	.032	.164	1
882204	4	22	.010	.032	.182	1
882205	5	22	.010	.032	.194	1
882206	6	22	.010	.032	.205	1
882207	7	22	.010	.032	.214	1
882208	8	22	.010	.032	.229	1
882209	9	22	.010	.032	.244	1
882210	10	22	.010	.032	.264	1
882212	12	22	.010	.032	.264	1
882215	15	22	.010	.040	.330	2
882218	18	22	.010	.040	.340	2
882220	20	22	.010	.040	.345	2
882224	24	22	.010	.040	.365	2
882225	25	22	.010	.040	.370	2
882230	30	22	.010	.040	.400	2
882240	40	22	.010	.040	.455	2
882250	50	22	.010	.045	.500	2
882260	60	22	.010	.045	.536	2
882270	70	22	.010	.050	.610	3
882280	80	22	.010	.050	.630	3
882290	90	22	.010	.050	.660	3
882200	100	22	.010	.050	.710	3

® VW-1 OSHA

Stock Putups: 100 ft.; 500 ft.; 1,000 ft., Bulk.

Color Code: Consult factory for color charts 2 and 3.

Color Variations: Jacket or color code variations available upon request.

COLOR CODE CHART 1

1—Black
2—Red
3—Green
4—White
5—Brown
6—Blue
7—Orange
8—Yellow
9—Purple
10—Slate
11—Pink
12—Tan

DEARBORN WIRE AND CABLE CO.

MIL-W-16878D Teflon* Wire and Cable

Hookup Wire

TYPE E, 600 VOLT

Single conductor, stranded or solid silver plated copper, extruded TFE Teflon insulation. **Voltage rating:** 600 volts. **Temperature rating:** −65°C to +200°C.

TYPE EE, 1000 VOLT

Same as Type E, except for insulation thickness and voltage rating of 1000 volts.

TYPE E, 600 VOLT

DEARBORN NO.	TYPE & CONDUCTOR AWG SIZE & STRAND'G		NOM. WALL THICKNESS	NOM. O.D.	STOCK COLORS 100′	1000′
13207	E-32	7/40	.010	.029	0-9	0-9
13007	E-30	7/38	.010	.032	0-9	0-9
12807	E-28	7/36	.010	.036	0-9	0-9
12619	E-26	19/38	.010	.040	0-9	0-9 & 90-98
12607	E-26	7/34	.010	.039	0-9	0-9 & 90-98
12419	E-24	19/36	.010	.045	0-9	0-9 & 90-98
12407	E-24	7/32	.010	.044	0-9	0-9 & 90-98
12219	E-22	19/34	.010	.052	0-9	0-9 & 90-98
12207	E-22	7/30	.010	.050	0-9	0-9 & 90-98
12019	E-20	19/32	.010	.060	0-9	0-9 & 90-98
12007	E-20	7/28	.010	.058	0-9	0-9 & 90-98
11819	E-18	19/30	.010	.070	0-9	0-9 & 90-98
11807	E-18	7/26	.010	.068	0-9	0-9 & 90-98
11619	E-16	19/29	.011	.077	0-9	0-9 & 90-98
11419	E-14	19/27	.011	.094	0-9	0-9 & 90-98
11219	E-12	19/25	.012	.113	0-9	0-9 & 90-98
11037	E-10	37/26	.012	.135	0-9	0-9 & 90-98
SOLID CONDUCTOR						
13201	E-32	1/32	.010	.029	0-9	0-9
13001	E-30	1/30	.010	.032	0-9	0-9
12801	E-28	1/28	.010	.035	0-9	0-9
12601	E-26	1/26	.010	.039	0-9	0-9
12401	E-24	1/24	.010	.044	0-9	0-9
12201	E-22	1/22	.010	.050	0-9	0-9
12001	E-20	1/20	.010	.058	0-9	0-9

STOCK PUT UP: 100 FT., 1000 FT., AND BULK

TYPE EE, 1000 VOLT

DEARBORN NO.	TYPE & CONDUCTOR AWG SIZE & STRAND'G		NOM. WALL THICKNESS	NOM. O.D.	STOCK COLORS 100′	1000′
23207	EE-32	7/40	.015	.039	0-9	0-9
23007	EE-30	7/38	.015	.042	0-9	0-9
22807	EE-28	7/36	.015	.045	0-9	0-9
22607	EE-26	7/34	.015	.049	0-9	0-9 & 90-98
22619	EE-26	19/38	.015	.050	0-9	0-9 & 90-98
22407	EE-24	7/32	.015	.054	0-9	0-9 & 90-98
22419	EE-24	19/36	.015	.055	0-9	0-9 & 90-98
22207	EE-22	7/30	.015	.060	0-9	0-9 & 90-98
22219	EE-22	19/34	.015	.062	0-9	0-9 & 90-98
22007	EE-20	7/28	.015	.068	0-9	0-9 & 90-98
22019	EE-20	19/32	.015	.070	0-9	0-9 & 90-98
21819	EE-18	19/30	.015	.079	0-9	0-9 & 90-98
21619	EE-16	19/29	.016	.089	0-9	0-9 & 90-98
21419	EE-14	19/27	.017	.105	0-9	0-9 & 90-98
21219	EE-12	19/25	.017	.124	0-9	0-9 & 90-98
21037	EE-10	37/26	.017	.145	0-9	0-9 & 90-98
28133	EE-8	133/29	.020	.207	0,2,9	0,2,9

STOCK PUT UP: 100 FT., 1000 FT., AND BULK

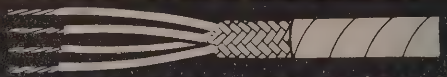
Color Code: For colors 0-9, see color chart at bottom of opposite page. For colors 90-98, consult factory.

Shielded Cables

- **TEFLON TAPE WRAP JACKET OVER SHIELD**
  Sintered wrapped white Teflon tape jacketed overall.
- **FEP EXTRUDED JACKET OVER SHIELD**
  Tough abrasion resistant extruded white FEP Teflon jacket overall.

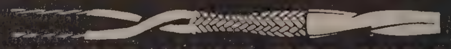
Each conductor stranded silver plated copper, Type E extruded TFE Teflon .010″ color coded insulation. Braided silver plated copper shield, 90% coverage. **Voltage rating:** 600 volts. **Temperature rating:** −65°C to +200°C. Resistant to acids, alkalis, oil, flame, moisture, solvents and fungus.

*Dupont T.M.



TEFLON TAPE WRAP OVERALL

DEARBORN NO.	NO. OF COND.	CONDUCTOR AWG SIZE	CONDUCTOR STRANDING	NOM O.D. AT MAX. WIDTH HIGH POINT	PUT UP (FT.)
62401	1	24	19/36	.095	100 & 1000
62402	2	24	19/36	.140	100 & 1000
62403	3	24	19/36	.147	100 & 1000
62404	4	24	19/36	.159	100 & 1000
62201	1	22	19/34	.102	100 & 1000
62202	2	22	19/34	.154	100 & 1000
62203	3	22	19/34	.162	100 & 1000
62204	4	22	19/34	.176	100 & 1000
62001	1	20	19/32	.110	100 & 1000
62002	2	20	19/32	.170	100 & 1000
62003	3	20	19/32	.175	100 & 1000
62004	4	20	19/32	.213	100 & 1000
61801	1	18	19/30	.120	100 & 1000
61802	2	18	19/30	.190	100 & 1000
61803	3	18	19/30	.219	100 & 1000
61804	4	18	19/30	.237	100 & 1000
61601	1	16	19/29	.130	100 & 1000
61602	2	16	19/29	.230	100 & 1000
61603	3	16	19/29	.240	100 & 1000
61604	4	16	19/29	.270	100 & 1000



EXTRUDED JACKET OVER SHIELD

DEARBORN NO.	NO. OF COND.	CONDUCTOR AWG SIZE	CONDUCTOR STRANDING	NOM O.D. AT MAX. WIDTH HIGH POINT	PUT UP (FT.)
72401	1	24	19/36	.085	100 & 1000
72402	2	24	19/36	.130	100 & 1000
72403	3	24	19/36	.135	100 & 1000
72201	1	22	19/34	.091	100 & 1000
72202	2	22	19/34	.150	100 & 1000
72203	3	22	19/34	.158	100 & 1000
72001	1	20	19/32	.100	100 & 1000
72002	2	20	19/32	.168	100 & 1000
72003	3	20	19/32	.178	100 & 1000
71801	1	18	19/30	.110	100 & 1000
71802	2	18	19/30	.188	100 & 1000
71803	3	18	19/30	.207	100 & 1000
71601	1	16	19/29	.123	100 & 1000
71602	2	16	19/29	.220	100 & 1000
71603	3	16	19/29	.235	100 & 1000

STYLE 1007, U.L. HOOK-UP WIRE

Voltage rating: 300 Volts. **Temperature rating:** −10°C to +80°C. 1/64″ Polyvinylchloride insulation over stranded tinned copper.

STYLE 1061, U.L. SEMI-RIGID BUSINESS MACHINE WIRE

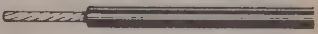
Voltage rating: 300 Volts. **Temperature rating:** −10°C to +80°C. .009″ Polyvinylchloride insulation over solid or stranded tinned copper.

"TEW" FLAME RETARDANT, FR-1 STYLES 1015, 1028, 1283, 1284 600 VOLT, 105°C

The polyvinylchloride insulation used on this series has the necessary additives that enable the wire to pass the Vertical Flame Test as prescribed by the Underwriter Laboratories for this UL style. All this wire is imprinted with the symbol FR-1 indicating it is covered by the above specifications. See page 5 for high voltage Flame Resistant wire.

Thermoplastic Insulated Hookup Wire

U.L. AND C.S.A. LISTED



X-L POLYETHYLENE, U.L. STYLE 3173, 125°C — 600 VOLT

The Polyethylene insulation used on this series of lead wire is chemically cross-linked, which increases the moisture resistance, solvent resistance and aging characteristics. When momentary high temperatures caused by overloads or shorts occur, the insulation does not deform as quickly as if not cross-linked. Typical applications include small motors, control panels, dry transformers, etc. **Recommended maximum baking cycles:** 300°F for 24 hrs. — 325°F for 12 hrs. — 350°F for 8 hours.

300 VOLT, 80°C, U.L. STYLE 1007

DEARBORN PART NO.	AWG SIZE	STRAND-ING	NOM. O.D.	NOM. WALL THICK.
792801	28	1/28	.047	1/64
792807	28	7/36	.049	1/64
792601	26	1/26	.050	1/64
792607	26	7/34	.052	1/64
792607F	26	7/34	.052	1/64
792401	24	1/24	.055	1/64
792407	24	7/32	.058	1/64
792407F	24	7/32	.058	1/64
792201	22	1/22	.059	1/64
792207	22	7/30	.065	1/64
792207F	22	7/30	.065	1/64
792001	20	1/20	.066	1/64
792010	20	10/30	.070	1/64
792010F	20	10/30	.070	1/64
791801	18	1/18	.074	1/64
791816	18	16/30	.080	1/64
791816F	18	16/30	.080	1/64
791601	16	1/16	.085	1/64
791626	16	26/30	.094	1/64

PUT UP: 500 FT., 1000 FT., AND BULK
STOCK COLORS: 0-9

U.L. SEMIRIGID STYLE 1061

DEARBORN NO.	AWG SIZE	STRAND-ING	NOM. WALL	NOM. O.D.	STANDARD PUT UP (FT.)	STOCK COLORS
422601	26	1/26	.009	.036	500, 1000 & 5000	0-9
422607	26	7/34	.009	.037	500, 1000 & 5000	0-9
422401	24	1/24	.009	.041	500, 1000 & 5000	0-9
422407	24	7/32	.009	.042	500, 1000 & 5000	0-9
422201	22	1/22	.009	.046	500, 1000 & 5000	0-9
422207	22	7/30	.009	.049	500, 1000 & 5000	0-9
422001	20	1/20	.009	.052	500, 1000 & 5000	0-9
422007	20	7/28	.009	.057	500, 1000 & 5000	0-9
422010	20	10/30	.009	.057	500, 1000 & 5000	0-9
421801	18	1/18	.009	.060	500, 1000 & 5000	0-9
421807	18	7/26	.009	.067	500, 1000 & 5000	0-9
421816	18	16/30	.009	.067	500, 1000 & 5000	0-9
421626	16	26/30	.009	.076	500, 1000 & 5000	0-9

XL - 125° C - 600 VOLT U.L. STYLE 3173

DEARBORN NO.	AWG SIZE	STRAND-ING	NOM. WALL	NOM. O.D.	STANDARD PUT UP (FT.)	STOCK COLORS
752207	22	7/30	1/32	.094	1000 & 5000	0 only
752010	20	10/30	1/32	.102	1000 & 5000	0 only
751816	18	16/30	1/32	.112	1000 & 5000	0 only
751626	16	26/30	1/32	.125	1000 & 5000	0 only
751441	14	41/30	1/32	.143	1000 & 5000	0 only
751265	12	65/30	1/32	.164	1000 & 3000	0 only
751000	10	105/30	1/32	.187	1000 & 2000	0 only

Call Or Write For Full-Line Catalogs And Cross-Reference Guide.

FR-1 105° C — 600 VOLT, U.L. STYLES 1015, 1028, 1283, 1284

DEARBORN NO.	AWG SIZE	STRAND-ING	NOM. O.D.	NOM. WALL THICK.	UL TYPE
782601	26	1/26	.080	1/32	1015
782607	26	7/34	.083	1/32	1015
782607F	26	7/34	.083	1/32	1015
782401	24	1/24	.085	1/32	1015
782407	24	7/32	.088	1/32	1015
782407F	24	7/32	.088	1/32	1015
782201	22	1/22	.093	1/32	1015
782207	22	7/30	.095	1/32	1015
782207F	22	7/30	.095	1/32	1015
782001	20	1/20	.098	1/32	1015
782010	20	10/30	.100	1/32	1015
782010F	20	10/30	.100	1/32	1015
781801	18	1/18	.104	1/32	1015
781816	18	16/30	.110	1/32	1015
781816F	18	16/30	.110	1/32	1015
781601	16	1/16	.115	1/32	1015
781626	16	26/30	.124	1/32	1015
781401	14	1/14	.130	1/32	1015
781441	14	41/30	.141	1/32	1015
781201	12	1/12	.145	1/32	1015
781265	12	65/30	.160	1/32	1015
781001	10	1/10	.166	1/32	1015
781000	10	105/30	.194	1/32	1015
788133	8	133/29	.255	3/64	1028
786133	6	133/27	.335	4/64	1283
784133	4	133/25	.390	4/64	1283
782133	2	133/23	.460	4/64	1283
782665	2	665/30	.470	4/64	1283
781259	1	259/25	.525	5/64	1284
781836	1	836/30	.535	5/64	1284
780001	1/0	1045/30	.580	5/64	1284
780002	2/0	1330/30	.640	5/64	1284
780003	3/0	1661/30	.680	5/64	1284
780004	4/0	2107/30	.785	5/64	1284

We Will Be Pleased To Quote On Your Blueprints Or Specifications.

(F) After number indicates fused or prebonded.

PUT UP: STYLES 1015 AND 1028: 500 FT., 1000 FT., AND BULK; STYLES 1283 AND 1284: 100 FT. AND 1000 FT.; STYLE 1007: 1000 FT. AND 5000 FT.
STOCK COLORS: STYLES 1015 AND 1028: 0-9; STYLES 1283 AND 1284: 0, 2, 9; STYLE 1007: 0-9.

COLOR CODE ON HOOKUP WIRE: 0—Black • 1—Brown • 2—Red • 3—Orange • 4—Yellow • 5—Green • 6—Blue • 7—Violet • 8—Grey • 9—White

Consult Factory for Further Details on Striped Colors

DEARBORN WIRE AND CABLE CO.

Corona Resistant High Voltage Wire

200°C SILICONE HIGH TEMP, HIGH VOLTAGE WIRE

CONDUCTORS: All conductors are tinned copper, flexible stranding. Also available on special order with: silver plated copper conductors, nickel plated copper conductors and pure nickel conductors. Pure nickel increases rating to 260°C (500°F). **INSULATION:** High temperature, high voltage silicone rubber for easy stripping. High dielectric strength, flame retardant.

* UL STYLE NO. 3239 SILICONE RUBBER INSULATION 150°C, 10 KVDC THROUGH 40 KVDC

Note: All cables can be quoted with solid conductors or with extra flexible (rope lay) stranding in bare copper or tinned copper upon request.

HIGH TEMP., HIGH VOLTAGE SILICONE WIRE

DEARBORN PART NO.	AWG SIZE	STRANDING	WALL THICK.	NOM. O.D.	D.C. VOLTAGE	UL TYPE
392240	22	7/30TC	.040	.111	10KV	*3239
392245	22	7/30TC	.045	.121	15KV	*3239
392250	22	7/30TC	.050	.131	20KV	*3239
392262	22	7/30TC	.062	.181	30KV	*3239
392275	22	7/30TC	.075	.181	30KV	*3239
392297	22	7/30TC	.097	.225	40KV	*3239
392040	20	10/30TC	.040	.118	10KV	*3239
392045	20	10/30TC	.045	.128	15KV	*3239
392050	20	10/30TC	.050	.138	20KV	*3239
392062	20	10/30TC	.062	.162	25KV	*3239
392075	20	10/30TC	.075	.188	30KV	*3239
392097	20	10/30TC	.097	.232	40KV	*3239
391845	18	16/30TC	.045	.140	15KV	*3239
391862	18	16/30TC	.062	.174	25KV	*3239
391897	18	16/30TC	.097	.244	40KV	*3239
391645	16	26/30TC	.045	.152	15KV	*3239
391662	16	26/30TC	.062	.186	25KV	*3239
391697	16	26/30TC	.097	.256	40KV	*3239
391445	14	41/30TC	.045	.170	15KV	*3239
391462	14	41/30TC	.062	.204	25KV	*3239
391497	14	41/30TC	.097	.274	40KV	*3239
391245	12	65/30TC	.045	.186	15KV	*3239
391297	12	65/30TC	.097	.290	40KV	*3239
391045	10	105/30TC	.045	.220	15KV	*3239
391097	10	105/30TC	.097	.324	40KV	*3239
390845	8	133/29TC	.045	.256	15KV	none
390897	8	133/29TC	.097	.360	40KV	none
390645	6	133/27TC	.045	.300	15KV	none
390662	6	133/27TC	.062	.335	25KV	none
390462	4	133/25	.062	.381	25KV	none
390262	2	259/26	.062	.449	25KV	none

COLORS: Natural. Consult factory for availability of other colors.

PUT UP: 100 FT., 1000 FT. AND BULK

Kynar Insulated Hookup Wire for Wire Wrap Applications

Especially suited for computer, business machine usage and other areas where space is limited. (For automatic point to point application.)

SPECIFICATIONS: The conductor is OFHC (Oxygen Free High Conductivity) Annealed Copper, Silver Plated.
The insulation is Kynar*, a Vinylidene Fluoride Plastic with unique characteristics.

KYNAR HOOK-UP WIRE

DEARBORN NO.	AWG SIZE	INSUL. THICK.	NOM. O.D.	UL STYLE	STOCK COLORS AVAILABLE
773001	30(1)	.005	.0195	1422	0, 1, 2, 3, 4, 5, 6, 8, 9
772801	28(1)	.0035	.020	1423	0, 1, 2, 5, 6, 9
772601	26(1)	.005	.027	1422	2, 4, 5, 6, 8, 9
772401	24(1)	.010	.042	1327	2, 4, 5, 6, 9

ALL SUPPLIED ON SPECIALLY DESIGNED LARGE HUB REELS, 1000 FT. MINIMUM

CODE COLORING: 0—Black • 1—Brown • 2—Red • 3—Orange • 4—Yellow • 5—Green • 6—Blue • 7—Violet • 8—Gray • 9—White

MIL-SPEC QQ-W-343/S ASTM-B-33 TINNED COPPER FLAT BRAID

Tinned copper strands, woven and rolled flat to specific width depending on construction, number of strands, etc. Used for bonding, straps, grounding, or connecting moving parts. Recommended for high current use.

TINNED COPPER FLAT BRAID

DEARBORN PART NO.	NOM. FLAT WIDTH INCHES	NOM. THICKNESS INCHES	STRANDING	CARRIERS	APPROX. AWG	APPROX. CMA	CURRENT CAPACITY AMPS*	PUT UPS
91221	.025	.015	8/36	8-1	27	200	4	2, 5, 6
91222	1/32	.020	16/36	16-1	24	400	6	2, 5, 6
91223	3/64	.020	24/36	24-1	22	600	7	2, 5, 6
91224	3/32	.020	48/36	16-3	19	1,200	11	2, 5, 6
91229	1/8	.020	72/36	24-3	18	1,800	16	2, 5, 6
91230	3/16	.020	120/36	24-5	15	3,000	25	2, 5, 6
91231	1/4	.030	168/36	24-7	14	4,200	32	2, 5, 6
91232	3/8	.030	288/36	48-6	12	7,200	46	2, 5, 6
91233	1/2	.030	384/36	48-8	10	9,600	53	2, 5, 6
91234	3/4	.040	816/36	48-17	7	20,800	85	1, 2, 6
91235	1	.045	816/36	48-17	7	20,800	85	1, 2, 6
91239	1 3/8	.050	336/30	48-7	5	33,700	100	1, 2, 6
91240	1 1/2	.060	528/30	48-11	3	53,064	150	1, 2, 6
91241	1 3/4	.080	1248/30	48-26	00	125,424	280	1, 2, 6
91242	2	.120	1536/30	48-32	000	154,368	310	1, 2, 6
91243	3	.200	2256/30	48-47	0000	225,000	390	1, 2, 6

* Recommended Current Carrying Capacity in Amps.

TEST PROD LEAD WIRE

One conductor, tinned soft annealed copper, extra flexible stranding, covered with separator, and a color coded rubber insulation. Offers extreme flexibility and limpness to facilitate testing. Used as test leads for all types of electronic and electrical test equipment. Use the No. 18 gauge for heavy duty work such as television and therapeutic equipment testing.

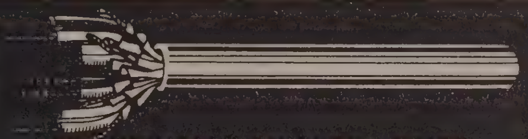
DEARBORN NO.	SIZE AWG	STRANDING	NOM. WALL THICK.	WORKING VOLTAGE	BREAKDOWN VOLTAGE	NOM. O.D.
982041	20	41/36	.046	3000 V	12,500 V	.137
981865	18	65/36	.047	5000 V	20,000 V	.144

STANDARD PUT UPS: 100 Ft., 500 Ft., 1000 Ft.
STOCK COLORS: Black and Red.

Data and Audio Cable

INDIVIDUALLY SHIELDED MULTIPLE PAIRS

Stranded tinned copper conductors, (see table), insulated with high density color-coded *.010" Polyethylene, conductors twisted into pairs. Along with a †22 gauge stranded tinned copper drain wire, each pair is shielded with a Mylar supported aluminum foil shield. Covered with a Grey PVC jacket overall.



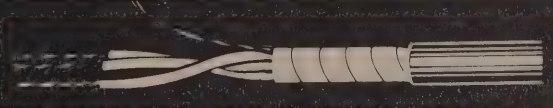
INDIVIDUALLY SHIELDED PAIRS
STRANDED CONDUCTORS

DEARBORN NO.	NO. OF PAIRS	NO. COND.	SIZE & STRANDING	NOM. JKT. THICK.	NOM. O.D.	STOCK PUT UP (FT.)
962201	1	2	22-7/30 ‡	.020	.135	100, 500 & 1000
962203	3	6	22-7/30	.025	.252	100, 500 & 1000
962206	6	12	22-7/30	.030	.342	100, 500 & 1000
962209	9	18	22-7/30	.035	.410	100, 500 & 1000
962211	11	22	22-7/30	.040	.457	100, 500 & 1000
962215	15	30	22-7/30	.040	.523	100, 500 & 1000
962219	19	38	22-7/30	.050	.570	100, 500 & 1000
962227	27	54	22-7/30	.055	.687	100, 500 & 1000
961803	3	6	18-16/30	.035	.372	1000
961806	6	12	18-16/30	.045	.555	1000
961809	9	18	18-16/30	.055	.620	1000
961812	12	24	18-16/30	.070	.765	1000
961815	15	30	18-16/30	.070	.830	1000

Consult Factory for color combination of pairs.

FOIL SHIELDED, PLASTIC JACKETED, MULTI-CONDUCTOR CABLE

Stranded tinned copper conductors, insulated with .015" thick (.025" on No. 16, .032" on No. 14) color coded Polyethylene insulation. Conductors are cabled, along with a 22 ga. (No. 20 drain on 18, No. 18 on 16, and No. 16 on 14) tinned copper stranded drain wire laid parallel, and are shielded with aluminum foil. Mylar backed shield. Gray PVC jacket overall.



FOIL SHIELDED, MULTI-CONDUCTOR CABLE

DEARBORN NO.	NO. COND.	AWG SIZE	STRAND-ING	NOM. JKT. THICK.	NOM. O.D.	STOCK PUT UP (FT.)
972202	2	22	7/30	.025	.167	100, 500 & 1000
972203	3	22	7/30	.025	.175	100, 500 & 1000
972204	4	22	7/30	.025	.190	100, 500 & 1000
972002	2	20	10/30	.025	.195	100, 500 & 1000
972003	3	20	10/30	.025	.200	100, 500 & 1000
972004	4	20	10/30	.028	.215	100, 500 & 1000
971802	2	18	16/30	.028	.223	100, 500 & 1000
971803	3	18	16/30	028	.236	100, 500 & 1000
971804	4	18	16/30	.028	.250	100, 500 & 1000
971602	2	16	26/30	.030	.275	100, 500 & 1000
971603	3	16	26/30	.030	.300	100, 500 & 1000
971402	2	14	41/30	.035	.340	100, 500 & 1000
971403	3	14	41/30	.035	.400	100, 500 & 1000
971202	2	12	65/30	.035	.400	100, 500 & 1000

Color Code: 1—Black • 2—Clear or White • 3—Red • 4 Green

Cross-Linked Irradiated Hookup Wire

MIL-W-16878/1—TYPE B

XLV U.L. STYLE 1429

DEARBORN NO.	MIL TYPE	U.L. STYLE	AWG SIZE STRANDING	NOM. INSUL. THICK'S	NOM. O.D.	STOCK COLORS	STOCK PUT UP (FT)
252807	B-28	1429	28 (7/36)	.010	.035	0-9	1000
252607	B-26	1429	26 (7/34)	.010	.039	0-9	1000
252607F	B-26	1429	26 (7/34)	.010	.039	0-9	1000
252407	B-24	1429	24 (7/32)	.010	.044	0-9	1000
252407F	B-24	1429	24 (7/32)	.010	.044	0-9	1000
252419	B-24	1429	24 (19/36)	.010	.045	0-9	1000
252207	B-22	1429	22 (7/30)	.010	.050	0-9	1000
252207F	B-22	1429	22 (7/30)	.010	.050	0-9	1000
252219	B-22	1429	22 (19/34)	.010	.051	0-9	1000
252007	B-20	1429	20 (7/28)	.010	.058	0-9	1000
252007F	B-20	1429	20 (7/28)	.010	.058	0-9	1000
252019	B-20	1429	20 (19/32)	.010	.059	0-9	1000
251819	B-18	1429	18 (19/30)	.010	.068	9 only	1000
251807	B-18	1429	18 (7/26)	.010	.068	9 only	1000
251807F	B-18	1429	18 (7/26)	.010	.068	9 only	1000
251619	B-16	1429	16 (19/29)	.010	.078	9 only	1000
252601	NOT MIL SPEC TYPE	1429	26 (1)	.010	.039	0-9	1000
252401		1429	24 (1)	.010	.044	0-9	1000
252201		1429	22 (1)	.010	.050	0-9	1000

F — SUFFIX INDICATES FUSED OR PREBONDED STRANDS

Color Code: See chart at bottom of Dearborn page 4.

MIL-W-16878/2—TYPE C

XLV U.L. STYLE 1430

DEARBORN NO.	MIL TYPE	U.L. STYLE	AWG SIZE STRANDING	NOM. INSUL. THICK'S	NOM. O.D.	STOCK COLORS	STOCK PUT UP (FT)
272407	C-24	1430	24 (7/32)	.016	.058	0-9	1000
272407F	C-24	1430	24 (7/32)	.016	.058	0-9	1000
272207	C-22	1430	22 (7/30)	.016	.064	0-9	1000
272207F	C-22	1430	22 (7/30)	.016	.064	0-9	1000
272007	C-20	1430	20 (7/28)	.016	.072	0-9	1000
272007F	C-20	1430	20 (7/28)	.016	.072	9 only	1000
271819	C-18	1430	18 (19/30)	.016	.082	9 only	1000
271807F	C-18	1430	18 (7/26)	.016	.082	9 only	1000
271619	C-16	1430	16 (19/29)	.016	.092	9 only	1000
271419	C-14	1557	14 (19/27)	.016	.105	9 only	1000
271219	C-12	1557	12 (19/25)	.016	.124	9 only	1000

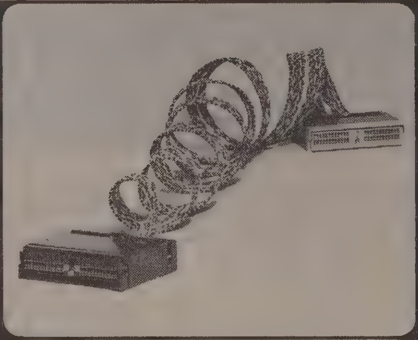
F — SUFFIX INDICATES FUSED OR PREBONDED STRANDS

All above can be supplied in multi-conductor, with shield and XLV jacket or multi-conductor, and XLV jacket.

Color Code: See chart at bottom of Dearborn page 4.

• Woven Cable
• Cable Assemblies
• Wire and Cable Identification

PROMPT DELIVERY, TOP QUALITY, COMPETITIVE COSTS, ANY SPECS



Electronic Woven Cable

- Great flexibility
- Long service life
- Flat and compact
- Any combination of conductors
- Electronics to suit the job
- 20 years aerospace and industrial experience

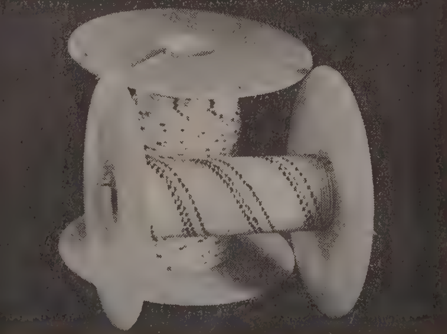
Cable Assemblies

- Hand laid-up or programmed
- Flat or round
- Soldered or crimped terminals
- MIL-Spec or industrial standards
- Braided shields and outer jackets

CG-1704/VRC
(4FT 0IN)
A16A2E4
W16E
SET 710123-9
GSI

Wire & Cable Markers

- Shrinkable or non-shrinkable tubing
- Cable ties
- Logos and special designs
- Colors and materials to enhance any job
- Character height and color to suit
- Mil-Spec materials and procedures



Wire Marking

- Bands, stripes or alphanumerics
- 12 to 30 AWG
- Teflon, PVC or other insulations
- 100 percent spark testing
- For military aircraft and submersibles

GSI

GSI CORPORATION
1917 Greenspring Drive, Timonium, Maryland
Zip Code 21093 • Phone (301) 252-1768

TRANSMISSION CABLES & WIRE PRODUCTS
JSC
HIGHEST QUALITY

JSC WIRE & CABLE

QUALITY WIRE AT THE RIGHT PRICE

BURGESS PLACE, P.O. BOX 248 E
WAYNE, NEW JERSEY 07470

TEL.: (201) 694-6200
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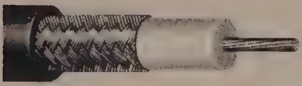
COAXIAL CABLES

6/U

8/U, 8A/U


11/U

58/U, 58A/U, 58C/U

MINI 8/U

59/U, 59B/U

59/U

RG NO.	PART NO.	CENTER CONDUCTOR	DIELECTRIC AND O.D.	SHIELD	JACKET AND O.D.	NOM. IMP. (OHMS)	NOM. VEL. OF PROP.	NOM. CAP. PF/FT
6/U	JF6-06	18 (SOLID) CCS	FPE (.180)	100% FOIL + 58% AL	PVC (.270)	75	78%	17.3
8/U	JPA-08	13 (7/21) BC	PE (.285)	96% BC	PVC (.405)	52	66%	29.6
8A/U	JPA-08R	13 (7/21) BC	PE (.285)	96% BC	NCPVC (.405)	52	66%	29.5
8/U TYPE	JFB-08	13 (7/21) BC	FPE (.285)	80% BC	PVC (.405)	57	78%	22.6
11/U	JPB-11	18 (7/26) BC	PE (.285)	80% BC	PVC (.405)	75	66%	20.5
58/U	JPA-58	20 (SOLID) BC	PE (.116)	96% TC	PVC (.195)	53.5	66%	28.5
58A/U	JPA-58R	20 (19/33) TC	PE (.116)	96% TC	PVC (.195)	50	66%	30.8
58C/U	JPA-58T	20 (19/33) TC	PE (.116)	96% TC	NCPVC (.195)	50	66%	30.8
58/U	JPB-58	20 (SOLID) BC	PE (.116)	80% BC	PVC (.195)	53	66%	28.5
58/U TYPE	JFB-58	20 (SOLID) BC	FPE (.116)	80% BC	PVC (.195)	53	78%	22.0
58A/U TYPE	JFB-58R	20 (19/33) BC	FPE (.116)	80% BC	PVC (.195)	50	78%	26.0
8/U MINI	JFA-08Q	16 (19/29) BC	FPE (.157)	95% BC	PVC (.240)	50	78%	26.0
59/U	JPA-59	22 (SOLID) CCS	PE (.146)	95% BC	PVC (.240)	73	66%	21.0
59B/U	JPA-59S	23 (SOLID) CCS	PE (.146)	95% BC	NCPVC (.240)	75	66%	20.5
59/U	JPB-59	22 (SOLID) CCS	PE (.146)	80% BC	PVC (.240)	73	66%	21.0
59/U	JPC-59	22 (SOLID) CCS	PE (.146)	70% BC	PVC (.240)	73	66%	21.0
59/U TYPE	JFC-59	22 (SOLID) CCS	FPE (.146)	70% BC	PVC (.240)	80	78%	16.3
59/U TYPE	JFG-59	22 (SOLID) CCS	FPE (.146)	100% FOIL + 53% AL	PVC (.240)	80	78%	16.3
59/U TYPE	JFG-59R	20 (SOLID) CCS	FPE (.146)	100% FOIL + 53% AL	PVC (.240)	75	78%	17.3

PARALLEL CORD

TYPE	PART NO.	NUMBER OF CONDUCTORS	CONDUCTOR SIZE	INSULATION AND O.D.
12/2	JSW-12	2	12 (65/30) BC	PVC (.200 x .405)
14/2	JSW-14	2	14 (19/27) BC	PVC (.160 x .255)
16/2	JSW-16	2	16 (19/29) BC	PVC (.120 x .215)
18/2	JSW-18	2	18 (16/30) BC	PVC (.105 x .200)
20/2	JSW-20	2	20 (7/28) BC	PVC (.090 x .185)
22/2	JSW-22	2	22 (7/30) BC	PVC (.068 x .130)
24/2	JSW-24	2	24 (7/32) BC	PVC (.062 x .125)

Judd Wire

DIVISION OF
HIGH VOLTAGE
ENGINEERING

Turnpike Road, Turners Falls, MA 01376
Tel. (413) 863-4357 • TWX 510-290-2147

870 Los Vallecitos Blvd., San Marcos, CA 92069
Tel. (619) 744-7720 • TWX 910-322-1149

PIONEERS IN IRRADIATED WIRE

JUDD WIRE is a diversified wire and cable company offering hook-up wire, multiconductor cable and many specialized products for the electronics industry. Products are available for applications in the temperature range of -55°C to 200°C.

In addition to conventional products JUDD WIRE has pioneered and specializes in the manufacture of irradiation cross linked wire and cable product lines.

JUDD WIRE's design engineers work daily on providing solutions to wire and cable problems. Our customer count on JUDD WIRE to meet their requirements for engineering, manufacturing, testing, and packaging everything from the smallest hook-up wire to complex, state of the art multiconductor cables.

Decades of experience and thousands of design efforts back the commitment of JUDD WIRE to engineer solutions for today and tomorrow's wire and cable needs.

JUDD WIRE APPLICATION GUIDE

- Airframe Wire
- Anticapillary Wire
- Apparatus Wire
- Audio Cable
- Braid Shielded Cable
- Cathodic Protection Cable
- Coaxial Cable
- Communication Cable
- Computer Cable
- Control Cable
- CSA Approved Wire & Cable
- Customized Cable
- Flame Retardant Wire & Cable
- Flat Cable, Bonded
- Flat Cable, Woven
- Foil Shielded Cable
- High Temperature Wire
- High Voltage Wire
- Hook-up Wire
- Instrumentation Cable
- Irradiated Wire & Cable
- Kynar Back Panel Wire
- Low Capacitance Cable
- Medical Cable
- Microphone Cable
- Miniature Cable
- Military Specified Wire & Cable
- Motor Lead Wire
- Multiconductor Cable
- Parallel Cable
- Paired Cable
- Radiation Resistant Wire & Cable
- Ribbon Cable
- RG Coaxial Cable
- RS 232 Cable
- SIS Wire
- Spiral Shielded Cable
- Tefzel Wire
- Telephone Cable
- Test Lead Wire
- Thermocouple Extension Cable
- Tinsel Wire
- Transformer Lead Wire
- Twin Lead Wire
- UL Approved Wire & Cable

PCA THE UNIVERSAL HOOK-UP WIRE

PCA is JUDD WIRE's tradename or an acronym for Polychloroalkene, which is an exclusive irradiation cross-linked polyvinylchloride insulation.

In order to process PVC by electron beam, it is necessary to improve the formulation of the plastic insulation to withstand the high energy electrons that bombard the wire insulation. Electron beam irradiation of the special PCA formula results in a superior thermoset that improves the inherent desirable characteristics of PVC.

Compare the product advantages of PCA with conventional non-irradiated PVC and learn why billions of feet are sold annually to a variety of industries which prefer the superior characteristics and cost savings of JUDD WIRE's PCA hook-up wire.

THE JUDD WIRE PCA hook-up wire cross-reference guide for tri-rated approvals

UL					CSA				MIL-W-16878E			
STYLE NO.	TEMP. RATING	VOLTAGE RATING	AWG WIRE SIZES	AVERAGE WALL THICK.	CLASS	TEMP. RATING	VOLTAGE RATING	AWG WIRE SIZES	SPEC. SHEET	TEMP. RATING	VOLTAGE RATING	AWG WIRE SIZES
1472	80°C	125 V	32-20	.007″	AWM	80°C	125 V	32-16				
1429	80°C	150 V	32-16	.011″	AWM	80°C	150 V	32-12	1	105°C	600 V	32-14
1534	80°C	No Voltage Specified	14	.012″	AWM	80°C	150 V	32-12	1	105°C	600 V	32-14
1536	80°C	No Voltage Specified	12-10	.013″	AWM	80°C	150 V	32-12	1	105°C	600 V	32-14
1787	80°C	300 V	32-16	.011″					1	105°C	600 V	32-14
1430	105°C	300 V	30-16	.016″	REW	105°C	300 V	26-10	2	105°C	1000 V	26-12
1557	105°C	No Voltage Specified	14-10	.016″	REW	105°C	300 V	26-10	2	105°C	1000 V	26-12
3317	105°C	300 V	14-10	.016″	REW	105°C	300 V	26-10	2	105°C	1000 V	26-12
1431	105°C	600 V	30-10 8 6-2	.032″ .051″ .065″	REW	105°C	600 V	24-10	3	105°C	3000 V	24-2

Call or write for complete product catalogs

Judd Wire

DIVISION OF
HIGH VOLTAGE ENGINEERING

Turnpike Road, Turners Falls, MA 01376
Tel. (413) 863-4357 • TWX 510-290-2147
870 Los Vallecitos Blvd., San Marcos, CA 92069
Tel. (619) 744-7720 • TWX 910-322-1149

FLEXRAD 125® HIGH TEMPERATURE HOOK-UP WIRE

FLEXRAD 125 is a flexible irradiation cross-linked polyethylene wire with a high temperature rating of 125°C. This proven high temperature hook-up wire with a flame retardant rating of VW-1 (FR-1), offers excellent abrasion and solder resistance and an unusual ability to withstand exposure to many chemicals and solvents.

FLEXRAD 125 has a variety of uses in many industries. Its high temperature and flame retardant ratings recommend it as a replacement for many other UL and CSA approved wires. It is also approved for military applications under Specification Mil-W-16878, Revision E, slash sheets 14, 15 and 16.

Electrical and electronic component and equipment manufacturers now have an alternative to solve the problems encountered while using conventional PVC. The problems of a limited temperature range, solder iron shrinkback, creeping insulation during automated cut and strip operations, and poor abrasion resistance can now be eliminated by utilizing FLEXRAD 125.

Silver plated copper wire conductors must be used in order to withstand the high heat encountered when processing many fluorocarbon constructions. Fluctuations in the precious metals market over the past several years have caused many users of fluorocarbon insulated wires to review their use of these expensive constructions and seek comparable alternatives that provide similar quality.

FLEXRAD 125, processed with tinned copper conductors, provides an ideal alternative to fluorocarbon insulations for most applications where the maximum operating temperature does not exceed 125°C.

Production problems associated with fluorocarbon insulations, such as poor cold flow, low adhesion, poor cut through resistance, short lengths, limited flexibility, and poor potability, will be alleviated by specifying FLEXRAD 125.

THE JUDD WIRE FLEXRAD 125 cross-reference guide for tri-rated approvals

UL					CSA				MIL-W-16878E			
STYLE NO.	TEMP. RATING	VOLTAGE RATING	AWG WIRE SIZES	AVERAGE WALL THICK.	CLASS	TEMP. RATING	VOLTAGE RATING	AWG WIRE SIZES	SPEC. SHEET	TEMP. RATING	VOLTAGE RATING	AWG WIRE SIZES
3265	125°C	150 V	32-16	.011″	AWM	125°C	150 V	30-16	14	125°C	600 V	32-14
3266	125°C	300 V	32-10	.016″	AWM	125°C	300 V	32-12	15	125°C	1000 V	26-12
3266	125°C	300 V	32-10	.016″	CL 1252	125°C	300 V	22-10	15	125°C	1000 V	26-12
3271	125°C	600 V	30-10 8 6-2	.032″ .047″ .063″	CL 1251	125°C	600 V	22-2	16	125°C	3000 V	26-12
3272	125°C	600 V	26-10 8-4	.032″ .047″	CL 1251	125°C	600 V	22-2	16	125°C	3000 V	26-12

CUSTOM CABLE DESIGN

JUDD WIRE can custom design, or manufacture to your specification, a broad spectrum of special cables. Cables are available without shielding, or with conventional braids, spiral braids, aluminum foils, or conductive plastics. JUDD WIRE's cable jacketing facilities extrude irradiation cross-linked compounds as well as vinyls, nylons, polyethylenes, polyurethanes, and 150°C fluorocarbons. JUDD WIRE is a completely integrated wire and cable manufacturing facility combining technology with superior customer service.

PCA cables offer all the advantages of JUDD WIRE's exclusive irradiation cross-linked polychloro alkene insulation in a multi-conductor package

Manufacturers of computers, data processing equipment, communication systems, and test equipment can use the superior characteristics and cost saving benefits of PCA cables.

THE JUDD WIRE PCA multi-conductor cable cross-reference for tri-rated approvals

CABLE UL STYLE	PRIMARY UL STYLE	CABLE CSA STYLE	PRIMARY MILITARY SPECIFICATION	PRIMARY NOMINAL WALL	JACKET NOMINAL WALL	TEMPERATURE	VOLTAGE RATING	WIRE AWG SIZES
2584	1472	AWM		.007″	.031-.060″	80°C	125 V	30-20
2576	1429	AWM	Mil-W-16878E/1	.011″	.030″	80°C[1]	150 V[2]	30-10
2095	1787		Mil-W-16878E/1	.011″	.015-.060″	80°C[1]	300 V[2]	30-16
2464	1787		Mil-W-16878E/1	.011″	.030-.060″	80°C[1]	300 V[2]	30-16
2517	1430	AWM	Mil-W-16878E/2	.016″	.030-.060″	105°C	300 V[3]	30-10
2586	1431	AWM	Mil-W-16878E/3	.031″	.031-.060″	105°C	600 V[4]	30-10

[1] Military Temperature Rating: 105°C
[2] Military Voltage Rating: 600 V
[3] Military Voltage Rating: 1000 V
[4] Military Voltage Rating: 3000 V

FLEXRAD 125 MULTI-CONDUCTOR CABLES

Industrial Automation and Central Process Computer Control cables manufactured with JUDD WIRE's FLEXRAD 125 primary conductors and irradiation cross-linked polyethylene jacket compound, are a superior instrumentation cable for applications utilizing data processing systems interfaced with manufacturing control equipment.

THE JUDD WIRE FLEXRAD 125 high temperature multi-conductor cable cross-reference guide

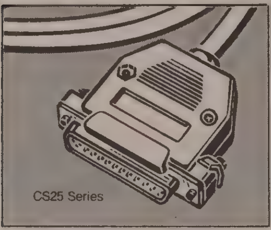
CABLE UL STYLE	CABLE CSA STYLE	PRIMARY MILITARY SPECIFICATIONS	PRIMARY NOMINAL WALL	JACKET NOMINAL WALL	TEMPERATURE	VOLTAGE RATING	WIRE AWG SIZES
4311	AWM	Mil-W-16878E/14	.011″	.030-.045″	125°C	150 V[1]	28-16
4312	AWM	Mil-W-16878E/15	.016″	.030-.060″	125°C	300 V[2]	28-10
4313	AWM	Mil-W-16878E/16	.032″	.045-.080″	125°C	600 V[3]	26-10

Military Voltage : [1] 600 V, [2] 1000 V, [3] 3000 V

Call or write for complete product catalogs

RS-232C Data Cables

L-com


CS25 Series

CDS25 Series

UNSHIELDED — Most economical data cables. Suitable for short distance connections or extensions. Not recommended for areas with fluorescents which radiate noise. Excellent home use.

MODEL	NO. WIRES	GENDER	LGT. FT.	1-4	5-9	10-24
C25MM-2.5	25	Male/Male	2.5	24.85	23.86	22.61
C25MM-5	25	Male/Male	5.0	26.45	25.39	24.07
C25MM-10	25	Male/Male	10.0	29.70	28.51	27.03
C25MM-15	25	Male/Male	15.0	32.95	31.63	29.98
C25MM-25	25	Male/Male	25.0	39.45	37.87	35.90
C25MF-2.5	25	Male/Female	2.5	26.05	25.01	23.71
C25MF-5	25	Male/Female	5.0	27.65	26.54	25.16
C25MF-10	25	Male/Female	10.0	30.90	29.66	28.12
C25MF-15	25	Male/Female	15.0	34.15	32.78	31.08
C25MF-25	25	Male/Female	25.0	40.65	39.02	36.99

FULLY SHIELDED — Meets all FCC system requirements at a most reasonable cost. Incorporates our exclusive inner shield design. Recommended for short, intermediate, and long runs.

MODEL	NO. WIRES	GENDER	LGT. FT.	1-4	5-9	10-24
CS25MM-5	25	Male/Male	5.0	37.00	35.52	33.67
CS25MM-10	25	Male/Male	10.0	41.00	39.36	37.31
CS25MM-15	25	Male/Male	15.0	45.00	43.20	40.95
CS25MM-25	25	Male/Male	25.0	53.00	50.88	48.23
CS25MM-50	25	Male/Male	50.0	73.00	70.08	66.43
CS25MF-5	25	Male/Female	5.0	38.20	36.67	34.76
CS25MF-10	25	Male/Female	10.0	42.20	40.51	38.40
CS25MF-15	25	Male/Female	15.0	46.20	44.35	42.04
CS25MF-25	25	Male/Female	25.0	54.20	52.03	49.32
CS25MF-50	25	Male/Female	50.0	74.20	71.23	67.52

DOUBLE SHIELDED — A premium line, optimum protection from radiation. Mylar foil plus copper braid with inner shield and outer metalized connectors desirable for longer runs.

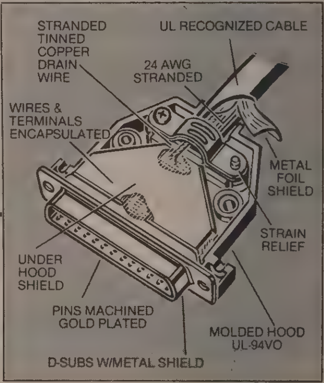
MODEL	NO. WIRES	GENDER	LGT. FT.	1-4	5-9	10-24
CDS25MM-5	25	Male/Male	5.0	51.75	49.68	47.09
CDS25MM-10	25	Male/Male	10.0	56.50	54.24	51.42
CDS25MM-15	25	Male/Male	15.0	61.25	58.80	55.74
CDS25MM-25	25	Male/Male	25.0	70.75	67.92	64.38
CDS25MM-50	25	Male/Male	50.0	94.50	90.72	86.00
CDS25MM-100	25	Male/Male	100.0	142.00	136.32	129.22
CDS25MF-5	25	Male/Female	5.0	52.95	50.83	48.18
CDS25MF-10	25	Male/Female	10.0	57.70	55.39	52.51
CDS25MF-15	25	Male/Female	15.0	62.45	59.95	56.83
CDS25MF-25	25	Male/Female	25.0	71.95	69.07	65.47
CDS25MF-50	25	Male/Female	50.0	95.70	91.87	87.09
CDS25MF-100	25	Male/Female	100.0	143.20	137.47	130.31

RS-232C CABLES BUILT FOR A LIFE TIME OF WEAR & TEAR!

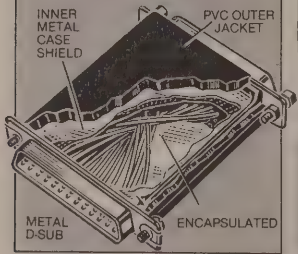
The drawing shows how our CS or CDS series cables are built to last a lifetime. Optimum shielding is achieved by use of a conductive-Mylar-foil or copper braid and a metal cover for the wires under the hood.

In addition, these cables are built to take years of abuse by encapsulating and fusing all twenty-five wires and the connector pins together resulting in an indestructible integral component. We know that almost all cable defects stem from breaks or shorts in the cable end, but this is now totally eliminated — forever!

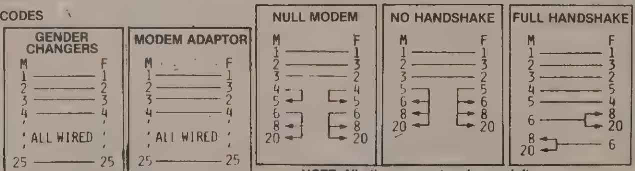
All data cable comply with EIA RS232C standards and have 25 conductors solder connected through to both **D-Sub Connectors.** CS & CDS series cable assemblies are designed to meet or exceed the new FCC requirements for maximum RFI/EMI protection under Docket 20780.


STRANDED TINNED COPPER DRAIN WIRE
UL RECOGNIZED CABLE
24 AWG STRANDED
WIRES & TERMINALS ENCAPSULATED
METAL FOIL SHIELD
STRAIN RELIEF
UNDER HOOD SHIELD
PINS MACHINED GOLD PLATED
MOLDED HOOD UL-94VO
D-SUBS W/METAL SHIELD

RS-232C 25-PIN SHIELDED GENDER/MODEM ADAPTORS


INNER METAL CASE SHIELD
PVC OUTER JACKET
METAL D-SUB
ENCAPSULATED

CODES


GENDER CHANGERS
M F
1 1
2 2
3 3
4 4
ALL WIRED
25 25
MODEM ADAPTOR
M F
1 1
2 3
3 2
4 4
ALL WIRED
25 25
NULL MODEM
M F
1 1
2 3
3 2
4 4
5 5
6 6
8 8
20 20
NO HANDSHAKE
M F
1 1
2 3
3 2
5 5
6 6
8 8
20 20
FULL HANDSHAKE
M F
1 1
2 3
3 2
4 5
5 4
6 8
20
8 6
20

NOTE: All other connector pins are left open.

GENDER CHANGER — needed when cables won't mate. Two models fill all requirements. Ours are shielded and encapsulated; built to last a lifetime. Keep several around for emergency needs.

MODEM ADAPTORS — eliminate the need for modems when connecting local terminals together or terminals to computer. Identical construction to our Gender Changers.

MODEL	DESCRIPTION	1-4	5-9	10-24
MG-25F	Gender Changer, Female-Female	27.95	26.83	25.43
MG-25M	Gender Changer, Male-Male	27.95	26.83	25.43
MA-25A	Modem Adaptor	27.95	26.83	25.43
MA-25B	Null Modem	27.95	26.83	25.43
MA-25C	No Handshake	27.95	26.83	25.43
MA-28D	Full Handshake	27.95	26.83	25.43

NOTE:
Mixing allowed for quantity pricing:

L-com DATA PRODUCTS
1755 Osgood St., No. Andover, MA 01845

TOLL FREE 800-343-1455
Ma 617 682-6936
Telex882157 LCOM UD
FAX 617-689-9484

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D-Sub Connectors/Cables

SOLDER CUP TERMINATIONS — 9 thru 25 positions are provided with goldplated screw machined (male) and stamped metal contacts (female). These connectors **intermate** with all **D-Sub Connectors.**

MODEL	NO. WIRES	GENDER/COLOR		1-9	10-24	25-99
SD9P	9	Male		1.80	1.71	1.58
SD15P	15	Male		2.45	2.33	2.16
SD25P	25	Male		3.65	3.47	3.21
SD9S	9	Female		2.40	2.28	2.11
SD15S	15	Female		3.20	3.04	2.82
SD25S	25	Female		4.85	4.61	4.27

PRINTED CIRCUIT SOLDER PINS — goldplated machined or stamped metal contacts with closed entry seal.

MODEL	NO. WIRES	GENDER/COLOR		1-9	10-24	25-99
SD9P-PC	9	Male		2.25	2.14	1.98
SD15P-PC	15	Male		2.70	2.57	2.38
SD25P-PC	25	Male		3.95	3.75	3.48
SD9S-PC	9	Female		3.15	2.99	2.77
SD15S-PC	15	Female		4.25	4.04	3.74
SD25S-PC	25	Female		5.95	5.65	5.24

PC MOUNT RIGHT ANGLE — for use in high density electronic products. Metal shells provide EMI/RFI shielding.

MODEL	NO. WIRES	GENDER/COLOR		1-9	10-24	25-99
SD9P-RA	9	Male		3.25	3.09	2.86
SD15P-RA	15	Male		3.90	3.71	3.43
SD25P-RA	25	Male		4.95	4.70	4.36
SD9S-RA	9	Female		5.55	5.27	4.88
SD15S-RA	15	Female		6.65	6.32	5.85
SD25S-RA	25	Female		8.45	8.03	7.44

GRAY HOOD — for use with **D-Sub Connectors.** Plastic material. Cable clamp and hardware supplied with all hoods.

MODEL	NO. WIRES	GENDER/COLOR		1-9	10-24	25-99
SDC-9G	9	Gray	(Package of 2)	2.70	2.57	2.38
SDC-15G	15	Gray	(Package of 2)	2.90	2.76	2.55
SDC-25G	25	Gray	(Package of 2)	3.10	2.95	2.73
SDH-50	Conversion hardware for cable use		(Package of 50)	4.95	4.70	4.36
SDG-50	Conversion hardware for panel use		(Package of 50)	8.95	8.50	7.88

BLACK HOOD — for use with **D-Sub Connectors.** Plastic material. Cable clamp and hardware supplied.

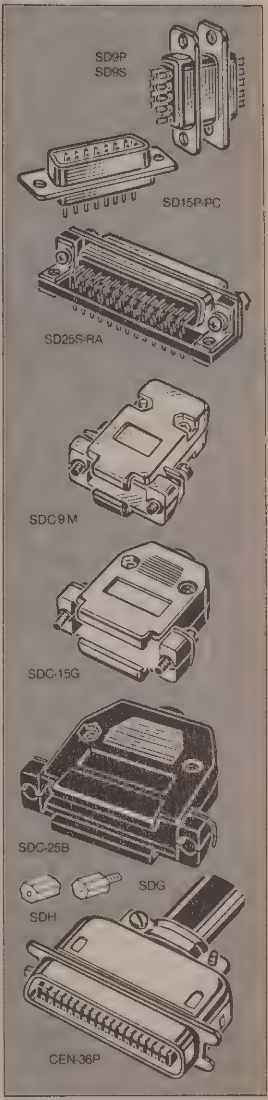
MODEL	NO. WIRES	GENDER/COLOR		1-9	10-24	25-99
SDC-9B	9	Black	(Package of 2)	2.70	2.57	2.38
SDC-15B	15	Black	(Package of 2)	2.90	2.76	2.55
SDC-25B	25	Black	(Package of 2)	3.10	2.95	2.73
SDH-50	Conversion hardware for cable use		(Package of 50)	4.95	4.70	4.36
SDG-50	Conversion hardware for panel use		(Package of 50)	8.95	8.50	7.88

METALIZED HOOD — all plastic surfaces metalplated to provide a conductive surface. Meets EMI requirements.

MODEL	NO. WIRES	GENDER/COLOR		1-9	10-24	25-99
SDC-9M	9	Metalized	(Package of 2)	3.50	3.33	3.08
SDC-15M	15	Metalized	(Package of 2)	3.70	3.52	3.26
SDC-25M	25	Metalized	(Package of 2)	3.90	3.71	3.43
SDH-50	Female-Female hardware for cable use 4-40		(Package of 50)	4.95	4.70	4.36
SDG-50	Female-Male hardware for panel use 4-40		(Package of 50)	8.95	8.50	7.88

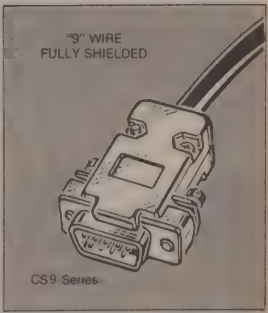
CENTRONICS* TYPE — with metal cover or panel use. Metal covers, goldplated contacts, solder terminations.

MODEL	NO. WIRES	GENDER/COLOR		1-9	10-24	25-99
CEN-36PC	36	Male Cable		7.95	7.55	7.00
CEN-36PF	36	Male Flat Cable		7.95	7.55	7.00
CEN-36PN	36	Male Panel		6.95	6.60	6.12
CEN-36SC	36	Female Cable		8.95	8.50	7.88
CEN-36SF	36	Female Flat Cable		8.95	8.50	7.88
CEN-36SN	36	Female Panel		7.95	7.55	7.00



9-CONDUCTOR RS-449 CABLES — Mylar foil shielded cable and cast aluminun hoods meet EMI (FCC) radiation requirements. All 9 wires terminate to Sub D-9 Pin Connectors.

MODEL	NO. WIRES	GENDER	LGT. FT.	1-4	5-9	10-24
CS9MM-2.5	9	Male/Male	2.5	15.85	15.22	14.42
CS9MM-5	9	Male/Male	5.0	17.25	16.56	15.70
CS9MM-10	9	Male/Male	10.0	20.00	19.20	18.20
CS9MM-15	9	Male/Male	15.0	22.75	21.84	20.70
CS9MM-25	9	Male/Male	25.0	28.25	27.12	25.71
CS9MF-2.5	9	Male/Female	2.5	16.30	15.65	14.83
CS9MF-5	9	Male/Female	5.0	17.65	16.94	16.06
CS9MF-10	9	Male/Female	10.0	20.40	19.58	18.56
CS9MF-15	9	Male/Female	15.0	23.15	22.22	21.07
CS9MF-25	9	Male/Female	25.0	28.65	27.50	26.07



L-com DATA PRODUCTS
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BNC Cables/Connectors

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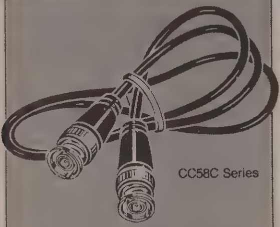
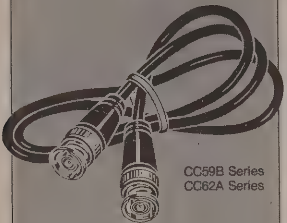
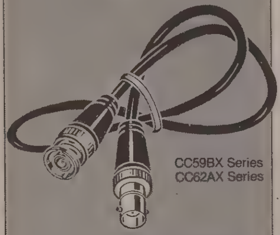
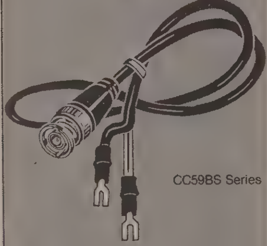
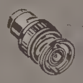
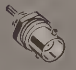

CC58C Series

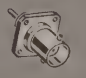

CC59B Series
CC62A Series


CC59BX Series
CC62AX Series


CC59BS Series


BAC-10
BAC-10A


BAC-70


BAC-260

RG58C/U - 50 ohm Coaxial Cables with Molded BNC's for Instrumentation Use

MODEL	GENDER	LENGTH	CABLE	1-4	5-9	10-24
CC58C-1	Male/Male	1.0	RG-58C/U	3.55	3.41	3.23
CC58C-2.5	Male/Male	2.5	RG-58C/U	3.95	3.79	3.59
CC58C-5	Male/Male	5.0	RG-58C/U	4.65	4.46	4.23
CC58C-10	Male/Male	10.0	RG-58C/U	6.05	5.81	5.51
CC58C-15	Male/Male	15.0	RG-58C/U	7.45	7.15	6.78
CC58C-25	Male/Male	25.0	RG-58C/U	10.25	9.84	9.33
CC58C-50	Male/Male	50.0	RG-58C/U	17.25	16.56	15.70
CC58C-100	Male/Male	100.0	RG-58C/U	31.25	30.00	28.44

RG59B/U - 75 ohm Coaxial Cables with Molded BNC's for Video & General Use

MODEL	GENDER	LENGTH	CABLE	1-4	5-9	10-24
CC59B-1	Male/Male	1.0	RG-59B/U	3.65	3.50	3.32
CC59B-2.5	Male/Male	2.5	RG-59B/U	4.00	3.84	3.64
CC59B-5	Male/Male	5.0	RG-59B/U	4.75	4.56	4.32
CC59B-10	Male/Male	10.0	RG-59B/U	6.25	6.00	5.69
CC59B-15	Male/Male	15.0	RG-59B/U	7.75	7.44	7.05
CC59B-25	Male/Male	25.0	RG-59B/U	10.75	10.32	9.78
CC59B-50	Male/Male	50.0	RG-59B/U	18.25	17.52	16.61
CC59B-100	Male/Male	100.0	RG-59B/U	33.25	31.92	30.26

RG62A/U - 93 ohm Coaxial Cables with Molded BNC's for Computer Applications

MODEL	GENDER	LENGTH	CABLE	1-4	5-9	10-24
CC62A-1	Male/Male	1.0	RG-62A/U	3.60	3.46	3.28
CC62A-2.5	Male/Male	2.5	RG-62A/U	3.95	3.79	3.59
CC62A-5	Male/Male	5.0	RG-62A/U	4.70	4.51	4.28
CC62A-10	Male/Male	10.0	RG-62A/U	6.15	5.90	5.60
CC62A-15	Male/Male	15.0	RG-62A/U	7.60	7.30	6.92
CC62A-25	Male/Male	25.0	RG-62A/U	10.50	10.08	9.56
CC62A-50	Male/Male	50.0	RG-62A/U	17.75	17.04	16.15
CC62A-100	Male/Male	100.0	RG-62A/U	32.25	30.96	29.35

Extension Cables with Molded Male & Female BNC Connectors

MODEL	GENDER	LENGTH	CABLE	1-4	5-9	10-24
CC59BX-10	Male/Female	10.0	RG-59B/U	6.45	6.19	5.87
CC59BX-15	Male/Female	15.0	RG-59B/U	7.95	7.63	7.23
CC59BX-25	Male/Female	25.0	RG-59B/U	10.95	10.51	9.96
CC62AX-10	Male/Female	10.0	RG-62A/U	6.35	6.10	5.78
CC62AX-15	Male/Female	15.0	RG-62A/U	7.80	7.49	7.10
CC62AX-25	Male/Female	25.0	RG-62A/U	10.70	10.27	9.74
CC62AX-50	Male/Female	50.0	RG-62A/U	17.95	17.23	16.33
CC62AX-100	Male/Female	100.0	RG-62A/U	32.45	31.15	29.53

Cable Adaptors with Molded BNC and Spade Lug Terminations

MODEL	GENDER	LENGTH	CABLE	1-4	5-9	10-24
CC59BS-1	Male/Spade Lug	1.0	RG-59B/U	3.30	3.17	3.00
CC59BS-2	Male/Spade Lug	2.0	RG-59B/U	3.60	3.46	3.28
CC59BS-4	Male/Spade Lug	4.0	RG-59B/U	4.20	4.03	3.82

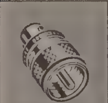
L-COM offers a full line of Data Cables meeting EIA RS-232C and RS-449 standards. Call customer service for information.

BNC Connectors for Panel and Cable Use

			1-9	10-24	25-99
BAC-10	Male Cable Plug for RG-59B/U	(Package of 2)	3.50	3.33	3.08
BAC-10A	Male Cable Plug for RG-58C/U	(Package of 2)	3.70	3.52	3.26
BAC-70	Female Panel Receptacle	(Package of 2)	3.50	3.33	3.08
BAC-260	Female Bulkhead Receptacle	(Package of 2)	3.90	3.71	3.43

BNC Adaptors

		1-4	5-9	10-24
BA-50	BNC Female to UHF Male	2.95	2.83	2.68
BA-60	BNC Male to UHF Female	3.95	3.79	3.59
BA-80	BNC Female to Female	2.95	2.83	2.68
BA-100	BNC Male to Male	2.95	2.83	2.68
BA-230	BNC Female to UHF Female	2.95	2.83	2.68
BA-240	BNC "L" Female to Male	2.95	2.83	2.68
BA-250	BNC "T" Female, Male, Female	4.85	4.66	4.41
BA-90	BNC Female to RCA Male	1.95	1.87	1.77
BA-120	BNC Female to "F" Male	2.15	2.06	1.96
BA-220	BNC Female to "F" Female	2.35	2.26	2.14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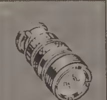
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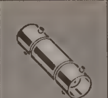
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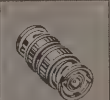
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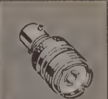
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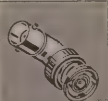
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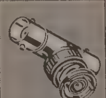
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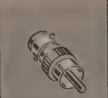
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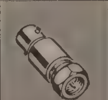
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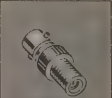
BA-220

L-com DATA PRODUCTS
1755 Osgood St., No. Andover, MA 01845

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Ma 617 682-6936
Telex882157 LCOM UD
FAX 617-689-3484

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MURA®
CORPORATION

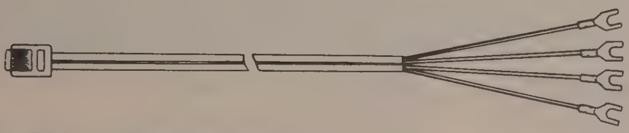
177 CANTIAGUE ROCK ROAD, WESTBURY, N.Y. 11590 • (516) 935-3640 • TELEX: 967 879

MODULAR TELEPHONE CORDS

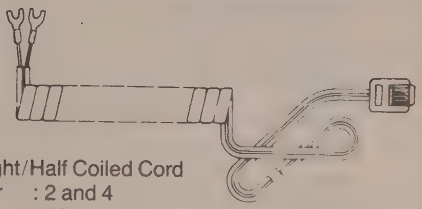
Mura offers a complete combination of modular telephone cord colors, terminations and designs. We also welcome the opportunity to work with you on modifications in developing cord assemblies to your specification.

All products are manufactured to FCC requirements under the license of Western Electric. Modern manufacturing automation and technique assures a high quality and uniformly made product. Each production lot undergoes a MIL-STD-105D single sample inspection at General inspection level II, AQL 1.0% for performance and 1.25% for appearance.

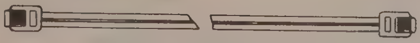
If you are looking for a professional supplier with consistency, economy and reliability, call us.



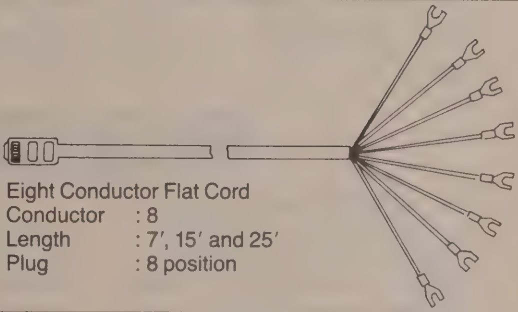
TCO Modular Line Cord
Conductor : 2, 4, and 6
Length : 7′, 15′ and 25′
Plug : 6 position



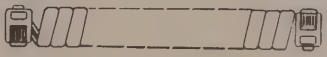
TC10 Half Straight/Half Coiled Cord
Conductor : 2 and 4
Length : 14′
Plug : 6 position



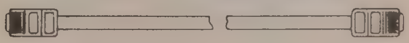
TCO1 Modular Extension Cord
Conductor : 2, 4, and 6
Length : 7′, 15′ and 25′
Plug : 6 position



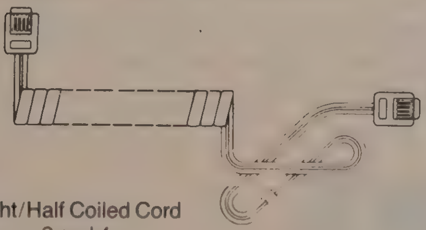
TC14 Eight Conductor Flat Cord
Conductor : 8
Length : 7′, 15′ and 25′
Plug : 8 position



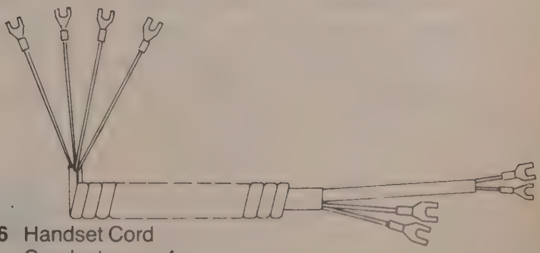
TC8 Modular Handset Cord
Conductor : 4
Length : 7′, 15′ and 25′
Plug : 4 position



TC15 Conductor Flat Cord
Conductor : 8
Length : 7′, 15′ and 25′
Plug : 8 position



TC9 Half Straight/Half Coiled Cord
Conductor : 2 and 4
Length : 14′
Plug : 6 position



TC16 Handset Cord
Conductor : 4
Length : 7′, 15′ and 25′

ALSO AVAILABLE–
Mura offers a complete line of Modular Jack Connectors for 2, 4, 6 and 8 wire connections.

LARGEST SELECTION OF WIRE PRODUCTS

ALUMINUM
BERYLLIUM COPPER
BRASS
BUS WIRE
COPPER CLAD ALUMINUM
DUMET
EXOTIC ALLOYS
INCONEL
INDIUM
KOVAR
LITZ WIRE
LOCKWIRE/MS20995
MOLYBDENUM
MONEL

MAGNET WIRE
  All sizes to 56 AWG Round per— NEMA MW1000, JW1177, MILW583C
  High Temperatures, Colors, Half Sizes, Bondable Wires, Copper, Aluminum and Special Conductors
MULTIFILAR® MAGNET WIRES
  2—20 Conductor, Parallel Bonded, Color Coded
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NICKEL SILVER
NIOBIUM
OFHC COPPER
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PRECIOUS METALS
  Gold, Silver, Platinum
RESISTANCE ALLOYS
  Nickel-Chrome, Copper-Nickel, Nickel-Iron, Manganin
SPECIAL CABLES
STAINLESS STEEL
SUPERCONDUCTOR
TANTALUM
TITANIUM
THERMOCOUPLE WIRE
TUNGSTEN
"WISKER DISK" WINDING AIDS

FACILITIES/SERVICES

CUSTOM ENAMELING

In our custom enameling facilities we enamel most metals and shapes from .072" to .0004" diameter. Insulations are available in special colors, builds and bondable overcoats. Our short run production capabilities provide an alternative to large factory minimums and long deliveries.

DRAWING AND ANNEALING

The addition of drawing and annealing equipment rounds out our custom manufacturing facilities. These new capabilities allow us to fabricate most metals from .064" through .0004" diameter in the quantity you require.

WIRE SHAPING

MWS operates facilities for producing flat, square and rectangular wire. Flat ribbon sizes range from .007" to .075". Shaped wires are available in most metals, bare or enameled.

WIRE SPOOLING

In-house spooling facilities handle every size wire from heavy square and rectangular to ultrafine. This enables you to buy the quantity of wire you need on the spool size you want.

TESTING LABORATORY

Expanded test facility provides complete chemical, physical and electrical test data for applicable military, federal, commercial and customer standards. We can provide you with fast and accurate answers to your technical questions.

CUSTOM PACKAGING

MWS has designed custom molded, individual foam shipping containers for our 2½", 3", 5" and 6" spools. These containers eliminate damage in shipping, and later prevent breakage in storage and production line handling.

CALL TOLL FREE

1 800 423-5097

In California 1 800 992 8553
In Los Angeles Area: (818) 991-8553.

Our goal is to have the wire you need, when you need it. That's why MWS stocks the largest inventory of specialty wires in the country. Over 12,000 types and sizes.

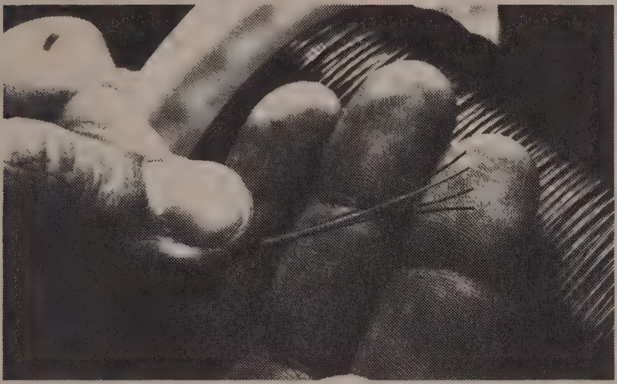
If we don't have the wire you need in stock, we'll custom manufacture it. Our short run capabilities provide an alternative to large factory minimums and long deliveries.

MWS®
Wire Industries

31200 Cedar Valley Dr., Westlake Village, CA 91362

®Multifilar is a registered trademark of MWS Wire Industries.

MULTIFILAR® MAGNET WIRE



Whenever two or more magnet wires travel together, MULTIFILAR magnet wire is worth a closer look. This parallel-bonded, color-coded magnet wire offers many benefits for both small and large users.

Engineers should specify it when they're concerned with space, weight and reliability. Where consistent capacitance and impedance characteristics are needed, MULTIFILAR magnet wire outperforms windings where two separate magnet wires are used.

Production users benefit from increased layer winding speeds, reduced labor and handling. Color-coding assists in conductor identification and reduces termination errors.

MULTIFILAR magnet wires are custom produced by MWS. We guarantee flat, parallel construction in an array of sizes 16 AWG and finer, with up to 20 conductors in some sizes.

Both round and flat constructions are available. Color-coded conductors are available in most insulations with up to 10 different colors in some sizes. Conductor separation is also guaranteed with certain bonding mediums.

For an even closer look, send for a free sample, specifications and ordering information. Production minimums are as low as 500 feet.

GENERAL PRODUCT INFORMATION

Code No.	INSULATIONS	Thermal Rating	NEMA MW1000	MILW583 Class/Type
1	**Polyurethane***	105°C	MW2C	CL-105 T thru T-4
2	**Poly-Nylon***	130°C	MW28C	CL-130 B thru B-4
4	**Modified Polyester**	180°C	MW30C	CL-180 H thru H-4
5	**Armored Polyester**	200°C	MW35C	CL-200 K thru K-4
6	**Solderable Polyester***	180°C	MW26C	CL-155
7	**Formvar**	105°C	MW15C	CL-105 T thru T-4
8	**Pyre M.L.†**	220°C	MW16C	CL-220 M thru M-4

* Solderable Insulations †Trademark of DuPont

Code No.	Bonding Films (operating temp.)	Solvents for Conductor Separation
1	**Polyvinyl Butyral** (105°C)	Alcohol Isopropyl or Denatured
2	**Polyamide (Nylon)** (105°C)	None
3	**Epoxy** (130°C)	Acetone

BOND THICKNESS STANDARDS		
AWG Size	Thickness	Tolerances
16-20	.0007"	±.0002"
21-28	.0005"	±.0002"
29-32	.0004"	±.0001"
33-36	.0003"	±.0001"
37-41	.0002"	±.0001"
42-finer	.0001"	+.0001" -.0

NOTE: The above referenced insulations, bonding films, and bond thickness are standard. Other insulations, films and thicknesses are available upon request. CONDUCTOR SEPARATION: Bonding films can be softened and removed by immersion in appropriate solvents. Some mechanical action (i.e. wiping wires following immersion in solvent) may be required to affect conductor separation.

PART NUMBER ORDERING SYSTEM

Make your own 8 digit part number by following the guidelines outlined below.

EXAMPLE **B-2 3 8 1 1 1 1**

B	2	3 8	1	1	1	1
Product letter for all multifilar magnet wire	Number of conductors. Use ( ) for more than 9 conductors	AWG gauge sizes	Insulation thickness 1= single 2=heavy 3=triple 4=quadruple	Insulation type "See above chart for correct code number"	Color coded conductors 0=none required 1=red/green 2=green/clear 3=red/green/clear *9=special — call for color code	Bonding film "See above chart for correct code number"

EXAMPLE = 2 Conductors—38AWG Single Polyurethane—Red/Green—Butyral Bond
* Denotes Change

If you have any questions regarding how to specify a correct part number for the **multifilar** wire you need, don't hesitate to call us. Our salesmen or engineering staff will be happy to assist you.

CALL TOLL FREE **1 800 423-5097**
In California: 1 800 992-8553 In Los Angeles Area: (818) 991-8553.
31200 Cedar Valley Drive, Westlake Village, California 91362

MWS
Wire Industries

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USE ONE OF THE NEW

EEMEDIATE ACTION CARDS

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VOLUMES 1A, 1B & 2

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DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
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LIFE TEST?
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CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?

MINIGLOSSARIES
FORMULAS • CHARTS
PRODUCT SELECTION GUIDES
FORMS
CODES

TECHNICAL INFORMATION

WHERE TO FIND THEM IN THE 84/85 EDITION OF EEM

Abbreviations/Acronyms **1A**•1137, **1B**•1035, **2**•1014, **3**•1014
ASCII Code **3**•1103
Batteries, Product Selection Guide **3**•1399
Cabinets, Enclosures, Racks, & Chassis, Product Selection Guide **2**•1003
Capacitors, Basic Formulas **1A**•1093
Capacitors, Miniglossary **1A**•1069
Capacitors, Product Selection Guide **1A**•1003
Circuit Boards (Printed), Product Selection Guide **2**•1089
Coils, Chokes, & Inductors, Product Selection Guide **1A**•1219
Connectors, Miniglossary **2**•1264
Connectors, Terminals, & Sockets, Product Selection Guide **2**•1097
Crystals, Oscillators, Crystal & Piezoelectric Filters, Product Selection Guide **1A**•1309
Delay Lines, Product Selection Guide **1A**•1445
Discrete Semiconductors, Product Selection Guide **1A**•2087
Displays, Readouts, Lamps, & Lights, Product Selection Guide **1B**•1021
EBCDIC Code **3**•1153
Encapsulation, Miniglossary **2**•1082
Fans, Blowers, Cooling Equipment, & Heat Exchangers, Product Selection Guide **2**•1801
Filters, Product Selection Guide **1A**•1577
Instruments, Graphic Recording, Product Selection Guide **3**•1381
Instruments, Panel Meters, Product Selection Guide **3**•1321
Instruments, Test & Measuring, Product Selection Guide **3**•1182
Interconnection Systems, Product Selection Guide **2**•1873
Keyboards & Keypads, Product Selection Guide **1B**•1759
Microwave Components, Product Selection Guide **1A**•1685
Military Qualified Products Lists **1B**•1003
Motors, Drives, & Rotating Components, Product Selection Guide **1B**•1121
Opto Semiconductors, Miniglossary **1B**•1218
Oscilloscopes, Product Selection Guide **3**•1361
Panel Hardware, Product Selection Guide **2**•1757
Potentiometers, Trimmers, Controls, & Rheostats, Product Selection Guide **1A**•2017
Power Supplies, Miniglossary **3**•1455
Power Supplies, AC, Product Selection Guide **3**•1815
Power Supplies, DC, Product Selection Guide **3**•1439
Protective Components (Fuses, Circuit Breakers, etc.), Product Selection Guide **1B**•1255
Relay Contact Forms **1B**•1317
Relays, Electromechanical, Miniglossary **1•B**1292
Relays, Product Selection Guide **1B**•1289
Resistor Color Codes **1A**•1791
Resistors, Product Selection Guide **1A**•1789
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Switches, Product Selection Guide **1B**•1499
Thyristors/High Power Diodes, Miniglossary **1A**•1652
Transducers & Encoders, Product Selection Guide **1B**•1827
Transformers, Product Selection Guide **1A**•2115
Wire & Cable, Product Selection Guide **2**•1935

THE SOLUTION

What are you looking for in a cable? Reliability? Flexibility? Miniaturization? Reducing interconnection costs? If you have a cable or cable assembly problem, we can solve it.

We're electronic cable specialists. National Electric Cable designs, tests, produces and improves cables, connectors and complete cable assemblies for specific applications. Our experience has taught us that advanced cable technology not only influences system design but frequently determines whether a system is functionally and economically viable and reliable.

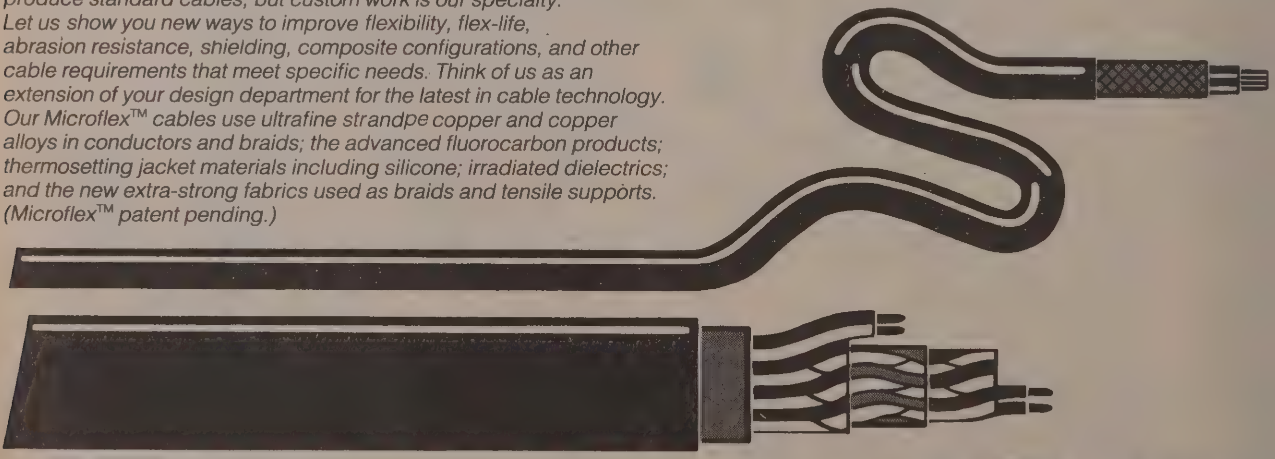
Our engineers can help solve difficult interconnect problems with existing products, or help create special products to fit your needs.

Electronic Cables

As experienced manufacturers of cables, we know that all your designs cannot be met by the standard cables available. We can produce standard cables, but custom work is our specialty.

Let us show you new ways to improve flexibility, flex-life, abrasion resistance, shielding, composite configurations, and other cable requirements that meet specific needs. Think of us as an extension of your design department for the latest in cable technology.

Our Microflex™ cables use ultrafine strandpe copper and copper alloys in conductors and braids; the advanced fluorocarbon products; thermosetting jacket materials including silicone; irradiated dielectrics; and the new extra-strong fabrics used as braids and tensile supports. (Microflex™ patent pending.)

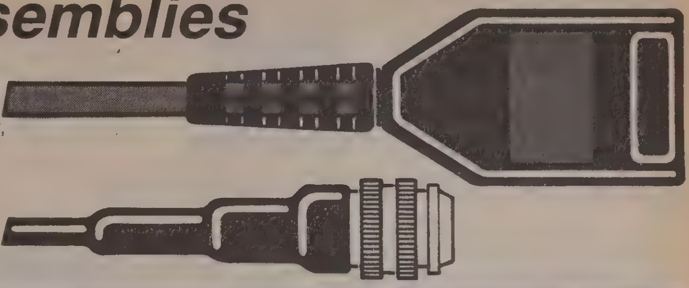


NATIONAL ELECTRIC CABLE

A NATIONAL APPLIED SCIENCE COMPANY

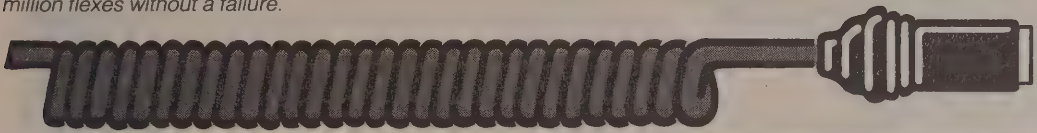
Electronic Cable Assemblies

We design and produce exceptionally high quality cable assemblies for high tech products ranging from flight simulators to medical diagnostic machines. Assemblies involving molded connectors, stringent military standards, microminiature soldering, special Reflex™ strain/flex relief systems, and other processes requiring advanced interconnection knowledge are typical of the ongoing projects of National Electric Cable. Tell us your needs and we'll build you a prototype.



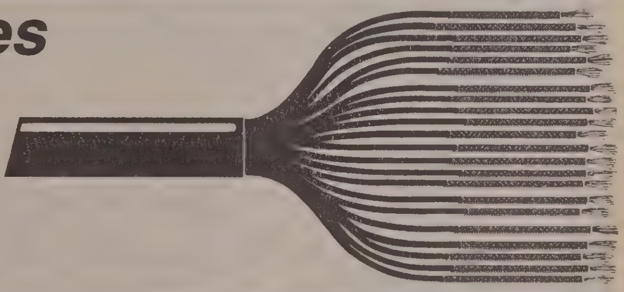
Coiled Cord Assemblies

Helix™ coiled cords from National Electric Cable are produced in standard or made-to-order lengths. Connectors range from D-subminiature and AMP^{R} MODU to DIN with molded backshells. Helix™ cable assemblies are designed to perform through one million flexes without a failure.



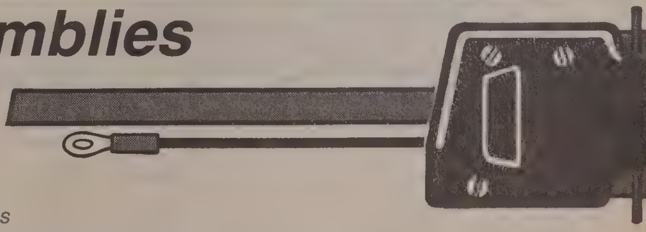
Micro-miniature Coaxes

Ultrasmall cables designed for maximum flex-life and flexibility are the specialty of National Electric Cable's design department and manufacturing facilities. Micro primaries are insulated with Teflon^{R} Coaxes (28-34 AWG) are of Tex-L 88® low-density Teflon, foamed Teflon, full-density Teflon and irradiated cross-linked foamed polyolefin (50-125ohm) with braid, tape or spiral shields. All of our Microflex™ cable assemblies are precisely terminated.



Standard Cable Assemblies

We have assembled more than a million feet of RS-232C cables. Choice of connectors for RS-232C assemblies include black plastic (for economy), metalized plastic and all-metal (for 100% shielding), and molded (for durability and aesthetics). Our double shielded IEEE-488 assures protection from RFI/EMI. Molded backshell and Reflex™ strain-flex relief protects termination and extends life of assembly. All cables can conform with Class A of the FCC regulations against RF interference in data processing equipment. Guaranteed reliability, fast delivery and competitive pricing on standard or made-to-order lengths.



Call For

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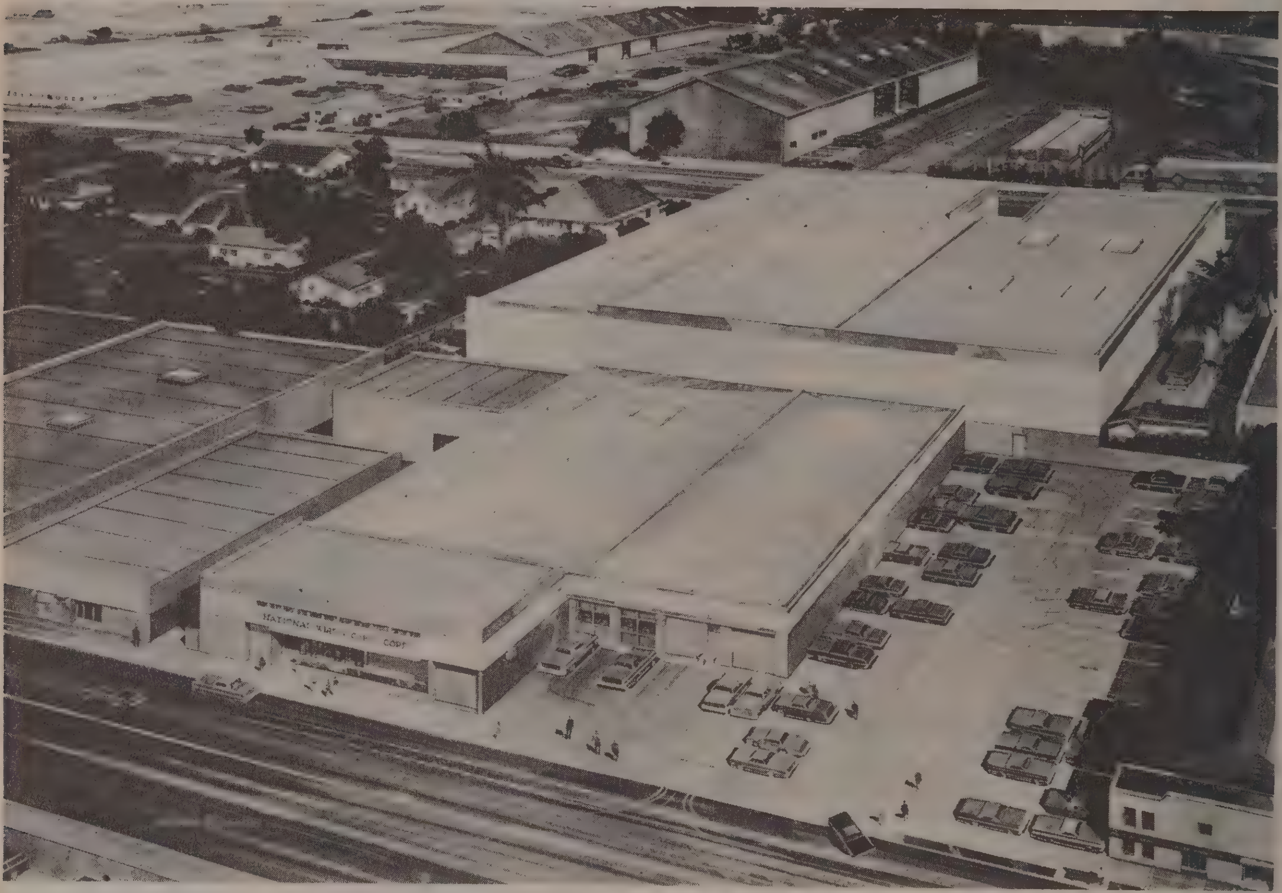
ELECTRIC
CABLE
A NATIONAL APPLIED SCIENCE COMPANY

NATIONAL WIRE
AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569



As a manufacturer of wire and cable products . . . with warehouses on both East and West coasts, National Wire & Cable is ready to fill your immediate needs. Choose from our standard lines of wire or cable . . . OR let us design and custom manufacture exactly what you require for your application.

Our wire inventory is now over 160 million feet, and our 500 different standard multi-conductor cables total in excess of 1.3 million feet!

When you call National Wire, you'll find we are especially well equipped to handle your large as well as minimal requirements. If our "standard" items won't meet your application, we have the wire inventory, the machinery, the expertise to come up with exactly what you need. 105,000 square feet of manufacturing area and our expert engineering staff are at your disposal!!! All cable components are produced within our own facility in order to assure complete quality control.

Review the following catalog pages. If you need some assistance with your specific requirement, call our factory direct, or call our representative nearest you. See Manufacturers and Sales Office Directory Yellow Pages.

NATIONAL WIRE
AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569

U/L Listed Wire

CSA Listed Wire

- Wires listed by the Underwriter's Laboratories, Inc. for operation in an air or an oil environment. U.L. File #E35793.
- Wires listed by the Canadian Standards Association for radio or electronic uses. CSA File #LR-20482 & LR-32511.

U/L Style 1061

Appliance wiring material available as FR-1 rated 80-degree C Service. .009" semi-rigid vinyl insulation U/L rated: 300-volt service. Meets Mil-W-16878D Type B, and CSA S-R PVC. Also available with solid conductors.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
28	N304-736U	7	36	.015	.034	69.0	1.0
26	N304-1938U	19*	38	.019	.038	42.9	1.5
24	N304-1936U	19*	36	.024	.043	26.8	2.0
22	N304-1934U	19*	34	.030	.050	16.7	3.0
20	N304-1932U	19*	32	.038	.057	10.5	4.75
18	N304-1930U	19	30	.048	.068	6.57	6.5
16	N304-1929U	19	29	.057	.077	4.85	9.0

U/L Style 1007

Appliance wiring available as FR-1 rated 80-degree C Service. 1/64" vinyl insulation U/L rated: 300 volt appliance, use 600 volt electronic use. Meets Mil-W-16878D Type C. Also approved by CSA as Type TR-64 radio wiring for 90-degree C Service. Colors: 10 standard colors plus tracers on solid colors. Also available with solid conductors.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	N303-732U	7	32	.024	.058	26.8	2.75
22	N303-1934U	19*	34	.030	.063	16.7	3.75
20	N303-1932U	19*	32	.038	.072	10.5	5.50
18	N303-1930U	19	30	.048	.082	6.57	8.0
16	N303-1929U	19	29	.057	.090	4.85	10.0

U/L Style 1015

Appliance wiring material available as FR-1 rated 105-degree C Service 1/32" vinyl insulation U/L rated, 2500 volts electronic use, 600 volt appliance use. Meets Mil-W-16878D Type D. Colors: 10 standard colors plus tracers on solid colors.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	N600-732U	7	32	.024	.082	26.8	4.0
22	N600-730U	7	30	.030	.090	16.7	5.2
20	N600-728U	7	28	.038	.098	10.5	7.3
18	N600-1930U	19	30	.048	.108	6.57	10.0
16	N600-1929U	19	29	.057	.117	4.85	12.0
14	N600-1927U	19	27	.071	.130	3.05	17.1
12	N600-1925U	19	25	.090	.162	1.92	27.4
10	N600-4927U	49	27	.111	.181	1.24	38.6

CSA/Type TR-32 Radio Wire

Rated: 90-degree C 600 volt, 1/32" vinyl insulation. Also listed as CSA Appliance Wiring Material 90-degree 600 V. Meets U/L Style 1015 & Mil-W-16878D Type D.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS 1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	N307-732U	7	32	.024	.082	26.8	4.0
22	N307-730U	7	30	.030	.090	16.7	5.2
20	N307-728U	7	28	.038	.098	10.5	7.3
18	N307-1930U	19	30	.048	.108	6.57	10.0
16	N307-1929U	19	29	.057	.117	4.85	12.0
14	N307-1927U	19	27	.071	.130	3.05	17.1
12	N307-1925U	19	25	.090	.162	1.92	27.4
10	N307-4927U	49	27	.111	.181	1.24	38.6

*Also available in 7 strands

CSA Listed Type TR-64 Radio Wire

Rated 90-degree C 300 volt, 1/64" vinyl insulation. Meets U/L Style 1007 & Mil-W-16878D Type C.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS 1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	N308-732U	7	32	.024	.058	28.4	2.75
22	N308-1934U	19*	34	.030	.063	19.0	3.50
20	N308-1932U	19*	32	.038	.072	13.12	5.25
18	N308-1930U	19	30	.048	.082	7.89	6.75
16	N308-1929U	19	29	.057	.090	4.97	10.0

Also available with Nylon Jacket

NATIONAL WIRE AND CABLE CORPORATION

Military Electronic Hookup Wire

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569

MIL-W-16878/1

Type BU

For internal wiring of electronic equipment.

.010″ wall vinyl primary insulation. No outer covering.

—54-degree C to +105-degree C, 600 V, R.M.S. (working). Also available as NABOND. Meets U/L Style 1061, and CSA S-R PVC.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
32	NB740U	7	40	.009	.028	179.0	0.70
30	NB738U	7	38	.012	.031	111.0	0.75
28	NB736U	7	36	.015	.034	69.0	1.0
26	NB1938U	19*	38	.019	.038	42.9	1.5
24	NB1936U	19*	36	.024	.043	26.8	2.0
22	NB1934U	19*	34	.030	.050	16.7	3.0
20	NB1932U	19*	32	.038	.057	10.5	4.5
18	NB1930U	19	30	.048	.068	6.57	6.5
16	NB1929U	19	29	.057	.077	4.85	9.0
14	NB1927U	19	27	.071	.091	3.05	14.0

*Also available in 7 strands

MIL-W-16878/1

Type BN

For internal wiring of electronic equipment.

Vinyl primary insulation with Nylon jacket overall.

—54-degree C to +115-degree C, 600 V, R.M.S. (working). Meets U/L Style 1006.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
32	NB740N	7	40	.009	.032	179.0	0.75
30	NB738N	7	38	.012	.036	111.0	1.0
28	NB736N	19	40	.015	.039	69.0	1.25
26	NB1938N	19*	38	.019	.044	42.9	1.75
24	NB1936N	19*	36	.024	.049	26.8	2.25
22	NB1934N	19*	34	.030	.056	16.7	3.25
20	NB1932N	19*	32	.038	.063	10.5	4.75
18	NB1930N	19	30	.048	.074	6.57	7.0
16	NB1929N	19	29	.057	.083	4.85	9.0
14	NB1927N	19	27	.071	.098	3.05	14.7

*Also available in 7 strands

MIL-W-16878/2

Type CU

For internal wiring of meters, panels & electronic equipment, .015″ Wall Vinyl primary insulation (no outer covering). −54° C to +105° C, 1000 Volts, R.M.S. (working).

Also available as NABOND.

Meets U/L Style 1007 and CSA TR-64.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
26	NC734U	7	34	.019	.053	42.9	2.1
24	NC732U	7	32	.024	.058	26.8	2.75
22	NC1934U	19*	34	.030	.063	16.7	3.75
20	NC1932U	19*	32	.038	.072	10.5	5.50
18	NC1930U	19	30	.048	.082	6.57	8.0
16	NC1929U	19	29	.057	.090	4.85	10.0
14	NC1927U	19	27	.071	.104	3.05	15.0
12	NC1925U	19	25	.090	.124	1.92	24.0

*Also available in 7 strands

MIL-W-16878/3

Type DU

Resists the effect of salt water, aviation fuel, motor oil, ethylene glycol and alcohols (methyl or ethyl). .031″ Wall Vinyl primary insulation. No outer covering. —54-degree C to +105-degree, 3000 V, R.M.S. (working). Meets U/L Style 1015 and CSA TR-32.

GAUGE (AWG)	NATIONAL CATALOG NUMBER	NO. OF STRANDS	GA. OF STRANDS (AWG)	NOM. DIAM. OF STRANDED CONDUCTOR (INCHES)	NOM. FIN. WIRE DIAM. (INCHES)	MAX. RESISTANCE (dc) AT 25°C OHMS/1000 FT.	NOM. WT. PER 1000 FT. (LBS.)
24	ND732U	7	32	.024	.082	26.8	4.0
22	ND730U	7	30	.030	.090	16.7	5.2
20	ND728U	7	28	.038	.098	10.5	7.3
18	ND1930U	19	30	.048	.108	6.57	10.0
16	ND1929U	19	29	.057	.117	4.85	12.0
14	ND1927U	19	27	.071	.130	3.05	17.1
12	ND1925U	19	25	.090	.162	1.92	27.4
10	ND4927U	49	27	.111	.181	1.24	38.6
8	ND13329U	133	29	.167	.246	0.726	70.5
6	ND13327U	133	27	.210	.290	0.444	104.0

*Also available in 7 strands.

NOTE: THE ABOVE WIRES COME IN 10 STANDARD COLORS PLUS TRACERS ON SOLID COLORS.

NATIONAL WIRE AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569

Miniature Signal & Control Cables Single Conductors (NX Series)

(NX1922SJ shown)

IN STOCK

MIL-SPEC U.L. LISTED COMPUTER GRADE STYLE 2343

For light duty, gray jacketed version of these cables in the U.L. Style 2464, see NQ Series on following pages.

National Wire & Cable Corporation manufactures a complete line of MINIATURE low voltage signal and control cable. Available as cabled pairs or cabled singles, with optional overall shield. Conductors are stranded tinned copper with .010″ wall of vinyl primary insulation for use up to 105°C per MIL-W-16878 Type B. Insulated for 600 volts working voltage. (Also meets U.L. AWM Type 1061; 300 volt, 80°C.) All are coded using 10 standard colors plus stripes on white per MIL-STD-681.

All conductors are planetary cabled and contra-helically laid for optimum flexibility, with a Mylar tape barrier under shields. Shielded cables have a tinned copper braid overall, of 85-90% coverage per MIL-C-7078; and braid angles below 40° for easy pushback.

The outer jacket is black abrasion-resistant 105°C. vinyl meeting MIL-I-631 Type F. All materials are self-extinguishing and fungus resistant. All items are U.L. LISTED STYLE 2343 COMPUTER CABLE; rated 80°C. (Higher temp. ratings apply for any non-U.L. service.)

U.L. and C.S.A. certification furnished only when requested.

Standard Putups: 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

TECHNICAL DATA (all cables)

Insulation Breakdown Voltage:	Greater than 5000 volts AC RMS, 60 cps.
Capacitance:	Nominal capacitance from a wire to all else in a cable ranges from 45. to 70. pf/ft. at 1. kc, depending on gauge and position.
Insulation Leakage:	200. megohms/1000 ft. min. @ 500. VDC from any conductor to all else in cable.
Sheath Leakage:	10. megohms/1000 ft. min. @ 500 VDC from shield or conductor group through sheath to ground.
Temperature Range:	Suitable for continuous use from −40°C. to +105°C. (U.L. Service limited to +80°C.)
Bending Characteristics:	All cables are suitable for flexing to a circle diameter of 6. cable diameters from +105°C. to −20°C. Recommended flex diameter should be greater than 20 cable diameters for flexing at −40°C.

MULTICONDUCTOR STOCK CABLED SINGLES

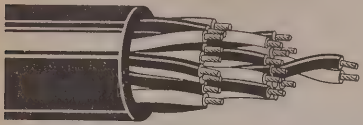
Cond: 22, 24 are 7 strand; 20 AWG is 19 strand

UNSHIELDED							OVERALL SHIELDED							
PART NO.	NO. COND.	COND. AWG	COND. O.D.	JKT. WALL	NOM. O.D.	WEIGHT LB/M′	PART NO.	NO. COND.	COND. AWG	COND. O.D.	JKT. WALL	SHIELD AWG	NOM. O.D.	WEIGHT LB/M′
NX-524 J	5	24	.045	.062	.220	32 Lbs.	NX-524 SJ	5	24	.045	.062	36	.245	44 Lbs.
NX-724 J	7	24	.045	.062	.250	40 Lbs.	NX-724 SJ	7	24	.045	.062	36	.275	55 Lbs.
NX-1224J	12	24	.045	.062	.300	53 Lbs.	NX-1224SJ	12	24	.045	.062	36	.325	68 Lbs.
NX-1524J	15	24	.045	.062	.330	65 Lbs.	NX-1524SJ	15	24	.045	.062	36	.350	80 Lbs.
NX-1924J	19	24	.045	.062	.340	73 Lbs.	NX-1924SJ	19	24	.045	.062	36	.365	88 Lbs.
NX-2724J	27	24	.045	.062	.390	85 Lbs.	NX-2724SJ	27	24	.045	.062	36	.415	102 Lbs.
NX-3724J	37	24	.045	.062	.420	120 Lbs.	NX-3724SJ	37	24	.045	.062	36	.445	140 Lbs.
NX-4824J	48	24	.045	.062	.470	142 Lbs.	NX-4824SJ	48	24	.045	.062	36	.495	172 Lbs.
NX-6024J	60	24	.045	.062	.510	170 Lbs.	NX-6024SJ	60	24	.045	.062	36	.535	205 Lbs.
NX-522 J	5	22	.050	.062	.265	40 Lbs.	NX-522 SJ	5	22	.050	.062	36	.285	50 Lbs.
NX-722 J	7	22	.050	.062	.270	48 Lbs.	NX-722 SJ	7	22	.050	.062	36	.295	58 Lbs.
NX-1222J	12	22	.050	.062	.330	72 Lbs.	NX-1222SJ	12	22	.050	.062	36	.355	87 Lbs.
NX-1522J	15	22	.050	.062	.350	85 Lbs.	NX-1522SJ	15	22	.050	.062	36	.380	101 Lbs.
NX-1922J	19	22	.050	.062	.370	96 Lbs.	NX-1922SJ	19	22	.050	.062	36	.395	111 Lbs.
NX-2722J	27	22	.050	.062	.430	130 Lbs.	NX-2722SJ	27	22	.050	.062	36	.455	150 Lbs.
NX-3722J	37	22	.050	.062	.480	163 Lbs.	NX-3722SJ	37	22	.050	.062	34	.510	193 Lbs.
NX4822J	48	22	.050	.062	.530	210 Lbs.	NX-4822SJ	48	22	.050	.062	34	.560	245 Lbs.
NX-6022J	60	22	.050	.062	.570	255 Lbs.	NX-6022SJ	60	22	.050	.062	34	.600	295 Lbs.
NX-520 J	5	20	.057	.062	.275	49 Lbs.	NX-520 SJ	5	20	.057	.062	36	.300	59 Lbs.
NX-720 J	7	20	.057	.062	.290	59 Lbs.	NX-720 SJ	7	20	.057	.062	36	.315	69 Lbs.
NX-1220J	12	20	.057	.062	.360	90 Lbs.	NX-1220SJ	12	20	.057	.062	36	.385	105 Lbs.
NX-1520J	15	20	.057	.062	.390	110 Lbs.	NX-1520SJ	15	20	.057	.062	36	.415	137 Lbs.
NX-1920J	19	20	.057	.062	.410	128 Lbs.	NX-1920SJ	19	20	.057	.062	36	.435	158 Lbs.
NX-2720J	27	20	.057	.062	.490	166 Lbs.	NX-2720SJ	27	20	.057	.062	36	.515	196 Lbs.
NX-3720J	37	20	.057	.062	.520	220 Lbs.	NX-3720SJ	37	20	.057	.062	34	.550	255 Lbs.
NX-4820J	48	20	.057	.062	.580	275 Lbs.	NX-4820SJ	48	20	.057	.062	34	.610	320 Lbs.
NX-6020J	60	20	.057	.062	.640	335 Lbs.	NX-6020SJ	60	20	.057	.062	34	.670	385 Lbs.

NATIONAL WIRE
AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569

Miniature Signal & Control Cables Twisted Pairs (NXP Series)


(NXP1924J shown)

National Wire & Cable Corporation manufactures a complete line of MINIATURE low voltage signal and control cable. Available as cabled pairs or cabled singles, with optional overall shield. Conductors are stranded tinned copper with .010" wall of vinyl primary insulation for use up to 105°C per MIL-W-16878 Type B. Insulated for 600 volts working voltage. (Also meets U.L. AWM Type 1061; 300 volt, 80°C.) All are coded using 10 standard colors plus stripes on white per table below.

All conductors are planetary cabled and contra-helically laid for optimum flexibility, with a Mylar tape barrier under shields. Shielded cables have a tinned copper braid overall, of 85-90% coverage per MIL-C-7078; and braid angles below 40° for easy pushback.

The outer jacket is black abrasion-resistant 105°C. vinyl meeting MIL-I-631 Type F. All materials are self-extinguishing and fungus resistant. All items are U.L. LISTED STYLE 2343 COMPUTER CABLE; rated 80°C. (Higher temp. ratings apply for any non-U.L. service.)

U.L. and C.S.A. certification furnished only when requested.

Standard Putups: 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

* Denotes U.L. Style 2344.

IN STOCK MIL-SPEC

U.L. LISTED COMPUTER GRADE STYLE 2343 & 2344
For light duty, gray jacketed version of these cables in the U.L. Style 2464, see NQ Series on following pages.

TECHNICAL DATA (all cables)

Insulation Breakdown Voltage:	Greater than 5000 volts AC RMS, 60 cps.
Capacitance:	Nominal capacitance from a wire to all else in a cable ranges from 45. to 70. pf/ft. at 1. kc, depending on gauge and position.
Insulation Leakage:	200. megohms/1000 ft. min. @ 500. VDC from any conductor to all else in cable.
Sheath Leakage:	10. megohms/1000 ft. min. @ 500 VDC from shield or conductor group through sheath to ground.
Temperature Range:	Suitable for continuous use from −40°C. to +105°C. (U.L. Service limited to +80°C.)
Bending Characteristics:	All cables are suitable for flexing to a circle diameter of 6. cable diameters from +105°C. to −20°C. Recommended flex diameter should be greater than 20 cable diameters for flexing at −40°C.

Impedance: (24. AWG pairs) **Balanced: 87. ohms ±5%**
Unbalanced: 52. ohms ±5%

MULTI-CONDUCTOR STOCK CABLED PAIRS

Cond: 22, 24 are 7 strand; 20 AWG is 19 strand

UNSHIELDED							OVERALL SHIELDED							
PART NO.	NO. PAIRS	COND. AWG	COND. O.D.	JKT. WALL	NOM. O.D.	WEIGHT LB/M'	PART NO.	NO. PAIRS	COND. AWG	COND. O.D.	JKT. WALL	SHLD. AWG	NOM. O.D.	WEIGHT LB/M'
NXP-524 J	5	24	.045	.062	.330	52 Lbs.	NXP-524 SJ	5	24	.045	.062	36	.355	67 Lbs.
NXP-724 J	7	24	.045	.062	.350	60 Lbs.	NXP-724 SJ	7	24	.045	.062	36	.375	75 Lbs.
NXP-1224J	12	24	.045	.062	.435	90 Lbs.	NXP-1224SJ	12	24	.045	.062	36	.460	115 Lbs.
NXP-1524J	15	24	.045	.062	.485	110 Lbs.	NXP-1524SJ	15	24	.045	.062	36	.510	140 Lbs.
NXP-1924J	19	24	.045	.062	.505	126 Lbs.	NXP-1924SJ	19	24	.045	.062	36	.530	161 Lbs.
NXP-2724J	27	24	.045	.062	.590	167 Lbs.	NXP-2724SJ	27	24	.045	.062	34	.620	211 Lbs.
NXP-3724J	37	24	.045	.062	.660	216 Lbs.	NXP-3724SJ	37	24	.045	.062	34	.690	266 Lbs.
NXP-4824J	48	24	.045	.062	.745	270 Lbs.	NXP-4824SJ	48	24	.045	.062	34	.775	330 Lbs.
NXP-6024J	60	24	.045	.062	.815	325 Lbs.	NXP-6024SJ*	60	24	.045	.062	34	.845	390 Lbs.
NXP-522 J	5	22	.050	.062	.365	56 Lbs.	NXP-522 SJ	5	22	.050	.062	36	.390	77 Lbs.
NXP-722 J	7	22	.050	.062	.390	82 Lbs.	NXP-722 SJ	7	22	.050	.062	36	.415	100 Lbs.
NXP-1222J	12	22	.050	.062	.470	120 Lbs.	NXP-1222SJ	12	22	.050	.062	36	.495	150 Lbs.
NXP-1522J	15	22	.050	.062	.545	145 Lbs.	NXP-1522SJ	15	22	.050	.062	34	.575	185 Lbs.
NXP-1922J	19	22	.050	.062	.550	170 Lbs.	NXP-1922SJ	19	22	.050	.062	34	.580	210 Lbs.
NXP-2722J	27	22	.050	.062	.640	230 Lbs.	NXP-2722SJ	27	22	.050	.062	34	.670	280 Lbs.
NXP-3722J	37	22	.050	.062	.750	300 Lbs.	NXP-3722SJ	37	22	.050	.062	34	.780	357 Lbs.
NXP-4822J*	48	22	.050	.080	.850	375 Lbs.	NXP-4822SJ*	48	22	.050	.080	34	.880	445 Lbs.
NXP-6022J*	60	22	.050	.080	.930	460 Lbs.	NXP-6022SJ*	60	22	.050	.080	34	.960	535 Lbs.
NXP-520 J	5	20	.057	.062	.395	82 Lbs.	NXP-520 SJ	5	20	.057	.062	36	.420	102 Lbs.
NXP-720 J	7	20	.057	.062	.440	108 Lbs.	NXP-720 SJ	7	20	.057	.062	36	.465	123 Lbs.
NXP-1220J	12	20	.057	.062	.540	163 Lbs.	NXP-1220SJ	12	20	.057	.062	34	.570	203 Lbs.
NXP-1520J	15	20	.057	.062	.600	196 Lbs.	NXP-1520SJ	15	20	.057	.062	34	.630	241 Lbs.
NXP-1920J	19	20	.057	.062	.630	235 Lbs.	NXP-1920SJ	19	20	.057	.062	34	.660	280 Lbs.
NXP-2720J	27	20	.057	.062	.745	320 Lbs.	NXP-2720SJ	27	20	.057	.062	34	.775	380 Lbs.
NXP-3720J	37	20	.057	.062	.820	420 Lbs.	NXP-3720SJ*	37	20	.057	.080	34	.850	490 Lbs.
NXP-4820J*	48	20	.057	.080	.950	530 Lbs.	NXP-4820SJ*	48	20	.057	.080	34	.980	605 Lbs.
NXP-6020J*	60	20	.057	.080	1.040	650 Lbs.	NXP-6020SJ*	60	20	.057	.080	34	1.070	735 Lbs.

COLOR CODING USED IN TWISTED PAIRS

PR#	PAIR COLORS	PR#	PAIR COLORS	PR#	PAIR COLORS	PR#	PAIR COLORS	PR#	PAIR COLORS	PR#	PAIR COLORS
1	White with Black	11	Black with Red	21	Brown with Green	31	Orange with Yellow	41	Green with Violet	51	Wht/Blk with Green
2	White with Brown	12	Black with Orange	22	Brown with Blue	32	Orange with Green	42	Green with Gray	52	Wht/Blk with Blue
3	White with Red	13	Black with Yellow	23	Brown with Violet	33	Orange with Blue	43	Blue with Violet	53	Wht/Blk with Violet
4	White with Orange	14	Black with Green	24	Brown with Gray	34	Orange with Violet	44	Blue with Grey	54	Wht/lk with Gray
5	White with Yellow	15	Black with Blue	25	Red with Orange	35	Orange with Gray	45	Violet with Gray	55	Wht/Brn with Black
6	White with Green	16	Black with Violet	26	Red with Yellow	36	Yellow with Green	46	Wht/Blk with Black	56	Wht/Brn with Brown
7	White with Blue	17	Black with Gray	27	Red with Green	37	Yellow with Blue	47	Wht/Blk with Brown	57	Wht/Brn with Red
8	White with Violet	18	Brown with Red	28	Red with Blue	38	Yellow with Violet	48	Wht/Blk with Red	58	Wht/Brn with Orange
9	White with Gray	19	Brown with Orange	29	Red with Violet	39	Yellow with Gray	49	Wht/Blk with Orange	59	Wht/Brn with Yellow
10	Black with Brown	20	Brown with Yellow	30	Red with Gray	40	Green with Blue	50	Wht/Blk with Yellow	60	Wht/Brn with Green

NATIONAL WIRE
AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569

Heavy Duty Signal & Control Cables Single Conductors (NW Series)

IN STOCK

MIL-SPEC U.L. LISTED — STYLE 2343 & 2344

(NW1918SJ shown)

National Wire & Cable Corporation manufactures a complete line of multiple conductor control cable. Conductors are stranded tinned copper with 1/64″ wall of vinyl primary insulation for use up to 105°C per MIL-W-16878 Type C.* Insulated for 1000 volts working voltage. Color coded using 10 standard colors plus stripes on white per MIL-STD-681.

All conductors are planetary cabled and contra-helically laid for optimum flexibility, with a Mylar tape serve over cable bundle. Shielded cables have a tinned copper braid overall, of 85-90% coverage per MIL-C-7078, and braid angles below 40° for easy pushback.

The outer jacket is black abrasion-resistant 105°C vinyl meeting MIL-I-631 Class F. All materials are self-extinguishing and fungus resistant. All cables are U. L. LISTED STYLE 2343; rated 80°C. (Higher temp. ratings apply to any non-U.L. service.) U.L. certification furnished only when requested.

Standard Putups: 100, 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

For applications in extreme environments, consult factory for alternative sheath materials.

TECHNICAL DATA (all cables)

Insulation Breakdown Voltage:	Greater than 8000 volts AC RMS, 60 cps.
U.L. Voltage Rating:	300 volts RMS AC (appliance use). 600 volts RMS AC (electronic use).
Military Voltage Rating:	1000 volts RMS.
Capacitance:	Nominal capacitance from a wire to all else in the cable ranges from 40 to 65 mmfd per ft., @ 1000 cps; dependent on gauge and position.
Insulation Leakage Res.:	200. megohms/1000 ft. min. at 500 VDC from any conductor to all else in cable.
Sheath Leakage Res.:	10. megohms/1000 ft. min. at 500 VDC from overall shield through sheath to outside world.
Usable Temp. Range:	Suitable for continuous use from +105°C to −55°C.
Cold Bending Capability:	All cables are suitable for flexing to a circle diam. of approx. 6 cable diameters from +105°C to −20°C; Recommended flex diameter should be greater than 20 cable diam. for flexing at −40°C. For continuous flexing applications consult factory.

* Insulated wires also meet U.L. style 1007 and CSA type TR-64.
† Denotes U.L. Style 2344.

Conductor sizes 22, 20, 18, 16, 14 & 12 gauge. 22 AWG is 7 strand. All others 19 strand.

UNSHIELDED						OVERALL SHIELDED						
PART NO.	NO. COND.	COND. AWG	JKT. THICK	NOM. O.D.	WEIGHT PER M′	PART NO.	NO. COND	COND AWG	T.C. SHIELD	JKT. THICK	NOM. O.D.	WEIGHT PER M′
NW-722 J	7	22	.060	.315	40 Lbs.	NW-722 SJ	7	22	No. 36	.060	.340	55 Lbs.
NW-1222J	12	22	.060	.385	70 Lbs.	NW-1222SJ	12	22	No. 34	.060	.410	90 Lbs.
NW-1922J	19	22	.060	.440	110 Lbs.	NW-1922SJ	19	22	No. 34	.060	.465	145 Lbs.
NW-2722J	27	22	.060	.510	160 Lbs.	NW-2722SJ	27	22	No. 34	.060	.535	200 Lbs.
NW-3722J	37	22	.060	.565	200 Lbs.	NW-3722SJ	37	22	No. 34	.060	.590	245 Lbs.
NW-4822J	48	22	.060	.635	245 Lbs.	NW-4822SJ	48	22	No. 34	.060	.660	300 Lbs.
NW-6022J	60	22	.060	.695	300 Lbs.	NW-6022SJ	60	22	No. 34	.060	.720	355 Lbs.
NW-7222J	72	22	.060	.755	360 Lbs.	NW-7222SJ	72	22	No. 34	.060	.780	425 Lbs.
NW-8822J	88	22	.060	.820	425 Lbs.	NW-8822SJ	88	22	No. 34	.080	.895†	500 Lbs.
NW-10222J	102	22	.080	.920†	485 Lbs.	NW-10222SJ	102	22	No. 34	.080	.945†	560 Lbs.
NW-720 J	7	20	.060	.340	50 Lbs.	NW-720 SJ	7	20	No. 34	.060	.365	68 Lbs.
NW-1220J	12	20	.060	.420	105 Lbs.	NW-1220SJ	12	20	No. 34	.060	.445	125 Lbs.
NW-1920J	19	20	.060	.485	160 Lbs.	NW-1920SJ	19	20	No. 34	.060	.510	195 Lbs.
NW-2720J	27	20	.060	.565	210 Lbs.	NW-2720SJ	27	20	No. 34	.060	.590	250 Lbs.
NW-3720J	37	20	.060	.630	280 Lbs.	NW-3720SJ	37	20	No. 34	.060	.655	325 Lbs.
NW-4820J	48	20	.060	.710	360 Lbs.	NW-4820SJ	48	20	No. 34	.060	.735	415 Lbs.
NW-6020J	60	20	.060	.775	435 Lbs.	NW-6020SJ	60	20	No. 34	.060	.800	500 Lbs.
NW-7220J	72	20	.080	.885†	485 Lbs.	NW-7220SJ	72	20	No. 34	.080	.910†	555 Lbs.
NW-8820J	88	20	.080	.960†	580 Lbs.	NW-8820SJ	88	20	No. 34	.080	1.035†	660 Lbs.
NW-10220J	102	20	.080	1.030†	670 Lbs.	NW-10220SJ	102	20	No. 34	.080	1.055†	750 Lbs.
NW-718 J	7	18	.060	.370	75 Lbs.	NW-718 SJ	7	18	No. 34	.060	.395	95 Lbs.
NW-1218J	12	18	.060	.460	135 Lbs.	NW-1218SJ	12	18	No. 34	.060	.485	170 Lbs.
NW-1918J	19	18	.060	.535	225 Lbs.	NW-1918SJ	19	18	No. 34	.060	.560	265 Lbs.
NW-2718J	27	18	.060	.625	300 Lbs.	NW-2718SJ	27	18	No. 34	.060	.650	350 Lbs.
NW-3718J	37	18	.060	.700	390 Lbs.	NW-3718SJ	37	18	No. 34	.060	.725	445 Lbs.
NW-4818J	48	18	.060	.790	510 Lbs.	NW-4818SJ	48	18	No. 34	.060	.815	575 Lbs.
NW-6018J	60	18	.080	.905†	600 Lbs.	NW-6018SJ	60	18	No. 34	.080	.930†	680 Lbs.
NW-7218J	72	18	.080	.985†	720 Lbs.	NW-7218SJ	72	18	No. 34	.080	1.010†	820 Lbs.
NW-716 J	7	16	.060	.395	95 Lbs.	NW-716 SJ	7	16	No. 34	.060	.420	125 Lbs.
NW-1216J	12	16	.060	.495	155 Lbs.	NW-1216SJ	12	16	No. 34	.060	.520	195 Lbs.
NW-1916J	19	16	.060	.575	230 Lbs.	NW-1916SJ	19	16	No. 34	.060	.600	275 Lbs.
NW-2716J	27	16	.060	.615	320 Lbs.	NW-2716SJ	27	16	No. 34	.060	.640	375 Lbs.
NW-3716J	37	16	.060	.755	430 Lbs.	NW-3716SJ	37	16	No. 34	.060	.780	500 Lbs.
NW-4816J	48	16	.080	.895†	625 Lbs.	NW-4816SJ	48	16	No. 34	.080	.920†	700 Lbs.
NW-6016J	60	16	.080	.975†	750 Lbs.	NW-6016SJ	60	16	No. 34	.080	1.000†	830 Lbs.
NW-714 J **	7	14	.060	.435	150 Lbs.	NW-714 SJ	7	14	No. 34	.060	.465	180 Lbs.
NW-1214J **	12	14	.060	.555	240 Lbs.	NW-1214SJ	12	14	No. 34	.060	.580	280 Lbs.
NW-1914J **	19	14	.060	.645	370 Lbs.	NW-1914SJ	19	14	No. 34	.060	.670	420 Lbs.
NW-2714J **	27	14	.060	.760	515 Lbs.	NW-2714SJ	27	14	No. 34	.060	.785	575 Lbs.
NW-512 J **	5	12	.060	.460	175 Lbs.	NW-512 SJ	5	12	No. 34	.060	.485	210 Lbs.
NW-712 J **	7	12	.060	.500	225 Lbs.	NW-712 SJ	7	12	No. 34	.060	.525	265 Lbs.
NW-1212J **	12	12	.060	.680	375 Lbs.	NW-1212SJ	12	12	No. 34	.060	.705	430 Lbs.
NW-1912J **	19	12	.060	.745	560 Lbs.	NW-1912SJ	19	12	No. 34	.060	.770	625 Lbs.

**Not listed under UL styles 2343 or 2344 in these gauges.

NATIONAL WIRE AND CABLE CORPORATION

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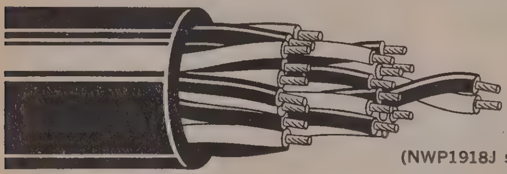
Heavy Duty Signal & Control Cables Twisted Pairs (NWP Series)



(NWP1918J shown)

IN STOCK MIL-SPEC

U.L. LISTED

Identical to National's NW-Series Cables except offered as twisted pairs.

National Wire & Cable Corporation manufactures a complete line of multiple pair control cables. Conductors are of tinned copper strand with 1/64″ vinyl primary insulation for use up to 105° C per MIL-W-16878D Type C. Insulated for **1000** volts working voltage. Conductors are color coded using 10 standard basic colors, plus spiral tracers on white per table below.

All pairs are planetary cabled and contra-helically laid with a Mylar tape serve over the cable bundle. The overall jacket is a 105°C black vinyl plastic per MIL-I-631; or may be Neoprene to MIL-R-6855 Class 2 Grade 60 specification. (Neoprene at added cost and only available for non-U.L. applications).

SHIELDED CABLES

National Multiple Conductor SHIELDED CABLES are to the same specifications as above with addition of tinned copper braided shield over cable complex with 85-90% coverage to MIL-C-7078A.

TECHNICAL DATA (all cables)

Insulation Breakdown Voltage:	Greater than 8,000 volts AC RMS, 60 cps.
Capacitance:	Nominal capacitance wire to wire for a pair ranges from 27. to 40. mmfd/ft. Capacitance from both wires tied together measured to all else in common ranges from 35. to 60. mmfd/ft. dependent on gauge and position. Overall shield has negligible effect on W-W capacitance.
Insulation Leakage Res.:	200. megohms / 1000 ft. min. at 500 VDC from any conductor to all else in cable.
Sheath Leakage Res.:	10. megohms / 1000 ft. min. at 500 VDC from overall shield through sheath to outside world.
Usable Temp. Range:	Suitable for continuous use from +105°C to −55°C.
Cold Bending Capability:	All cables are suitable for flexing to a circle diam. of approx. 6 cable diameters from +105°C to −20°C; Recommended flex diameter should be greater than 20 cable diam. for flexing at −40°C. For continuous flexing applications consult factory.

UNSHIELDED OVERALL						OVERALL SHIELDED					
PART NO.	NO. OF PAIRS	COND. GA.	JKT. THICK	NOM. O.D.	WEIGHT	PART NO.	NO. OF PAIRS	COND. GA.	JKT. THICK	NOM. O.D.	WEIGHT
NWP-722 J	7	22	.045	.470	90 Lbs.	NWP-722 SJ	7	22	.045	.495	135 Lbs.
NWP-1222J	12	22	.050	.600	150 Lbs.	NWP-1222SJ	12	22	.050	.630	206 Lbs.
NWP-1922J	19	22	.050	.700	200 Lbs.	NWP-1922SJ	19	22	.050	.730	260 Lbs.
NWP-2722J	27	22	.055	.830	280 Lbs.	NWP-2722SJ	27	22	.055	.860	358 Lbs.
NWP-3722J	37	22	.060	.960	370 Lbs.	NWP-3722SJ	37	22	.060	.990	460 Lbs.
NWP-4822J	48	22	.060	1.080	470 Lbs.	NWP-4822SJ	48	22	.060	1.110	570 Lbs.
NWP-6022J	60	22	.060	1.200	560 Lbs.	NWP-6022SJ	60	22	.060	1.230	675 Lbs.
NWP-720 J	7	20	.050	.520	120 Lbs.	NWP-720 SJ	7	20	.050	.550	170 Lbs.
NWP-1220J	12	20	.050	.660	200 Lbs.	NWP-1220SJ	12	20	.050	.690	260 Lbs.
NWP-1920J	19	20	.050	.800	290 Lbs.	NWP-1920SJ	19	20	.050	.830	355 Lbs.
NWP-2720J	27	20	.060	.960	420 Lbs.	NWP-2720SJ	27	20	.060	.990	510 Lbs.
NWP-3720J	37	20	.060	1.100	500 Lbs.	NWP-3720SJ	37	20	.060	1.130	603 Lbs.
NWP-4820J	48	20	.060	1.240	620 Lbs.	NWP-4820SJ	48	20	.060	1.270	735 Lbs.
NWP-6020J	60	20	.060	1.380	750 Lbs.	NWP-6020SJ	60	20	.060	1.410	880 Lbs.
NWP-718 J	7	18	.050	.580	150 Lbs.	NWP-718 SJ	7	18	.050	.610	205 Lbs.
NWP-1218J	12	18	.050	.740	290 Lbs.	NWP-1218SJ	12	18	.050	.770	360 Lbs.
NWP-1918J	19	18	.060	.920	400 Lbs.	NWP-1918SJ	19	18	.060	.950	487 Lbs.
NWP-2718J	27	18	.060	1.080	560 Lbs.	NWP-2718SJ	27	18	.060	1.110	660 Lbs.
NWP-3718J	37	18	.060	1.240	750 Lbs.	NWP-3718SJ	37	18	.060	1.270	865 Lbs.
NWP-4818J	48	18	.060	1.400	900 Lbs.	NWP-4818SJ	48	18	.060	1.430	1030 Lbs.
NWP-716 J	7	16	.050	.640	180 Lbs.	NWP-716 SJ	7	16	.050	.670	240 Lbs.
NWP-1216J	12	16	.060	.840	300 Lbs.	NWP-1216SJ	12	16	.060	.870	377 Lbs.
NWP-1916J	19	16	.060	1.020	430 Lbs.	NWP-1916SJ	19	16	.060	1.050	520 Lbs.
NWP-2716J	27	16	.060	1.200	720 Lbs.	NWP-2716SJ	27	16	.060	1.230	830 Lbs.
NWP-3716J	37	16	.060	1.380	1000 Lbs.	NWP-3716SJ	37	16	.060	1.410	1330 Lbs.

COLOR CODING USED ON TWISTED PAIRS

PR #	PAIR COLORS	PR #	PAIR COLORS	PR #	PAIR COLORS	PR #	PAIR COLORS	PR #	PAIR COLORS	PR #	PAIR COLORS
1	WHITE WITH BLACK	11.	BLACK WITH RED	21.	BROWN WITH GREEN	31.	ORANGE WITH YELLOW	41.	GREEN WITH VIOLET	51	WHT/BLK WITH GREEN
2	WHITE WITH BROWN	12	BLACK WITH ORANGE	22.	BROWN WITH BLUE	32	ORANGE WITH GREEN	42.	GREEN WITH GRAY	52.	WHT/BLK WITH BLUE
3.	WHITE WITH RED	13	BLACK WITH YELLOW	23.	BROWN WITH VIOLET	33.	ORANGE WITH BLUE	43.	BLUE WITH VIOLET	53.	WHT/BLK WITH VIOLET
4.	WHITE WITH ORANGE	14	BLACK WITH GREEN	24.	BROWN WITH GRAY	34.	ORANGE WITH VIOLET	44.	BLUE WITH GREY	54.	WHT/BLK WITH GRAY
5	WHITE WITH YELLOW	15	BLACK WITH BLUE	25.	RED WITH ORANGE	35	ORANGE WITH GRAY	45	VIOLET WITH GRAY	55.	WHT/BRN WITH BLACK
6.	WHITE WITH GREEN	16	BLACK WITH VIOLET	26	RED WITH YELLOW	36	YELLOW WITH GREEN	46.	WHT/BLK WITH BLACK	56	WHT/BRN WITH BROWN
7	WHITE WITH BLUE	17	BLACK WITH GRAY	27.	RED WITH GREEN	37	YELLOW WITH BLUE	47.	WHT/BLK WITH BROWN	57.	WHT/BRN WITH RED
8.	WHITE WITH VIOLET	18	BROWN WITH RED	28.	RED WITH BLUE	38	YELLOW WITH VIOLET	48.	WHT/BLK WITH RED	58.	WHT/BRN WITH ORANGE
9.	WHITE WITH GRAY	19	BROWN WITH ORANGE	29.	RED WITH VIOLET	39	YELLOW WITH GRAY	49	WHT/BLK WITH ORANGE	59	WHT/BRN WITH YELLOW
10	BLACK WITH BROWN	20	BROWN WITH YELLOW	30	RED WITH GRAY	40	GREEN WITH BLUE	50	WHT/BLK WITH YELLOW	60.	WHT/BRN WITH GREEN

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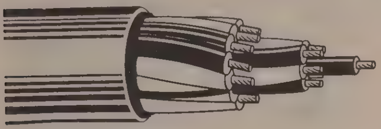
Miniature Signal & Control Cables Single Conductors (NQ Series)

EXTRA FLEXIBLE — GRAY PVC JACKET



(NQ1928J shown)

GRAY PVC JACKET

National Wire & Cable Corporation manufactures a complete line of highly flexible micro-miniature low-voltage instrument control cable. These are available as cabled pairs or singles, with optional overall shield of either foil with drain or a braided shield. Stocked with braided shields.

Conductors are stranded tinned copper with .010″ wall of tough extruded polyvinyl chloride primary insulation, rated for 300 volt use at +80°C under U. L. listed style 1061.* All are color coded using ten standard colors plus white with stripes per MIL-STD-681. Coded pairs use the same sequence as type NXP and NWP.

Conductors are planetary cabled and helically laid for optimum flexibility, with a barrier under braids. Shielded cables have a tinned copper braid of 90% coverage per MIL-C-7078, with braid angles below 40° for easy pushback; or have a 100% coverage foil shield in intimate contact with a drain wire for easy termination. See Section 3 of our master catalog for relative shield effectiveness.

Outer jacket is highly flexible abrasion-resistant gray polyvinyl chloride thermoplastic, meeting the requirements of U.L. listed style 2464.**

Military certification furnished only when requested.

All materials are flame retardant and fungus resistant.

Standard Putups: 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

* Wire also meets MIL-W-16878 type B, rated 600 volts, +105°C.

MIL-SPEC & U.L. LISTED STYLE 2464

TECHNICAL DATA (all cables)

Insulation breakdown voltage:	Greater than 3000 volts AC RMS, 60cps.
Capacitance:	Nominal capacitance from a wire to all else in a cable ranges from 25 to 45 pf/ft at 1kc, depending on gauge and position.
Insulation Leakage:	200 megohms/1000 feet minimum @ 500VDC from conductor to all else in cable.
Sheath Leakage:	10 megohms/1000 feet minimum @ 500VDC from shield or conductor group through sheath to ground.
Temperature Range:	U.L. rating: +80°C per U.L. style 2464. Military: Continuous use from −40°C to +105°C.
Bending Characteristics:	All cables are suitable for flexing to a circle diameter of 6 cable diameters from +105°C to −20°C. Recommended flex diameter should be greater than 20 cable diameters for flexing at −40°. For continuous flexing applications consult the factory.
Foil Shielded Cables:	The nominal overall diameter of foil shielded cables will be .006″ greater than the non-shielded cables of the same conductor count and wire size.
Characteristic Impedance: (NQP Paired Cables)	Ranges from 150 ohms to 45 ohms, dependent on wire size (AWG), geometry and drive method. Consult our technical staff for data on specific cable types.

MULTI-CONDUCTOR STOCK CABLED SINGLES

Conductor sizes 28, 26, 24, 22 are 7 strand. All others 19 strand.

UNSHIELDED CABLES

Part No.	No. Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M′
NQ-228 J	2	28	.034	.031	.135	8
NQ-328 J	3	28	.034	.031	.142	9
NQ-428 J	4	28	.034	.031	.150	11
NQ-528 J	5	28	.034	.031	.161	12
NQ-628 J	6	28	.034	.031	.171	13
NQ-728 J	7	28	.034	.031	.171	14
NQ-828 J	8	28	.034	.031	.196	19
NQ-928 J	9	28	.034	.031	.206	22
NQ-1028 J	10	28	.034	.031	.206	23
NQ-1228 J	12	28	.034	.031	.212	25
NQ-1528 J	15	28	.034	.031	.231	28
NQ-1928 J	19	28	.034	.031	.241	33
NQ-2728 J	27	28	.034	.031	.282	42
NQ-3728 J	37	28	.034	.031	.311	55
NQ-226 J	2	26	.038	.031	.144	9
NQ-326 J	3	26	.038	.031	.150	11
NQ-426 J	4	26	.038	.031	.160	13
NQ-526 J	5	26	.038	.031	.171	15
NQ-626 J	6	26	.038	.031	.183	17
NQ-726 J	7	26	.038	.031	.183	18
NQ-826 J	8	26	.038	.031	.210	23
NQ-926 J	9	26	.038	.031	.222	25
NQ-1026 J	10	26	.038	.031	.222	26
NQ-1226 J	12	26	.038	.031	.228	30
NQ-1526 J	15	26	.038	.031	.249	35
NQ-1926 J	19	26	.038	.031	.261	42
NQ-2726 J	27	26	.038	.031	.306	55
NQ-3726 J	37	26	.038	.031	.339	70
NQ-4826 J	48	26	.038	.031	.384	92

OVERALL SHIELDED CABLES

Part No.	No. Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M′
NQ-228 SJ	2	28	.034	.031	.159	16
NQ-328 SJ	3	28	.034	.031	.165	17
NQ-428 SJ	4	28	.034	.031	.173	20
NQ-528 SJ	5	28	.034	.031	.184	21
NQ-628 SJ	6	28	.034	.031	.194	23
NQ-728 SJ	7	28	.034	.031	.194	24
NQ-828 SJ	8	28	.034	.031	.219	31
NQ-928 SJ	9	28	.034	.031	.229	35
NQ-1028SJ	10	28	.034	.031	.229	36
NQ-1228SJ	12	28	.034	.031	.235	38
NQ-1528SJ	15	28	.034	.031	.254	42
NQ-1928SJ	19	28	.034	.031	.264	48
NQ-2728SJ	27	28	.034	.031	.305	60
NQ-3728SJ	37	28	.034	.031	.333	75
NQ-226 SJ	2	26	.038	.031	.167	17
NQ-326 SJ	3	26	.038	.031	.173	20
NQ-426 SJ	4	26	.038	.031	.183	22
NQ-526 SJ	5	26	.038	.031	.194	25
NQ-626 SJ	6	26	.038	.031	.205	28
NQ-726 SJ	7	26	.038	.031	.205	29
NQ-826 SJ	8	26	.038	.031	.233	36
NQ-926 SJ	9	26	.038	.031	.245	39
NQ-1026SJ	10	26	.038	.031	.245	40
NQ-1226SJ	12	26	.038	.031	.251	44
NQ-1526SJ	15	26	.038	.031	.272	51
NQ-1926SJ	19	26	.038	.031	.284	58
NQ-2726SJ	27	26	.038	.031	.329	75
NQ-3726SJ	37	26	.038	.031	.362	92
NQ-4826SJ	48	26	.038	.031	.407	117

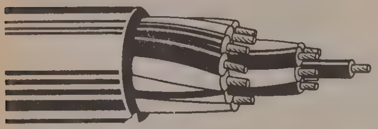
(continued on following page)

NATIONAL WIRE
AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569

Miniature Signal & Control Cables Single Conductors (NQ Series)

EXTRA FLEXIBLE — GRAY PVC JACKET



(NQ1928J shown)

MIL-SPEC & U.L. LISTED **STYLE 2464**

MULTI-CONDUCTOR STOCK CABLED SINGLES continued from previous page.

UNSHIELDED CABLES

Part No.	No. Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'
NQ-224 J	2	24	.043	.031	.154	11
NQ-324 J	3	24	.043	.031	.161	13
NQ-424 J	4	24	.043	.031	.172	15
NQ-524 J	5	24	.043	.031	.185	18
NQ-624 J	6	24	.043	.031	.198	21
NQ-724 J	7	24	.043	.031	.198	23
NQ-824 J	8	24	.043	.031	.229	27
NQ-924 J	9	24	.043	.031	.242	30
NQ-1024 J	10	24	.043	.031	.242	32
NQ-1224 J	12	24	.043	.031	.249	37
NQ-1524 J	15	24	.043	.031	.273	44
NQ-1924 J	19	24	.043	.031	.286	53
NQ-2724 J	27	24	.043	.031	.337	70
NQ-3724 J	37	24	.043	.031	.374	93
NQ-4824 J	48	24	.043	.031	.425	120
NQ-6024 J	60	24	.043	.031	.462	145
NQ-222 J	2	22	.050	.031	.166	13
NQ-322 J	3	22	.050	.031	.174	17
NQ-422 J	4	22	.050	.031	.186	20
NQ-522 J	5	22	.050	.031	.201	25
NQ-622 J	6	22	.050	.031	.216	28
NQ-722 J	7	22	.050	.031	.216	31
NQ-822 J	8	22	.050	.031	.251	36
NQ-922 J	9	22	.050	.031	.266	40
NQ-1022 J	10	22	.050	.031	.266	43
NQ-1222 J	12	22	.050	.031	.274	50
NQ-1522 J	15	22	.050	.031	.301	60
NQ-1922 J	19	22	.050	.031	.316	73
NQ-2722 J	27	22	.050	.031	.374	100
NQ-3722 J	37	22	.050	.031	.416	142
NQ-4822 J	48	22	.050	.031	.474	169
NQ-6022 J	60	22	.050	.031	.590	210
NQ-220 J	2	20	.057	.031	.182	17
NQ-320 J	3	20	.057	.031	.191	23
NQ-420 J	4	20	.057	.031	.205	28
NQ-520 J	5	20	.057	.031	.223	33
NQ-620 J	6	20	.057	.031	.240	39
NQ-720 J	7	20	.057	.031	.240	43
NQ-820 J	8	20	.057	.031	.281	51
NQ-920 J	9	20	.057	.031	.298	55
NQ-1020 J	10	20	.057	.031	.298	60
NQ-1220 J	12	20	.057	.031	.307	70
NQ-1520 J	15	20	.057	.031	.339	85
NQ-1920 J	19	20	.057	.031	.356	103
NQ-2720 J	27	20	.057	.031	.423	143
NQ-3720 J	37	20	.057	.031	.472	190
NQ-218 J	2	18	.068	.031	.202	23
NQ-318 J	3	18	.068	.031	.213	29
NQ-418 J	4	18	.068	.031	.229	37
NQ-518 J	5	18	.068	.031	.250	44
NQ-618 J	6	18	.068	.031	.270	52
NQ-718 J	7	18	.068	.031	.270	59
NQ-818 J	8	18	.068	.031	.318	68
NQ-918 J	9	18	.068	.031	.338	75
NQ-1018 J	10	18	.068	.031	.338	82
NQ-1218 J	12	18	.068	.031	.349	96
NQ-1518 J	15	18	.068	.031	.386	117
NQ-1918 J	19	18	.068	.031	.406	144
NQ-2718 J	27	18	.068	.031	.484	206

OVERALL SHIELDED CABLES

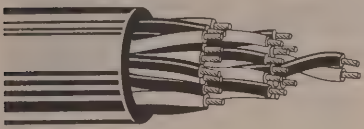
Part No.	No. Cond.	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'
NQ-224 SJ	2	24	.043	.031	.177	20
NQ-324 SJ	3	24	.043	.031	.184	22
NQ-424 SJ	4	24	.043	.031	.195	25
NQ-524 SJ	5	24	.043	.031	.208	29
NQ-624 SJ	6	24	.043	.031	.221	33
NQ-724 SJ	7	24	.043	.031	.221	35
NQ-824 SJ	8	24	.043	.031	.252	41
NQ-924 SJ	9	24	.043	.031	.265	45
NQ-1024SJ	10	24	.043	.031	.265	47
NQ-1224SJ	12	24	.043	.031	.272	53
NQ-1524SJ	15	24	.043	.031	.296	61
NQ-1924SJ	19	24	.043	.031	.309	71
NQ-2724SJ	27	24	.043	.031	.360	92
NQ-3724SJ	37	24	.043	.031	.397	118
NQ-4824SJ	48	24	.043	.031	.453	148
NQ-6024SJ	60	24	.043	.031	.490	176
NQ-222 SJ	2	22	.050	.031	.189	23
NQ-322 SJ	3	22	.050	.031	.197	27
NQ-422 SJ	4	22	.050	.031	.209	31
NQ-522 SJ	5	22	.050	.031	.224	37
NQ-622 SJ	6	22	.050	.031	.239	41
NQ-722 SJ	7	22	.050	.031	.239	44
NQ-822 SJ	8	22	.050	.031	.274	52
NQ-922 SJ	9	22	.050	.031	.289	57
NQ-1022SJ	10	22	.050	.031	.289	60
NQ-1222SJ	12	22	.050	.031	.297	67
NQ-1522SJ	15	22	.050	.031	.324	79
NQ-1922SJ	19	22	.050	.031	.339	93
NQ-2722SJ	27	22	.050	.031	.397	125
NQ-3722SJ	37	22	.050	.031	.434	169
NQ-4822SJ	48	22	.050	.031	.502	201
NQ-6022SJ	60	22	.050	.031	.618	245
NQ-220 SJ	2	20	.057	.031	.205	28
NQ-320 SJ	3	20	.057	.031	.214	35
NQ-420 SJ	4	20	.057	.031	.228	41
NQ-520 SJ	5	20	.057	.031	.246	47
NQ-620 SJ	6	20	.057	.031	.263	54
NQ-720 SJ	7	20	.057	.031	.263	58
NQ-820 SJ	8	20	.057	.031	.304	69
NQ-920 SJ	9	20	.057	.031	.321	74
NQ-1020SJ	10	20	.057	.031	.321	79
NQ-1220SJ	12	20	.057	.031	.330	90
NQ-1520SJ	15	20	.057	.031	.362	107
NQ-1920SJ	19	20	.057	.031	.379	126
NQ-2720SJ	27	20	.057	.031	.451	171
NQ-3720SJ	37	20	.057	.031	.500	221
NQ-218 SJ	2	18	.068	.031	.225	35
NQ-318 SJ	3	18	.068	.031	.236	42
NQ-418 SJ	4	18	.068	.031	.252	51
NQ-518 SJ	5	18	.068	.031	.273	60
NQ-618 SJ	6	18	.068	.031	.293	69
NQ-718 SJ	7	18	.068	.031	.293	76
NQ-818 SJ	8	18	.068	.031	.341	88
NQ-918 SJ	9	18	.068	.031	.361	97
NQ-1018SJ	10	18	.068	.031	.361	104
NQ-1218SJ	12	18	.068	.031	.372	119
NQ-1518SJ	15	18	.068	.031	.409	142
NQ-1918SJ	19	18	.068	.031	.434	171
NQ-2718SJ	27	18	.068	.031	.513	238

**NATIONAL WIRE
AND CABLE CORPORATION**

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569

Miniature Signal & Control Cables Twisted Pairs (NQP Series)

EXTRA FLEXIBLE — GRAY PVC JACKET



(NQP1928J shown)

MIL-SPEC & U.L. LISTED **STYLE 2464**

GRAY PVC JACKET

National Wire & Cable Corporation manufactures a complete line of highly flexible micro-miniature low-voltage instrument control cable. These are available as cabled pairs or singles, with optional overall shield of either foil with drain or a braided shield. Stocked with braided shields.

Conductors are stranded tinned copper with .010″ wall of tough extruded polyvinyl chloride primary insulation, rated for 300 volt use at +80°C under U. L. listed style 1061.* All are color coded using ten standard colors plus white with stripes per MIL-STD-681. Coded pairs use the same sequence as type NXP and NWP.

Conductors are planetary cabled and helically laid for optimum flexibility, with a barrier under braids. Shielded cables have a tinned copper braid of 90% coverage per MIL-C-7078, with braid angles below 40° for easy pushback; or have a 100% coverage foil shield in intimate contact with a drain wire for easy termination. See Section 3 of our master catalog for relative shield effectiveness.

Outer jacket is highly flexible abrasion-resistant gray polyvinyl chloride thermoplastic, meeting the requirements of U.L. listed style 2464.**

Military certification furnished only when requested.

All materials are flame retardant and fungus resistant.

Standard Putups: 500 and 1000 ft. No-deposit reels. For shorter quantities or specific lengths, consult factory.

* Wire also meets MIL-W-16878 type B, rated 600 volts, +105°C.

** Jacket material is military rated for +105°C; meets MIL-I-631, Class F.

TECHNICAL DATA (all cables)

Insulation breakdown voltage:	Greater than 3000 volts AC RMS, 60cps.
Capacitance:	Nominal capacitance from a wire to all else in a cable ranges from 25 to 45 pf/ft at 1kc, depending on gauge and position.
Insulation Leakage:	200 megohms/1000 feet minimum @ 500VDC from conductor to all else in cable.
Sheath Leakage:	10 megohms/1000 feet minimum @ 500VDC from shield or conductor group through sheath to ground.
Temperature Range:	U.L. rating: +80°C per U.L. style 2464. Military: Continuous use from –40°C to +105°C.
Bending Characteristics:	All cables are suitable for flexing to a circle diameter of 6 cable diameters from +105°C to –20°C. Recommended flex diameter should be greater than 20 cable diameters for flexing at –40°. For continuous flexing applications consult the factory.
Foil Shielded Cables:	The nominal overall diameter of foil shielded cables will be .006″ greater than the non-shielded cables of the same conductor count and wire size.
Characteristic Impedance: (NQP Paired Cables)	Ranges from 150 ohms to 45 ohms, dependent on wire size (AWG), geometry and drive method. Consult our technical staff for data on specific cable types.

MULTI-CONDUCTOR STOCK CABLED PAIRS

UNSHIELDED CABLES

Part No.	No. Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M′
NQP- 228J	2	28	.034	.031	.185	15
NQP- 328J	3	28	.034	.031	.202	16
NQP- 428J	4	28	.034	.031	.217	20
NQP- 528J	5	28	.034	.031	.236	23
NQP- 628J	6	28	.034	.031	.262	29
NQP- 728J	7	28	.034	.031	.262	28
NQP- 828J	8	28	.034	.031	.304	34
NQP- 928J	9	28	.034	.031	.318	41
NQP-1028J	10	28	.034	.031	.318	39
NQP-1228J	12	28	.034	.031	.328	43
NQP-1528J	15	28	.034	.031	.367	55
NQP-1928J	19	28	.034	.031	.381	61
NQP- 226J	2	26	.038	.031	.199	20
NQP- 326J	3	26	.038	.031	.218	21
NQP- 426J	4	26	.038	.031	.234	26
NQP- 526J	5	26	.038	.031	.256	34
NQP- 626J	6	26	.038	.031	.284	37
NQP- 726J	7	26	.038	.031	.284	38
NQP- 826J	8	26	.038	.031	.331	52
NQP- 926J	9	26	.038	.031	.347	60
NQP-1026J	10	26	.038	.031	.347	51
NQP-1226J	12	26	.038	.031	.358	59
NQP-1526J	15	26	.038	.031	.401	75
NQP-1926J	19	26	.038	.031	.417	85
NQP-2726J	27	26	.038	.031	.498	115

OVERALL SHIELDED CABLES

Part No.	No. Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M′
NQP- 228SJ	2	28	.034	.031	.208	28
NQP- 328SJ	3	28	.034	.031	.225	29
NQP- 428SJ	4	28	.034	.031	.240	35
NQP- 528SJ	5	28	.034	.031	.259	37
NQP- 628SJ	6	28	.034	.031	.285	46
NQP- 728SJ	7	28	.034	.031	.285	45
NQP- 828SJ	8	28	.034	.031	.327	55
NQP- 928SJ	9	28	.034	.031	.341	63
NQP-1028SJ	10	28	.034	.031	.341	61
NQP-1228SJ	12	28	.034	.031	.351	66
NQP-1528SJ	15	28	.034	.031	.390	81
NQP-1928SJ	19	28	.034	.031	.404	88
NQP- 226SJ	2	26	.038	.031	.222	34
NQP- 326SJ	3	26	.038	.031	.241	36
NQP- 426SJ	4	26	.038	.031	.257	42
NQP- 526SJ	5	26	.038	.031	.279	52
NQP- 626SJ	6	26	.038	.031	.307	56
NQP- 726SJ	7	26	.038	.031	.307	57
NQP- 826SJ	8	26	.038	.031	.355	75
NQP- 926SJ	9	26	.038	.031	.370	85
NQP-1026SJ	10	26	.038	.031	.370	76
NQP-1226SJ	12	26	.038	.031	.381	84
NQP-1526SJ	15	26	.038	.031	.424	103
NQP-1926SJ	19	26	.038	.031	.440	115
NQP-2726SJ	27	26	.038	.031	.521	152

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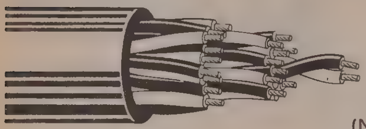
NATIONAL WIRE
AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569

Miniature Signal & Control Cables Twisted Pairs (NQP Series)

EXTRA FLEXIBLE — GRAY PVC JACKET



(NQP1928J shown)

MIL-SPEC & U.L. LISTED

STYLE 2464

MULTI-CONDUCTOR STOCK CABLED PAIRS

continued from previous page.

UNSHIELDED CABLES

Part No.	No. Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'
NQP- 224J	2	24	.043	.031	.216	24
NQP- 324J	3	24	.043	.031	.237	26
NQP- 424J	4	24	.043	.031	.256	32
NQP- 524J	5	24	.043	.031	.280	40
NQP- 624J	6	24	.043	.031	.312	46
NQP- 724J	7	24	.043	.031	.312	47
NQP- 824J	8	24	.043	.031	.365	65
NQP- 924J	9	24	.043	.031	.383	75
NQP-1024J	10	24	.043	.031	.383	65
NQP-1224J	12	24	.043	.031	.395	74
NQP-1524J	15	24	.043	.031	.444	95
NQP-1924J	19	24	.043	.031	.462	108
NQP-2724J	27	24	.043	.031	.554	141
NQP- 222J	2	22	.050	.031	.236	30
NQP- 322J	3	22	.050	.031	.260	33
NQP- 422J	4	22	.050	.031	.282	42
NQP- 522J	5	22	.050	.031	.309	51
NQP- 622J	6	22	.050	.031	.346	62
NQP- 722J	7	22	.050	.031	.346	64
NQP- 822J	8	22	.050	.031	.406	87
NQP- 922J	9	22	.050	.031	.426	100
NQP-1022J	10	22	.050	.031	.426	88
NQP-1222J	12	22	.050	.031	.440	102
NQP-1522J	15	22	.050	.031	.496	131
NQP-1922J	19	22	.050	.031	.516	143
NQP-2722J	27	22	.050	.031	.620	198
NQP- 220J	2	20	.057	.031	.263	39
NQP- 320J	3	20	.057	.031	.292	45
NQP- 420J	4	20	.057	.031	.312	57
NQP- 520J	5	20	.057	.031	.348	70
NQP- 620J	6	20	.057	.031	.391	85
NQP- 720J	7	20	.057	.031	.391	89
NQP- 820J	8	20	.057	.031	.460	121
NQP- 920J	9	20	.057	.031	.484	139
NQP-1020J	10	20	.057	.031	.484	124
NQP-1220J	12	20	.057	.031	.500	144
NQP-1520J	15	20	.057	.031	.565	176
NQP-1920J	19	20	.057	.031	.588	205
NQP- 218J	2	18	.068	.031	.297	52
NQP- 318J	3	18	.068	.031	.330	60
NQP- 418J	4	18	.068	.031	.360	77
NQP- 518J	5	18	.068	.031	.396	96
NQP- 618J	6	18	.068	.031	.447	117
NQP- 718J	7	18	.068	.031	.447	122
NQP-1218J	12	18	.068	.031	.575	188

OVERALL SHIELDED CABLES

Part No.	No. Pairs	Cond. AWG	Cond. Diam.	Jkt. Wall	Nom. O.D.	Wght. LB/M'
NQP- 224SJ	2	24	.043	.031	.239	39
NQP- 324SJ	3	24	.043	.031	.260	42
NQP- 424SJ	4	24	.043	.031	.279	50
NQP- 524SJ	5	24	.043	.031	.303	59
NQP- 624SJ	6	24	.043	.031	.335	67
NQP- 724SJ	7	24	.043	.031	.335	68
NQP- 824SJ	8	24	.043	.031	.390	91
NQP- 924SJ	9	24	.043	.031	.406	102
NQP-1024SJ	10	24	.043	.031	.406	92
NQP-1224SJ	12	24	.043	.031	.418	102
NQP-1524SJ	15	24	.043	.031	.467	127
NQP-1924SJ	19	24	.043	.031	.485	142
NQP-2724SJ	27	24	.043	.031	.577	185
NQP- 222SJ	2	22	.050	.031	.259	47
NQP- 322SJ	3	22	.050	.031	.283	51
NQP- 422SJ	4	22	.050	.031	.305	62
NQP- 522SJ	5	22	.050	.031	.332	73
NQP- 622SJ	6	22	.050	.031	.369	86
NQP- 722SJ	7	22	.050	.031	.369	88
NQP- 822SJ	8	22	.050	.031	.430	116
NQP- 922SJ	9	22	.050	.031	.449	131
NQP-1022SJ	10	22	.050	.031	.449	119
NQP-1222SJ	12	22	.050	.031	.463	134
NQP-1522SJ	15	22	.050	.031	.519	167
NQP-1922SJ	19	22	.050	.031	.539	180
NQP-2722SJ	27	22	.050	.031	.645	245
NQP- 220SJ	2	20	.057	.031	.286	58
NQP- 320SJ	3	20	.057	.031	.315	65
NQP- 420SJ	4	20	.057	.031	.335	79
NQP- 520SJ	5	20	.057	.031	.371	95
NQP- 620SJ	6	20	.057	.031	.414	112
NQP- 720SJ	7	20	.057	.031	.414	116
NQP- 820SJ	8	20	.057	.031	.483	154
NQP- 920SJ	9	20	.057	.031	.507	174
NQP-1020SJ	10	20	.057	.031	.507	159
NQP-1220SJ	12	20	.057	.031	.525	181
NQP-1520SJ	15	20	.057	.031	.588	216
NQP-1920SJ	19	20	.057	.031	.615	248
NQP- 218SJ	2	18	.068	.031	.320	74
NQP- 318SJ	3	18	.068	.031	.353	83
NQP- 418SJ	4	18	.068	.031	.383	103
NQP- 518SJ	5	18	.068	.031	.420	124
NQP- 618SJ	6	18	.068	.031	.475	148
NQP- 718SJ	7	18	.068	.031	.475	153
NQP-1218SJ	12	18	.068	.031	.600	230

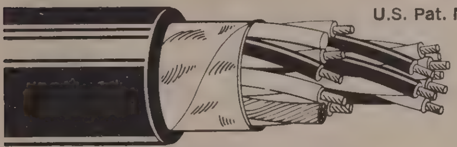
These pages are only a partial reproduction of our master catalog. If our "standard" items won't meet your application, let us **CUSTOM DESIGN** and manufacture exactly what you need. Write or call our customer services dept. for technical assistance.

NATIONAL WIRE
AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569

IN STOCK
Digital Data Transmission Cables
(D-200 Series)
UL AWM STYLE 2835

U.S. Pat. No. 3489844



Grey (Extra Flexible) or Black Vinyl Jackets
D-200 XX (XX designates number of pairs)
D-200 XXRF (RF designates braided shield over aluminum mylar foil shield) △

LOW VOLTAGE COMPUTER CABLE

THE D-200 SERIES CABLES ARE MULTIPLE-PAIR FLEXIBLE CABLES DESIGNED FOR TRANSMISSION OF DIGITAL PULSE SIGNALS BETWEEN A COMPUTER AND ITS PERIPHERAL EQUIPMENT.

DESIGN FEATURES OF THE D-200 SERIES DIGITAL DATA CABLE

Unlike conventional flexible cable construction, the primary features offered by the D-200 series data cable are the high and accurately controlled characteristic impedance of every pair, regardless of its position in the cable and special geometry chosen to reduce crosstalk.

ADVANTAGES

1. Less crosstalk and noise from mismatched loads, due to proper matching.
2. Uniform light loading on drivers allows direct I.C. drive, accurate prediction of current demands from power supply, and driver power dissipation.
3. Proper load match reduces re-flection and inversion noise where driver end is not matched to line. (Typical of TTL.)
4. Special geometry and pair construction provides exceptionally close capacitance balance between pair wires, reducing differential crosstalk.

USAGE

We recommend use of balanced drive and differential-input line receivers for lowest crosstalk and best pulse reproduction, utilizing the 110 ohm balanced impedance of the pairs. With such a system, TTL speeds have been used on D-200 cable at 1 mc data rates over 1000 ft.

Where the system is single-ended drive and receive, all pairs exhibit the 78 ohm impedance. Since these line receivers cannot discriminate between noise and the desired signal, crosstalk limits the cable distance over which transmission is reliable. Typical runs for DTL having 50 ns risetimes are 200 ft. Where risetimes can be slowed to longer than 100 ns, run lengths are practical to 500 ft. Without differential line reception, runs over 500 ft are not recommended for D-200 cable due to external noise aspects.

The D-210 series cable are recommended for high noise or long-run application. (Utilizing individual shields.)

Although use of balanced drive and differential line reception will avoid most noise problems, there are some installations where the expected external noise is unknown but assumed to be very great. Here, the use of data cables having individually-shielded pairs may be considered as conservative engineering practice. The assurance of a lower received noise may justify the increased size, cost and rise-time.

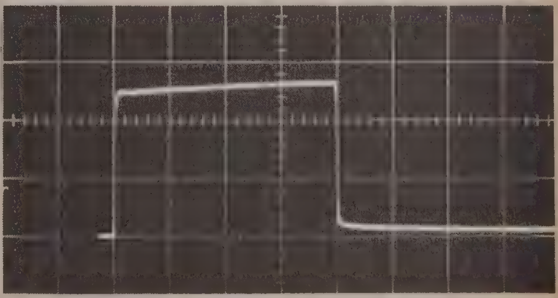
For these high noise-long run applications, Dynatronic Cable Engineering Corp has developed the D-210 series data cables. Electrical performance is essentially the same as the D-200 series cables, which use only an overall shield. △ An overall tinned-copper shield braid may be specified on either series by the suffix -RF on the part number. Standard D-200 shield is aluminum-mylar foil.

For runs of 1000-5000 ft. or where extra-fast output pulse risetime is required, we offer the D-220 series cable: a larger version of the D-200 series having improved transmission properties with sufficient mechanical strength for long pulls in conduit. Consult factory for technical data.

PULSE TRANSMISSION LOSS in D-series data cables causes a moderate amplitude loss, with definite rounding of the leading and trailing edges from 50% to 90% amplitude. The photos below (for a 1.25 megabit clock rate) show typical waveforms. The D-220 and D-222 series cables offer even lower losses than the D-200 or D-210 cables for long-run or fast-clocked applications.

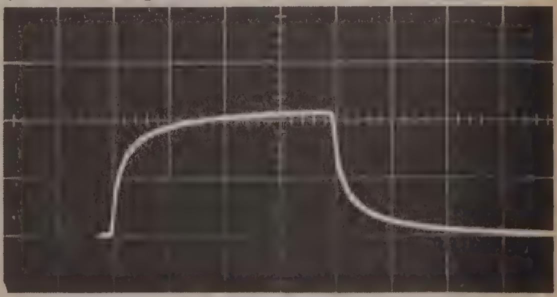
Contact our factory engineering staff for detailed pulse-shape versus distance information, or for special applications.

INPUT PULSE



Horizontal: 200. ns/cm
Vertical : 2. volts/cm

OUTPUT PULSE at 500.FT.



Horizontal: 200. ns/cm
Vertical : 2. volts/cm

We invite your telephone inquiries for technical information on data cables. Contact Mr. Frank Mortley or Mr. Kerr Hanson in our Engineering Dept.

NATIONAL WIRE AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569
Manufactured by our affiliate, Dynatronic Cable Engineering Corp.

Digital Data Transmission Cables (D-200 Series continued)

Low Voltage Computer Cable
UL AWM STYLE 2835

STANDARD DATA CABLE CONSTRUCTIONS — D-200 SERIES

Part No.						
Black Jacket	Extra Flexible Gray Jacket	No. of Pairs	Cond. AWG.	Delay NS/FT	Cable Diam.	Weight (Lbs. per M ft.)
D-200-4	D-200-4G	4	24	1.61	.315″	41.
D-200-7	D-200-7G	7	24	1.61	.410″	73.
D-200-12	D-200-12G	12	24	1.61	.455″	96.
D-200-15	D-200-15G	15	24	1.61	.510″	120.
D-200-20	D-200-20G	20	24	1.61	.635″	160.
D-200-24	D-200-24G	24	24	1.61	.660″	180.
D-200-27	D-200-27G	27	24	1.61	.690″	210.
D-200-30	D-200-30G	30	24	1.61	.710″	230.
D-200-33	D-200-33G	33	24	1.61	.750″	250.
D-200-42	D-200-42G	42	24	1.61	.840″	280.
D-200-50	D-200-50G	50	24	1.61	.910″	320.

TECHNICAL DATA

Characteristic	Balanced**	Single-ended*
Characteristic Impedance	110. ohms ±5%	78. ohms ±4%
Capacitance	14. pf/ft.	21. pf/ft.
Signal Delay	1.61 ns/ft.	1.61 ns/ft.
DC Resistance/100 ft.	5.6 ohms loop	2.8 ohms
Insulation Breakdown	6. KV min. DC	6. KV min. DC
Insulation Resistance	> 1000. megohms/M′	> 1000. megohms/M′
Temperature Range	−20. C up to +80. C (60. C for U.L.)	
Min. Bend Radius	6 x cable diameter	

*One conductor of each pair tied to common.

STANDARD DATA CABLE CONSTRUCTIONS — D-210 SERIES INDIVIDUALLY SHIELDED DATA PAIRS

Part. No.	No. of Pairs	Z_o	Delay NS/FT	Cond. AWG.	Cable Diam.	Sheath
D-210-1	1	110.	1.61	24	.220	PVC
D-210-12	12	110.	1.61	24	.980	PVC
D-210-15	15	110.	1.61	24	1.06	PVC
D-210-20	20	110.	1.61	24	1.20	PVC
D-210-30	30	110.	1.61	24	1.42	PVC
D-210-40	40	110.	1.61	24	1.69	PVC
D-210-48	48	110.	1.61	24	1.76	PVC

All items available in 50 ft. multiples.

TECHNICAL DATA

Characteristic	Balanced**	Single-ended*
Characteristic Impedance	110. ohms ±5%	63. ohms ±4%
Capacitance	14. pf/ft.	23.5 pf/ft.
Signal Delay	1.61 ns/ft.	1.61 ns/ft.
DC Resistance/100 ft.	5.6 ohms loop	2.8 ohms
Insulation Breakdown	6. KV min. DC	6. KV min. DC
Insulation Resistance	> 1000. megohms/M′	> 1000. megohms/M′
Temperature Range	−20. C up to +80. C (60. C for U.L.)	
Min. Bend Radius	9 x cable diameter	

**Both driven, one inverted. *One conductor of each pair tied to common.

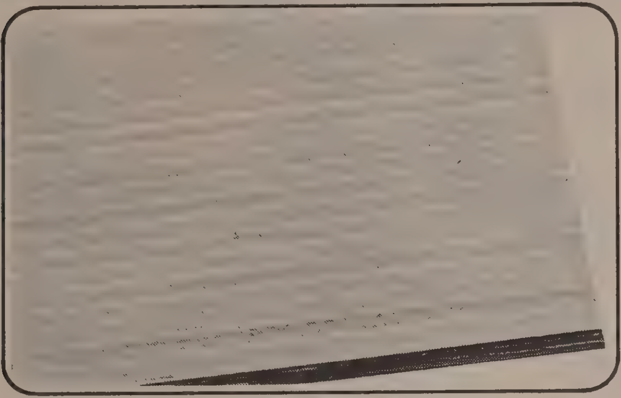
We invite your telephone inquiries for technical information on data cables. Contact Mr. Frank Motley or Mr. Ken Hanson in our Engineering Dept.

NATIONAL WIRE AND CABLE CORPORATION

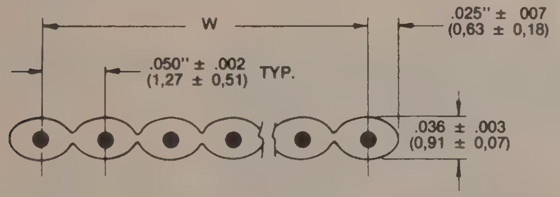
LAMINATED FLAT CABLES

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569

GREY PVC LAMINATE
(NFG Series) UL Listed Style 2651



National Wire & Cable Corporation offers a wide variety of laminated flat cables, utilizing grey PVC insulation laminated around uninsulated stranded tinned copper conductors. The conductors are on .050" centers which make the cables compatible with most insulation displacement connectors (IDC). The cables are marked with one red edge to indicate conductor number one, and the laminate is applied in a manner to allow for simple conductor separation. Packaged in 100 foot lengths. Other lengths available on special request.



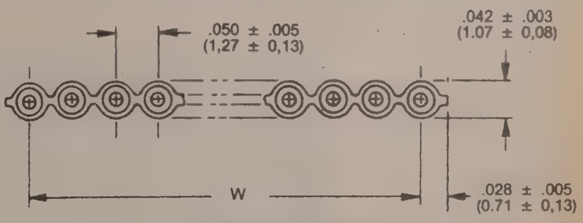
TECHNICAL DATA

Conductors:	28 AWG 7 x 36 Stranded Tinned Copper
Insulation:	Grey PVC
Cond. Spacing:	.050 ± .002
Cable Thickness:	.036 ± .003
Voltage Rating:	300V
Temp. Rating:	105 C
Impedance:	105 ohms Nom
Capacitance:	14 pf/ft Nom
Propagation Delay:	1.4 ns/ft Nom

Part No.	No. Cond.	Width "W" In.
NFG-LU-10	10	.450 ± .007
NFG-LU-14	14	.650 ± .007
NFG-LU-16	16	.750 ± .011
NFG-LU-20	20	.950 ± .011
NFG-LU-24	24	1.150 ± .011
NFG-LU-25	25	1.200 ± .011
NFG-LU-26	26	1.250 ± .011
NFG-LU-34	34	1.650 ± .011
NFG-LU-37	37	1.800 ± .015
NFG-LU-40	40	1.950 ± .015
NFG-LU-50	50	2.450 ± .015
NFG-LU-60	60	2.950 ± .015
NFG-LU-64	64	3.150 ± .015

COLOR-CODED, CLEAR LAMINATE
(NFC Series) UL Listed Style 2697

National Wire & Cable Corporation offers a wide variety of flat cables, utilizing clear PVC insulation, laminated over preinsulated, stranded tinned copper conductors manufactured to UL Style 1061. The conductors are on .050" centers which make the cables compatible with most insulation displacement connectors (IDC). The preinsulated wires are color-coded for easy identification, and the clear laminate is applied in a manner to allow for simple conductor separation. Packaged in 100 foot lengths. Other lengths available on special request.



TECHNICAL DATA

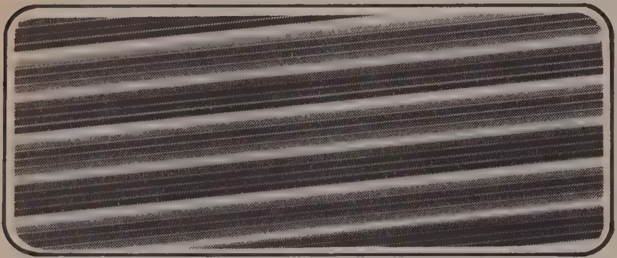
Conductors:	28 AWG 7 x 36 Stranded Tinned Copper, UL Style 1061
Insulation:	PVC-Color-Coded Brown, Red, Orange, Yellow, Green, Blue, Violet, Gray, White, Black (Repeat)
Laminate:	Clear PVC
Cond. Spacing:	.050" ± .005
Cable Thickness:	.042" Nom
Voltage Rating:	300V
Temp. Rating:	80 C
Impedance:	103 ohms Nom
Capacitance:	15 pf/ft Nom
Propagation Delay:	1.4 ns/ft Nom

Part No.	No. Conds.	Width "W" In.
NFC-LI-10	10	.450 ± .007
NFC-LI-14	14	.650 ± .007
NFC-LI-16	16	.750 ± .011
NFC-LI-20	20	.950 ± .011
NFC-LI-24	24	1.150 ± .011
NFC-LI-25	25	1.200 ± .011
NFC-LI-26	26	1.250 ± .011
NFC-LI-34	34	1.650 ± .015
NFC-LI-37	37	1.800 ± .015
NFC-LI-40	40	1.950 ± .015
NFC-LI-50	50	2.550 ± .015
NFC-LI-60	60	2.950 ± .015
NFC-LI-64	64	3.150 ± .015

NATIONAL WIRE AND CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569

BONDED AND WOVEN FLAT CABLES



National Wire and Cable Corporation offers a wide selection of bonded flat cables by bonding together preinsulated, stranded tinned copper conductors. This cable series is listed as Cable Style 2697, and can utilize any stranded PVC style of insulated wires. Stocked with UL1061 conductors, from 16–30 AWG. Other component styles available on special request. Color-coded BROWN through BLACK as shown below. Available in any number of conductors, providing total width does not exceed 4 inches. Packaged in 100 foot lengths.

BONDED FLAT CABLES

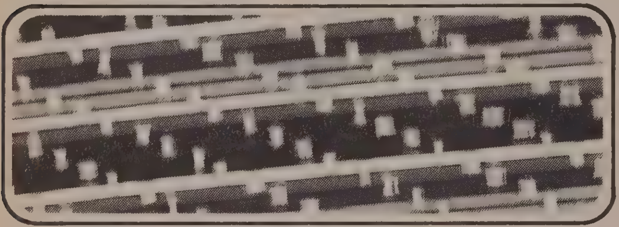
(NFBC Series)

UL Listed Style 2697

PART NUMBER GENERATION

NFBC 10 20 19 B (UL 1061)
C (UL 1007)
D (UL 1015)
Insulation Code (Select One)
No. of Strands
AWG of Conductors
No. of Conductors
Series Identification

NOTE: Certain gauges are available only in one specific stranding. Consult sales department when placing order.



National Wire and Cable Corporation offers a wide selection of woven flat cables by weaving together preinsulated, stranded tinned copper conductors. The weave is a twill type utilizing nylon, which allows conductors to move under flexing, creating a highly flexible cable. Stocked with UL1061 conductors from 16–30 AWG. Other component styles available on special request. Color-coded BROWN through BLACK as shown below. Available in any number of conductors providing total width does not exceed 3 inches. Packaged in 100 foot lengths.

WOVEN FLAT CABLES, SINGLES

(NFWS Series)

PART NUMBER GENERATION

NFWS 20 26 7 B (UL 1061)
C (UL 1007)
D (UL 1015)
Insulation Code (Select One)
No. of Strands
AWG of Conductors
No. of Conductors
Series Identification

NOTE: Certain gauges are available only in one specific stranding. Consult sales department when placing order.

National Wire and Cable Corporation offers a wide selection of woven flat cables made with twisted pairs, by weaving together the preinsulated, stranded tinned copper conductor pairs. The weave is a twill type utilizing nylon, which allows the pairs to move under flexing, creating a highly flexible twisted pair cable. Stocked with UL1061 conductors from 16–30 AWG. Other component styles available on special request. Color-coded BROWN through BLACK as shown below. The common conductor in each pair is black. Available in any number of pairs, providing total width does not exceed 3 inches. Packaged in 100 foot lengths.

WOVEN FLAT CABLES, PAIRS

(NFWP Series)

PART NUMBER GENERATION

NFWP 12 24 7 B (UL 1061)
C (UL 1007)
D (UL 1015)
Insulation Code (Select One)
No. of Strands
AWG of Conductors
No. of Conductors
Series Identification

NOTE: Certain gauges are available only in one specific stranding. Consult sales department when placing order.

Color Code : BROWN, RED, ORANGE, YELLOW, GREEN, BLUE, VIOLET, GRAY, WHITE, BLACK (Repeat)

NATIONAL WIRE
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Coiled Instrumentation Cables for Custom Applications

Our new, automated coiling department is ready to design, and manufacture coiled instrumentation cables for your specific requirements. These cables are available in any number of conductors, and in gauge sizes 18 through 30 AWG. They are designed for high reliability, ultra-flexible long-life applications, as encountered in computer interconnects, bio-medical electronics, and optimum retractability, and general control cable use. Call our technical staff to discuss your custom application!

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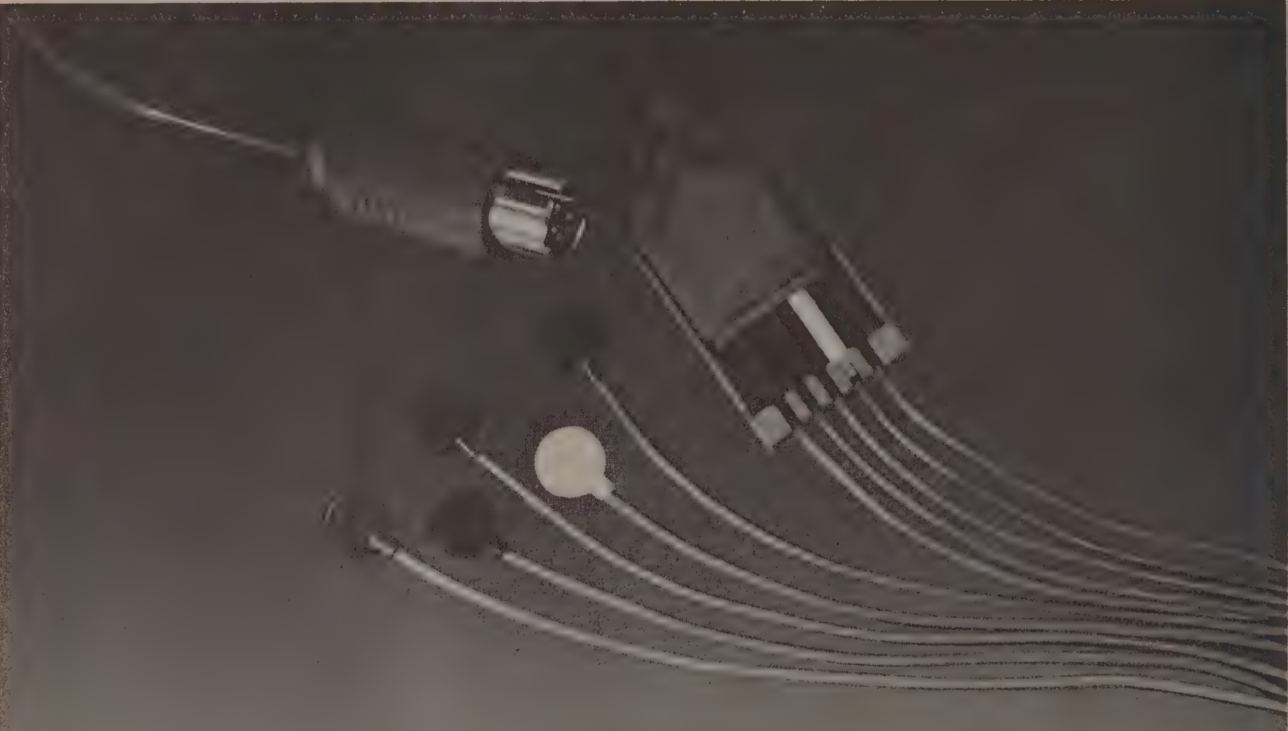
NATIONAL CABLE
MOLDING CORPORATION

AN AFFILIATE OF NATIONAL WIRE & CABLE CORPORATION

Dept. EM, 136 San Fernando Rd., Los Angeles, Calif. 90031
Phone (213) 225-5611, TWX: 910-321-4155, Fed. Stock Code H4-04569

Molded Instrumentation Cables for all Types of Medical & Electronic Applications

AN AFFILIATE OF NATIONAL WIRE & CABLE CORPORATION



SPECIALISTS IN INJECTION-MOLDING OF CONNECTORS DIRECTLY ONTO CABLE!

INTEGRAL-MOLDED ELECTRONIC CABLE/CONNECTOR ASSEMBLIES

Utilizing integral cable molding techniques, National Cable Molding Corporation (NCM) manufactures all components "in-house" from wire insulation to cable manufacture, connector assembly, tooling and molding the entire unit ready for use!

Write or call Mr. Bill Kish today for technical information or assistance. Phone: (213) 225-5611.

Heli-Tube®

Spirally Cut Expandable Plastic Cable Harness

Exceptional Features and uses include . . .

- **BUNDLES WIRES, CABLES, or HOSES FIRMLY BUT ALLOWS FLEXIBILITY**
- **RESISTS ABRASION & INSULATES**
- **DAMPENS VIBRATION**

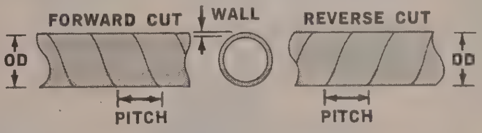
This Heli-Tube is recognized under the Component Program of Underwriter's Laboratories, Inc.

Standard Materials	Max. Oper. Temp.	Min. Oper. Temp.	Abrasion Resistance Lower Better mg loss per M cycles	Effect of Solvents	Effect of Acids	Effect of Alkalies	Flammability	Mil Spec. & Approvals
CLEAR POLYETHYLENE Low cost material . . . ideal for general applications. Not affected by ordinary solvents and extremely resistant to abrasion.	215°F 101°C	-105°F -76°C	22	None below 122°F 50°C	None	None	Flammable	Fed. Spec. LP390 MIL I 631D MIL P 26692
BLACK POLYETHYLENE Ultraviolet-resistant for outdoor use. This has the same qualities as Clear Polyethylene and, in addition, contains an ultraviolet absorber which permits it to be used in direct sunlight for long periods of time.	215°F 101°	-105°F -76°C	20	None below 122°F 50°C	None	None	Flammable	Fed. Spec. LP390 MIL I 631 D MIL P 26692
FIRE-RESISTANT POLYETHYLENE SELF EXTINGUISHING, yet has lower cost than Nylon or Teflon. Made of duPont White Rulan. (Also available in Black).	200°F 93°C	-1°F -19°C	27	None below 122°F 50°C	None	None	UL 94V-0	
NYLON Natural - Offers combination of light weight, temperature range, and high abrasion resistance. Self-extinguishing. Recommended for use in enclosed environments where possibility of fire exists. Even at temperatures beyond its operating range, or on exposure to flame, Nylon does not give off any toxic or irritating by-products. Nylon is six times as strong as Polyethylene.	250°F 121°C	-121°F -85°C	6-8	None	Satisfactory except for strong acids	None	UL 94V-2	MIL M-20693A Type I MIL M 22096 LP 410A
BLACK NYLON Has the same characteristics as Nylon Natural, but, in addition, has an ultraviolet absorber which permits use in direct sunlight. This Nylon is heat stabilized.	250°F 121°C	-121°F -85°	6-8	None	Satisfactory except for strong acids	None	UL 94V-2	MIL M-20693A Type II MIL M 22096 LP 410A
TEFLON Natural (TFE) - Has the widest temperature range. Can be used from -450°F to 500°F. Chemically inert. Non-flammable.	500°F 260°C	-450°F -85°C	7	None	None	None	Non-Flammable	MIL M-20693 AMS 3651B AMS 3653 AMS 3654 AMS 3655

Convenient Packaging

Size	Spools Feet	Payout Box Feet
1/8″	100 or 500	
1/4″	100 or 500	250
3/8″	100 or 500	100
1/2″	100 or 500	50 or 100
3/4″	100 or 200	25 or 50
1″	100	200
Special Packaging Available		

TO ORDER please state size, material and spooling requirement.

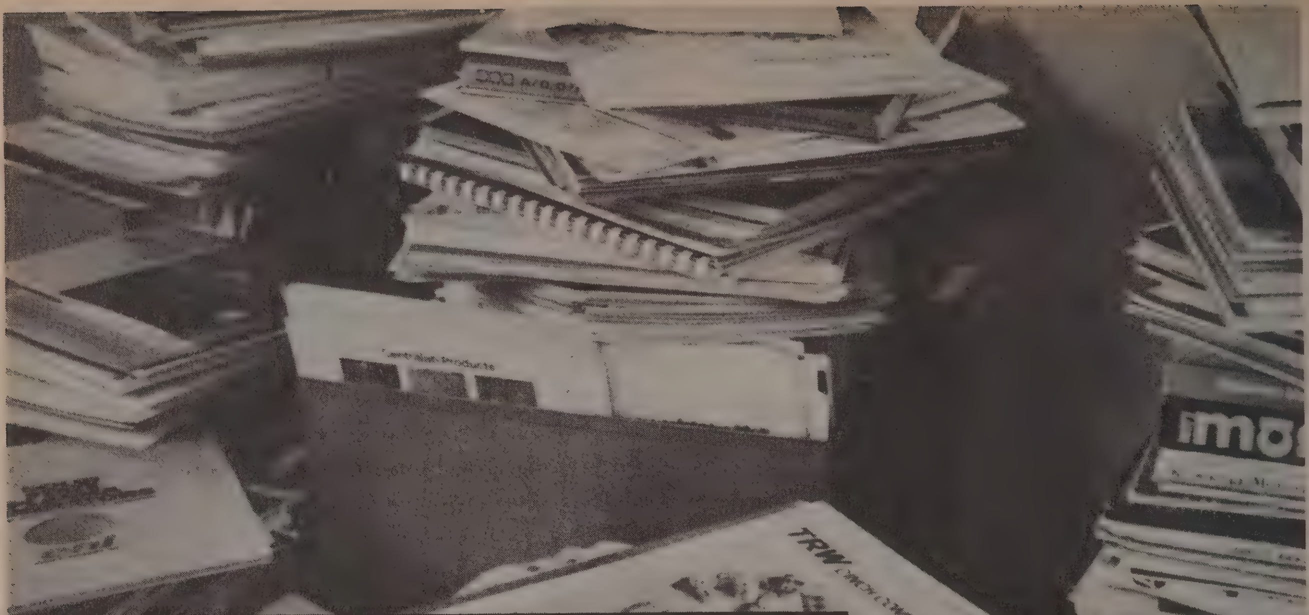


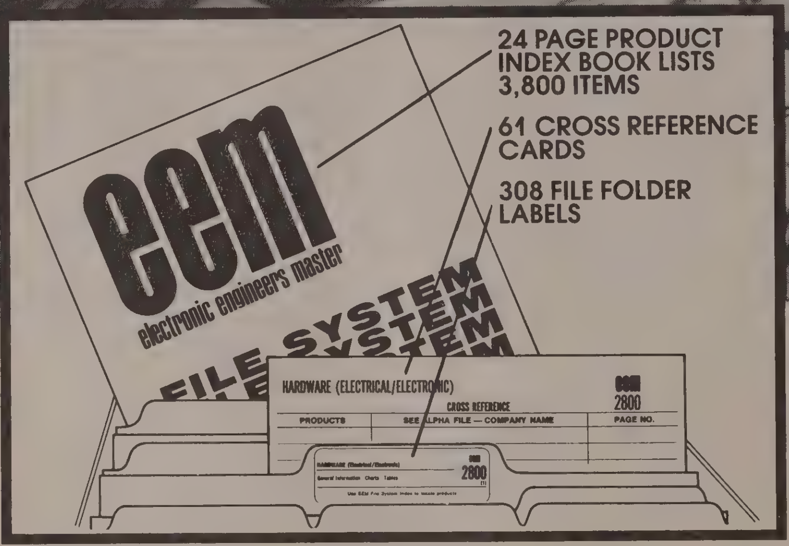
Dimensions & Weights

Material	Part No.	Outside Dia.	Wall Thickness	Pitch Decimal	Max. Bundle Range	Weight Lbs./ M Ft.
Clear Polyethylene	HT 1/8C	.125	.032	.187	1/16 to 1/2	4
	HT 1/4C2	.250	.035	.375	3/16 to 2	9
	HT 1/4C	.250	.045	.375	3/16 to 2	12
	HT 3/8C	.375	.052	.438	5/16 to 3	22
	HT 1/2C	.500	.062	.563	3/8 to 4	35
	HT 3/4C	.750	.065	.750	3/4 to 5	58
	HT 1C	1.00	.095	1.00	1 to 7	105
Black Polyethylene Ultraviolet-Resistant for Outdoor Use	HT 1/8UR	.125	.032	.187	1/16 to 1/2	4
	HT 1/4UR	.250	.045	.375	3/16 to 2	12
	HT3/8UR	.375	.052	.438	5/16 to 3	22
	HT 1/2UR	.500	.062	.500	3/8 to 4	35
	HT 3/4UR	.750	.065	.750	3/4 to 5	58
	HT 1UR	1.00	.095	1.00	1 to 7	105
Fire-Resistant White Rulan	HT 1/8FR	.125	.032	.187	1/16 to 1/2	6
	HT 1/4FR	.250	.045	.375	3/16 to 2	17
	HT 3/8FR	.375	.052	.438	5/16 to 3	29
	HT 1/2FR	.500	.062	.563	3/8 to 4	52
	HT 3/4FR	.750	.065	.750	3/4 to 5	85
	HT 1FR	1.00	.095	1.00	1 to 7	156
Fire-Resistant Black Rulan	HT 1/4FR-B	.250	.045	.375	3/16 to 2	17
	HT 1/2FR-B	.500	.062	.563	3/8 to 4	52
Nylon	HT 1/8N	.125	.015	.187	1/16 to 1/2	3
	HT 1/4N	.250	.025	.375	3/16 to 2	9
	HT 3/8N	.375	.035	.438	5/16 to 3	18
	HT 1/2N	.500	.035	.500	3/8 to 4	25
	HT 3/4N	.750	.032	.750	1/2 to 5	38
	HT 1N	1.00	.032	1.00	1 to 7	50
Black Nylon Heat Stabilized	HT 1/8N-B	.125	.015	.187	1/16 to 1/2	3
	HT 1/4N-B	.250	.025	.375	3/16 to 2	9
	HT 3/8N-B	.375	.035	.438	5/16 to 3	18
	HT 1/2N-B	.500	.035	.500	3/8 to 4	25
	HT 3/4N-B	.750	.032	.750	1/2 to 5	38
	HT 1N-B	1.00	.032	1.00	1 to 7	50
Teflon	HT 1/8T1	.125	.030	.187	1/16 to 1/2	9.4
	HT 1/8T2	.125	.020	.187	1/16 to 1/2	7.4
	HT 3/16T	.187	.030	.250	1/8 to 1-1/12	15.2
	HT 1/4T	.250	.030	.375	3/16 to 2	20.7
	HT 3/8T	.375	.030	.438	5/16 to 2-1/2	36.5
	HT 1/2T	.500	.030	.500	3/8 to 3	50.5
	HT 3/4T	.750	.032	.750	1/2 to 4	81.3
	HT 1T	1.00	.040	1.00	3/4 to 5	175.0

Heli-Tube Division **M. M. NEWMAN CORPORATION**

7 HAWKES STREET • PO BOX 615 • MARBLEHEAD, MASSACHUSETTS 01945 • (617) 631-7100

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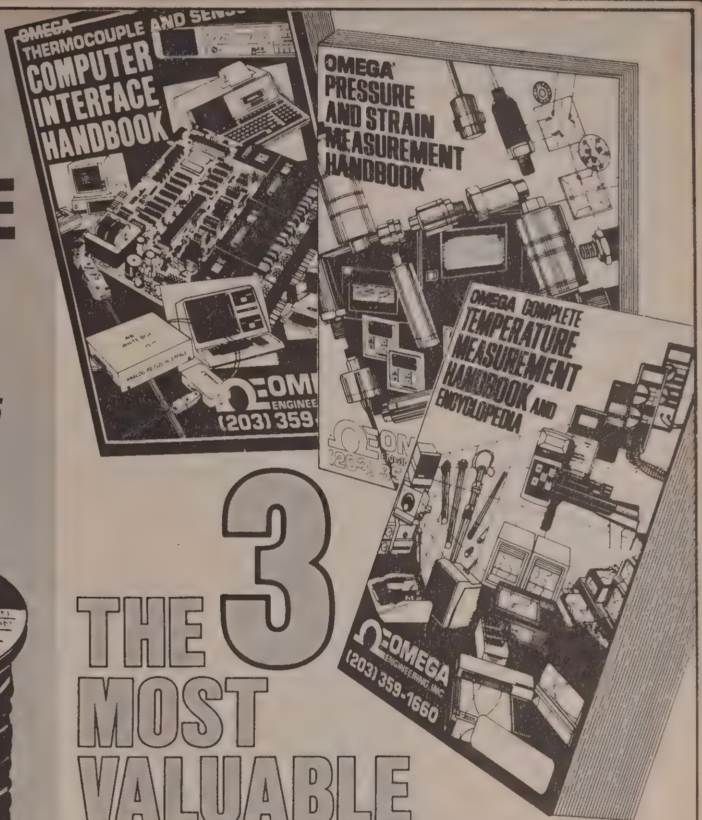
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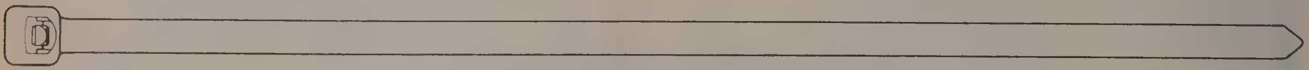
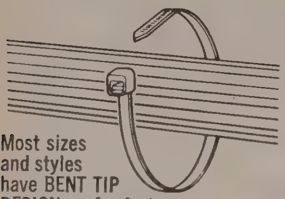
PANDUIT® wiring products

- Engineered with quality features designed to increase productivity and reduce your total installed cost:
  - — Low threading force
  - — No sharp edges
  - — Finger grip tip
  - — Bent tip

  Plus consistent quality assured by tests conducted by military and independent testing labs.
- Complete line of cable ties, clamps, push mount and marker ties. Meet all applicable Military Specifications. Recognized by U.L.
- All nylon, one-piece construction — up to 250 lbs. minimum loop tensile strength.
- Standard color natural nylon.

CABLE TIES





Most sizes and styles have BENT TIP DESIGN — for faster installation

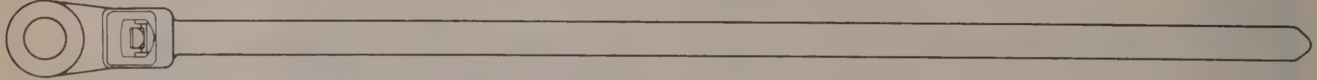
Part No. & Cross-section	Max. Bundle Dia.	Approx. Length	Approx. Width	Minimum Loop Tensile Strength (lbs.)
PLT1M Miniature Tie ▲	⅞″	3⅞″	.10″	18
PLT1S Standard Tie	1″	4¾″	.19″	50
PLT1.5M Miniature Tie	1¼″	5⅝″	.10″	18
PLT1.5I Intermediate Tie ▲	1⅜″	5⅝″	.14″	40
PLT1.5S Standard Tie	1½″	6⅜″	.19″	50
PLT2M Miniature Tie	2″	8″	.10″	18
PLT2I Intermediate Tie	2″	8″	.14″	40
PLT2S Standard Tie ▲	1⅞″	7⅜″	.19″	50
PLT2H Heavy Tie	2″	8⅜″	.30″	120
PLT3I Intermediate Tie	3″	11⅜″	.14″	40
PLT3S Standard Tie ▲	3″	11½″	.19″	50
PLT3H Heavy Tie	3″	11⅜″	.30″	120
PLT4I Intermediate Tie	4″	14⅝″	.14″	40
PLT4S Standard Tie ▲	4″	14½″	.19″	50
PLT4H Heavy Tie ▲	4″	14½″	.30″	120
PLT5S Standard Tie	5″	17½″	.19″	50
PLT5H Heavy Tie	5″	17¾″	.35″	175
PLT6H Heavy Tie	6″	20⅞″	.35″	175
PLT7LH Light Heavy Tie	7″	25″	.30″	120
PLT8LH Light Heavy Tie	8″	28″	.30″	120
PLT8H Heavy Tie ▲▲	9″	30⅝″	.35″	175

▲ Meets Mil. Std. MS3367

▲▲ Meets Mil. Std. MS3367, Class 2

For harsh environments; contact factory for ties made from Stainless Steel, DuPont's TEFZEL, Polypropylene, and Allied's HALAR.

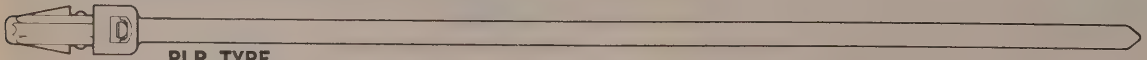
CLAMP TIES



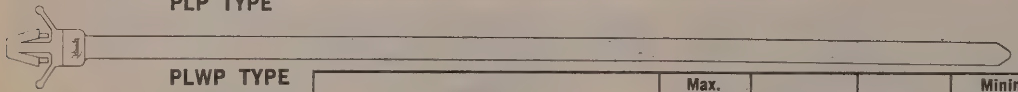
Use in place of fixed diameter clamps

Part No. & Cross-section	Max. Bundle Dia.	Approx. Length	Approx. Width	Minimum Loop Tensile Strength (lbs.)
PLC1M-S4 Miniature Clamp (#4 Screw)	¾″	4⅜″	.10″	18
PLC1.5I-S8 Intermediate Clamp (#8 Screw)	1¼″	6⅛″	.13″	30
PLC2S-S6 Standard Clamp (#6 Screw)	1¾″	7⅞″	.19″	50
PLC2S-S10 Standard Clamp (#10 Screw)	1¾″	7⅞″	.19″	50
PLC4H-S25 Heavy Clamp (¼″ Screw)	4″	15¼″	.30″	120

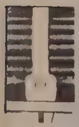
PUSH MOUNT TIES



PLP TYPE



PLWP TYPE



Integral mounting device eliminates the need for additional mounting hardware

Part No. & Cross-section	Max. Bundle Dia.	Approx. Length	Approx. Width	Minimum Loop Tensile Strength (lbs.)	Max. Panel Thickness	Hole Diameter
PLP1.5I Intermediate Tie	1¼″	6⅛″	.14″	30	3/32″	3/16″
PLP1S Standard Tie	1″	5¼″	.19″	50	⅛″	¼″
PLP1.5S Standard Tie	1¾″	6⅞″	.19″	50	⅛″	¼″
PLP2S Standard Tie	1¾″	7⅞″	.19″	50	⅛″	¼″
PLWP1M Miniature Tie	¾″	4¼″	.10″	18	5/64″	3/16″
PLWP1S Standard Tie	1″	5⅛″	.19″	50	3/32″	¼″
PLWP1.5S Standard Tie	1½″	6¾″	.19″	50	3/32″	¼″
PLWP2S Standard Tie	1¾″	7¾″	.19″	50	3/32″	¼″
PRWP1S Standard Tie	1″	5⅛″	.19″	50	3/32″	¼″
PRWP1.5S Standard Tie	1½″	6¾″	.19″	50	3/32″	¼″
PRWP2S Standard Tie	1¾″	7¾″	.19″	50	3/32″	¼″

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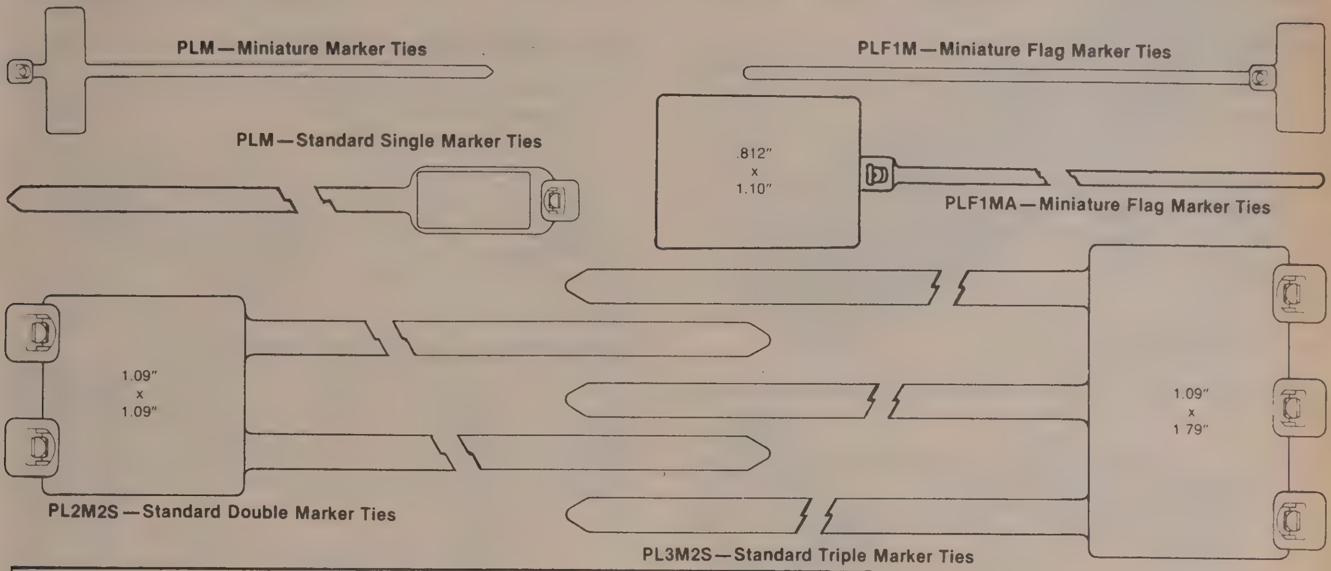
PANDUIT® wiring products

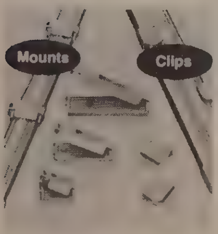
MARKER TIES


PLM—Miniature Marker Ties
PLF1M—Miniature Flag Marker Ties
PLM—Standard Single Marker Ties
.812″ x 1.10″
PLF1MA—Miniature Flag Marker Ties
1.09″ x 1.09″
1.09″ x 1 79″
PL2M2S—Standard Double Marker Ties
PL3M2S—Standard Triple Marker Ties

Part No. & Cross-section	Max. Bundle Dia.	Approx. Length	Approx. Width	Minimum Loop Tensile Strength (lbs.)
PLM1M Miniature Tie ▲	¾″	3⅞″	.10″	18
PLF1M Miniature Tie	¾″	4⅜″	.10″	18
PLF1MA Miniature Tie	¾″	5″	.10″	18
PLM2M Miniature Tie	2″	8″	.10″	18
PLM2S Standard Tie ▲	1¾″	7⅜″	.19″	50
PLM4S Standard Tie▲	4″	14⅝″	.19″	50
PL2M2S Standard Tie	1¾″	7⅜″	.19″	50
PL3M2S Standard Tie	1¾″	7⅜″	.19″	50

▲ Meets Mil. Std. MS3368

MOUNTING ACCESSORIES (used without cable ties)


Mounts
Clips

FLAT CABLE MOUNTS & CLIPS

• Convenient, One-Piece • Releasable • Adhesive Backed

FLAT CABLE MOUNTS

- Three sizes to secure 1″, 2″ and 3″ wide flat cable
- Variable stacking height up to 11/64″
- Fast installation; releasable and reusable for easy revisions
- Screw mounting type also available

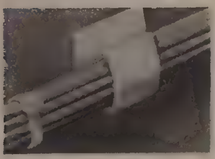
FLAT CABLE CLIPS

- Securely retain any flat cable up to 11/64″ stack height; one size for any width
- Integral serrations grip cable, prevent slipping
- Easy mounting; ready access to cable for revisions

CLINCHER™ ADJUSTABLE RELEASABLE CLAMP

This clamp provides a way of securing bundles from .19″ up to .69″ diameter. Available with adhesive backing or screw applied with one #6 screw.

ARC.68-A-14 Adhesive Backed
ARC.68-S6-14 Screw Applied



ADHESIVE BACKED CORD CLIPS

Three sizes to hold cords, tubing or wire bundles up to .62″ dia. Are easily snapped into or out of the clips.

ACC19-A Up to .19″ dia.
ACC38-A Up to .38″ dia.
ACC62-A Up to .62″ dia.

ADHESIVE BACKED "J" CLIPS

These low profile "J" Clips retain cords, wires, or tubing and are available in five sizes. The design allows easy insertion yet holds with high retention force.

Part No.	Nom. Bundle Dia.
AJC12-A-C	.12″
AJC19-A-C	.19″
AJC25-A-C	.25″

Part No.	Nom. Bundle Dia.
AJC31-A-C	.31″
AJC38-A-C	.38″

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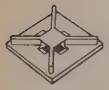
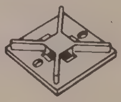
MOUNTING ACCESSORIES (used with cable ties)

ADHESIVE BACKED MOUNTS

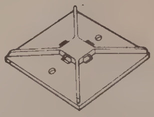
- Convenient mounting method. Many types for different applications.


ABMM-A


ABM2S-A
FOR INDOOR
USE

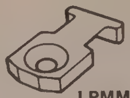
ABM2S-AT
FOR HIGH-TEMP USE

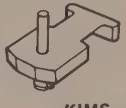
ABM2S-ATO
FOR OUTDOOR USE

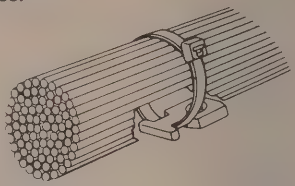

ABM4S-A

LOW PROFILE MOUNTS

- Provide for low height when securing bundles to panels or other flat surfaces.

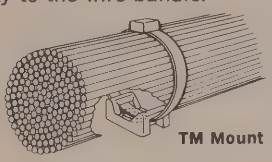

LPMM
LPMS


KIMS



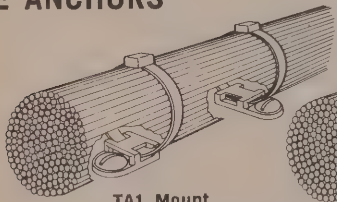
TIE MOUNTS

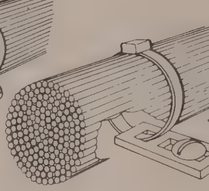
- Unique cradle design. Provides maximum stability and rigidity to the wire bundle.


TM Mount

TMEH Mount

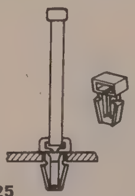
TIE ANCHORS

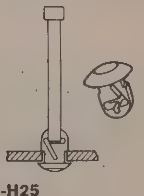

TA1 Mount


TA2 Mount

PUSH MOUNTS

- For panel thickness ⅛″ max. Hole dia. nom. ¼″.


PM2H25


PBMS-H25

SELECTION GUIDE FOR MOUNTS

	Part Number		Used With Cable Ties ■	Mounting Method	Width (Inches)	Length (Inches)
Adhesive Backed Mounts	ABMM-A	▲	M	Adhesive Tape	.75	.75
	ABM2S-A	▲	M.I.S.	Adhesive Tape	1.00	1.00
	ABM2S-AT-0		M.I.S.	Adhesive Tape	1.00	1.00
	ABM4S-A	▲	M.I.S.	Adhesive Tape	2.00	2.00
Tie Mounts	TM1S4	▲	M	#4	.33	.51
	TM1S6	▲	M	#6	.33	.51
	TM1A		M	Adhesive*	.33	.51
	TM2S6	▲	M.I.S.	#6	.38	.59
	TM2S8	▲	M.I.S.	#8	.38	.59
	TM2A		M.I.S.	Adhesive*	.38	.59
	TM3S8	▲	M.I.S.H.●	#8	.63	.88
	TM3S10	▲	M.I.S.H.●	#10	.63	.88
	TM3S25	▲	M.I.S.H.●	¼″	.63	.88
	TM3A		M.I.S.H.●	Adhesive*	.63	.88
	TMEH-S8	▲	M.I.S.H.EH.	#8	.74	1.65
	TMEH-S10	▲	M.I.S.H.EH.	#10	.74	1.65
	TMEH-S25	▲	M.I.S.H.EH.	¼″	.74	1.65
Tie Anchors	TA1S8	▲	M.I.S.	#8	.38	.75
	TA1S10	▲	M.I.S.	#10	.38	.75
	TA2	▲	M.I.S.	#10	.50	1.23
Push Mounts	PBMS-H25	▲	M.I.S.	Push-in ¼″ Hole	.45	.40
	PM2H25	▲	M.I.S.	Push-in ¼″ Hole	.38	.62
	PMS-H24		M.I.S.	Push-in 15/64″ Hole	.40	.47
Low Profile Mounts	LPMM-S2	▲	M	#2 or .088 dia. Rivet)	.32	.40
	LPMM-S5	▲	M	#5	.32	.40
Screw Applied	LPMS-S8	▲	M.I.S.	#8	.50	.75
	KIMS-H366	▲	M.I.S.	144″ Integral Rivet	.50	.75
Knock-in Rivet	KIMS-H430	▲	M.I.S.	169″ Integral Rivet	.50	.75
	KIMS-H500	▲	M.I.S.	196″ Integral Rivet	.50	.75

■ Tie Cross-Section: M = Miniature, I = Intermediate, S = Standard, H = Heavy, EH = Extra Heavy

* Adhesive supplied by user ● Except .35″ width ties.

▲ UL U.L. RECOGNIZED

CABLE TIE INSTALLATION TOOLS

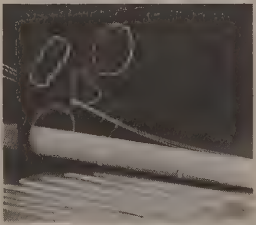
Panduit's complete line of cable tie installation tools allows you to choose the proper tool to meet all your cabling requirements — no matter what your application.

All the tools are lightweight, easy to operate and provide flush cut-off every time. Because they are fast and efficient, they speed cable tie installation and lower your total installed cost.

PANDUIT®

GROMMET EDGING

Eliminates abrasion of wire insulation passing through holes cut in metal panels.



Meets Mil. Std. MS-21266 • 100% Nylon

Part no.	Panel Thickness
GE52-C	.015″ — .052″
GE85-C	.053″ — .085″
GE128-C	.086″ — .128″
GE192-L	.128″ — .192″

Part no.	Panel Thickness
GE255-L	.192″ — .255″
GE318-L	.255″ — .318″
GE380-Q	.318″ — .380″
GE510-Q	.380″ — .510″

Nom. length (each piece) — 12¾″.

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ELECTRICAL GROUP

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PANDUIT® wiring products

PANDUCT®

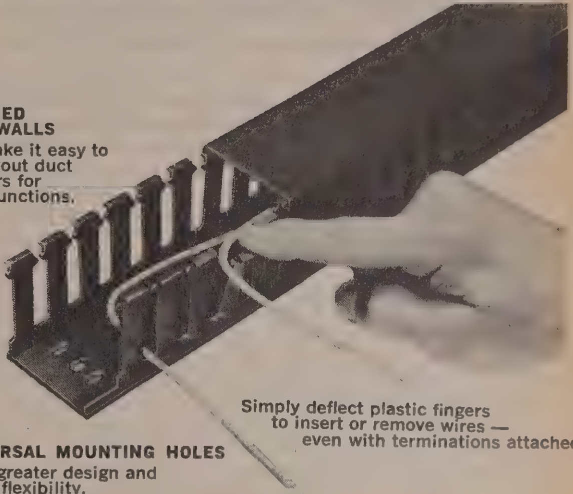
PLASTIC WIRING DUCT—TYPE "E"

- Reduce your total installed costs with patented snap-in slot design:
  - —Holds breakout wires captive while providing complete accessibility for adding or removing wires — even with terminations attached.
  - —Result: your total cost is reduced during initial installation, wire tracing, trouble shooting and circuit revisions.
- Non-slip cover prevents vibration slippage, yet easy to install or remove.
- Standard color: Light gray. White and dark gray available. Standard length: 6 ft.
- Complete variety of accessories available for installation.
- Also available:
  - Type "S" Solid Wall Duct
  - Type "D" Round Hole Duct
  - Type "NE" & "NS" Chlorine-Free, High-Temperature Duct

All "E", "S", and "D" Duct are available with optional adhesive backing.

Applicable sizes are recognized under Components Program of Underwriters' Laboratories, Inc.

MEETS J.I.C. REQUIREMENTS



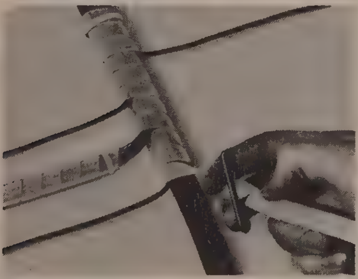
SCORED SIDEWALLS
— make it easy to breakout duct fingers for "T" junctions.

Simply deflect plastic fingers to insert or remove wires — even with terminations attached.

UNIVERSAL MOUNTING HOLES
— for greater design and layout flexibility.

Nominal Duct Size W x H	Nominal Duct Size W x H	Nominal Duct Size W x H
.5 x .5	1 x 2	2 x 4
.5 x .62	1 x 3	2.5 x 3
.5 x 1	1 x 4	3 x 1
.5 x 1.25	1.5 x 1	3 x 1.25
.5 x 1.75	1.5 x 1.5	3 x 2
.5 x 2	1.5 x 2	3 x 3
.75 x .75	1.5 x 3	3 x 4
.75 x 1	1.5 x 4	3 x 5
.75 x 1.5	2 x 1	4 x 1.5
.75 x 2	2 x 1.5	4 x 2
1 x 1	2 x 2	4 x 3
1 x 1.25	2 x 2.5	4 x 4
1 x 1.5	2 x 3	4 x 5

PANDUIT® SPIRAL WRAPPING

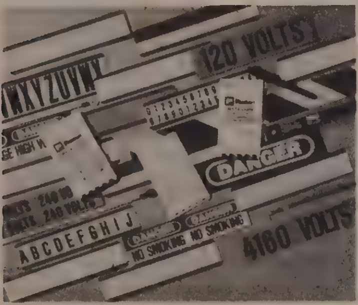


- Versatile. Wires can enter or leave at any point. Follows path of wires easily.
- Reusable.
- Available in five standard materials: Polyethylene (Natural, Weather-Resistant & Flame Retardant), Nylon and TEFLON*.
- Available in five sizes for bundle diameters up to 5″.
- Easily installed with tool supplied in each package.

* Registered Trademark of E. I. Dupont De Nemours & Co.

PANDUIT® INSTA-CODE®

WIRE AND IDENTIFICATION MARKERS—COMPARE FEATURES AND VISIBILITY



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Vinyl Cloth Markers
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Books (17 assortments)
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Self-laminating Vinyl
Pre-printed legend (cards)
Write-on (cards and books)
Sheet form (for typewriter)

Vinyl (For Indoors or Outdoors)
Voltage markers (3 sizes)
Safety signs
Large size markers
Reflective markers
KVA markers

Tape
Hazard warning

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ELECTRICAL GROUP

INTERNATIONAL

1. Detachable cordsets:

Detachable cordsets offer flexibility for both the equipment manufacturer and user.

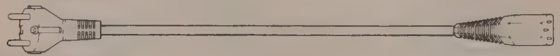
The manufacturer can meet most international cord requirements with just one product model that is equipped with an IEC 320/CEE-22 connector. (For more information on IEC 320 connectors, please ask for the PCC primary power connector data sheet.) Then a cordset with the mating IEC 320 connector and the appropriate international plug can be specified at the time the product is shipped to the end user. The table below describes seven standard PCC cordsets.

International cordsets have some limitations. First, current ratings are limited to 6 amps by European agencies. The limitation is derived from restrictions placed on the IEC 320 connector. Equipment which draws more than 6 amps at 220 VAC should be equipped with permanently installed power cords described below. (For applications up to 10 amps, some countries allow the use of a new replaceable connector which is patterned after the IEC 320 unit but which is polarized to prevent insertion of the 6 amp models. For more information, ask about our cordsets for "Hot" applications and the "W" series of connectors.)

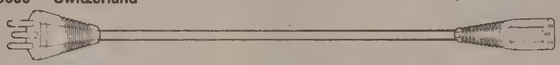
Secondly, addition of the connector adds to the cost of the power cord. Typically, the IEC 320 connector which is molded to the cord adds 50-75 cents to the cord cost. A panel mounting IEC 320 receptacle is about 50 cents. Both prices assume purchases in the 100-piece range. Clearly, a trade-off between added cost and manufacturing flexibility has to be made.

TABLE 1

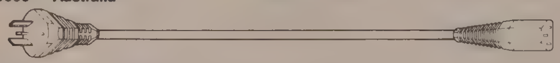
86511000 Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Sweden



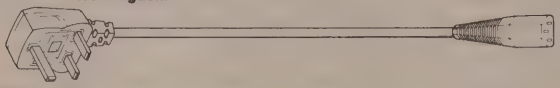
86515000 Switzerland



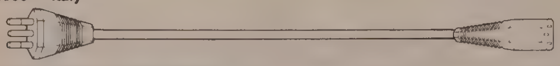
86516000 Australia



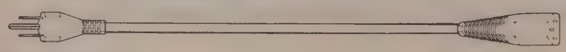
86552000 United Kingdom



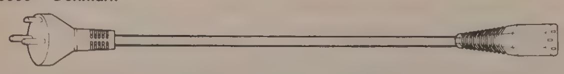
86531000 Italy



86537000 Canada, United States



86536000 Denmark



Part Number	Color	Length	Conductor Size	Current Rating	Approval(s)
86511000	Black (Note 3)	2.5 meters (98.4 inches)	0.75 mm²	6A	Note 1
86515000	Black (Note 3)	"	"	6A	SEV
86516000	Black (Note 3)	"	"	6A	EANSW
86552000	Black (Note 3)	"	"	6A	Note 4
96531000	Black (Note 3)	"	"	7A	Note 2
86537000	Black (Note 3)	"	"	6A	UL recognized; CSA certified
86536000	Black (Note 3)	"	"	6A	DEMKO

Note 1: Approved by VDE, OVE, KEMA, CEBEC, NEMKO, SEMKO, FEI, UTE.
Note 2: Agency approvals not usually required for cordsets in Italy.
Note 3: Conductors are color-coded blue, brown, green/yellow.
Note 4: Approved by ASTA, BSI, BASEC.

2. Unterminated IEC 320/CEE-22 cords:

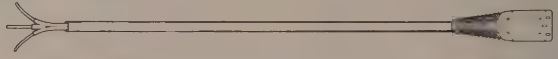
With some products, export volume does not justify stocking different cordsets for even major foreign markets. In other situations, sales volume in Germany and the U.K. may be large enough to justify unique cordsets, whereas export volume to Switzerland, Denmark, Australia, and Israel, for example, are not sufficient.

In both of these cases, the equipment manufacturer can specify the model 2500 unterminated IEC 320/CEE-22 cord for use in low-volume markets. Cordsets described in the previous section would be specified for high-volume markets.

The disadvantage to this approach is, of course, that your customer or sales people must attach a suitable power plug to the cord. The decision on this issue will depend on the cost of stocking an additional cordset vs. the size of the affected market segment and the cost of field termination. (Call us for our brochure on international plugs and sockets.)

TABLE 2

86525000 Universal



Part Number	Color	Length	Conductor Size	Current Rating	Approval(s)
86525000	Black	2.5 meters (98.4 inches)	0.75 mm²	6A	VDE, OVE, KEMA, CEBEC, NEMKO SEMKO, FEI, EANSW, SEV, UTE

Note: Free end on model 86525000 is stripped 50/5 mm.

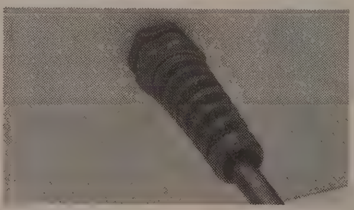
Strain Reliefs

Power supply cords all require some type of mechanical mounting device which positively secures them to an enclosure or piece of equipment. PCC strain reliefs provide an effective cable grip with or without an integral bend relief. Furthermore, the strain relief comes with a neoprene compression gland which prevents moisture intrusion along the cord when used with round cordage and when the cord and strain relief have been selected and assembled properly. UL recognized and CSA certified.

WITHOUT BEND RELIEF

PCC Part No.	Cordage O.D. Range
85810010	.187-.312 in. 4.7-7.9 mm
85810020	.231-.394 in. 5.9-10.0 mm
85810030	.270-.480 in 6.9-12.2 mm

WITH BEND RELIEF



PCC Part No.	Cordage O.D. Range
85810040	.187-.312 in. 4.7-7.9 mm
85810050	.231-.394 in. 5.9-10.0 mm
85810060	.270-.480 in. 6.9-12.2 mm

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Cords and Cordsets

3. International power supply cords:

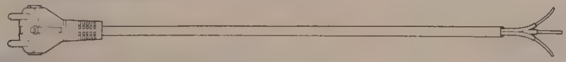
Permanently installed power supply cords are specified when the equipment requires more than 6 amps at 220-240 VAC. Generally, for applications in which the current requirement is 6-10 amps, 1.0 mm² conductors are specified. For applications rated at 10-16 amps, 1.5 mm² conductors should be specified. For comparison purposes, 16 AWG is 1.23 mm² and 14 AWG is 1.95 mm². (Note: the limit for portable equipment in Switzerland is 10 amps; in the U.K., 13 amps. In most other European countries, the limit is 16 amps. In equipment that draws greater amounts of current, the equipment must be permanently connected to the power system.)

Power supply cords may also be used to reduce component costs, especially in very high-volume production. This is particularly true in Class II (two wire, ungrounded) appliances. The model 86532000 cord described below is intended for these applications.

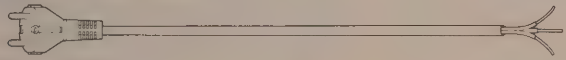
The power supply cords illustrated below are supplied with standard cut and strip terminations (50/5 mm) on the free end. Panel Components will customize these cords to meet your requirements.

TABLE 3

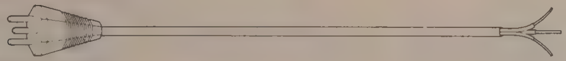
86517000 Austria, Belgium, Finland, France (Note 6), **Germany, Netherlands, Norway, Sweden**



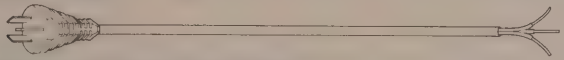
86518000



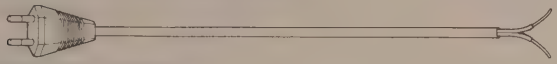
8652100 Switzerland



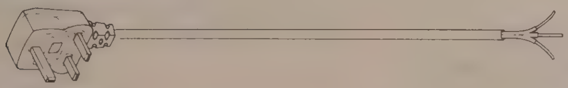
86522000 Australia



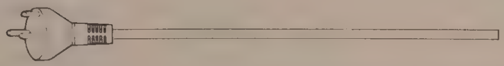
86532000 All Europe except United Kingdom



86554000 United Kingdom



86539000 Denmark



Part No.	Color	Length	Cable O.D.	Conductor Size	Current Rating	Approval(s)
86517000	Black	2.5 meters (98.4 inches)	7.0 mm	1.0 mm²	10A	Note 1
86518000	Black	〃	8.5 mm	1.5 mm²	16A	Note 1
86521000	Black	〃	7.0 mm	1.0 mm²	10A	SEV
86522000	Black	〃	7.0 mm	1.0 mm²	10A	EANSW
86532000	Black	1.8 meters	3.4 × 5.6 mm Note 3	0.75 mm²	2.5A	Note 2 Note 4
86554000	Black	2.5 meters	6.8 mm	0.75 mm²	6.0A	ASTA, BSI, BASEC
86539000	Black	〃	7.0 mm	1.0 mm²	10A	DEMKO Note 5

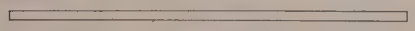
Note 1:	VDE, OVE, KEMA, CEBEC, NEMKO, SEMKO, FEI, UTE.
Note 2:	VDE, OVE, KEMA, CEBEC, NEMKO, SEMKO, FEI, SEV, DEMKO; 2 wires.
Note 3:	Conductor is not round but oblong.
Note 4:	This cord complies with French requirements and is pending approval at UTE.
Note 5:	Cut blunt.

4. Other alternatives cordage and shielded cords:

Cordage: When neither a molded power supply cord or cordset is suitable, international cordage with appropriately sized conductors may be the best alternative. This cordage is tested and certified by VDE to HAR (HD-21) standards.

TABLE 4

CABLE **Universal**

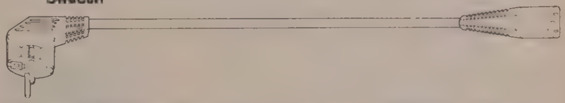


Part No.	Cond. (mm²)	Max. Curr.	O.D.	Jacket Color	Jacket Mater.	HD-21 Number	AWG Equiv.
86010011	3 × 0.75	6A	6.8 mm	Black	PVC	H05VVF3G0.75	18 AWG
86010021	3 × 0.75	6A	6.8 mm	Gray	PVC	H05VVF3G0.75	18 AWG
86010041	3 × 1.00	10A	7.0 mm	Black	PVC	H05VVF3G1.00	16 AWG
86010051	3 × 1.00	10A	7.0 mm	Gray	PVC	H05VVF3G1.00	16 AWG
86010071	3 × 1.50	16A	8.5 mm	Black	PVC	H05VVF3G1.50	14 AWG
86010081	3 × 1.50	16A	8.5 mm	Gray	PVC	H05VVF3G1.50	14 AWG

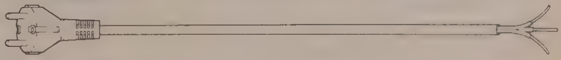
Shielded cords and cordsets: Emission of conducted radio frequency interference is now subject to rigid controls in most industrialized countries. Since the power supply cord itself can act as an effective antenna at some frequencies, some designers specify shielded power cords in place of or in combination with RFI power line filters. VDE approval only on 86527000, 86528000, 86529000 and 86530000. UL recognition and CSA certification on 86534000.

TABLE 5

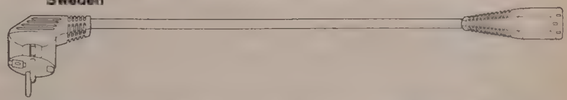
86527000 Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Sweden



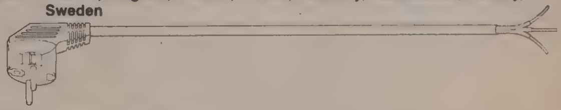
86528000 Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Sweden



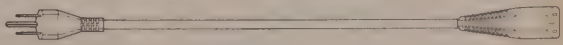
86529000 Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Sweden



86530000 Austria, Belgium, Finland, France, Germany, Netherlands, Norway, Sweden



86534000 Canada, United States



Part No.	Color	Length	Shield Type	Cond. Size	Curr. Rating	Type
86527000	Black	2.5 meters (98.4 inches)	foil	0.75 mm²	6A	Cordset
86528000	Black	〃	foil	0.75 mm²	6A	Cord
86529000	Black	〃	braid	0.75 mm²	6A	Cordset
86530000	Black	〃	foil	1.00 mm²	10A	Cord
86534000	Black	〃	foil	18 AWG	7A	Cordset

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COMMONLY USED ELECTRICAL/ELECTRONIC ABBREVIATIONS AND ACRONYMS

A

AC alternating current
A/D analog to digital
ADC analog to digital converter
ADP automatic data processing
AF audio frequency
AFC automatic frequency control
ALGOL algorithmic language
AM amplitude modulation
AND a logical operator
AQL acceptable quality level
ASCII American national standard code for information interchange
AWG American wire guage

B

BALUN balanced to unbalanced
BASIC beginners' all-purpose symbolic instruction code
BCD binary-coded decimal
BNC baby "N" connector
BUS basic utility system

C

CAD computer aided design
CAM computer aided manufacture
CATV cable television or community antenna television
CERMET ceramic metal element
Comm. communications
CMOS complementary metal-oxide semiconductor
CPS characters per second
CPU central processing unit

D

D/A digital to analog
DAC digital to analog converter
DC direct curent
DIL dual in-line
DIP dual in-line package
DPM digital panel meter
DTL diode transistor logic

E

EDP electronic data processing
EBCDIC extended binary coded decimal interchange code
EEPROM electrically erasable PROM
EMC electromagnetic compatibility
EMI electromagnetic interference
EPROM electrically programmable ROM
ESR equivalent series resistance

F

FEP fluorinated ethylene propylene Copolymar, 200° Teflon
FET field-effect transistor
FM frequency modulation
FORTRAN formula translator

G

GaAsFET gallium arsenide field effect transistor
GPIB general purpose interface bus

H

HF high frequency (3 to 30 MHz)
HIPOT test, measurement and diagnostic equipment
HLL high level language
HV high voltage
Hz Hertz

I

IC integrated circuit
IF intermediate frequency
IO input/output (devices)
IR insulation resistance (or) infrared

J

JFET junction field effect transistor
JMOS junction metal oxide semiconductor

K

kHz kilohertz (10^3 hertz)
KSR keyboard send receive

L

LC inductance capacitance
LCD liquid crystal display
LED light-emitting diode
LF low frequency (30 to 300 kHz)
LSI large scale integration
LVDT linear velocity displacement transformer

M

MATV master antenna television
μF microforad
MHz megahertz
MOS metal oxide semiconductor
MOSFET metal oxide semiconductor field effect transistor
MOV metal oxide varistor
MPU microprocessor unit
MSI medium scale integration

N

NBS National Bureau of Standards
NIM nuclear instrumentation module
NOR not OR

O

OEM original equipment manufacturer
OR a logical operator

P

pF picofarad
PC printed circuit
PCB printed circuit board
PIN positive-intrinsic-negative (transistor)
PLA programmable logic array
PPI plan position indicator
PROM programmable read only memory
PUT programmable unijunction transistor

Q

QAM quadrature amplitude modulation
Q (meter) quality-factor meter

R

RAM random access memory
RC resistance-capacitance
RFI radio frequency interference
RMS root mean square
ROM read only memory
RF radio frequency
RFC radio-frequency choke
RFI radio-frequency interference
RTD resistance-temperature detector
RTL resistor transistor logic
RTV room temperature vulcanizing
RW read/write

S

SAS silicon asymmetrical switch
SBC single board (micro) computer
SBS silicon bilateral switch
SCR silicon-controlled rectifier
SIP single in-line package
SSI small scale integration
SSR solid state relay
STL Schottky transistor logic

T

TC temperature coefficient
TCXO temperature compensated crystal oscillator
TFE tetrafluoride ethylene propylene Copolymer, 250° Teflon
TTL transistor-transistor logic
TTY teletypewriter

U

UHF ultra high frequency (300 MHz to 3 GHz)
UL Underwriters Laboratory
UPS uninterruptible power supply

V

VAC volts (of) alternating current
VAR volt-ampere reactive
VCR video cassette recorder
VDC volts (of) direct current
VHF very high frequency
VHSIC very high speed integrated circuit
VLF very low frequency (3 to 30 kHz)
VLSI very large scale integration
VRM voice recognition module
VTVM vacuum tube volt meter
VU volume unit
VSWR voltage standing wave ratio

W

WPS word processing software

Y

YIG yttrium iron garnet

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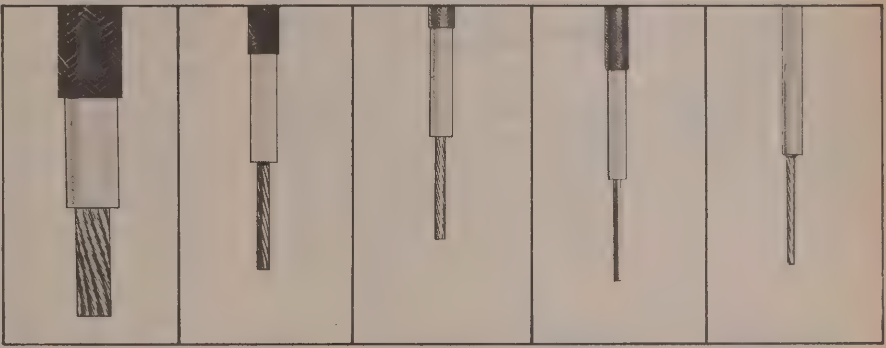
High Temperature silicone rubber wire and cable.

Rowe's silicone rubber insulation offers better performance and longer life than natural rubber or thermoplastic insulation. For example, our high temperature wire and cable is: heat stable to 200°C and flexible to −90°C, unaffected by severe thermal cycling, ultraviolet radiation, ozone or corona, resistant to ageing, moisture and chemicals, highly flame retardant and tough enough for unbraided lead wire.

Choose from a variety of UL listed styles or ask us to design one that meets your special requirements.



Power cable for 600 volts +.

Appliance & fixture wire for 300 volts +.

Apparatus & motor lead wire for 600 volts +.

Lighting wire for 600 volt transmission with solid tinned copper conductor, silicone rubber insulation and fiberglass braided covering.

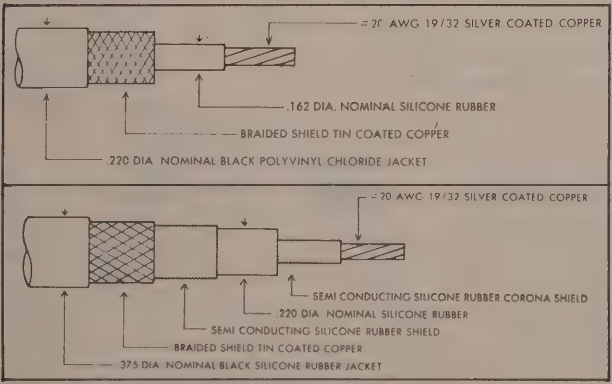
High Temp NB especially suited for motor lead wire. No braided covering necessary. Tinned copper, stranded or solid tinned copper conductor. Silicone rubber insulation in 10 colors.

All the above wire and cable feature tinned copper, stranded conductors, silicone rubber insulation, with fiberglass braided covering.

Hi-V cable, wire, and interconnections.

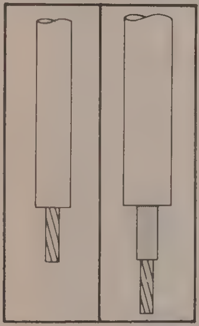
Well suited for a variety of industrial and military applications including accelerators, radar, x-ray, ECM and others. Hi-V combines semi-conducting, corona-suppressing layers with thermosetting materials for noise-free, corona-free cable and wire. It is available in single conductor, coaxial and triaxial configurations.

COAXIAL.


#20 AWG 19/32 SILVER COATED COPPER
.162 DIA. NOMINAL SILICONE RUBBER
BRAIDED SHIELD TIN COATED COPPER
.220 DIA NOMINAL BLACK POLYVINYL CHLORIDE JACKET
#20 AWG 19/32 SILVER COATED COPPER
SEMI CONDUCTING SILICONE RUBBER CORONA SHIELD
.220 DIA NOMINAL SILICONE RUBBER
SEMI CONDUCTING SILICONE RUBBER SHIELD
BRAIDED SHIELD TIN COATED COPPER
.375 DIA NOMINAL BLACK SILICONE RUBBER JACKET

Features: 5-100KV minimum voltage ratings, 8-22 AWG corona-free and ozone resistant, 80°C to 200°C operating temperature range. Excellent for high pulse applications and for use with Rowe high voltage miniature coaxial connector series, G series connectors, Hi-pulse 40KV series and Rowe R75 connector series. All exhibit good corona-free RFI-EMI capabilities and have excellent flexibility properties.

SINGLE CONDUCTOR, UNSHIELDED.



Features: 5-60 KVDC minimum voltage ratings, 10-20 AWG corona-free, ozone-resistant material, 200°C operating temperature, excellent flexibility at high and low temperatures.

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WESTERN STATES 800-331-WIRE

UNSHIELDED MULTI-CONDUCTOR

2 CONDUCTOR — NO JACKET TWISTED PAIRS

E-26174
STYLE 1007

Conductors: Stranded tinned copper
Insulation: inyle — UL Style 1007
Color Code: Black & white

Saxton No.	No. Pairs	AWG	Strand.	Insulation Thickness	Nom. O.D.	Sugg. Work Voltage
22 AWG						
2000	1	22	7/30	.016	.130	300
20 AWG						
2001	1	20	10/30	.016	.140	300
18 AWG						
2002	1	18	16/30	.016	.180	300

UNSHIELDED MULTI-CONDUCTOR CABLES

AWM 2462
E-26174
VW-1
80°C
150-300V

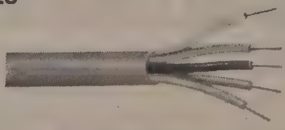
Conductors: Tinned copper
Insulation: 80°C vinyl
Construction: Cabled
Jacket: 80°C vinyl
Color Code: Chart

APPLICATION: UL Listed AWM-E-26174. Can be used as a Power Limited Style Class 2.

Saxton No.	No. Cond.	AWM UL Style	Class	Strand.	AWG	Insul. Thick.	Jacket Thick.	Nom. O.D.	Sugg. Work Volt.	Color Chart
22 AWG										
2334	2	2464	2 & 3	Solid	22	.016	.025	.161	300	1
2370	2	2464	2 & 3	7/30	22	.016	.025	.170	300	Black & Red
2371	3	2576	2	7/30	22	.010	.032	.172	150	1
2372	4	2576	2	7/30	22	.010	.032	.185	150	1
2373	5	2576	2	7/30	22	.010	.032	.199	150	1
2374	6	2576	2	7/30	22	.010	.032	.214	150	1
2375	7	2576	2	7/30	22	.010	.032	.214	150	1
2376	8	2576	2	7/30	22	.010	.032	.229	150	1
2377	9	2576	2	7/30	22	.010	.032	.245	150	1
2378	10	2576	2	7/30	22	.010	.032	.264	150	1
2379	12	2576	2	7/30	22	.010	.032	.272	150	1
2404	15	2576	2	7/30	22	.010	.040	.315	150	4
2380	20	2576	2	7/30	22	.010	.040	.345	150	4
2405	25	2576	2	7/30	22	.010	.040	.380	150	4
2406	30	2576	2	7/30	22	.010	.040	.400	150	4
20 AWG										
2381	2	2464	2 & 3	10/30	20	.013	.032	.192	300	1
2383	4	2464	2 & 3	10/30	20	.013	.032	.218	300	1
2384	5	2464	2 & 3	10/30	20	.013	.032	.236	300	1
2385	6	2464	2 & 3	10/30	20	.013	.032	.256	300	1
2386	8	2464	2 & 3	10/30	20	.013	.032	.295	300	1
2388	10	2464	2 & 3	10/30	20	.013	.035	.326	300	1
2389	12	2464	2 & 3	10/30	20	.013	.035	.336	300	1
2390	15	2464	2 & 3	10/30	20	.013	.035	.371	300	2
19 AWG										
2169	2	2464	2 & 3	Solid BC	19	.016	.030	.192	300	1
18 AWG										
2393	2	2464	2 & 3	16/30	18	.016	.032	.232	300	1
2394	3	2464	2 & 3	16/30	18	.016	.032	.245	300	1
2395	4	2464	2 & 3	16/30	18	.016	.032	.266	300	1
2396	5	2464	2 & 3	16/30	18	.016	.037	.291	300	1
2397	6	2464	2 & 3	16/30	18	.016	.037	.316	300	1
2398	8	2464	2 & 3	16/30	18	.016	.037	.342	300	1
2399	12	2464	2 & 3	16/30	18	.016	.037	.412	300	2
2400	15	2464	2 & 3	16/30	18	.016	.037	.458	300	2
2401	25	2464	2 & 3	16/30	18	.016	.040	.484	300	2
16 AWG										
2165	2	2464	2 & 3	26/30	16	.023	.032	.266	300	1
14 AWG										
2173	2	2464	2 & 3	19/27	14	.031	.035	.299	600*	1
12 AWG										
2177	2	2464	2 & 3	19/25	12	.031	.040	.341	600*	1

* When used as a Power Limited Cable rated at 300 volts.

COMBINATION GAUGES



E-26174
AWM
VW-1

Conductors: Tinned copper
Insulation: 80°C vinyl
Construction: Cabled
Jacket: 80°C chrome vinyl
Color Code: 18 AWG-Red & black
22 AWG-Green, yellow, white, blue, orange, brown

Saxton No.	No. Cond.	UL Style	AWG	Strand.	Insulation Thickness	Jacket Thickness	Nom. O.D.	Voltage
1039	8	2576	6-22 2-18	7/30TC 16/30TC	.010 .016	.025	.255	200 400

UNSHIELDED MULTIPLE PAIRS

E-26174
AWM STYLE 2464
VW-1

Conductors: Tinned copper
Insulation: 80°C vinyl
Construction: Paired
Color Code: Chart 3
Jacket: 80°C chrome vinyl
APPLICATION: Listed as AWM UL E-26174.

Saxton No.	No. Pairs	UL Style	AWG	Strand.	Insul. Thick.	Jacket Thick.	Nom. O.D.	Sugg. Work Voltage
22 AWG								
2432	2	2464	22	7/30	.016	.032	.234	300
2433	3	2464	22	7/30	.016	.032	.280	300
2434	4	2464	22	7/30	.016	.032	.295	300
2436	6	2576	22	7/30	.010	.035	.320	200
2439	9	2576	22	7/30	.010	.037	.389	200
2442	12	2576	22	7/30	.010	.040	.440	200
2445	15	2576	22	7/30	.010	.040	.455	200
2449	19	2576	22	7/30	.010	.040	.520	200
2453	23	2576	22	7/30	.010	.045	.570	200
2457	27	2576	22	7/30	.010	.045	.595	200

UNSHIELDED MULTIPLE PAIRS — SOLID CONDUCTORS

E-26174
AWM STYLE 2464
VW-1

Conductors: Solid tin copper
Insulation: 80°C vinyl .013 wall
Construction: Cabled pairs
Jacket: 80°C chrome vinyl

Saxton No.	No. Pairs	Jacket Thickness	Nom. O.D.	Color Code
2412	2	.032	.209	3
2413	3	.032	.244	3
2414	4	.032	.259	3
2416	6	.032	.305	3
2418	9	.037	.354	3
2420	12	.037	.369	3
2422	16	.037	.405	3
2424	19	.040	.460	3
2427	27	.040	.535	3

DATA CABLE

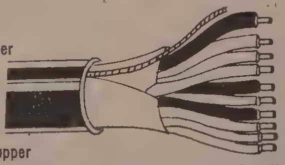
COMPUTER CABLES

WHY USE A SHIELDED CABLE?

Although RS 232 and 449 standards do not call specifically for shielding, it is advisable to use shielded cable to insure signal integrity, thus minimizing possible interference conditions from outside sources.

OVERALL FOIL SHIELD MULTI-CONDUCTOR

AWM
STYLE 2464



LL-46351
80°C
300V

Conductors: Stranded tinned copper
Insulation: Semi-rigid PVC
Construction: Cabled
Shield: Aluminum polyester foil
Jacket: Chrome vinyl
Drain: 24 AWG stranded tinned copper
APPLICATION: UL Listed as AWM Style 2464 - 80°C - 300V - CSA Certified as S-R PVC.

Saxton No.	No. Cond.	UL Style	AWG	Strand.	Insul. Thick.	Jacket Thick.	Nom. O.D.	Color Chart
24 AWG								
3403	3	2464	24	7/32	.010	.035	.168	1
3404	4	2464	24	7/32	.010	.035	.180	1
3405	5	2464	24	7/32	.010	.035	.190	1
3406	6	2464	24	7/32	.010	.035	.205	1
3407	7	2464	24	7/32	.010	.035	.205	1
3408	8	2464	24	7/32	.010	.035	.220	1
3409	9	2464	24	7/32	.010	.035	.240	1
3410	10	2464	24	7/32	.010	.035	.250	1
3412	12	2464	24	7/32	.010	.035	.260	2
3415	15	1464	24	7/32	.010	.035	.280	2
3420	20	2464	24	7/32	.010	.035	.310	2
3425	25	2464	24	7/32	.010	.040	.370	2
3430	30	2464	24	7/32	.010	.040	.390	2

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DATA CABLE

OVERALL FOIL SHIELD MULTI-CONDUCTOR PAIRS

AWM
E-26174

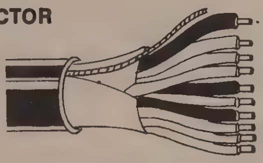
LL-46351
AWM

Conductors: Stranded tinned copper
Insulation: Semi-rigid PVC
Construction: Paired
Shield: Aluminum polyester foil
Jacket: Chrome vinyl
Drain: 24 AWG stranded tinned copper

APPLICATION: UL Listed as AWM Style 2464 - 80°C - 300V - CSA Certified as S-R PVC.

Saxton No.	No. Pairs	UL Style	AWG	Strand.	Insul. Thick.	Jacket Thick.	Nom. O.D.	Color Chart
24 AWG								
3601	1	2464	24	7/32	.010	.032	.156	3
3602	2	2464	24	7/32	.010	.032	.222	3
3603	3	2464	24	7/32	.010	.032	.232	3
3604	4	2464	24	7/32	.010	.032	.265	3
3605	5	2464	24	7/32	.010	.035	.295	3
3606	6	2464	24	7/32	.010	.035	.295	3
3607	7	2464	24	7/32	.010	.035	.300	3
3608	8	2464	24	7/32	.010	.035	.330	3
3609	9	2464	24	7/32	.010	.035	.340	3
3610	10	2464	24	7/32	.010	.040	.380	3
3615	15	2464	24	7/32	.010	.040	.425	3
3619	19	2464	24	7/32	.010	.040	.450	3
3625	25	2464	24	7/32	.010	.045	.515	3

SHIELDED MULTI-CONDUCTOR



E-26174

LL-46351
AWM

Conductors: Stranded tinned copper
Insulation: Semi-rigid PVC
Construction: Cabled
Shield: Aluminum polyester foil
Jacket: Chrome vinyl
Drain: 22 AWG tinned copper

APPLICATION: UL Listed as AWM Style 2464 - 80°C - 300V - CSA Certified as S-R PVC.

Saxton No.	No. Cond.	AWG	Strand.	Insul. Thick.	Jacket Thick.	Nom. O.D.	Color Chart
22 AWG							
3504	4	22	7/30	.010	.040	.200	1
3506	6	22	7/30	.010	.040	.230	1
3508	8	22	7/30	.010	.040	.245	1
3510	10	22	7/30	.010	.040	.275	1
3512	12	22	7/30	.010	.040	.285	1
3515	15	22	7/30	.010	.040	.305	4
3520	20	22	7/30	.010	.040	.345	4
3525	25	22	7/30	.010	.040	.380	4
3530	30	22	7/30	.010	.040	.405	4

OVERALL FOIL SHIELD MULTI-CONDUCTOR PAIRS

E-26174

LL-46351
AWM

Conductors: Stranded tinned copper
Insulation: Semi-rigid PVC
Construction: Paired
Shield: Aluminum polyester foil
Jacket: Chrome vinyl
Drain: 22 AWG stranded tinned copper

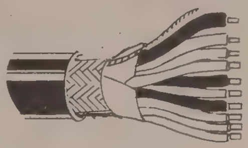
APPLICATION: UL Listed as AWM Style 2464 - 80°C - 300V - CSA Certified as S-R PVC.

Saxton No.	No. Pairs	UL Style	AWG	Strand.	Insul. Thick.	Jacket Thick.	Nom. O.D.	Color Chart
3691	1	2464	22	7/30	.010	.032	.164	3
3692	2	2464	22	7/30	.010	.032	.198	3
3693	3	2464	22	7/30	.010	.032	.254	3
3694	4	2464	22	7/30	.010	.032	.276	3
3695	5	2464	22	7/30	.010	.035	.312	3
3696	6	2464	22	7/30	.010	.035	.320	3
3697	10	2464	22	7/30	.010	.040	.407	3
3698	15	2464	22	7/30	.010	.040	.452	3

MAXI-SHIELDED CABLE

100% FOIL TAPE & OVERALL BRAID SHIELDS WITH DRAIN WIRE

These cables offer an overall braided tinned copper shield for more EMI-RFI protection in addition to electro-mechanical protection.



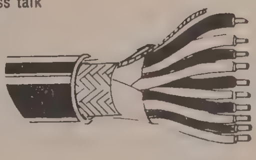
E-26174

LL-46351
AWM

Conductors: 24 AWG (7/32) tinned copper
Construction: Cabled
Jacket: Chrome vinyl
Drain Wire: 24 AWG (7/32) tinned copper
Working Voltage: 300V
Insulation: .010 semi-rigid PVC
Shields: 1. 100% aluminum polyester foil
2. 90% tin copper braid
Temp. Rating: 80°C
Entire cable passes VW1
UL Style 2464, CSA, AWM

Saxton No.	No. Cond.	UL Style	AWG	Strand.	Insul. Thick.	Nom. O.D.	Color Chart
3465	5	2464	24	7/32	.010	.219	1
3470	10	2464	24	7/32	.010	.266	1
3472	12	2464	24	7/32	.010	.275	1
3475	15	2464	24	7/32	.010	.302	2
3479	19	2464	24	7/32	.010	.330	2
3485	25	2464	24	7/32	.010	.402	2
Same as 3465-3485 Series above except conductors are 22 AWG							
3634	4	2464	22	7/30	.010	.225	1
3640	10	2464	22	7/30	.010	.307	1
3645	15	2464	22	7/30	.010	.338	2
3649	19	2464	22	7/30	.010	.370	2
3655	25	2464	22	7/30	.010	.425	2

SHIELDED PAIRS



E-26174

LL-46351
AWM

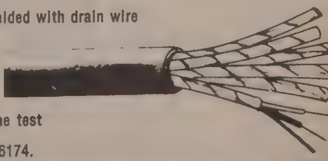
Conductors: 24 AWG (7/32) tinned copper
Construction: Pairs cabled to minimize cross talk
Jacket: Chrome vinyl
Drain Wire: 24 AWG (7/32) tinned copper
Working Voltage: 300V
Entire cable passes VW1
Insulation: .010 semi-rigid PVC
Shields: 1. 100% aluminum polyester foil
2. 90% tinned copper braid
Temp. Rate: 80°C
Capacitance: 30 Pf
Impedance: 60 ohm
UL Style 2464, CSA, AWM

Saxton No.	No. Pairs	UL Style	AWG	Strand.	Insul. Thick.	Nom. O.D.	Color Chart
3674	4	2464	24	7/32	.010	.286	3
3675	9	2464	24	7/32	.010	.341	3
3676	15	2464	24	7/32	.010	.447	3
3679	19	2464	24	7/32	.010	.454	3
3685	25	2464	24	7/32	.010	.524	3

Any cable of the 34-35-36 series, UL, CSA can be manufactured with or without shield(s) and in varying conductor combinations. Consult factory for your requirements.

MULTIPLE PAIRS — INDIVIDUALLY SHIELDED

E-26174



Conductors: Stranded tinned copper
Insulation: Polypropylene
Construction: Paired, individually shielded with drain wire
Shield: Aluminum polyester foil
Jacket: —20° to 80°C chrome vinyl
Color Code: Chart 3
Drain: Stranded tinned copper
Jacket only passes VW-1 vertical flame test

APPLICATION: UL Listed as AWM-E-26174.

Saxton No.	No. Pairs	UL Style	AWG	Strand.	Insul. Thick.	AWG Drain	Jacket Thick.	Nom. O.D.	Sugg. Work Voltage
22 AWG									
2503	3	2493	22	7/30	.010	22	.045	.301	200
2506	6	2493	22	7/30	.010	22	.045	.416	200
2509	9	2493	22	7/30	.010	22	.045	.443	200
2511	11	2493	22	7.30	.010	22	.045	.448	200
2512	12	2493	22	7/30	.010	22	.060	.495	200
2515	15	2493	22	7/30	.010	22	.065	.565	200
2519	19	2493	22	7/30	.010	22	.065	.625	200
2527	27	2493	22	7/30	.010	22	.070	.745	200
18 AWG									
2533	3	2493	18	16/30	.016	20	.065	.392	400
2536	6	2493	18	16/30	.016	20	.065	.570	400
2542	12	2493	18	16/30	.016	20	.070	.750	400
2545	15	2493	18	16/30	.016	20	.070	.820	400

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MAXI-SHIELDED CABLE

MULTIPLE PAIRS — INDIVIDUALLY SHIELDED — SOLID CONDUCTORS

E-26174
AWM STYLE 2464
Cable passes VW-1

Conductors: Solid tinned copper
Insulation: 80°C vinyl .013 wall
Construction: Cabled pairs — each pair with solid drain wire and individually isolated shield
Jacket: 80°C chrome vinyl

Saxton No.	No. Pairs	Jacket Thickness	Nom. O.D.	Color Chart
22 AWG				
2550	3	.032	.270	3
2552	6	.032	.370	3
2554	9	.040	.415	3
2556	11	.040	.470	3
2558	15	.040	.500	3

MULTIPLE PAIRS — OVERALL SHIELD — SOLID CONDUCTORS

Conductors: Solid tinned copper

Insulation: 80°C vinyl .013 wall

Construction: Cabled pairs

Mylar foil shield

Stranded tin drain

Jacket: 80°C chrome vinyl

Saxton No.	No. Pairs	Jacket Thickness	Nom. O.D.	Color Chart
4202	2	.032	.240	3
4204	4	.032	.260	3
4206	6	.032	.320	3
4209	9	.040	.370	3
4210	16	.040	.480	3
4212	19	.040	.490	3
4214	27	.045	.600	3

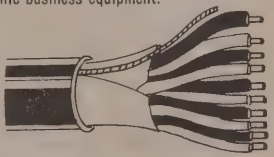
UNSHIELDED MULTICONDUCTOR

EXTENDED DISTANCE DATA CABLE

OVERALL FOIL SHIELD

APPLICATION: For RS 232C or 449 Applications. Used for runs over 50 ft. Low capacitance eliminates need for costly modems or line drivers.

UL Style: As internal wiring or external interconnection in Class 2 Circuits of electronic equipment such as computers and electronic business equipment.



Conductors: Stranded tinned copper

Insulation: Polyethylene

Construction: Paired

Shield: 2 mil aluminum polyester foil

Jacket: Chrome vinyl

Drain: 24 AWG stranded tinned copper

Saxton No.	No. Pairs	AWG Strand.	Insul. Thick.	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	Jacket Thick.	Nom. O.D.	Color Chart
3737	18+1*	24	.015	125	66%	12.5	.045	.540	Below
3725	12+1*	24	.015	125	66%	12.5	.045	.500	Below
3718	9	24	.015	125	66%	12.5	.045	.440	Below
3714	7	24	.015	125	66%	12.5	.045	.370	Below
3712	6	24	.015	125	66%	12.5	.045	.380	Below
3708	4	24	.015	125	66%	12.5	.045	.326	Below
3706	3	24	.015	125	66%	12.5	.045	.300	Below
3704	2	24	.015	125	66%	12.5	.045	.289	Below

Cables listed below are identical in construction to above with addition of 90% overall tinned copper braid.

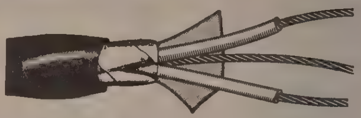
Saxton No.	No. Pairs	AWG Strand.	Insul. Thick.	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	Jacket Thick.	Nom. O.D.	Color Chart
3758	18+1*	24	.015	125	66%	12.5	.045	.575	Below
3751	12+1*	24	.015	125	66%	12.5	.045	.535	Below
3747	7	24	.015	125	66%	12.5	.045	.400	Below

* Single conductor green insulation.

	1st Color	2nd Color
1	White	Yellow
2	White/Purple	Yellow/Purple
3	White/Black	Yellow/Black
4	White/Red	Yellow/Red
5	White/Green	Yellow/Green
6	White/Orange	Yellow/Orange
7	White/Brown	Yellow/Brown
8	White/Blue	Yellow/Blue
9	White/Gray	Yellow/Gray
10	Black	Red
11	Black/Yellow	Red/Yellow
12	Black/Green	Red/Green
13	Black/Blue	Red/Blue
14	Black/White	Red/White
15	Black/Orange	Red/Orange
16	Green	Red
17	Green/White	Red/White
18	Green/Black	Red/Black

AUDIO & CONTROL CABLE

POLYPROPYLENE PRIMARY CONDUCTORS — MYLAR ALUMINUM FOIL SHIELD — VINYL JACKET



Conductors: Stranded tinned copper
Insulation: Polyethylene
Construction: Cabled with drain
Shield: Aluminum polyester foil
Drain: Tinned copper
Jacket: Chrome vinyl

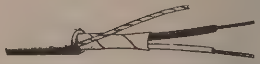
Saxton No.	No. Cond.	UL Style	AWG	Strand.	Drain AWG	Insul. Thick.	Jacket Thick.	Color Code	Nom. O.D.
24 AWG									
2190	2	2092	24	7/32	24	.016	.025	Black-Clear	.168
22 AWG									
2191	2	2092	22	7/30	22	.016	.025	Black-Clear	.175
2192	3	2093	22	7/30	22	.016	.025	Black-Clear-Red	.184
2201	4	2094	22	7/30	22	.016	.025	Black-Clear Red-Green	.195
20 AWG									
2193	2	2092	20	10/30	20	.016	.028	Black-Clear	.204
18 AWG									
2195	2	2092	18	16/30	20	.018	.028	Black-Clear	.222
16 AWG									
2197	2	2106	16	26/30	18	.032	.035	Black-Clear	.304
14 AWG									
2199	2	2106	14	19/27	16	.032	.035	Black-Clear	.340
12 AWG									
2200	2	2106	12	19/25	14	.037	.040	Black-Clear	.400

All of the above cables can be supplied with Shield and Jacket bonded together for use with automatic stripping equipment.

POLYETHYLENE PRIMARY CONDUCTORS — MYLAR ALUMINUM FOIL SHIELD

Conductors: Tinned copper
Insulation: Polypropylene
Construction: Paired
Shield: Aluminum polyester foil
Drain: Tinned copper
Jacket: Chrome vinyl 60°C

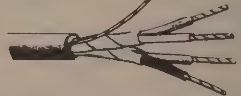
SHIELDED PAIR



Black & Red

Saxton No.	No. Pairs	AWG	Strand.	AWG Drain	Insul. Thick.	Jacket Thick.	Nom. O.D.	Sugg. Work Voltage
8400	1	22	solid	22 solid	.006	.018	.118	200
8401	1	22	7/30	24-7/32	.008	.020	.135	200

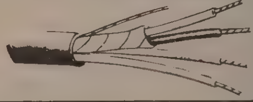
TWO PAIR



Individually Shielded with Common Drain -
1 Pair - Black & Red
1 Pair - White & Green

Saxton No.	No. Pairs	AWG	Strand.	AWG Drain	Insul. Thick.	Jacket Thick.	Nom. O.D.	Sugg. Work Voltage
8403	2	22	7/30	24-7/32	.008	.022	.165	200

TWO PAIR



One Pair Shielded - Black & Red
One Pair Unshielded - White & Green

Saxton No.	No. Pairs	AWG	Strand.	AWG Drain	Insul. Thick.	Jacket Thick.	Nom. O.D.	Sugg. Work Voltage
8402	2	22	7/30	24-7/32	.008	.020	.165	200

TWO PAIR

Each pair individually shielded with drain

Saxton No.	No. Pairs	AWG	Strand.	AWG/Drain	Insul. Thickness	Jacket	Nominal O.D.	Working Voltage
8465	2	22	7/30	22	.008	.022	.165	200
2532	2	18	16/30	20	.016	.030	.350	400

TWO PAIR

Each pair individually shielded with drain — additional overall shield & drain wire

8437	2	22	7/30	24	.008	.030	.198	200

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WESTERN STATES 800-331-WIRE

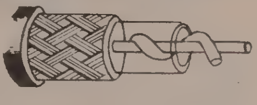
COAXIAL CABLES

All are manufactured to rigid industry specifications.

Construction: Saxton coaxial cables are manufactured with complete adherence to all dimensional and electrical characteristics.

All Jackets are Black PVC unless noted otherwise.

RG62A/U — 93 OHM



UL STYLE 1478 — 60°C — 30 VOLT

For external interconnection of electronic equipment.

Saxton No.	RG Type	AWG Strand.	Dielectric O.D.	Shield	Nom. O.D.	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	Nom. Atten. MHz	db	UL
8404	62A/U	22 AWG Solid BCW	Semi- solid POLY .146	1 Bare Mil C 17 95%	.242	93	84% Equiv. IBM 323921	13.5	100 200 400 900	2.7 3.8 5.4 8.3	1478
8305 Black Non-Contaminating Jacket	62A/U Mil C 17D	22 AWG Solid BCW	Semi- solid POLY .146	1 Bare Mil C 17 95%	.242	93	84%	13.5	100 200 400 900	2.7 3.8 5.4 8.3	1478
8415	62A/U	22 AWG Solid BCW	Semi- solid POLY .146	1 Bare 92%	.242	93	84%	13.5	100 200 400 900	2.7 3.8 5.4 8.3	1478
8420 Outdoor Vinyl with Mylar Vapor Barrier	62A/U	22 AWG Solid BCW	Semi- solid POLY .146 95%	1 Bare Mil C 17 95%	.260	93	84% Equiv. IBM 5252750	13.5	100 200 400 900	2.7 3.8 5.4 8.3	1478

RG59/U — 75 OHM

UL STYLE 1354 — 60° - 80°C — 30 VOLTS

Internal wiring of electronic equipment.

Class 2 Systems

Saxton No.	RG Type	AWG Strand.	Dielectric O.D.	Shield	Nom. O.D.	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	Nom. Atten. MHz	db	UL
8270 100% Sweep Tested	59/U	22 AWG Solid BCW	POLY .144	1 Bare 92%	.242	75	66%	21.0	50 100 200 500	2.4 3.4 4.9 6.6	1354
8419	6/U Type	18 AWG Solid BC	Foam .180	100% Foil+ 61% TC Braid	.280	75	78%	17.3	100 200 500 900	2.1 3.1 5.0 6.9	1354
8432 100% Sweep Tested	59/U Type	22 AWG Stranded (7x30)	Foam .146	1 Bare 95%	.242	75	78%	17.3	50 100	2.3 3.0	1354

75 OHM PRECISION VIDEO CABLE

Saxton No.	Dielectric O.D.	Shields	Nom. O.D.	Nom. Imp.	Nom. Vel. Prop.	Nom. Cap/ft	Nom. Atten. MHz	db
8456	Polyethylene .198	2 TC Braids 98%	.304	75 100% Sweep Tested	66%	21	.01 .1 1.0 4.5 10.0 100.0	.06 .08 .25 .45 .78 2.70
8457	Same as 8456 with Gray Jacket							

MINIATURE 75 OHM COAXIAL CABLE

Saxton No.	AWG Strand. 27 AWG	Dielectric O.D.	Shield	Nom. O.D.	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	Nom. Atten MHz*	db**
8280	7x35 BCW	POLY .100	Braid	.152	75	66%	20.5	100 200 400 900	5.7 8.4 12.5 23.0

Saxton No.	RG Type	AWG Strand.	Dielectric O.D.	Shield	Nom. O.D.	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	Nom. Atten. MHz*	db**	UL
1584	8A/U Jan C-17A	13 AWG 7x21 BC	POLY .285	1 Bare Mil C 17D 95%	.405	52	66% Black Non-Contaminating Jacket	29.5	100 200 400 900	2.0 3.0 4.7 9.8	1354
8282	8/U Jan C-17A	13 AWG 7x21 BC	POLY .285	1 Bare Mil C 17 95%	.405	52	66%	29.5	100 200 400 900	2.0 3.0 4.7 9.8	1354
8336	11A/U Mil C 17D	18 AWG 7x26 TC	POLY .285	1 Bare Mil C 17 95%	.405	75	66% Black Non-Contaminating Jacket	20.5	100 200 400 900	2.0 2.9 4.2 6.9	
8269	34B/U Mil C 17D	14AWG 7x0249 BC	POLY .460	1 Bare Mil C 17 95%	.630	75	66% Black Non-Contaminating Jacket	20.6	50 100 200 400	2.74 4.59 6.89 10.83	
8289	58/U Jan C 17A	20 AWG Solid BC	POLY .116	1 Tin Mil C 17 95%	.195	53.5	66%	29.5	100 200 400 900	4.9 6.6 9.2 13.4	1354
8290 7290	58/U Jan C 17A White Vinyl Jacket	20 AWG 19x33 TC	POLY .116	1 Tin Mil C 17 95%	.195	50	78%	26.0	100 200 400 900	5.3 8.2 12.6 20.0	1354
8335	58C/U Mil C 17D	20 AWG 19x33 TC	POLY .116	1 Tin Mil C 17 95%	.195	50	66% Black Non-Contaminating Jacket	30.5	100 200 400 900	5.3 8.2 12.6 20.0	
8270	59/U	22AWG BCW	POLY .144	1 Bare 90%	.242	75	66% 100% Sweep Tested	21.0	50 100 200 500	2.1 2.9 4.1 6.6	
8292	59/U Jan C 17A	22 AWG BCW	POLY .146	1 Bare Mil C 17 95%	.242	75	66% 100% Sweep Tested	21.0	54-64 82-88 174-180 210-216	2.4 3.5 5.2 5.8	1354
8332	59B/U Mil C 17D	.0230 AWG BCW	POLY .146	1 Bare Mil C 17D 95%	.242	75	66% Black Non-Contaminating Jacket	20.5	100 200 400 900	3.5 5.1 7.5 12.0	1354
8294	59/U	22 AWG BCW	FOAM .146	1 Bare Mil C 17 95%	.242	80	78% 100% Sweep Tested	16.3	54-60 82-88 174-180 210-216	2.4 3.1 4.0 4.3	1354
8333	174/U Mil C 17D	26 AWG 7x34 BCW	POLY .060	1 Tin Mil C 17 90%	.100	50	66%	30.8	100 200 400	8.8 13.0 20.0	1354
8330	213/U Mil C 17D	13 AWG 7x.0296 BC	POLY .285	1 Bare Mil C 17 95%	.405	50	66% Black-Non-Contaminating Jacket	30.8	100 200 400 900	2.0 3.0 4.7 7.8	1354
8421	214/U Mil C 17D	13 AWG 7x21 Silver Coated	POLY .285	2 Silver Coated 95%	.425	50	66% Black-Non-Contaminating Jacket	30.8	100 200 400 900	2.0 3.0 4.7 7.8	1354
8422	223/U Mil C 17D	19 AWG Solid Silver Coated	POLY .116	2 Silver Coated Copper 97%	.212	50	66% Black-Non-Contaminating Jacket	30.8	100 200 400 900	4.5 6.4 9.2 14.3	1354

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COAXIAL CABLES

QPL CABLES

QPL QUALIFIED TO MIL C 17F
JAN. 18, 1983

FSCM 16164

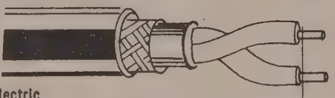
WHEN ORDERING QPL CABLES, MILITARY DESIGNATION MUST BE INCLUDED AS PART OF DESCRIPTION.

Saxton No.	Military Designation	AWG Strand.	Dielectric O.D.	Shield	Nom. O.D.	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	Nom. MHz*	Atten. db**	UL
1587	M17/6- RG11 Formerly RG11A/U	18 AWG 7x26 TC	POLY .285	1 Bare Mil C 17 95%	.405 Black Non-Contaminating Jacket	75	66%	20.5	100 200 400 900	2.0 2.9 4.2 6.9	
1591	M17/155- RG00001 Formerly RG58C/U	20 AWG 19x33 TC	POLY .116	1 Tin Mil C 17 95%	.195 Black Non-Contaminating Jacket	50	66%	30.5	100 200 400 900	5.3 8.2 12.6 20.0	
8299	M17/29- RG59 Formerly RG59B/U	.0230 AWG BCW	POLY .146	1 Bare Mil C 17D 95%	.242 Black Non-Contaminating Jacket	75	66%	20.5	100 200 400 900	3.5 5.1 7.5 12.0	1354
8405	M17/30- RG62	22 AWG Solid BCW	Semi-solid POLY .146	1 Bare Mil C 17 95%	.242 Black Non-Contaminating Jacket	93	84%	13.5	100 200 400 900	3.1 4.4 6.3 11.0	1478
1596	M17/173- 00001 Formerly RG174A/U	26 AWG 7x34 BCW	POLY .060	1 Tin Mil C 17 90%	.100	50	66%	30.8	100 200 400	8.8 13.0 20.0	1354
8409	M17/163- 00001 Formerly RG213/U	13 AWG 7x.0296 BC	POLY .285	1 Bare Mil C 17 95%	.405 Black Non-Contaminating Jacket	50	66%	30.8	100 200 400 900	2.0 3.0 4.7 7.8	1354

TWIN-AXIAL

E-26174

Poly insulated primary conductors
One bare and one tinned conductor
Polyethylene dielectric
TC braided shield
Black vinyl jacket
Easy stripping of conductors from dielectric

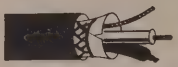


Saxton No.	AWG	Dielectric O.D.	Shield	Nom. O.D.	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	UL Style
8442	2 Cond. 20 AWG (7x28) 1 TC 1 BC	POLY .240	1 TC 85%	.330	100	66%	15.5	2498
8443	2 Cond. 20 AWG (7x28) 1 TC 1 BC	POLY .240 Equiv. IBM 7362211	1 TC 95%	.330	100	66%	15.5	2498

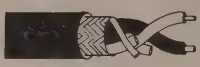
RG22B/U

Two tinned braids, black non-contaminating vinyl jacket.

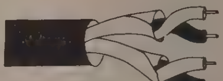
8462	2 Cond. 18 AWG (7x.0152) BC	POLY .285	2 TC 96%	.420	95	66%	16.0	Mil C 17D



8446

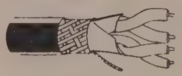


8450

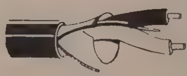


8455

Saxton No.	No. Cond.	AWG	Strand.	Shield	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	Nom. O.D.	UL Style
8446	2 60°C - 150V	20	7/28 TC	100% Foil+ 58% TC Braid & Drain	78 Polyethylene Insulation. Conductors Cabled with Overall Foil Shield & Drain. Blue Vinyl Jacket. Color Code: Blue/Natural	66%	19.7	.242	2582
8450	2 60°C - 300V	20	7/28 TC	TC Braid 93%	78 Polyethylene Insulation. Conductors with TC Shield Overall. Blue Vinyl Jacket. Color Code: Blue/Natural	66%	19.7	.242	2092
8455	4 (2 Pr) 80°C - 300V Loop Cable - IBM 3600 Data Cable	22	7/30 TC	100% Foil Ea. Pair & Drain	— PVC Insulation. Each Pair with Drain & Individual Foil Shield. Pairs Parallel. Beige Jacket. Color Code: Black/Natural & Black/Yellow.	50	50	.175 x .280	2464



8453
8449



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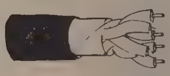

8448

Saxton No.	No. Cond.	AWG	Strand.	Shield	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	Nom. O.D.	UL Style
8449	4 (2 Pr.) 60°C - 150V Equiv. IBM 5165886	22	Solid TC	100% Foil+ 58% TC Braid & 22 AWG Drain	100 2 Twisted Pairs Cabled, Mylar Binder, Foil Shield & Drain. Overall Braid Shield. Black Vinyl Jacket. Color Code: Black/Yellow & Red/Blue.	66%	15.5	.290	2582
8453	4 (2 Pr.) 80°C - 300V Used for IBM 5250 & 5260 Equiv. IBM 1657265	22	Solid BC	100% Foil+ 58% TC Braid & 22 AWG Drain	66 2 Twisted Pairs Cabled, Mylar Binder, Foil Shield & Drain. Overall Braid Shield. Black Vinyl Jacket. Color Code: Orange/White-Orange Blue/White-Blue		15.5	.290	2919

TWIN-AXIAL

Saxton No.	Shield	No. Cond.	AWG	Strand.	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	Nom. O.D.	UL Style
8447	2 60°C - 300V	25	7/33 TC	100% Foil+ 7/30 TC Drain	124 2 Conductor Twisted Pair. Blue Vinyl Jacket. Color Code: Blue/Natural.	66%	12.2	.242	2092
8448	6 (3 Pr.) 60°C - 300V	25	7/33 TC	100% Foil+ 7/30 TC Drain Ea. Pair	124 Each Pair Individually Shielded with Drain. Pairs Cabled, Mylar Binder. Blue Vinyl Jacket. Color Code: Shields Color Coded - Blue/Red/Green.	66%	12.2	.450	2094

COLOR CODE CHARTS

CHART NO. 2 IPCEA COLOR CODE (Insulated Power Cable Engineers Association)

Cond	Color	Cond	Color
1st	Black	16th	Black/Red
2nd	White	17th	White/Red
3rd	Red	18th	Orange/Red
4th	Green	19th	Blue/Red
5th	Orange	20th	Red/Green
6th	Blue	21st	Orange/Green
7th	White/Black	22nd	Blk/Wht/Red
8th	Red/Black	23rd	Wht/Blk/Red
9th	Green/Black	24th	Red/Blk/Wht
10th	Orange/Black	25th	Grn/Blk/Wht
11th	Blue/Black	26th	Org/Blk/Wht
12th	Black/White	27th	Blue/Blk/Wht
13th	Red/White	28th	Blk/Red/Grn
14th	Green/White	29th	Wht/Red/Grn
15th	Blue/White	30th	Red/Blk/Grn

CHART NO. 3 PAIRED CABLES

Cond Pairs	Color Combination	Cond Pairs	Color Combination
1	Black paired with Red	15	Green paired with Blue
2	Black paired with White	16	Green paired with Yellow
3	Black paired with Green	17	Green paired with Brown
4	Black paired with Blue	18	Green paired with Orange
5	Black paired with Yellow	19	White paired with Blue
6	Black paired with Brown	20	White paired with Yellow
7	Black paired with Orange	21	White paired with Brown
8	Red paired with White	22	White paired with Orange
9	Red paired with Green	23	Blue paired with Yellow
10	Red paired with Blue	24	Blue paired with Brown
11	Red paired with Yellow	25	Blue paired with Orange
12	Red paired with Brown	26	Brown paired with Yellow
13	Red paired with Orange	27	Brown paired with Orange
14	Green paired with White		

CHART NO. 1 & 4

Cond	Color	Cond	Color
1	Black	16	White/Black
2	White	17	White/Red
3	Red	18	White/Green
4	Green	19	White/Yellow
5	Brown	20	White/Blue
6	Blue	21	White/Brown
7	Orange	22	White/Orange
8	Yellow	23	White/Gray
9	Violet	24	White/Violet
10	Gray	25	White/Blk/Red
11	Pink	26	White/Blk/Grn
12	Tan	27	White/Blk/Yellow
13	Red/Green	28	White/Blk/Blue
14	Red/Yellow	29	White/Blk/Brown
15	Red/Black	30	White/Blk/Orange

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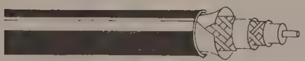
TRI-AXIAL



Poly foam dielectric
Bare copper braid shield
Polyethylene insulation
Bare copper braided shield
Black polyethylene jacket

Saxton No.	AWG	Dielectric O.D.	Shields	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	Nom. O.D.	Nom. Atten. MHz*	db**
RG59/U TYPE - DOUBLE SHIELD									
8423	20 solid BCW	FOAM .146	2 BC 96%	75	78% Black PE Jacket	17.3	.315	50 100 200 300 400	1.8 2.6 3.8 4.8 5.6
RG 11/U TYPE - DOUBLE SHIELD									
8424	14 solid BC	FOAM .285	2 BC 93%	75	78% Black PE Jacket	17.3	.475	50 100 200 300 400	1.0 1.5 2.2 2.8 3.3

PLENUM CABLES

HI-TEMPERATURE COAXIAL CABLES

SUBJECT 13
NON-CONDUIT

Saxton No.	RG Type	AWG Strand.	Dielectric O.D.	Shield	Jacket	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	UL
68332	59B/U	23 AWG .023 CW	Solid	95% BC	FPR .202	75	69%	19.5	725 Class 2
68463	62A/U	22 AWG .025 CW	FOAM .146	95% BC	FPR .210	93	85%	14.3	725 Class 2
68404	62A/U	22 AWG .025 CW	Air Space FEP	95%	FPR .210	93	69%	14.3	725 Class 2

HI-TEMPERATURE LOOP CABLES FPR - Fluoropolymer Resin

100 OHM
200°C
SUBJECT 13
NON-CONDUIT

Saxton No.	Pairs	AWG	Shield	Jacket	O.D.	Nom. Vel.	Vel. Cap.
68449	2	22 AWG Solid TC	100% Foil+ 58% TC Braid	Black FPR Color Code: Red/Blue - Yellow/Black	.274	69.5%	15.5
68453	2	22 AWG Solid BC	100% Foil+ 58% TC Braid	Black FPR Color Code: Blue/White Blue Stripe - Orange/White Orange Stripe	.274	69.5%	15.5

NETWORK CABLES

TRUNK CABLE

UL STYLE 1478 — 60°C — 30 VOLTS
External interconnection of electronic equipment.

Saxton No.	Type	AWG Strand.	Dielectric O.D.	Shields	Nom. O.D.	Nom. Imp.	Vel. Prop.	Nom. Cap/ft	Nom. Atten. MHz*	db**	UL
8458 Yellow PVC Jacket 60°C	Ethernet*	.0855 Solid TC	FOAM POLY .242	Foil Bonded to Dielectric +92% TC Braid +Foil +92% TC Braid	.242	50	78%	26	5 10	6.0 8.5	1478

* TM Xerox

NETWORK CABLES *CONTINUED*

TRANSCEIVER DROP CABLE

Eight conductors consisting of four individual shielded pairs plus 100% overall foil shield, braided shield and vinyl jacket.

80°C 300V. Entire cable passes VW1
UL Style 2384, CSA, SR PVC

Saxton No.	No. Cond.	AWG Strand.	Insulation	Shield	O.D.	UL Style
8461	4 Pair	3 Pair 22 AWG (7x30) 1 Pair 20 AWG (7x28)	Polyethylene Vinyl	Ea. Pair Indiv. 100% Foil Shield+ 100% Overall Foil Shield & TC Braid	.360	2384 SR-PVC

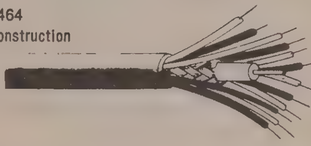
TERMINAL CABLE

Saxton No.	RG Type	AWG Strand.	Dielectric O.D.	Shield	Nom. O.D.	Nom. Imp.	Vel. Prop.	Nom. Atten. MHz	db	UL Style
8266	59B/U Dual Equiv. Wang Labs Part No. 420-0057	.023 Solid BCW	POLY .146	1 Bare Mil C 17	.242 x .505 Black PVC Jacket	75	66%	100 200 400 900	3.4 4.9 7.0 11.1	20063

CRT TERMINAL CABLES

E-26174

UL 2384, UL 2385 AND UL 2464
Controlled impedance, compact construction
Interconnect to CRT terminals
8440 - 4 Phase Systems
8441 - 4 Phase Systems
8444 - TI Systems 90



Saxton No.	No. Cond.	Description	Configuration	PVC Jacket Thick.	Nom. O.D.
8440 UL 2385	1 2 10	RG 62A/U Unjacketed UL 1061 - 18 AWG - 16/30 TC UL 1061 - 22 AWG - 7/30 TC 60°C - 30 Volts Color Code Chart 1	12 Conductors Cabled Around Coax, Mylar Binder Overall	Chrome Gray .063	.425
8441 UL 2384	1 1 14	RG 62A/U Unjacketed UL 1061- 16 AWG - 26/30 TC UL 1061 - 20 AWG-10/30 TC 60°C - 30 Volts Color Code Chart 2	15 Conductors Cabled Around Coax, Mylar Binder Overall	Chrome Gray .035	.430
8444 UL 2384	1 7	RG 59/U - 75 ohm 22 AWG B Center Cond. - Foam Dielectric - .125 Dia. - BC Braid - PVC Jacket UL 1061 - 26 AWG - 7/34 TC 60°C - 30 Volts Color Code: Yellow-Blue-Gray-Green-Purple-Natural-Orange	7 Conductors Cabled Around Coax, Mylar Binder Overall	Black .035	.310
8445 UL2384	1 12	RG 59/U - 75 ohm-Jacketed 22 AWG (7/30) Cented Cond. .146 O.D. Foam Dielectric 95% Braid - PVC Jacket UL 1497 - 20 AWG - 10/30 TC 60°C - 30 Volts Color Code Chart 2	12 Conductors Cabled Around Coax, Mylar Binder, 80% TC Shield	.040	.460
8268 UL 2384	1 5	RG 59/U - 75 ohm-Jacketed 22 AWG BCW Center Cond. .146 O.D. Poly Dielectric 95% TC Braid Mil C 17 Jacketed Pairs UL 1061-22 AWG-7/30 TC 60°C - 30 Volts Color Code Chart 3	5 Twisted Pairs Cabled Around Coax, Mylar Binder, 85% TC Shield	.035	.500

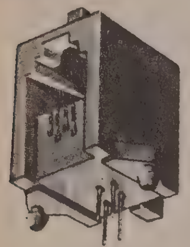
SHOGYO
INTERNATIONAL CORPORATION

DEPT. EM, 287 NORTHERN BOULEVARD
GREAT NECK, NEW YORK 11021
(516) 466-0911
CABLE: "SHOGYONEWYORK"
TELEX: 12218 + 4758024

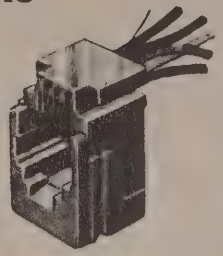
MODULAR TELEPHONE COUPLERS, PLUGS, ADAPTORS, JACKS, CORDS & CABLE ASSEMBLIES

The products illustrated and listed are only a small representation of the full range of items available.

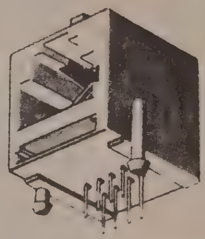
MODULAR JACKS



616 Type



623P4,6



641 Type

A full line of modular jacks with PC terminals or wire leads are available for OEM applications. Shogyo products are manufactured to the highest industry standards and conform to specifications of the leading OEMs.

CABLE & CORD ASSEMBLIES, COILED OR STRAIGHT — LINE, EXTENSION & HANDSET

Modular to Modular Line Cord — Modular line cord with modular plugs on each end.

Modular Plug with Spade Ended Cord — Modular line cord with modular plug on one end, four color-coded lugs on other end.

Modular Single Jack Extension Cord — Modular extension cord with modular plug on one end and modular single jack on the other end.

Modular Duplex Jack Extension Cord — Modular extension cord with modular plug on one end and a modular duplex jack on the other end.

Coiled Handset Cord — Modular plugs on both ends, fits all standard modular telephones.

ADAPTORS, COUPLERS, RETROFIT PLUGS

Modular Adaptor — Converts standard 4-prong jack to new modular jack.

Modular Duplex Adaptor — Converts single modular jack into dual modular jack.

Modular Duplex Adaptor 4 & 8 Wires — Permits quick connection of one telephone and one automatic dialing device to the same line without changing the existing installation.

Modular Inline Coupler — Allows two modular cords having modular plugs to be connected together to lengthen the line cord.

Modular Retrofit Plug — Adapts standard x-wire spade lug connections to modular plug.

Modular Triplex Adaptor — Serves as dual extension adapter. Permits the use of one telephone and one answering device or dialer in the same line.

JACKS, JACK PLATES

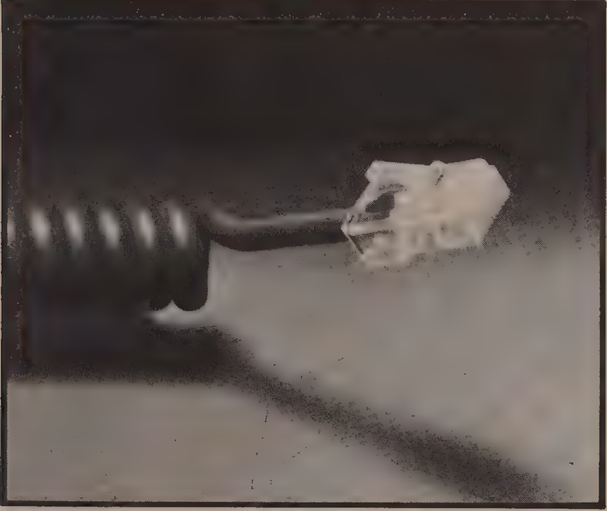
- Surface Mounted Jack
- Flush Mounted Jack
- Networks Interface Jack
- Protected Modular Jack
- Flush Mounted Modular Wall Jack Plate
- Modular Wall Jack
- Circular Modular Wall Jack,
- Modular Duplex Jack Wall Plate
- Modular Surface Jack
- Wall Phone Jack Assembly

SEE OUR OTHER CATALOG PAGES IN EEM SECTIONS 1300/2100/2450/2950/4750/5600

MODCOM-C® SHIELDED CORD SETS

VIRGINIA PLASTICS

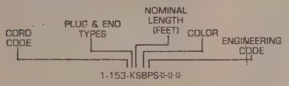
P.O. BOX 4577
ROANOKE, VIRGINIA 24015-0577
PHONE 703-985-3811
TWX 710-870-0440



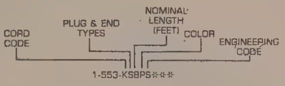
ORDERING PROCEDURE FOR CORD SETS

(1) SPECIFY CORD TYPE AND END TERMINATIONS.
(2) CALLOUT LENGTH AND OUTER JACK COLOR.
(3) SPECIFY STRAIN RELIEFS REQUIRED IF ANY.
(4) STATE CONDUCTOR TYPE AND SPECIFY WIRING SEQUENCE FROM TERMINATION TO TERMINATION.

TO ORDER STANDARD CORDS:
AN 8 FOOT FOUR CONDUCTOR CABLE WITH AN EIGHT POSITION KEYED PLUG ON ONE END AND A SIX POSITION LINE PLUG ON THE OTHER END IN SATIN COCOA BROWN.


CORD CODE
PLUG & END TYPES
NOMINAL LENGTH (FEET)
COLOR
ENGINEERING CODE
1-153-KS8PS***

TO ORDER COILED CORDS:
THE SECOND DIGIT OF THE STYLE CODE INDICATES A COILED CORD. IF IT IS A 5, CALL OUT OVER ALL LENGTHS OF BOTH PIGTAILS.


CORD CODE
PLUG & END TYPES
NOMINAL LENGTH (FEET)
COLOR
ENGINEERING CODE
1-553-KS8PS***

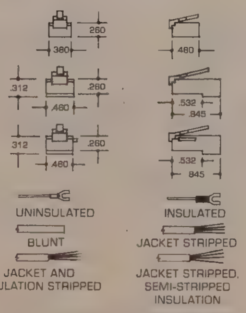
COLORS

NAME	SILVER PEARL (ONLY PVC)	SATIN IVORY	BLACK (ONLY PVC)	SATIN BLACK	SATIN COCOA BROWN
ORDERING CODE	**Z**	**AS**	**D**	**DS**	**PS**

OUTER JACKETS:

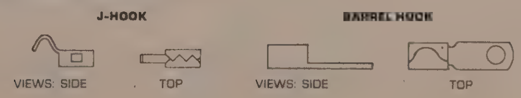
PVC or CPRE 75

END TERMINATIONS

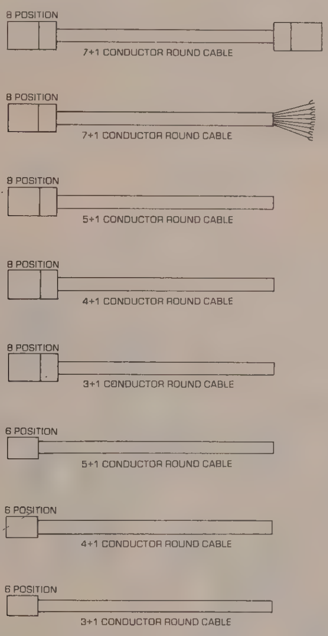

260
380
480
.312
.260
.460
.532
.845
312
.260
460
.532
845
UNINSULATED
INSULATED
BLUNT
JACKET STRIPPED
JACKET AND INSULATION STRIPPED
JACKET STRIPPED, SEMI-STRIPPED INSULATION

DESCRIPTION	CODE	PICTORIAL (IN INCHES)
SIX POSITION LINE	S	
EIGHT POSITION UNKEYED	U	
EIGHT POSITION KEYED	K	
SPADE TERMINAL	T	
BLUNT CUT	B	
SPECIAL TERMINALS	A	CONTACT FACTORY WITH REQUIREMENTS

STRAIN RELIEFS

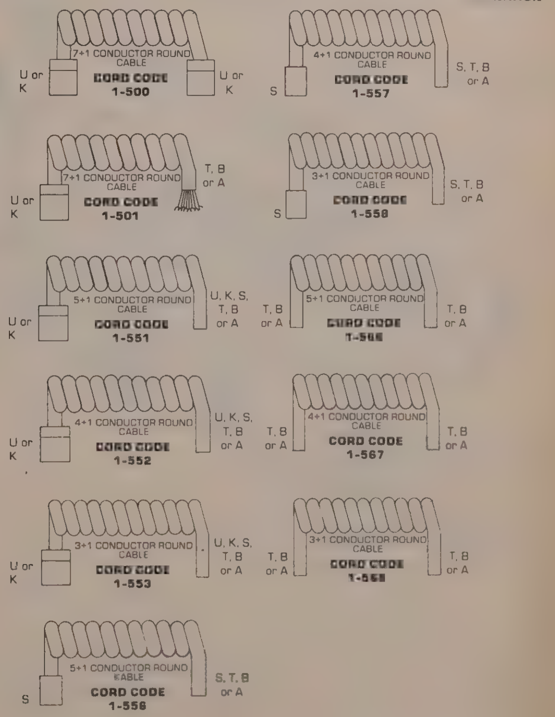

J-HOOK
VIEWS: SIDE
TOP
BARREL HOOK
VIEWS: SIDE
TOP

STRAIGHT CORDSETS:


8 POSITION
6 POSITION

END TERMINATION	CABLE	END TERMINATION	CORD CODE
U or K	8 POSITION 7+1 CONDUCTOR ROUND CABLE	U or K	1-100
U or K	8 POSITION 7+1 CONDUCTOR ROUND CABLE	T or B, A	1-101
U or K	8 POSITION 5+1 CONDUCTOR ROUND CABLE	U, K, S, T, B or A	1-151
U or K	8 POSITION 4+1 CONDUCTOR ROUND CABLE	U, K, S, T, B or A	1-152
U or K	8 POSITION 3+1 CONDUCTOR ROUND CABLE	U, K, S, T, B or A	1-153
S	6 POSITION 5+1 CONDUCTOR ROUND CABLE	S, T, B or A	1-156
S	6 POSITION 4+1 CONDUCTOR ROUND CABLE	S, T, B or A	1-157
S	6 POSITION 3+1 CONDUCTOR ROUND CABLE	S, T, B or A	1-158

COILED CORDSETS:



END TERMINATION	CABLE	CORD CODE	END TERMINATION
U or K	7+1 CONDUCTOR ROUND CABLE	1-500	U or K
S	4+1 CONDUCTOR ROUND CABLE	1-557	S, T, B or A
U or K	7+1 CONDUCTOR ROUND CABLE	1-501	T, B or A
S	3+1 CONDUCTOR ROUND CABLE	1-558	S, T, B or A
U or K	5+1 CONDUCTOR ROUND CABLE	1-551	U, K, S, T, B or A
T, B or A	5+1 CONDUCTOR ROUND CABLE	1-566	T, B or A
U or K	4+1 CONDUCTOR ROUND CABLE	1-552	U, K, S, T, B or A
T, B or A	4+1 CONDUCTOR ROUND CABLE	1-567	T, B or A
U or K	3+1 CONDUCTOR ROUND CABLE	1-553	U, K, S, T, B or A
T, B or A	3+1 CONDUCTOR ROUND CABLE	1-568	T, B or A
S	5+1 CONDUCTOR ROUND CABLE	1-556	S, T, B or A

NEED MORE INFORMATION?

USE ONE OF THE NEW

EEMEDIATE ACTION CARDS

INSIDE THE BACK COVER OF
VOLUMES 1A, 1B & 2

SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?

CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
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SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?
AVAILABILITY?
LOCAL SOURCE?
MIL SPECS?
CUSTOM?
COMPATIBILITY?
SPECS?
DRAWINGS?
LIFE TEST?
QUOTES?

EEMEDIATE ACTION CARDS

Use one of these cards to request more information about something you have seen in EEM. Fill out the card completely and, PLEASE!, print everything. Give the computer operator a break.

EEM will forward the card to the appropriate manufacturer and send you a replacement card.

EEMEDIATE ACTION CARD.....Use this card for more data!

From: (Your Name) ____________
Title ____________
Company ____________
Div. of ____________
Address ____________ Mail stop ____________
City ____________ State ________ Zip ________
Phone: Area code (______) ______-________ Exten. ________
I need more information about:
Mfr. ____________ EEM Pg. ______
Here's what I need ____________

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Company ____________
Div. of ____________
Address ____________ Mail stop ____________
City ____________ State ________ Zip ________
Phone: Area code (______) ______-________ Exten. ________
I need more information about:
Mfr. ____________ EEM Pg. ______
Here's what I need ____________

NO POSTAGE
NECESSARY IF
MAILED IN THE
UNITED STATES

BUSINESS REPLY CARD
FIRST CLASS PERMIT NO. 2209 GARDEN CITY, NY U.S.A.

POSTAGE WILL BE PAID BY ADDRESSEE
EEM/Electronic Engineers Master
Attn: EEMEDIATE ACTION DEPARTMENT
P.O. Box 730
Garden City, NY 11530

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FIRST CLASS PERMIT NO. 2209 GARDEN CITY, NY U.S.A.

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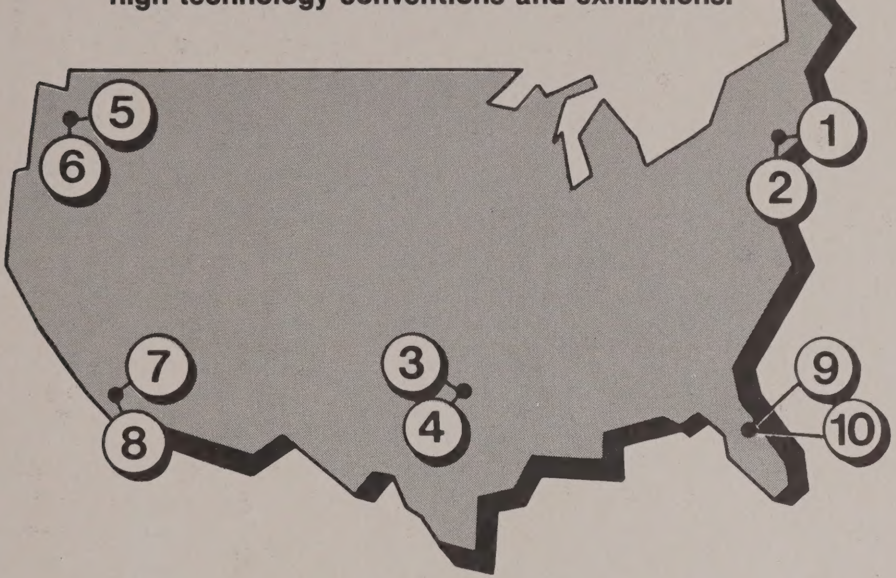

1	Electro	May 15, 16, 17 Bayside Exposition Center Hynes Veterans Auditorium Boston, Massachusetts
2	Mini/Micro Northeast	May 15, 16, 17 Hynes Veterans Auditorium Boston, Massachusetts
3	Midcon	September 11, 12, 13 Dallas Convention Center Dallas, Texas
4	Mini/Micro Southwest	September 11, 12, 13 Dallas Convention Center Dallas, Texas
5	Northcon	October 2, 3, 4 Seattle Coliseum Seattle Center Seattle, Washington
6	Mini/Micro Northwest	October 2, 3, 4 Seattle Coliseum Seattle Center Seattle, Washington
7	Wescon	October 30, 31, November 1, 2 Anaheim Convention Center Anaheim, California
8	Mini/Micro West	February 5, 6, 7, 1985 Anaheim Convention Center Anaheim, California
9	Southcon	March 5, 6, 7, 1985 Georgia World Congress Center Atlanta, Georgia
10	Mini/Micro Southeast	March 5, 6, 7, 1985 Georgia World Congress Center Atlanta, Georgia

For Additional Exhibitor or Registration Information, contact:

Electronic Conventions Management
Subsidiary of Electronic Conventions, Inc.
P.O. Box 92275, Worldway Postal Center, Los Angeles, CA 90009
Telephone: 213/772-2965 • Telex: 181350

For a better way, see your AMP Electronic Distributor.

Check the appropriate pages in EEM for the wide range of AMP connectors. For the name of the distributor nearest you, see the inside front cover (pages 1 and 2), as well as the appropriate product sections.

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DISTRIBUTOR
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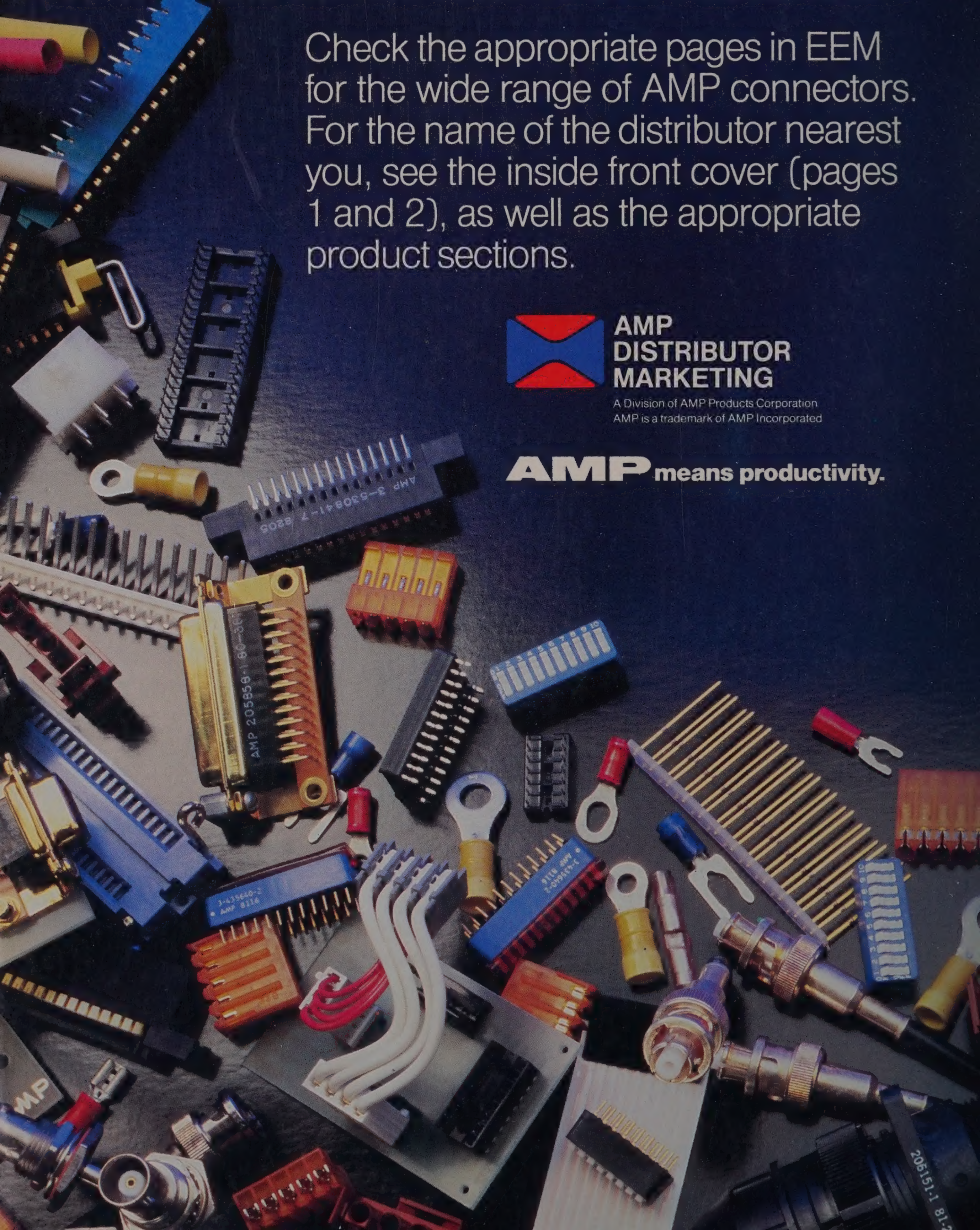

AMP 3-530841-7
8205
AMP 205858-1
3-435640-2
AMP 8116
AMP